Clovis Municipal Airport

Airport Master Plan

Prepared by:

KSA

In association with CDM Smith

AIRPORT MASTER PLAN

for

Clovis Municipal Airport
Clovis, New Mexico

Prepared for

City of Clovis, New Mexico

by

KSA, Inc.
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DRAFT FINAL

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Chapter ONE:

INVENTORY OF EXISTING CONDITIONS

1.1 INTRODUCTION

Clovis Municipal Airport (CVN) is an important transportation component of the National Airport System, as well as for eastern New Mexico, serving the City of Clovis and other surrounding communities. The Airport represents a vital and significant regional economic asset, supporting numerous aviation-related businesses and facilities. However, as economic conditions vacillate and the aviation industry evolves, it is critical that the Airport continue to be developed in a thoughtful, responsible and effective manner. As such, as stewards to this important transportation resource, the Clovis Municipal Airport Committee elected to conduct this Airport Master Plan effort to ensure that the Airport maintain and enhance its beneficial impacts on the community, the region and the state into the future.

This Airport Master Plan is intended to provide a comprehensive evaluation of CVN and result in a long-term facilities and operational plan for the Airport.

In its 54-year history, Clovis Municipal Airport has actually never conducted a full master planning effort, instead relying on shorter term planning efforts to meet the demands on the facility. For example, the most recent aviation planning document for Clovis Municipal Airport was the *Airport Action Plan* completed in 2006, which was specifically designed to focus on the extension of the Airport's primary runway. The Airport has also been party to several state and regional planning efforts such as the *New Mexico Airport System Plan Update 2009* that provide strategic level insights to the future of all area airports. Yet while both types of planning efforts provide valuable insights, short-term plans cannot account for long-term visions and goals, and strategic plans cannot provide the level of detailed analysis that an individual airport requires to project its long-term development goals.

An airport master plan properly conducted will focus on the total aviation facility and its environs, with the overall planning goal being the development of an aviation facility that can accommodate long-term future demands and that is not significantly constrained by its environs. The plan should account for the rapidly changing nature of the aviation industry, as well as local and regional conditions in order to facilitate an airport's long-term development vision. The plan must also effectively reflect the desires and the needs of the airport sponsor and the host community in which the facility resides and benefits. It must be understood that an airport master plan ultimately belongs to the airport and its community – it is a reflection of their long-term vision and goals.

This initial *Inventory of Existing Conditions* chapter will examine the basic elements involved with the existing and future development of Clovis Municipal Airport. As detailed in the Federal Aviation Advisory (FAA) Advisory Circular 150/5070-6B, *Airport Master Planning*, the first step in the master planning process is a

comprehensive inventory of existing conditions and facilities. An accurate and thorough inventory is a crucial starting point for all subsequent steps in the master planning process, from analysis to recommendations. The airport inventory for the Airport includes the following sections:

- An overview of the airport's location, ground accessibility, management, history, role within the region and nation, and economic impact.
- An inventory of all airside and landside facilities, including, but not limited to, runways, taxiways, apron facilities, NAVAIDS, hangars and other buildings, and parking.
- A discussion of the regional airspace in which Clovis Municipal Airport operates.
- An analysis of the airport's published instrument approaches
- An overview of operations and based aircraft at the airport.
- A discussion of the airport's regional setting within Clovis and Curry County, and in relation to Cannon Air Force Base.
- An inventory of the source documents referenced during the gathering of this inventory.

Additionally, the last section in this chapter identifies issues that could influence future activity and facilities at the Airport. Subsequent chapters will detail the Airport's forecasts of aviation activity, the ability of airport facilities to meet the needs associated with the projected aviation activity safely and efficiently; the compatibility of the Airport with surrounding land uses, and recommended future development within and around airport property.

1.2 OVERVIEW OF THE AIRPORT

This section provides an overview of Clovis Municipal Airport in terms of its general location, its management, its history, its defined roles within various airport systems, and its economic benefits for the community.

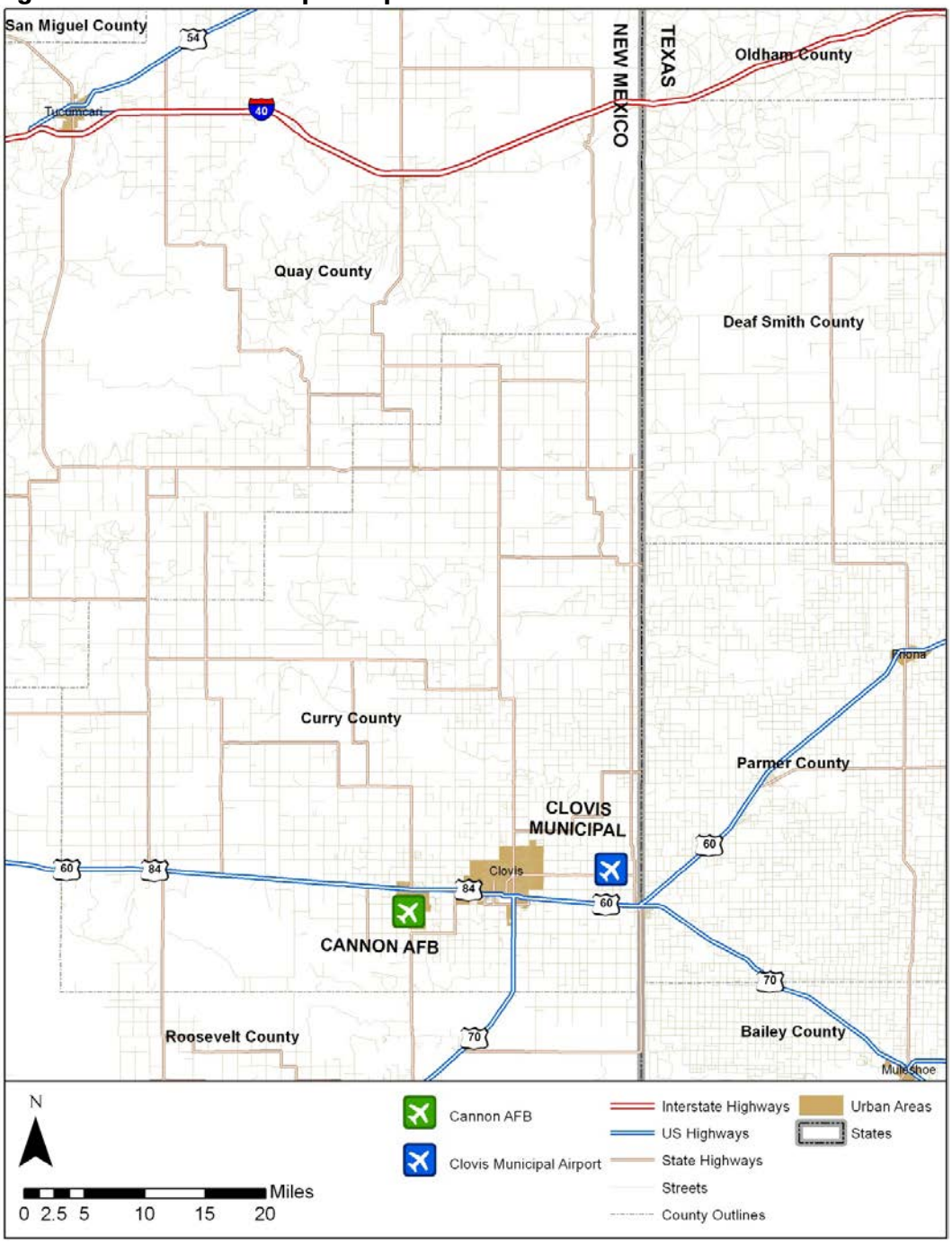
1.2.1 CVN Location

As shown on **Figure 1-1** and **Figure 1-2**, Clovis Municipal Airport is located approximately five miles east of the City of Clovis, New Mexico. on the eastern side of Curry County. Although owned and operated by the City, and located on City property, the Airport is actually outside of the city limits and surrounded by Curry County. The airport entrance is located less than three miles west of the New Mexico / Texas border. With respect to larger metropolitan areas, Albuquerque, New Mexico lies approximately 200 miles to the northwest of the Airport; Amarillo, Texas is approximately 90 to the northeast; and Lubbuck, Texas lies approximately 90 miles to the southeast. Those distances on roads and highways increase to 230 miles, 100 miles, and 97 miles, respectively.

Access Road to CVN

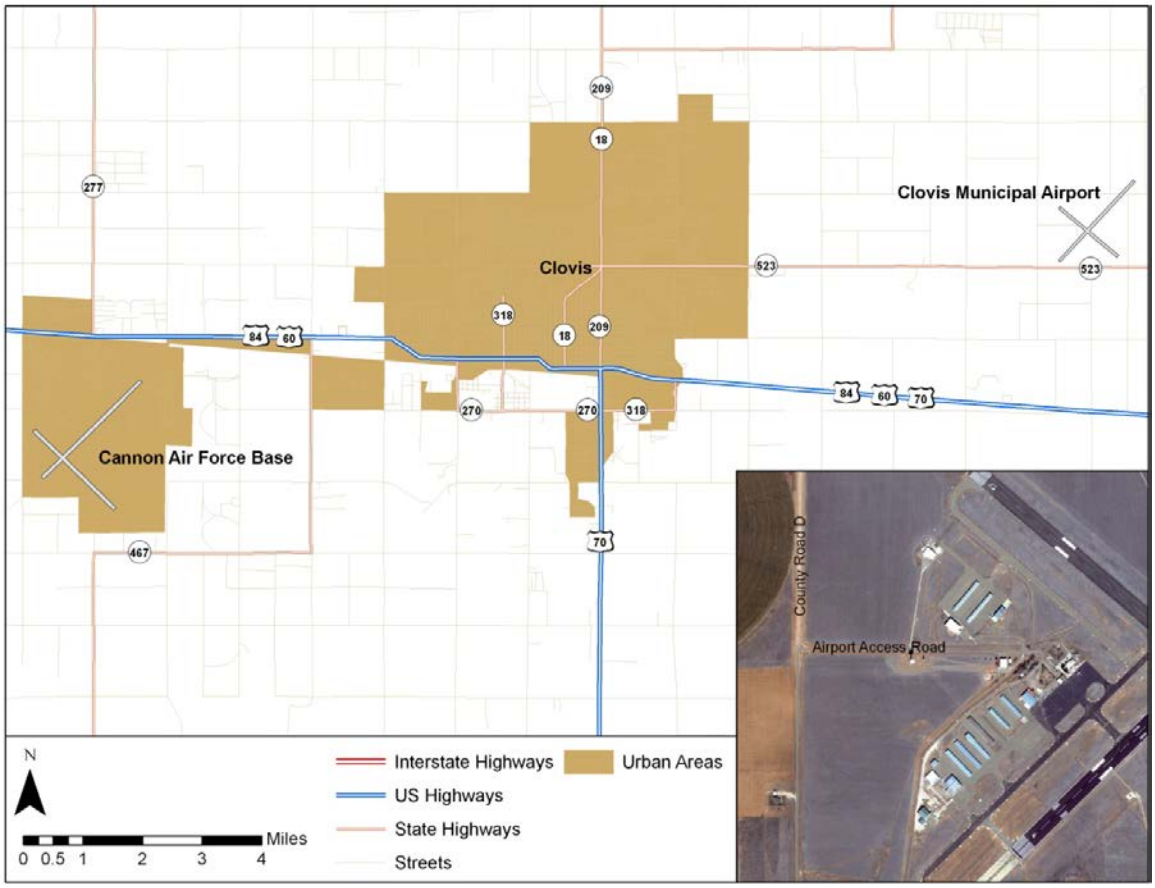
From the City of Clovis, the Airport is accessible via State Route 523 to County Road D to the airport entrance drive. This drive itself provides access to the airport landside and airside facilities, including the commercial passenger terminal, automobile parkint, the fixed base operators and all other current tenants. Access to State Highway 60/70/84 is less than three miles to the south. The closest interstate highway access is via Interstate 40, located approximately 65 miles north in Quay County, New Mexico.

Figure 1-1: Clovis Municipal Airport Location



Source: CDM Smith

Figure 1-2: Clovis Municipal Airport Location



Source: CDM Smith

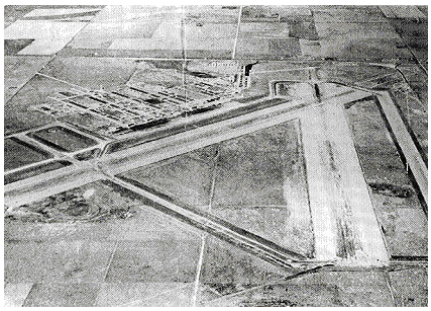
Curry County is located within the New Mexico Department of Transportation (NMDOT) District 2, which takes up a large portion of southeast New Mexico. While NMDOT has several projects in progress within District 2, most are pavement rehabilitation and preservation projects that will not have a direct impact on the accessibility of Clovis Municipal Airport.

1.2.2 CVN Sponsor and Management

Clovis Municipal Airport is owned and operated by the City of Clovis, New Mexico. The City employs a dedicated airport manager who is responsible for all operations, management, administration and marketing of the Airport. The airport manager currently manages a dedicated staff of two employees who are responsible for most airport maintenance activities. The airport manager reports to the Clovis Municipal Airport Committee, a seven-member body of local citizens that serves as the airport sponsor. That committee also reports directly to the City Commission. The airport is attended by management and staff daily from 8:00 AM to 5:30 PM.

1.2.3 CVN History

Clovis Municipal Airport originated out of the need to reactivate Clovis Air Force Field for to military use during the early stages of the Cold War. Clovis Air Force Field was actually established on the site of Portair Field, a civilian passenger facility built in the late 1920s as a terminal for early commercial transcontinental flights. (The airport site was selected by Charles Lindbergh on a visit to Clovis in 1928.) Portair Field was later renamed Clovis Municipal Airport during the 1930s.


Clovis Air Force Field in 1943

After the United States entered World War II, Clovis Municipal Airport was converted by the Army Air Corps to Clovis Army Air Base. The 302nd Bombardment Group arrived in 1943, and the base was renamed Clovis Army Airfield. Flying, bombing, and gunnery classes continued through the end of the war; however, the airfield was placed on reduced operation status by 1946 and was placed on temporarily inactive status by May 1947.

In February 1948, the Civil Aeronautics Board (CAB) authorized Pioneer Air Lines to extend its service between a terminal point in Amarillo, Texas, the intermediate points of Clovis (at Clovis Air Force Field), Roswell, Alamogordo and Las Cruces, New Mexico, and a terminal point in El Paso, Texas. However, at that same time, the new established U.S. Air Force had also initiated actions to reactivate the field. This conflict was ultimately resolved with the planning of a new municipal airport (the current Clovis Municipal Airport) and the reactivation of Clovis Air Force Field (which was renamed to Cannon Air Force Base).

In 1956, the site of the original Clovis Municipal Airport was transferred to the federal government in exchange for $175,000 that was used to match federal funds for acquiring land and constructing the new airport. Construction of Clovis Municipal Airport began in 1958 on an 800 acre plot of land east of Clovis. Airside facilities at this original facility included the original 6,200' northeast/southwest Runway 03/21 (later reconstructed as Runway 04/22), a north/south runway, parallel and connecting taxiways, and an aircraft apron. This original airport also included an access road, automobile parking area, terminal building and fencing, and lighting. The following year in 1959, the airport's first T-hangars were constructed – these are still in use today.

The 1960s saw a dramatic expansion of the airport's facilities. By 1969, a total of 34 hangar buildings (both clear span hangars and t-hangars) had been built on the airport. Specifically in 1969, the airport acquired land and avigation easements for clear zones and new projects, including a new crosswind northwest/southeast runway (now Runway 12/30) that was constructed along with parallel and connecting taxiways and installation of medium intensity runway lighting (MIRL).

The 1970s presented a period of modernization and reconstruction at Clovis Municipal Airport. In 1972, Runway 03/21 was reconstructed and equipped with

high intensity runway lighting (HIRL). At this time the airport also constructed full perimeter barbed wire fencing and chain link fencing around the terminal area. The airport acquired a fire and rescue vehicle in 1973 and constructed a fire station in 1975. The parallel taxiway and apron of Runway 03/21 was overlaid in 1976, and construction of a new service road begun. In 1977 the ramp and connecting taxiways for air carrier aircraft were reconstructed while a lighted wind cone was also installed. Finally, medium intensity taxiway lighting (MITL) was installed on Taxiway A, Runway 12/30 was given an overlay, the airport made improvements to its drainage system, and a new electrical vault and lighting controls were installed.

In 1980, a 19,000 square yard general aviation apron was constructed along with connecting taxiways and access road. In 1981 land was acquired for the displaced threshold of Runway 03. In 1983, the GA apron was expanded by an additional 12,000 square yards. 1985 saw the grooving of what had then become Runway 04/22, with an extension coming in 1986 along with drainage improvements and wind cones. Snow removal equipment (SRE) was purchased in 1987 while improvements were made to the SRE building. During 1988 and 1989, Runway 12/30 was grooved, MITL and taxiway signage were installed on Taxiway B, and several other pavement rehabilitation projects took place.


CVN in 1998

The 1990s saw similar rehabilitation and preservation projects as the 1980s, but also further modernization. In 1991, an 800 foot strip of Runway 04/22 was rehabilitated, as were some of the airport's taxiways. 1994 saw the rehabilitation of more of Runway 04/22, the installation of airport guidance signs, apron lighting, and an emergency power generator. The airport's AWOS weather reporting system was installed in 1995. In 1999 the airport's instrument approach was installed, and the terminal was both remodeled and expanded. Several other building and pavement rehabilitation projects took place in the latter years of the decade.

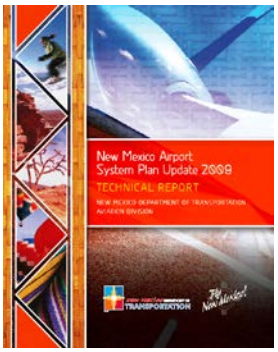
Regular pavement rehabilitation continued in the 2000s, when the airport's glide slope was also installed. In 2001, lands were acquired for instrument approaches, additional airport fencing and signage was constructed, and card access security was installed for the terminal area, ramp area, and T-hangar areas. In 2002, the airport installed runway end identifier lights (REIL) on Runway 12/30 while rehabilitating the edge lighting on both paved runways. From 2003 to 2005, larger apron rehabilitation projects, taxiway lighting repairs, and the construction of new hangar buildings were undertaken.

An extension of Runway 4/22 by 1,700 feet on the Runway 22 end began in December, 2010 and has since been completed, taking the full extent of Runway 4/22 to 7,200 feet. This extension allows the airport to accommodate larger commercial aircraft than was previously possible.

1.2.4 CVN System Roles

All airports play a variety of different functional roles and contribute at varying levels in meeting the transportation and economic needs on a national, regional, state and local level. Identifying and understanding the various roles that it plays is essential for any airport in a system in order for it to be developed with facilities and services appropriate to fulfilling its respective roles.

Clovis Municipal Airport plays a several roles with respect to defined airport systems.



- State Role: As defined in the *New Mexico Airport System Plan Update 2009* (NMASPU 2009), Clovis Municipal Airport's role is that of "Limited Commercial Service." The role includes airports that have commercial service but enplane less than 2,500 annual enplanements and are included in the FAA's Essential Air Service (EAS) program. Note that these airports still have a commercial role in serving passengers, but have high levels of general aviation activity and also serve larger populated communities in New Mexico.
- National Role - NPIAS: As defined in the FAA's *National Plan of Integrated Airport Systems (NPIAS) 2013-2017*, Clovis Municipal Airport's classification is that of "General Aviation." Inclusion in the NPIAS is a requirement for receiving federal funding through the Airport Improvement Program (AIP). (Note that EAS participation does not warrant "Nonprimary Commercial Service" status in the NPIAS.)
- National Role – Asset Study: As defined in the FAA's 2012 *General Aviation Airports: A National Asset* study, Clovis Municipal Airport is classified as a "Regional" general aviation airport, meaning that it "supports regional economies by connecting communities to statewide and interstate markets." It is one of 467 such airports across the country.

1.2.5 CVN Economic Impact

CVN generates an estimated $16.6 million in total economic output for the local area, including 231 jobs (both on and off the airport)

The NMASPU 2009 also included an economic impact component, detailing the economic benefits that each of New Mexico's 51 public use airports generates. The study demonstrated that Clovis Municipal Airport is a strong component of the local community and regional economies, as well as being an important part of the statewide economy. The study estimated both first round economic impacts, those generated by on-airport businesses, visitor expenditures, and airport construction, and secondary impacts, those generated when these first round impacts recirculate and "multiply" in the larger statewide economy. The study estimated that Clovis Municipal Airport is responsible for a total economic impact of 231 jobs (both on- and off-airport), totaling approximately $6.6 million in payroll, and resulting in $16.6 million in total economic output for the local economy.

1.2.6 Primary Airport Data

Table 1-1 below provides a summary of some of the important primary data elements for Clovis Municipal Airport. Note that the most recent Airport Layout Plan (ALP) was utilized as the source for much of the data.

Table 1-1: CVN Primary Data – Existing Conditions

Airport Name	Clovis Municipal Airport
FAA Designation	CVN
Associated Town	Clovis, NM
Airport Owner	City of Clovis, NM
Airport Sponsor	Clovis Municipal Airport Committee
Airport Management	Full-time Airport Manager
Date Established	1958 (est)
Airport Roles	NMASPU 2009: *Limited Commercial Service* FAA NPIAS: *General Aviation* FAA Asset Study: *Regional*
Commercial Air Service	Essential Air Service (EAS)[1]
Part 139 Classification	Class III
ARFF Index	A
Airport Acreage	1,540 acres
Airport Reference Point (ARP)	Latitude: 34°25'35.72"N Longitude: 103°04'39.29"W
Airport Elevation	4,216 Mean Sea Level (MSL)
Area Mean Max. Temp.	92° F

Source: CVN ALP 2012; CDM Smith.

[1] Essential Air Service is a federal subsidy program enacted to guarantee that selected small communities maintain a minimal level of commercial service.

1.2.7 Airport Services

Airports can provide a wide range of services in order to meet the varied demands of its individual market area. The following table provides a general listing of Clovis Municipal Airport's current range of services.

Table 1-2: CVN Airport Services – Existing Conditions

Service	Provider	Service	Provider
Commercial Air Service	Boutique Air[1]	General Aviation Terminal	BSA
Commercial Terminal	CVN	Pilots Lounge	BSA
Rental Cars	Hertz, Enterprise	Aircraft Charter	BSA
Aviation Fuel *(Jet-A, 100LL)*	BSA	Aircraft Leasing / Brokerage	BSA, D&D
Aircraft Parking - Based *(Tiedowns)*	BSA	Aircraft Rental	BSA
Aircraft Parking - Based *(Hangars)*	CVN, BSA	Flight Training	BSA
Aircraft Parking - Transient *(Tiedowns)*	BSA	Aircraft Interior Services	BSA
Aircraft Parking - Transient *(Hangars)*	BSA	Aircraft Detailing	BSA, D&D
Airframe Service	BSA, D&D	Aircraft Catering	BSA
Powerplant Service	BSA, D&D	Agricultural Spraying	Crop Dusters

Source: CVN ALP 2012; CDM Smith.

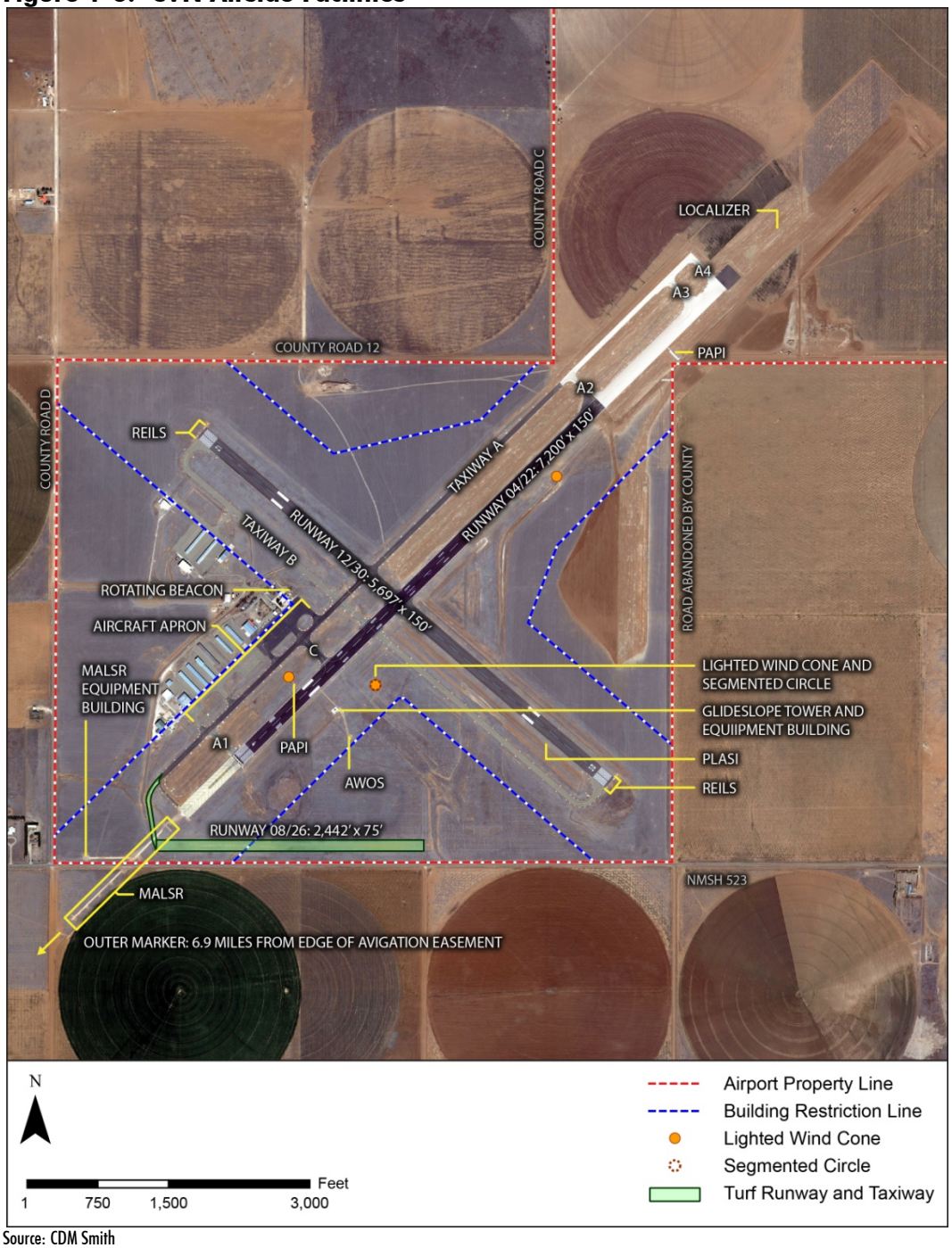
Service Providers Key: CVN = Clovis Municipal Airport; BSA = Blue Sky Aviation; D&D = D&D Aviation

[1] Commercial air service destination includes Dallas-Ft. Worth International Airport as of July 2014.

1.3 INVENTORY OF AIRSIDE FACILITIES

Clovis Municipal Airport supports aviation activity with two paved runways and one turf runway. The paved runways have full parallel taxiways and are supported by a number of visual and electronic approach aids. Figure 1-3 maps these airside facilities and the following sections provide additional details.

Figure 1-3: CVN Airside Facilities



Source: CDM Smith

1.3.1 CVN Runways

Clovis Municipal Airport has a total of three runways. Runway 4/22 is a 7,200 foot paved runway that is the Airport's primary runway. Runway 12/30 is the 5,697-foot paved crosswind runway. Runway 8/26 is the Airport's 2,442 foot turf runway. Traffic patterns for all three runways are standard left turn. Table 1-3 provides the current runway specifications.

Runway 4/22


Runway 4 Threshold

Runway 4/22 is oriented in a southwest-northest direction and is considered to be CVN's primary runway. Currently measuring 7,200 feet in length by 150 feet wide, the runway was recently extended 1,000 feet on the Runway 22 threshold end. Note that as part of that project, the Runway 4 threshold, which had been previously displaced 799 feet due to the proximity of NMSH 523, was formally relocated that same distance. (That relocation is now painted with standard chevrons.) Runway 4/22 is an asphalt runway equipped with a precision approach instrument landing system (ILS), a full approach lighting system (ALS), and a four-light precision approach path indicator (PAPI) system at the Runway 4 threshold end. The Runway 22 threshold end has a four-light visual approach slope indicator (VASI) and the entire runway has precision markings. Runway 4/22 is capable of serving all varieties of general aviation and commercial aircraft. The runway's full parallel taxiway is Taxiway A.

Note that as part of the recent extension project, the Runway 4 threshold end has been relocated 799 feet to the northeast. This had previously been a threshold displacement due to New Mexico State Highway 523. With the relocated runway end, there are no longer any identified obstructions to the Runway 4 precision approach. Additionally, the obstruction to Runway 22 as identified in the FAA 5010 Airport Record Form was cleared with the recent runway extension project. The clearance slope exceeds the required 34:1 slope for a nonprecision instrument runway, meaning that there are no obstructions on that runway approach.

Runway 12/30


Runway 30 Threshold

The crosswind runway, Runway 12/30, is oriented in a northwest-southeast direction and is 5,697 feet long by 150 feet wide. This asphalt runway is equipped with a VASI at the Runway 30 threshold end, runway end indicator lights (REILs) at both ends, and has non-precision runway markings. Taxiway B is the runway's full parallel taxiway.

According to the most recent FAA 5010 Airport Record Form, the nearest controlling obstructions to either runway approach are roads (County Road D for Runway 12 and New Mexico State Highway 523 for Runway

30). However, both clearance slopes exceed the required 34:1 slope for a nonprecision instrument runway and the 20:1 for a visual runway. This means that both runway approaches are currently clear of obstructions.

Runway 8/26

Runway 26 Threshold

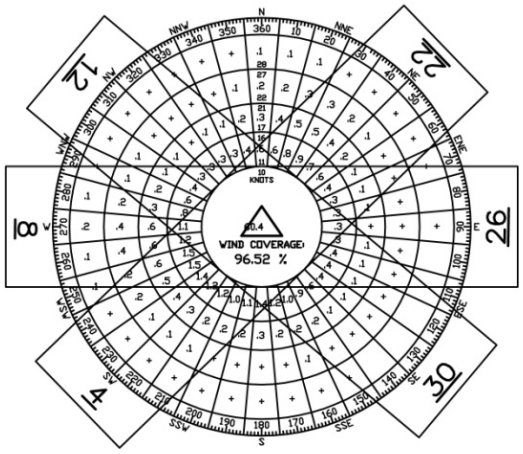
Oriented in an east-west direction, Runway 08/26 is the Airport's turf runway established at 2,442 feet long by 75 feet wide. The runway is connected by a turf taxiway extending from the end of Taxiway A, and runs east to west, parallel to New Mexico State Highway 523. The runway has reflectors to define its length and width.

According to the most recent FAA 5010 Airport Record Form, the nearest control obstruction for Runway 8 are powerlines and there is no controlling obstructions identified for Runway 26. The clearance slope for Runway 8 exceeds the required 20:1 slope for a visual runway. As such, both runway approaches are currently considered to be clear of obstructions.

Runway Wind Coverage

Figure 1-4 shows the all-weather wind rose for Clovis Municipal Airport taken from the 2012 ALP. The wind rose indicates that the Airport's current runway configuration is adequate to meet the wind coverage demands. The FAA recommends that an airport's runway configuration provides wind coverage during 95 percent of all possible weather conditions. The combined wind coverage provided by both paved runways ranges from 93.95 percent to 99.03 percent, depending on the wind speed. When factoring in all runways, including the turf runway, the combined wind coverage provided ranges from 96.52 percent to 99.52 percent, depending on wind speed. Additionally, the wind rose supports Runway 4/22 being the Airport's primary runway.

Figure 1-4: CVN Wind Rose



RUNWAY	12 MPH (10.5 KNOTS)	15 MPH (13 KNOTS)	18 MPH (16 KNOTS)
RUNWAY 4–22	84.57%	91.10%	96.33%
RUNWAY 12–30	75.02%	83.70%	92.08%
TURF RUNWAY 8–26	79.78%	87.22%	94.20%
COMBINED – 2 RUNWAYS RUNWAYS 4–22 & 12–30	93.95%	97.34%	99.03%
COMBINED – 3 RUNWAYS RUNWAYS 4–22, 12–30, 8–26	96.52%	98.60%	99.52%

△ =6.34% CALM 0–3 MPH (TOTAL WIND COVERAGE)

SOURCE:
NATIONAL CLIMATIC DATA CENTER
1995 – 2005
AWOS AT CLOVIS MUNICIPAL AIRPORT

Source: CVN ALP 2012

Table 1-3: CVN Runways – Existing Conditions

	Runway 4/22	Runway 12/30	Runway 8/26
Length and Width	7,200' x 150’	5,697' x 150'	2,442' x 75'
Bearing	45.60°/225.61°	130.46°/310.47°	90.05°/270.05°
Effective Gradient	0.3%±-	0.5%±-	0.25%±-
Surface Type	Asphalt	Asphalt	Turf
Surface Condition	Excellent	Good	Fair
Pavement Strength	SW 45,000 lbs DW 57,000 lbs	SW 42,000 lbs DW 50,000 lbs	- -
Threshold Displacement	799’ (RW4) -	- -	- -
Edge Lighting	MIRL	MIRL	-
Approach Lighting	MALSR (RW4)	-	-
Best Instrument Approach Type	ILS (RW4) RNAV (RW22)	- RNAV (RW30)	- -
Visual Glide Slope Indicator (VGSI)	PAPI (RW4) PAPI (RW22)	- PLASI (RW30)	- -
Other Approach Aids	Illuminated Wind Cone	Illuminated Wind Cone	RW Edge Reflectors
Runway Marking Type	Precision (RW4) Nonprecision (RW22)	Nonprecision (RW12) Nonprecision (RW30)	- -

Source: CVN ALP 2012; FAA Form 5010; CDM Smith.

1.3.2 CVN Helipad

There is no official helipad designated at the Airport. In practice, helicopter operators typically make their approach to one of the Airport’s parallel taxiways and then land on the main apron.

1.3.3 CVN Taxiways

The taxiway system at Clovis Municipal Airport is based on full parallel taxiways for both paved runways on the Airport. It also includes taxiway connectors between the runways and the parallel taxiways, as well as an unpaved stub taxiway for Runway 8/26 that provides access to the apron area. Both paved taxiways are equipped with full signage, medium intensity taxiway lighting (MITL), and taxiway centerlines. A description of the individual taxiways associated with each runway facility is presented in Table 1-4 below.

Taxiway A

Taxiway A is the taxiway associated with Runway 4/22. This taxiway is a full length, 60-foot wide parallel that is constructed of asphalt and has four connector taxiways (Taxiways A1, A2, A3, and A4) that link it to the runway. Taxiway A is located on the northside of Runway 4/22 and is separated from the runway by 440 feet (centerline to centerline). This taxiway provides direct access to the existing southern T-hangar and corporate hangar aprons south of the airport access road, as well as to the terminal apron. Taxiway A was also recently

extended as part of the Runway 4/22 extension project, making its length approximately 7,999 feet. Note that the southernmost segment of the taxiway was not deactivated with the relocation of the Runway 4 threshold. That part of the taxiway is still utilized to provide access to Runway 8/26. Also note that there is a single unpaved, unmarked taxiway that links Taxiway A with the turf Runway 8-26, crossing the Runway 4 approach end.

Taxiway B

Taxiway B is the taxiway associated with Runway 12/30. This taxiway is a full length, 60-foot wide parallel that is constructed of asphalt and provides access to the northern T-hangars and ramp areas north of the airport access road. Taxiway A is located on the southside of Runway 12/30 and is separated from the runway by 400 feet (centerline to centerline). It is 5,697 feet in length and was rehabilitated in 2005.

Taxiway C

Taxiway C is actually a taxiway connector associated with Runway 4/22 that provides direct access from the commercial service apron to the runway. It is an asphalt taxiway that is 60 feet wide and approximately 335 feet in length.

Table 1-4: CVN Taxiways – Existing Conditions

	Taxiway A	Taxiways A1, A2, A3 & A4	Taxiway B	Taxiway C
Associated Runway	Runway 4/22	Runway 4/22	Runway 12/30	Runway 4/22
Type	Full Parallel	Connectors	Full Parallel	Connector
Location	Northside	Northside	Southside	Southside
Length	7,999'	335’	5,697'	335’
Width	60'	60'	60'	60'
Runway-Taxiway Centerline Separation	440'	NA	400'	NA
Pavement Strength	SW 45,000 lbs DW 57,000 lbs	SW 45,000 lbs DW 57,000 lbs	SW 42,000 lbs DW 50,000 lbs	SW 45,000 lbs DW 57,000 lbs
Surface Condition				
Lighting	MITL	MITL	MITL	MITL

Source: CVN ALP 2012; FAA Form 5010; CDM Smith.

1.3.4 CVN Aprons

As shown on Figure 1-3, the main apron area at Clovis Municipal Airport is located adjacent to the primary T-hangar areas, FBOs, and commercial terminal building. In total (and including taxilanes), it is approximately 1,000 feet long and 240 wide near the terminal area (and approximately only 200 feet wide at its southern end). This apron has 19 marked aircraft tie-downs. Since all based aircraft at the Airport are located in hangars, these tie-downs are currently used only for transient aircraft. The southern portion of the apron pavement was

rehabilitated in 2003 and in good condition, while the apron immediately in front of the terminal building and the FBO is in poor condition. All aprons have pavement strength commensurate with the runways and taxiways.

There is also another smaller apron area located to the southwest next to one of the FBO's hangar. This apron measures approximately 200 feet by 130 feet, including taxilanes. It has no marked tiedowns, but is frequently used for helicopter parking by a based operator.

1.3.5 CVN Visual Landing Aids

Visual landing aids are also shown on Figure 1-3. Specifically, the Runway 4 threshold end is equipped with a Medium-intensity Approach Lighting System with Runway Alignment Indicator Lights (MALSR) and a Precision Approach Path Indicator (PAPI). Runway 22 has a 4-light Visual Approach Slope Indicator (VASI). Both ends of Runway 12/30 are equipped with Runway End Indicator Lights (REILs), although they are both currently indicated as being indefinitely inoperable. The Runway 30 threshold end has a Pulse Light Approach Slope Indicator (PLASI).

Wind Cone with Segmented Circle at CVN

The Airport has a rotating beacon located immediately north of the terminal building. Additionally, the Airport's primary lighted wind cone is located with the segmented circle, in the airport infield area, just south of the runway intersection. There are also a total of four additional wind cones on lighted poles, each located near a paved runway end.

1.3.6 CVN Weather Reporting Capabilities

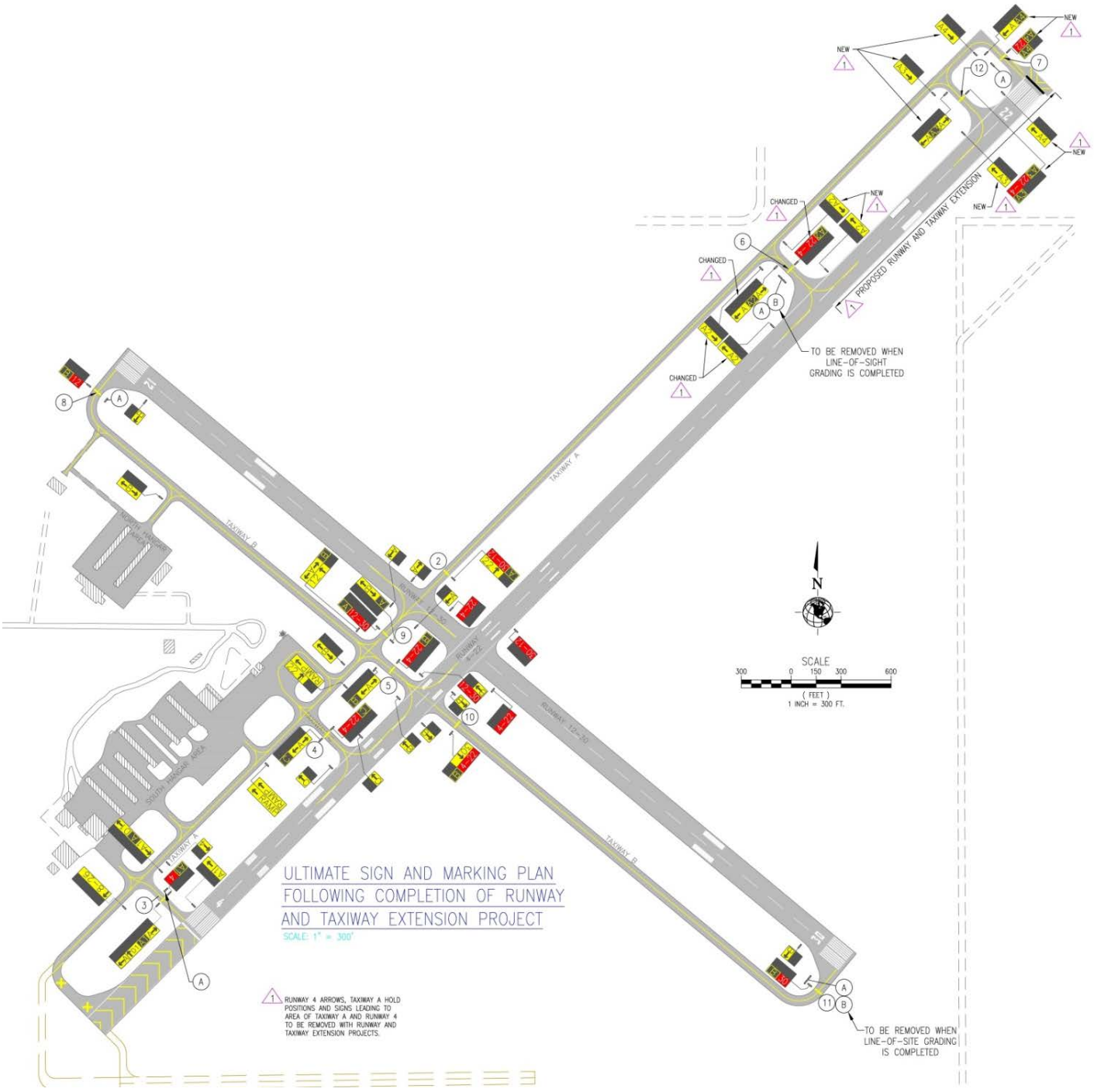
Clovis Municipal Airport has on-site weather reporting capabilities courtesy of an Automated Weather Observing System 3 (AWOS-3) that was installed approximately in 1985. A typical AWOS is capable of reporting wind speed, gust, and direction, temperature, dew point, altimeter setting, and density altitude. An AWOS-3 can also report visibility, precipitation, day/night, cloud height, and sky condition. The airport's AWOS-3 tower is located south of Runway 4/22, in the same approximate area as the segmented circle and glideslope tower. Weather updates are available to pilots via phone or VHF weather frequency. The radio frequency for the airport's AWOS-3 is 135.375 and can also be accessed via telephone (575-389-1056).

AWOS at CVN

1.3.7 CVN Airfield Signage and Markings

The Clovis Municipal Airport Signage / Marking Plan (see **Figure 1-5** below) was updated in 2010 to account for the Runway 4/22 and Taxiway A extensions. The plan laid out a full taxiway signage system, as well as centerline markings on both parallel taxiways and all connectors. Taxiway signage is utilized to direct aircraft operators to and from runways in the safest, most efficient manner possible.

Figure 1-5: CVN Airfield Signage and Marking Plan

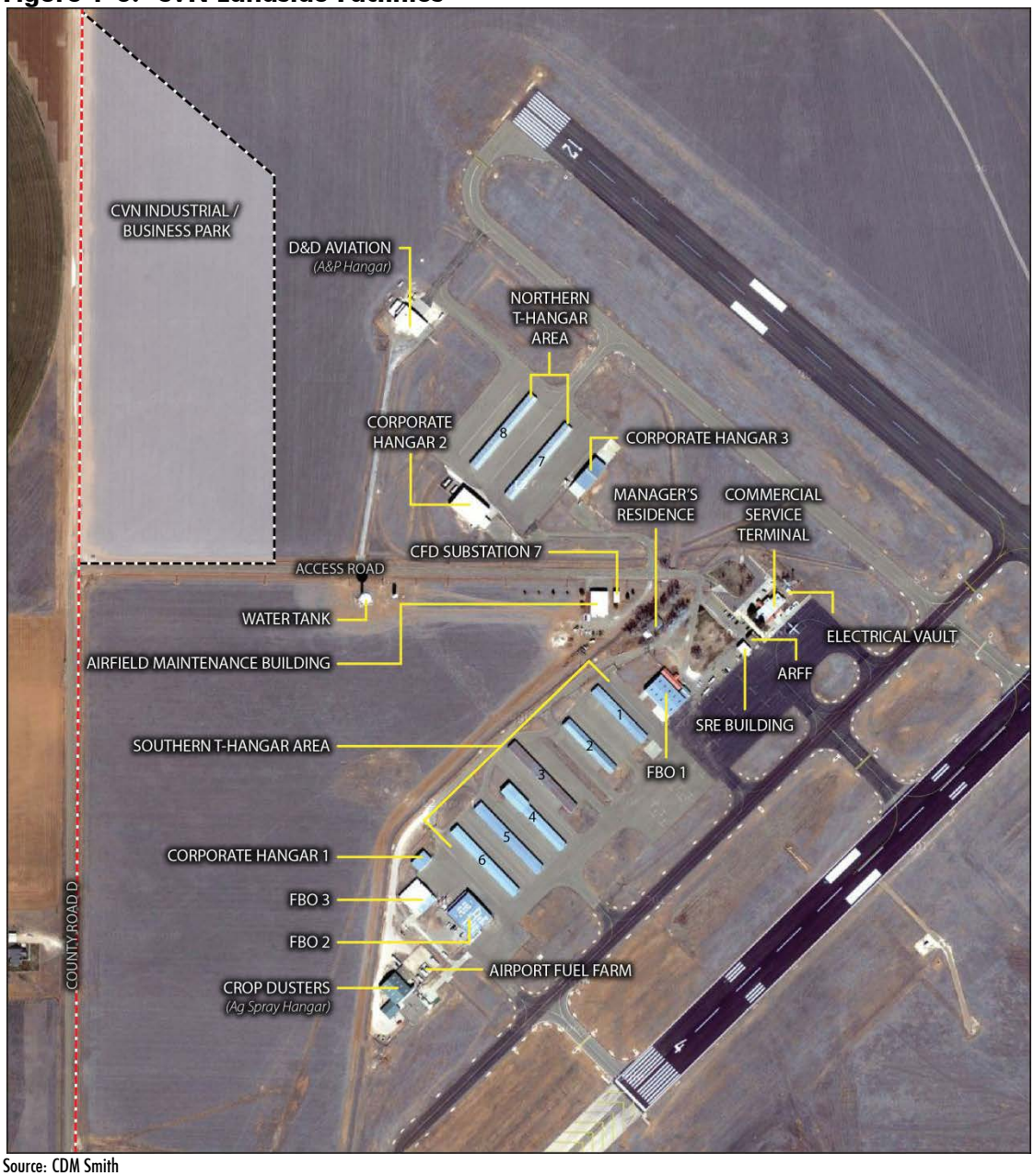


Source: W&H Pacific, 2010.

1.4 INVENTORY OF LANDSIDE FACILITIES

The primary landside development areas at the Airport consist of a linear layout, running southwest to northeast along the west side of Runway 4/22. There is additional development running northwest to southeast along the south side of Runway 12/30. These development areas include FBO facilities, maintenance hangar facilities, aircraft parking aprons, general aviation aircraft storage hangars, fuel storage facilities, and access roadways. The following sections describe the landside facilities at Clovis Municipal Airport. They are also reflected graphically below in Figure 1-6.

Figure 1-6: CVN Landside Facilities



Source: CDM Smith

1.4.1 CVN Buildings

All of the airport's landside buildings are located in the western airport infield area, between Runway 4/22 and Runway 12/30. These buildings are accessible via the airport access road and various drives and connecting roads. Taxiways A and B connect these buildings to the airport's paved runways.

Aircraft Hangar Facilities

CVN Corporate & T-Hangars

CVN-owned T-Hangars

CVN FBO (Blue Sky Aviation)

CVN Ag Spraying Hangar

Hangar facilities at Clovis Municipal Airport include a total of eight banks of T-hangars and eight conventional hangars of various sizes. There are six T-hangar banks located on the southern ramp along the main apron area on the Runway 4/22 flightline. The two newest T-hangar structures on the Airport are located on the northern ramp area, along the Runway 12/30 flightline. All T-hangars on the Airport are designed to accommodate single-engine aircraft, except for two units in T-hangar Building 4 on the south ramp that are "cabin class" units capable of housing twin-engine aircraft. In total, there are 74 T-hangar units at the Airport of which all of which are occupied. (There are several T-hangar units that are vacant due to building maintenance issues.) Note that all based aircraft at the Airport are located in a hangar and there is currently a waiting list of over 40 for hangar space.

The airport's inventory of conventional or clear span hangars consists of three owned and used by fixed base operator (FBO) Blue Sky Aviation, and an additional five for commercial and corporate use. These hangars are all privated owned with ground leases held by the City. A listing of the Airport hangars is provided below in Table 1-5, and they are also reflected above in Figure 1-6.

Table 1-5: CVN Hangars – Existing Conditions

Building ID	Building Type	Ownership	Number of Units	Hangar Size (ft) [1]	Hangar Area (sf) [1]	Condition/ Status
1	T-Hangar	Sponsor	8	35 x 250	8,750	Poor
2	T-Hangar	Sponsor	8	35 x 240	8,400	Poor
3	T-Hangar	Sponsor	10	35 x 315	11,025	Fair
4	T-Hangar	Sponsor	8	35 x 295	10,325	Fair
5	T-Hangar	Sponsor	10	35 x 315	11,025	Fair
6	T-Hangar	Sponsor	10	35 x 315	11,025	Fair
7	T-Hangar	Private	10	35 x 327	11,445	Good
8	T-Hangar	Private	10	35 x 327	11,445	Good
FBO 1	Commercial	Private	1	80 x 125	10,000	Good
FBO 2	Commercial	Private	1	100 x 120	12,000	Fair
FBO 3	Commercial	Private	1	90 x 100	9,000	Fair
Ag Spray	Commercial	Private	1	75 x 85	6,375	Good
A&P	Commercial	Private	1	60 x 100	6,000	Good
Corporate 1	Corporate	Private	1	40 x 60	2,400	Fair
Corporate 2	Corporate	Private	1	80 x 120	9,600	Good
Corporate 3	Corporate	Private	1	50 x 110	5,500	Good

Source: CVN; CDM Smith.
[1]Hangar measurements and sizing are based solely on space utilized for aircraft storage. They do not account for office space or additional structures attached to the basic hangar unit.

Commercial Service Terminal

The airport's terminal building is located centrally on the airfield, directly accessible via the airport access road and abutting the main apron area. The original building was estimated to be constructed in 1958, with a significant renovation occurring in 1999. The 5,300 square foot facility includes commercial airline facilities such as a lobby, passenger gate area, ticketing counters, and airline offices. The terminal also includes Enterprise Car Rental and Hertz Rent-a-Car locations, a conference room, restrooms, and a radio room. A thorough assessment of the airport terminal building is presented in Appendix C. Also note that the airport electrical vault and backup electrical generator are located to the immediate north of the terminal.

Airfield Maintenance Building

The airfield maintenance building is a 60 foot by 80 foot (4,800 square feet) facility located on the airport access road entering the Airport. The building and adjacent areas contain all airfield maintenance equipment, as well as facilities to maintain that equipment. The building also houses the airport manager's office and airport employee support facilities (e.g. locker room, conference room/lunch room, etc.)

Airport Rescue and Firefighting Facilities (ARFF)

Airports providing FAR Part 139 air carrier operations are required to have Airport Rescue and Firefighting (ARFF) facilities. The CVN ARFF building is approximately 1,340 square feet and is located adjacent to the terminal, abutting the main apron area. It houses the Airport's fire truck and provides appropriate fire personnel support space. This central position allows any emergency operations to provide a rapid response. Note that a Clovis Fire Department (CFD) substation is also located on the airport, but it is not directly associated with ARFF activities.

CFD Substation 7

The Clovis Fire Department (CFD) currently operates one main station and seven substations that are strategically located to serve the City of Clovis and Curry County. One of these substations (CFD Station 7) is located on the Airport, immediately south of the Airfield Maintenance Building on the airport access drive. It is a 20 foot by 40 foot building (800 square feet) that contains a city fire truck. It should be noted that this facility is not directly associated with the Airport's ARFF, although in an emergency situation, the CFD would likely be utilized to support the ARFF.

Snow Removal Equipment Building (SRE)

Clovis Municipal Airport's Snow Removal Equipment (SRE) building is a 30 foot by 40 foot (1,200 square feet) facility located adjacent to the ARFF building, abutting the main apron area. This central position allows to easy access to the airfield. The building accommodates the Airport's snow plow and supporting materials and equipment.

Airport Manager Residence

The Airport has a residence located on the property that is intended to accommodate the airport manager. This 30 foot by 60 foot (1,800 square feet) house is located off of the airport access drive, between the airfield maintenance facility and the terminal building. If the airport manager declines to use the residence, the Airport will lease it out. Currently, the house is leased to a City of Clovis police officer who also provides airport security.

1.4.2 Other CVN Facilities and Assets

Aircraft Fueling Facilities

The airport's FBO, Blue Sky Aviation, offers 100LL Avgas and Jet-A fuel for aircraft operators. The airport's fuel farm is located off the southwest end of the main apron area, immediately north of an agricultural sprayer tenant hangar. The farm is made available for use by the Airport, but the fuel tanks are privately owned (two by the current FBO, one was owned by a former FBO, and one by the agricultural spraying operation). This fuel farm has a total capacity of 30,000 gallons each for Avgas and Jet A. A corporate tenant on the north ramp also operates its own fuel farm next to its hangar. This farm has two 12,000 gallon (estimated) tanks, one for 100LL and the other for Jet-A. Both fuel farms have appropriate security and safety measures including fencing, detention basins, etc. and all fuel tanks are located above ground.

CVN Fuel Farm

Airport Security

The Airport has a complete perimeter fencing surrounding the airport property boundary with the exception of a small parcel in the Runway 4 approach that is owned by the airport, but located outside the fence line. Chain link fencing is located around the building areas to enhance security and deter visitors from inadvertently entering aircraft operation areas. This includes the T-hangar, terminal, and ramp areas. This fencing was largely installed in 2001 and is in good condition. The remainder of the Airport is fenced with barbed wire, which was utilized anywhere people could easily drive around chain link to access the airport. Also note that there are a number of gates associated with the fencing. Most of these are chained and padlocked, but there are two gates with card readers located in the terminal area – one that provides tenants access to the north ramp area, and one that provides tenants access to the south ramp area.

CVN Security Gate

Clovis Municipal Airport does not have a paved perimeter road, but there are dirt roads on the airport infield which are utilized by airport vehicles to conduct maintenance operations and security inspections. Area lighting around the terminal, hangars, FBO facilities, and aircraft apron areas is also employed to enhance security. The Airport also relies on local law enforcement officials to provide regular patrols on and around the facility.

CVN Barbed Wire Perimeter Fencing

Automobile Parking

CVN Terminal Area Parking

Automobile parking is available at the airport terminal building, FBO facilities, and in the hangar areas. Specifically, the terminal building has approximately 32 paved parking spots immediately in front of the facility as part of the loop road, as well as an additional estimated 32 unpaved spots just to the south. The FBO has an estimated 20 paved parking spots available near its primary hangar, in addition to other unmarked areas that could be utilized as parking overflow. There is no designated parking for T-hangar users, with most tenants apparently parking in their hangar when using their aircraft. The corporate hangars on the north ramp both have marked parking areas with each having approximately 14 paved spots. All other hangars have generally defined areas available for parking, but they are neither paved nor marked.

Airport Equipment and Vehicles


CVN Oshkosh Snow Plow

Clovis Municipal Airport currently has an inventory of eleven vehicles that are utilized for various airfield needs and are listed below in Table 1-6 with their year of manufacture. Included are a fire truck, fuel truck, snow plow, sweeper, two mowers, and several other trucks.

Table 1-6: CVN Airport Vehicles – Existing Conditions

Vehicle	Year
Loadstar Fire Truck	1974
Half Ton Chevrolet Truck	1985
Internlt Fuel Truck	1972
Ford Stakebed	1982
GMC Bucket Truck	1978
Ford ¾ Ton 250 4x4	1995
Dodge Durango	2004
Oshkosh Snow Plow	1988
Ford Sweeper	1995
John Deere 4430	1975
John Deere 4430	1976

Source: CVN; CDM Smith.

Utilities

Through various providers, Clovis Municipal Airport has access to full utilities. Table 1-7 lists the current on-airport utilities, including their service providers. The City of Clovis provides water, sewer, and emergency power services, but the facilities are located on-site. The airport has a well and pumping system for its water, an on-site septic system for sewer, and an on-site generator for emergency backup power.

CVN Water Tower

Table 1-7: CVN Utilities – Existing Conditions

Utility	Service Provider
Internet	Qwest/ENMR
Electric	Farmers Electric
Emergency Power	City of Clovis *(on-airport generator)*
Fiber Optics	*NA*
Natural Gas	New Mexico Gas Company
Sewer (Septic)	City of Clovis[2]
Stormwater	*NA*
Telephone	Qwest/ENMR
Water	City of Clovis[1]

Source: CVN; CDM Smith.
[1] Airport has its own well and pumping system.
[2] Airport facilities have their own septic system.

CVN Emergency Generator

Because of the Airport's locale, it is also important to note that the City of Clovis also owns the water rights for the Clovis Municipal Airport. It allows for the Airport to pump its own water without having to rely on a city water line. Either maintaining those water rights or ultimately linking up with the city's water supply will be critical to support future activities and development at the Airport.

CVN Industrial/Business Park

Clovis Municipal Airport has approximately 60 acres of airport land designated for the future development of an industrial or business park. Located on the west side of the Airport, this site remains undeveloped. It should also be noted that the City of Clovis is actively developing and promoting the Clovis Industrial Park, a 240-acre park within the city limits. As such, available City resources are currently being applied to that initiative.

1.5 NAVIGATION AND AIRSPACE

Clovis Municipal Airport operates within the larger National Aviation System (NAS), which is comprised of a wide array of services, systems and requirements for airports as well as for the pilots that function within it. The following sections provide an overview of some of the Airport's key considerations with respect to navigating and operating within the NAS including a review of the following elements as they are related to Clovis Municipal Airport:

- Air Traffic Service Areas and Aviation Communications,
- the National Airspace System,
- Navigational Aids, and
- Part 77 Airspace Surfaces.

Air Traffic Service Areas and Aviation Communications

Within the continental United States, there are some 22 geographic areas that are under Air Traffic Control (ATC) jurisdiction. Air traffic services within each area are provided by air traffic controllers in Air Route Traffic Control Centers (ARTCCs). The ARTCCs provide air traffic service to aircraft operating on Instrument Flight Rules (IFR) flight plans within controlled airspace, and primarily during the en route phase of flight. Those aircraft operating under Visual Flight Rules (VFR) that depend primarily on the "see and avoid" principle for separation, may also contact the ARTCC or other airport traffic control (ATC) services to request traffic advisory services. Traffic advisory service is used to alert pilots of other air traffic known in the vicinity of, or within the flight path of, the aircraft. The airspace overlying Clovis Municipal Airport is contained within the Albuquerque ARTCC jurisdiction, which also covers airspace over most of Arizona and New Mexico, as well as parts of California, Colorado, Oklahoma, and Texas.

Aircraft that are approaching or departing an airport are also subject to airspace and air traffic control that is designed to serve one primary purpose - the safe separation of one aircraft from another. At Clovis Municipal Airport, clearance delivery, approach and departure services are actually provided by the Cannon Air Force Base (CAFB) Air Traffic Control Tower (ATCT). This is due to CAFB's close proximity and that it is always in operation.

The primary means of controlling aircraft employed by air traffic controllers is computerized radar systems that are supplemented with two-way radio communications. Altitude assignments, speed adjustments, and radar vectors are examples of techniques used by controllers to ensure that aircraft maintain proper separation. The specified lateral and vertical separation criterion for aircraft used by controllers is as follows:

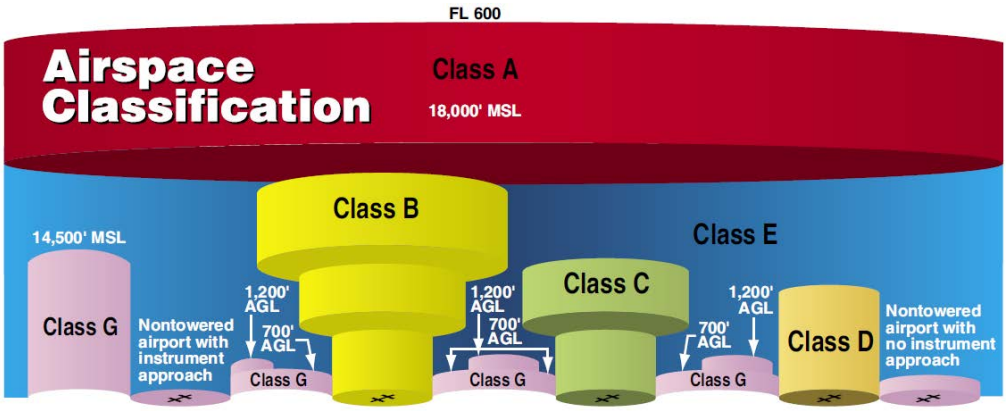
- Lateral Aircraft Separation: three miles (radar environment)
- Lateral Aircraft Separation: five miles (non-radar environment)
- Vertical Aircraft Separation: 1,000 feet (below 29,000 feet) and 2,000 feet (29,000 feet and above)

Clovis Municipal Airport can be found on the Albuquerque sectional aeronautical chart. Aviation communication facilities associated with the Airport include an Aeronautical Advisory Station (UNICOM) and Common Traffic Advisory Frequency (CTAF) on frequency 122.8, Cannon Clearance Delivery on frequency 119.0, Cannon Approach on frequency 125.05/352.1, and Departure on frequency 125.05/307.175.

National Airspace System

To ensure a safe and efficient airspace environment for all aspects of aviation, the FAA has established an airspace structure through the Federal Aviation Regulations (FAR) that regulates and establishes procedures for aircraft that use the National Airspace System (NAS). This airspace structure essential provides for two basic categories of airspace: controlled (classified as Class A, B, C, D, and E) and uncontrolled (classified as Class G). (Figure 1-7 below generally illustrates each airspace type.)

Figure 1-7: Airspace Classifications Illustration



Source: FAA Pilot's Handbook of Aeronautical Knowledge

Further, FAR Part 71 and FAR Part 73 establish these classifications of airspace with the following characteristics:

- Class A airspace is generally the airspace from 18,000 feet mean sea level (MSL) up to Flight Level 600 (approximately 60,000 feet MSL). Unless otherwise authorized, all operation in Class A airspace is conducted under instrument flight rules (IFR).
- Class B airspace is generally airspace from the surface to 10,000 feet MSL surrounding the nation's busiest airports in terms of airport operations or passenger enplanements. An ATC clearance is required for all aircraft to operate in the area, and all aircraft that are so cleared receive separation services within the airspace.
- Class C airspace is generally airspace from the surface to 4,000 feet above the airport elevation (charted in MSL) surrounding those airports that have an operational control tower, are serviced by a radar approach

control, and have a certain number of IFR operations or passenger enplanements. Each aircraft must establish two-way radio communications with the ATC facility providing air traffic services prior to entering the airspace and thereafter maintain those communications while within the airspace.

- Class D airspace is generally airspace from the surface to 2,500 feet above the airport elevation (charted in MSL) surrounding those airports that have an operational control tower. Unless otherwise authorized, each aircraft must establish two-way radio communications with the ATC facility providing air traffic services prior to entering the airspace and thereafter maintain those communications while in the airspace.
- If the airspace is not Class A, B, C, or D, and is controlled airspace, then it is Class E airspace. Class E airspace extends upward from either the surface or a designated altitude to the overlying or adjacent controlled airspace. Only aircraft operating under IFR are required to be in contact with air traffic control when operating within Class E airspace.
- Class G or uncontrolled airspace is the portion of the airspace that has not been designated with any of the above classifications. It extends from the surface to the base of the overlying Class E airspace. Although ATC has no authority or responsibility to control air traffic, pilots must still abide by visual flight rules (VFR) minimums in Class G airspace.

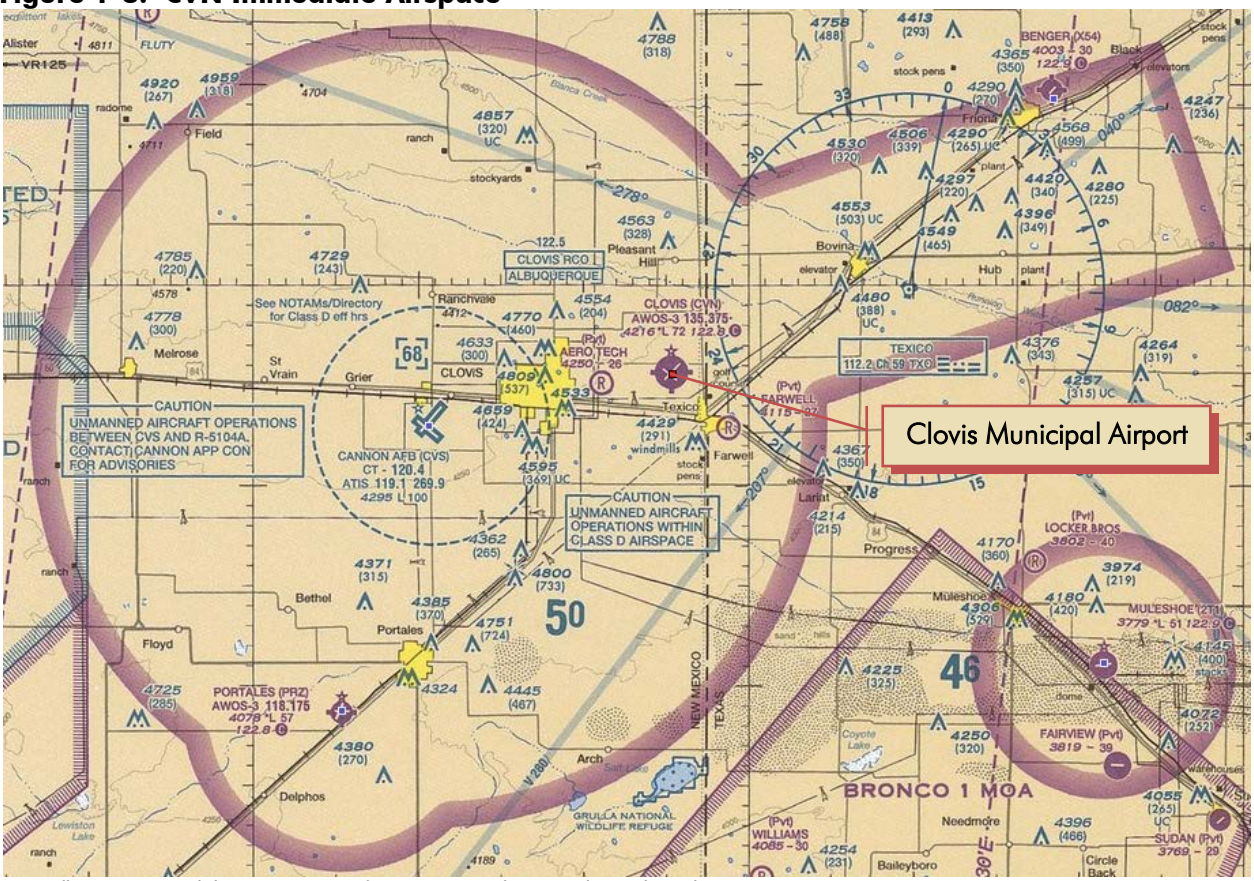
Clovis Municipal Airport lies within Class E airspace that is configured to contain all instrument procedures associated with CVN, as well as Cannon Air Force Base (CAFB) and Portales Municipal Airport (PRZ). The floor of this Class E airspace is established at 700 feet above ground level (AGL) and extends up to but not including 18,000 feet MSL. **Figure 1-8** shows a portion of the sectional aeronautical chart published by the FAA's National Aeronautical Charting Office for the immediate regional airspace around Clovis Municipal Airport. The magenta line indicates the limits of the Class E airspace. Note that unless otherwise indicated, the airspace outside of the Class E airspace are classified as Class G or uncontrolled.

It should also be noted that there are multiple special use airspace areas located near Clovis Municipal Airport. Special use airspace is the designation for airspace in which certain activities must be confined, or where limitations may be imposed on aircraft operations that are not part of those activities. Within the Airport's regional airspace, the following special use areas are present:

- Restricted Areas – These areas denote the existence of unusual, often invisible, hazards to aircraft, such as artillery firing, aerial gunnery, or guided missiles. IFR flights may be authorized to transit the airspace and are routed accordingly. Penetration of restricted areas without authorization from the using or controlling agency may be extremely hazardous to the aircraft and its occupants. There are two such restricted areas that are located approximately 25 miles west of Clovis Municipal Airport and that actually cross into the Class E airspace. These restricted

areas are identified as R-5105 and R-5104 A. A note on the sectional indicates the presence of "unmanned aircraft operations between CVS (Cannon AFB) and R-5104A."

Figure 1-8: CVN Immediate Airspace

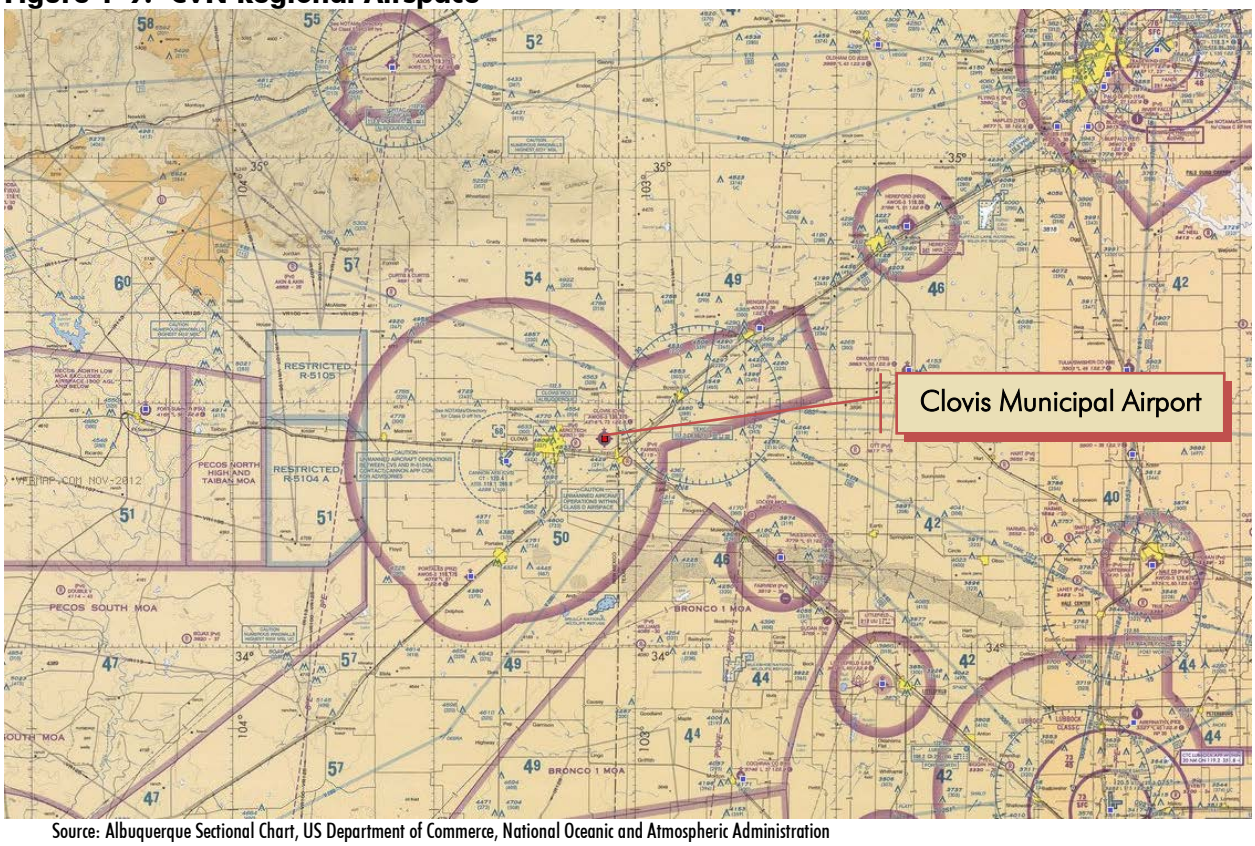


Source: Albuquerque Sectional Chart, US Department of Commerce, National Oceanic and Atmospheric Administration

- Military Operations Areas (MOAs) – MOAs consist of airspace of defined vertical and lateral limits established for the purpose of separating certain military training activities from IFR traffic. Whenever an MOA is being used, nonparticipating IFR traffic may be cleared through an MOA if IFR separation can be provided by air traffic control. Otherwise, air traffic control will reroute or restrict nonparticipating IFR traffic. Pilots operating under VFR should exercise caution while flying within an MOA when military activity is being conducted. Prior to entering an active MOA, pilots should contact the controlling agency for traffic advisories. Clovis Municipal Airport has multiple large and active MOAs in its region. The closest MOAs to the Airport are the Bronco MOAs (numbered one through four) consisting of four large connected MOAs, located as near as 13 miles southeast of CVN. Additionally, located 35 and 45 miles west of the Airport lie the Pecos North High and Taiban MOA and the Pecos North High and Low MOA, respectively. These are also connected MOAs that are very large and very active.

Figure 1-9 below shows a larger region of the sectional containing Clovis Municipal Airport that clearly shows the noted Restricted Areas and MOAs.

Figure 1-9: CVN Regional Airspace



Source: Albuquerque Sectional Chart, US Department of Commerce, National Oceanic and Atmospheric Administration

Navigational Aids

A variety of navigational facilities are currently available to pilots around Clovis Municipal Airport, whether located at the field or at other locations in the region. Many of these navigational aids are available to en route air traffic as well. The navigational aids (NAVAIDS) available for use by pilots in the vicinity of Clovis Municipal Airport are VOR/DME, VORTAC and NDB facilities. These NAVAIDS are listed below in Table 1-8.

A VOR/DME system is a Very High Frequency Omnidirectional Range Station with Distance Measuring Equipment transmitting very high frequency signals, 360 degrees in azimuth oriented from magnetic north. This DME equipment is used to measure, in nautical miles, the slant range distance of an aircraft from the navigation aid. There is one VOR/DME in range of CVN. A VORTAC (VHF Omnidirectional Range / Tactical Air Navigation) is a ground-based electronic navigation aid transmitting very high frequency signals, 360 degrees in azimuth oriented from magnetic north, with equipment used to measure, in nautical miles, the slant range distance of an aircraft from the navigation aid. A VORTAC provides VOR azimuth, TACAN azimuth, and TACAN distance measuring equipment (DME) at one site. There are three VORTACs in range of CVN.

A non-directional beacon (NDB) is an L/MF radio beacon transmitting non-directional signals whereby the pilot of an aircraft equipped with direction finding equipment can determine his bearing to or from the radio beacon and track to or from the station. There are four NDBs in range of CVN in addition to a Locator Outer Marker/Initial Approach Fix (LOM/IAF) for the ILS approach to Runway 4.

Table 1-8: NAVAIDS in Close Proximity to CVN

Type	ID	Name	Frequency	Radial	Range
VORTAC	CVS	CANNON	111.60	067°	12.5 nm
VORTAC	TXO	TEXICO	112.20	239°	12.5 nm
VORTAC	TCC	TUCUMCARI	113.60	138°	52.1 nm
VOR/DME	PVW	PLAINVIEW	112.90	277°	67.2 nm
NDB	HRX	HEREFORD	341	046°	45.3 nm
NDB	LIU	LITTLEFIELD	212	122°	45.9 nm
NDB	LLN	LEVELLAND	266	136°	62.8 nm
NDB	LB	POLLO	219	114°	74.6 nm
LOM/IAF	CV	HASAN	335	-	-
LOC	I-CVN	-	108.9	-	-

Source: Albuquerque Sectional Chart, US Department of Commerce, National Oceanic and Atmospheric Administration.

There is also a network of low-altitude published federal airways (i.e., Victor airways), in the vicinity of Clovis Municipal Airport, which traverse the area and span between the regional ground-based VOR/DME and VORTAC equipment. Victor airways include the airspace within parallel lines located four nautical miles on either side of the airway and extend 1,200 feet above the terrain up to, but not including, 18,000 feet MSL. When an aircraft is flying on a federal airway below 18,000 feet average mean sea level MSL, the aircraft may be operating within Class B, C, or E airspace. Near Clovis Municipal Airport are four low altitude Victor airways (V62, V278, V280, and V530) that utilize the nearby TEXICO VORTAC located just to the east of the Airport.

There are five published instrument approached at Clovis Municipal Airport - four for Runway 4/22 and one for Runway 12/30. Table 1-9 summarizes the approach and visibility minima of these published approaches. The Instrument Landing System (ILS) installed for RW 4 has the lowest minima of these approaches, with a straight in ceiling of 200 feet and visibility minimum of one half mile. Figures 1-10 through Figure 1-14 present the approach plates for these approaches.

Table 1-9: Lowest Published Instrument Approach Minima at CVN

Instrument Approach	Lowest Straight In Minimums		Lowest Circling Minimums	
	Ceiling	Visibility	Ceiling	Visibility
ILS RWY 4	200'	½ mile	500'	1 mile
RNAV (GPS) RWY 4	300'	½ mile	500'	1 mile
RNAV (GPS) RWY 22	500'	1 mile	500'	1 mile
RNAV (GPS) RWY 30	500'	1 mile	500'	1 mile
VOR RWY 22	800'	2 miles	800'	2 mile

Source: U.S. Terminal Procedures.

Figure 1-10: Instrument Approach Plate – ILS RWY 4

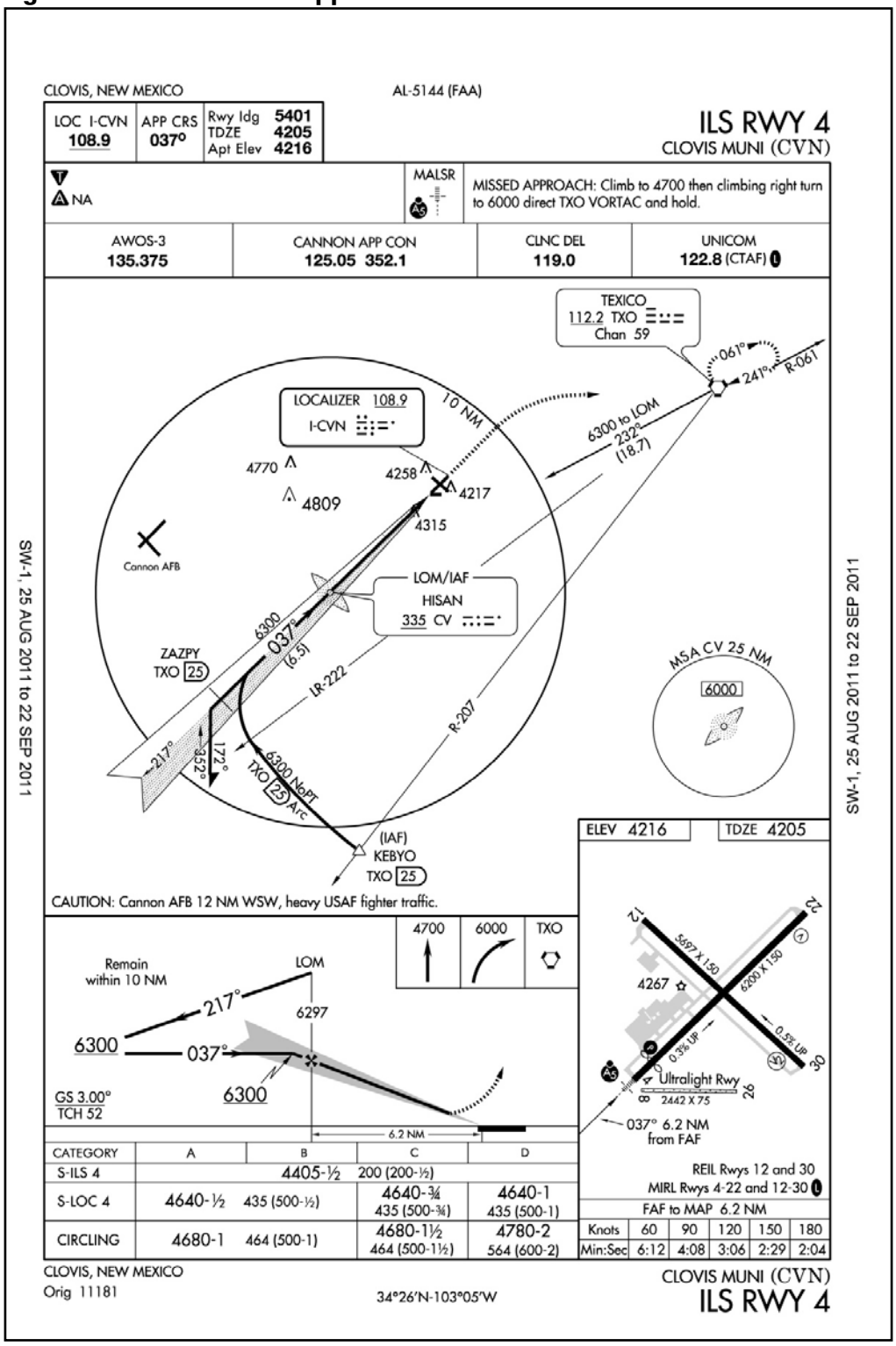


Figure 1-11: Instrument Approach Plate – RNAV (GPS) RWY 4

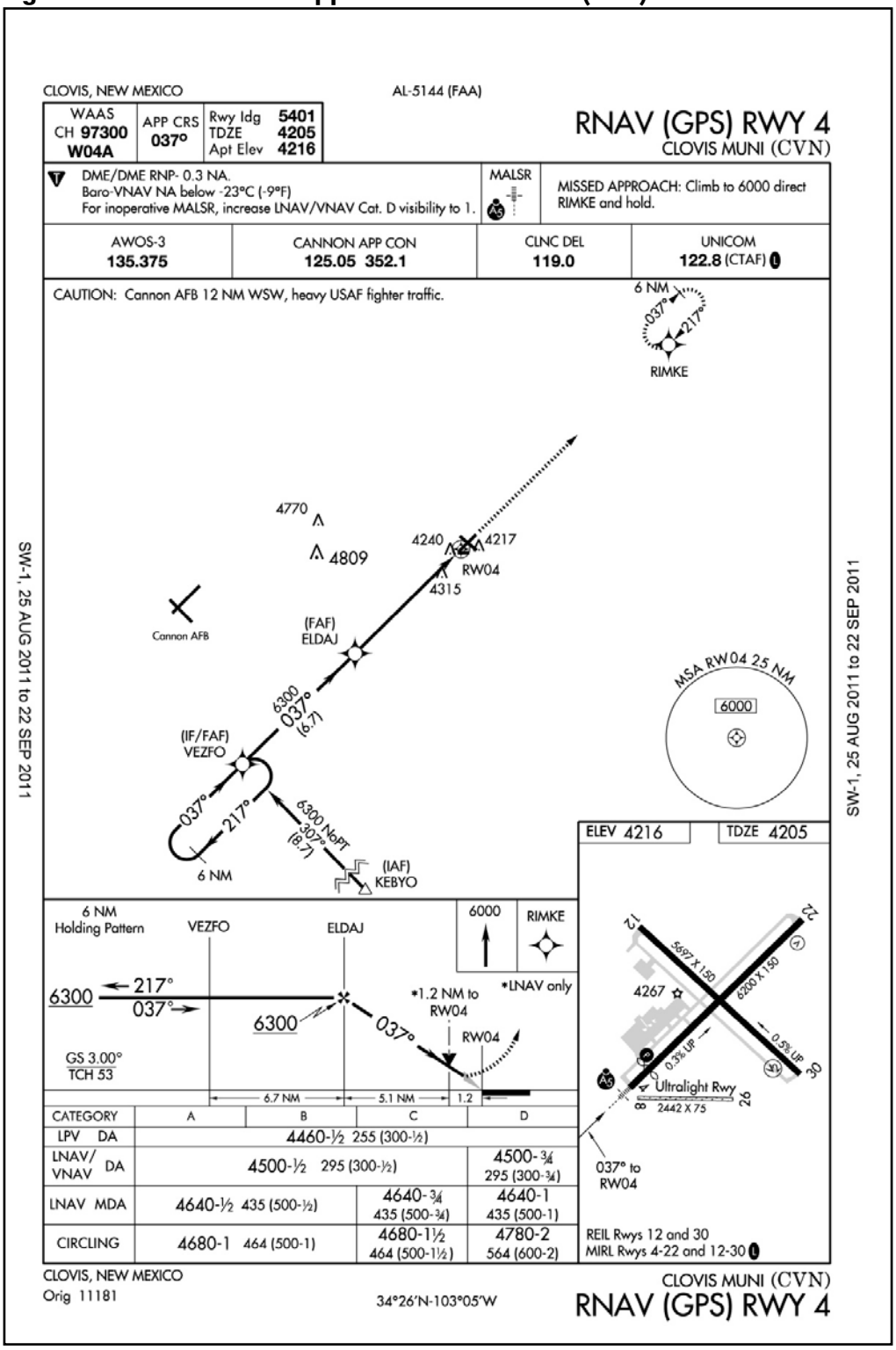


Figure 1-12: Instrument Approach Plate – RNAV (GPS) RWY 22

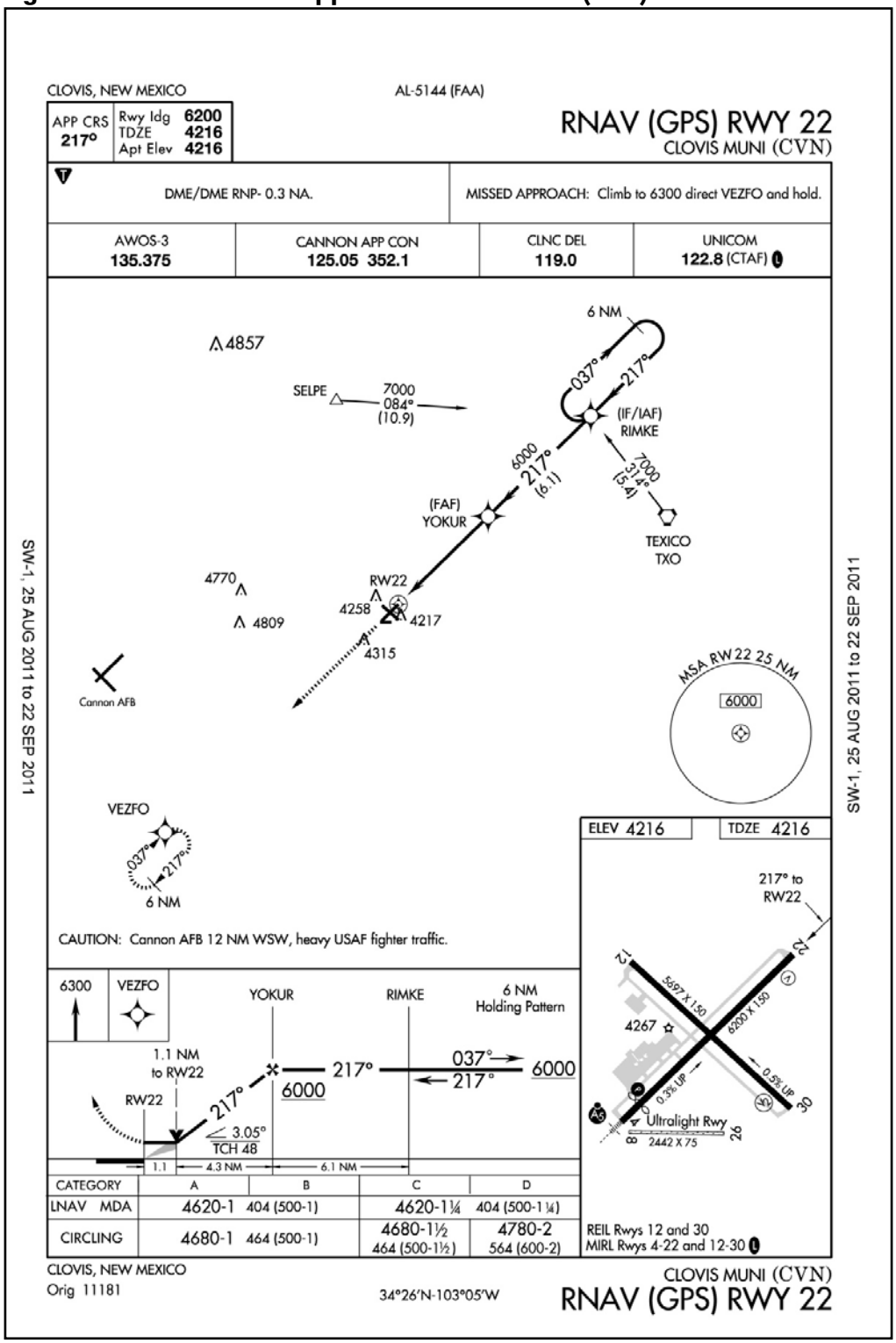


Figure 1-13: Instrument Approach Plate – RNAV (GPS) RWY 30

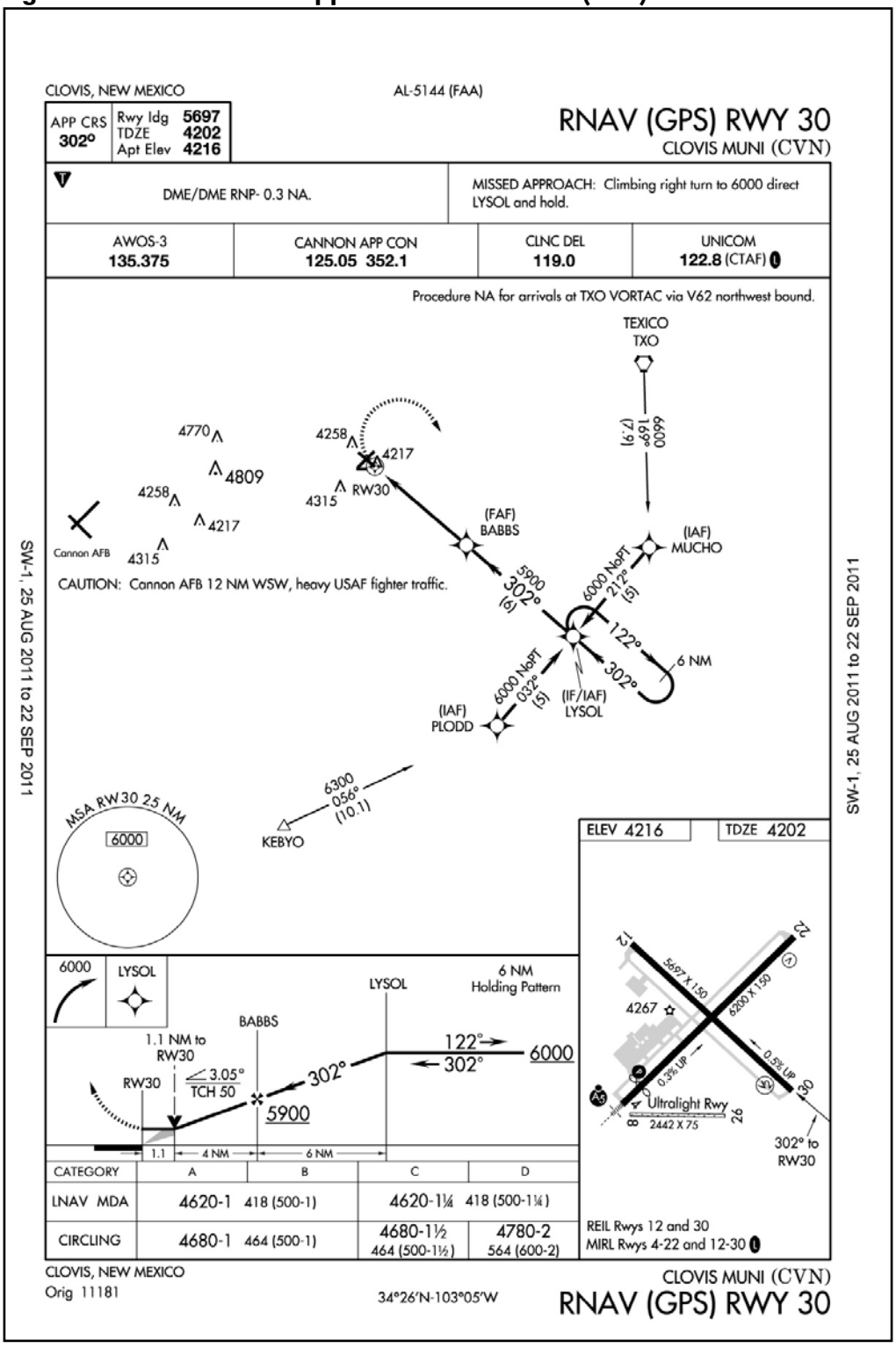
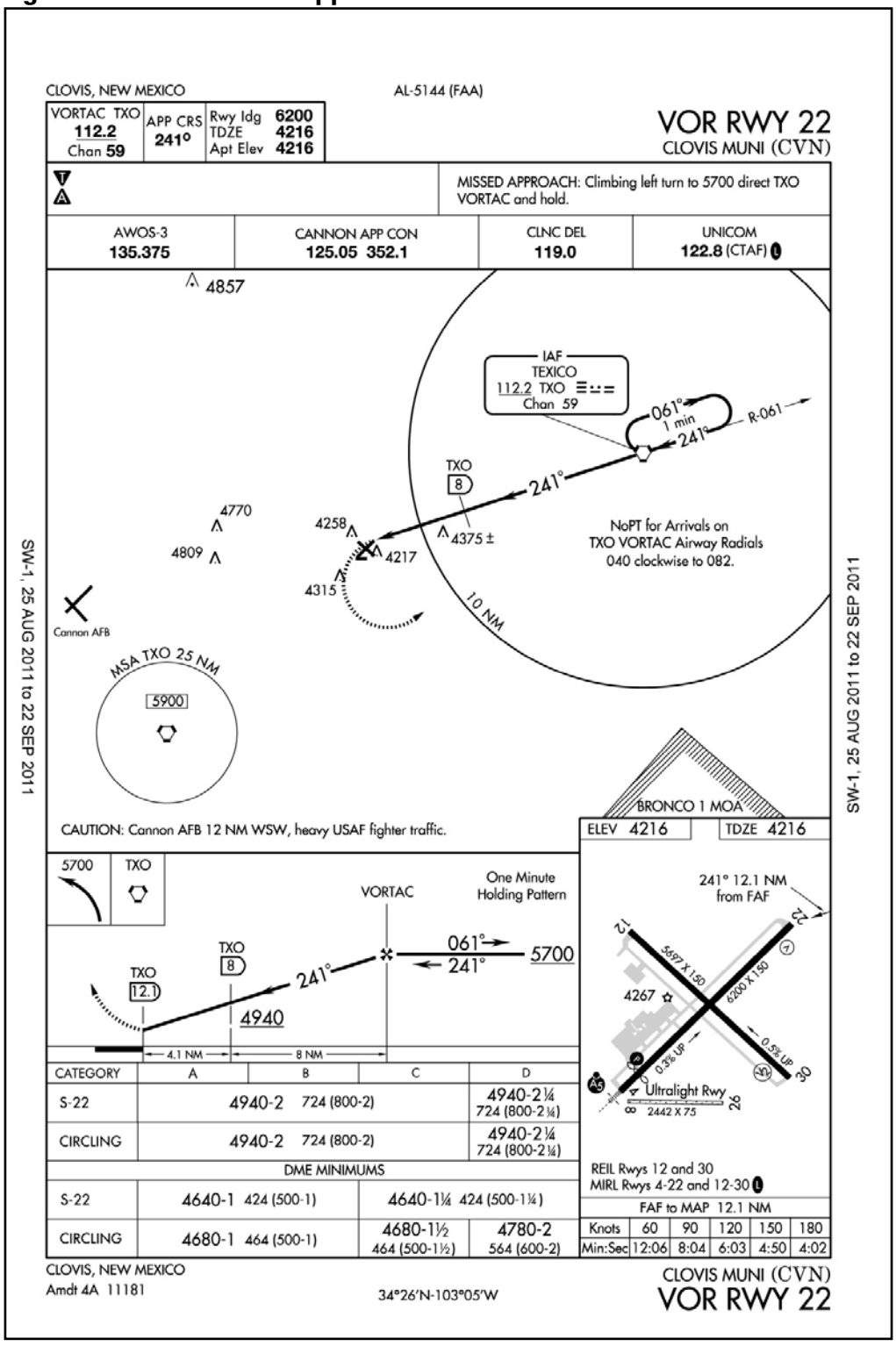


Figure 1-14: Instrument Approach Plate – VOR RWY 22

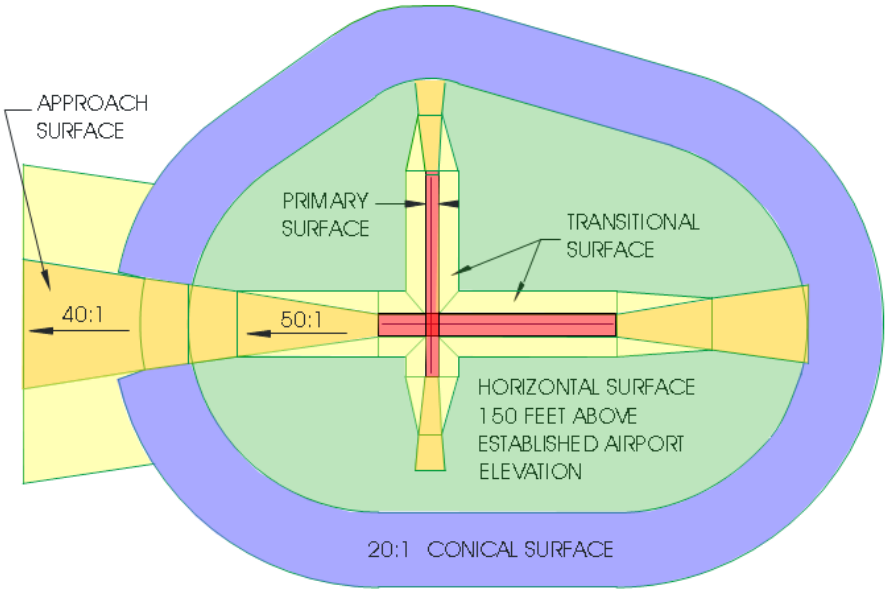


Part 77 Airspace Surfaces

Federal Aviation Regulations (FAR) Part 77, *Objects Affecting Navigable Airspace*, which is a tool used to protect the airspace over/around a given airport, and each of its runway approaches, from potential obstructions to air navigation. (It is important to note that as a federal regulation, all airports included in the NAS are subject to the requirements of Part 77.) To determine whether an object is an obstruction to air navigation, Part 77 establishes several imaginary airspace surfaces in relation to an airport and to each runway end. The dimensions and slopes of these surfaces depend on the configuration and approach categories of each airport's runway system. The size of the imaginary surfaces depends largely upon the type of approach to the runway in question. The principal imaginary surfaces are generally described below and are illustrated in Figure 1-15.

- Primary Surface: Longitudinally centered on the runway at the same elevation as the nearest point on the runway centerline.
- Horizontal Surface: Located 150 feet above the established airport elevation, the perimeter of which is established by swinging arcs of specified radii from the center of each the primary surface end, connected via tangent lines.
- Conical Surface: Extends outward and upward from the periphery of the horizontal surface at a slope of 20:1 for a horizontal distance of 4,000 feet.
- Approach Surface: Longitudinally centered on the extended centerline, and extending outward and upward from each runway end at a designated slope (e.g. 20:1, 34:1, 40:1, and 50:1) based on the runway approach.
- Transitional Surface: Extends outward and upward at a right angle to the runway centerline at a slope of 7:1 up to the horizontal surface.

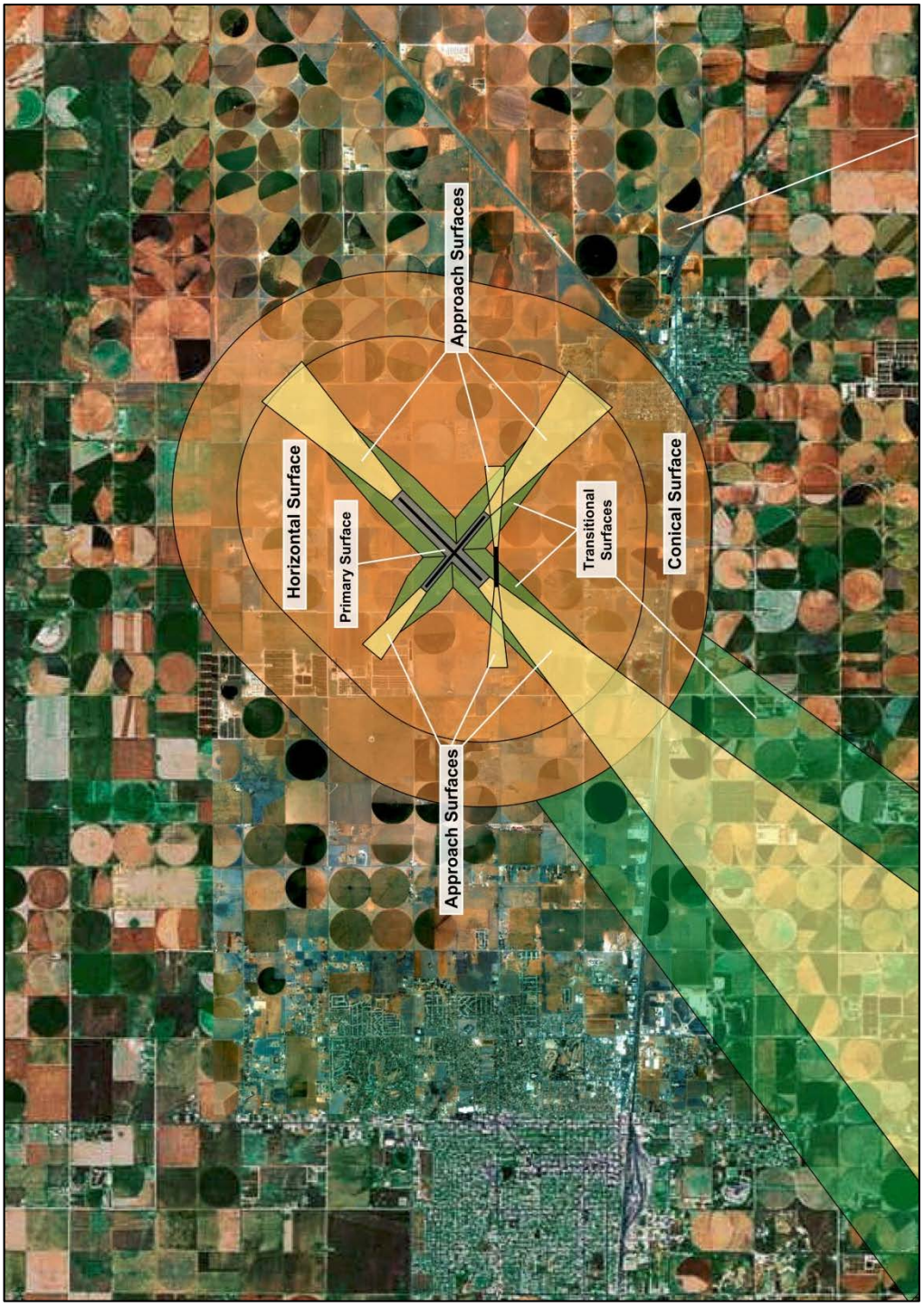
Figure 1-15: Part 77 Plan View



Source: FAA

Based on the current operational types and approaches presented in the previous sections, the current Part 77 airspace surfaces for Clovis Municipal Airport are reflected in Figure 1-16 below. Note that greater details related to Part 77 are presented in a later chapter as well as in the Airport Layout Plan (ALP).

Figure 1-16: CVN Part 77 Plan View (current)



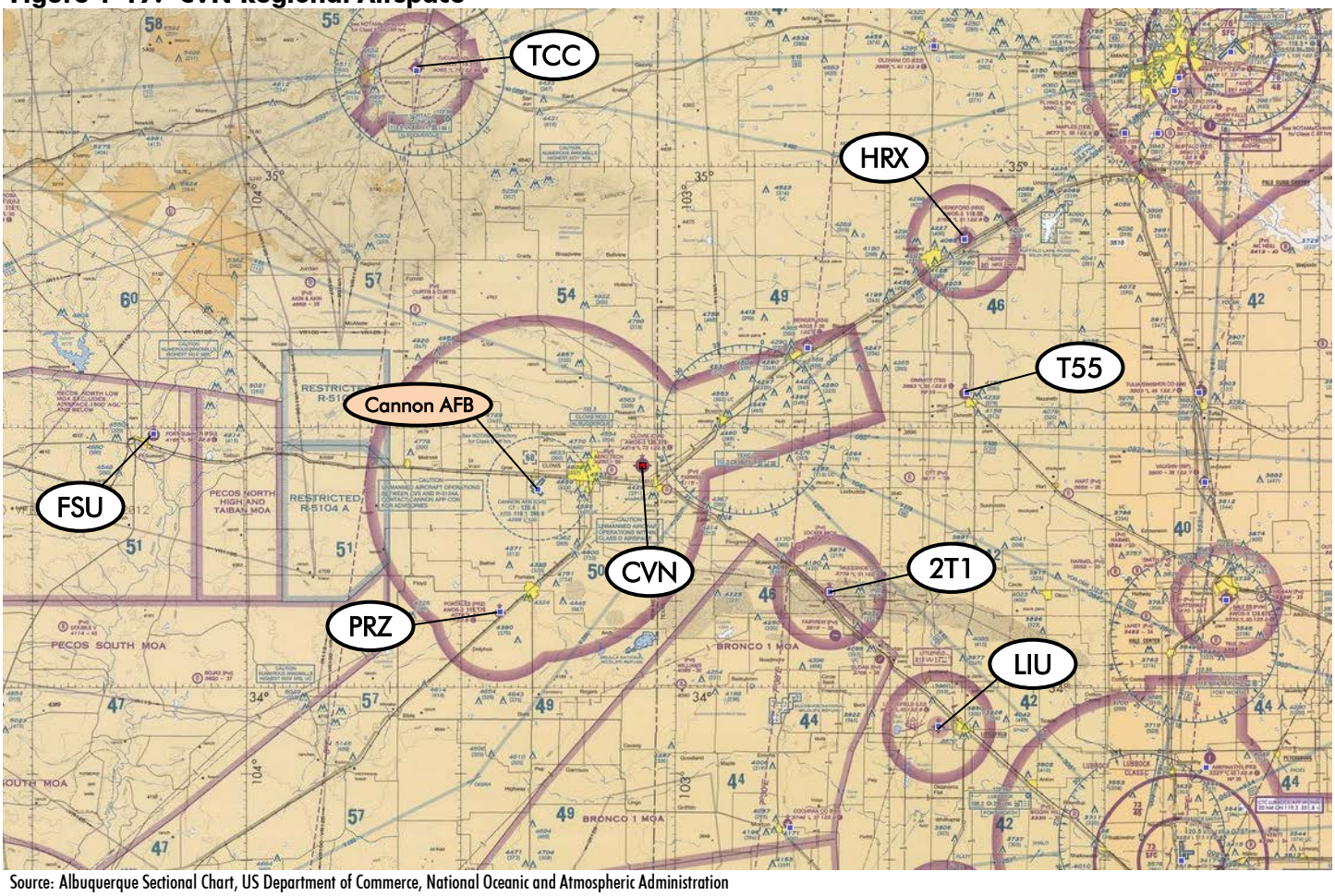
Source: CDM Smith.

1.6 AIRPORTS WITHIN THE REGION

An airport service area evaluation has been prepared, which identifies selected surrounding public-use airports in relative close proximity to Clovis Municipal Airport (see Figure 1-17). The evaluation also includes an assessment of these airports existing roles, airside facilities/services, and operational data (see Table 1-10). The information presented in the table below would indicate that those airports located closer to Clovis Municipal Airport, and providing similar facilities and services, will tend to exert a greater influence on the demands at the Airport. There are six public-owned/public-use airports within 60 nautical miles of Clovis Municipal, with three (Portales, Muleshoe, and Dimmitt) less than 40 nautical miles. Cannon AFB is also located 12 nautical miles to the west.

Of those airports identified in the table below, Clovis Municipal Airport has the longest runway (7,200 feet), the best available instrument approach (ILS), the most extensive lighting systems, the greatest number of based aircraft and operations, the most extensive aircraft services, and the largest acreage. It is also at the highest elevation.

Figure 1-17: CVN Regional Airspace



Source: Albuquerque Sectional Chart, US Department of Commerce, National Oceanic and Atmospheric Administration

Table 1-10: Area Airports Comparison

	Clovis Municipal	Portales Municipal	Fort Sumner Municipal	Tucumcari Municipal	Muleshoe Municipal	Littlefield Municipal	Hereford Municipal	Dimmitt Municipal
Identifier	CVN	PRZ	FSU	TCC	2T1	LIU	HRX	T55
City	Clovis, NM	Portales, NM	Fort Sumner, NM	Tucumcari, NM	Muleshoe, TX	Littlefield, TX	Hereford, TX	Dimmitt, TX
Ownership	City of Clovis	City of Portales	Village of Fort Sumner	City of Tucumcari	City of Muleshoe	City of Littlefield	City of Hereford	City of Dimmitt
Airport Use	Public	Public	Public	Public	Public	Public	Public	Public
Location Relative to CVN	--	27 mi 24 nm SW	65 mi 57 nm W	60 mi 52 nm NW	30 mi 26 nm SE	53 mi 46 nm SE	52 mi 45 nm NE	44 mi 38 nm E
NPIAS	Regional GA	Local GA	Basic GA	Local GA	Other GA	Basic GA	Local GA	Other GA
Elevation	4216.0 msl	4077.8 msl	4165.0 msl	4064.9 msl	3779.0 msl	3616.0 msl	3788.0 msl	3883.0 msl
Runways	RW 4/22 *Paved* *7,200' x 150'* RW 12/30 *Paved* *5,697' x 150'* RW 8/26 *Turf* *2,442' x 75'*	RW 1/19 *Paved* *5,700' x 60'* RW 8/26 *Paved* *4,560' x 60'*	RW 3/21 *Paved* *5,802' x 75'* RW 8/26 *Paved* *5,254' x 60'*	RW 3/21 *Paved* *7,104' x 100'* RW 8/26 *Paved* *4,600' x 60'*	RW 7/25 *Paved* *5,100' x 60'*	RW 1/19 *Paved* *4,021' x 60'* RW 13/31 *Paved* *2,513' x 40'*	RW 2/20 *Paved* *6,100' x 100'* RW 14/32 *Turf* *3,880' x 135'*	RW 1/19 *Paved* *5,500' x 60'*
Instrument Approach	RNAV(GPS), VOR, ILS	RNAV (GPS)	None	RNAV(GPS), VOR	RNAV(GPS), VOR/DME	GPS/NDB	RNAV(GPS), NDB	None
NAVAIDS	Rotating Beacon, MIRL, PAPI, VASI, PLASI, MALSR, REILs, AWOS	Rotating Beacon, MIRL, PLASI, AWOS	Rotating Beacon, MIRL, PLASI	Rotating Beacon, MIRL, VASI, ASOS	Rotating Beacon, MIRL, PAPI	Rotating Beacon, MIRL	Rotating Beacon, MIRL, PAPI, AWOS	Rotating Beacon, MIRL, AWOS
ATCT	None	None	None	None	None	None	None	None
Based Aircraft	SE: 52 ME: 18 Jet: 2 Helo: 2 UL: 0 GL: 0 ***Total: 74***	SE: 17 ME: 2 Jet: 0 Helo: 2 UL: 0 GL: 0 ***Total: 21***	SE: 3 ME: 2 Jet: 0 Helo: 0 UL: 0 GL: 0 ***Total: 5***	SE: 8 ME: 0 Jet: 0 Helo: 0 UL: 0 GL: 0 ***Total: 8***	SE: 5 ME: 1 Jet: 0 Helo: 0 UL: 0 GL: 0 ***Total: 6***	SE: 11 ME: 0 Jet: 1 Helo: 0 UL: 1 GL: 10 ***Total: 23***	SE: 24 ME: 4 Jet: 0 Helo: 0 UL: 0 GL: 0 ***Total: 28***	SE: 3 ME: 0 Jet: 0 Helo: 0 UL: 0 GL: 0 ***Total 3***
Aircraft Storage	Tiedowns, Hangars	Tiedowns, Hangars	Tiedowns, Hangars	Tiedowns, Hangars	Tiedowns	Tiedowns, Hangars	Tiedowns, Hangars	Tiedowns, Hangars
Total Annual Operations	27,489	20,000	150	25,600	2,400	7,025	13,435	2,600
Avg. Ops. per Day	75	55	0.4	70	7	19	37	7
Airport Services	Avgas, Jet-A, Major Airframe, Major Powerplant	Avgas, Jet-A, Major Airframe, Major Powerplant	None	Avgas, Jet-A	Avgas	Avgas, Minor Airframe, Minor Powerplant	Avgas, Jet-A	Avgas
Acreage	1,480	502	960	1,160	330	226	601	122

Source: Website airnav.com, FAA Form 5010-1, Airport Master Record (effective date for all is 11/15/2012)

Notes: SE=Single Engine; ME=Multi-Engine; Jet=Business Jet; Helo=Helicopter; UL=Ultralight; GL=Glider; MSL=Mean Sea Level; MIRL=Medium Intensity Runway Lighting; ILS=Instrument Landing System; GPS=Global Positioning System; PAPI=Precision Approach Path Indicator; VASI=Visual Approach Slope Indicator; PLASI=Pulse Light Approach Slope Indicator; REIL=Runway End Identifier Lights; AWOS=Automated Weather Observing System; ASOS=Automated Surface Observing System; MALSR=Medium-intensity Approach Lighting System with Runway Alignment Indicator Lights

1.7 AIRPORT ENVIRONS

The following sections aim to place Clovis Municipal Airport within its community and regional setting. This includes demographic and economic considerations in the City of Clovis and Curry County, a brief discussion of Cannon Air Force Base, and other factors such as environmental and land use considerations.

1.7.1 Community Overview

The City of Clovis, New Mexico is located in eastern Curry County, bordering Texas, and was founded in 1907. The area of the city itself is approximately 22.5 square miles, while the county has an area of 1,408 square miles.

1.7.2 Clovis and Curry County Demographics

According to the US Census Bureau, the City of Clovis had an estimated 2011 population of 38,776, making it the eighth largest city in the state by population. The population density of Clovis is 1,723 persons per square mile. The male/female split of the city's population is almost exactly 50/50. The racial makeup of the city's population is 68.5 percent white, 6.9 percent African-American, 6.9 percent of another race, and 41.8 percent describing themselves as having Hispanic or Latino origins.

The estimated 2011 population of Curry County was 49,649, with an overall population density of 35 persons per square mile. Like Clovis, the male-female split is nearly 50/50. The racial makeup of Curry County's population is quite different from Clovis itself, with 86.5 percent reporting white, 7 percent African American, 6.6 percent reporting another race, and 39.8 percent describing themselves as being Hispanic or Latino.

1.7.3 Clovis and Curry County Economy

Table 1-11 provides the local industry breakdown in Curry County, according to 2010 estimates through the US Census Bureau. While the local economy is generally evenly distributed among the various sectors, the educational, health care, and social services sector occupy 22 percent of the total, making it the largest segment. This is followed by retail trade, with a 13.2 percent share of the total. Public administration, construction, and arts, entertainment, recreation, accommodation and food services follow with 9.3 percent each.

Agriculture and ranching are also important industries in the City of Clovis and Curry County. Agriculture includes extensive peanut and cotton production, while cattle ranching is conducted for both beef and dairy production. Curry County has experienced significant growth in the dairy industry, spurred by the Southwest Cheese Plant, one of the largest processing plants in the world. There are more than 60 dairies in the region, and a large portion of their output provides milk to the cheese manufacturing facility, according to Curry County's comprehensive plan. Manufacturing in the region is often in support of agriculture and ranching, including, but not limited to, the Southwest Cheese Company plant.

Table 1-11: Curry County Industry Breakdown

Industry	Percent of Total
Educational services, and health care and social assistance	22.0%
Retail trade	13.2%
Public administration	9.3%
Construction	9.3%
Arts, entertainment, and recreation, and accommodation and food services	9.3%
Agriculture, forestry, fishing and hunting, and mining	7.4%
Professional, scientific, and management, and administrative and waste management services	6.4%
Transportation and warehousing, and utilities	5.4%
Manufacturing	5.2%
Other services, except public administration	4.9%
Finance and insurance, and real estate and rental and leasing	3.8%
Wholesale trade	2.1%
Information	1.8%

Source: US Census Bureau.

Per capita personal income in Curry County was estimated in 2010 as $22,987, lower than the national estimate for 2010 of $26,881. Median household income in Curry County was estimated at $38,996, while the national median was $51,144.

Additionally, according to the *2011 Cannon Air Force Base Joint Land Use Study,* Cannon AFB is, and should remain, the largest employer within the region. It is estimated that approximately 20 percent of the Clovis area's economy is tied to Cannon AFB, with several thousand skilled spouses projected to enter the Clovis area in the next few years. According to the *Cannon AFB Economic Impact Statement, 2010*, Cannon AFB has a total economic impact of $478,443,599 from employee payroll, other expenditures, and estimated local job creation. In addition to the monetary impact, Cannon AFB members volunteer thousands of hours each year to organizations in the surrounding communities.

Finally, the *New Mexico Airport System Plan Update 2009* also included an economic impact component associated with individual airports within the state. New Mexico airports are significant generators of revenues, wages, and jobs for the State. Not only do the airports themselves generate economic benefits, but many other non-aviation employers that contribute to building the State's economy rely on the New Mexico airport system to support their daily business activities. Through that planning effort, the annual economic impact benefit of Clovis Municipal Airport for the local area was established at approximately $16.6 million, including $6.6 million of payroll.

1.7.4 Existing Land Use in the Airport Environs

Land surrounding Clovis Municipal Airport is generally compatible with airport operations today. As shown in Figure 1-18, land use in the areas surrounding Clovis Municipal Airport is almost entirely agricultural, including a feedlot to the northeast and dairy to the northwest. Residential land uses abut small portions of the airport property to the southwest along County Road D near the Runway 4 approach. An industrial area abuts the northeast airport property, between the airport property and Curry Road B.

Figure 1-18: Generalized Existing Land Use near CVN

Source: City of Clovis; CDM Smith.

1.7.5 Zoning in the Airport Environs

Zoning is the public regulation of land use and involves the adoption of ordinances that divide a community into various districts or zones. Within each particular district, only certain uses of land are allowed, such as residential, commercial, industrial, etc. Typical zoning regulations also address things such as the height of a building, number of people that can occupy a building, lot area, setbacks, parking, signage, and density.

The City of Clovis established the Clovis Municipal Airport Zoning Ordinance (City Ordinance 1022) for the protection of the Airport. Recorded in June 1974, the ordinance was based on State Statutes to protect airport environments with height restrictions or similar incompatibilities. The ordinance also states that no land use shall be permitted that creates electrical interference with airport communications, creates visual confusion between airport lighting and off airport lighting, or otherwise impair visibility for aircraft during any period of an operation. The ordinance is administered and enforced by the office of the City Manager, and a board of adjustment exists to hear any appeals of decisions made by the City Manager in the enforcement of the zoning code, as well as to hear applications for variances.

The ordinance itself is primarily based on the protection of airport airspace surfaces that were accepted as being the industry standard at the time. These surfaces are specifically identified in the ordinance itself on the "Clovis Municipal Airport zoning map consisting of one sheet, prepared by Lydick Engineers and Surveyors, and dated September 1, 1970." The surfaces described in the ordinance consisted of Noninstrument Approach Zones, Transition Zones, a Horizontal Zone, and a Conical Zone. Unfortunately, since that time the industry standards for airport airspace surfaces has changed and is now captured by FAR Part 77, *Objects Affecting Navigable Airspace*, described previously in this chapter. As such, the Clovis Municipal Airport Zoning Ordinance should be considered as being in need of being updated to reflect the current standard of airport airspaces.

It is also important to recognize that while it is very beneficial for the Airport that the City of Clovis has the Clovis Municipal Airport Zoning Ordinance (albeit in need of update), there is currently no parcel zoning in the immediate area around Clovis Municipal Airport. This is due to the fact that the Airport, although owned by the City of Clovis, is actually not located within the city limits, but in Curry County. Additionally, it should be noted that a joint powers agreement has never been established. Specifically, such an agreement would ensure that any future development is compatible with airport operations. This is also supported by the State Statutes that endorses airport sponsors in their efforts to protect the airport environs in cooperation with other political jurisdictions. These are addressed specifically in the state zoning laws. Below are presented excerpts from state legislation regarding the establishment of a joint airport zoning board and its powers and duties.

64-2-1. Joint airport zoning board

A. Whenever any political subdivision of the state owns and operates an airport which is located within the jurisdiction of any other political subdivision or whose approach plan area is within the jurisdiction of any other political subdivision, the political subdivision owning and operating the airport may create a joint airport zoning board composed of two members appointed by the political subdivision owning and operating the airport, two members appointed by any political subdivision within whose jurisdiction the airport lies or the approach plan extends and one member selected by the other members within thirty days after the joint airport zoning board is created.

B. Within sixty days of being requested in writing by the political subdivision which owns and operates an airport to appoint members to the joint airport zoning board, any political subdivision which has jurisdiction over the area where the airport is located or the approach plan area for the airport shall appoint the required two members to the joint airport zoning board. After the sixty day period has passed and until the required appointment is made, the failure of any political subdivision within whose jurisdiction the airport lies or the approach plan extends to appoint any members to the joint airport zoning board shall not invalidate any action taken by the joint airport zoning board to implement and enforce the municipal airport zoning laws.

64-2-2. Powers and duties of board

To protect the lives and property of the users of the airport and the occupants of the territory adjacent to the airport, the joint airport zoning board may exercise those powers and duties granted legislative bodies under the Municipal Airport Zoning Law [3-39-16 to 3-39-26 NMSA 1978} in conformity with the provisions of the Municipal Airport Zoning Law or Sections 3-21-1,3-21-2 and 3-21-5 through 3-21-11 NMSA 1978 insofar as it relates to compatible land use zoning around the airport. The area eligible for height, hazard and compatible land use zoning around the airport may not extend more than fifty thousand feet beyond any point on the perimeter of the area of land for the airport which is owned by the political subdivision which operates the airport.

1.7.6 Local Comprehensive Planning

A local comprehensive plan is a strategic long-range document that addresses land use and zoning as it relates to growth and development of a municipality. With respect to an airport that lies within a community, it is critical that local comprehensive planning efforts acknowledge and address the issue of land use compatibility near an airport.

According to the *City of Clovis Comprehensive Plan* (2007), references to the Clovis Municipal Airport include the following statements:

- Under the City Profile section of the Comprehensive Plan, the following references to Clovis Municipal Airport were made:

  - *The City has a municipal airport located five miles east of City. Currently, no major passenger carriers fly into the Clovis Municipal Airport, however, current expansion plans may make regular commercial flights more attractive.* (Page 5)
  - *The Clovis Municipal Airport, which is owned by, but not within the City, generated $374,612.* (Page 6, in reference to taxable gross receipts reported by the state for 2006-2007)

- Under the Land Use section of the Comprehensive Plan, the following references to Clovis Municipal Airport were made.

  - Clovis Municipal Airport is recognized in its own land use category (along with Cannon AFB):

    Airport/Air Force Base. Clovis Municipal Airport and Cannon Air Force Base have been shown on the Land Use Plan as Airport/Air Force Base. These two uses were given this designation to emphasize the potential land use conflicts that can occur near them. Both uses create noise, light, and vibration that is not compatible with some uses. Even with uses that are compatible, certain considerations for space and safety precautions should be incorporated into the design of new development. (Page 13)

  - With respect to land use goals and objectives, the following is included:

    Objective 1c. Adopt land use regulations in the vicinity of the Municipal airport that will ensure that the airport remains viable and that there are minimal land use conflicts. (Page 14)

  - With respect to implementation measures for realizing land use goals and objectives, the following is included:

    Land Use Implementation Measure 7. Annex the Clovis Municipal Airport and establish the one-mile extra-territorial zone around the airport. (Page 25)

- Under the Community Services section of the Comprehensive Plan, the following reference to Clovis Municipal Airport was made.

  - *The City owns and operates the Clovis Municipal Airport. It is located approximately six miles east of the City. The airport has not been annexed into the City. The City is in the process of expanding the airport facilities that would allow larger aircraft to use the airport. Since the airport was originally established it has been*

continuously improved and upgraded. Additional discussion of the airport can be found in the Infrastructure section. (Page 47)

- Under the Infrastructure section of the Comprehensive Plan, the following references to Clovis Municipal Airport were made.

  - *The Clovis municipal airport is located six miles east of Clovis and Texico, on State Highway 523. The airport has a newly remodeled terminal building. The airport provides a wide range of services, including agriculture, air ambulance, commercial air line, overnight freight, and corporate transit. The airport is serviced by Great Lakes airlines with daily flights to Albuquerque, Amarillo, and Denver, as well as two full time fixed based operations. With the new Air Force Base mission, the airport will require 20 million dollars worth of improvements in the next five years as per the Clovis Municipal Airport 5-year plan. An increase of 10,000 passengers per year is expected from military members alone with an undetermined increase from family and contractors. The Capital Outlay Program has provided $700,000 to date. Additional funding sources include the State Aviation Board, bonding, and Federal and/or State legislation. Improvements will include an extension to the runway length and runway asphalt overtopping. Phase Two of the current runway project will lengthen the runway by 1,800' allowing the airport to serve 30 passenger regional jets. Should traffic patterns prove the airport could support a 100 passenger region jet service, the airport would need to expand the runway again to a total length 8,800' in additional Phases. The facility will also require additional water storage capacity, a small waste water treatment plant, and parking lot and access road improvements.* (Page 53)

  - With respect to transportation infrastructure goals and objectives, the following is included:

    Objective 5c. Provide transit service to the Clovis municipal airport. (Page 79)

    Transportation Infrastructure Goal 6. Attract regional and national passenger and freight service to the Clovis Municipal Airport.

    Objective 6a. Complete the expansion of the Clovis Municipal Airport.
    Objective 6b. Gather data on the number of residents that travel outside the City to for airline service for negotiation with passenger carriers.
    Objective 6c. Gather data on the number of parcels/wgt that are shipped in and out of the City/County for negotiation with freight carriers. (Page 79)

- With respect to implementation measures for realizing transportation infrastructure goals and objectives, the following is included:

  Infrastructure Implementation Measure 15. Study the feasibility of providing scheduled transit service to the Clovis Municipal Airport. (Page 81)

Note that the 2006 Airport Action Plan recommended that future updates to the City's Comprehensive Plan and related planning documents include an overview of the airport facilities and activity, a summary of the proposed long-term development plans for the airside and landside areas of the airport, and specific details of the current and proposed land use protection tools for the airport environs such as zoning and easements.

It should also be recognized that the *2011 Joint Land Use Study - Cannon Air Force Base and Melrose Air Force Range* made several references to Clovis Municipal Airport. These references were limited to acknowledgement of the Airport's history and existence, access to the Airport, a brief description of the Airport, and a detailed review of the airport zoning height restrictions as stipulated in the Clovis Municipal Airport Zoning Ordinance.

1.7.7 Environmental Setting and Considerations

Environmental concerns and possible hazards are an important consideration for any public use airport. Climate, wetlands, and endangered species are examples of concerns that may become factors during airport planning and expansion. To best combat such risks, airport management often implements plans and programs such as wildlife management plans (WMP), vegetations management plans (VMP), spill prevention, control, and countermeasures (SPCC), and storm water pollution prevention plans (SWPPP), among others.

Climate

The climate of Clovis and Curry County is relatively temperate. With less than 20 inches of precipitation each year, it is also quite dry. The average temperature is 71.5 degrees Fahrenheit, maxing out at over 90 degrees in July and dropping below freezing during the winter. The flat terrain leads to high winds, often gusting well above 30 miles per hour, with tornados occurring occasionally. This terrain will can lead to flash flooding during summer rainstorms.

Threatened and Endangered Species

The safety of threatened and endangered species and their habitats is of critical importance when planning for expansion and construction at an airport. Within Curry County, there are currently two species listed as endangered, the least tern

and black-footed ferret, and nine species listed as species of concern, candidates, or experimental, non-essential population. Table 1-12 lists these species.

Table 1-12: Threatened and Endangered Species within Curry County

Common Name	Scientific Name	Group	Status
Lesser prairie-chicken	*Tympanuchus pallidicinctus*	Bird	Candidate
Least Tern *(Interior Population)*	*Sterna antillarum*	Bird	Endangered
Black-footed ferret	*Mustela nigripes*	Mammal	Endangered
Whooping Crane	*Grus americana*	Bird	Experimental, non-essential population
Grus americana	*Falco peregrinus anatum*	Bird	Species of concern
Arctic peregrine falcon	*Falco peregrinus tundrius*	Bird	Species of concern
Baird's sparrow	*Ammodramus bairdii*	Bird	Species of concern
Western burrowing owl	*Athene cunicularia hypugaea*	Bird	Species of concern
Yellow-billed cuckoo	*Coccyzus americanus*	Bird	Species of concern
Black-tailed prairie dog	*Cynomys ludovicianus*	Mammal	Species of concern
Swift fox	*Vulpes velox*	Mammal	Species of concern

Source: City of Clovis.

To ensure the safety of these and other species within the airport property, Clovis Municipal Airport has implemented a wildlife management plan and releases monthly wildlife hazard assessments.

Wetlands

There are no wetlands located on Clovis Municipal Airport. Although there are sections of freshwater emergent wetlands in the vicinity of the Airport, these wetlands are not of concern to any possible airport expansion in the foreseeable future.

1.7.8 Cannon Air Force Base

Cannon Air Force Base is located in Curry County, approximately seven miles west of Clovis, and twelve miles west of Clovis Municipal Airport. The base has two runways—Runway 04/22 is 10,003 feet in length by 150 feet wide, and Runway 13/31 is 8,196 feet in length and 150 feet wide.

The host unit at Cannon is the 27th Special Operations Wing (27 SOW), one of two active duty Special Operations wings within the Air Force Special Operations Command (AFSOC). The primary mission of the 27th SOW is to plan and execute specialized and contingency operations using advanced aircraft, tactics, and air refueling techniques to infiltrate, exfiltrate, and resupply special operations forces (SOF) and to provide intelligence, surveillance, reconnaissance, and close air support in support of SOF operations. The wing's core missions include aerospace surface interface, agile combat support, information operations, recovery operations, precision aerospace fires, psychological operations dissemination, specialized aerospace mobility, and specialized aerial refueling.

Currently, the City of Clovis' economy is highly reliant on Cannon Air Force Base. Cannon employs more than 3,300 military and 600 civilian personnel. The economic impact of the base was estimated at $688 million for 2011, with military and civilian payroll topping $262 million. The presence of Cannon Air Force Base and its massive impact on the region make the Clovis Municipal Airport a crucial cog in the regional transportation network.

1.8 INVENTORY SOURCES / EXISTING PLANNING DATA

Several airport planning and policy documents were referenced during the compilation of this inventory. Of particular importance were the City of Clovis, NM Airport Action Plan, conducted by Airport Planning West in 2006, and the various airport layout plans that have been updated throughout the years. Table 1-13 lists documents that were utilized during this inventory.

Table 1-13: Relevant Plans and Documents

Planning Document	Publish Year	Author
Airport Layout Plan	2012	WHPacific
Capital Improvement Program Report	2012	NM DOT
CVN Emergency Plan	2011	CVN
Joint Land Use Study – Cannon Air Force Base and Melrose Air Force Range	2011	HDR
Airport Sign and Marking Plan	2010	WHPacific
New Mexico Airports Best Practices Guide	2010	New Mexico State Aviation Division
Airport Layout Plan	2009	WHPacific
New Mexico Airport System Plan Update 2009	2009	Wilbur Smith Associates
Environmental Assessment for Proposed 1,800-foot Pavement Extension of Runway 4-22 and Associated Projects at Clovis Municipal Airport	2007	Coffman Associates
City of Clovis, NM Airport Action Plan	2007	Airport Planning West
City of Clovis, Comprehensive Plan	2007	Consensus Planning Engineers, Inc.
Airport Security Program	2006	
Airport Layout Plan	2000	Leedshill Herkenhoff, Inc.
New Mexico Statewide Air Service Study	1997	Matthew Bauer and Associates

Source: CDM Smith.

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Chapter TWO:

FORECASTS OF AVIATION ACTIVITY

2.1 INTRODUCTION

Projecting future aviation demand is a critical element in the overall master planning process since many of the ultimate proposals and recommendations of the master plan are principally based on aviation activity demand forecasts. The forecasts of aviation activity developed in this chapter will be used in subsequent tasks to analyze Clovis Municipal Airport's (CVN) ability to accommodate future activity and to determine the type, size, and timing of future airside and landside developments. This aspect of the master planning process, in essence, acts as the hub for the remainder of the plan. In many cases, the decision to proceed with projects is based on the anticipated levels of demand, including numbers as well as types of aircraft activity.

This chapter discusses the findings and methodologies used to project aviation demand at CVN for the next 20 years. Forecasting should consider the most accurate information available at the time the projections are completed, but it is not an exact discipline. It must be recognized that there are always likely to be some divergences of an airport's activity from a prepared forecast due to any number of factors that simply cannot be anticipated. However, when soundly established, the forecasts developed in a master plan will provide a sound, defensible and defined rationale to guide the analysis of future airport development needs and alternatives.

Forecasts must be reasonable and defensible. They serve as the basis of future facility requirements.

While the amount and type of aviation activity occurring at an airport are dependent upon many factors, they also usually reflect the services available to aircraft operators, the businesses located on the airport or within the host community, and the prevailing general economic conditions within the surrounding area. The CVN forecast analysis includes methodologies that considered historical aviation trends at the Airport, the surrounding region, and throughout the nation. Projections of aviation activity for CVN were prepared for the near-term (2017), intermediate-term (2022), and long-term (2032) timeframes. Specifically, the aviation demand forecasts developed for CVN in this study are documented in the following sections:

- Overview of the Airport Market Area
- National Aviation Trends
- Regional Trends
- Historical and Existing Aviation Activity
- Projections of Aviation Activity
- Summary

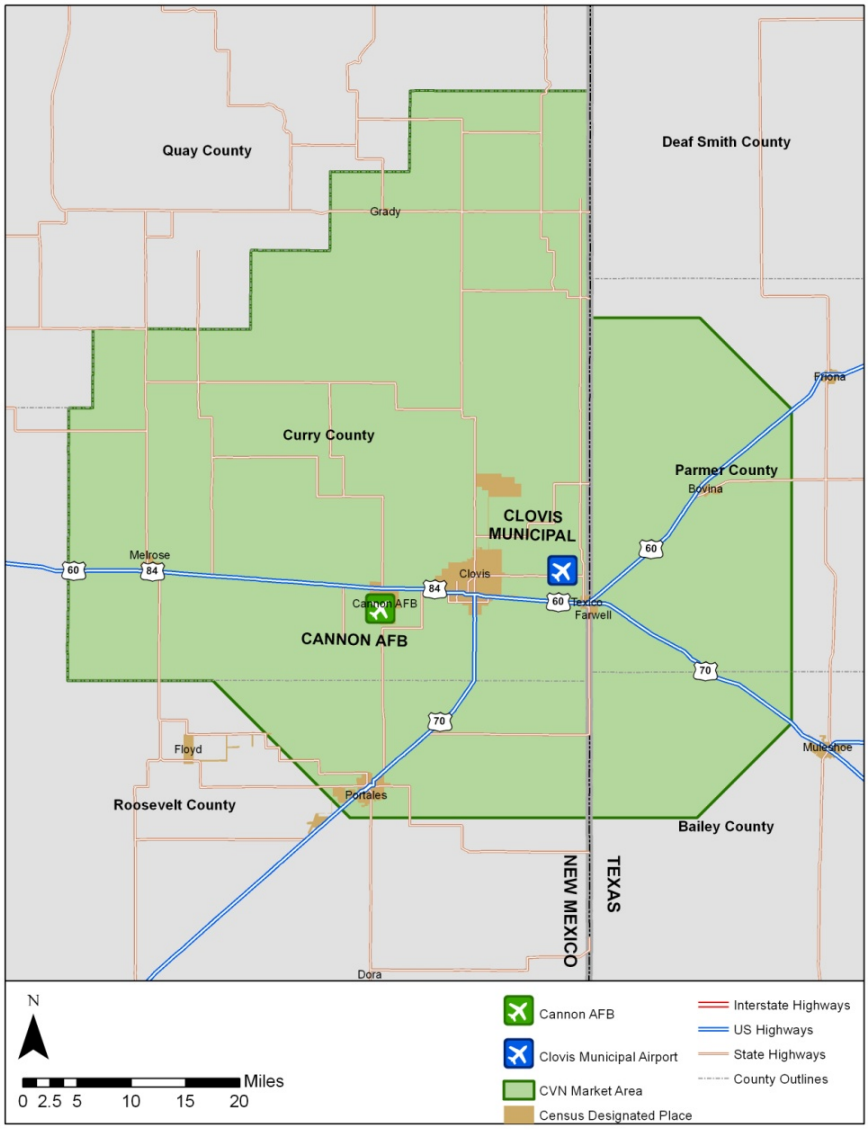
2.2 OVERVIEW OF THE AIRPORT MARKET AREA

There is a strong correlation between a region's demographic and economic factors and aviation demand within that region. This section will define the CVN market area and the factors that often impact the projections of aviation activity.

2.2.1 Definition of the CVN Airport Market Area

An airport market area is defined as the actual geographic region served by a particular airport. For CVN, the airport market area has been identified as Curry County, New Mexico and areas outside the County within a 30-minute drive time. Curry County is home to four cities (Clovis, Melrose, Texico, and Grady) as well as the Cannon Air Force Base. The population for the market area is about 70,000.

Figure 2-1: Clovis Municipal Airport Market Area



Source: CDM Smith

2.2.2 National Aviation Trends

In preparing a forecast for CVN, it is important to have a general understanding of recent and anticipated trends in the overall aviation industry. National trends can provide important insights that can be leveraged for the development of aviation activity projections for an airport. Various data sources were utilized and examined to identify these trends. The sources utilized in this effort included the following:

- Federal Aviation Administration (FAA) - *Aerospace Forecasts, 2013-2033*
- General Aviation Manufacturers Association (GAMA) - *General Aviation Statistical Databook, 2012*
- National Business Aircraft Association (NBAA) - *NBAA Business Aviation Fact Book, 2012* and earlier
- Honeywell Corporation - *20th Annual Business Aviation Outlook, 2012*

The following two sections provide overviews of the commercial air service and general aviation sectors of the aviation industry.

Commercial Air Service Trends

While the 1990s marked some of the most profitable years in the airline industry's history, a new era of airline industry volatility began with the terrorist attacks of September 11, 2001 and has been perpetuated by periods of national and global economic distress and recession. Marked by airline consolidations, multiple airline bankruptcies, reduced capacities, consolidated route service, rising fuel costs, and the increased prominence of low cost carriers, the commercial air service sector has become one that is almost solely focused on maximizing efficiency and profitability.

The FAA annually develops forecasts of future levels of commercial passenger activity based on economic and transportation trends. The most recent FAA forecasts of commercial passenger activity that is available is the *FAA Aerospace Forecasts, Fiscal Years 2013-2033*, and presents both a near term forecast and a longer term forecast. According to this report, domestic air carrier aircraft operations between 2012 and 2022 are projected to increase from 12.9 million to 16.6 million. The FAA also projects that total domestic passenger enplanements for combined large U.S. carriers and regional/commuter carriers will increase from approximately 654 million in 2012 to approximately 794 million in 2022, representing an average annual growth rate of approximately 2.0 percent.

Boutique Air Pilatus PC-12

For airports like Clovis that have commercial air service provided by regional airlines like Boutique Air, the regional/commuter carrier component is of the most applicable comparison. The FAA forecasts that the average passenger trip length for regional/commuter carriers will increase from 468 to 504 miles; average seats per aircraft departure will increase from 60 to 61;

and the average load factor is expected to increase from 77.3 percent to 78.4 percent. Regional/commuters aircraft operations are expected to decrease at an average of 0.6 percent per year through 2022.

FAA forecasted activity and airline operating statistics between 2023 and 2033 are expected to follow similar trends shown for the period between 2012 and 2022, as indicated above. These FAA growth rates have been considered in the development of long range forecasts for CVN activity.

General Aviation (GA) Trends

At the national level, fluctuating trends related to general aviation usage and economic uncertainty resulting from the nation's and international business cycles all have significant impacts on general aviation demand levels. This section provides an overview of those general aviation trends, as well as some of the various factors that have influenced those trends in the U.S. and New Mexico. These are important considerations in the development of projections of aviation demand for CVN.

General aviation aircraft are classified as all aircraft not flown by commercial airlines or the military. This includes an incredibly diverse array of flying that ranges from a personal vacation trip in a small single engine plane to an overnight package delivery to an emergency medical evacuation to a morning sightseeing flight to flight instruction that trains new pilots to helicopter traffic reports that keep drivers informed of rush-hour delays. Simply stated, general aviation encapsulates all of those individual unscheduled aviation activities that enrich, enhance, preserve, and protect our lives.

As defined by the FAA, general aviation activities are divided into six use categories:

- *Personal* - About a third of all private flying in the United States is for personal reasons, which may include practicing flight skills, personal or family travel, personal enjoyment, or personal business.
- *Instructional* - All private flight instruction for purposes ranging from private pilot to airline pilot is conducted through general aviation.
- *Corporate* - About 12 percent of the total private flying in the U.S. is done in aircraft owned by a business and piloted by a professional. The majority of these flights are in jets and cover long distances, with some flying to intercontinental and international destinations. Businesses elect to fly these trips to save time and expand their geographic and operational networks.
- *Business* - About 11 percent of the total private flying in the U.S. is done by business persons flying themselves to meetings or other events, primarily in piston or turboprop aircraft. Most of the pilots

own or work for relatively small businesses and use the aircraft to accomplish missions that would otherwise take more time or would be infeasible.

- *Air Taxi* - When scheduled air service either is not available or inconvenient, businesses and individuals use charter aircraft from air taxis service providers. These flights save time and make it possible to fly directly to places that cannot be reached by scheduled service. (Note that "air taxi" is also utilized as a commercial air service classification, which is discussed later.)
- *Other* - All other activities are classified as being "other." Given the diverse nature general aviation, this includes disaster relief, search and rescue, police operations, news reporting, border patrol, forest firefighting, aerial photography and surveying, crop dusting, and tourism activities, among many others.

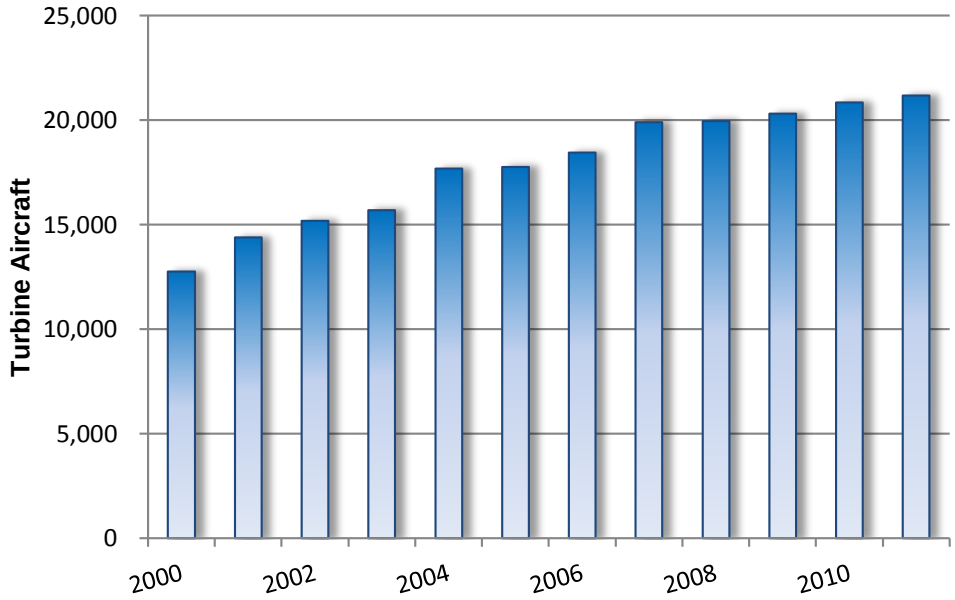
Business Use of General Aviation

Business and corporate aviation are the fastest growing facets of general aviation. Companies and individuals use aircraft as a tool to improve the efficiency and productivity of their business and personnel. Use of general aviation aircraft afford businesses direct control of their travel itineraries, their travel destinations and significantly reduce travel times and inconveniences often associated with scheduled airline service.

Corporate general aviation is not the exclusive concern of Fortune 500 companies. In fact, according to the NBAA's Business Aviation Fact Book 2012, only 3 percent of the approximately 15,000 business aircraft registered in the U.S. are flown by these companies. The remaining 97 percent are actually operated by a broad cross-section of organizations, including government, universities, charitable organizations and businesses of all sizes. The vast majority of the U.S. companies that utilize business aircraft (85 percent) are small and mid-size businesses, many of which are based in the dozens of communities across the country where the airlines have reduced or eliminated service. The benefits of corporate general aviation are evidenced by the significant growth that business/corporate general aviation has recently experienced.

Business use of general aviation aircraft ranges from small, single-engine aircraft rentals to multiple aircraft corporate fleets supported by dedicated flight crews and mechanics. Business aircraft usage by smaller companies has also escalated dramatically as various chartering, leasing, fractional ownership, interchange agreements, partnerships, and management contracts have emerged. FAA statistics depicted in **Figure 2-2** show the growth in the number of general aviation turbine aircraft used predominantly for business use.

Figure 2-2: General Aviation Turbine Aircraft Growth 2000-2011



Source: FAA

Of particular note is the immense popularity of fractional ownership operations, which began in 1986 with the creation of a program that offered aircraft owners increased flexibility in the ownership and operation of aircraft. The program uses current aircraft acquisition concepts, including shared or joint aircraft ownership, and provides for the management of the aircraft by an aircraft management company. The aircraft owners participating in the program agree not only to share their own aircraft with others having a shared interest in that aircraft, but also to lease their aircraft to other owners in the program. The aircraft owners use a common management company to provide aviation management services including maintenance of the aircraft, pilot training and assignment, and administration of the leasing of the aircraft among the owners.

Even in an unsteady economy, fractional operators say business has continued to improve as existing customers re-enter the market or increase their fractional aircraft usage. In addition, they say an increasing number of new prospects are making the move to fractional ownership as an alternative to flying commercially or owning a business jet outright. In the U.S., fractional-share ownership makes up 15% of business-aviation flights.

Growing segments of the business aircraft fleet mix include business liners and very light jets (VLJ). Business liners are large business jets, such as the Boeing Business Jet and Airbus ACJ, which are reconfigured versions of passenger aircraft flown by large commercial airlines. Labeled as "personal jets," VLJs are a relatively new category of aircraft that are small, six-seat jets costing substantially less than typical business jet aircraft. Although many models are under development or awaiting certification, just three

Eclipse 550 Very Light Jet (VLJ)

have so far made deliveries to customers: the Eclipse 500, Embraer Phenom 100, and Cessna Mustang. The Eclipse 550 was certified in April 2012 and received its production certificate in March 2013.

Anticipated General Aviation Trends

Examples of measures of national general aviation activity that are monitored and forecasted by the FAA on an annual basis in the *FAA Aerospace Forecasts* include active aircraft fleet and active hours flown.

Single engine aircraft

Single and multi-engine piston aircraft experienced a decline in the number of aircraft between 2000 and 2012. Although still the largest portion of aircraft in the active fleet, the number of single engine aircraft fell from 149,000 in 2000 to 136,000 in 2012, a 0.8 percent average annual decline. During that same period, multi-engine piston aircraft had a much steeper decline, falling from 21,000 aircraft to 15,600, a 2.5 percent annual decrease. In total, active piston aircraft decreased at 1.0 percent annually over the last twelve years. In its annual aviation forecast, the FAA indicated that it expects the number of active piston general aviation aircraft to continue to decline, but by a lower rate than in the past decade. Over the next decade, the decrease in the number of piston aircraft is expected to be 0.5 percent per year and 0.3 percent over the next two decades. The result of these predictions show total piston aircraft (combined single and multi-engine) falling from 152,000 in 2012 to 143,000 in 2033.

As indicated above, turboprop and jet aircraft experienced substantial growth between 2000 and 2012, increasing from approximately 8,800 to over 21,500 aircraft, over a 4.5 percent average annual increase over that period. Between 2003 and 2004, heavily influenced by economic recession and pressures on companies to reduce controllable costs, the overall production of jet aircraft declined slightly. Since that time, however, the numbers of jet aircraft have reassumed their aggressive growth pattern. One of the most important trends identified by the FAA in these forecasts is the strong growth anticipated in active general aviation jet aircraft. The active general aviation turboprop and jet aircraft fleet is anticipated to continue to increase dramatically over the projection period, to over 27,700 aircraft in 2022, with jet aircraft doubling in numbers by 2032.

Cessna Citation X Jet

As a whole, business aviation is expected to grow faster than private or recreational aviation, driven by a growing U.S. and world economy, and as discussed above, turboprops and jets will fare better than piston aircraft, with continuing growth of about 2 to 3 percent per year. Even with the anticipated decline of piston aircraft during the 20-year planning period, growth in jet aircraft is expected to more than make up for the decline, resulting in a gain of total general aviation aircraft of 0.5 percent per year. This trend illustrates a movement in the general aviation community toward higher-performing, more demanding aircraft.

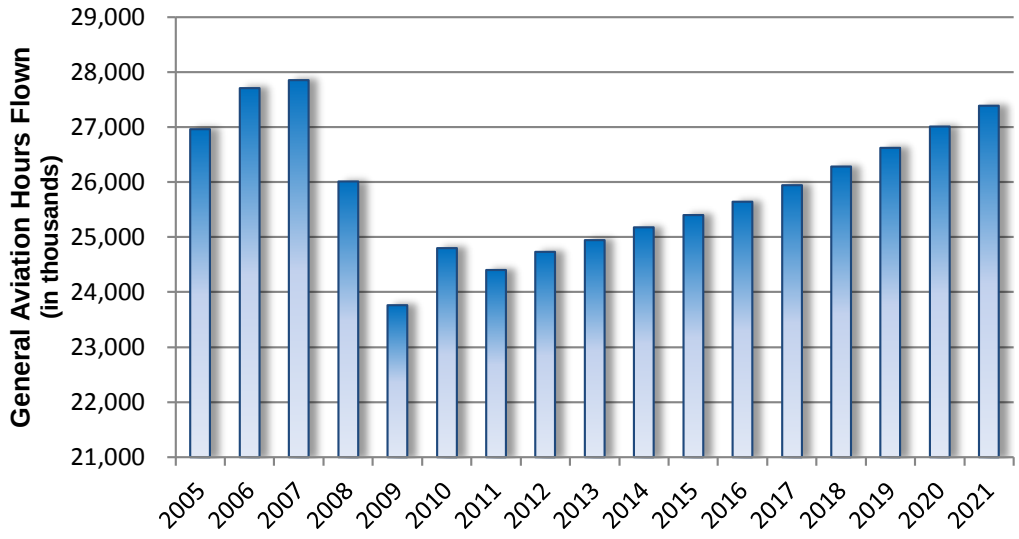
Remos GX Light Sport Aircraft

The FAA has also established a relatively new category of aircraft, light sport aircraft. This aircraft are very small aircraft (usually holding only one or two people). With over 6,800 aircraft currently flying, the FAA predicts this category to grow 3.7 percent per year by the end of 2013, and then increase 2 percent yearly until 2033.

The FAA also tracks and projects a valuable metric known as Active General Aviation and Air Taxi Hours Flown. This metric captures a number of activity-related data including aircraft utilization, frequency of use, and duration of use. Hours flown in general aviation piston aircraft experienced a significant decrease of 3.9 percent annually, from 2000 to 2012. However, hours flown within this category are expected to improve over the 20-year planning period with an annual decrease rate of 0.5 percent. For turboprop and jet aircraft, hours flown are expected to continue to grow at a relative high rate of 3.5 percent per year from 2012 to 2033.

Figure 2-3 depicts general aviation hours flown from 2005 through 2011 as well as projected hours flown through 2021. As shown by the graph, hours flown during the period from 2007 to 2009 experienced dramatic decline spurred by the economic recession, impacting piston aircraft owners the most. The FAA predicts annual growth of hours flown over the 20-year period will be 1.5 percent. Compared to the projected 0.5 percent average annual growth rate of the general aviation aircraft, the difference from hours flown represents anticipated increases in utilization. Total hours flown by general aviation aircraft are estimated to reach 33.5 million by 2033, compared to 24.6 million in 2012.

Figure 2-3: Historic/Projected General Aviation and Air Taxi Hours Flown



Source: FAA Aerospace Forecasts, Fiscal Years 2005 – 2021

2.2.3 Regional Trends

As noted previously, not all national trends are experienced on a regional level. Therefore, additional data was collected and reviewed to illustrate the potential growth areas in aviation demand for CVN. This focused heavily on socioeconomic development potential in and surrounding the CVN airport market area.

Aviation activity has traditionally been linked to various socioeconomic factors, such as population, employment and earnings. The link is related to the discretionary nature of personal and business travel as well as the recreational component of general aviation activity. The data presented below was taken from the 2013 Complete Economic and Demographic Data Source prepared by Woods and Poole Economics, Inc. In most cases, the Woods and Poole data provides a conservative estimate of growth. Additional data sources included the U.S. Census Bureau and the U.S. Bureau of Economic Analysis (BEA). It must also be noted that the data collected from these sources is aggregated on a county basis; therefore, for the purposes of this analysis, the airport market area for CVN was reduced slightly to include just Curry County, New Mexico.

This analysis examined the historical trends and future projections of the area's population, employment, and earnings.

Population

Table 2-1 summarizes population growth trends experienced between 1990 and 2011 for Curry County. Trends impacting cities and towns within the region may impact Clovis Municipal Airport. These trends are compared to population trends in New Mexico and the United States.

Table 2-1: Local, State and National Population

Area	1990	2000	2011	CAGR[1]
Curry County, NM	42,320	44,990	49,650	0.8%
State of New Mexico	1,521,510	1,821,200	2,082,220	1.5%
United States	249,622,810	282,162,410	311,591,920	1.1%

Source: Woods & Pool Economics, Inc.
[1] CAGR = Compound Annual Growth Rate

Employment and Personal Income

There are a number of demographic factors that impact, to varying degrees, the demand for general aviation in any particular region. In addition to population trends, regional economic trends can also significantly impact aviation demand.

Personal income reflects the sum of wages and salaries of workers within a defined geographic area as well as other sources of income. This is reflective of how positive the business climate is in a region. The growth in personal income relates

to aviation activity in that corporate and private use of general aviation services is sometimes discretionary in nature. As with other demographic indicators, current and forecast personal income for Curry County was compiled from the Woods and Poole data and presented below in Table 2-2.

Table 2-2: Employment and Personal Income

Year	Curry County Employment	Curry County Personal Income ($ Millions)
1990	19,700	847.8
2000	22,050	1,031.7
2011	24,930	1,645.1
Curry County CAGR	1.1%	3.2%
New Mexico CAGR	1.6%	3.4%
U.S. CAGR	1.1%	2.6%

Source: Woods & Pool Economics, Inc.

For both employment and personal income, the socioeconomic indicators for Curry County show lower annual growth than the rest of the state, but are the same or higher than national growth rates. These measures, along with population growth rates discussed above, will be used in developing aviation projections at CVN later in this chapter.

2.3 HISTORICAL AND EXISTING AVIATION ACTIVITY

Historical aircraft and operations data for CVN provides the baseline from which future activity at the Airport can be projected. While historical trends are not always reflective of future periods, historical data can provide insight into how local, regional, and national demographic and aviation-related trends may be tied to a given airport. The following sections include historical overviews of CVN's aircraft operations (generally defined as either an aircraft landing or departure – hence a takeoff and a landing would count as two operations), based aircraft (generally defined as an aircraft that is permanently stored at an airport), and enplaned passengers departing air carrier flights originating from CVN.

2.3.1 Aircraft Operations

Annual aircraft operations represent the number of aircraft takeoffs and landings occurring at an airport during a calendar year. The historical operations data includes operations conducted by both based aircraft as well as operations conducted by itinerant aircraft, which are those based at other airports that arrive at CVN for a variety of reasons, including business, recreation, or flight training purposes. Historical aircraft operations data for CVN are summarized below in Table 2-3.

Aircraft operations are organized into two categories: itinerant operations and local operations. The FAA defines a local operation as any operation performed

by an aircraft operating in the local traffic pattern or within sight of the tower, or aircraft known to be departing or arriving from flight in local practice areas, or aircraft executing practice instrument approaches at the airport. They are often associated with flight training operations. Itinerant operations are all other aircraft operations.

Table 2-3: CVN Aircraft Operations

	Itinerant			Local		
Year	Air Carrier	GA	Military	Local GA	Military	Total
2002	2,400	24,500	200	23,500	0	50,600
2003	4,100	26,000	200	24,000	0	54,300
2004	4,100	26,000	200	24,000	0	54,300
2005	2,072	24,500	200	24,000	0	50,772
2006	4,000	24,180	100	17,520	0	45,800
2007	4,032	24,373	100	17,660	0	46,165
2008	4,064	24,568	100	17,801	0	46,533
2009	4,097	24,765	100	17,944	0	46,906
2010	1,282	14,778	1,872	9,557	0	27,489
2011	1,282	14,778	1,872	9,557	0	27,489
2012*	1,282	14,896	1,872	9,633	0	27,683

Source: FAA Terminal Area Forecast, 2013 *Estimated

2.3.2 Based Aircraft and Enplanements

As shown in Table 2-4, based on the FAA Terminal Area Forecast (TAF) data, the number of based aircraft at CVN has declined over the past decade. Projections for passenger activity at airports are typically estimated for those passengers departing an airport, also known as enplaned passengers. Generally, deplaned/arriving passenger volume is the same as enplaned passenger volume, thus representing the typical round-trip flight. Table 2-4 below also shows the slight growth in historical enplanements at CVN.

Table 2-4: CVN Based Aircraft and Enplanements

Year	Based Aircraft	Enplanements
2002	104	1,892
2003	103	1,527
2004	104	1,801
2005	86	2,159
2006	76	2,341
2007	78	2,390
2008	71	2,559
2009	69	2,074
2010	71	2,099
2011	71	2,136
2012*	72	1,772

Source: FAA Terminal Area Forecast, 2013 *Estimated

2.4 PROJECTIONS OF AVIATION ACTIVITY

Projections of aviation activity are generated by employing historical data and incorporating assumptions, conditions, and trends. In truth, forecasting of any type is as much an art as science, and no matter how sophisticated, represents an "educated guess" of a particular point in time. Therefore, forecasts must be updated periodically and revised as necessary to reflect new conditions and developments.

During a master planning effort, aviation activity forecasts are typically established by using a wide variety of assumptions that result in a wide range of outcomes. This is intentionally done in order to provide a broad view of future airport utilization potentials. Once that broad view has been established, then a careful examination of those assumptions is undertaken to determine which could be reasonably applied given that particular airport's current situation.

For CVN, two existing forecasts for the Airport and nine different types of forecast methodologies were considered the key master plan forecast metrics for assessment. These forecasts and methodologies included the following:

1. FAA Terminal Area Forecast (existing CVN forecast)
2. CVN Action Plan Forecast 2006 (updated to 2012) (existing CVN forecast)
3. FAA Active General Aviation and Air Taxi Hours Flown (FAA Aerospace Forecasts FY 2012-2032)
4. Population Growth in the Airport Market Area
5. Employment Growth in the Airport Market Area
6. Per Capita Personal Income Growth in the Airport Market Area
7. Operations Per Based Aircraft (OPBA) – Population Growth in the Airport Market Area
8. Operations Per Based Aircraft (OPBA) – Employment Growth in the Airport Market Area
9. Operations Per Based Aircraft (OPBA) – Per Capita Personal Income Growth in the Airport Market Area
10. Operations Per Based Aircraft (OPBA) – Based Aircraft Linear Regression
11. NM SASP Forecasts (OPBA-Based Aircraft Forecast Growth) – Updated to 2012

2.4.1 Existing Forecasts

There are two existing forecasts for CVN that must be considered within this master plan forecasting effort:

1. FAA Terminal Area Forecast (Forecast Issued January 2013)
2. Forecasts from the City of Clovis, NM Airport Action Plan, 2006

These forecasts are presented in detail in the following pages and comprise the first two forecast methodologies included in this forecasting effort.

Since the FAA must formally accept the master plan forecast for the master planning projects to be eligible for federal funding, all forecast scenarios must be measured against the FAA's TAF. Generally speaking, the FAA will typically approve the preferred master plan forecasts if they are prepared using an accepted forecasting analysis and are relatively consistent with the TAF. For CVN, the FAA would likely consider the preferred forecasts to be consistent with the TAF if they meet the following criteria, as outlined in FAA Advisory Circular 150/5070-6B, *Airport Master Plans*:

- Forecasts differ by less than 10 percent in the 5-year forecast and 15 percent in the 10-year period, or
- Forecasts do not affect the timing or scale of an airport project, or
- Forecasts do not affect the role of the airport as defined in the current version of FAA Order 5090.3, *Field Formulation of the National Plan of Integrated Airport Systems*.
  (Master plan forecasts can fall outside of these criteria and still be accepted, but must be justified for the FAA to accept them.)

Additionally, airport activity demand forecasts were most recently completed for CVN during the Airport Action Plan effort that resulted in the extension of Runway 4/22. (Also note that high-level forecasts were recently generated for CVN and the overall statewide airport system as part of the 2009 New Mexico Airport System Plan Update 2009 (NMSASP) – these are specifically addressed in the forecast scenarios.) As such, the goal of this master plan forecasting effort is two-fold:

1. Prepare new forecasts for the Clovis Municipal Airport that ascribe to the approaches and methodologies accepted by FAA, and
2. Consider the consistency of the new master plan forecasts with those of the 2006 Airport Action Plan and the NMSASP.

The following sections provide a review of the primary forecast metrics identified for the Clovis Municipal Airport Master Plan process. Those forecast metrics include air carrier, air taxi or commuter flight operations, general aviation activity (including itinerant and local operations), military activity, based aircraft, and commercial service passenger enplanements. Within each section, the results of the forecast scenarios described above are presented.

2.4.2 CVN Forecast Scenarios

Title	**Forecast 1 - FAA APO TERMINAL AREA FORECAST (TAF)**
Data Source / Date	FAA / Forecast Issued January 2013
Rationale for Utilizing Scenario	1. This is one of CVN's two existing forecasts of record and should be considered as part of a master planning forecasting effort. 2. The FAA TAF is the FAA's baseline forecast for all airports. Significant deviation from the current TAF must be justified to the FAA. 3. In correlating historical TAF operations with historical airport operations, the Pearson Coefficient is 0.904, which indicates a strong correlation and is significant. 4. The based aircraft totals for the base year were updated to reflect an FAA 5010 inspection conducted in January 2013. The based aircraft growth rate utilized reflected the existing TAF growth rate.
Forecast Growth Rates	The Compound Annual Growth Rates (CAGR) utilized in this forecast for the various critical elements are described in the following:

Air Carrier/Air Taxi/Commuter CAGR:	0.00%
Itinerant General Aviation CAGR:	0.80%
Itinerant Military CAGR:	0.00%
Local General Aviation CAGR:	0.80%
Local Military CAGR:	0.00%
Based Aircraft CAGR:	0.95%
Enplanements CAGR:	0.00%

Continued on next page

CVN Forecast Scenario, Continued

Forecast Data – Airport Operations

Year	Itinerant AC/AT	Itinerant GA	Itinerant Military	Local GA	Local Military	Total
Base Year						
2012	1,282	14,896	1,872	9,633	0	27,683
Forecast						
2017	1,282	15,501	1,872	10,022	0	28,677
2022	1,282	16,131	1,872	10,426	0	29,711
2032	1,282	17,466	1,872	11,289	0	31,909

Forecast Data – Based Aircraft *(Base year adjusted to FAA 5010 inspection data)*

Year	Based Aircraft
Base Year	
2012	74
Forecast	
2017	75
2022	78
2032	89

Forecast Data – Commercial Enplanements

Year	Enplanements
Base Year	
2012	1,772
Forecast	
2017	1,772
2022	1,772
2032	1,772

Title	**Forecast 2 - CVN AIRPORT ACTION PLAN 2006 (forecasts adjusted to 2012)**
Data Source / Date	City of Clovis, NM Airport Action Plan, 2006
Rationale for Utilizing Scenario	1. This is one of CVN's two existing forecasts of record and should be considered as part of a master planning forecasting effort. 2. The CVN Airport Action Plan forecasts are the most recent forecasts for CVN that have been accepted by the FAA. (Historical data was not provided in the forecasts so a Pearson Coefficient could not be identified.)
Forecast Growth Rates	The Compound Annual Growth Rates (CAGR) utilized in this forecast for the various critical elements are described in the following:

Air Carrier/Air Taxi/Commuter CAGR:	0.66%
Itinerant General Aviation CAGR:	0.64%
Itinerant Military CAGR:	0.00%
Local General Aviation CAGR:	0.64%
Local Military CAGR:	0.00%
Based Aircraft CAGR:	0.78%
Enplanements CAGR:	5.85%

Continued on next page

CVN Forecast Scenario, Continued

Forecast Data – Airport Operations

Year	Itinerant AC/AT	Itinerant GA	Itinerant Military	Local GA	Local Military	Total
Base Year						
2012	1,282	14,896	1,872	9,633	0	27,683
Forecast						
2017	1,325	15,379	1,872	9,945	0	28,521
2022	1,369	15,877	1,872	10,268	0	29,386
2032	1,462	16,923	1,872	10,944	0	31,201

Forecast Data – Based Aircraft *(Base year adjusted to FAA 5010 inspection data)*

Year	Based Aircraft
Base Year	
2012	74
Forecast	
2017	77
2022	80
2032	86

Forecast Data – Commercial Enplanements

Year	Enplanements
Base Year	
2012	1,772
Forecast	
2017	2,355
2022	3,129
2032	5,524

Title	Scenario 3 - FAA ACTIVE GENERAL AVIATION & AIR TAXI HOURS FLOWN FORECAST
Data Source / Date	FAA Aerospace Forecasts / FY 2012-2032
Rationale for Utilizing Scenario	The FAA publishes its Aerospace Forecasts National trends in order to provide a baseline projection for the aviation industry. It can reasonably be assumed that Clovis Municipal Airport would operate reasonably consistent with national aviation trends.
Scenario Growth Rates	The Compound Annual Growth Rates (CAGR) utilized in this scenario for the various critical forecast elements are described in the following:

Air Carrier/Air Taxi/Commuter CAGR:	2.48%
Itinerant General Aviation CAGR:	1.72%
Itinerant Military CAGR:	0.00%
Local General Aviation CAGR:	1.72%
Local Military CAGR:	0.00%
Based Aircraft CAGR:	1.72%
Enplanements CAGR:	2.47%

Continued on next page

CVN Forecast Scenario, Continued

Scenario Results – Airport Operations

Year	Itinerant AC/AT	Itinerant GA	Itinerant Military	Local GA	Local Military	Total
Base Year						
2012	1,282	14,896	1,872	9,633	0	27,683
Forecast						
2017	1,449	16,222	1,872	10,490	0	30,033
2022	1,638	17,666	1,872	11,424	0	32,600
2032	2,093	20,951	1,872	13,548	0	38,464

Scenario Results – Based Aircraft *(Base year adjusted to FAA 5010 inspection data)*

Year	Based Aircraft
Base Year	
2012	74
Forecast	
2017	81
2022	88
2032	104

Scenario Results – Commercial Enplanements

Year	Enplanements
Base Year	
2012	1,772
Forecast	
2017	2,002
2022	2,262
2032	2,887

Title	Scenario 4 - POPULATION GROWTH IN MARKET AREA
Data Source / Date	US Census Bureau Census Population Estimates, Released June 28, 2012; Woods & Poole Economics Data, 2012 CEDDS.
Rationale for Utilizing Scenario	1. Growth in aviation activity at an airport typically shows a strong correlation to population growth in the airport's market area. 2. In correlating historical population growth in the airport's market area with historical based aircraft, the Pearson Coefficient is 0.861, which shows a strong correlation and is significant.
Scenario Growth Rates	The Compound Annual Growth Rates (CAGR) utilized in this scenario for the various critical forecast elements are described in the following:

Air Carrier/Air Taxi/Commuter CAGR:	0.41%
Itinerant General Aviation CAGR:	0.41%
Itinerant Military CAGR:	0.41%
Local General Aviation CAGR:	0.41%
Local Military CAGR:	0.41%
Based Aircraft CAGR:	0.41%
Enplanements CAGR:	0.38% (derived)

Continued on next page

CVN Forecast Scenario, Continued

Scenario Results – Airport Operations

Year	Itinerant AC/AT	Itinerant GA	Itinerant Military	Local GA	Local Military	Total
Base Year						
2012	1,282	14,896	1,872	9,633	0	27,683
Forecast						
2017	1,308	15,204	1,911	9,832	0	28,255
2022	1,336	15,518	1,950	10,035	0	28,839
2032	1,391	16,166	2,032	10,454	0	30,044

Scenario Results – Based Aircraft *(Base year adjusted to FAA 5010 inspection data)*

Year	Based Aircraft
Base Year	
2012	74
Forecast	
2017	76
2022	77
2032	80

Scenario Results – Commercial Enplanements

Year	Enplanements
Base Year	
2012	1,772
Forecast	
2017	1,806
2022	1,840
2032	1,912

Title	Scenario 5 - EMPLOYMENT GROWTH IN MARKET AREA
Data Source / Date	Woods & Poole Economics Data, 2012 CEDDS.
Rationale for Utilizing Scenario	1. Growth in aviation activity at an airport typically shows a strong correlation to employment growth in the airport's market area. 2. In correlating employment growth in the airport's market area with historical based aircraft, the Pearson Coefficient is 0.828, which shows a strong correlation and is significant.
Scenario Growth Rates	The Compound Annual Growth Rates (CAGR) utilized in this scenario for the various critical forecast elements are described in the following:

Air Carrier/Air Taxi/Commuter CAGR:	1.21%
Itinerant General Aviation CAGR:	1.21%
Itinerant Military CAGR:	1.21%
Local General Aviation CAGR:	1.21%
Local Military CAGR:	1.21%
Based Aircraft CAGR:	1.21%
Enplanements CAGR:	1.18% (derived)

Continued on next page

CVN Forecast Scenario, Continued

Scenario Results – Airport Operations

Year	Itinerant AC/AT	Itinerant GA	Itinerant Military	Local GA	Local Military	Total
Base Year						
2012	1,282	14,896	1,872	9,633	0	27,683
Forecast						
2017	1,361	15,819	1,988	10,230	0	29,399
2022	1,446	16,800	2,111	10,864	0	31,221
2032	1,631	18,947	2,381	12,253	0	35,211

Scenario Results – Based Aircraft *(Base year adjusted to FAA 5010 inspection data)*

Year	Based Aircraft
Base Year	
2012	74
Forecast	
2017	79
2022	83
2032	94

Scenario Results – Commercial Enplanements

Year	Enplanements
Base Year	
2012	1,772
Forecast	
2017	1,879
2022	1,993
2032	2,241

Title	**Scenario 6 - PER CAPITA PERSONAL INCOME GROWTH IN MARKET AREA**
Data Source / Date	Woods & Poole Economics Data, 2012 CEDDS.
Rationale for Utilizing Scenario	1. Growth in aviation activity at an airport typically shows a strong correlation to per capita personal income growth in the airport's market area. 2. In correlating per capita personal income growth in the airport's market area with historical based aircraft, the Pearson Coefficient is 0.861, which shows a strong correlation and is significant.
Scenario Growth Rates	The Compound Annual Growth Rates (CAGR) utilized in this scenario for the various critical forecast elements are described in the following:

Air Carrier/Air Taxi/Commuter CAGR:	1.59%
Itinerant General Aviation CAGR:	1.59%
Itinerant Military CAGR:	1.59%
Local General Aviation CAGR:	1.59%
Local Military CAGR:	1.59%
Based Aircraft CAGR:	1.59%
Enplanements CAGR:	1.61% (derived)

Continued on next page

CVN Forecast Scenario, Continued

Scenario Results – Airport Operations

Year	Itinerant AC/AT	Itinerant GA	Itinerant Military	Local GA	Local Military	Total
Base Year						
2012	1,282	14,896	1,872	9,633	0	27,683
Forecast						
2017	1,387	16,118	2,026	10,424	0	29,955
2022	1,501	17,441	2,192	11,279	0	32,413
2032	1,758	20,422	2,566	13,206	0	37,952

Scenario Results – Based Aircraft *(Base year adjusted to FAA 5010 inspection data)*

Year	Based Aircraft
Base Year	
2012	74
Forecast	
2017	80
2022	87
2032	101

Scenario Results – Commercial Enplanements

Year	Enplanements
Base Year	
2012	1,772
Forecast	
2017	1,919
2022	2,079
2032	2,439

Title	Scenario 7 - OPERATIONS PER BASED AIRCRAFT (OPBA) - POPULATION GROWTH IN MARKET AREA
Data Source / Date	US Census Bureau Census Population Estimates, Released June 28, 2012; Woods & Poole Economics Data, 2012 CEDDS.
Rationale for Utilizing Scenario	1. Scenarios 1-6 use a "top down" approach to aircraft operations forecasts. This scenario uses a "bottom up" approach. 2. Growth in aviation activity at an airport typically shows a strong correlation to population growth in the airport's market area. 3. In correlating historical population growth in the airport's market area with historical based aircraft, the Pearson Coefficient is 0.861, which shows a strong correlation and is significant.
Scenario Operations per Based Aircraft & Growth Rates	The Operations per Based Aircraft (OPBA) and Compound Annual Growth Rates (CAGR) utilized in this scenario for the various critical forecast elements are described in the following:

Air Carrier OPBA:	17.32
Itinerant Air Taxi/Commuter OPBA:	0.03
Itinerant General Aviation OPBA:	201.30
Itinerant Military OPBA:	25.30
Local General Aviation OPBA:	130.19
Local Military OPBA:	0.00
Based Aircraft CAGR:	0.41%
Enplanements CAGR:	0.41%

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CVN Forecast Scenario, Continued

Scenario Results – Airport Operations

Year	Itinerant AC/AT	Itinerant GA	Itinerant Military	Local GA	Local Military	Total
Base Year						
2012	1,282	14,896	1,872	9,633	0	27,683
Forecast						
2017	1,310	15,200	1,920	9,831	0	28,261
2022	1,337	15,511	1,949	10,032	0	28,829
2032	1,392	16,151	2,030	10,446	0	30,019

Scenario Results – Based Aircraft *(Base year adjusted to FAA 5010 inspection data)*

Year	Based Aircraft
Base Year	
2012	74
Forecast	
2017	76
2022	77
2032	80

Scenario Results – Commercial Enplanements

Year	Enplanements
Base Year	
2012	1,772
Forecast	
2017	1,809
2022	1,846
2032	1,923

Title	Scenario 8 - OPERATIONS PER BASED AIRCRAFT (OPBA) - EMPLOYMENT GROWTH IN MARKET AREA
Data Source / Date	Woods & Poole Economics Data, 2012 CEDDS.
Rationale for Utilizing Scenario	1. Scenarios 1-6 use a "top down" approach to aircraft operations forecasts. This scenario uses a "bottom up" approach. 2. Growth in aviation activity at an airport often shows a strong correlation to employment growth in the airport's market area. 3. In correlating historical employment growth in the airport's market area with historical based aircraft, the Pearson Coefficient is 0.828, which shows a strong correlation and is significant.
Scenario Operations per Based Aircraft & Growth Rates	The Operations per Based Aircraft (OPBA) and Compound Annual Growth Rates (CAGR) utilized in this scenario for the various critical forecast elements are described in the following:

Air Carrier OPBA:	17.32
Itinerant Air Taxi/Commuter OPBA:	0.03
Itinerant General Aviation OPBA:	201.30
Itinerant Military OPBA:	25.30
Local General Aviation OPBA:	130.19
Local Military OPBA:	0.00
Based Aircraft CAGR:	1.21%
Enplanements CAGR:	1.21%

Continued on next page

CVN Forecast Scenario, Continued

Scenario Results – Airport Operations

Year	Itinerant AC/AT	Itinerant GA	Itinerant Military	Local GA	Local Military	Total
Base Year						
2012	1,282	14,896	1,872	9,633	0	27,683
Forecast						
2017	1,363	15,819	1,988	10,231	0	29,401
2022	1,448	16,798	2,111	10,864	0	31,221
2032	1,632	18,944	2,381	12,252	0	35,209

Scenario Results – Based Aircraft *(Base year adjusted to FAA 5010 inspection data)*

Year	Based Aircraft
Base Year	
2012	74
Forecast	
2017	79
2022	83
2032	94

Scenario Results – Commercial Enplanements

Year	Enplanements
Base Year	
2012	1,772
Forecast	
2017	1,882
2022	1,998
2032	2,254

Title	**Scenario 9 - OPERATIONS PER BASED AIRCRAFT (OPBA) - PER CAPITA PERSONAL INCOME GROWTH IN MARKET AREA**
Data Source / Date	Woods & Poole Economics Data, 2012 CEDDS.
Rationale for Utilizing Scenario	1. Scenarios 1-6 use a "top down" approach to aircraft operations forecasts. This scenario uses a "bottom up" approach. 2. Growth in aviation activity at an airport often shows a strong correlation to per capita personal income growth in the airport's market area. 3. In correlating per capita personal income growth in the airport's market area with historical based aircraft, the Pearson Coefficient is 0.861, which shows a strong correlation and is significant.
Scenario Operations per Based Aircraft & Growth Rates	The Operations per Based Aircraft (OPBA) and Compound Annual Growth Rates (CAGR) utilized in this scenario for the various critical forecast elements are described in the following:

Air Carrier OPBA:	17.32
Itinerant Air Taxi/Commuter OPBA:	0.03
Itinerant General Aviation OPBA:	201.30
Itinerant Military OPBA:	25.30
Local General Aviation OPBA:	130.19
Local Military OPBA:	0.00
Based Aircraft CAGR:	1.59%
Enplanements CAGR:	1.59%

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CVN Forecast Scenario, Continued

Scenario Results – Airport Operations

Year	Itinerant AC/AT	Itinerant GA	Itinerant Military	Local GA	Local Military	Total
Base Year						
2012	1,282	14,896	1,872	9,633	0	27,683
Forecast						
2017	1,389	16,119	2,026	10,425	0	29,959
2022	1,503	17,443	2,192	11,281	0	32,419
2032	1,761	20,426	2,567	13,210	0	37,964

Scenario Results – Based Aircraft *(Base year adjusted to FAA 5010 inspection data)*

Year	Based Aircraft
Base Year	
2012	74
Forecast	
2017	80
2022	87
2032	101

Scenario Results – Commercial Enplanements

Year	Enplanements
Base Year	
2012	1,772
Forecast	
2017	1,917
2022	2,075
2032	2,429

Title	**Scenario 10 - OPERATIONS PER BASED AIRCRAFT (OPBA) –LINEAR REGRESSION HISTORICAL ITINERANT OPERATIONS**
Data Source / Date	FAA APO Terminal Area Forecast (TAF) January 2012
Rationale for Utilizing Scenario	1. Scenarios 1-6 use a "top down" approach to aircraft operations forecasts. This scenario uses a "bottom up" approach. 2. Trend analyses based on a linear regression methodology is an FAA-accepted to forecasting as long as the trend is statistically relevant and significant. 3. In comparing historical based aircraft data with the trend line for that data, the Pearson Coefficient is 0.887, which shows a very good correlation and is considered significant.
Scenario Operations per Based Aircraft & Growth Rates	The Operations per Based Aircraft (OPBA) and Compound Annual Growth Rates (CAGR) utilized in this scenario for the various critical forecast elements are described in the following:

Air Carrier OPBA:	17.32
Itinerant Air Taxi/Commuter OPBA:	0.03
Itinerant General Aviation OPBA:	201.30
Itinerant Military OPBA:	25.30
Local General Aviation OPBA:	130.19
Local Military OPBA:	0.00
Based Aircraft CAGR:	0.33%
Enplanements CAGR:	0.33%

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CVN Forecast Scenario, Continued

Scenario Results – Airport Operations

Year	Itinerant AC/AT	Itinerant GA	Itinerant Military	Local GA	Local Military	Total
Base Year						
2012	1,282	14,896	1,872	9,633	0	27,683
Forecast						
2017	1,305	15,141	1,903	9,793	0	28,142
2022	1,327	15,390	1,934	9,954	0	28,605
2032	1,371	15,901	1,998	10,284	0	29,554

Scenario Results – Based Aircraft *(Base year adjusted to FAA 5010 inspection data)*

Year	Based Aircraft
Base Year	
2012	74
Forecast	
2017	75
2022	76
2032	79

Scenario Results – Commercial Enplanements

Year	Enplanements
Base Year	
2012	1,772
Forecast	
2017	1,801
2022	1,831
2032	1,893

Title	**Scenario 11 – NM SASP FORECAST – OPBA (Updated to 2012)**
Data Source / Date	2009 New Mexico Airport System Plan Update 2009 (NMSASP).
Rationale for Utilizing Scenario	The NM SASP forecast was generated to provide NMDOT Aviation Division with a strategic-level basis for establishing system wide airport facility improvements. This is important since the system plan also provides facility/service improvement recommendations for CVN based on airport system needs – not local ones. It is anticipated that NMDOT Aviation Division will also continue to utilize/update this forecast for system planning purposes.
Scenario Operations per Based Aircraft & Growth Rates	The Operations per Based Aircraft (OPBA) and Compound Annual Growth Rates (CAGR) utilized in this scenario for the various critical forecast elements are described in the following:

Air Carrier OPBA:	17.32
Itinerant Air Taxi/Commuter OPBA:	0.03
Itinerant General Aviation OPBA:	201.30
Itinerant Military OPBA:	25.30
Local General Aviation OPBA:	130.19
Local Military OPBA:	0.00
Based Aircraft CAGR:	0.80%
Enplanements CAGR:	0.80% (derived)

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CVN Forecast Scenario, Continued

Scenario Results – Airport Operations

Year	Itinerant AC/AT	Itinerant GA	Itinerant Military	Local GA	Local Military	Total
Base Year						
2012	1,282	14,896	1,872	9,633	0	27,683
Forecast						
2017	1,336	15,501	1,948	10,026	0	28,811
2022	1,390	16,132	2,027	10,433	0	29,982
2032	1,505	17,469	2,195	11,298	0	32,467

Scenario Results – Based Aircraft *(Base year adjusted to FAA 5010 inspection data)*

Year	Based Aircraft
Base Year	
2012	74
Forecast	
2017	77
2022	80
2032	87

Scenario Results – Commercial Enplanements

Year	Enplanements
Base Year	
2012	1,772
Forecast	
2017	1,844
2022	1,919
2032	2,078

2.4.3 CVN Forecast Scenarios Summary

The previous sections have provided details on the following:

1. Description of CVN's market area as well as demographic and socioeconomic drivers
2. Historical trends at CVN and within the industry
3. Description of CVN's two current forecasts of record
4. Description of the 11 forecast scenarios developed for the CVN Master Plan

The following pages contain comparative summary charts (operations, based aircraft, and commercial enplanements) of how the existing forecasts and forecast scenarios relate to one another. Following are several observations regarding these tables:

1. All charts contain the actual and estimated TAF figures (January 2013), as well as the high/low range by which the FAA typically comparatively reviews forecasts (see previous explanation on p. 2-13).
2. All operational forecast scenarios are relatively consistent (no outliers) and lie within the FAA high/low TAF range.
3. The based aircraft forecast scenarios start higher than the current TAF since they utilize the January 2012 FAA 5010 data as their basis. Nevertheless, they all are relatively consistent (no outliers) and lie within the FAA high/low TAF range by 2014.
4. The enplanement forecast scenarios are relatively consistent with the exception of one outlier forecast (based on the 2006 Airport Action Plan). Additionally, several of the forecasts exceed the FAA high TAF range. This is primarily due, however, to the fact that the FAA TAF shows no growth in enplanements throughout the planning period.

Figure 2-4: CVN Forecast Scenarios – Aircraft Operations

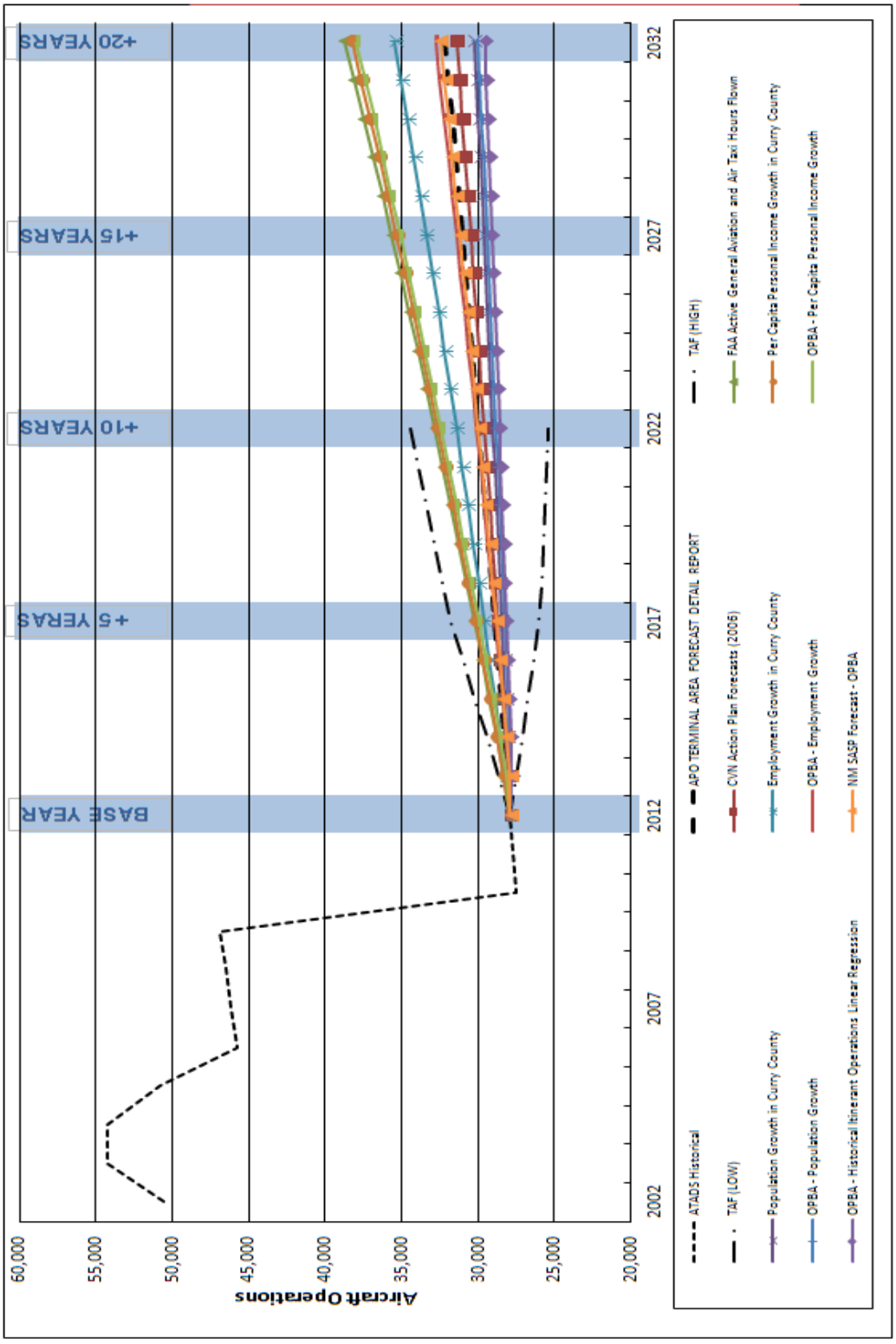


Figure 2-5: CVN Forecast Scenarios – Based Aircraft

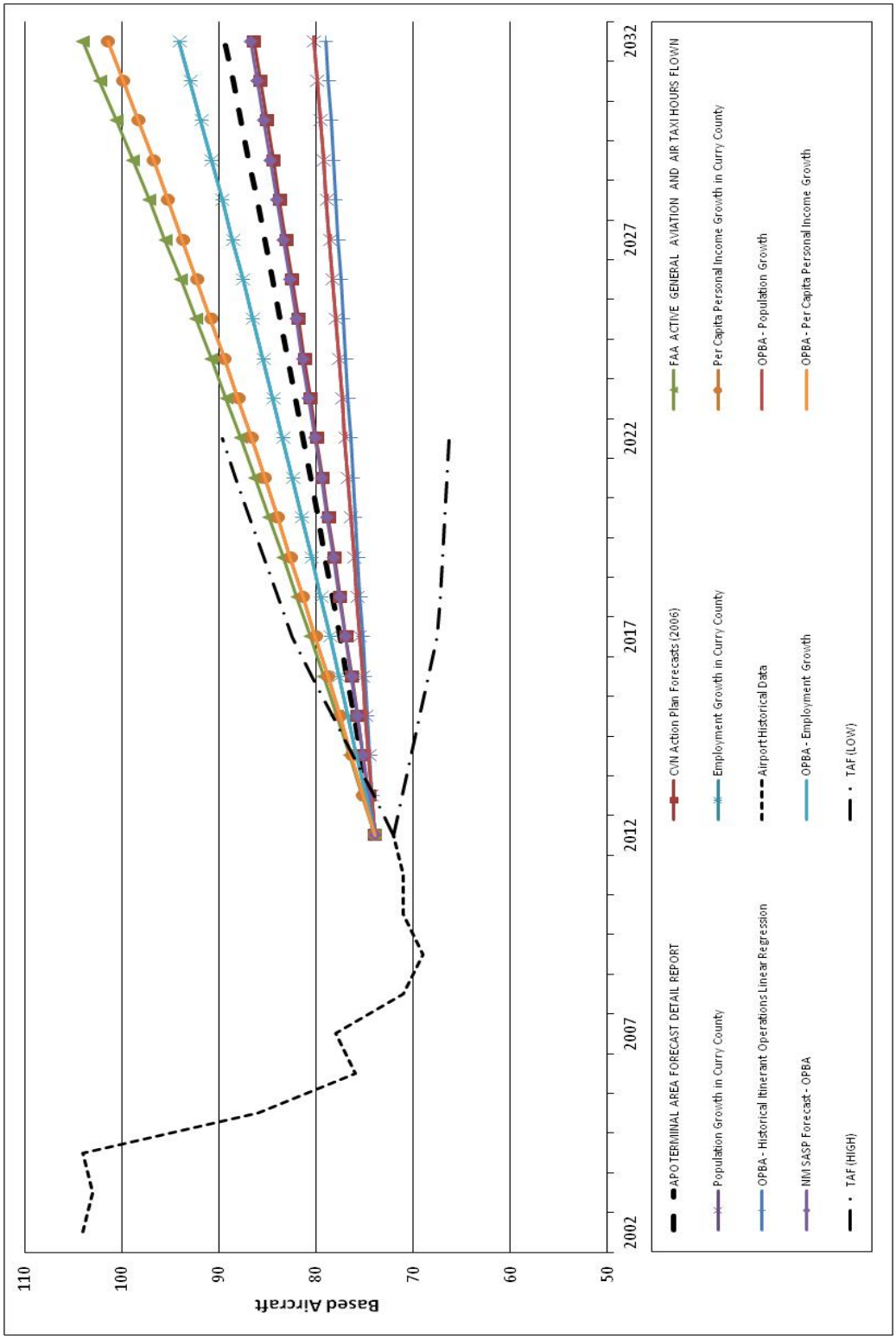
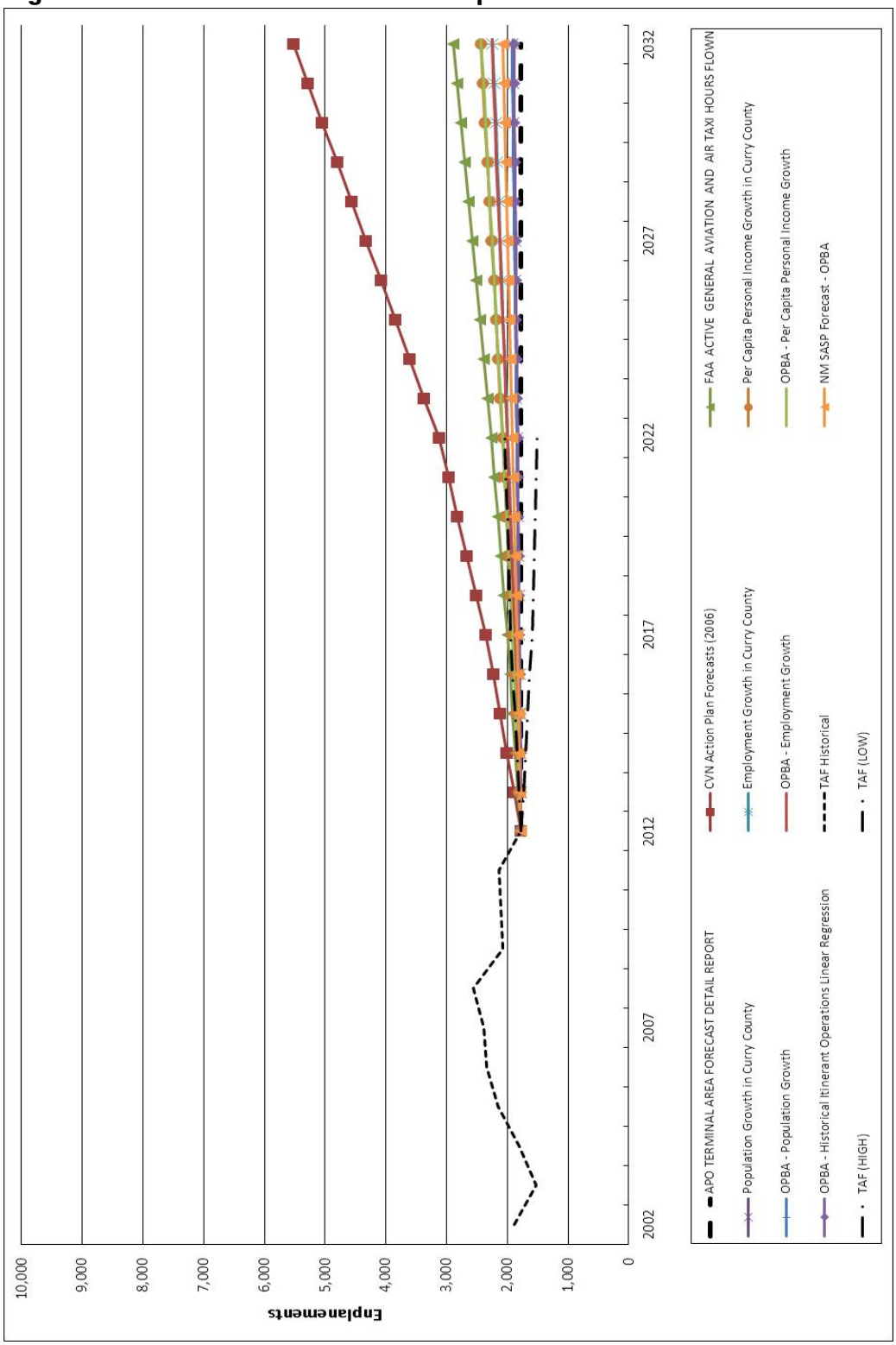


Figure 2-6: CVN Forecast Scenarios – Enplanements



2.5 RECOMMENDED FORECASTS

Through this forecasting effort, which included coordination with key project stakeholders representing CVN management, NMDOT Aeronautics, and the FAA, three forecast applications were identified for use in this master plan. Because of the inherent variability of current aviation trends, the inconsistency of the historic data available for the Airport, and the reasonable uncertainties associated with new commercial service markets for CVN, it is recommended that the CVN Master Plan utilize a forecast "range" approach that is comprised of a low-, medium-, and high-growth forecast for projecting based aircraft and operations. This type of forecasting approach is acceptable and is often employed to build flexibility into a forecast. For this master plan, it is important to note that this forecast range approach achieved the following results:

1. The CVN forecast range is reasonable, defensible, and provides for appropriate range of growth potential for the master plan,
2. The CVN forecast range is consistent within the current FAA TAF,
3. The CVN forecast range is consistent with CVN's current forecast as described within the Airport's existing forecasts above, and
4. The CVN forecast range provides for relatively robust growth in the higher ranges that will enable for appropriate planning with respect to airport facility requirements over the planning period.

Due to long-term stagnant growth and short-term declines in enplanement activity, the recommended enplanement forecast is the FAA TAF, showing no growth. Graphics on the following pages provide a summary of the recommended breakdown of the low-, medium-, and high-growth forecast scenarios that have been identified for based aircraft and operations. A comparison table is not included for enplanements, as one scenario (FAA TAF) is chosen. All recommended range scenarios for operations and based aircraft fall within FAA TAF tolerances. The following table compares the recommended forecast scenarios with the TAF.

	2012	2017	2022	2032	CAGR
Enplaned Passengers					
Forecast Range	1,772	1,772	1,772	1,772	0.0%
FAA TAF	1,772	1,772	1,772	1,772	0.0%
Aircraft Operations					
Forecast Range	27,683	28,255-30,033	28,839-32,600	30,044-38,600	0.40-1.66%
FAA TAF	27,683	28,677	29,711	31,909	0.71%
Based Aircraft					
Forecast Range	74	76-81	77-88	80-104	0.41-1.72%
FAA TAF	72	78	81	89	0.95%

Source: CDM Smith

Figure 2-7: Recommended CVN Forecast Range – Aircraft Operations

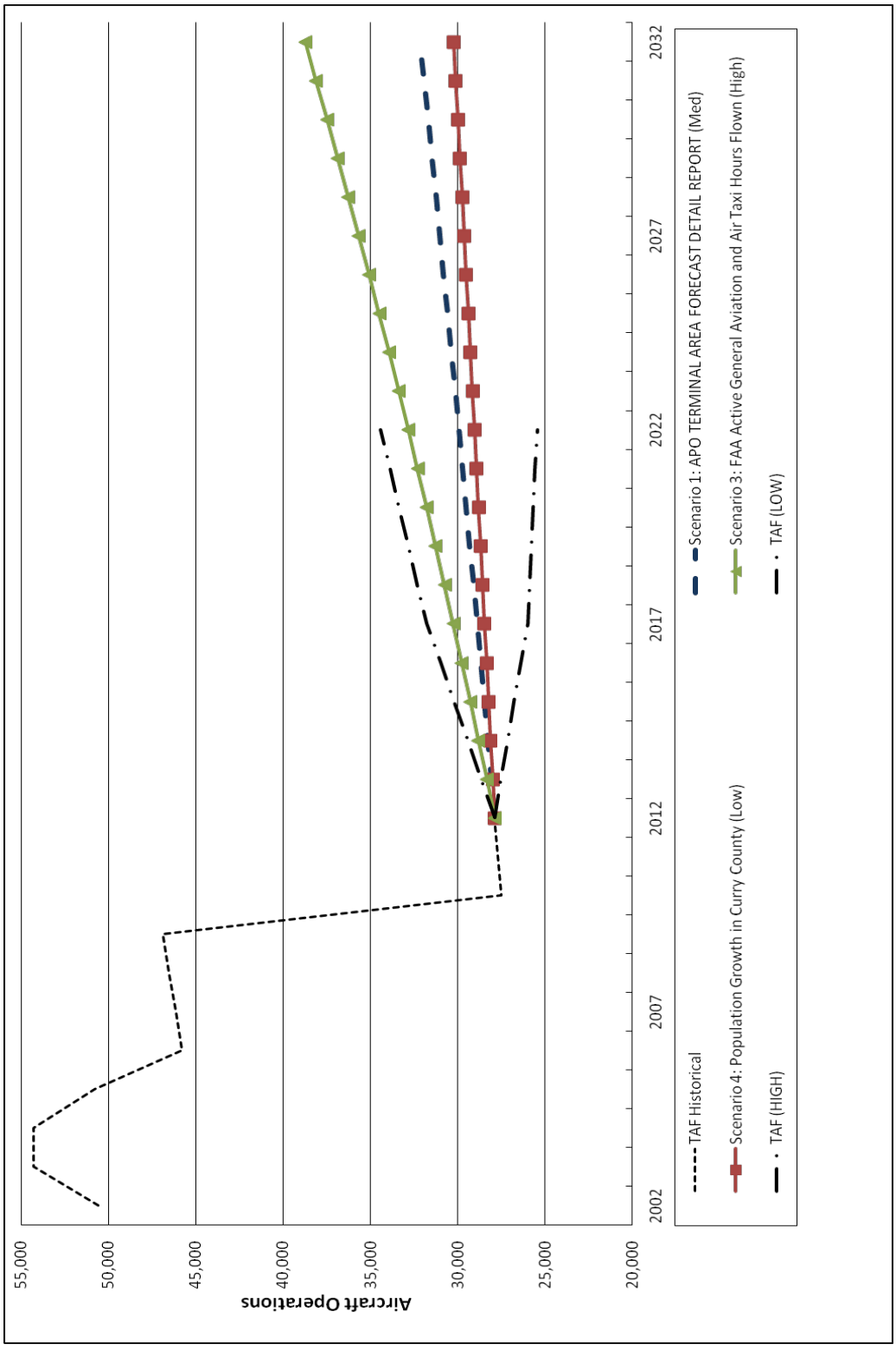
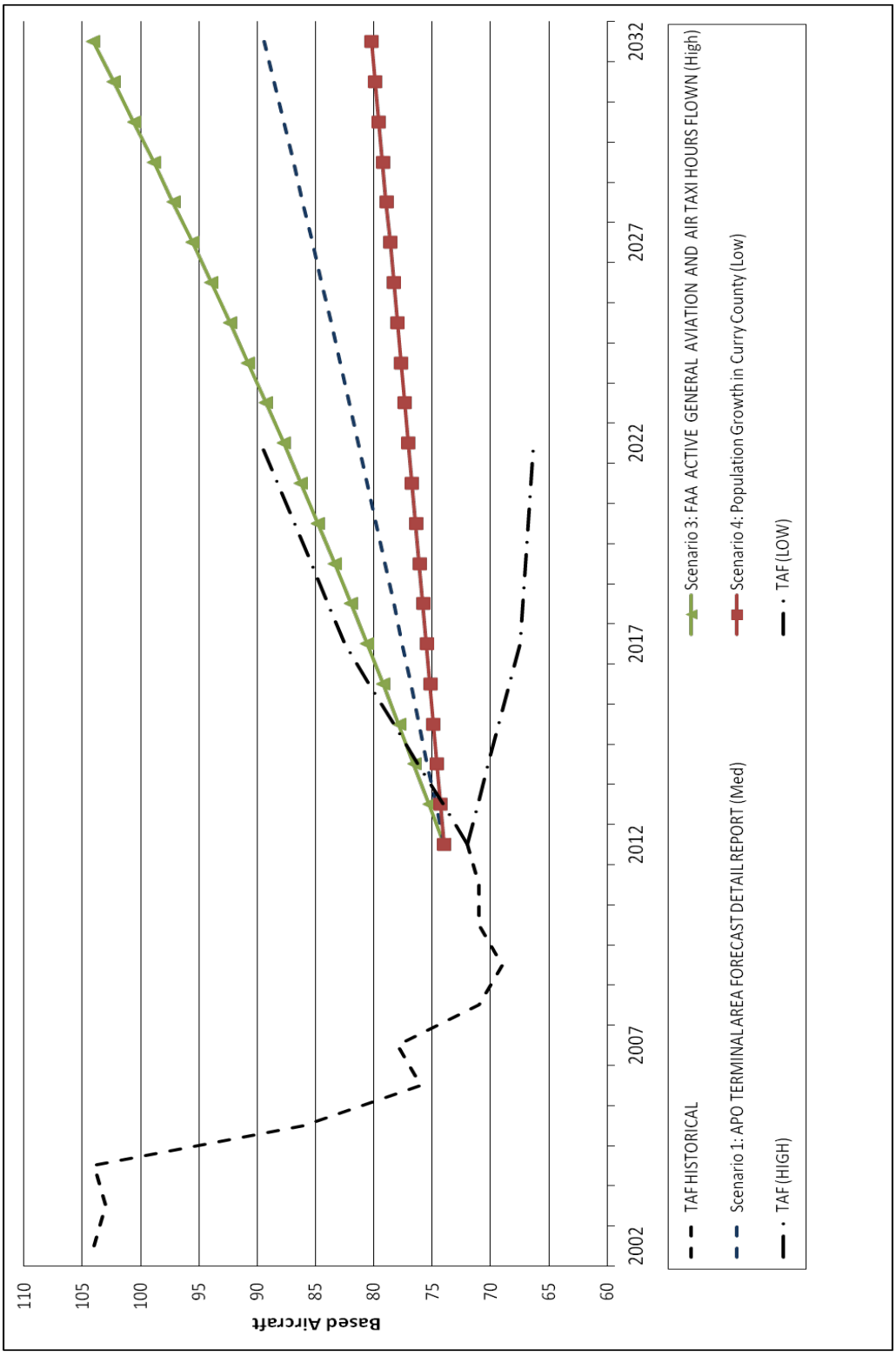


Figure 2-8: Recommended CVN Forecast Range – Based Aircraft



Chapter THREE:

FACILITY REQUIREMENTS

3.1 INTRODUCTION

A key step in the Master Plan process is developing requirements of airport facilities, which will allow for airside and landside evolution over the term of the planning period. By comparing the existing conditions of an airport to predicted growth projections based upon both existing and future aircraft usage, a master plan can define requirements for runways, taxiways, aprons, terminal, and other related facilities to accommodate growth over the short-, intermediate-, and long-term planning periods.

Facility Requirements are intended to compare existing facilities to safety standards and the demand for new or expanded facilities.

An essential step in the process of estimating airport needs is the determination of an airport's current capacity to accommodate anticipated demand. Demand-capacity analyses yield information that is used to design the airport layout plan and stage facility development. Demand-capacity analyses aid in the identification of airport deficiencies, surpluses, and opportunities for future development.

This chapter of the Clovis Municipal Airport (CVN) Master Plan identifies facility requirements for the Airport through 2032. Existing and future facility requirements and development standards are identified based on on-going Airport strategic development initiatives and by comparing the Airport's existing facilities to future facility needs based on forecasts of aviation demand presented in Chapter Two: *Forecasts of Aviation Activity*. Recommended existing and future requirements for facilities are identified in the following sections of this chapter:

- Airfield Demand-Capacity
- Airside Facility Requirements
- Landside Capacity and Facility Requirements
- Facility Requirement Summary

The Federal Aviation Administration (FAA) provides guidance for planning and design of airport facilities through Advisory Circulars (AC) that promote airport safety, economy, efficiency, and longevity. Many of the facility requirements identified for CVN incorporate FAA planning and design standards presented in AC 150/5300-13A, Airport Design. Other FAA ACs were used to develop sections of this chapter and are sited throughout the document. Chapter Four: *Alternatives Analysis* of this master plan examines alternatives for developing Airport facilities based on the facility requirements and development standards identified for CVN in this analysis.

3.2 AIRFIELD DEMAND-CAPACITY

The major components of the airfield system to be considered when determining capacity include runway orientation and configuration, runway length, and runway exit locations. Additionally, the capacity of a given system is affected by operational characteristics such as fleet mix, climatology, and air traffic control (ATC) procedures. Each of these components has been examined as part of the airside capacity analysis. Runway orientation and the degree to which it meets wind coverage requirements influence how the runway system is utilized. Design standards established by the FAA set geometric clearance guidelines for airfield components. Upon completion of analysis of these elements, a review of existing facilities is performed and any additional requirements necessary to meet the forecast demand are identified in this chapter.

3.2.1 Capacity and Delay

Guidance for determining airport and airfield capacity is contained in FAA Advisory Circular (AC) 150/5060-5, Airport Capacity and Delay. Airfield capacity is generally defined as the number of aircraft operations that can be safely accommodated on the runway-taxiway system at a given point in time before an unacceptable level of delay is experienced. Operational airside capacity is determined through an analysis of the Annual Service Volume (ASV). The ASV determines an airport's annual capacity based upon historic and forecast operations and fleet mix. Additionally, ASV identifies the total number of annual aircraft operations that may be accommodated at the airport without excessive delay. To determine ASV and conduct the capacity analysis, a number of prime determinates specific to CVN must be identified. These include:

- Predominant meteorological conditions
- Runway use configuration
- Aircraft mix (based upon existing aircraft group demand)
- Percentage of arrival operations
- Touch and Go operations
- Number and location of exit taxiways

3.2.2 Airfield Operational Capacity Parameters and Assumptions

Calculated airfield operational capacity is developed by methods, parameters, and assumptions described in FAA AC 150/5060-5, *Airport Capacity and Delay*. The calculations are based on the runway utilizations that produce the highest sustainable capacity consistent with existing air traffic rules, practices, and guidelines. The criteria and values used in FAA AC 150/5060-5 are typical of U.S. airports with similar runway configurations, and are designed to enable calculation of airport capacity as accurately as possible. The parameters and assumptions identified below were used to calculate the airfield capacity for CVN.

Aircraft Mix Index - This classification is used to develop an aircraft mix, which is the relative percentage of operations conducted by the classes of aircraft that use the airport. The aircraft mix at CVN is made up of mostly single-engine and smaller multi-engine aircraft. Boutique Air serves CVN with three daily flights using Pilatus PC-12 aircraft, representing over five percent of CVN annual operations. The Airport also has cited frequent operations of business jet aircraft such as Hawker, Lear, Falcon and others.

Percent Arrivals - Utilizing planning rules of thumb for general aviation airports without increased levels of based or transient training activity, it is typical to assume that the total annual arrivals will generally equal total departures and that average daily arrivals will equal average daily departures.

Percent Touch and Go (T&G) - The T&G percentage is the ratio of landings with an immediate takeoff, to total operations. This type of operation is typically associated with flight training. Based on available information and the lack of a large based flight training operator at CVN, it was estimated that annual T&G activity is limited to between 0 and 10 percent of total operations.

Taxiway Factors - Taxiway entrance and exit locations are an important factor in determining the capacity of an airport's runway system. Runway capacities are highest when full-length, parallel taxiways, and ample runway entrance and exit taxiways are available and no active runway crossings exist.

Existing taxiway exit locations at CVN were evaluated considering bi-directional flow for each available runway during VFR and IFR conditions. The presence of a full-length parallel taxiway and the number of exit taxiways available for each runway impacts the runway capacity. Taxiways located closest to the threshold for each arriving direction for smaller aircraft and the taxiways located closer to the midfield for larger aircraft enhance the taxiway exit factor. A full-length parallel taxiway with a total of six exit taxiways currently serves Runway 4-22. A full-length parallel taxiway with a total of three exit taxiways currently serves Runway 12-30. Based on the location of the taxiways serving Runway 4-22, two exit taxiways in both directions meet the requirements contributing to the taxiway exit factor used in the capacity calculations. For Runway 12-30, one exit taxiway contributes to the taxiway exit factor, which is considered adequate given that this is a crosswind runway.

Runway Instrumentation - The runway instrumentation included in the capacity calculations for CVN include one primary runway, Runway 4-22, with ILS, GPS and VOR approach capabilities; and one secondary runway, Runway 12-30, with a GPS approach. The turf runway at CVN, Runway 8-26 is not considered in this analysis and does not have approach instrumentation. Additionally, air traffic facilities, equipment, and services within the region are adequate to carry out operations in a radar environment.

Weather Influences - Based on CVN's existing runway configuration, instrument capabilities and weather data obtained from the National Climatic Data Center, the airfield is adequate to accommodate almost all aircraft operations. In rare cases when cloud ceilings or visibility is below 200 feet and/or 1/2 mile, the airport may be closed to arriving flights until weather conditions improve.

3.2.3 Airfield Capacity Calculations

The capacity of CVN to accommodate projected increases in aircraft operations was conducted in accordance with procedures contained in FAA AC 150/5060-5, *Airport Capacity and Delay*. The airfield capacity calculations in this section were performed using the parameters and assumptions discussed above. These calculations also utilize data from the aviation demand forecast, as presented in Chapter Two, for portions of the capacity calculations. The following outlines the annual service volume for CVN. The results of the airfield capacity calculations represent an airport specific analysis and have been deemed appropriate and necessary for this level of airport master planning effort.

Annual Service Volume (ASV)

The ASV is the maximum number of annual operations that can occur at the Airport before an assumed maximum operational delay value is encountered. The ASV is calculated based on the existing runway configuration, aircraft mix, and the parameters and assumptions identified herein. Utilizing this information and the guidance provided in FAA AC 150/5060-5, the ASV for existing conditions at CVN was calculated to be approximately 230,000 operations.

It should be noted that the ASV represents the existing airfield capacity in its present configuration, with one primary runway with precision instrument approach capabilities and paved crosswind runway. The turf crosswind runway with no instrument approach capabilities was not considered in calculating the ASV.

The current aviation demand in number of aircraft operations for the base year 2012 at CVN, as presented in Chapter Two, is 27,683 operations. This equals approximately 12 percent of the current ASV. The highest range of forecasted operations at CVN in the year 2032 is projected to be 38,600 or 16.8 percent of the current ASV. According to the FAA, the following guidelines should be used to determine necessary steps as demand reaches designated levels.

- 60 percent of ASV: Threshold at which planning for capacity improvements should begin.
- 80 percent of ASV: Threshold at which planning for improvements should be complete and construction should begin.
- 100 percent of ASV: Airport has reached the total number of annual operations (demand) the airport can accommodate, and capacity-enhancing improvements should be made to avoid extensive delays.

Based upon existing demand criteria, no additional capacity enhancing projects for the runway or taxiway system will be needed during the planning period.

3.3 AIRFIELD REQUIREMENTS

Airfield facilities generally include those that support the transition of aircraft from flight to ground or the movement of aircraft from parking or storage areas to departure and flight. This section describes the airside requirements needed to accommodate CVN's general aviation and commercial service activity throughout the planning period.

Areas of particular focus include runway and taxiway dimensions, navigational aids, visual landing aids, and dimensional standards.

3.3.1 Airport Design Standards

The design, or critical, aircraft is defined as the largest aircraft or aircraft family anticipated to utilize an airport on a regular basis. The FAA defines "regular basis" as conducting at least 500 annual itinerant operations. The selection of the design aircraft allows for the identification of the Airport Reference Code (ARC) for the Airport. The ARC is a coding system used to relate airport design criteria to the operational and physical characteristics of the types of aircraft intended to operate at an airport. The ARC has two components related to an airport's design aircraft. The first component, depicted by a letter, designates the aircraft approach category (ACC) and relates to the aircraft approach speed. The second component, depicted by a Roman numeral, specifies the aircraft design group (ADG) and relates to the aircraft wingspan and tail height.

Table 3-1 shows the aircraft approach categories and aircraft design groups that make up the airport reference coding system.

Table 3-1: Airport Reference Code

Aircraft Approach Category (AAC)		
Approach Category	Approach Speed	
A	< 91 knots	
B	91 knots - < 121 knots	
C	121 knots - < 141 knots	
D	141 knots - < 166 knots	
E	166 knots or more	
Aircraft Design Group (ADG)		
Design Group	Wingspan	Tail Height
I	< 49 feet	< 20 feet
II	49 feet - < 79 feet	20 feet - < 30 feet
III	79 feet - < 118 feet	30 feet - < 45 feet
IV	118 feet - < 171 feet	45 feet - < 60 feet
V	171 feet - < 214 feet	60 feet - < 66 feet
VI	214 feet - < 262 feet	66 feet - < 80 feet

Source: FAA Advisory Circular 150/5300-13A

For CVN, the current design aircraft is the Beechcraft 1900D, a turbo prop aircraft which accommodates 19 passengers and three crew. The Beechcraft 1900D was utilized by Great Lakes Airlines when it served the airport prior to 2014. It had a maximum takeoff weight of 16,950 pounds, a wing span of 58 feet, tail height of 15½ feet and an approach speed of approximately 120 knots. Currently, Boutique Air provides commercial air service using a Pilatus PC-12 which has a maximum takeoff weight of 10,450 pounds, a wing span of 53¼ feet, tail height of 14 feet and a similar approach speed to the Beechcraft 1900D. These characteristics fall within the same ARC for both aircraft and represent the largest aircraft regularly operating at CVN, putting the current ARC at B-II.

Clovis may experience a change in design aircraft over the 20-year planning period to aircraft that are larger and faster. Due to uncertainty in the aircraft manufacturing, general aviation and airline industries, it is difficult to pin-point the exact aircraft which may represent the future design aircraft for the Airport. To account for growth in aircraft size as well as potential expansion of passenger service, it is recommended that the ARC for the runways at CVN be upgraded.

To be consistent with the current airport layout plan (ALP) and rationale that aircraft serving CVN will increase in size, speed and complexity, it is recommended that Runway 4-22 ultimately achieve an ARC of C-III. Many aircraft in the commercial aviation fleet, including almost all regional jets fall within the C-III airport reference code. Given that CVN has commercial air service and is interested in expanding into a higher level of air service (see Appendix A: *Air Service Analysis*), an ARC of C-III would allow Runway 4-22 to accommodate mainline domestic air carriers utilizing regional jet aircraft.

Many airports with more than one runway and accommodate a broad range of aircraft have different ARC designations for each runway. This allows airports to achieve runway safety design standards while providing for flexibility in airport development. To that end, it is recommended that the ARC for Runway 12-30 be ultimately upgraded to B-III. This increase accommodates a broader range of general aviation/business aircraft including the Beech King Air and others in the turbo prop family. The turf Runway 8-26 at CVN is intended meet the needs of small general aviation aircraft and should retain the A-I ARC designation throughout the planning period.

All of the ARC recommendations provided above are consistent with the existing ALP and will not change or amend proposed safety or design related projects shown the current ALP. Therefore, any such projects will be carried forward onto the updated ALP as a part of this master planning effort. The following sections on airfield requirements will address, among other things, existing and future safety and design requirements as they relate to ARC designations.

3.3.2 Runway Orientation

The runway/taxiway configuration is the physical layout of the airfield system, including the number of runways, orientation, and their locations relative to each

other and to the landside facilities. Each runway/taxiway configuration has a different capacity due to operational limitations and restrictions. For example, runways that converge or intersect have lower capacities than parallel runways. The lower capacity on converging runways occurs because aircraft on one runway must wait to land or takeoff until the aircraft on the second runway has either completed its landing or has cleared the path for aircraft arriving or departing from the other runway. Even though runways and approach paths at CVN intersect and reduce potential capacity, as identified earlier in this chapter, the capacity of the airfield is substantially above demand expected within the planning period and therefore, does not require alteration to accommodate aircraft operational demand.

CVN has three runways: (i) Runway 4-22 is 7,200 feet long by 150 feet wide, (ii) Runway 12-30 is 5,697 feet long by 150 feet wide, and (iii) turf Runway 8-26 is 2,442 feet long by 75 feet wide. Runways 4-22 and 12-30 are served by full-length parallel taxiways.

Weather conditions, wind speed and direction determine runway orientation and the need for additional runways. FAA standards suggest an airport's runway configuration provides coverage during approximately 95 percent of all wind conditions. Table 3-2 shows the associated wind coverage for each runway with different crosswind component velocities, and illustrates that when combined, the runways provide the required coverage for all aircraft types. Due to its length, width, and orientation with prevailing winds, Runway 4-22 is the preferred runway for use by all local and itinerant operations by single and multi-engine aircraft, along with turboprop and jet aircraft. With combined coverage in excess of 95 percent, additional runways or alterations in runway orientation based on wind coverage are not recommended at CVN. It is important to note that the combination of the three runways is required to meet wind coverage recommendations for small aircraft (ARC A-1 & B-1). Therefore, any airport modifications that close a runway would require its replacement to meet wind coverage for small aircraft.

Table 3-2: Runway Wind Coverage Analysis

Runway	Wind Velocity	Wind Coverage
4-22	10.5 knots (ARC A-I & B-I)	84.57%
4-22	13 knots (ARC A-II & B-II)	91.10%
4-22	16 knots (ARC A-III, B-III, & C-I to D-III)	96.33%
12-30	10.5 knots (ARC A-I & B-I)	75.02%
12-30	13 knots (ARC A-II & B-II)	83.70%
12-30	16 knots (ARC A-III, B-III, & C-I to D-III)	92.08%
8-26	10.5 knots (ARC A-I & B-I)	79.78%
8-26	13 knots (ARC A-II & B-II)	87.22%
8-26	16 knots (ARC A-III, B-III, & C-I to D-III)	94.20%
Combined - 2 Runways	10.5 knots (ARC A-I & B-I)	93.95%
4-22 & 12-30	13 knots (ARC A-II & B-II)	97.34%
	16 knots (ARC A-III, B-III, & C-I to D-III)	99.03%
Combined - 3 Runways	10.5 knots (ARC A-I & B-I)	96.52%
4-22, 12-30, 8-26	13 knots (ARC A-II & B-II)	98.60%
	16 knots (ARC A-III, B-III, & C-I to D-III)	99.52%

Source: 2012 ALP
Source Station: AWOS at CVN Airport, National Climatic Data Center
Observation Period: 1995 through 2005

3.3.3 Runway Length

Following recommendations made by the 2006 CVN Airport Action Plan, Runway 4-22 was recently extended to 7,200 feet to accommodate a growing number of corporate users that require additional runway length. This extension allows for the operations by the larger Learjets, Citations, Falcons, and Gulfstream IV which require more than 7,200 feet at maximum takeoff in the summer, but can now operate at Clovis using less restrictive weight and temperature limitations.

Through FAA AC 150/5325-4B, "Runway Length Requirements for Airport Design", the FAA establishes methods to determine future runway length requirements. This exercise begins with the identification of the airport's critical design aircraft and an understanding of the aircraft that will require the longest runway lengths at maximum takeoff weight (MTOW).

As explained above, this Master Plan Update assumes that the current Runway 4-22 ARC of B-II will be upgraded to C-III to respond to the Airport's evolution into serving larger and faster regional jets. Additionally, it is also assumed that the current Runway 12-30 ARC of B-II will be upgraded to B-III to serve a growing national presence of larger general aviation and business turbo prop aircraft.

Fleet Mix – Business and Commercial Aircraft

As input to calculating runway length requirements, Table 3-3 identifies the family or grouping of aircraft expected to use the runways at CVN. The aircraft in this table represent 75 percent of the business jet fleet. Many of these aircraft use CVN and it is this group of aircraft that future runway length for business aircraft at CVN will be determined.

Table 3-3: Airplanes that Make Up 75 Percent of the Business Fleet

Business Jets	Max Takeoff (lbs.)	ARC	Take-off Distance (CVN)	Business Jets	Max Takeoff (lbs.)	ARC	Take-off Distance (CVN)
Cessna 551 Citation II	12,500	B-II	4,446	Falcon 50/50EX	37,480	B-II	7,763
Cessna Citation I/II/III	10,600	B-I	4,735	Cessna VII 650	23,000	C-II	7,980
Cessna 500 Citation	12,500	B-I	4,896	Sabreliner 40	18,650	B-I	8,049
Cessna 550 Citation II	13,300	B-II	4,992	Falcon 900EX	48,300	C-II	8,197
Cessna 525 Citation	10,400	B-I	5,137	Learjet 35/36	18,300	C-I	8,221
Cessna 552 Citation	16,300	B-II	5,298	Cessna 750 X	36,100	C-II	8,446
Cessna V Ultra	16,300	B-II	5,298	Cessna 650 III/VI	21,000	C-II	8,462
Learjet 31	16,500	C-I	5,667	Falcon 2000	35,800	B-II	8,606
Cessna 560 Encore	16,830	B-II	5,908	Hawker 1000	36,000	C-II	8,622
Cessna 560 XL Citation	20,000	B-II	5,956	Astra 1125	23,500	C-II	8,703
Cessna 550 Citation	14,800	B-II	5,972	Learjet 55	21,500	C-I	8,719
Raytheon Premier	12,500	B-I	6,281	Learjet 60	23,500	D-I	8,799
Learjet 20	12,500	C-I	6,615	Hawker 800	28,000	B-I	8,831
BeechJet 400	16,100	C-I	6,886	Gulfstream IV	71,780	D-II	8,944
Learjet 40/45	20,200	C-I	6,968	Sabreliner 65	24,000	C-II	8,944
Mu-300 Diamond	14,630	B-I	7,097	Sabreliner 75	23,300	C-I	9,024
Sabreliner 75A	24,500	C-II	7,354	Galaxy 1126	34,850	C-II	9,024
Falcon 900	45,500	B-II	7,707	Bombarbier Challenger	41,250	C-II	9,345

Source: FAA AC150/5325-4B, Runway Length Requirements for Airport Design, Table 3-1
Note: Based 4,216 feet MSL elevation; 92 degrees Fahrenheit mean maximum temperature of hottest month; and 19 feet maximum runway centerline elevation difference.

The remaining 25 percent of aircraft that make up the business aircraft fleet are generally newer and more demanding aircraft, most of which fall within Aircraft Approach Category C. Because many of these aircraft are newer, their presence in the marketplace will likely grow in the years to come. The remaining share of aircraft in this fleet requires greater runway length than those depicted above. For this study, however, runway length determinations for business aircraft are based on the greater share of the fleet (75 percent). It can be seen through Table 3-3, that an extension of Runway 4-22, beyond its current length of 7,200 feet, would accommodate a larger share of common business jet aircraft.

Also of importance is the commercial service passenger fleet. Previously, Great Lakes Airlines flew Embraer EMB-120 Brasilias and Beechcraft 1900D regional airliners. Boutique Air currently uses the Pilatus PC-12 for its Clovis operation, which requires 3,382 feet of runway length at maximum takeoff weight, 92 degrees Fahrenheit, and 4,216 feet elevation (Clovis conditions). However, the EMB-120 requires 8,377 feet of runway length for the same conditions, which is nearly 1,200 feet more runway length than Clovis offers today.

Further, commercial airlines have increased their use of smaller regional jets in recent years and the City intends to strive toward accommodating this trend. As part of the long-term planning for Clovis Airport, these aircraft and their associated runway length requirements should be evaluated to update the airport's airfield needs. Using the same FAA runway length formula applied in Table 3-3, a sample of four regional jet runway length requirements is calculated. These aircraft represent common regional jets used by mainline domestic air carriers to connect community airports to hub airports. Clovis could be connected to hubs like Denver, Dallas-Ft. Worth or Phoenix International Airports, to name a few.

Although runway length requirements would range from 8,600 to nearly 10,600 feet to accommodate regional jets in their 1,400 to 1,900-nautical-mile (nm) range, initial regional jet use at Clovis would likely be closer to the 500-nm range (considering the cities mentioned above) so runway takeoff length requirements would be closer to 6,500 to 8,400 feet.

Aircraft	Max Range (nm)	CVN Runway Length (feet) for Max Range	CVN Runway Length (feet) for 500-nm Range
CRJ 100	1,760	9,990	7,550
CRJ 200	1,920	10,310	7,625
ERJ 135	1,420	8,625	6,460
ERJ 145	1,620	10,570	8,400

FAA Airport Design Software

As part of the guidance for determining runway length requirements, the FAA's Airport Design for Microcomputers Version 4.2D was developed for airport planners to facilitate runway length determinations. Minimum runway length requirements established by this program are based upon several factors including airport elevation, average temperature, and type of aircraft expected to use the runway on a regular basis. The Airport's published elevation is 4,216 feet Mean Sea Level and the mean daily maximum temperature of the hottest month is 92° Fahrenheit. Based on these perimeters, inputs were loaded into the program to calculate runway length requirements unique to CVN. Table 3-4 presents the output from the program.

Table 3-4: Runway Length Requirements

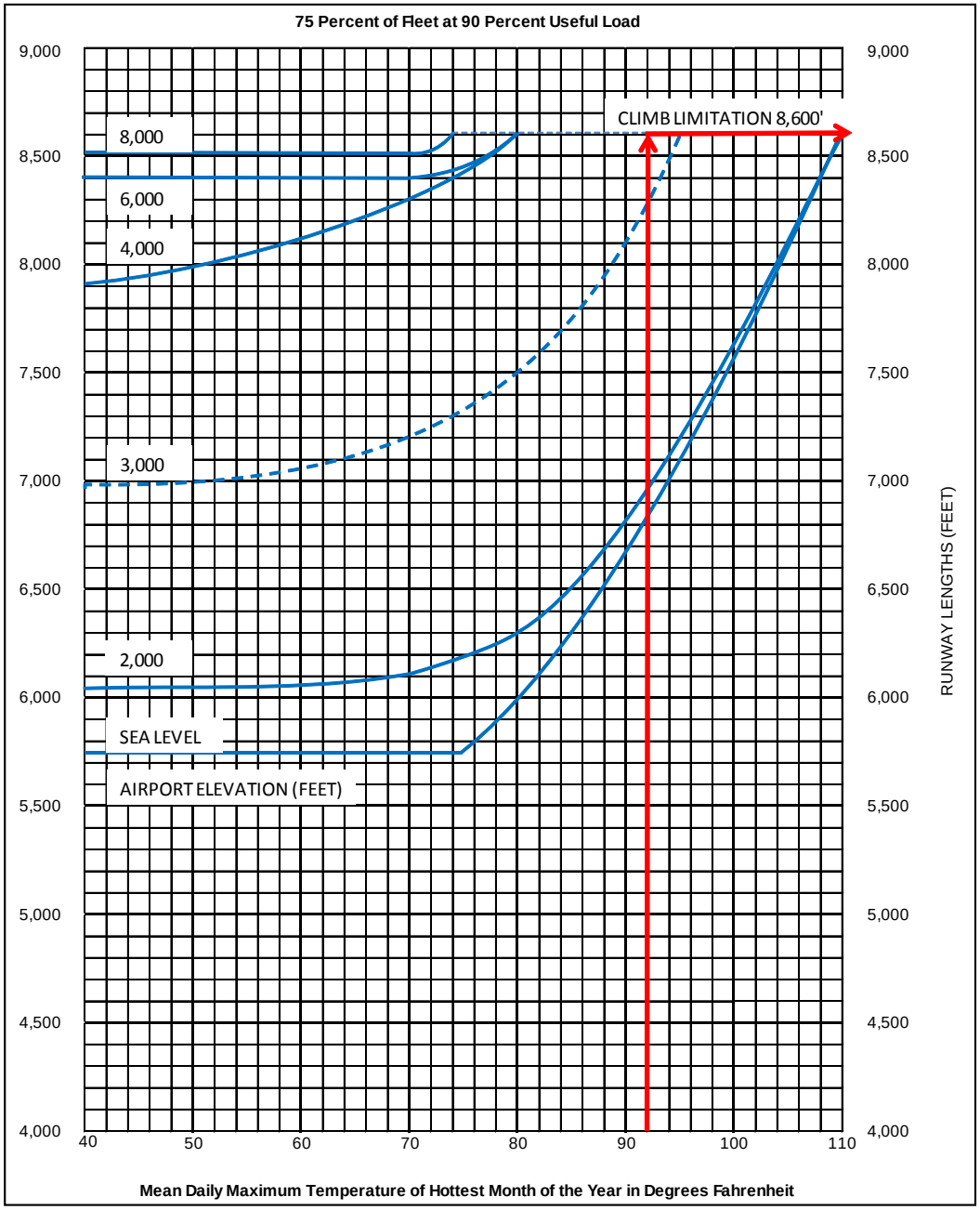
Airport Elevation	4,216 feet
Mean daily maximum temperature of the hottest month	92 degrees
Maximum difference in runway centerline elevation	19 feet
Length of haul for airplanes of more than 60,000 pounds	1,000 miles
RUNWAY LENGTHS RECOMMENDED FOR AIRPORT DESIGN	
Small airplanes with approach speeds of less than 30 knots	430 feet
Small airplanes with approach speeds of less than 50 knots	1,140 feet
Small airplanes with less than 10 passenger seats	
75% of these small airplanes	4,150 feet
95% of these small airplanes	5,440 feet
100% of these small airplanes	5,750 feet
Small airplanes with 10 or more passenger seats	5,750 feet
Airplanes of 60,000 pounds or less	
75% of these airplanes at 60% useful load	6,540 feet
75% of these airplanes at 90% useful load	**8,790 feet**
100% of these airplanes at 60% useful load	9,180 feet
100% of these airplanes at 90% useful load	10,700 feet
Airplanes of more than 60,000 pounds	7,710 feet

Source: FAA Airport Design for Microcomputers Version 4.2D

Per this analysis, the FAA recommended runway length for the Airport is 8,790 feet based on the family grouping of aircraft representing 75 percent of the business jet fleet at 90 percent useful load. This length would also accommodate the regional jet aircraft discussed above. Given the current length of 7,200 feet, Runway 4-22 cannot support all users within this group and will need to be extended in order for CVN to continue to meet the needs of all users.

Another method for calculating runway length requirements, explained in FAA AC 150/5325-4B, is based on performance curves developed from FAA-approved airplane flight manuals from aircraft presented in Table 3-3. Based on the graphic method outlined in FAA AC 150/5325-4B, a runway length of at least 8,600 feet is recommended, as presented in **Figure 3-1**. This further substantiates the need for an extension of Runway 4-22 in order for CVN to continue to accommodate business and commercial users during the planning period.

Figure 3-1: Runway Length Requirements 75 Percent of Fleet at 90 Percent Useful Load



Source: FAA AC 150 150/5325-4B

Runway Length Recommendations

The current ALP shows a proposed ultimate runway length of 8,800 feet for Runway 4-22. Based on the need for this Master Plan to address long-term development and the results presented above, it is recommended that the ALP included in the study continue to support and reflect a runway length of 8,800 feet in the ultimate condition, which includes the extension of the Runway 22 end by

1,600 feet. Business jet aircraft that could be accommodated by this length, based on FAA guidelines, include those shown on Table 3-3 up to and including the Learjet 55 and 60. This length will also accommodate possible regional jet operations supported by mainline domestic airlines. Lengths recommended by the FAA airport design software program and performance curve analysis are also consistent with the recommended length of 8,800 feet.

Runway 12-30, the secondary/crosswind runway, is 5,697 feet long. The Airport's former ALP reflected a proposed runway extension of 1,403 feet for Runway 12-30 that would bring the total length to 7,100 feet. For crosswind runways, the FAA recommends a runway length that serves the needs of lower crosswind-capable aircraft. The ultimate plan for a 7,100-foot crosswind runway length will meet the need and is therefore recommended within this study.

Runway 8-26, the Airport's turf runway, measures 2,442 feet long and primarily serves ultralight and tail-dragger aircraft, various training activities, as well as small aircraft during strong crosswinds on the primary and secondary runways. This runway length meets the needs of users and an extension is not recommended within the planning period. It is encouraged, however, that this runway be maintained to allow for adequate wind coverage and turf runway training.

3.3.4 Runway Width

The required width of a runway is determined by the critical aircraft and the instrumentation available for the approach. Runway 4-22 is equipped with a precision instrument (ILS) approach as well as various non-precision approaches and Runway 12-30 is equipped with a non-precision approach.

According to FAA AC 150/5300-13A, the minimum width for an ARC C-III runway with a precision instrument approach is 150 feet. Runway 4-22 is 150 feet wide and is therefore, consistent with design standards for ARC C-III group aircraft. For an ARC B-III runway with a non-precision approach, the minimum runway width requirement is 100 feet. Runway 12-30 is 150 feet wide and exceeds the 100-foot width design standard for ARC B-III group aircraft. Runway 8-26 is maintained at a width of 75 feet and exceeds the 60-foot width requirement for ARC group A-I aircraft.

Even if these runways had approaches with visibility minimums as low as ¾ mile, the existing runway widths would be adequate for their respective ARC and therefore, no changes to runway widths are recommended during the 20-year planning period.

3.3.5 Pavement Strength

There are several factors which influence pavement required to provide satisfactory service. These factors include, but are not limited to aircraft loads, frequency and concentration of operations, and the condition of subgrade soils.

Runway pavement strength is typically expressed by common landing gear configurations. Example aircraft for each type of gear configuration are as follows:

- Single-wheel – each landing gear unit has a single tire, example aircraft include light aircraft and some business jet aircraft.
- Dual-wheel – each landing gear unit has two tires, example aircraft are the Boeing 737, Boeing 727, MD-80, CRJ 200, and the Dash 8.
- Dual-tandem – main landing gear unit has four tires arranged in the shape of a square, example aircraft are the Boeing 707 and KC135.

The aircraft gear type and configuration dictates how aircraft weight is distributed to the pavement and determines pavement response to loading. The published pavement strengths and other attributes of the runways at CVN are presented in Table 3-5. At present, the pavement is in good condition on both runways and the current strengths can accommodate the current critical aircraft.

Table 3-5: CVN Runway Pavement

	Runway 4/22	Runway 12/30	Runway 8/26
Length and Width	7,200' x 150'	5,697' x 150'	2,442' x 75'
Bearing	45.60°/225.61°	130.46°/310.47°	90.05°/270.05°
Effective Gradient	0.3%±-	0.5%±-	0.25%±-
Surface Type	Asphalt	Asphalt	Turf
Surface Condition	Excellent	Good	Fair
Pavement Strength	SW 45,000 lbs DW 57,000 lbs	SW 42,000 lbs DW 50,000 lbs	- -

Source: CVN ALP 2012; FAA Form 5010; CDM Smith.

Single-wheel and dual-wheel aircraft within the ARC B-III and C-III groups may exceed the established pavement rating for the primary and secondary runways at CVN. While this is not a critical factor for single events, over time, operations by aircraft that exceed a runway's pavement strength degrade the pavement prematurely and create wear issues that require more aggressive pavement maintenance. To accommodate larger, more demanding aircraft in the future as well as reduce the frequency of required maintenance, it is recommended that the pavement strengths for Runways 4-22 and 12-30 upgraded to accommodate single-wheel aircraft weighing 45,000 pounds and dual-wheel aircraft weighing 120,000 pounds.

3.3.6 Taxiways

The taxiway system at Clovis Municipal Airport is based on full parallel taxiways for both paved runways on the Airport. It also includes taxiway connectors between the runways and the parallel taxiways, as well as an unpaved stub taxiway for Runway 8/26 that provides access to the apron area. Both 60-foot paved taxiways are equipped with full signage, medium intensity taxiway lighting (MITL), and taxiway centerlines. Table 3-6 highlights the attributes of the taxiway system.

Table 3-6: CVN Taxiways

	Taxiway A	Taxiways A1, A2, A3 & A4	Taxiway B	Taxiway C
Associated Runway	Runway 4/22	Runway 4/22	Runway 12/30	Runway 4/22
Type	Full Parallel	Connectors	Full Parallel	Connector
Location	Northside	Northside	Southside	Southside
Length	7,999'	335’	5,697'	335’
Width	60'	60'	60'	60'
Runway-Taxiway Centerline Separation	440'	NA	400'	NA
Pavement Strength	SW 45,000 lbs DW 57,000 lbs	SW 45,000 lbs DW 57,000 lbs	SW 42,000 lbs DW 50,000 lbs	SW 45,000 lbs DW 57,000 lbs
Taxiway Safety Area	118’	118’	118’	118’
Taxiway Object Free Areas	186’	186’	186’	186’
Lighting	MITL	MITL	MITL	MITL

Source: CVN ALP 2012; FAA Form 5010; CDM Smith.

As part of the Runway 4/22 extension project, Taxiway A was also extended making its length approximately 7,999 feet. Note, that the southernmost segment of the taxiway was not deactivated with the relocation of the Runway 4 threshold. That part of the taxiway is still utilized to provide access to Runway 8/26. Also note that there is a single unpaved, unmarked taxiway that links Taxiway A with the turf Runway 8-26, crossing the Runway 4 approach end. Airport management has noted that, even with appropriate signage, it is not uncommon for pilots to pass the taxiway turn-off for the Runway 4 threshold and proceed toward the old, relocated portion of the Runway. Although this portion of pavement provides access to turf Runway 8-26, confused pilots accessing Runway 4 must turn around if they pass the appropriate turn off. It is recommended that this portion of taxiway, stretching along and parallel to the runway relocation area, be deactivated and demolished, to avoid pilot error when accessing Runway 4. This will effectively lengthen the unpaved, unmarked taxiway leading to Runway 8-26.

It is also recommended, through taxiway rehabilitation projects, the taxiways serving Runway 4-22 and 12-30 be strengthen to match ultimate runway pavement strengths of 45,000 pounds for single-wheel aircraft and 120,000 pounds for dual-wheel aircraft.

Additional taxiways may be necessary in the future to access newly developed apron, hangar or terminal areas. Any proposed landside development should include taxiways or taxilanes (used to access taxiways) if they are intended to provide aircraft access to the airfield. Future taxiways or taxilanes to meet this need will be illustrated on the airport layout plan.

3.3.7 Navigational Aids (NAVAIDS)

Navigational aids (NAVAIDs) are any visual or electronic devices, airborne or on the ground, that provide point-to-point guidance information or position data to aircraft in flight. Airport NAVAIDs provide guidance to a specific runway end or to

an airport. An airport is equipped with precision, non-precision, or visual capabilities in accordance with design standards that are based on safety considerations and airport operational needs. The type, mission, and volume of activity used in association with meteorological, airspace, and capacity considerations determine an airport's eligibility and need for various NAVAIDs.

Instrument NAVAIDs

This category of NAVAID provides assistance to aircraft performing instrument approach procedures to an airport. An instrument approach procedure is defined as a series of predetermined maneuvers for guiding an aircraft under instrument flight conditions from the beginning of the initial approach to a landing, or to a point from which a landing may be made visually.

Runway 4 is equipped with an Instrument Landing System (ILS) which provides precision (vertical and lateral) guidance to the runway to allow pilots to attempt a landing with visibility of at least one-half mile.

Runways 4, 22 and 30 are equipped with straight-in RNAV (Global Positioning System [GPS]) approaches. Runway 22 is also equipped with a Very-High Frequency Omnidirectional Radio (VOR) approach. These approaches provide non-precision guidance and require a visibility minimum of no lower than one mile. All approaches at CVN allow pilots to circle to land on the opposite runway end, albeit at higher minimums, typically.

The level and complexity of instrument approach capabilities at CVN are deemed adequate for the level and type of service offered by the Airport. It is recommended that the Airport continue to maintain these approaches and their ancillary support features.

While precision capabilities provide enhanced access during inclement weather, the future of ILS instrumentation at airports may be reduced through the growth of technology and propagation of GPS or satellite-based approaches. One of the existing RNAV (GPS) approaches at CVN provides vertical and horizontal guidance, the cornerstone to precision approach capabilities, although they are still categorized as non-precision approaches. Within the 20-year planning period, it is likely that enhanced GPS approach capabilities will gain widespread acceptance and visibility minimums will be reduced to achieve precision-level accuracy as more advanced systems come on-line. For this reason, while it is not recommended that the ILS at CVN be decommissioned, it should be understood that ILS instrumentation at airports like CVN may be reevaluated by the FAA within the planning period. This is primarily driven by the relative high cost with maintaining the system versus the lower cost of satellite-based approaches.

Visual Landing Aids

Visual landing aids provide aircraft guidance to and alignment with a specific runway end, once the airport is within a pilot's sight. Visual landing aids at CVN currently include the following:

- Runway Lighting – Runway 4-22 and Runway 12-30 are equipped with Medium Intensity Runway Lighting. Runway 4 has a Medium-intensity Approach Lighting System with Runway Alignment Indicator Lights (MALSR) to support the ILs. In addition, both ends of Runway 12-30 are equipped with Runway End Identifier Lights (REILs) but are currently indicated as being indefinitely inoperable. These lighting systems will remain adequate throughout the 20-year planning period; however, REILs for Runway 12-30 should be reactivated.
- Other Runway Lighting and Guidance – Several additional NAVAIDs and visual aids are available at the Airport to assist landing aircraft at night and in poor weather conditions. NAVAIDs include a rotating beacon and an Automated Weather Observing System-III (AWOS). These systems should be maintained during the 20-year planning period as they play a crucial role in the Airport's operation. The Airport's primary lighted wind cone is located with the segmented circle, in the infield area. There are also a total of four wind cones on lighted poles, each located near a paved runway end.
- Visual Glide Slope Indicators (VGSI) – Each end of Runway 4-22 is currently equipped with precision approach path indicators (PAPIs) which should be adequate for the Runway during the planning period. Runway 30 has a Pulse Light Approach Slope Indicator (PLASI) and it is recommended that each end of Runway 12-30 have PAPIs installed within the planning period.

3.3.8 Dimensional Standards

Dimensional standards include measurements that account for physical runway and taxiway characteristics as well as safety related areas. These standards, contained in FAA AC 150/5300-13A, are shown in **Table 3-7** as they pertain to CVN. Table 3-7 presents the FAA design criteria for each runway at CVN based on its respective ARC during the planning period (i.e. ARC C-III for Runway 4-22, ARC B-III for Runway 12-30 and ARC A-I for Runway 8-26).

Taxiway requirements are established by the Taxiway Design Group (TDG) through FAA AC 150/5300-13A as well, but based on the overall Main Gear Width (MGW) and the Cockpit to Main Gear (CMG) distance of the critical or design aircraft. As established in previous sections, the design aircraft is considered to be a family of business and commercial aircraft within the ARC C-III group category for Runway 4-22 and B-III group for Runway 12-30. These groups include medium and large business jet aircraft as well as commercial regional jets. Considering the size and landing gear configurations of common aircraft within

these groups, the TDG for both taxiways at CVN is TDG-3. This encompasses aircraft with a MGW distance ranging from 0 to 30 feet and a CMG distance ranging from 28 to 64 feet.

Recommended improvements to maintain these safety clearances on the airfield will be shown on the ALP prepared for this Master Plan Update.

Table 3-7: FAA Design Criteria

Criteria	Runway 4-22 (ARC C-III) Requirements	Runway 12-30 (ARC B-III) Requirements	Runway 8-26 (ARC A-I) Requirements
Runway Width	150 feet	100 feet	60 feet
Runway Centerline to:			
- Taxiway Centerline	400 feet	300 feet	225 feet
- A/C Parking Area	500 feet	400 feet	200 feet
Runway Object Free Area:			
- Width	800 feet	800 feet	400 feet
- Length Beyond Runway End	1,000 feet	600 feet	240 feet
Runway Safety Area:			
- Width	500 feet	300 feet	120 feet
- Length Beyond Runway End	1,000 feet	600 feet	240 feet
Taxiway Width	50 feet	50 feet	25 feet
Taxiway Centerline to:			
- Fixed or Movable Object	93 feet	93 feet	44.5 feet
Taxiway Object Free Area (Width)	186 feet	186 feet	89 feet
Taxiway Safety Area (Width)	118 feet	118 feet	49 feet
Runway Blast Pad (if installed)			
- Length	200 feet	200 feet	100 feet
- Width	200 feet	140 feet	80 feet

Source: FAA AC 150/5300-13A
Taxiway Design Group (TDG) for taxiways serving Runways 4-22 & 12-30 is TDG-3. Taxiway for Runway 8-26 is TDG-1.

The following dimensional standards are important to the design of the runway and taxiway system at CVN as well as the safety of the aircraft using them.

Obstacle Free Zone

The Obstacle Free Zone (OFZ) is a three-dimensional volume of airspace that supports the transition of ground-to-airborne operations (or vice versa). The OFZ clearing standards prohibit taxiing and parked airplanes and other objects, except frangible NAVAIDs or fixed-function objects, from penetrating this zone. The OFZ consists of a volume of airspace below 150 feet above the established airport elevation and is centered on the runway and extended runway centerline.

The Runway Obstacle Free Zone (ROFZ) consists of a volume of airspace centered above the runway centerline, above a surface whose elevation at any point is the same as the elevation of the nearest point on the runway centerline. The ROFZ extends 200 feet beyond each end of the runway and has a width that varies with approach visibility minimums and the size of aircraft using the runway.

The Precision Obstacle Free Zone (POFZ) is defined as a volume of airspace above an area beginning at the threshold of precision approach runway. It extends 200 feet from the threshold and measures 800 feet wide. It is only in effect during instrument conditions when an aircraft is on final approach and is intended to clear the approach area near the threshold for arriving flights. At CVN, given its precision approach, this zone would only apply to Runway 4.

Part 77 Obstruction Standards

Federal Aviation Regulations (FAR) Part 77 exists to identify objects which may be hazardous to air navigation. These standards apply to the use of navigable airspace by aircraft and to existing or planned air navigation facilities (airports). An obstruction may be an existing or proposed manmade object, object of natural growth, or terrain. Any changes to the airfield must provide the obstacle clearance necessary to meet the requirements designated in FAR Part 77. The critical surfaces are identified in drawings associated with the ALP and are described in Chapter One. Existing Part 77 surfaces will be evaluated during the development of the ALP, any penetrations will be addressed and identified for removal or marking.

Runway Protection Zones

A Runway Protection Zone (RPZ) is an area off the runway end intended to enhance the protection of people and property on the ground. RPZ size is a function of critical aircraft and the visibility minimums established for the approach to the runway. Visual runways have smaller RPZs because the landing minimums are higher and the runway is not used during periods of reduced visibility. Precision navigational aids are used to guide aircraft to runways equipped with advanced instrumentation during periods of reduced visibility; thus allowing the airport to remain open and increasing its utility. These precision approaches are required to be protected by the larger runway protection zones. In summary, the greater precision of the approach, the lower the visibility minimums for landing, the larger the RPZ. The existing RPZs at CVN will be evaluated during the development of the ALP and any required modifications, including the acquisition of land to be compatible with airport uses, will be depicted on the updated drawing set. The RPZ contains two sub-areas, these areas are discussed as follows:

- Runway Object Free Area (OFA) - The runway OFA is a two-dimensional ground area surrounding the runway that prohibits parked aircraft and objects, except NAVAIDs and objects with locations fixed by function, from locating there. According to FAA design guidelines shown in Table 3-7, the OFA for ARC C-III runways should extend 1,000 feet beyond each runway end and have a width of 800 feet. For ARC B-III runways, the OFA should extend 600 feet beyond each runway end and have a width of 800 feet.

- Controlled Activity Area - The controlled activity area is the portion of the RPZ beyond and to the sides of the runway OFA. It is recommended that an airport control, in fee, this activity area. The controlled activity area should be free of land uses that create glare and smoke. Also, the construction of residences, fuel-handling facilities, churches, schools, and offices is not recommended in the RPZ's controlled activity area. Roads are typically not recommended in the RPZ. Table 3-8 shows the existing RPZ dimensions and Part 77 approach slopes for each runway end at CVN. Since lower visibility minimums are not called for during the planning period, larger RPZ dimensions are not required.

Table 3-8: Runway Protection Zones, CVN

Runway	Type of Approach	Approach Visibility Minimums	Inner Width	Outer Width	Length	Part 77 Approach Slope
4	Precision	½ mile	1,000'	1,750'	2,500'	50:1
22	Non-precision	1 mile	500'	1010'	1700'	34:1
12	Non-precision	1 mile	500'	700'	1000'	34:1
30	Non-precision	1 mile	500'	700'	1000'	34:1
8	Visual	Visual	500'	700'	1000'	20:1
26	Visual	Visual	500'	700'	1000'	20:1

Source: CVN ALP 2012; FAA Form 5010; FAA AC 150/5300-13A

Runway Safety Areas

The Runway Safety Area (RSA) serves as a safety area if an aircraft overruns the paved runway surface. According to the FAA's definition and dimensional standards illustrated in Table 3-7, the RSA should be cleared and graded and have no potentially hazardous ruts or surface variations. This area should also be drained through grading or by storm sewers. General requirements for grading of the RSA are 0 to –3 degree grade for the first 200 feet from the runway end, with the remaining longitudinal grade ensuring that no part of the RSA penetrates the approach surface or drops below a –5 degree grade.

For Runway 4-22, C-III runway standards dictate that the RSA is required to be 500 feet wide and extend 1,000 feet beyond the departure end of the runway as shown in Table 3-7. For Runway 12-30, B-III standards call for the RSA to be 300 feet wide and extend 600 feet beyond the departure end of the runway. For Runway 8-26, A-I standards call for the RSA to be 120 feet wide and extend 240 feet beyond the departure end of the runway. The RSAs at CVN will be illustrated on the updated ALP with any required changes shown.

Runway Visual Zones

The Runway Visibility Zone (RVZ) establishes an area that provides line-of-sight between intersecting runways. The RVZ must be clear of buildings and other objects that would prevent an aircraft departing one runway to see an aircraft simultaneously departing the intersecting runway in ample time to take evasive action. Based on the existing configuration at CVNs, the RVZ clears all existing

buildings. Only the northernmost corner of the main apron area is inside the RVZ. The RVZ line between Runway 4 and Runway 12 crosses the eastern side of the rotating beacon. In the future, the RVZ will change and grow as a result of the proposed extensions to the primary and crosswind runways.

While turf Runway 8-26 does not physically intersect Runway 12-30, an aircraft taking off from Runway 12 cannot see an aircraft simultaneously taking off on Runway 8. This can present a problem, as both would depart over the southeast corner of the airfield. This scenario, however, has not presented a problem as aircraft can maneuver unobstructed on takeoff to avoid any conflicts.

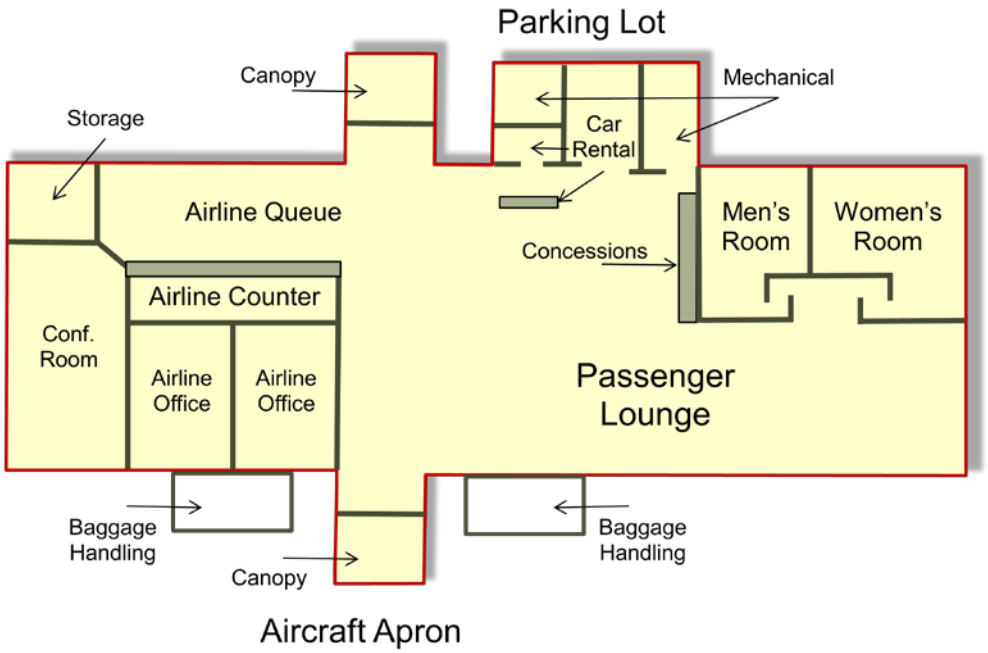
3.4 LANDSIDE REQUIREMENTS

This section describes the landside requirements needed to accommodate CVN's general aviation and commercial activity throughout the planning period. Areas of particular focus include the terminal building, hangars, aprons and tie-down areas, automobile parking, as well as the various associated support facilities.

3.4.1 Terminal Building

As described in Chapter One, the terminal building at CVN is centrally located on the airfield, and is accessed via the main airport access road. The 5,300 square foot facility includes commercial airline facilities such as a lobby, circulation areas, ticketing counters, and airline offices. The terminal also includes Enterprise Car Rental and Hertz Rent-a-Car locations, a conference room, restrooms, and storage. In 1999, the terminal building was renovated and expanded. A thorough assessment of the airport terminal building is presented in Appendix C.

Figure 3-2: Clovis Municipal Airport Terminal Building



Source: CVN Management; CDM Smith

The results of the assessment of the terminal building essentially state that the existing structure is inadequate to accommodate much more than the essential air service offered by Boutique Air today. This is due to the terminal's small size and ability to accommodate larger passenger volume and Transportation Security Administration (TSA) screening services and staff. Also included in Appendix C, a letter dated December 20, 2012 from the Commander of Cannon Air Force Base to the Department of Homeland Security, expresses interest in a TSA presence at CVN in conjunction with expanded service to a regional air carrier hub. Today, TSA screening is not required at CVN due to the small number of passengers and the fact that passengers aboard Boutique Air flights from CVN arrive at the general aviation terminal at DFW (indirect service) and go through TSA screening at DFW before continuing on another flight or entering the national air transportation system. Expanded service of regional jet aircraft, allowing CVN direct service to a hub within the national air transportation system, and the TSA services necessary to accommodate it, would require a new terminal building.

As a part of this master planning effort, a commercial air service analysis was conducted to study the driving factors and likelihood of expanded passenger service at CVN (see Appendix A). The results of this air service analysis illustrate that expanded passenger service, to include regional jet flights offered by a domestic mainline carrier, are uncertain at CVN within the foreseeable future. There are many challenges to overcome in order to establish expanded service. Some of the issues related to this include: CVN's historically low passenger volume, relatively small population from which to draw passengers, and typical airline decision making protocols and volumes for establishing new air service.

As a result of the terminal building assessment, commercial air service analysis, and the City's interest in expanded commercial service at CVN, it is recommended that the terminal building be redeveloped if/when expanded service to a medium or large hub is established or planned. As a commitment to a potential airline willing to bring expanded service to CVN using regional jets or larger, terminal building redevelopment could be initiated prior to new service beginning. Simple modifications to the existing terminal can be made to temporarily accommodate service and TSA requirements until a new terminal building is completed.

It is important to note, without an airline commitment to offer regional jet service from CVN, a new terminal building will not be required within the planning period.

The basic facility requirements for a newly developed terminal building to house the operations of a domestic mainline air carrier offering regional jet service is provided below in **Table 3-9**. Note these space calculations are based on general industry standards established in FAA AC 150/5360-13, *Planning and Design Guidelines for Airport Terminal Facilities*, and include typical areas to accommodate inbound and outbound domestic passenger processing. As with most airports and terminals offering regional jet passenger service, it is recommended that airport administrative offices be co-located in the terminal building. Space requirements for TSA screening procedures are based on the TSA Checkpoint Design Guide.

Table 3-9: Terminal Building Requirements

Requirements for 20,000 Annual Enplanements			
	Enplanements	Deplanements	Total
Peak hour passengers	34	34	68
Airline Space (sq.ft)		**Public Space (sq. ft.)**	
Airline ticket counter(LF)	12	Lobby/waiting area	750
Airline offices& outbound baggage	1,400	Public circulation	3,000
Ticket counter queuing area	200	Restrooms	600
Passenger hold area	750	Public meeting rooms	800
Baggage claim conveyor (LF)	22	Subtotal public space	5,150
Baggage claim area	600		
Subtotal airline space	2,950		
Concessions (sq. ft.)		**Support Space (sq. ft.)**	
Rental car counter (LF)	12	Airport admin offices	1,000
Rental car offices	240	TSA offices	1,000
Rental car queuing area	60	Security screening	200
Restaurant	1,000	Maintenance	2,200
News, gift, other	350	Storage	750
Subtotal concessions	1,650	Subtotal support	5,150
TOTAL GROSS SQUARE FEET			14,900
		Public parking spaces	50
Aircraft gates	1	Employee parking spaces	25
Aircraft apron (SY)	5,000	Rental car parking spaces	15
		Total parking spaces	90

Sources: FAA, Advisory Circular 150/5360-9, Planning and Design of Airport Terminal Building Facilities at Nonhub Airports.
Notes: LF=linear feet, SY=Square yard

An estimated 15,000 square feet of terminal space would be required to accommodate a regional jet aircraft with a configuration of 50 seats, assuming that air carrier flights at CVN would not overlap one another, meaning that the terminal would accommodate one flight at a time. The estimate provided above is also consistent with rule-of thumb space requirements established in FAA AC 150/5360-13.

The terminal building size of 15,000 square feet is based on 20,000 annual enplanements. This is consistent with typical enplanement to area population ratios for airports served by regional jets and similar to communities the size of Clovis with similar airport market areas. Further, a terminal building this size would likely accommodate demand beyond the 20-year planning period, as most terminal buildings have a useful life well beyond 20 years. Additional discussion related to the terminal building requirements is included in Appendices A and C.

Airside and landside access to the new terminal building is an important feature to be quantified as part of this study. It is recommended that an aircraft apron designed to accommodate two C-III aircraft simultaneously be constructed adjacent to the terminal building to allow for flight overlaps. The apron should be accessed by multiple taxiways in order to provide convenient and efficient access to the airfield and multiple entrance/exit paths for pilots to follow.

Public vehicle access to the new terminal should be provided along a curb frontage roadway to allow for convenient passenger pick-up/drop-off. Based on general planning guidelines, approximately 90 total parking spaces should be provided for a terminal this size with regional jet service.

The location of the newly developed terminal building, as well as taxiways, aircraft aprons and vehicle parking areas intended to access the new terminal building will be discussed further in the following chapter. This discussion will include the basic layout of these facilities in relation to one another, but not detailed design requirements.

3.4.2 Hangars

Based aircraft are routinely stored at airports in a variety of hangar types. The type of hangars needed is determined by aircraft size and type as well as the type of aircraft owner (business or leisure) and the region of the country. Currently, the following types of hangars, the majority of which are occupied, are offered at CVN:

- T-hangars – This hangar type generally consists of a large structure having multiple T-shaped units for lease to individuals. At CVN, there are eight T-hangar buildings that have a total of 74 aircraft parking positions.
- Commercial Hangars – This classification typically includes larger hangars capable of holding multiple aircraft, depending on their size, and house a variety of businesses on the airport. There are currently five commercial hangars at CVN.
- Corporate Hangars – These are similar to commercial hangars, but typically have an attached office and are used by one tenant only. These hangars can house just one or multiple aircraft, depending on the owner's needs. CVN has three corporate hangars.

Hangars are the preferred method for based aircraft storage at CVN to protect aircraft from high temperatures and sun exposure, as evidenced by the Airport's hangar waiting list. As documented in the 2006 Airport Action Plan, and confirmed by the Airport manager, there is interest in developing larger T-hangar structures to accommodate multi-engine aircraft. Larger conventional hangars provide storage for the twin engines, but their use has many aircraft owners expressing concern over "hangar rash", dents, scratches, and scheduling inconveniences to get their aircraft out from behind other aircraft.

Mentioned in Chapter One, T-hangar Buildings #1 and #2 are in poor condition and repair parts are difficult to find. These T-hangars should be replaced to accommodate existing and future based aircraft.

Practically all based aircraft (100%) at CVN are stored in hangars. This same rate is assumed for the future based aircraft at CVN and used in determining the demand for additional hangars. The aircraft type influences the type of storage required for based aircraft. Taking this into consideration, the projected based aircraft fleet mix was used to identify the number of additional hangars by type projected over each phase of the planning period.

Of the 74 aircraft based at CVN, 52 are single engine, 18 are multi-engine, two are jet aircraft, and two are helicopters. As previously identified in Chapter Two: *Forecasts of Aviation Activity*, and based on the Airport's existing fleet mix, single-engine aircraft are expected to remain as the largest segment of the fleet at CVN. Given the high-range forecast, three jet aircraft and helicopters are anticipated to be present by 2032. The addition of 21 new single-engine and seven multi-engine aircraft are also projected at the Airport by the end of the planning period.

The anticipated number of hangars needed over the planning period was estimated by accounting for each aircraft and hangar type expected to be used at CVN over the next 20 years. The expected mix of based aircraft and associated hangar requirements are presented in Table 3-10.

Table 3-10: Aircraft Hangar Requirements

	2012	2017	2022	2032
Based Aircraft Demand				
Single Engine (70%)	52	57	61	73
Multi-Engine (24%)	18	20	21	25
Jet (3%)	2	2	3	3
Helicopter (3%)	2	2	3	3
TOTAL	74	81	88	104
T-Hangars				
Single Engine (100%)	52	57	61	73
Multi-Engine (80%)	14	16	17	20
Jet (0%)	0	0	0	0
Helicopter (0%)	0	0	0	0
TOTAL DEMAND	66	73	**78**	**93**
EXISTING T-HANGARS	74	74	74	74
Commercial/Corporate Hangars				
Single Engine (0%)	0	0	0	0
Multi-Engine (20%)	4	4	4	5
Jet (100%)	2	2	3	3
Helicopter (100%)	2	2	3	3
TOTAL DEMAND	8	8	**10**	**11**
EXISTING HANGARS	8	8	8	8

Source: CDM Smith
Note: Figures in bold indicate a demand for additional hangars.

Based on the above analysis, the Airport's current infrastructure requires expansion to accommodate the forecasted demand for T-hangars and commercial/corporate hangars. To satisfy the T-hangar deficiency, it is recommended that 19 T-hangars be constructed during the later phases of the planning period. This would be accomplished through the development of two additional 10-unit T-hangar structures. These buildings should be built to accommodate multi-engine aircraft as many owners of this type wish for larger T-hangars rather than commercial/ corporate style hangars. It is also estimated that three additional commercial/ corporate hangars will be needed during the second half of the planning period to accommodate the expected growth in based multi-engine, jet aircraft and helicopters at CVN. It is also recommended that existing structures in poor condition (T-hangar Buildings #1 and #2) be rebuilt in the early stages of the planning period. Alternatives for accommodating the predicted growth in based aircraft are presented and discussed in the following chapter.

3.4.3 Apron and Tiedown Areas

The main apron area at Clovis Municipal Airport is located adjacent to the primary T-hangar areas, FBOs, and commercial terminal building. In total (and including taxilanes), it is approximately 1,000 feet long and 240 wide near the terminal area (and approximately 200 feet wide at its southern end). This apron has 19 marked aircraft tie-downs. Since all based aircraft at the Airport are located in hangars, these tie-downs are currently used only for transient aircraft. The southern portion of the apron pavement was rehabilitated in 2003 and in good condition, while the apron immediately in front of the terminal building and the FBO is in poor condition. All aprons have pavement strength commensurate with the runways and taxiways.

There is also another smaller apron area located to the southwest next to one of the FBO's hangars. This apron measures approximately 200 feet by 130 feet, including taxilanes. It has no marked tiedowns, but is frequently used for helicopter parking by a based operator.

Based on its existing condition, it is recommended that the apron immediately in front of the terminal building and the FBO be rehabilitated in the early stages of the 20-year planning period to accommodate the needs of based, transient and commercial service aircraft. Expansion of the apron is not required to meet based aircraft or transient needs, however, it should be expanded and/or connected to any new hangar development, as required to facilitate aircraft movement.

3.4.4 Automobile Parking

Automobile parking is available at the airport terminal building, FBO facilities, and in the hangar areas. Specifically, the terminal building has approximately 32 paved parking spots immediately in front of the facility as part of the loop road, as well as an additional estimated 32 unpaved spots just to the south. The FBO has an estimated 20 paved parking spots available near its primary hangar, in addition to other unmarked areas that could be utilized as parking overflow. There

is no designated parking for T-hangar users, with most tenants apparently parking in their hangar when using their aircraft. The corporate hangars on the north ramp both have marked parking areas with each having approximately 14 paved spots. All other hangars have generally defined areas available for parking, but they are neither paved nor marked.

Based on general planning guidelines, which recommends 1.5 parking spaces per peak hour enplaned passenger, the 32 parking spaces located near the terminal building are adequate to meet the demands of existing commercial service at CVN. If commercial passenger operations at CVN were to expand into regional jet service, approximately 20 additional parking spaces near the terminal building would be necessary if those operations were accommodated at the existing terminal building. Note, however, it was determined earlier in this chapter, that additional terminal space would also be required if commercial service at CVN were to expand. Therefore, temporary modifications to the existing terminal to accommodate additional passenger service would also include parking modifications.

Automobile parking at the FBO is adequate within the planning period. If the FBO is relocated in the future, it is recommended that 20 automobile parking spaces be provided, consistent with its current number of spaces, and in-line with expected demand. Any future commercial/corporate hangar development should include enough parking to accommodate staff, pilots, passengers and visitors. Typically, parking area equivalent to half the commercial/corporate hangar area is adequate under most circumstances. T-hangar users should continue to park in their hangars, at the discretion of Airport management.

3.5 AIRPORT SUPPORT FACILITIES

Current conditions at the Airport and potential future developments may impact aviation support facilities. Potential requirements necessary to meet deficiencies or address future needs for facilities that support the Airport's infrastructure and basic services are detailed below.

3.5.1 Fuel Storage Facilities

The airport's fuel farm is located off the southwest end of the main apron area, immediately north of an agricultural sprayer tenant hangar. The farm is made available for use by the Airport, but the fuel tanks are privately owned (two by the current FBO, one was owned by a former FBO, and one by the agricultural spraying operation). This fuel farm has a capacity of 30,000 gallons each for Avgas and Jet A. A corporate tenant on the north ramp also operates its own fuel farm next to its hangar. This farm has two 12,000 gallon (estimated) tanks, one for 100LL and the other for Jet-A. Both fuel farms have appropriate security and safety measures including fencing, detention basins, etc. and all fuel tanks are located above ground.

There is room to expand the fuel farm within the existing fence area. Based on input from the Airport manager and FBO, existing capacities are adequate within the planning period. If expanded commercial service were to come to CVN within the planning period, however, an additional 30,000 gallon tank to hold Jet A would likely be required.

3.5.2 Airport Security

As part of this Master Plan effort, an Airport Safety and Security Plan was developed and is included in Appendix E. This Plan defines existing airport safety and security features, outlines requirements as a commercial service airport and provides recommendations to enhance the safety and security of Airport users, visitors, employees and tenants.

Several recommendations have been made in this plan to deter unauthorized access to restricted airport areas and improve safety. Some of these recommendations include:

- Perimeter security fencing – Only partial segments of the Airport area are secured by chain linked fencing to deter unauthorized access and prevent animal incursions. In areas where barbed wire is currently in place, chain linked fence is recommended.
- Controlled access – While two gates located in the terminal area are controlled with card readers, most gates are chained and padlocked. The number of gates and access points should be evaluated and minimized. Frequently used gates near the terminal area should have card reader access while less frequently used gates around the airport perimeter should be locked and monitored.
- Enhanced surveillance – Some areas of the airport are monitored by video or camera surveillance. Additional cameras or systems with improved capabilities are recommended in sensitive areas.
- Improved lighting in the terminal to enhance safety and security.
- Regular airport staff patrols along the perimeter road are recommended to conduct maintenance operations and security inspections.
- If/when TSA screening is initiated at CVN, enhanced passenger screening and terminal/airfield access modifications will be required.

Clovis Municipal Airport does not have a paved perimeter road, but there are dirt roads on the airport infield which are utilized by airport vehicles to conduct maintenance operations and security inspections. Area lighting around the terminal, hangars, FBO facilities, and aircraft apron areas is also employed to enhance security. The Airport also relies on local law enforcement officials to provide regular patrols on and around the facility.

3.5.3 Aircraft Rescue and Fire Fighting (ARFF)

Airports providing FAR Part 139 air carrier operations are required to have Airport Rescue and Firefighting (ARFF) facilities. The CVN ARFF building is approximately 1,340 square feet and is located adjacent to the terminal, abutting the main apron area. It houses the Airport's fire truck and provides appropriate fire personnel support space. This central position allows any emergency operations to provide a rapid response. Note that a Clovis Fire Department (CFD) substation is also located on the Airport, but it is not directly associated with ARFF activities. Based on the need for ARFF facilities to optimize lower emergency response times, the location of the existing ARFF facility is ideal because it is centrally located.

After interviews with Airport management, it is recommended that the ARFF station be replaced to update and expand the facilities provided. Stations at airports similar to CVN are approximately 2,500 to 5,000 square feet in size and include two equipment/truck bays as well as space for offices, training, and personnel.

3.5.4 Airport Maintenance Facilities

The airfield maintenance building is a 60 foot by 80 foot (4,800 square feet) facility located on the airport access road entering the Airport. The building and adjacent areas contain airfield maintenance equipment, as well as facilities to maintain that equipment. The building also houses the airport manager's office and airport employee support facilities (e.g. locker room, conference room, etc). Located adjacent to the ARFF building, the Snow Removal and Equipment (SRE) building also houses important airfield maintenance equipment.

These buildings should be maintained and expanded to house all crucial airfield equipment and keep them protected from the weather and elements. It is also recommended that the airport manager's office be co-located with any terminal building improvements to provide more convenient access to airport management for employees, visitors, passengers and tenants.

3.5.5 Utilities

Through various providers, Clovis Municipal Airport has access to full utilities. The City of Clovis provides water, sewer, and emergency power services, but the facilities are located on-site. The airport has a well and pumping system for its water and an on-site septic system for sewer.

Because of the Airport's locale, it is also important to note that the City of Clovis owns the water rights for the Clovis Municipal Airport. It allows for the Airport to pump its own water without having to rely on a city water line. Either maintaining those water rights or ultimately linking up with the city's water supply will be critical to support future activities and development at the Airport. One way to achieve increased water capacity necessary to supply fire suppression systems for new hangar/facility development, would be to create a looped water supply system that connects multiple sites, rather than the direct feed system employed today.

3.6 FACILITY REQUIREMENTS SUMMARY

A variety of improvements are needed at CVN over the 20-year planning period. For ease of reference, Tables 3-11 and 3-12 provide a summary of the airside, landside, and support facility development needs identified in previous sections. Included are brief summaries of the justification for the improvement. The facilities outlined in Tables 3-11 and 3-12 will undergo further review and evaluation in the following chapters to determine if it is feasible to accommodate the requirements. Alternatives for development will be reviewed and a recommended concept will be presented and illustrated on the ALP.

Table 3-11: Summary of Airside Facility Requirements

Facility	Future Requirement	Justification
Runway 4-22 Length	Provide a runway length of 8,800 feet to support future operations	To meet the operational lengths for current and future business/regional jet aircraft
Runway 4-22 Width	No additional width required	Based on FAA design standards for an ARC C-III runway with a precision instrument approach
Runway 12-30 Length	Provide a runway length of 7,100 feet to support future operations	Based on wind coverage, current length, and utilization by single- and multi-engine aircraft
Runway 12-30 Width	No additional width required	Based on FAA design standards for an ARC B-III runway with a non-precision instrument approach
Runway 8-26 Length	No additional length required	Maintain runway to retain proper wind coverage for small aircraft
Runway 8-26 Width	No additional width required	Based on FAA design standards for an ARC A-I runway with a visual approach
Runway Pavement Strength	Increase Runway 4-22 and 12-30 strength to 45lbs. SW; 120,000 lbs. DW	Meet weight standards for ARC B-III and C-III aircraft
Taxiway A	Deactivate and demolish pavement leading to relocated threshold	To reduce pilot confusion when accessing Runway 4
Taxiways A, B, C	Increase taxiway strength to 45lbs. SW; 120,000 lbs. DW	Meet weight standards for ARC B-III and C-III aircraft.
Instrument NAVAIDS	No additional instrument NAVAIDS required, maintain ILS Runway 4	Meet the needs of typical ARC B-III and C-III aircraft
Visual Landing Aids	REILs/PAPIs for Runway 12-30 should be reactivated or installed	Meet the needs of typical ARC B-III and C-III aircraft
Dimensional Standards	Recommendations to avoid surface or area conflicts will be cited on the ALP	Required to meet safety/design standards

Source: CDM Smith

Table 3-12: Summary of Landside and Support Facility Requirements

Facility	Future Requirement	Justification
Terminal Building	Develop new 15,000 sq. ft. terminal building*	To provide space for potential traffic increases and operational needs
T-Hangars	Provide 19 additional T-Hangars units, replace old hangars #1 and #2	To meet future demand
Commercial/Corporate Hangars	Provide 3 additional hangars	To meet the demand expected by increased traffic and tenant businesses
Apron Area	Rehabilitate in front of FBO/terminal Add aprons to future hangar areas, if necessary	Based on current conditions and projections for future hangar development
Tiedown Areas	No expansion required	Based on existing supply and demand
Automobile Parking	Existing terminal - 20 spaces* Future terminal - 90 spaces*	To provide additional parking for terminal building users with expanded air service
Fuel Storage	No additional fuel capacity required	Per airport management
Airport Security	Expand perimeter fencing Monitoring/Access improvements	Based on FAA/TSA guidelines and airport management input
Aircraft Rescue and Fire Fighting (ARFF)	Redevelop ARFF facility to 2,500 – 5,000 sq. ft.	Based on age and size of current facility as well as standards
Airport Maintenance Facilities	Expand facilities or add new buildings to accommodate all equipment	To ensure longevity of airfield maintenance equipment
Utilities	Develop loop system within current water infrastructure	To expand water capacity for additional hangar development/fire suppression

Source: CDM Smith

* Recommended with expanded commercial passenger air service

Chapter FOUR:

AIRPORT DEVELOPMENT ALTERNATIVES

4.1 INTRODUCTION

As part of the facility requirements analyzed in the previous chapter, recommendations have been made for the airside, landside and terminal area alternatives based on demand and capacity data at Clovis Airport. The focus of this chapter is to evaluate assets and absences of these alternatives and provide an informational structure for determining a preferred airport development plan. This preferred alternative will then be depicted in the Airport Layout Plan (ALP) drawings.

The purpose of this analysis is to develop complementary airport facilities to the existing infrastructure that can realistically accommodate the demands imposed upon it. The options should be compatible with local planning initiatives, as well as the goals of Clovis Airport, City of Clovis, Curry County and the State of New Mexico. The process for selecting appropriate alternatives is based on technical, economical, and practical applications as well as the most favorable airport improvement option. In order to determine the course of action, factors such as development and evaluation of design options should be assessed. These factors include:

- Compliance with FAA airport design standards and airspace criteria.
- The short and long-term development cost of these alternatives.
- Maintenance of compatibility with existing and proposed land uses, with respect given to zoning ordinances and neighboring off-airport uses.
- Minimization of environmental impacts on and off-airport, with consideration given to potential mitigation from any significant environmental impact.

Alternatives to be considered will include options for airside, landside and terminal development.

4.2 FACILITY REQUIREMENTS SUMMARY

Facility requirements are intended to compare existing facilities to safety standards and the demand for new or expanded facilities. The facilities previously outlined in Chapter 3 have provided the basis to determine the feasibility to accommodate various alternatives. In addition, airfield demand/capacity, airside facility requirements, landside capacity, and terminal requirements have all been evaluated during the selection of alternatives. Furthermore, two main standards are taken into account when evaluating facility requirements. First, alternatives

must meet design requirements established by the current and future Airport Reference Code (ARC) and second, standards identified in FAA Advisory Circular 150/5300-13A, Airport Design must be met.

To meet future facility requirements, Clovis Airport must make provisions to accommodate future operations. The demand for additional facilities was calculated in the previous chapter and can be summarized by examining forecasted based aircraft, operations and enplanements (Table 4-1).

1. Based Aircraft – CVN currently houses 74 based aircraft; this is expected to increase to as much as 104 based aircraft by the year 2032.
2. Operations – CVN currently sees roughly 28,000 aircraft operations per year; this is expected to rise to as much as 38,600 by the year 2032.
3. Enplanements – CVN enplanements are expected to remain constant.

Table 4-1: Demand Forecasts (2012-2032)

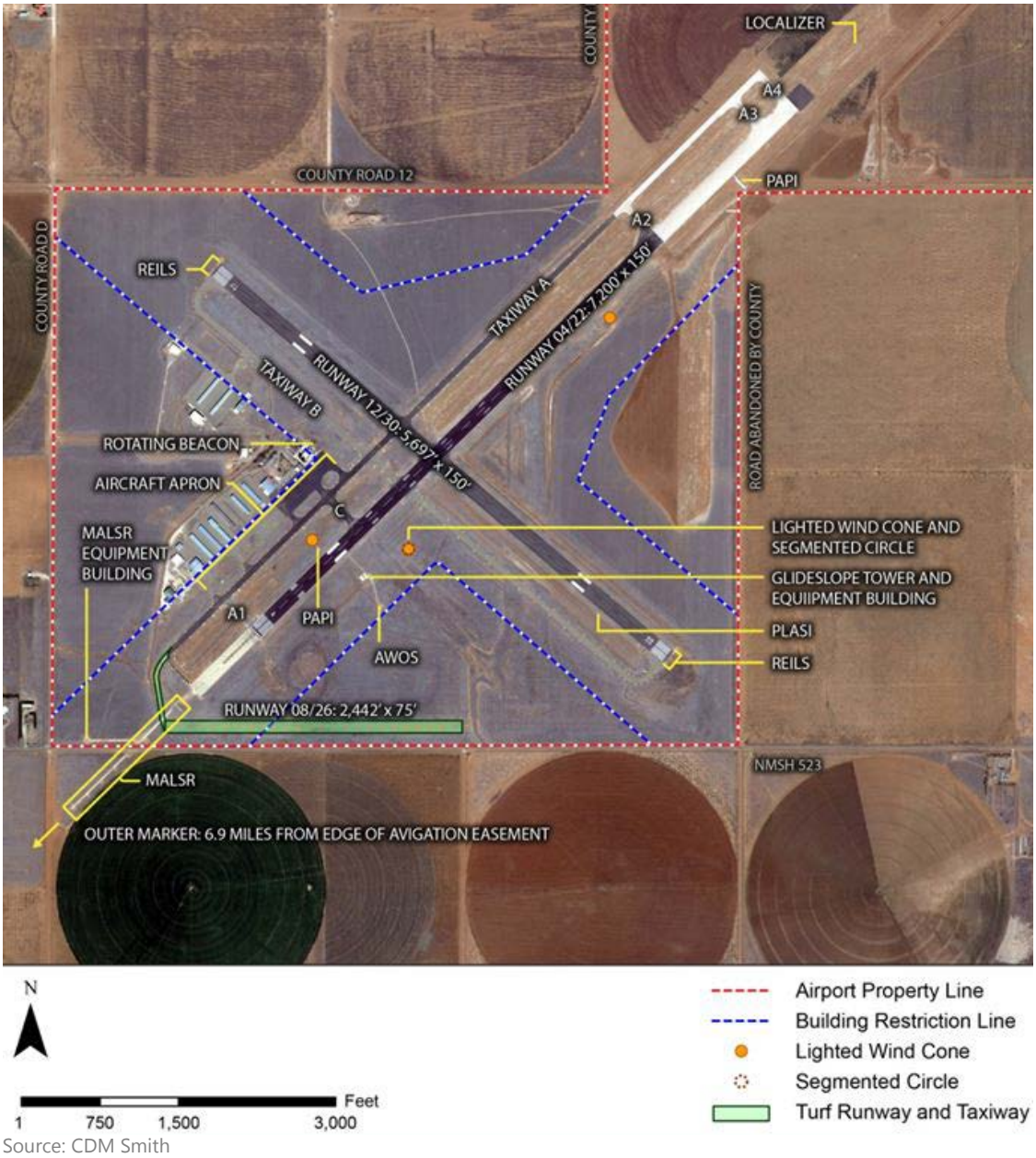
	2012	2017	2022	2032	CAGR
Enplaned Passengers					
Forecast Range	1,772	1,772	1,772	1,772	0.0%
FAA TAF	1,772	1,772	1,772	1,772	0.0%
Aircraft Operations					
Forecast Range	27,683	28,255-30,033	28,839-32,600	30,044-38,600	0.40-1.66%
FAA TAF	27,683	28,677	29,711	31,909	0.71%
Based Aircraft					
Forecast Range	74	76-81	77-88	80-104	0.41-1.72%
FAA TAF	72	78	81	89	0.95%

Source: CDM Smith

4.2.1 Airside Requirements

Airfield facilities include infrastructure that interacts with the arrival and departure of the aircraft and movement around airfield to parking and storage locations. Areas of airside focus include runway/taxiway dimensions, aprons, navigational aids, landing aids, and dimensional standards. These criteria are taken into account during the development of the airside alternatives. Exhibit 4-1 shows some of the key airside features of CVN.

Exhibit 4-1: Detailed Airside Facilities



Source: CDM Smith

To meet future facility and airside requirements, Clovis Airport must make provisions to accommodate future operations. CVN currently operates at B-II design standards, with the Pilatus PC-12 as the most demanding aircraft to use the airport on a regular basis (500+ itinerant annual operations). As identified in the previous chapter, however, the need for CVN to accommodate C-III design aircraft will be required. Table 4-2 illustrates the aircraft approach category and design groups that make up airport reference codes.

Table 4-2: Airport Reference Code

Aircraft Approach Category (AAC)		
Approach Category	Approach Speed	
A	< 91 knots	
B	91 knots - < 121 knots	
C	121 knots - < 141 knots	
D	141 knots - < 166 knots	
E	166 knots or more	
Aircraft Design Group (ADG)		
Design Group	Wingspan	Tail Height
I	< 49 feet	< 20 feet
II	49 feet - < 79 feet	20 feet - < 30 feet
III	79 feet - < 118 feet	30 feet - < 45 feet
IV	118 feet - < 171 feet	45 feet - < 60 feet
V	171 feet - < 214 feet	60 feet - < 66 feet
VI	214 feet - < 262 feet	66 feet - < 80 feet

Source: FAA Advisory Circular 150/5300-13A

The following airside improvements were recommended in the previous chapter and are intended to meet future aircraft design requirements as well as enhance the efficiency of the airfield. Each of the proposed alternatives will incorporate these improvements while following compliance with FAA Airport Design Standards with regards to airside development.

a. Ultimate extension Runway 4/22 to 8,800'
b. Ultimate extension Runway 12/30 to 7,100'
c. Runway 4/22,12/30, Taxiway strength to 45,000lbs. SW; 120,000lbs. DW
d. Demolish Taxiway A conflict pavement at Runway 4 end

4.2.2 Landside Requirements

Various landside improvements are recommended to accommodate general aviation and commercial activity throughout the planning period at CVN. As stated in Chapter 3, areas of particular focus include hangars, aprons and tie-down areas, automobile parking, as well as the various associated support facilities (**Exhibit 4-2**). These facility requirements are developed from the analysis of the demand and capacity requirements, and based on standards established by the FAA Advisory Circulars 150/5300-13A, *Airport Design*.

Exhibit 4-2: Detailed Landside Facilities

Source: CDM Smith

The following landside improvements were recommended in the previous chapter and are intended to meet future demands for aircraft storage, safety/security and functionality. Each of the proposed alternatives will incorporate these improvements while following compliance with FAA Airport Design Standards with regards to landside development:

a. Provide 19 additional T-Hangar units, replacing old hangars
b. 3 additional corporate hangars
c. Rehab/expand apron where needed
d. Expand fencing/monitoring
e. Redevelop ARFF
f. Utility enhancements

4.2.3 Terminal Requirements

Various terminal improvements are recommended to accommodate commercial passenger activity throughout the planning period at CVN. As stated in Chapter 3, the terminal building at CVN is centrally located on the airfield and is accessible via the airport's main access road. The terminal building is 5,300 sq. ft. and provides lobby facilities, circulation areas, ticketing counters, airline offices and rental car facilities.

Due to the age of the existing terminal building and the city's interest in attracting expanded commercial passenger service, the terminal building will be evaluated for development alternatives. The following criteria have been established to determine the future requirements of the terminal building if/when commercial air service is expanded at CVN. The terminal building should be capable of accommodating:

a. Mainline domestic carrier
b. Regional jet service
c. Passenger/Baggage security screening
d. Multiple daily flights to hub
e. 20,000 annual enplanements

Based on these criteria, the terminal building may be evaluated for relocation, reconstruction, or renovation. The recommendation to develop a new terminal building to accommodate these criteria should be made in conjunction with a commitment from an airline to offer expanded service or in an effort to attract such a carrier. Based on this recommendation, therefore, terminal building improvements may take place after the 20-year planning period.

Each of the proposed alternatives for terminal development follows compliance with FAA Advisory Circular 150/5360-9, *Planning and Design of Airport Terminal Building Facilities at Non-hub Airports*.

4.3 EVALUATION CRITERIA

The following evaluation criteria have been developed to determine which alternatives correctly meet Clovis Airport future requirements. These criteria were based on, but not limited to, FAA Airport Design Standards, facility requirements, implementation feasibility, operational efficiency, preliminary cost of development, and preliminary potential environmental impacts.

These design concepts represent the range of possibilities to reasonably improve certain design and operational characteristics at the airport. Following a review of these alternatives are based on performance standards of future airport operational activity (individual or combination of strategies), a preferred alternative design concept will be selected and will be carried through the remainder of the study ultimately used to update the Clovis Airport Layout Plan.

4.4 AIRSIDE DEVELOPMENT ALTERNATIVES

Following the compiled data of inventory and forecast in previous chapters, three runway alternatives will be evaluated for Runways 12/30, 04/22, and 8/26. Evaluations will be made for each of these alternatives based on: FAA design standard requirements, airport safety improvements, influence on aircraft operations, navigation equipment ramifications, and land acquisitions. Selection of an alternative that meets airside and landside facility requirements is essential.

The following alternatives under consideration include extensions for Runways 12/30 and 04/22 and the potential relocation of Runway 8/26 as a result of new terminal development. Additional alternatives include plans for pavement removal at Taxiway A due to potential pilot taxi conflict at the Runway 4 end.

The runway extension alternatives for this analysis were prepared in accordance with FAA Advisory Circular 150/5300-13A, *Airport Design*.

The 2009 Clovis Airport Layout Plan and the 2006 Clovis Action Plan evaluated the need for runway extensions. Based on similar findings, the recommendations from these previous studies were carried forward in this master plan and depict extensions to Runways 12/30 and 4/22 to accommodate B-III and C-III aircraft, respectively. Primary airside development goals are to:

a. Extend runways to accommodate B-III and C-III aircraft
b. Improve aircraft ground movement and reduce areas of conflict

4.4.1 Description of Airside Alternatives

The following alternatives have been assembled to provide a full range of design options that are based on the unconstrained development of Clovis Airport. These alternatives are based on forecasts and potential future expansions at the airport. These airfield design expansion options are listed below:

- Alternative 1 - No-Build
- Alternative 2 - Runway Extension on RWY 04/22
- Alternative 3 - Runway Extension on RWY 12/30
- Alternative 4 - Demolish Taxiway A conflict pavement at Runway 4 end

Alternative 1 - No-Build

Alternative 1 involves no new runway construction or airside development and is generally described as follows:

Design Considerations:

- Existing B-II design standards remain
- Thresholds remain the same
- RSA lengths remain the same
- All runways lengths remain at the same dimensions

This alternative will not require the relocation, construction, and or acquisition of the following:

- Lighting will remain the same
- Runway lighting system will remain the same
- Touchdown zone will remain the same

Alternative 1 No-Build, will continue to operate at the same capacity with all current conditions remaining the same. The maximum design aircraft allowed on airfield will be the Beechcraft 1900D, Pilatus PC-12 or similar aircraft. More demanding aircraft using the airport will experience limited performance and capacity as a result of lower than optimal runway length, especially during hotter temperatures.

Alternative 2 - Runway Extension on RWY 04/22

Alternative 2 involves the ultimate extension of Runway 04/22 to 8,800, as well as increasing the taxiway strength to 45,000lbs, SW: 120,000 lbs. DW

Design Considerations:

- Extension of runway will be based on C -III design standards
- Runway extended an additional 1,600' on the Runway 22 end
- Implement standard RSA 1,000 feet beyond both runway thresholds
- 8,800' Runway length available for take-offs in both directions.

This alternative may require the relocation, construction, and or acquisition of the following:

- Runway 4/22 is currently equipped with Medium Intensity Runway Lighting. Runway 4 has a Medium-intensity Approach Lighting System with Runway Alignment Indicator Lights (MALSR) to support the ILS and will not need to be relocated. Runway 22 is and will continue to be non-precision with no approach lighting system.
- Localizer and PAPI equipment will be moved with Runway 22 extension
- Land acquisition to the northeast not required. ALP states land is airport owned and no further easements or acquisitions are required.
- No residential/commercial areas will be relocated.
- Runway 22 obstruction analysis will be required before extension.

With Alternative 2, it is recommended that Runway 4-22 ultimately achieve an ARC of C-III. Many aircraft in the current commercial aviation fleet, including almost all regional jets fall within the C-III ARC. Given that CVN has commercial air service and is interested in expanding the ARC C-III classification, Runway 4-22 would accommodate mainline domestic air carriers utilizing regional jet aircraft. Increasing the taxiway strength will provide infrastructure support to larger aircraft. This alternative is minimally invasive to surrounding land and expands onto current airport property.

Alternative 3 - Runway Extensions on RWY 12/30

Alternative 3 involves the ultimate extension of Runway 12/30 to 7,100', as well as increasing the taxiway strength to 45,000lbs, SW: 120,000lbs DW.

Design Considerations:

- Extension of runway will be based on B -III design standards
- Runway extended an additional 1,400'on the Runway 12 end
- B-III call for RSA to be 300' wide and extend 600' from runway end
- No displacement of thresholds.
- 7,100' runway length available for take-offs at both runway ends.

This alternative may require the relocation, construction, and or acquisition of the following:

- PAPI (Precision Approach Path Indicators) will require relocation at Runway 12 end.
- Runway 12-30 is equipped with Runway End Identifier Lights (REILs) but is currently indicated as being indefinitely inoperable. These lighting systems will remain adequate throughout the 20-year planning period; however, REILs for Runway 12-30 should be reactivated. This will be evaluated with the ultimate runway extension.
- County Roads "D" and 12 to be relocated or abandoned for ultimate configuration.
- Based on recent FAA guidance related to Runway Protections Zones, land acquisitions would be necessary to own property within the RPZ.
- No residential/commercial areas will be relocated.

With Alternative 3, the extension of runway end 12 will allow for ARC design standards to be moved from B-II to B-III. This will allow for medium to large business jets to take advantage of Runway 12/30. This alternative is also minimally invasive to surrounding land as the pavement areas expand on to current airport property.

Alternative 4 - Demolish Taxiway A conflict pavement at Runway 4 end

Alternative 4 involves addressing the current conflict at Runway 4 end as it pertains to Taxiway A. As a part of the previous Runway 4/22 extension project, Taxiway A was extended making its length approximately 7,999 feet. However, when this was completed the southernmost segment of the taxiway was not deactivated with the relocation of the Runway 4 threshold. At times, pilots have expressed confusion when taxiing to the end of threshold of Runway 4. Demolishing the unnecessary pavement beyond the Taxiway A entrance to Runway 4 would resolve the confusion and provide only one taxiway route to Runway 4, as necessary.

Design Considerations:

- The recommended alternative will be to demolish the Taxiway A pavement beyond the entrance to the Runway 4 threshold and discontinue partial access to Runway 8/26 via Taxiway A.

This alternative may require the relocation, construction, and or acquisition of the following:

- Additional lighting or removal of lighting may be required after taxiway demolition.
- Pavement will be removed and replaced with grass, according to removal standards, in this location.

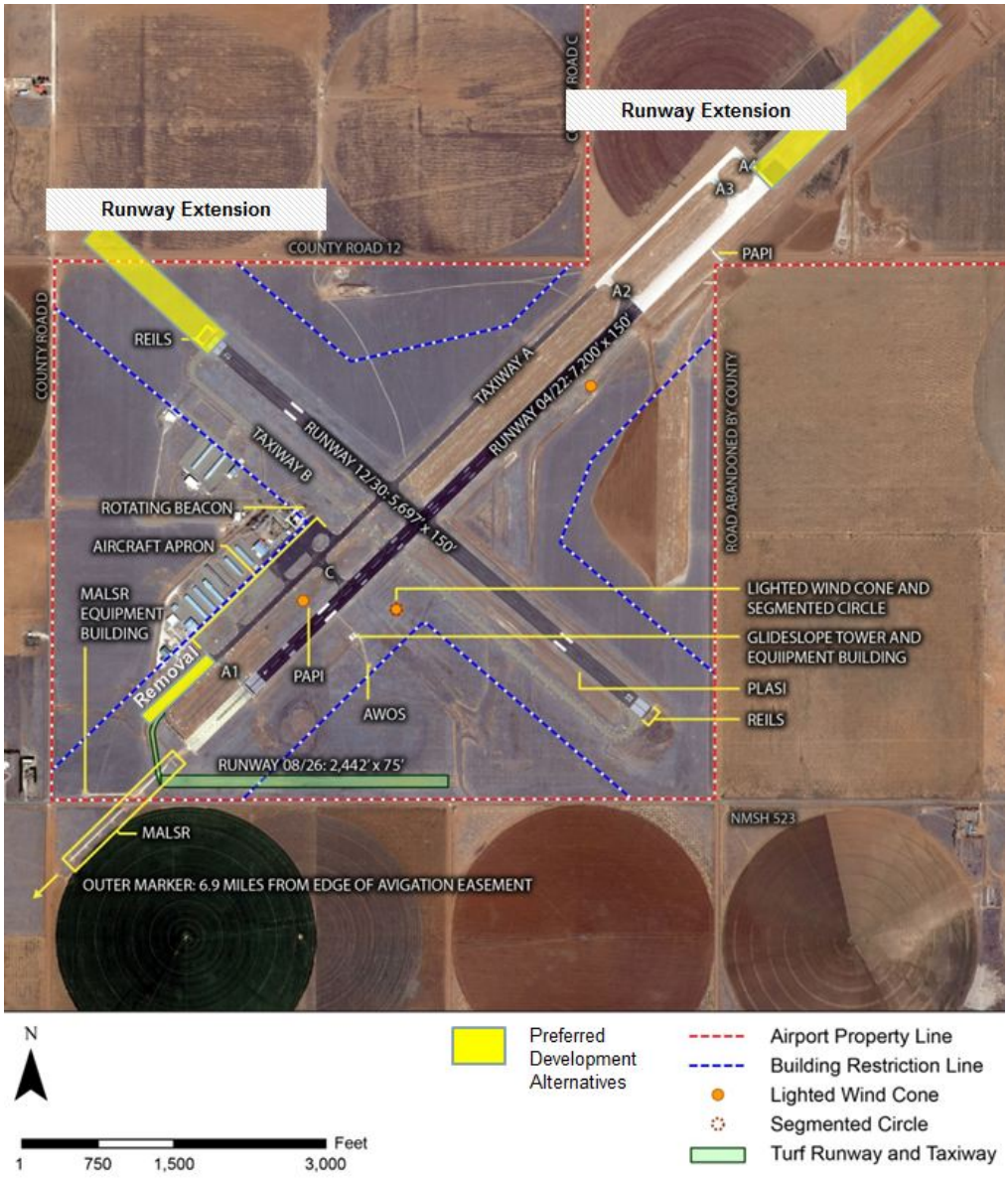
With Alternative 4, the southernmost part of the taxiway is still utilized to provide access to Runway 8/26, up to the entrance to Runway 4. As addressed in Chapter 3, even with appropriate signage, it is not uncommon for pilots to pass the taxiway turn-off for the Runway 4 threshold and precede toward the old, relocated portion of the Runway. Although this taxiway provides access to turf Runway 8-26, confused pilots accessing Runway 4 must turn around if they pass the appropriate turn-off. The demolition of Taxiway A corrects the above issues and will be a minimally invasive correction to the area. This in turn will effectively lengthen the unpaved, unmarked taxiway leading to Runway 8-26.

4.4.2 Airside Alternatives Summary

In summary, the presented airside alternatives for Clovis are vital options for meeting demand forecasts and potential future expansions at the airport. In review, Alternative 1 will does not meet the criteria to support airport growth.

Alternative 2 is a recommended alternative in this scenario, as it will ultimately achieve an ARC of C-III. Many aircraft in the current commercial aviation fleet, including almost all regional jets fall within this C-III classification, thus allowing Clovis to accommodate larger commercial flights. Alternative 3 is also recommended in an effort to support the growth of business aircraft at CVN and provide runway options for jet aircraft users. In addition, Alternative 4 is also a preferred alternative as it is a necessity to demolish the unnecessary pavement beyond the Taxiway A entrance to Runway 4 to avoid pilot confusion.

Exhibit 4-3: Airside Alternatives



4.5 LANDSIDE DEVELOPMENT ALTERNATIVES

This section describes the landside development alternatives needed to meet facility requirements and accommodate CVN's general aviation and commercial activity throughout the planning period. Areas of particular focus include the hangars, aprons and tie-down areas, automobile parking, as well as the various associated support facilities such as security and ARFF.

According to Chapter 3, practically all based aircraft (100%) at CVN are stored in hangars. This same rate is assumed for the future based aircraft at CVN and used in determining the demand for additional hangars. The aircraft type influences the

type of storage required for based aircraft. Taking this into consideration, the projected based aircraft fleet mix was used to identify the number of additional hangars by type projected over each phase of the planning period.

4.5.1 Description of Landside Alternatives

The following alternatives have been assembled to provide the City of Clovis and the airport with a full range of design options that are based on the unconstrained development of Clovis Airport. These alternatives are based on forecasts and potential future expansions at the airport. These airfield design expansion options are listed below:

- Alternative 1 - No-Build
- Alternative 2 - Hangar Development Areas
- Alternative 3 - Replacement of Old Hangars
- Alternative 4 - ARFF Redevelopment and Security Enhancements

Alternative 1 - No-Build

Alternative 1 has no new landside development at Clovis. All landside facilities and equipment remain in their current location.

Design Considerations:

- All facilities and equipment remain in their current location and maintain current design standards.

This alternative may require the relocation, construction, and or acquisition of the following:

- Lighting changes not required
- Land acquisition not required
- Residential/Commercial relocation not required
- Easement/ Obstruction removal not required

Alternative 1 No-Build, will continue to operate at the same landside capacity with all current conditions remaining the same.

Alternative 2 - Hangar Development Areas

The anticipated number of hangars needed over the planning period was estimated by accounting for each aircraft and hangar type expected to be used at CVN over the next 20 years. As stated in Chapter 3, to satisfy the T-hangar deficiency, it is recommended that 19 T-hangars be constructed during the later phases of the planning period. This would be accomplished through the development of two additional 10-unit T-hangar structures. It is also estimated that three additional commercial/corporate hangars will be needed during the second half of the planning period to accommodate the expected growth in based multi-engine, jet aircraft and helicopters at CVN.

Alternative 2 involves the proposal of additional hangars to the airport. To accommodate to future growth, it is recommended as an alternative to provide additional T-hangars and commercial/corporate hangars to meet the demand. There are two sets of development areas identified as Corporate Areas 1 & 2 and T-Hangar Areas 1 & 2 shown in **Exhibit 4-4**:

1. Corporate Areas 1 and 2 are located in the northern section of the terminal area and are identified to accommodate future corporate hangar development. Both of these areas would likely be required to accommodate the need for three future corporate hangars.
2. T-Hangar Areas 1 and 2 are identified to accommodate T-hangar development. With an expected demand of 19 T-hangars only one of these areas would need to be developed within the planning period.

Exhibit 4-4: Landside Development Areas

Source: CDM Smith

Design Considerations:

This alternative may require the relocation, construction, and or acquisition of the following:

- Additional roadways and road relocations may be required to access the new development areas.
- All hangars will be built on airport owned property.
- Residential/Commercial relocation will not be required.

As previously mentioned, alternative 2 hangar development will best be suited for development in the northern or southern most areas of the landside sector of the airport. These areas are convenient to existing landside and airside access as well as utility infrastructure. When comparing these development areas it is important to note the functionality in relation to the airport.

Pros:

- Division of corporate hangars from T-hangars will allow for greater landside circulation.
- Location of corporate hangars to the north will allow for direct passenger access to the commercial service terminal, in addition to a close proximity to other corporate hangars (2 & 3).
- T-hangar development in the southernmost portion will be in close proximity to other T-hangars (1 thru 6).
- Corporate hangars will have direct access to Taxiway B and T-hangar development direct access to Taxiway A.
- Development in the southernmost portion will allow for expected demand (19 T-hangars), with potential additional space for future expansion beyond the planning period.
- Development of T-hangar Area 2 keeps T-hangars together and develops the central terminal area for aviation uses.
- T-hangar Areas 2 makes use of existing taxilanes for access.

Cons:

- Additional landside infrastructure in the northern development may be required depending on demand of corporate usage. The current fuel farm and FBO's are located south at Runway 4 end, access via the north corporate development will require significant use of Taxiway B to Taxiway A to the south aircraft apron.
- Corporate hangar 1 resides on the southernmost landside sector; this deviates from the approach of keeping similar airport users together.
- Further corporate development on the northernmost site will be limited on future expansion outside the planning period. Considerations should be made in relation to the proposed CVN Industrial Business Park and surrounding land.

- T-hangar Area 2 requires the closure of an airport access road and development of a roadway to access the south terminal area.
- T-hangar Area 1 requires a greater amount of apron and taxiway development to provide airside access.

Based on the pros and cons presented above, it is recommended that Corporate Areas 1 and 2 be developed to accommodate expanded corporate and/or aircraft maintenance operations. It is also recommended that T-hangar Area 2 be developed with T-hangar structures to accommodate small based aircraft growth.

Alternative 3 - Replacement of Old Hangars

Alternative 3 involves the replacement of the hangars at Clovis that are nearing the end of their useful life.

Design Considerations:

- Design considerations will remain the same

This alternative may require the relocation, construction, and or acquisition of the following:

- Road relocation not required.
- All hangars will be built on airport owned property
- Residential/Commercial relocation will not be required

With Alternative 3, it is recommended that existing structures in poor condition (T-hangar buildings #1 and #2) be rebuilt in the early stages of the planning period. Mentioned in Chapter One, T-hangar Buildings #1 and #2 are in poor condition and repair parts are difficult to find. These T-hangars should be replaced to accommodate existing and future based aircraft.

Alternative 4 - ARFF Redevelopment and Security Enhancements

Alternative 4 involves the redevelopment of the Airport Rescue and Firefighting (ARFF) building to accommodate for the future growth of the airport. This alternative also promotes security enhancements with the expansion of perimeter fencing, improved access gates and systems, and greater surveillance and monitoring equipment.

Design Considerations:

- ARFF building will remain near its current location on the airfield; however any redevelopment of the site will be subject to landside design guidelines.
- Safety and security systems will be added to new and existing fencing, gates and access points.

This alternative may require the relocation, construction, and or acquisition of the following:

- Reconstruction of the current ARFF building.
- Placement and expansion of safety and security equipment.

With Alternative 4, the CVN ARFF building is approximately 1,340 square feet and is located adjacent to the terminal, abutting the main apron area. It houses the Airport's fire truck and provides appropriate fire personnel support space. This central position allows any emergency operations to provide a rapid response and officials believe that the location of the existing ARFF facility is ideal.

It is recommended that the ARFF station be replaced to update and expand the facilities provided. Stations at airports similar to CVN are approximately 2,500 to 5,000 square feet in size and include two equipment/truck bays as well as space for offices, training, and personnel.

To enhance airport safety and security, it is recommended that improved gate access systems, close-circuit monitoring systems and security perimeter fencing be expanded to encompass the entire airport.

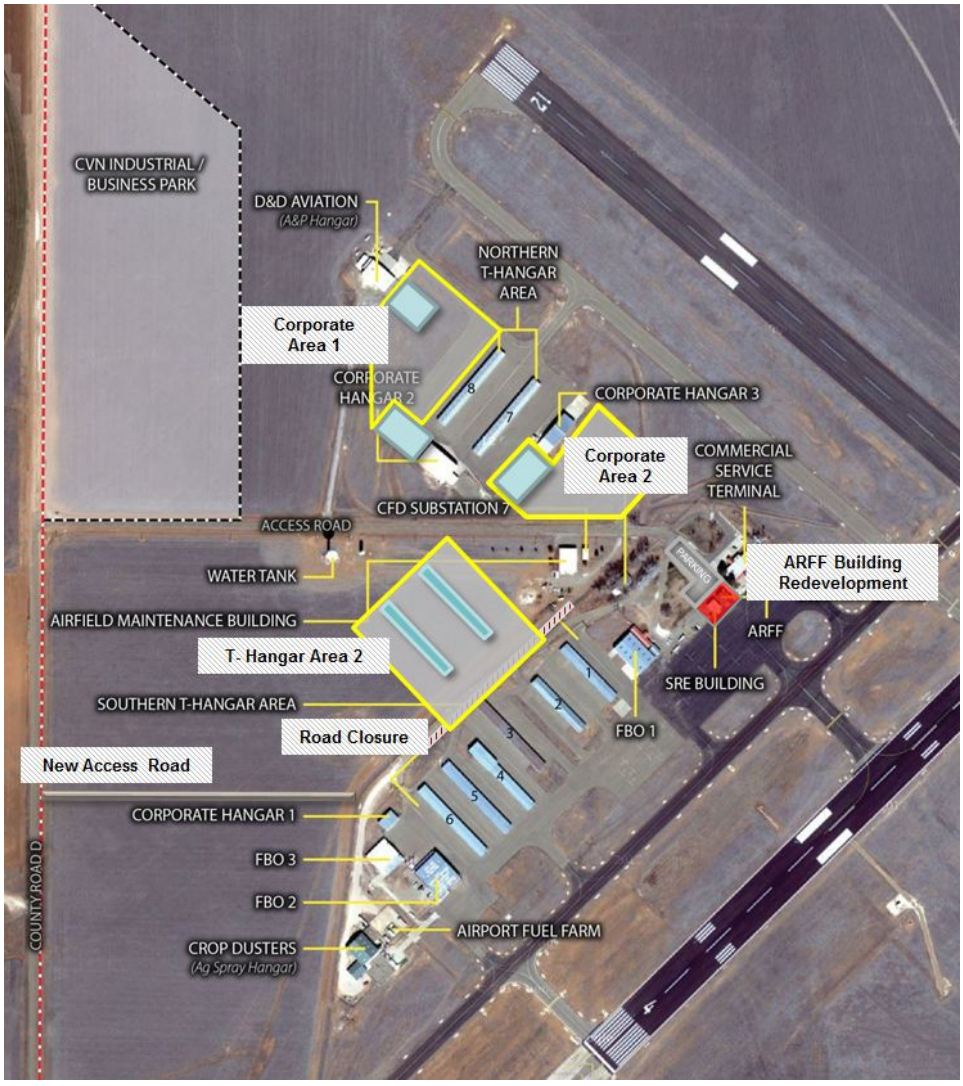
4.5.2 Landside Alternatives Summary

In summary, the presented landside alternatives for Clovis are vital options for meeting demand forecasts and potential future expansions at the airport. In review, due to the projected forecast, Alternative 1 will does not meet the criteria to support airport growth.

Replacement of old hangars, Alternative 3, will be a short-term option, but will not sustain and meet future demands. Development of Corporate Areas 1 and 2 as well as T-hangar Area 2, discussed in Alternative 2, is the preferred scenario to meet future based aircraft demand.

The anticipated number of hangars needed over the planning period is expected to increase at CVN over the next 20 years. By providing for corporate hangars and T-hangars the airport will be able to supply the capacity. Alternative 4 is also a preferred alternative for Clovis, as the ARFF station and security enhancements are vital to airport safety. The ARFF building will remain in the current location and undergo redevelopment to increase square footage. Increased demand on the airport will require an adequate ARFF station.

Exhibit 4-5: Preferred Landside Alternative



Source: CDM Smith

4.6 TERMINAL DEVELOPMENT ALTERNATIVES

As described in Chapter One, the terminal building at CVN is centrally located on the airfield, and is accessed via the main airport access road. The 5,300 square foot facility includes commercial airline facilities such as a lobby, circulation areas, ticketing counters, and airline offices. The terminal also includes rental car locations, a conference room, restrooms, and storage. In 1999, the terminal building was renovated and expanded.

To accommodate additional air service, terminal modifications at Clovis Airport will be required. An estimated 15,000 square feet of terminal space would be required to accommodate a regional jet aircraft with a configuration of 50 seats. The estimate provided above is based on 20,000 annual enplanements and consistent with space requirements established in FAA AC 150/5360-13.

The estimate for terminal space is also consistent with typical enplanement to area population ratios for airports served by regional jets and similar to communities the size of Clovis with similar airport market areas. Further, a terminal building this size would likely accommodate demand beyond the 20-year planning period, as most terminal buildings have a useful life well beyond 20 years.

It is recommended that an aircraft apron designed to accommodate two C-III aircraft simultaneously be constructed adjacent to the terminal building to allow for flight overlaps. The apron should be accessed by multiple taxiways in order to provide convenient and efficient access to the airfield and multiple entrance/exit paths for pilots to follow. Airside and landside access to the new terminal building is an important feature to be quantified as part of this study. As a result, many of the alternatives in this section represent optional locations for future terminal building development. It is important to remember, however, that future terminal building expansion/redevelopment should be tied closely to the needs of expanded air carrier service beyond those forecasted in this study.

4.6.1 Description of Terminal Alternatives

Terminal area design and expansion options for Clovis Airport include the following alternatives (Exhibit 4-7):

- Alternative 1 - No-Build
- Alternative 2 - Modification to Existing Terminal Building
- Alternative 3 - Terminal Redevelopment - South Side
- Alternative 4 - Terminal Redevelopment - East Side

Alternative 1 - No-Build

In this alternative option, the terminal remains in its current state and location. CVN will accommodate passengers within the current structure.

Design Considerations:

- Terminal building remains in the current location.
- The current design standards within the terminal and landside areas will remain the same.

Alternative 1 No-Build, will continue to operate at the same landside capacity with all current conditions remaining the same. Based on the forecasted level of enplanements, the existing terminal represented in the No-Build Alternative is adequate within the planning period.

Alternative 2- Modification to Existing Terminal Building (Short-Term Option)

In this alternative option, the terminal remains in the current location with modifications made to the existing structure of the terminal building. The current size of the terminal may not meet future demands if additional service is offered and passenger activity grows at the airport. By expanding/modifying the current

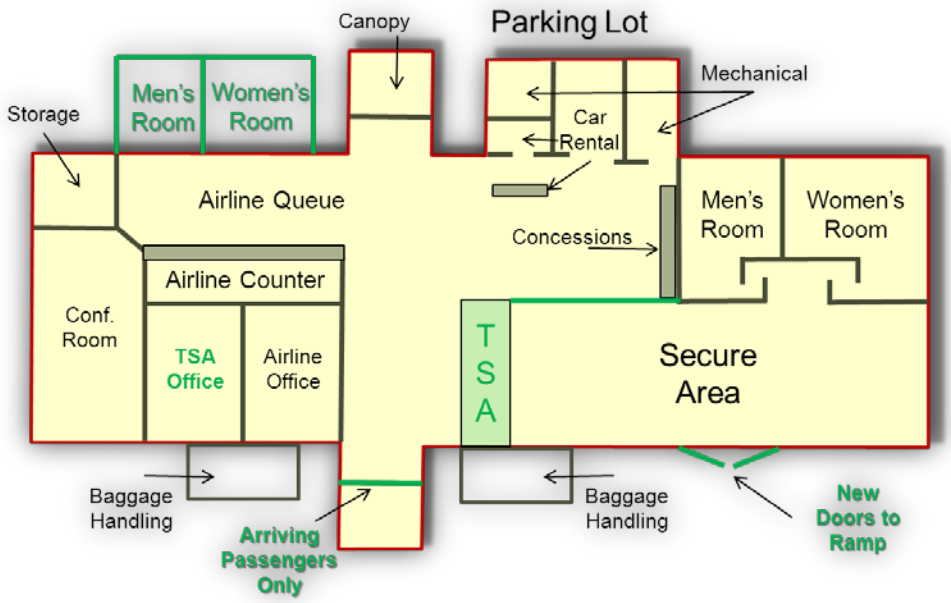
terminal in the same location, the airport can accommodate Transportation Security Administration (TSA) requirements and some additional passenger activity with minimal surrounding impact.

Design Considerations:

- Terminal building remains in the current location.
- The current design standards around the terminal and landside areas will remain the same.
- Most primary design modifications will take place within the terminal structure to improve passenger flow and allow passenger screening.

With Alternative 2, interior terminal renovations will allow for accommodations that can increase air service up to 7,000 enplanements and allow for TSA arrangements. However, modification to the existing interior of the terminal is a short-term alternative, as the airport will need a larger facility to accommodate carriers with regional jet services. Exhibit 4-5 illustrates modifications to the existing terminal building to accommodate TSA and passenger activity.

Exhibit 4-6: Alternative 2 Modification to Existing Terminal Building



Source: CDM Smith

Alternative 3- Terminal Relocation to the South Side

In this alternative option, the terminal will be relocated to the southern portion of the airport to better suit demands that come with regional jet passenger service.

Design Considerations:

- Relocation/removal of Runway 8/26 will be required to place terminal in this location.

- Accommodations for a 15,000 sq. ft. terminal will be made in this location, with specific detail given to the FAA Advisory Circulars 150/5300-13A, *Airport Design* and 150/5360-9, *Planning and Design of Airport Terminal Building Facilities at Non-hub Airports*.
- Thorough planning of the terminal relocation must take into account the location and access to Runway 4/22, as well as the demand from expanded air service.
- General aviation operations will remain in their current location and not mingle or conflict with commercial operations.

This alternative may require the relocation, construction, and or acquisition of the following:

- Runway 8/26 to another portion of the airfield, which will require turf runway development, obstruction analysis and access considerations.
- Development of roadway network will be required to access new south terminal.
- Reconfiguration and development of taxiways will be required with new terminal.

Alternative 3 can be considered the preferred terminal alternative due to a multitude of benefits it offers the airport. With the relocation of the terminal to the southern portion of the airport, the terminal building can be built to the desired 15,000 sq. ft. needed for capacity. In addition to adequately providing regional jet traffic accommodations, the movement of the terminal to the southern portion of the airport also allows for the division of commercial and general aviation activities while providing direct access to Runway 4/22. This alternative location is along Route 523 (primary route from city) and provides improved access and better visibility than the existing terminal and other alternative locations.

It should be noted that, while turf Runway 8-26 does not physically intersect Runway 12/30, an aircraft taking off from Runway 12 cannot see an aircraft simultaneously taking off on Runway 8. This currently can present a problem, as both would depart over the southeast corner of the airfield. The relocation of the Runway 8-26, as a result of terminal development, would mitigate this issue.

Alternative 4- Terminal Relocation to East Side

In this alternative option, the terminal will be relocated to the eastern portion of the airport to better suit demands that come with regional jet passenger service.

Design Considerations:

- Accommodations for a 15,000 sq. ft. terminal will be made in this location, with specific detail given to the FAA Advisory Circulars 150/5300-13A, *Airport Design* and 150/5360-9, *Planning and Design of Airport Terminal Building Facilities at Non-hub Airports*.

- Thorough planning of the terminal relocation must take into account the location and access to Runway 4/22 and 12/30, as well as the demand from expanded air service.
- Runway 8/26 will remain in the current location, providing essential wind coverage and training services on the turf runway.
- General aviation operations will remain in their current location and not mingle or conflict with commercial operations.

This alternative may require the relocation, construction, and or acquisition of the following:

- No acquisition of land required for this alternative
- Development of additional taxiways will be required.
- Development of eastern roadway network with direct access to new terminal.

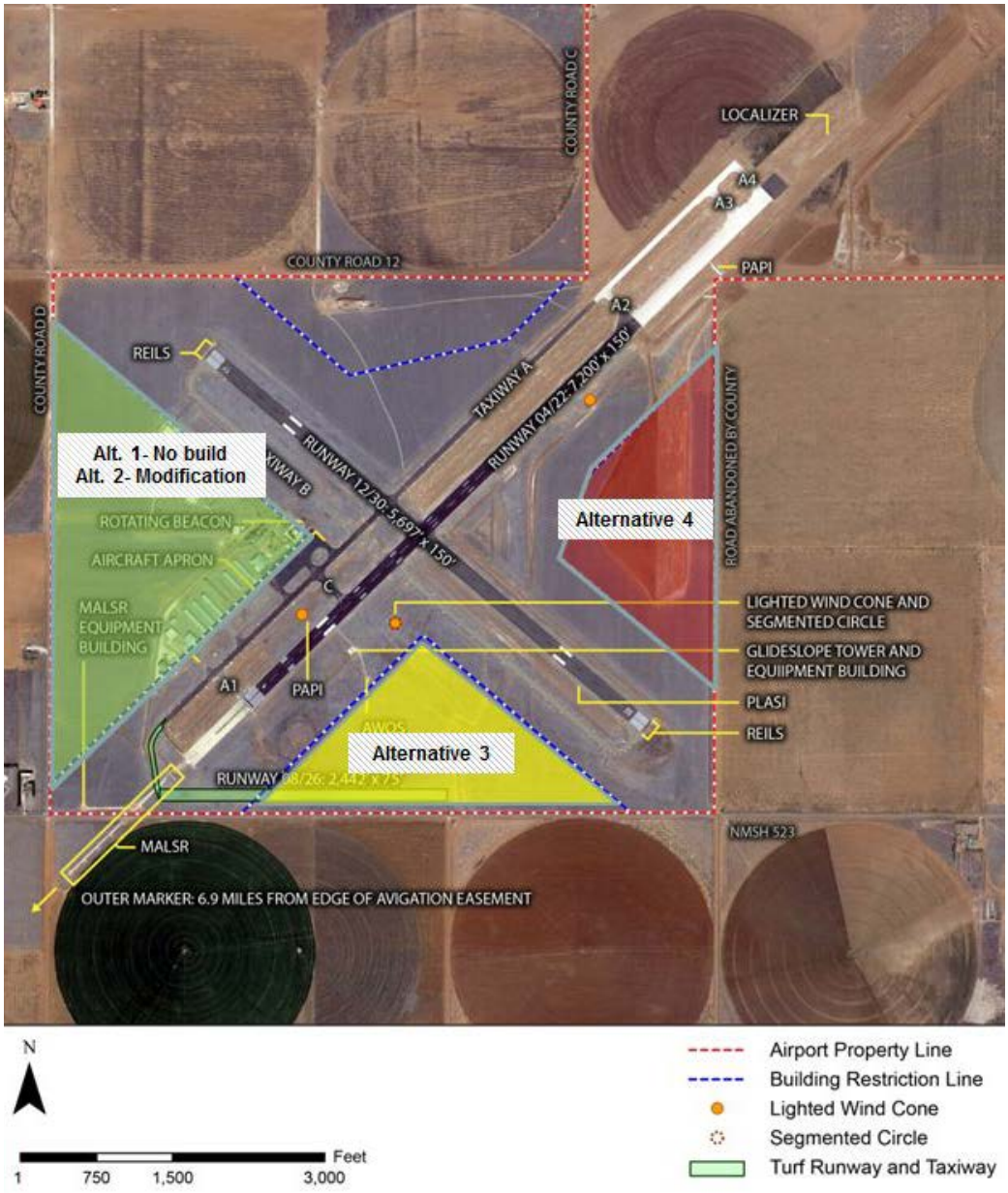
Significant utility/infrastructure would be required for development on this side of the airfield.

4.6.2 Terminal Alternatives Summary

In summary, the presented terminal alternatives for Clovis (shown in **Exhibit 4-7**) are vital options for expanded commercial service operations at the airport. Alternative 1 meets the criteria to support forecasted enplanement growth. Alternative 2, however, is presented as a short-term alternative, if the airport requires a larger facility to accommodate TSA operations and meet the needs of conservative passenger growth with little to no regional jet service. At this time, Alternative 4 is not recommended as it will require extensive infrastructure development to land to the east and cause overall disconnect to the current operations to the west (due to proximity and accessibility).

Alternative 3 can be considered the preferred terminal alternative due to a multitude of benefits it offers the airport. The alternative provides convenient road access, good visibility, and reasonable access to utilities while segregated from other airport operations. With the relocation of the terminal to the southern portion of the airport, the terminal building can be built to the desired size necessary to accommodate regional jet operations.

Exhibit 4-7: Terminal Alternatives



Source: CDM Smith

4.7 RECOMMENDED ALTERNATIVES

Based on the evaluation of alternatives presented within the descriptions above, a reasonable and feasible alternative for meeting the needs of Clovis Airport is presented.

Airside

In order to best serve Clovis, Alternative 2 is the preferred alternative, as it will ultimately achieve and ARC of C-III. Many aircraft in the current commercial aviation fleet, including almost all regional jets fall within the C-III ARC. Given that CVN has commercial air service and is interested in expanding the ARC C-III classification would allow Runway 4-22 to accommodate mainline domestic air carriers utilizing regional jet aircraft.

In addition, Alternative 4 should also be noted as a preferred alternative for Clovis, as it is a necessity to demolish the unnecessary pavement beyond the Taxiway A entrance to Runway 4. Completion of this alternative will resolve the pilot confusion and provide only one taxiway route to Runway 4, as necessary.

Alternative 3 should be considered as part of a future expansion will allow for ARC design standards to be moved from B-II to B-III. This will allow the airport to accommodate to medium and large business jets expected to use the airport throughout the planning period.

Landside

In order to best serve Clovis, Alternative 2 is a preferred alternative in this scenario as it will meet future demand. The anticipated number of hangars needed at CVN is expected to increase over the next 20 years. By providing for corporate hangars and T-hangars, the airport will be able to meet the demand. This alternative suggests that two northern most areas are identified to accommodate future corporate hangar development and T-hangar Area 2 is identified to accommodate T-hangar development.

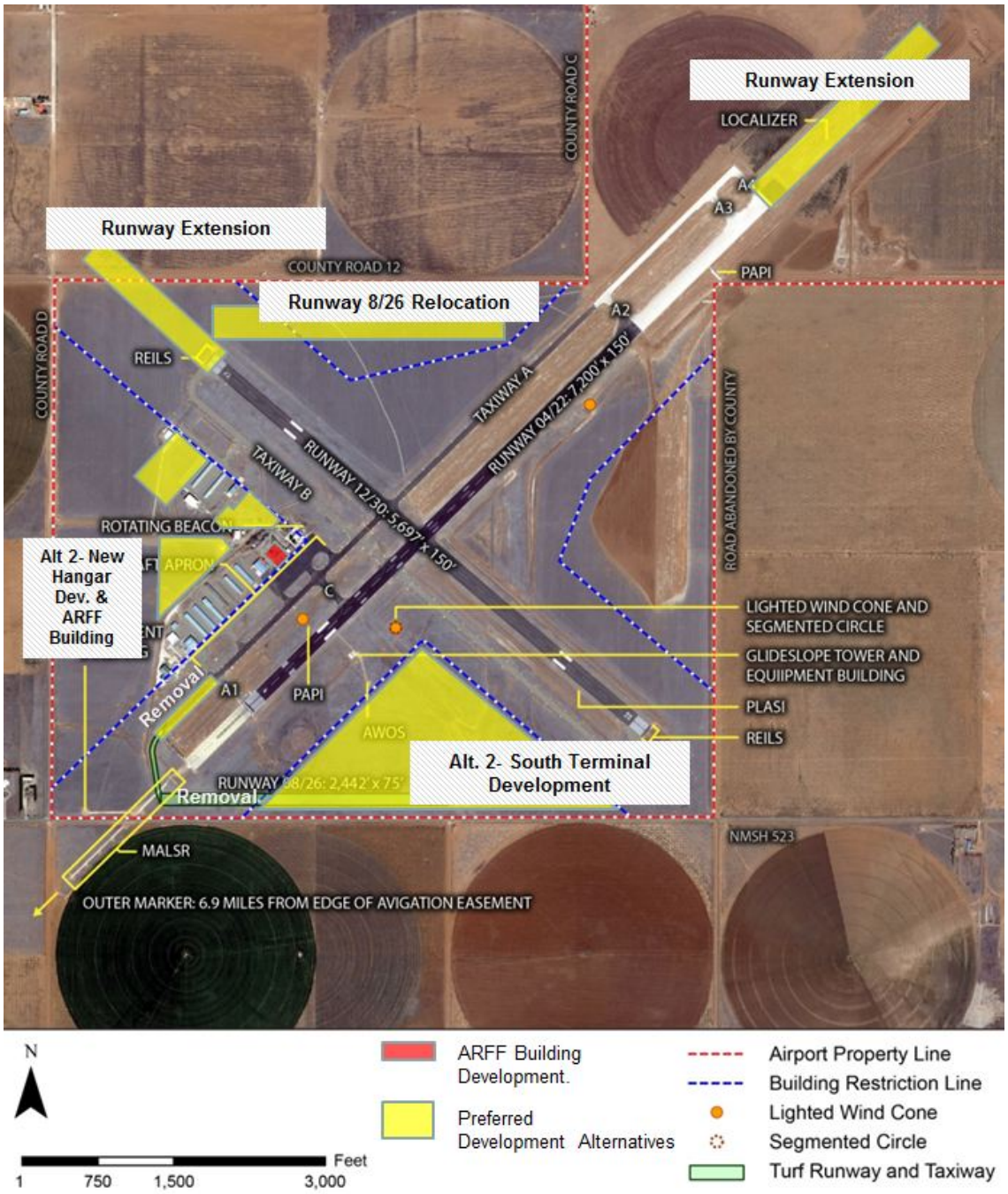
Alternative 4 is also a preferred alternative for Clovis, as the ARFF station and security enhancement are vital to airport safety. The ARFF building will remain in the current location and undergo redevelopment to increase square footage. Increased demand on the airport will require an adequate ARFF station, perimeter fencing to encompass the entire airport, improved gate access equipment and monitoring equipment.

Terminal

Until a commitment is made by a mainline carrier offering regional jet service, the existing terminal will be adequate and can be modified to accommodate TSA, if necessary. The South Side alternative (3) is preferred for a new terminal because it provides convenient road access, good visibility, reasonable access to utilities, and is separated from other airport activities.

Exhibit 4-8 illustrates the recommended plan to include all airside, landside and terminal development. These projects will be carried through the rest of the master plan study for further evaluation and depiction on the Airport Layout Plan.

Exhibit 4-8: Recommended Plan



Source: CDM Smith

Chapter FIVE:

IMPLEMENTATION PLAN

5.1 INTRODUCTION

This chapter presents a summary of the Clovis Municipal Airport (CVN) recommended master plan capital improvement program (CIP), its anticipated phasing and funding sources. The analyses of capital costs and potential funding sources provide estimates of the local share of project costs and the total amount of capital investment that may be required from the Airport sponsor over the planning period.

In addition, this chapter examines historic operating revenues and operating expenses at the Airport and develops projections of future operating results. Financial projections of revenues and expenses at the Airport focus on the short- and mid-term planning period and are used to identify the ability of the Airport to contribute to the local share of anticipated project costs, if necessary.

5.2 CAPITAL IMPROVEMENT PROGRAM

The CIP identifies improvement projects that are recommended for an airport over a specific period of time, estimates the order in which the projects are to take place, and calculates the total costs and funding sources of the projects. As the CIP progresses from projects planned in the current year to those planned in future years, it becomes less detailed and more flexible. Additionally, the CIP is typically modified on an annual basis as new projects are identified or as projects and priorities change.

5.2.1 Project Cost Estimates

For the purposes of this analysis, a CIP was developed that includes all new projects and facility development improvements recommended within the 20-year planning period. Some projects may be identified as ultimate development beyond the 20-year planning period are not included in this CIP as they are not required or necessary to meet demand and their construction timeframe is undetermined.

Because it is impossible to reasonably estimate all required rehabilitation projects at the Airport in the mid-term (Phase II) and long-term (Phase III) planning periods in the CIP, the planning periods include only new facility construction projects. Projects are phased based on requirements/needs established by the Airport and NMDOT as well as scheduled in a way to distribute the cost obligations evenly throughout the planning period. A summary of the projects within each phase is provided below.

Phase 1 (Current to 5 years):

Replacement of Old T-hangars - Existing structures in poor condition (T-hangar buildings #1 and #2) are to be rebuilt in the early stages of the planning period. Mentioned in Chapter One, T-hangar Buildings #1 and #2 accommodate eight aircraft each and are in poor condition with repair parts difficult to find. Each hangar will be replaced one after the other to minimize the impact to based aircraft owners storing aircraft in those hangars. Based on the understanding that existing pavement and infrastructure supporting the hangars is in adequate condition, the estimated cost to replace both of these hangars with basic, manual door T-hangar units is $600,000.

Demolish Taxiway A Pavement - Demolishing the unnecessary pavement beyond the Taxiway A entrance to Runway 4 would resolve pilot confusion and provide only one taxiway route to Runway 4. Demolishing the 1,000-foot stretch of pavement and regarding/seeding the area is estimated to cost $300,000.

Terminal Renovations - Expanding/modifying the current terminal may be done to accommodate Transportation Security Administration (TSA) requirements and some additional passenger activity with minimal surrounding impact. This short-term project would be carried out to accommodate expanded Essential Air Service passenger activity or interim improvements as an air carrier introduces regional jet or greater service to Clovis and requires more space as a new terminal building is constructed. Expanded facilities to include additional restrooms and interior modifications would cost approximately $500,000.

ARFF Redevelopment and Security Enhancements - This project involves the redevelopment of the Airport Rescue and Firefighting (ARFF) building to accommodate for the future growth of the airport and accommodate ARFF needs. This alternative promotes security with the expansion of perimeter fencing, improved access gates/systems, greater surveillance and monitoring equipment. The estimated cost of these improvements is $1,500,000.

Phase II (6 to 10 years):

T-Hangars - To accommodate additional small based aircraft, two 10-unit T-hangar buildings will be constructed in hangar development area 2, as defined in Chapter 4, Airport Development Alternatives. The cost is estimated at $4,200,000 and includes closure of the nearby circulation roadway, construction of an alternate access road, as well as all necessary earthwork, drainage, structures, fencing, manual doors, electrical, and concrete slab floors.

Corporate Hangars – Leading, but prior to the second half of the planning period, it is recommended that three corporate hangars be constructed to accommodate projected based corporate aircraft and/or businesses. These hangars will be built in the northern section of the terminal area at a total cost of $9,300,000 and will include apron areas, access roads with gates, electrical and fire suppression systems, and automatic doors.

Phase III (11 to 20 years):

Extend and Strengthen Runway 4/22 - To achieve C-III design group status and support the needs of increase corporate and commercial air service aircraft, this project calls for Runway 04/22 to be extended to 8,800 feet, as well as increasing the taxiway and any deficient runway areas to a strength of 45,000lbs, SW: 120,000lbs. DW. The total cost estimated for this project is $6,500,000 and includes all earthwork and pavement as well as lighting extensions and required navaid relocations.

Extend and Strengthen Runway 12/30 – This project involves the ultimate extension of Runway 12/30 to 7,100', as well as increasing the taxiway and any deficient runway area strength to 45,000lbs, SW: 120,000lbs DW to achieve group B-III standards. The total cost estimated $6,200,000 includes property acquisitions, roadway closures/relocations, all earthwork and pavement as well as lighting extensions and required navaid relocations.

New Terminal – To accommodate regional jet or a larger level of passenger service by a mainline domestic airline, a new passenger terminal would be required. A cost of $11,900,000 is estimated for the construction of the passenger terminal (as defined in Chapter 4 – Airport Development Alternatives) as well as associated apron, taxiways leading from nearby runway thresholds, vehicle parking, and circulation roadways. It is important to note that, without commitment from an airline to provide regional jet or large service to a hub airport, this project is not recommended.

As evidenced by the projects listed above, it is clear to see the various phases have unique focuses of development. Phase I centers on providing more immediate needs to bring the airport to a level of service commensurate with similar airports. Phase II focuses on developing aircraft storage facilities to accommodate future based aircraft and businesses. Lastly, Phase III is devoted to developing infrastructure necessary to accommodate large business and airline activity.

On-going Maintenance Projects:

Throughout the 20-year planning period, on-going pavement and airfield maintenance projects will be required as needed. This includes pavement crack and seal or rehabilitation projects necessary to maintain a safe environment for aircraft operations. As part of on-going airfield maintenance requirements, the Airport should regularly inspect airfield pavement and grounds to ensure that problem areas are addressed.

The runways, taxiways and apron areas at Clovis encompass over 3.5 million square feet of pavement. The New Mexico Department of Transportation, Aviation Division maintains a statewide airport pavement management system design to collect and maintain data related to pavement conditions at airports throughout the state. Clovis Municipal Airport was last inspected in 2013 and data related to the pavement evaluation is contained in the pavement management system. NMDOT can utilize this system to prioritize on-going pavement rehabilitation needs

throughout the state. The Airport should take advantage of state grants in order to gain as much funding assistance for routine airport pavement maintenance as well as minor capital improvement projects.

5.2.2 Capital Improvement Program Funding

Each recommended project was analyzed for federal or state Airport Improvement Program (AIP) funding eligibility. A breakdown of estimated project costs by phase and a funding scenario for each project is presented in Table 5-1. Based on the analysis, it is estimated that approximately $25.5 million of the total CIP cost is eligible for federal or state funding. The remaining share of estimated project costs, approximately $15.4_million over the planning period, would be funded through sponsor (City of Clovis) or private participation.

Most of the local/private share ($13.5 million) would be the burden of private investors/tenants seeking to build corporate or T-hangars in Phase II. Additionally, the replacement of T-hangars in Phase I may be completed by private investment, based on how the City would like to structure their ownership and responsibility. If the cost for those hangars were private, the local share of development within the 20-year period would be approximately $1.3 million.

Table 5-1: Recommended Capital Improvement Projects

Project	Total	Federal Share	State Share	Local/Pvt. Share
PHASE I (2013 – 2018)				
1) Replacement of Old T-hangars	$ 600,000	$ 0	$ 0	$ 600,000
2) Demolish Twy A Pavement	300,000	270,000	15,000	15,000
3) Terminal Renovations	500,000	450,000	25,000	25,000
4) ARFF Redevelopment/Security	1,500,000	1,350,000	75,000	75,000
Subtotal	**$ 2,900,000**	**$ 2,070,000**	**$ 115,000**	**$ 715,000**
PHASE II (2019 – 2024)				
5) T-Hangars	$ 4,200,000	$ 0	$ 0	$ 4,200,000
6) Corporate Hangars	9,300,000	0	0	9,300,000
Subtotal	**$ 13,500,000**	**$ 0**	**$ 0**	**$ 13,500,000**
PHASE III (2025 – 2034)				
7) Extend/Strengthen Rwy 4/22	$ 6,500,000	$ 5,850,000	$ 325,000	$ 325,000
8) Extend/Strengthen Rwy 12/30	6,200,000	5,580,000	310,000	310,000
9) New Terminal	11,900,000	10,710,000	595,000	595,000
Subtotal	**$ 24,600,000**	**$ 22,140,000**	**$ 1,230,000**	**$ 1,230,000**
TOTAL	**$ 41,000,000**	**$ 24,210,000**	**$ 1,345,000**	**$ 15,445,000**

Source: KSA

5.2.3 Projects beyond the 20-Year Period

The Phase III projects highlighted above and discussed throughout this master plan plan may take place beyond the 20-year planning horizon. These projects may be deemed unnecessary within the 20-year period if they are not required to meet air carrier demand. Essentially, in order to accommodate or attract an airline willing to provide regional or narrowbody jet service, the airport may have to extend the runways and construct a new terminal building. Similar to this thinking, the possibility of Phase III projects taking place earlier in the planning horizon exists, if/when increased air carrier service is established and based on the needs for that service. While the exact timeframe of increased service and schedule for related infrastructure needs cannot be pinpointed, this master plan defines their needs and establishes the projects in order to preserve airspace, airfield, and land area as well as documents them on the Airport Layout Plan set to allow for future potential funding.

5.3 FUNDING SOURCES

This section describes funding sources and the overall eligibility requirements for project funding.

5.3.1 FAA Funding

To promote the development of airports to meet the nation's needs, the Federal Government embarked on a Grants-In-Aid Program to units of State and local government after the end of World War II. This early program, the Federal Aid Airport Program (FAAP), was authorized by the Federal Treasury Act of 1946 and provided its funding from the Treasury.

In 1970, a comprehensive program was established with the Airport and Airway Development Act of 1970. This Act provided grants for airport planning under the Planning Grant Program (PGP) and development under the Airport Development Aid Program (ADAP). These programs were funded from a newly established Airport and Airway Trust Fund, which received funds from taxes on airline tickets, air freight, and aviation fuel.

The authority to issue grants under these two programs expired on September 30, 1981. During this 11-year period (1970-1981), a total of 8,809 grants were awarded for a total of $4.5 billion for airport planning and development.

The Airport Improvement Program (AIP) was established by the Airport and Airway Improvement Act of 1982. The initial AIP provided funding legislation through fiscal year 1992. Since then, the AIP has been authorized and appropriated on a yearly basis. Funding for this program is generated from a tax on airline tickets, freight waybills, international departure fees, a tax on general aviation fuel, and a tax on aviation jet fuel.

The FAA issues and administers AIP grants through its regional offices and airport district offices. The AIP provides up to 90 percent funding for AIP eligible project costs, with the State and local sponsors generally splitting the remaining 10 percent non-federal share.

AIP funding must be spent on FAA eligible projects as defined in FAA Order 5100.38D "Airport Improvement Program (AIP) Handbook." In general, the handbook states that:

- An airport must be in the currently approved National Plan of Integrated Airport Systems (NPIAS),
- AIP provides up to 90 percent federal funding for most eligible public-use airport improvements, and
- General aviation terminal buildings, T-hangars, and corporate hangars and other private-use facilities are not eligible for federal funding.

In addition, revenue-producing items typically are not eligible for federal funding, and all eligible projects must be depicted on an FAA-approved Airport Layout Plan. Other sources of FAA funding include Facilities and Equipment (F&E) funding for facilities such as air traffic control towers and some runway instrumentation. This funding is separate from the AIP program and typically requires no local match. Federal noise funds (Part 150 funds) may also be available for noise mitigation with an 80 percent Federal and a 20 percent State and/or local share.

5.3.2 State Funding

The New Mexico Department of Transportation, Aviation Division also has a grant program for airports within the state. The Aviation Division coordinates and administers state grants for improving the aviation infrastructure in the State of New Mexico. It also authorizes the expenditure of money from the state aviation fund for construction, development and maintenance of public-use airport facilities. Based on the Division's average annual funding level of around $26 million, only about one third of what is needed is covered. Identified funding needs are prioritized by the State in conjunction with the FAA's system that primarily focuses on safety and the preserve/protection of pavement.

Since Clovis Municipal Airport is a federally obligated facility through its past and present acceptance of AIP funding, state funds are utilized for the 5.0 percent state match.

5.3.3 Sponsor Funding

The City of Clovis owns the Airport and regulates/maintains the daily operation. Revenues are generated by fuel flowage fee and from tenant leases. These revenues are used to assist in the payment of airport expenses and utilized for the 5.0 percent sponsor match obligation. Not including federal or state grants, revenue at the airport is typically between $120,000 - $130,000 per year. General operating

expenses are typically over $300,000 per year. Therefore, without increased revenue or lowered expenses, the airport may have to rely on subsidy from the City of Clovis or alternative funding methods to contribute to the local share of project costs.

5.3.4 Other Funding

Another potential source of funds for airport improvements is from third-party or private investors. These investors may construct needed facilities as part of a lease agreement with the City of Clovis that will provide for an adequate time frame to amortize their investments. This type of funding is particularly suitable for privately operated T-hangar or corporate hangar development as well as other privately owned projects. These types of projects are not typically eligible for the FAA or State funding described above.

Chapter SIX:

AIRPORT LAYOUT PLAN

6.1 INTRODUCTION

The development of this master plan includes the illustration of recommended airside, landside and support facilities discussed in the preceding chapters. Reduced-size copies of the Airport Layout Plan set are included in this chapter. Full-size drawings and electronic files have been provided to the airport sponsor and NMDOT for their use, review and approval. Below is a brief description of each sheet included in the set.

Title Sheet

The title sheet will include the title of the project, location and vicinity maps, and a sheet index.

Airport Layout Drawing (ALD) Sheet

The ALD is a graphic representation of the existing and future airport facilities, their location on the airport, and the pertinent clearance and dimensional information required to show relationships with standard separations. This sheet also includes wind roses, wind coverage tables, airport data tables, and runway data tables.

Terminal Plan Sheet

The optional terminal area drawing is included with this submittal so that the proposed development in this area can be seen more clearly.

Inner Portion of the Approach Surface Drawings (IPASD)

The IPASDs show the appropriate approach surfaces related to each runway end and the planned runway configuration. The objective of the IPASD is to provide an analysis of penetrations to these surfaces and recommend their disposition. It is important to note that updated obstruction data necessary to meet FAA standards is required before any proposed runway development.

Land Use Plan

This sheet depicts existing and recommended uses of all land within the ultimate airport property line (on-airport) and within the vicinity of the airport (off-airport).

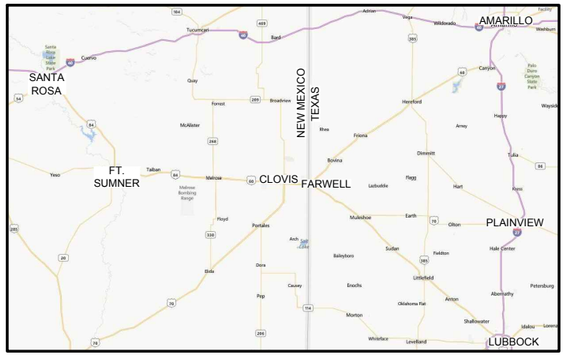
Property Map

This sheet documents the airport property boundary, the various tracts of land that were acquired to develop the airport, and the method of acquisition (if available).

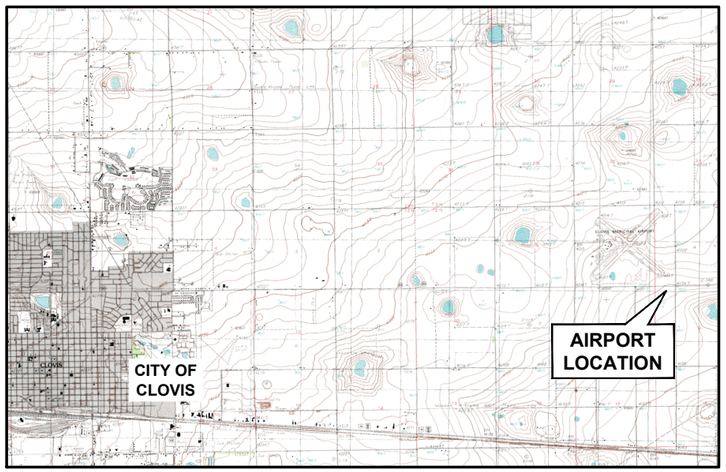
AIRPORT LAYOUT PLANS

CLOVIS MUNICIPAL AIRPORT

CITY OF CLOVIS, NEW MEXICO



VICINITY MAP



LOCATION MAP

INDEX OF DRAWINGS

MARK | REVISION | DATE

I:\KSA-SUG-SERVER\PROJECTS\CLV\001\00.07 CAD\02 REPORTS\CLO-ALP-COVR.DWG | TITLE SHEET | 9/15/2015 - 5:08 PM

DRAWING PATH\NAME | LAYOUT | PLOT DATE - TIME

PROJECT TITLE: PROJECT DESCRIPTION LOCATION - CITY XX, TEXAS

SHEET NAME: TITLE SHEET

PROJECT NAME: CLOVIS, NEW MEXICO
CLOVIS MUNICIPAL AIRPORT
AIRPORT LAYOUT PLAN SET

DRAWN BY: AJ
DESIGNED BY: SK
LATEST REVISION: 9/10/2015
KSA JOB NO.: CLV.001

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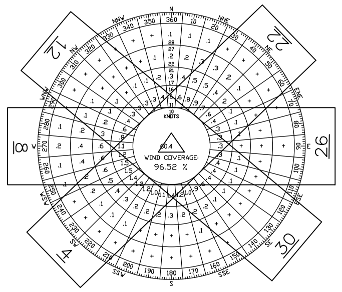
SEAL:
TBPE Firm Registration No. F-1356

SHEET NO.
1

WINDROSE DIAGRAM



RUNWAY	12 MPH (10.5 KNOTS)	15 MPH (13 KNOTS)	18 MPH (16 KNOTS)
RUNWAY 4–22	84.57%	91.10%	96.33%
RUNWAY 12–30	75.02%	83.70%	92.08%
TURF RUNWAY 8–26	79.78%	87.22%	94.20%
COMBINED – 2 RUNWAYS RUNWAYS 4–22 & 12–30	93.95%	97.34%	99.03%
COMBINED – 3 RUNWAYS RUNWAYS 4–22, 12–30, 8–26	96.52%	98.60%	99.52%

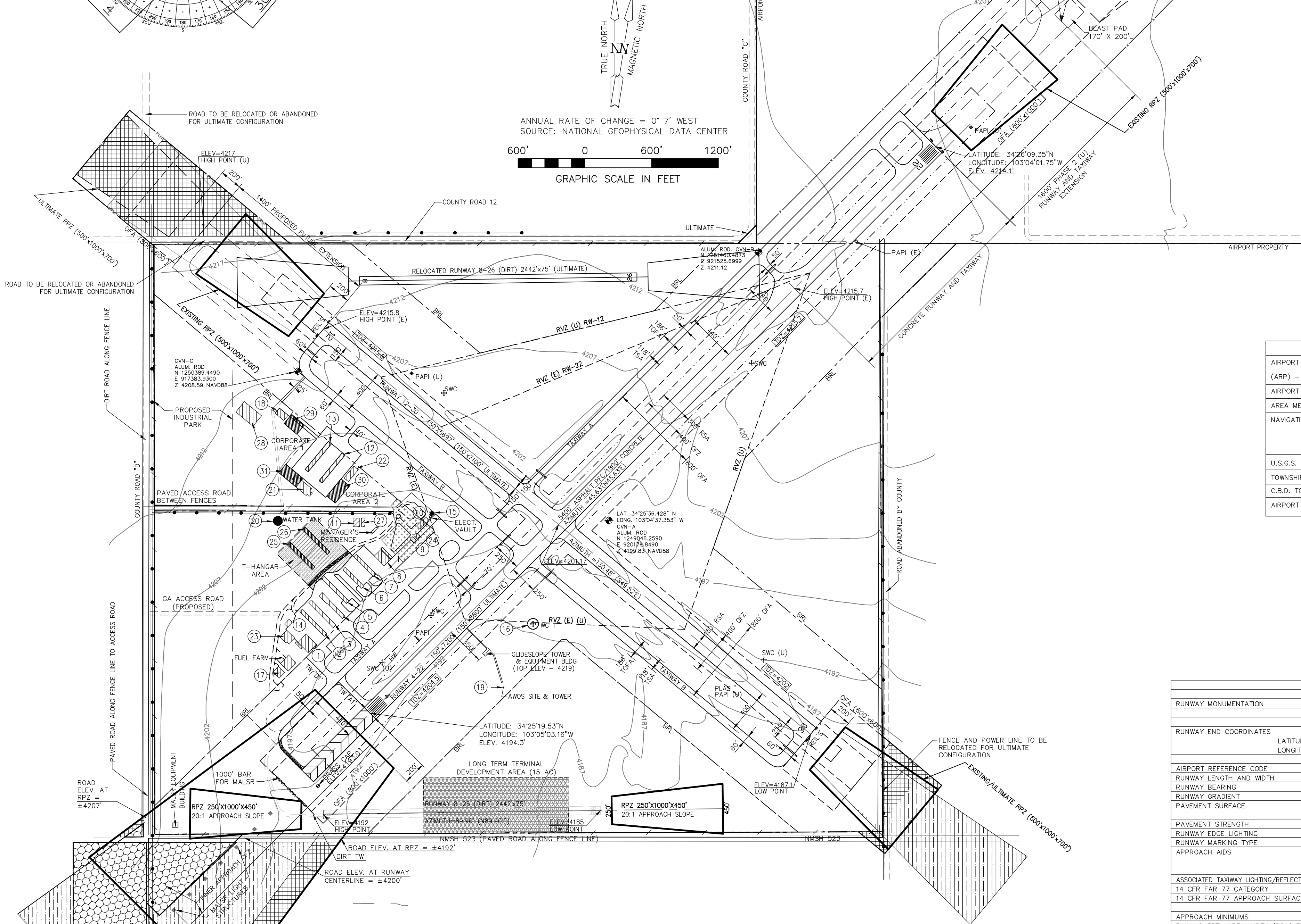
△ =6.34% CALM 0–3 MPH (TOTAL WIND COVERAGE)

SOURCE:
NATIONAL CLIMATIC DATA CENTER
1995 – 2005
AWOS AT CLOVIS MUNICIPAL AIRPORT

8°–03'E (NOV 2006)
TRUE NORTH / MAGNETIC NORTH

ANNUAL RATE OF CHANGE = 0° 7' WEST
SOURCE: NATIONAL GEOPHYSICAL DATA CENTER

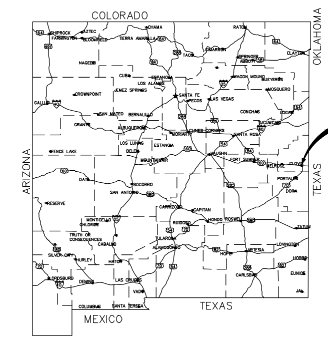
600' 0 600' 1200'
GRAPHIC SCALE IN FEET



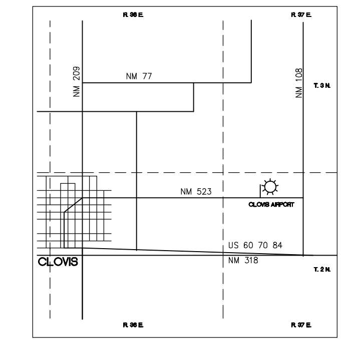
LEGEND

BRL	BUILDING RESTRICTION LINE		RUNWAY PROTECTION ZONE (RPZ) (E)	ABBREVIATIONS
4185	GROUND CONTOURS (5 FT INTERVALS)		RUNWAY PROTECTION ZONE (RPZ) (U)	(E) EXISTING
	FENCE & PROPERTY BOUNDARY		EXISTING AVIGATION EASEMENT	(U) ULTIMATE / FUTURE
PL(U)	FENCE & PROPERTY BOUNDARY		EXISTING AIRPORT OWNED PARCEL	GA GENERAL AVIATION
	STRUCTURE		FUTURE EASEMENT/ACQUISITION	HW HEADWALL
	POWER LINE		CORPORATE GENERAL AVIATION HANGAR DEVELOPMENT	SEE RUNWAY DATA TABLE FOR ADDITIONAL ABBREVIATIONS
	RUNWAY SAFETY AREA (EXISTING)		T-HANGAR DEVELOPMENT	
	RUNWAY SAFETY AREA (ULTIMATE)		SHORT-TERM TERMINAL AREA DEVELOPMENT	
	PAVED ROAD		LONG-TERM TERMINAL AREA DEVELOPMENT	
	DIRT ROAD			
	WIND CONE (WC) SUPPLEMENTAL WIND CONE (SWC)			
	THRESHOLD LIGHTS			
	CONTROL POINT (CVN-C)			
	RUNWAY HOLDING POSITION MARKING AND SIGNS			
	APPROACH LIGHT STRUCTURE			

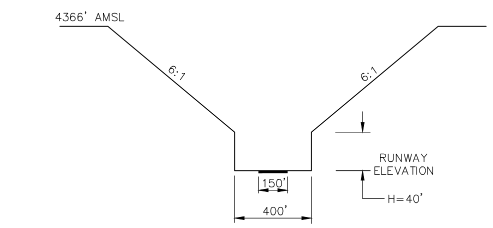
NOTE: DIMENSIONS FOR RSA, OFA, OFZ, AND TSA AND TOFA SHOWN ON THE PLAN ARE FOR EXISTING CONDITIONS UNLESS OTHERWISE DESIGNATED IN THE LEGEND.



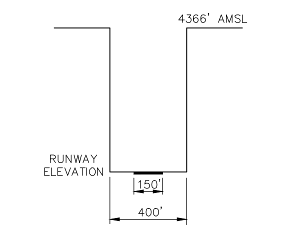
LOCATION MAP
SCALE: NTS



VICINITY MAP
SCALE: NTS



RUNWAY 4–22 OBSTACLE FREE ZONE
SCALE: 1" = 500' HORIZ.
1" = 100' VERT.



RUNWAY 12–30 OBSTACLE FREE ZONE
SCALE: 1" = 500' HORIZ.
1" = 100' VERT.

BASIC AIRPORT DATA

ITEM		EXISTING	ULTIMATE
AIRPORT REFERENCE POINT COORDINATE (ARP) – NAD 83	N. LATITUDE	34°25'35.72"	34°25'40.86"
	W. LONGITUDE	103°04'35.29"	103°04'38.08"
AIRPORT ELEVATION (FEET AMSL)		4216	4217
AREA MEAN MAXIMUM TEMPERATURE		92° F	92° F
NAVIGATIONAL AID		ILS, GPS, VOR, ADF, PAPI–4, PAPI–22, PLASI–30	ILS, GPS, VOR, PAPI–4, VASI–22, PAPI–12, PLASI–30
U.S.G.S. QUADRANGLE:	CLOVIS	FLIGHT SERVICE STATION:	ALBUQUERQUE
TOWNSHIP/RANGE:	T3N, R36E	SECTIONAL CHART COVERAGE:	ALBUQUERQUE
C.B.D. TO AIRPORT:	6 MILE E	LOW ALTITUDE:	L–4
AIRPORT ACREAGE (ACRES):	1540	UNICOM FREQUENCY:	122.8

AIRPORT BUILDINGS

		TOP ELEVATION
1	BUILDING – FBO	4217.1FT.
2	T–HANGAR	4211.8 FT.
3	T–HANGAR	4212.3 FT.
4	T–HANGAR	4211.6 FT.
5	T–HANGAR	4212.0 FT.
6	T–HANGAR	4214.4 FT.
7	T–HANGAR	4209.4 FT.
8	BUILDING – FBO	4218.2 FT.
9	SNOW EQUIPMENT BUILDING	4215.6 FT.
10	TERMINAL BUILDING	4218 FT.
11	MAINTENANCE BUILDING	4218.6 FT.
12	T–HANGAR	4219.4 FT.
13	T–HANGAR	4219.4 FT.
14	HANGAR	4213.8 FT.
15	ROTATING BEACON	4232.6 FT.
16	LIGHTED WIND CONE AND SEGMENTED CIRCLE (WS 1)	4211 FT.
17	HANGAR	4213.2FT.
18	BUILDING – FBO	4227.5 FT.
19	ROD ON AWOS TOWER	4222.2 FT.
20	WATER TANK	4315.0 FT.
21	CORPORATE HANGAR	4232.0 FT.
22	HANGAR	4227.3 FT.
23	HANGAR	4217.1 FT.
24	ARFF / FIRE STATION	4215.6 FT.
25	HANGAR (FUTURE)	4212.0 FT.
26	HANGAR (FUTURE)	4214.4 FT.
27	FIRE STATION BULDING	4220.0 FT.
28	HANGAR (FUTURE) ASN 2009–ASW–1282–NRA	4263.0 FT.
29	HANGAR (FUTURE)	4228.0 FT.
30	HANGAR (FUTURE)	4227.5 FT.
31	HANGAR (FUTURE)	4232.0 FT.

RUNWAY DATA

	RUNWAY 4		RUNWAY 22		RUNWAY 12		RUNWAY 30		RUNWAY 08/26
	EXISTING (E)	ULTIMATE (U)	EXISTING (E)	ULTIMATE (U)	EXISTING (E)	ULTIMATE (U)	EXISTING (E)	ULTIMATE (U)	08/26
RUNWAY MONUMENTATION	PK/SHINER	N/A	PK/SHINER	NONE	PK/SHINER	NONE	PK/SHINER	N/A	NOT FOUND
RUNWAY END COORDINATES									
LATITUDE	34°25'19.53"N	34°25'19.53"N	34°26'09.35"N	34°26'20.412"N	34°25'53.77"N	34°26'02.77"N	34°25'17.20"N	SAME	34°25'10.59"N / 34°25'10.58"N
LONGITUDE	103°05'03.16"W	103°05'03.16"W	103°04'17.10"W	103°03'48.114"W	103°05'07.71"W	103°05'20.44"W	103°04'15.98"W	SAME	103°05'08.39"W / 103°04'38.53"W
AIRPORT REFERENCE CODE	B–II	C–III	B–II	C–III	B–II	B–III	B–II	B–III	A–I
RUNWAY LENGTH AND WIDTH	7200'X150'	8800'X150'	7200'X150'	8800'X150'	5697X150'	7100'X100'	5697'X150'	7100'X100'	2442'X75'
RUNWAY BEARING	45.60°	SAME	225.61°	SAME	130.46°	SAME	310.47°	SAME	90.05° / 270.05°
RUNWAY GRADIENT	0.3% ±	0.2% ±	0.3% ±	0.2% ±	0.5% ±	0.4% ±	0.5% ±	0.4% ±	0.25% ±
PAVEMENT SURFACE	ASPHALT–PFC CONCRETE	ASPHALT–PFC CONCRETE	ASPHALT–PFC CONCRETE	ASPHALT–PFC CONCRETE	ASPHALT	ASPHALT	ASPHALT	ASPHALT	TURF
PAVEMENT STRENGTH	S–45, D–57	S–45, D–120	S–45, D–57	S–45, D–120	S–42, D–50	S–45, D–120	S–42, D–50	S–45, D–120	NA
RUNWAY EDGE LIGHTING	MIRL	MIRL	MIRL	MIRL	MIRL	MIRL	MIRL	MIRL	NA
RUNWAY MARKING TYPE	PRECISION	PRECISION	NPI	NPI	VISUAL	VISUAL	VISUAL	VISUAL	NA
APPROACH AIDS	ILLUMINATED WIND CONE MALSR PAPI ILS	ILLUMINATED WIND CONE MALSR PAPI ILS	ILLUMINATED WIND CONE PAPI	ILLUMINATED WIND CONE PAPI	ILLUMINATED WIND CONE	ILLUMINATED WIND CONE PAPI	ILLUMINATED WIND CONE PLASI	ILLUMINATED WIND CONE PAPI	NONE
ASSOCIATED TAXIWAY LIGHTING/REFLECTORS	MITL	MITL	MITL	MITL	MITL	MITL	MITL	MITL	N/A
14 CFR FAR 77 CATEGORY	PRECISION	PRECISION	C	C	B(V)	B(V)	NPI(C)	NPI(C)	A(V)
14 CFR FAR 77 APPROACH SURFACE SLOPE	50:1	50:1	34:1	34:1	20:1	20:1	34:1	34:1	20:1
APPROACH MINIMUMS	1/2 MILE	1/2 MILE	2 MILE	1 MILE	VISUAL	VISUAL	1 MILE	1 MILE	VISUAL
RNWY SAFETY AREA WIDTH (RSA) FT	300	500	300	500	150	300	150	300	120
RSA LENGTH, BEYOND RUNWAY END, FT	600	1000	600	1000	300	600	300	600	240
RNWY OBJECT FREE AREA WIDTH (OFA) FT	800	800	800	800	800	800	800	800	250
RNWY OFA LENGTH, BEYOND RUNWAY END, FT	600	1000	600	1000	600	600	600	600	240
RNWY OBSTACLE FREE ZONE (OFZ) FT, WIDTH/LGTH	400	400	400	400	400	400	400	400	250
THRESHOLD SITING SURFACE PENETRATIONS	NO THRESHOLD SITING SURFACE OBJECT PENETRATIONS								
OFZ OBJECT PENETRATIONS	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
POFZ OBJECT PENETRATIONS	NONE	NONE	118						
TAXIWAY SAFETY AREA WIDTH (TSA) FT	118	118	186	118	118	118	118	118	N/A
TAXIWAY OBJECT FREE AREA WIDTH (TOFA) FT	186	186		186	186	186	186	186	N/A
TOUCHDOWN ZONE (TDZ) ELEVATION	4204.5	4204.5	4215.7	4216	4215.8	4217	4202.0	4202	N/A
RUNWAY END ELEVATION (FT)	4194.3	4194.3	4214.1	4206	4215.8	4217	4187.1	4187.1	4195.7 / 4185.3
DISPLACED THRESHOLD DISTANCE	799	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A

NON–STANDARD CONDITIONS TABLE

DESCRIPTION	AFFECTED STD	STANDARD	EXISTING	DISPOSITION
FENCE AND ROAD IN RSA EXTENSION	RUNWAY SAFETY AREA	300'x600' EXTENSION	CORNER PENETRATED	RELOCATE FENCE AND ROAD

MARK	REVISION	DATE

\\KSA-SUG-SERVER\PROJECTS\CLV00100.07 CAD\02 PROJECT\ CLV001-C-LO-ALP-ALD.DWG \| AIRPORT LAYOUT DRAWING \| 9/15/2015 - 5:14 PM
DRAWING PATHNAME \| LAYOUT \| PLOT DATE - TIME
PROJECT TITLE: PROJECT DESCRIPTION LOCATION - CITY XX, TEXAS

SHEET NAME:
AIRPORT LAYOUT DRAWING

PROJECT NAME:
CLOVIS, NEW MEXICO
CLOVIS MUNICIPAL AIRPORT
AIRPORT LAYOUT PLAN SET

DRAWN BY: AJ
DESIGNED BY: SK
LATEST REVISION: 9/10/2015
KSA JOB NO.: CLV.001

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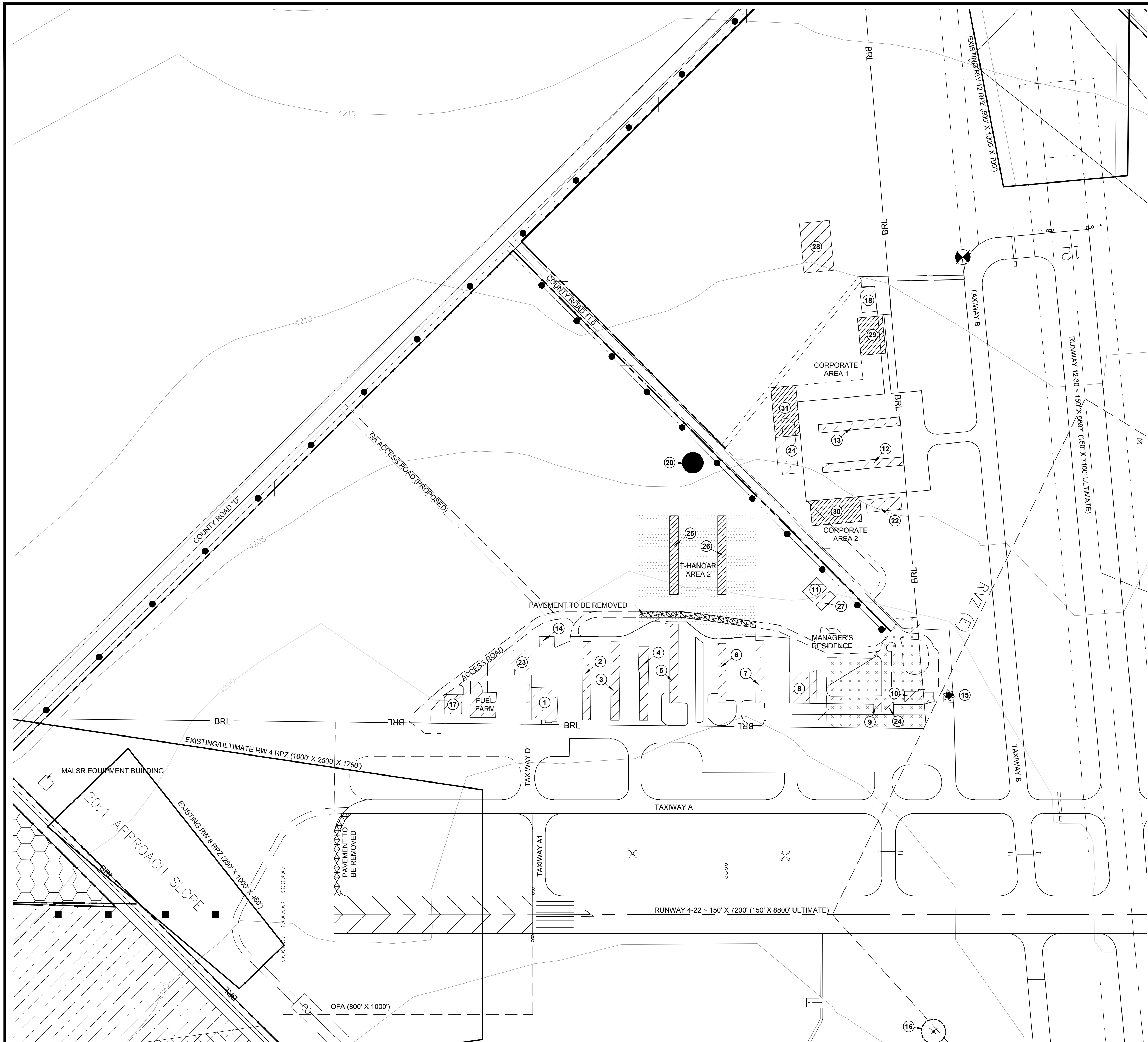
TBPE Firm Registration No. F-1356

SHEET NO.
2



200' 0 200' 400'

GRAPHIC SCALE IN FEET

AIRPORT BUILDINGS / STRUCTURES		
		TOP ELEVATION
1	BUILDING - FBO	4217.1
2	T-HANGAR	4211.8
3	T-HANGAR	4212.3
4	T-HANGAR	4211.6
5	T-HANGAR	4212.0
6	T-HANGAR	4214.4
7	T-HANGAR	4209.4
8	BUILDING - FBO	4218.2
9	SNOW EQUIPMENT BUILDING	4215.6
10	TERMINAL BUILDING	4218.0
11	MAINTENANCE BUILDING	4218.6
12	T-HANGAR	4219.4
13	T-HANGAR	4219.4
14	HANGAR	4213.8
15	ROTATING BEACON	4232.6
16	LIGHTED WIND CONE AND SEGMENTED CIRCLE (WS 1)	4211.0
17	HANGAR	4213.2
18	BUILDING - FBO	4227.5
19	ROD ON AWOS TOWER	4222.2
20	WATER TANK	4254.8
21	CORPORATE HANGAR	4232.0
22	HANGAR	4227.3
23	HANGAR	4217.1
24	ARFF / FIRE STATION	4215.6
25	HANGAR (FUTURE)	4212.0
26	HANGAR (FUTURE)	4214.4
27	FIRE STATION BUILDING	4220.0
28	HANGAR (FUTURE) ASN 2009-ASW282-NRA	4263.0
29	HANGAR (FUTURE)	4228.0
30	HANGAR (FUTURE)	4227.5
31	HANGAR (FUTURE)	4232.0

LEGEND	
—BRL—	BUILDING RESTRICTION LINE
4185	GROUND CONTOURS (5 FT INTERVALS)
	FENCE & PROPERTY BOUNDARY
	STRUCTURE
	POWER LINE
	RUNWAY SAFETY AREA (EXISTING)
	RUNWAY SAFETY AREA (ULTIMATE)
	PAVED ROAD
	DIRT ROAD
	WIND CONE (WC) / SUPPLEMENTAL WIND CONE (SWC)
	THRESHOLD LIGHTS
	CONTROL POINT (CVN-C)
	RUNWAY HOLDING POSITION MARKING AND SIGNS
	APPROACH LIGHT STRUCTURE
	RUNWAY VISIBILITY ZONE (RVZ) (E)
	RUNWAY VISIBILITY ZONE (RVZ) (U)
	EXISTING AVIATION EASEMENT
	EXISTING AIRPORT OWNED PARCEL
	FUTURE EASEMENT / ACQUISITION
	CORPORATE GENERAL AVIATION HANGAR DEVELOPMENT
	T-HANGAR DEVELOPMENT
	CONVENTIONAL / BOX HANGAR DEVELOPMENT
	TERMINAL AREA DEVELOPMENT (SHORT TERM)

ABBREVIATIONS	
(E)	EXISTING
(U)	ULTIMATE / FUTURE
GA	GENERAL AVIATION
HW	HEADWALL

SEE RUNWAY DATA TABLE FOR ADDITIONAL ABBREVIATIONS

NOTE: DIMENSIONS FOR RSA, OFA, OFZ, TSA, AND TOFA, SHOWN ON THE PLAN, ARE FOR EXISTING CONDITIONS UNLESS OTHERWISE DESIGNATED IN THE LEGEND.

MARK	REVISION	DATE

\\KSA-SUG-SERVER\PROJECTS\CLV001\00.07 CAD\02 PROJECT\ CLV001-C-LO-ALP-TAP.DWG | TERMINAL AREA PLAN | 9/15/2015 - 5:15 PM

DRAWING PATHNAME | LAYOUT | PLOT DATE - TIME

PROJECT TITLE: PROJECT DESCRIPTION LOCATION - CITY XX, TEXAS

SHEET NAME:

TERMINAL AREA PLAN

PROJECT NAME:

CLOVIS, NEW MEXICO
CLOVIS MUNICIPAL AIRPORT
AIRPORT LAYOUT PLAN SET

DRAWN BY: AJ

DESIGNED BY: SK

LATEST REVISION: 9/10/2015

KSA JOB NO.: CLV.001

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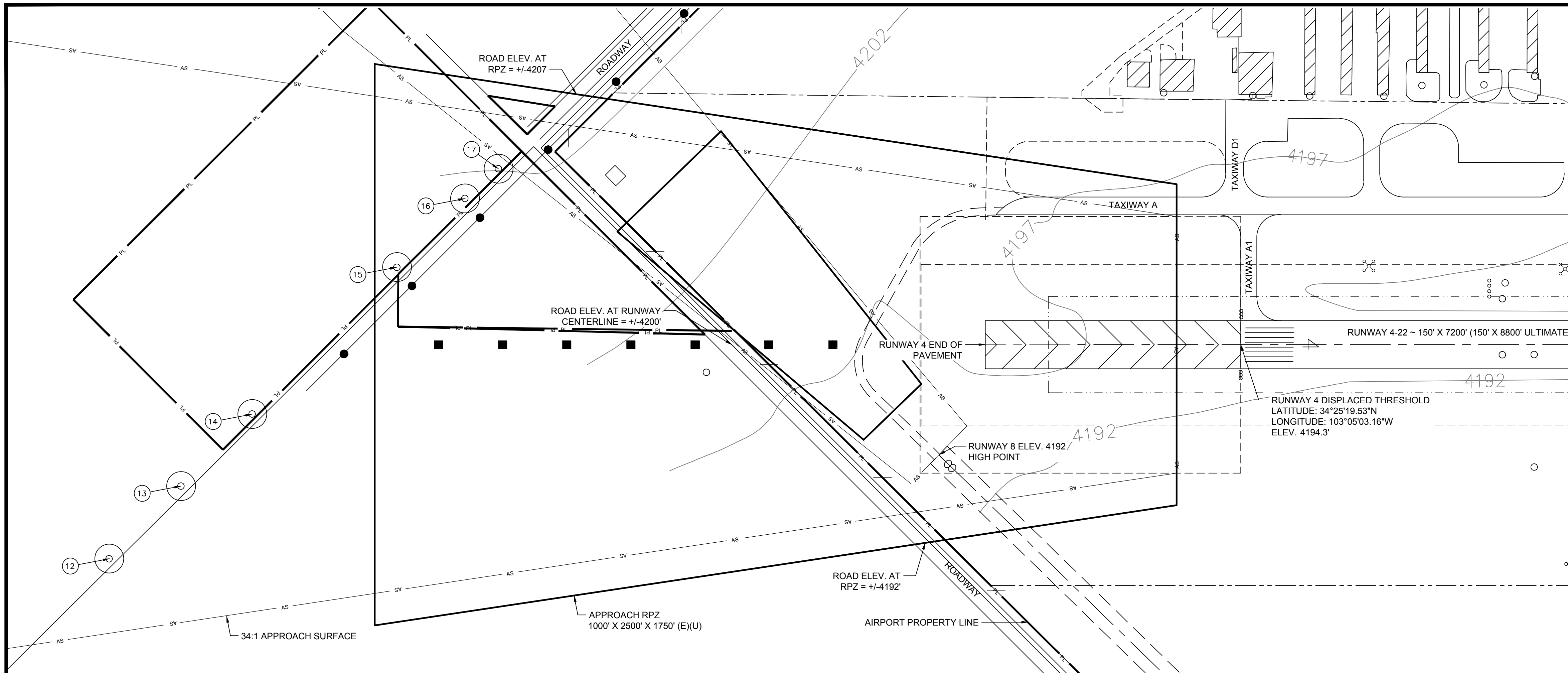
SEAL:

TBPE Firm Registration No. F-1356

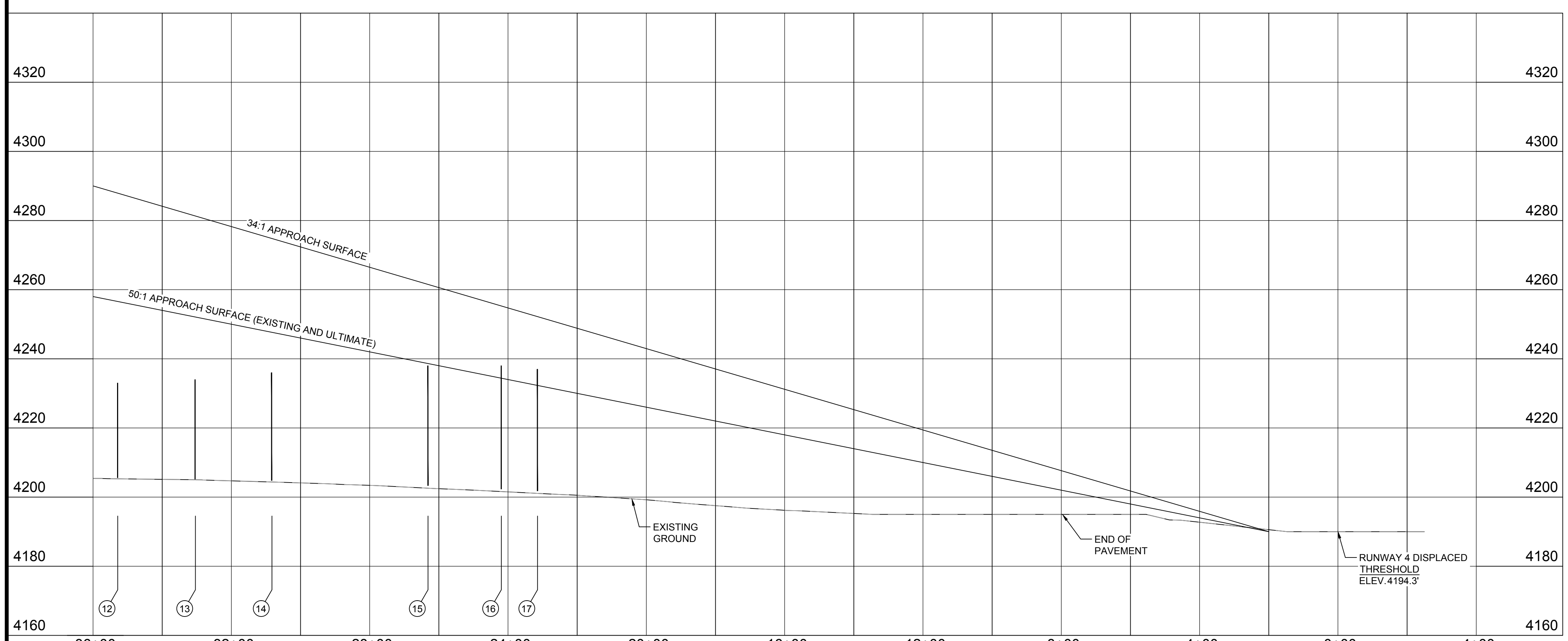
SHEET NO.

3



IPASD LEGEND

FEATURE	EXISTING	ULTIMATE
RUNWAY/TAXIWAY OUTLINE		
RUNWAY/TAXIWAY TO BE REMOVED		
BUILDINGS/FACILITIES		
AIRPORT PROPERTY LINE		
AIRPORT PROPERTY LINE w/FENCE		
THRESHOLD SITING SURFACE		
FENCE LINE		
THRESHOLD LIGHTS		
RW END IDENTIFIER LIGHTS (REILS)		
APPROACH LIGHT STRUCTURE		
POWER LINE		
BUILDING RESTRICTION LINE (BRL)		
GROUND CONTOURS		
SIGNIFICANT OBJECT PLAN VIEW		
SIGNIFICANT OBJECT PROFILE VIEW		
TREES/BRUSH		



OBSTRUCTION TABLE

POINT NO.	DESCRIPTION	ELEVATION (TOP OF OBJECT)	CLEARANCE TO 50:1 APPROACH SURFACE	DISPOSITION
17	WOOD POLE	4237	(4.66')	MARK AND LIGHT
16	WOOD POLE	4238	(3.57')	MARK AND LIGHT
15	WOOD POLE	4238	0.67'	MARK AND LIGHT
14	WOOD POLE	4236	11.70'	
13	WOOD POLE	4234	18.13'	
12	WOOD POLE	4233	23.61'	

MARK | REVISION | DATE

SHEET NAME: RUNWAY 4 INNER PORTION OF THE APPROACH SURFACE

PROJECT NAME: CLOVIS, NEW MEXICO CLOVIS MUNICIPAL AIRPORT AIRPORT LAYOUT PLAN SET

DRAWN BY: AJ
DESIGNED BY: SK
LATEST REVISION: 9/10/2015
KSA JOB NO.: CLV.001

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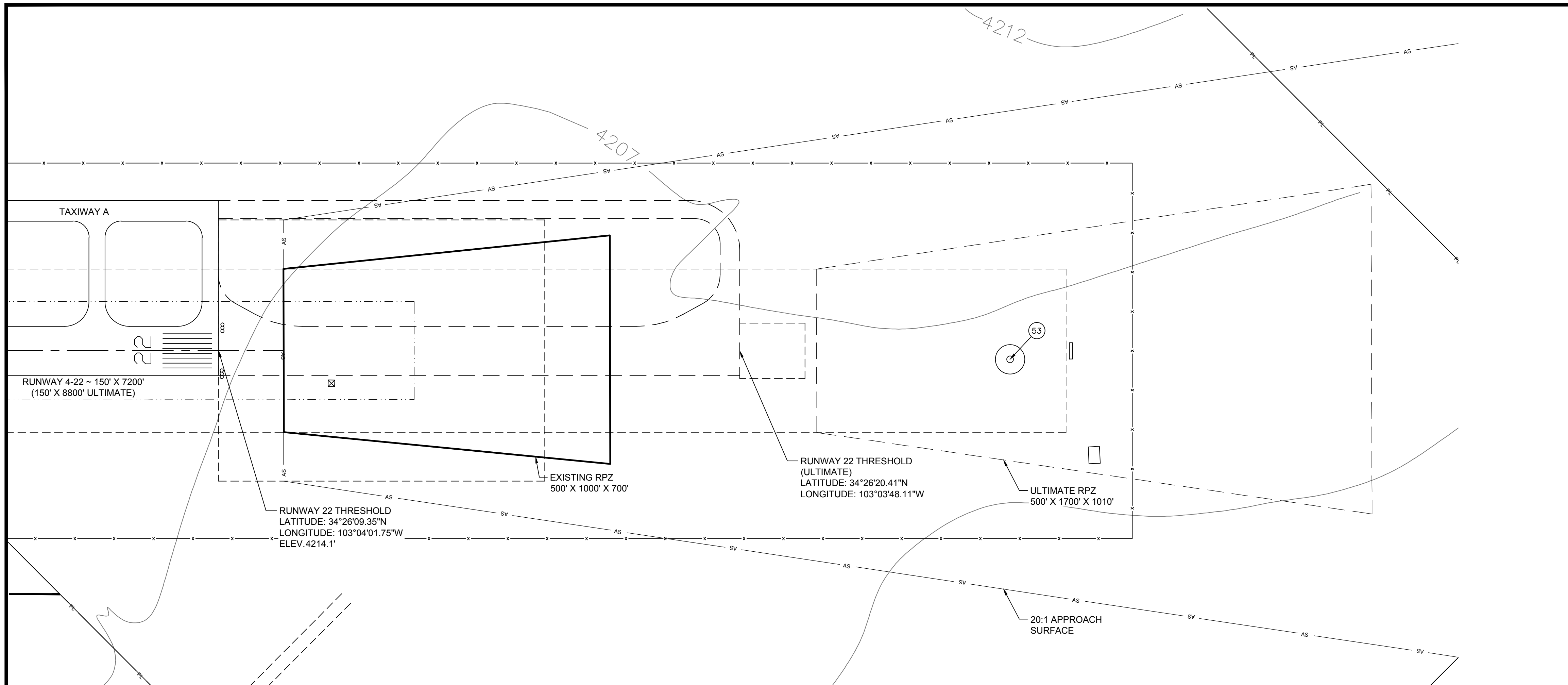
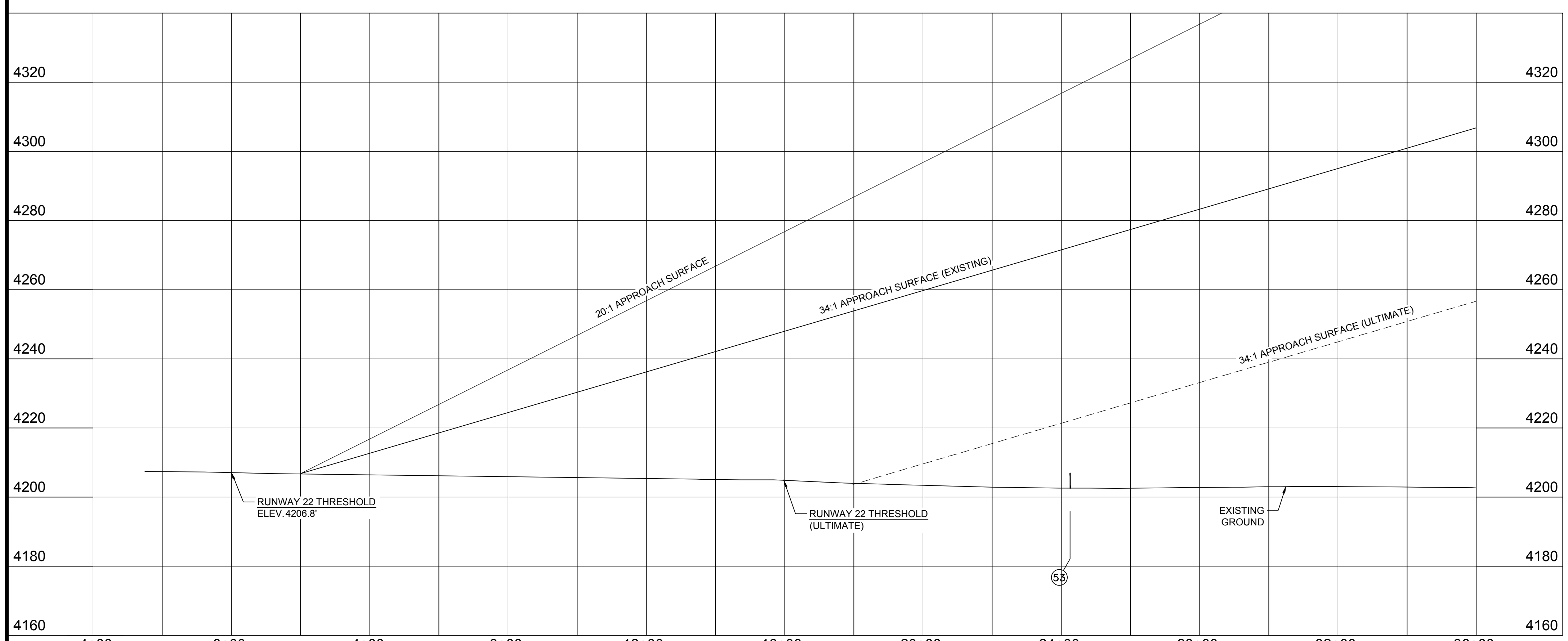
SHEET NO. 4





200' 0 200' 400'
HORIZONTAL SCALE IN FEET

20' 0 20' 40'
VERTICAL SCALE IN FEET

IPASD LEGEND

FEATURE	EXISTING	ULTIMATE
RUNWAY/TAXIWAY OUTLINE		
RUNWAY/TAXIWAY TO BE REMOVED		
BUILDINGS/FACILITIES		
AIRPORT PROPERTY LINE		
AIRPORT PROPERTY LINE w/FENCE		
THRESHOLD SITING SURFACE		
FENCE LINE		
THRESHOLD LIGHTS		
RW END IDENTIFIER LIGHTS (REILS)		
APPROACH LIGHT STRUCTURE		
POWER LINE		
BUILDING RESTRICTION LINE (BRL)		
GROUND CONTOURS		
SIGNIFICANT OBJECT PLAN VIEW		
SIGNIFICANT OBJECT PROFILE VIEW		
TREES/BRUSH		

OBSTRUCTION TABLE ~ RUNWAY 22

POINT NO.	DESCRIPTION	ELEVATION (TOP OF OBJECT)	CLEARANCE TO 34:1 APPROACH SURFACE
53	LOC (4-CVN)	4207	15.94'

MARK	REVISION	DATE

IKSA-SUG-SERVER\PROJECTS\CLV001\00.07 CAD\02 PROJECT\ CLV001-C-LO-ALP-IPASD.DWG | RW 22 IPASD (4-22) | 9/15/2015 - 5:16 PM
DRAWING PATHNAME | LAYOUT | PLOT DATE - TIME
PROJECT TITLE: PROJECT DESCRIPTION LOCATION - CITY XX, TEXAS

SHEET NAME:
RUNWAY 22
INNER PORTION OF THE APPROACH SURFACE

PROJECT NAME:
CLOVIS, NEW MEXICO
CLOVIS MUNICIPAL AIRPORT
AIRPORT LAYOUT PLAN SET

DRAWN BY: AJ
DESIGNED BY: SK
LATEST REVISION: 9/10/2015
KSA JOB NO.: CLV.001

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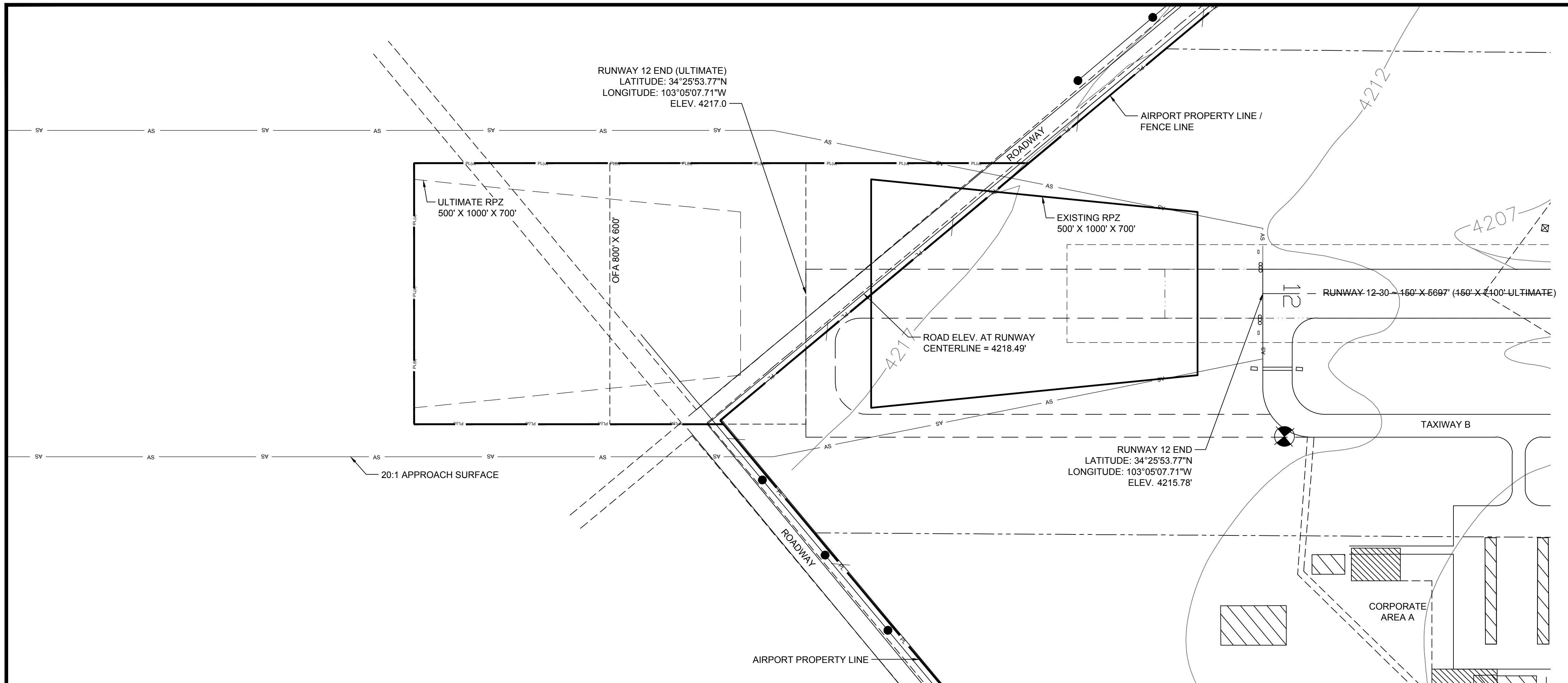
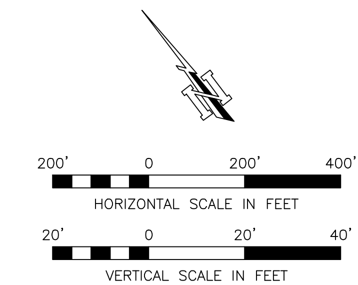
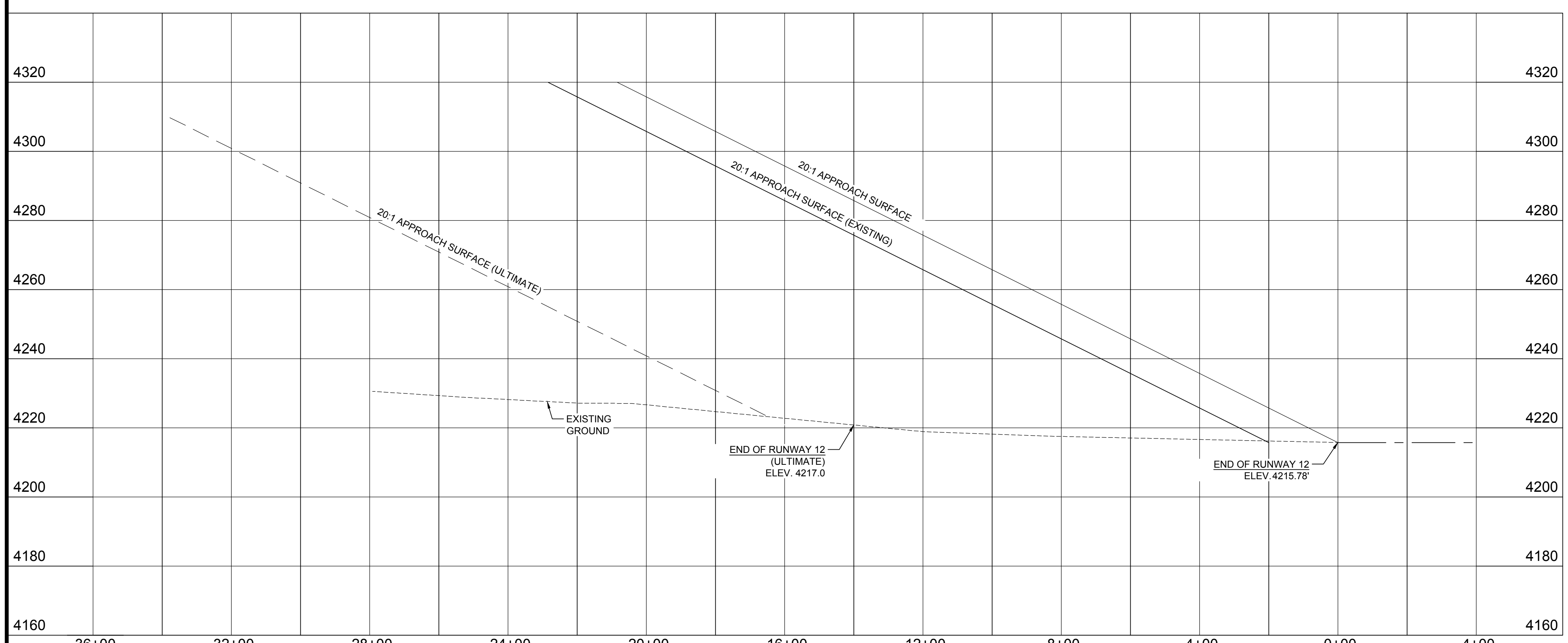
SHEET NO.
5





IPASD LEGEND		
FEATURE	EXISTING	ULTIMATE
RUNWAY/TAXIWAY OUTLINE		
RUNWAY/TAXIWAY TO BE REMOVED		
BUILDINGS/FACILITIES		
AIRPORT PROPERTY LINE		
AIRPORT PROPERTY LINE w/FENCE		
THRESHOLD SITING SURFACE		
FENCE LINE		
THRESHOLD LIGHTS		
RW END IDENTIFIER LIGHTS (REILS)		
APPROACH LIGHT STRUCTURE		
POWER LINE		
BUILDING RESTRICTION LINE (BRL)		
GROUND CONTOURS		
SIGNIFICANT OBJECT PLAN VIEW		
SIGNIFICANT OBJECT PROFILE VIEW		
TREES/BRUSH		



MARK	REVISION	DATE

\\KSA-SUG-SERVER\PROJECTS\CLV001\00.07 CAD\02 PROJECT\ CLV001-C-LO-ALP-IPASD.DWG | RW 12 IPASD (12-30) | 9/15/2015 - 5:16 PM

DRAWING PATH\NAME | LAYOUT | PLOT DATE - TIME

PROJECT TITLE: PROJECT DESCRIPTION LOCATION - CITY XX, TEXAS

RUNWAY 12 INNER PORTION OF THE APPROACH SURFACE

SHEET NAME:

CLOVIS, NEW MEXICO
CLOVIS MUNICIPAL AIRPORT
AIRPORT LAYOUT PLAN SET

PROJECT NAME:

DRAWN BY: AJ
DESIGNED BY: SK
LATEST REVISION: 9/10/2015
KSA JOB NO.: CLV.001

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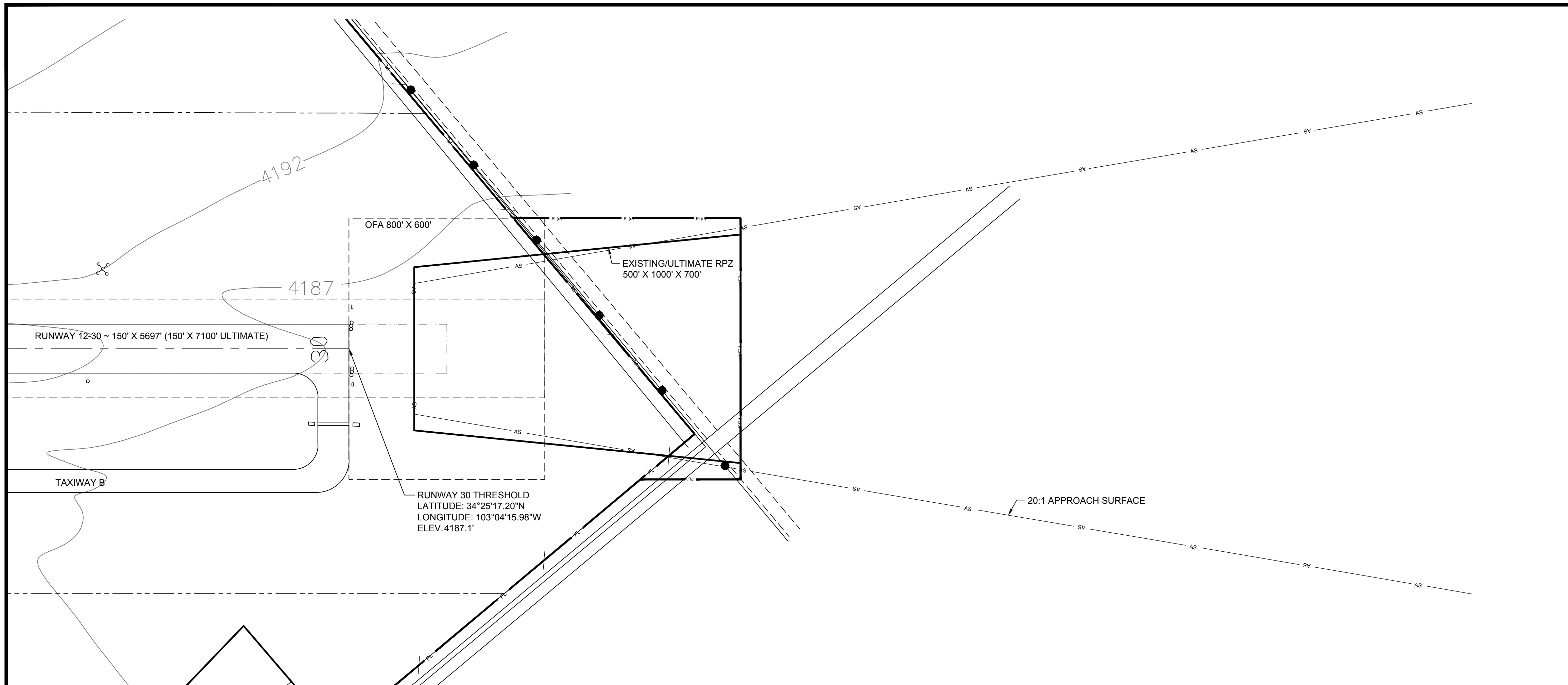
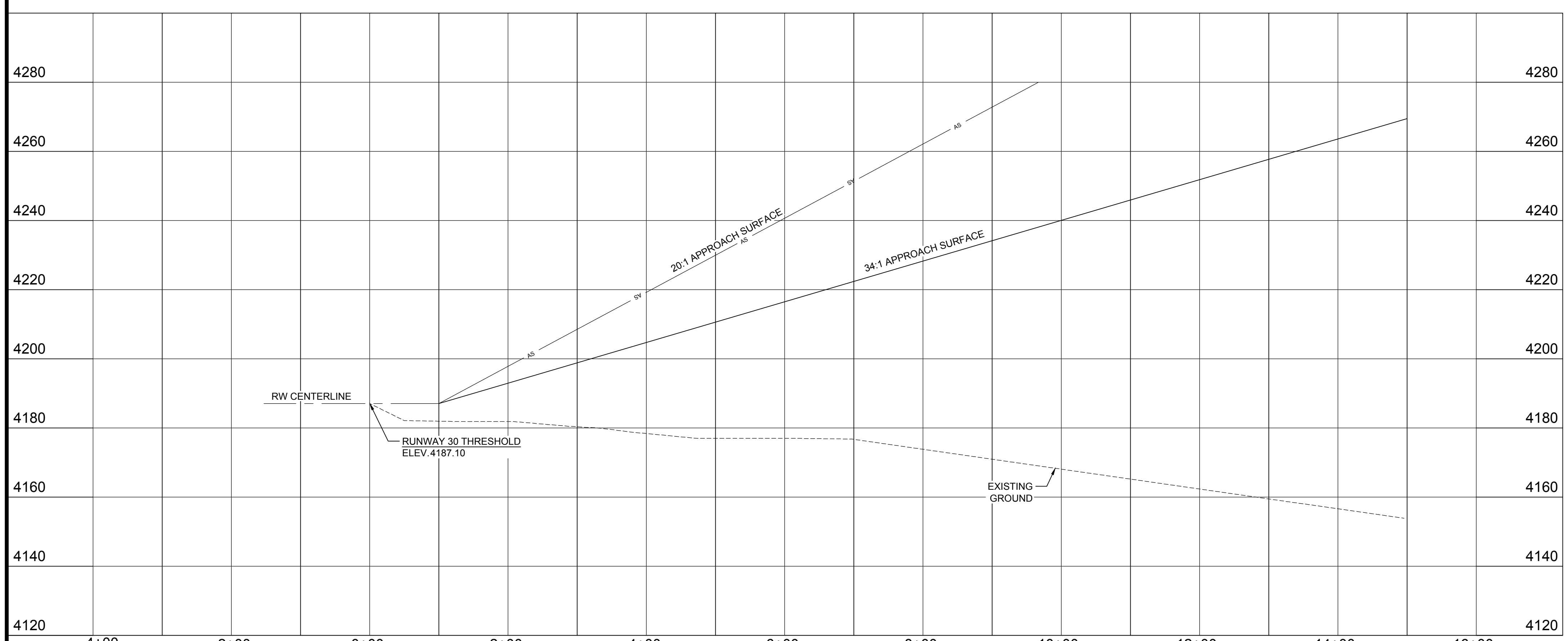
SHEET NO.
6



200' 0 200' 400'
HORIZONTAL SCALE IN FEET

20' 0 20' 40'
VERTICAL SCALE IN FEET

IPASD LEGEND		
FEATURE	EXISTING	ULTIMATE
RUNWAY/TAXIWAY OUTLINE		
RUNWAY/TAXIWAY TO BE REMOVED		
BUILDINGS/FACILITIES		
AIRPORT PROPERTY LINE		
AIRPORT PROPERTY LINE w/FENCE		
THRESHOLD SITING SURFACE	TSS	TSS
FENCE LINE		
THRESHOLD LIGHTS		
RW END IDENTIFIER LIGHTS (REILS)		
APPROACH LIGHT STRUCTURE		
POWER LINE		
BUILDING RESTRICTION LINE (BRL)		
GROUND CONTOURS		
SIGNIFICANT OBJECT PLAN VIEW		
SIGNIFICANT OBJECT PROFILE VIEW		
TREES/BRUSH		



MARK	REVISION	DATE

\\KSA-SUG-SERVER\PROJECTS\CLV001\00.07 CAD\02 PROJECT\ CLV001-C-LO-ALP-IPASD.DWG | RW 30 IPASD (12-30) | 9/15/2015 - 5:17 PM

DRAWING PATH\NAME | LAYOUT | PLOT DATE - TIME

PROJECT TITLE: PROJECT DESCRIPTION LOCATION - CITY XX, TEXAS

SHEET NAME:

RUNWAY 30 INNER PORTION OF THE APPROACH SURFACE

PROJECT NAME:

CLOVIS, NEW MEXICO
CLOVIS MUNICIPAL AIRPORT
AIRPORT LAYOUT PLAN SET

DRAWN BY: AJ
DESIGNED BY: SK
LATEST REVISION: 9/10/2015
KSA JOB NO.: CLV.001

KSA

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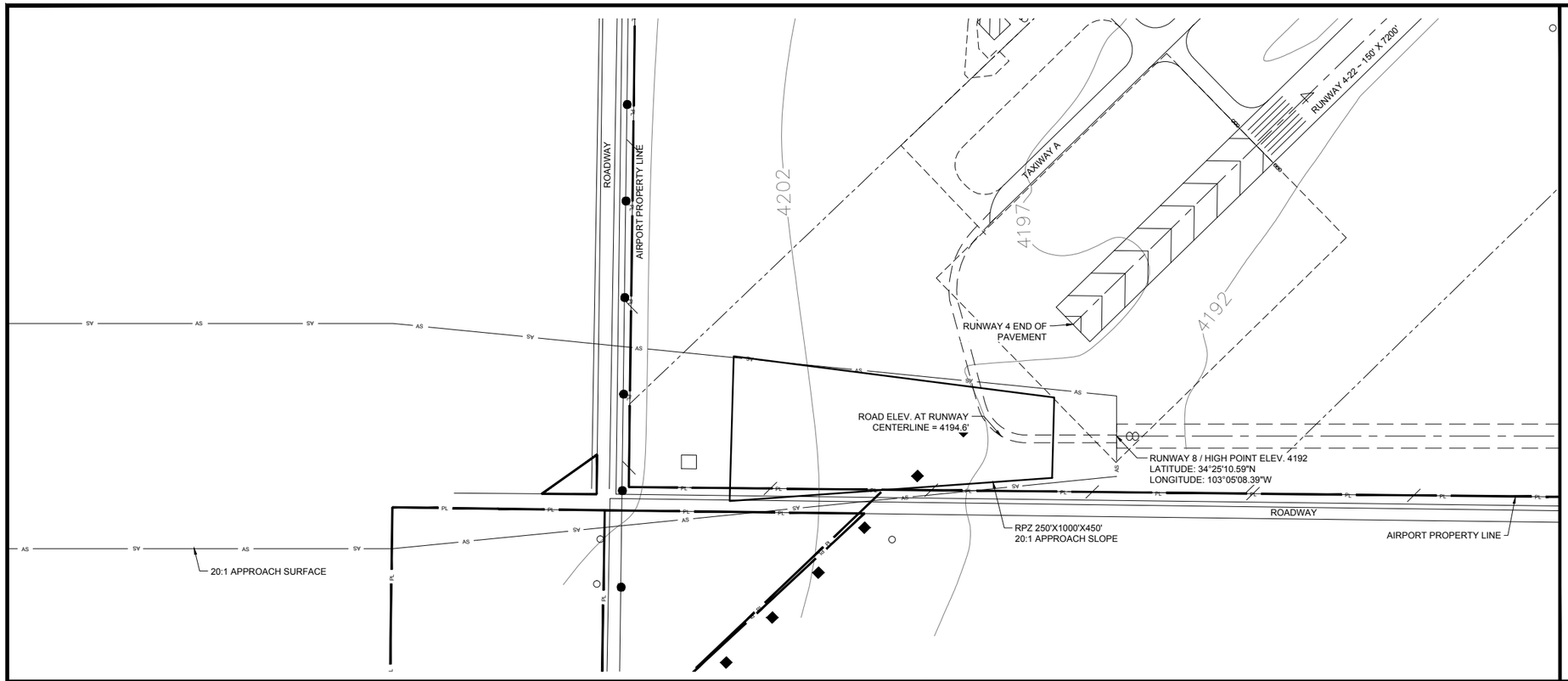
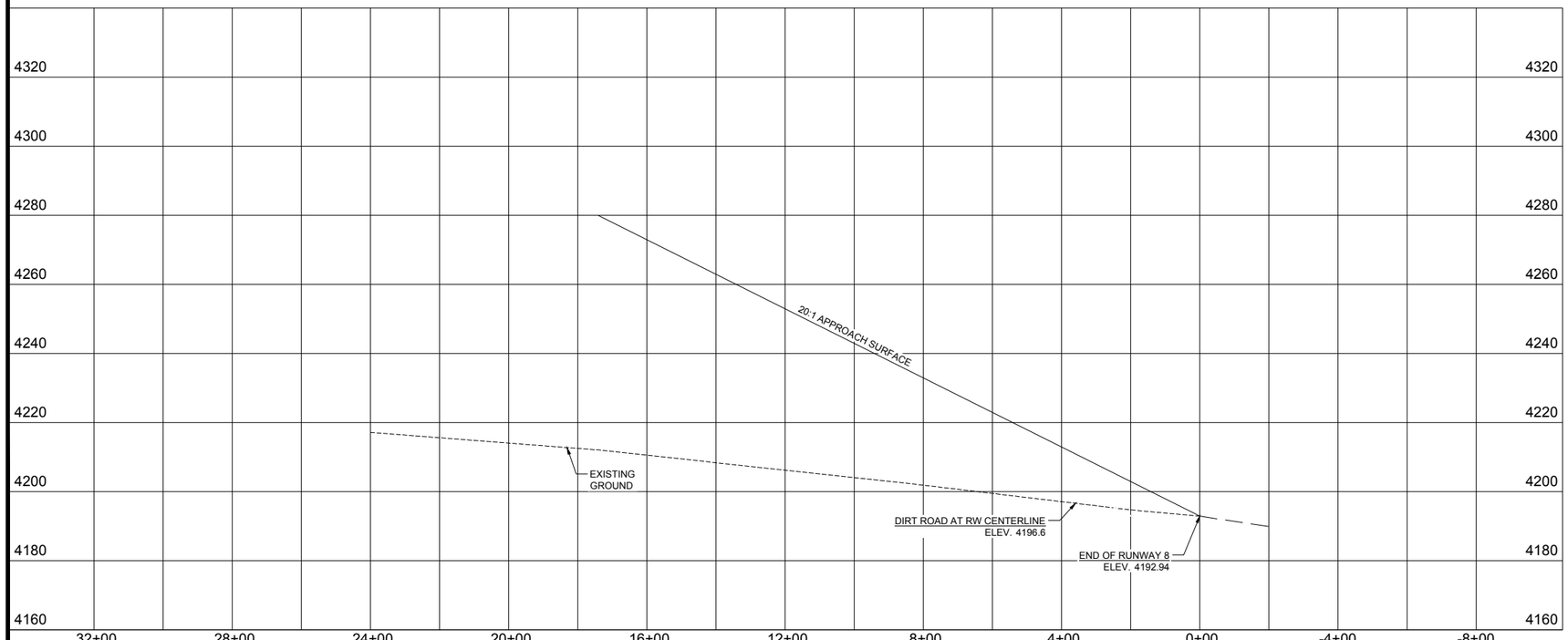
SEAL:
TBPE Firm Registration No. F-1356

SHEET NO.
7





200' 0 200' 400'

HORIZONTAL SCALE IN FEET

20' 0 20' 40'

VERTICAL SCALE IN FEET

IPASD LEGEND		
FEATURE	EXISTING	ULTIMATE
RUNWAY/TAXIWAY OUTLINE		
RUNWAY/TAXIWAY TO BE REMOVED		
BUILDINGS/FACILITIES		
AIRPORT PROPERTY LINE	PL	PL
AIRPORT PROPERTY LINE w/FENCE	PL PL	PL PL
THRESHOLD SITING SURFACE	TSS	TSS GD
FENCE LINE	FEN FEN FEN	FEN FEN FEN
THRESHOLD LIGHTS		
RW END IDENTIFIER LIGHTS (REILS)		
APPROACH LIGHT STRUCTURE		
POWER LINE		
BUILDING RESTRICTION LINE (BRL)		
GROUND CONTOURS	1625	
SIGNIFICANT OBJECT PLAN VIEW		
SIGNIFICANT OBJECT PROFILE VIEW		
TREES/BRUSH		

MARK	REVISION	DATE

I:\KSA-SUG-SERVER\PROJECTS\CLV\001\00\07 CAD\02 PROJECT DWG\C-CLO-ALP-IPASD.DWG | RW8 IPASD @ 20:1 | 9/15/2015 - 5:17 PM
DRAWING PATHNAME | LAYOUT | PLOT DATE - TIME

PROJECT TITLE: PROJECT DESCRIPTION LOCATION - CITY XX, TEXAS

RUNWAY 8 INNER PORTION OF THE APPROACH SURFACE

SHEET NAME:

CLOVIS, NEW MEXICO
CLOVIS MUNICIPAL AIRPORT
AIRPORT LAYOUT PLAN SET

PROJECT NAME:

DRAWN BY:	AJ
DESIGNED BY:	SK
LATEST REVISION:	9/10/2015
KSA JOB NO.:	CLV.001

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SEAL:
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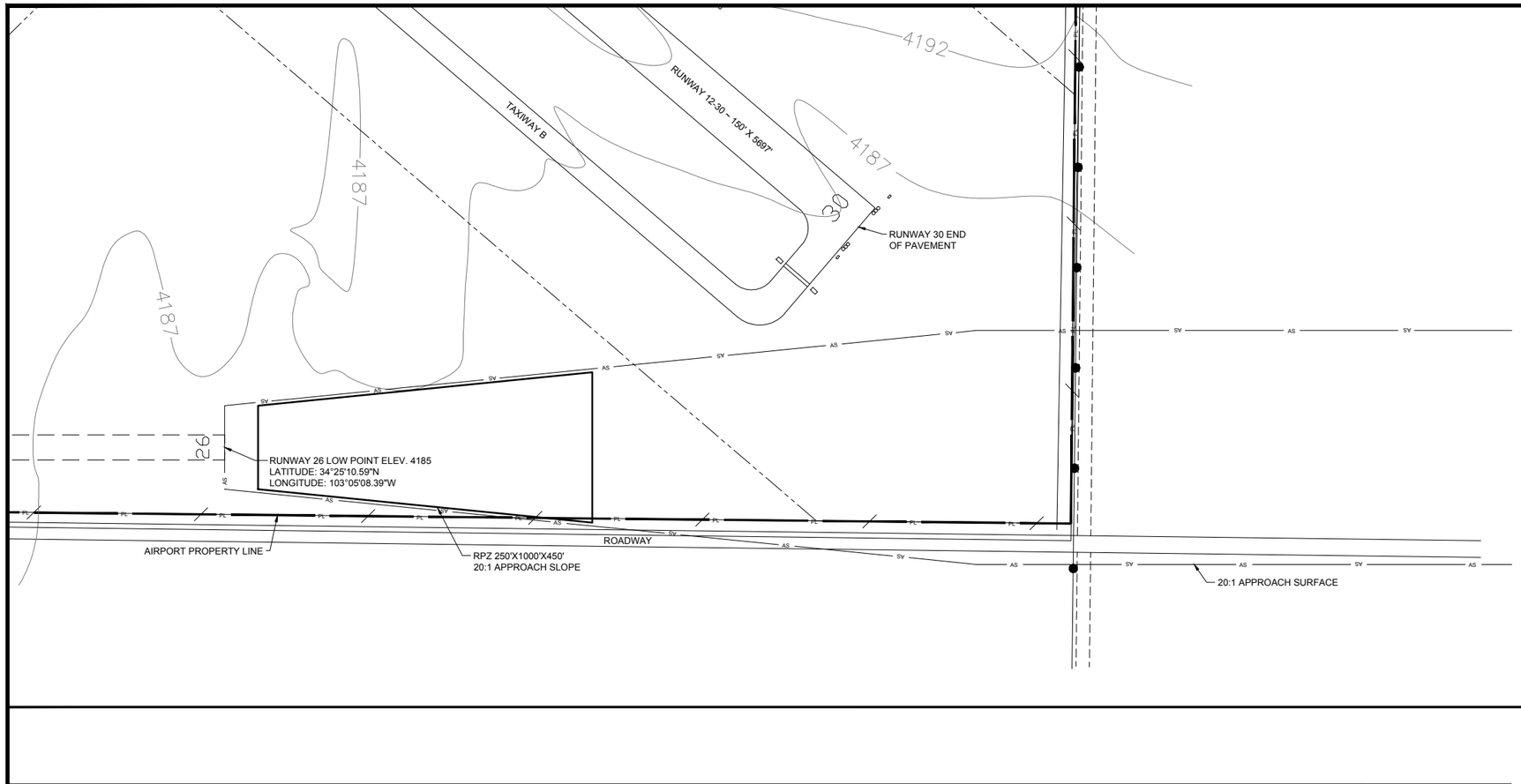
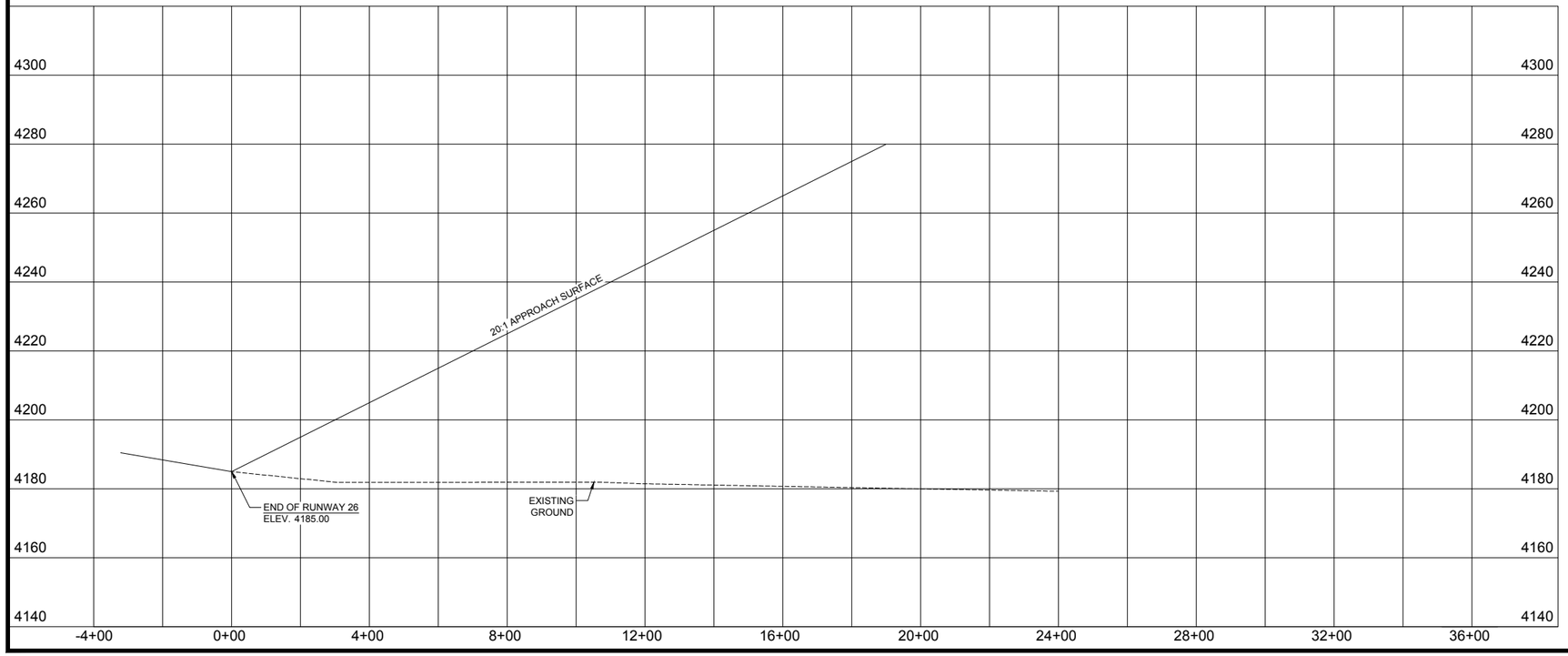
SHEET NO.
8





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HORIZONTAL SCALE IN FEET

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VERTICAL SCALE IN FEET

IPASD LEGEND

FEATURE	EXISTING	ULTIMATE
RUNWAY/TAXIWAY OUTLINE		
RUNWAY/TAXIWAY TO BE REMOVED		
BUILDINGS/FACILITIES		
AIRPORT PROPERTY LINE		
AIRPORT PROPERTY LINE w/FENCE		
THRESHOLD SITING SURFACE		
FENCE LINE		
THRESHOLD LIGHTS		
RW END IDENTIFIER LIGHTS (REILS)		
APPROACH LIGHT STRUCTURE		
POWER LINE		
BUILDING RESTRICTION LINE (BRL)		
GROUND CONTOURS	4629	
SIGNIFICANT OBJECT PLAN VIEW		
SIGNIFICANT OBJECT PROFILE VIEW		
TREES/BRUSH		

MARK	REVISION	DATE

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DRAWING PATH\NAME | LAYOUT | PLOT DATE - TIME

PROJECT TITLE: PROJECT DESCRIPTION LOCATION - CITY XX, TEXAS

SHEET NAME:

RUNWAY 26 INNER PORTION OF THE APPROACH SURFACE

CLOVIS, NEW MEXICO
CLOVIS MUNICIPAL AIRPORT
AIRPORT LAYOUT PLAN SET

PROJECT NAME:

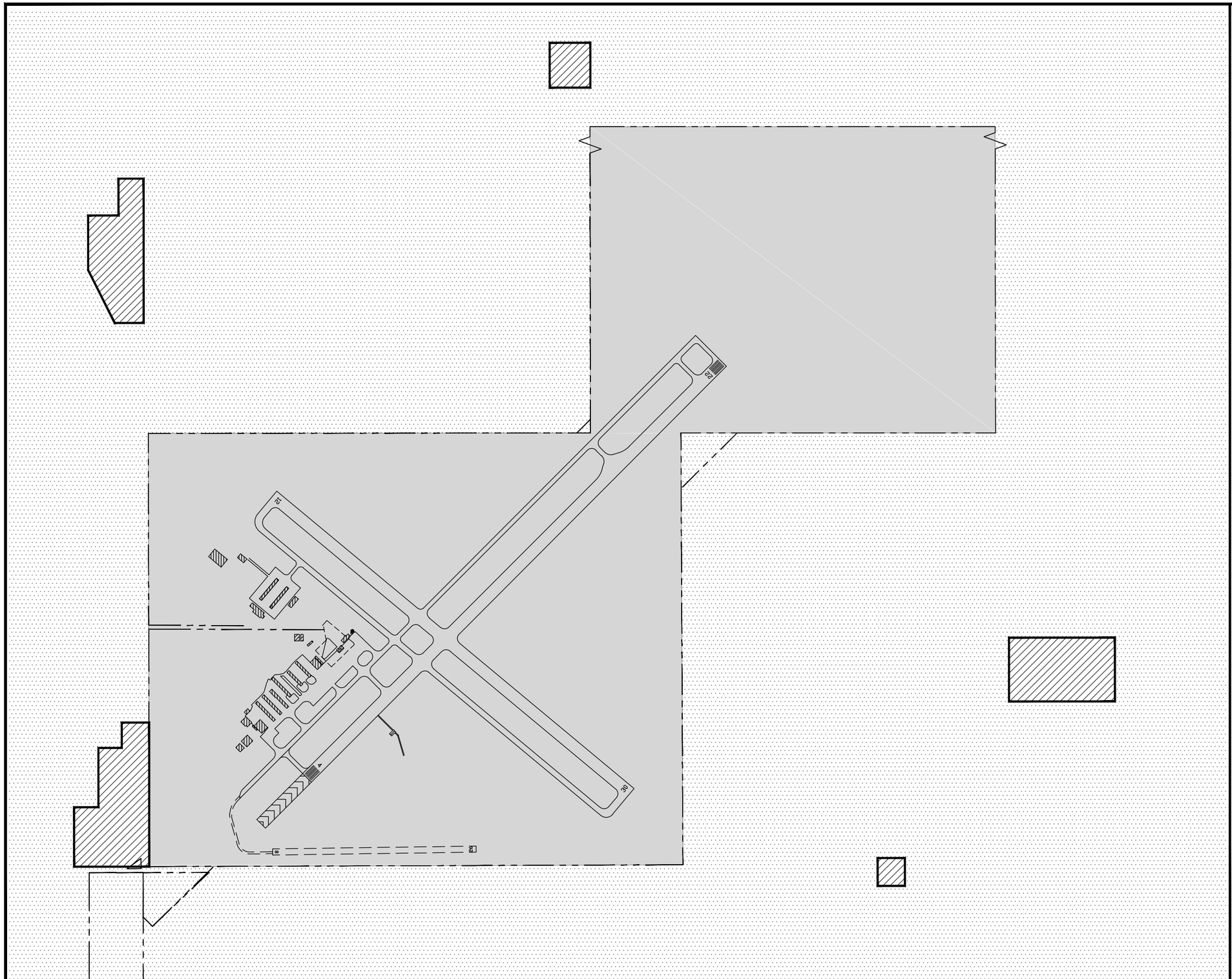
DRAWN BY:	DESIGNED BY:	LATEST REVISION:	KSA JOB NO.:
AJ	SK	9/10/2015	CLV.001

KSA
8875 Synergy Dr., McKinney, Texas 75070
T. 972-542-2995 F. 972-542-6750
www.ksaeng.com

SEAL:
TBPE Firm Registration No. F-1356

SHEET NO.

9



LEGEND - GENERALIZED EXISTING LAND USE NEAR CVN

	AIRPORT PROPERTY LINE
	AGRICULTURE
	RESIDENTIAL
	INDUSTRIAL

MARK	REVISION	DATE

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DRAWING PATHNAME | LAYOUT | PLOT DATE - TIME

PROJECT TITLE: PROJECT DESCRIPTION LOCATION - CITY XX, TEXAS

SHEET NAME:

LAND USE DRAWING

CLOVIS, NEW MEXICO
CLOVIS MUNICIPAL AIRPORT
AIRPORT LAYOUT PLAN SET

PROJECT NAME:

DRAWN BY:	AJ
DESIGNED BY:	SK
LATEST REVISION:	9/10/2015
KSA JOB NO.:	CLV 001

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SHEET NO.
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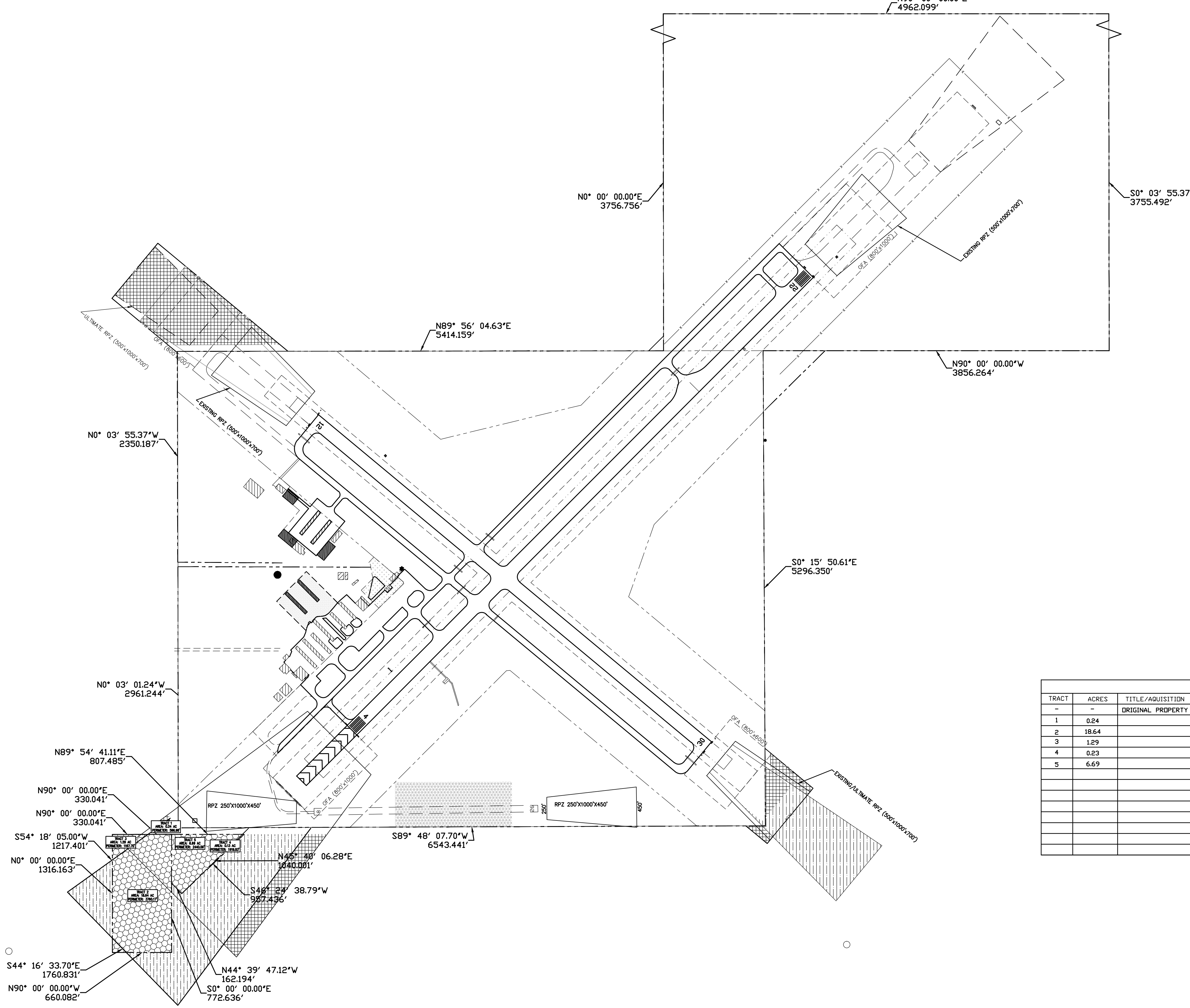

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GRAPHIC SCALE IN FEET

IPASD LEGEND		
FEATURE	EXISTING	ULTIMATE
RUNWAY/TAXIWAY OUTLINE		
BUILDINGS/FACILITIES		
AIRPORT PROPERTY LINE		PL(u)
AIRPORT PROPERTY LINE w/FENCE		PL(u)
FENCE LINE	x	xu xu
BUILDING RESTRICTION LINE (BRL)		
EXISTING AVIGATION EASEMENT		
EXISTING AIRPORT OWNED PARCEL		
FUTURE EASEMENT/ACQUISITION		
CORPORATE GENERAL AVIATION HANGAR DEVELOPMENT		
T-HANGAR DEVELOPMENT		
SHORT-TERM TERMINAL AREA DEVELOPMENT		
LONG-TERM TERMINAL AREA DEVELOPMENT		

AIRPORT PROPERY DATA					
TRACT	ACRES	TITLE/AQUISITION	GRANTOR	VOL./PG.	DATE
-	-	ORIGINAL PROPERTY	-	-	-
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2	18.64				
3	1.29				
4	0.23				
5	6.69				

MARK	REVISION	DATE

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DRAWING PATHNAME | LAYOUT | PLOT DATE - TIME

PROJECT TITLE: PROJECT DESCRIPTION LOCATION - CITY XX, TEXAS

SHEET NAME:

AIRPORT PROPERTY MAP

PROJECT NAME:

CLOVIS, NEW MEXICO
CLOVIS MUNICIPAL AIRPORT
AIRPORT LAYOUT PLAN SET

DRAWN BY: AJ

DESIGNED BY: SK

LATEST REVISION: 9/10/2015

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Appendix A:

AIR SERVICE ANALYSIS

A.1 INTRODUCTION

Clovis Municipal Airport (CVN) used to have scheduled commercial airline service provided by Great Lakes Airlines with daily one-stop service to Denver. Service was discounted by Great Lakes Airlines in the first half of 2014. In July 2014, the airport began scheduled commercial airline service provided by Boutique Air with daily non-stop service to Dallas-Fort Worth International Airport (DFW). Many passengers associated with the Clovis Municipal Airport market area drive to more distant airports to access air service, including Lubbock International Airport (LBB), 100 miles away and Amarillo International Airport (AMA), approximately 105 miles away.

This analysis will provide cursory information to Clovis Municipal Airport and the community/region on the ability of the Airport to support improved commercial airline service. This analysis will include:

- An overview of historic and existing commercial airline service,
- Identification of the Airport's air service market area,
- Discussion of current small community air service realities, and
- Identification of potential opportunities for air service and subsequent facility improvements that may be needed.

A.2 AIR SERVICE OVERVIEW

In May 2013, Great Lakes Airlines offered 12 weekly one-stop flights to Denver. Great Lakes operated 19-seat Beechcraft 1900 aircraft with the schedule presented in Table A-1.

Table A-1: Great Lakes Airlines Schedule between Clovis Municipal and Denver International, May 2013

Flight Number	Depart Time	Connecting City	Arrival Time	M	T	W	TH	F	S	S
Clovis - Denver										
ZK7301	6:00 AM	Pueblo, CO	8:15 AM	X	X	X	X	X	X	
ZK7301	7:00 AM	Pueblo, CO	9:15 AM							X
ZK 7303	1:17 PM	Liberal, KS	4:04 PM	X	X	X	X	X		
Denver - Clovis										
ZK7302	10:35 AM	Liberal, KS	1:07 PM	X	X	X	X	X		
ZK7304	5:25 PM	Pueblo, CO	7:27 PM	X	X	X	X	X		X
ZK 7304	3:25 PM	Pueblo, CO	5:27 PM						X	

Source: flygreatlakes.com

The airline service provided by Great Lakes at Clovis Municipal was subsidized under the U.S. Department of Transportation's (USDOT) Essential Air Service (EAS) Program with an annual subsidy of $1,954,490. The USDOT awards the EAS contract to a carrier to serve a community every two years. Until 2003, Mesa Airlines provided daily nonstop service at Clovis Municipal to Albuquerque International Sunport. USDOT chose Great Lakes to replace this service due to lower cost and the community's desire for a carrier change.

Beginning in July 2014, Boutique Air took over the EAS operation at CVN using nine-passenger Pilatus PC-12 aircraft. Today, the airline operates three daily flights with non-service to/from DFW. The annual subsidy for this service is $3,179,857 and expires July 31, 2016.

Table A-2 presents a summary of the EAS orders at Clovis Municipal since 1990. As service levels have dropped since 1997, the subsidies needed to provide the service have soared.

Table A-2: History of Essential Air Service at CVN

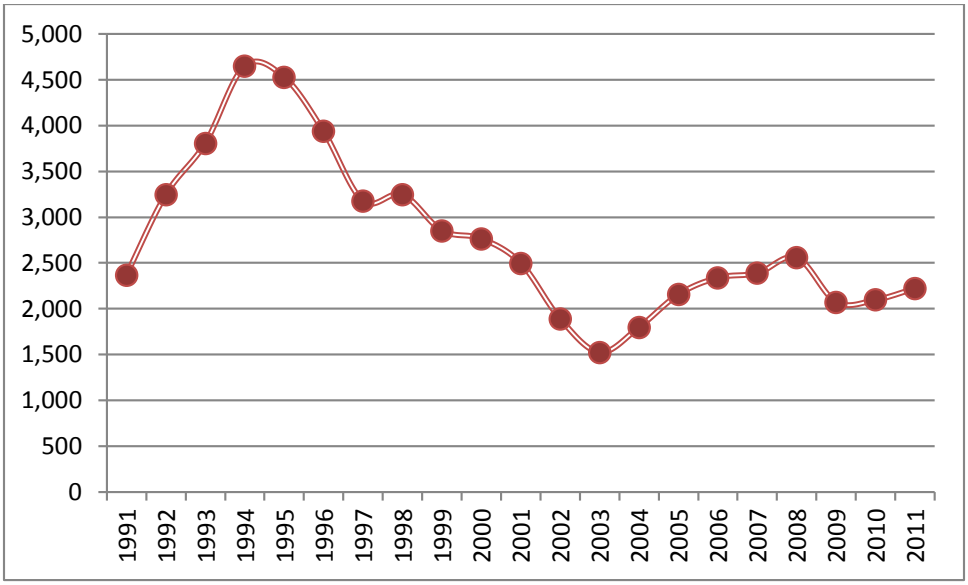
Order Date	Carrier	Service	Aircraft	Annual Subsidy
9/15/2014	Boutique	3 daily non-stop roundtrips to DFW	PC-12	$3,179,857
11/29/2012	Great Lakes	12 weekly one-stop roundtrips to Denver via Alamosa, Colorado; Liberal, Kansas; Santa Fe, New Mexico; or Pueblo, Colorado	Beech 1900	$1,954,490
6/4/2012	Great Lakes files 90-day notice of intent to terminate service effective 9/30/12			
4/22/2011	Great Lakes	12 weekly nonstop roundtrips to ABQ	Beech 1900	$1,592,157
3/6/2009	Great Lakes	12 weekly nonstop roundtrips to ABQ	Beech 1900	$1,517,277
5/31/2007	Great Lakes	12 weekly nonstop roundtrips to ABQ	Beech 1900	$1,187,761
4/4/2007	US DOT solicits new proposals for service after community and state strongly object to service to Denver, preferring service to ABQ.			
3/18/2007	Great Lakes	18 weekly one-stop flights (via Santa Fe, Amarillo, or Pueblo) to Denver	Beech 1900	$999,932
1/5/2005	Great Lakes	12 weekly nonstop roundtrips to ABQ	Beech 1900	$859,056
5/23/2003	Mesa	18 weekly nonstop roundtrips to ABQ	Beech 1900	$1,118,197
5/15/2001	Mesa	18 weekly nonstop roundtrips to ABQ	Beech 1900	$1,118,197
12/22/1998	Mesa	18 weekly nonstop roundtrips to ABQ	Beech 1900	$926,594
11/6/1997	Mesa	18 weekly nonstop roundtrips to ABQ	Beech 1900	$533,589
11/20/1996	Mesa	10 weekly nonstop flights to ABQ	Beech 1900	$208,579
9/9/1994	Mesa	18 weekly nonstop roundtrips to ABQ	Beech 1900	$310,860
1/22/1991	Mesa files 90 day notice of intent to terminate as it transitions from 13 -seat Beech 1300 to 19-seat Beech 1900 aircraft. Termination was prohibited and USDOT provided interim rates			
10/15/1990	Mesa	18 weekly nonstop flights to ABQ	Beech 1300	$139,432

Source: U.S DOT

Figure A-1 presents the annual enplanements at Clovis Municipal Airport from 1991 through 2011. Clovis Municipal's enplanements peaked in 1994 with 4,649 annual passengers. There was a steady decline in enplanements over the

next nine years, bottoming out at just over 1,500 in 2003. After the change in carriers in 2005, enplanements at Clovis Municipal improved slightly, but have not recovered to levels experienced in the mid-1990s. Over the recent past, Boutique Air has witnessed roughly 400 enplanements per month. Based on that level of activity, it is reasonable to assume that CVN may see enplanements reach or exceed levels experienced in the early 1990s.

Figure A-1: Historic Enplanements at Clovis Municipal Airport



Source: Airport management records

A.3 AIR SERVICE MARKET AREA

Accessibility and the influence of competing airports help to define an airport's catchment or market area. Travel time is a standard measure of accessibility. The actual driving distances and time passengers are willing to travel to access commercial air service vary greatly based on a number of factors. Because of the proximity of larger, competing airports, Clovis Municipal's Air Service Market Area is largely defined by the distance and service offered at nearby airports. Larger airports naturally attract passengers from distant locations due to more service choices, large equipment types, and more nonstop service.

The largest alternate airports that influence Clovis Municipal's market area include Lubbock International Airport (LBB) and Amarillo International Airport (AMA). The level of service offered at these airports is summarized in Table A-3. As shown, LBB and AMA offer similar levels of service. Three carriers - American, United, and Southwest - provide nonstop service at LBB and AMA. Other more distant airports including Albuquerque may attract market area passengers but to a much more limited extent.

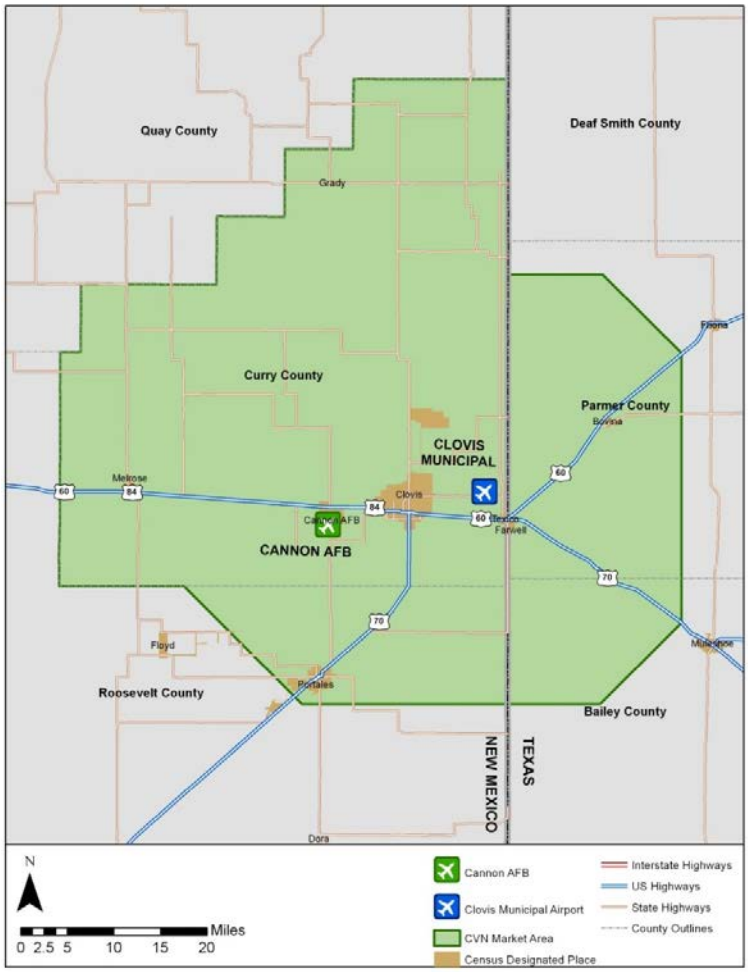
Table A-3: Service Comparison at Competing Airports

	Distance from Market Area	No. of Carriers Serving	No. of Low Fare Carriers Serving	No. Avg Daily Flights	No. of Nonstop Destinations
Clovis Municipal	-	1	0	2	2
Lubbock International	75-145 miles	3	1	23	6
Amarillo International	90-140 miles	3	1	23	6

Source: Airline websites, May 2013

As shown in Figure A-2, the Clovis Municipal Airport Air Service Market Area is comprised primarily of Curry County and Roosevelt County, New Mexico and the westernmost portions of Parmer County and Bailey County in Texas. The largest cities in the market area in terms of population are Clovis and Portales. Bovina and Farwell are smaller cities that are located within the market area. Clovis Municipal Airport's Air Service Market Area has a population of approximately 70,000. Cannon Air Force Base is the largest employer in the region and one of the largest sources of demand for air service in the community.

Figure A-2: Clovis Municipal Airport Air Service Market Area



Source: CDM Smith

A.4 AIRLINE OPERATING ENVIRONMENT & IMPACT ON SMALL COMMUNITIES

In recent years, small community air service trends have shifted in conjunction with trends in airline management to focus on profitability by cutting unprofitable and redundant flying, and minimizing the number of empty seats. Overall, departures at all U.S. airports declined 14% percent between 2007 and 2012. When the large hub airports are excluded, the decline in annual departures between 2007 and 2012 was over 21%, proving that smaller airports have been hit hard over the last five years. Many of the network carriers no longer possess the aircraft needed to cost-effectively serve smaller airports as they have transitioned routes once served by the mainline carrier over to their regional partners.

In addition, current legislation is also underway to change pilot rules by requiring newly hired pilots to have at least 1,500 hours of training. This may cause a regional jet pilot shortage as pilots are needed to fly larger aircraft and may accelerate the exit of network carriers from some small communities.

Other recent industry trends that have the potential to impact existing service and future air service development opportunities at Clovis Municipal are discussed in the following sections.

A.4.1 Airline Consolidation

Airline consolidation in the last decade, including the recent merger announcement of American Airlines and US Airways, has left four network carriers. It is anticipated that the consolidated airlines will continue to operate based on cost cutting and driven by profit margins. Small community airports will continue to struggle to receive network carrier service. While other small airlines, such as Great Lakes, Pacific Wings, SeaPort, or Silver Airways may move in to replace this service, a community's global connectivity to the transportation network will suffer and enplanements levels may fall.

A.4.2 Changes in Essential Air Service

Due to the soaring costs and fewer people flying from small airports, the sustainability of the Essential Air Service (EAS) program is questionable especially during a time when the federal government is looking to cut costs wherever possible. Since 2001, Congress and the USDOT have worked to streamline the EAS program and make it more efficient, mostly by eliminating subsidy support from communities within a reasonable driving distance from a major hub airport. However, in recent years it has become apparent that more changes to the program are needed.

In addition to the limited number of EAS carriers, subsidy needs are growing due to an aging aircraft fleet that can service small communities and increasing airline labor/pilot costs. The high expense of providing Transportation Security Administration (TSA) screening at small airports has also come under scrutiny.

Recent rule changes by Congress will have a significant effect on program size and market eligibility in the future. These rules are summarized below:

- Limit the per passenger subsidy cap for all cities (2011). Congress blocked subsidies from exceeding $1,000 a passenger in any market.
- Limit the per passenger subsidy cap based on proximity to hub airports (2011). Communities are not eligible for EAS subsidy if they require a rate of subsidy per passenger in excess of $200, unless the community is more than 210 miles driving distance from the nearest medium or large hub.
- Waive requirement on aircraft size (2011). Congress waived the rule that EAS service must be provided on at least 15-seat twin engine aircraft. Communities can no longer veto proposals involving smaller aircraft.
- Bar new entrants to the EAS program (2012). Only cities that were in the EAS program in FY2011 are eligible for future EAS subsidies.
- Airports must average 10 enplanements per day (2013). Unless you are more than 175 miles from a large or medium hub airport, cities must not fall below an average of 10 enplanements per day to be renewed when current contracts are up.

The driving distance from Clovis Municipal to Albuquerque International Sunport (ABQ), the nearest medium or large hub airport, is 233 miles. Both Lubbock International and Amarillo International airports, which are closer to Clovis Municipal, are classified by the FAA as small hub airports. The distance to ABQ exceeds the distance required by the $200 per passenger subsidy cap and 10 enplanements per day limits.

Several markets have lost service for exceeding the per passenger subsidy cap of $1,000. In New Mexico, Alamogordo-White Sand Regional Airport lost its EAS service in February 2012. The airport's passenger subsidy was $1,455 in 2011, exceeding the USDOT limit. In 2012, the estimated Clovis per passenger subsidy was $939. With continued increases in the subsidies and no increase in enplanement levels, the Airport is close to exceeding the U.S. DOT's per passenger subsidy cap.

The continuation of the EAS program will continue to be under scrutiny in the future. The aircraft fleet available to serve EAS markets is aging with almost no new aircraft types to replace it. Any additional rule changes could have the potential to impact air service at Clovis Municipal.

A.4.3 Limited Carriers and Aircraft

Many network carriers are migrating to aircraft with higher capacities in search of lower costs. This has left small communities with few choices in terms of carriers and equipment as mentioned previously. Many network carriers have shown a clear desire to exit the smallest markets, as their planes are too large to make a profit on many of the small airport routes.

As network carriers and their affiliates have exited many EAS markets over the last decade, EAS service shifted to small carriers that operate fleets predominately composed of small Cessna or Beechcraft aircraft with 8-19 seats. There are currently just 11 carriers providing EAS service in the lower 48 states. Table A-4 lists these carriers. Boutique Air, the carrier providing service at Clovis Municipal is the smallest small/non-affiliated airline to provide EAS service. Several carriers have also recently applied for certification from the USDOT to become scheduled carriers, so it appears there may be additional players in the EAS program.

Table A-4: Carriers Providing Service at EAS Subsidized Communities

Carrier	Equipment	No. of EAS markets served	States Currently Serving
Boutique Air	Pilatus PC-12	2	NM
Great Lakes	Beech 1900	36	AZ, CA, CO, IA, KS, MI, MN, ND, NE, SD, UT,WY
Cape Air	Cessna 402	16	IL, KY, ME, MD, MO, NH, NY, VT, PR
Silver Airways	Saab 340/Beech 190	25	AL, MS, MT, NY, PA, WV
SkyWest (UA and DL)	CRJ-200	17	CA, KY, MI, MN, MT, WI, WY
Sea Port	Pilatus PC-12/Cessna Caravan	9	AR, CA, KS, OR, TN
American Eagle	ERJ	6	IA, KS, MO, NE, NY
Pacific Wings/ New Mexico Airlines	Cessna 208	4	HI, NM
Air Choice One	Piper Navajo/Cessna Caravan	3	AR, IA, IL
Sun Air	Piper Navajo	3	MD, PA, TX
PenAir	Saab 340	2	NY, ME

Sources: USDOT, Airline websites

The trend in strong growth of the 37-50 seat regional jet (RJ) in 1990s and early 2000s to replace turboprop aircraft in small markets ended following the spike in jet fuel costs during 2007-2008. At this point in time, it was no longer as economical to fly RJs to provide service to short-haul markets. The cost, coupled with the economic recession and curtailed demand, led to the rapid retirement of small RJs throughout the network. However, it is anticipated that the small RJs will continue to have a presence in network carriers' route structure, albeit to a much lesser extent.

SkyWest, a regional partner of United and Delta, still flies a large number of 50-seat RJs, even deploying some in EAS markets. Table A-5 presents the EAS airports currently with RJ service and their 2011 enplanements. American Eagle offers 44-seat ERJ service in six EAS markets. Both American Eagle and SkyWest have proposed RJ service on several recent EAS routes.

Table A-5: EAS Airports with Regional Jet Service

Airport	State	Carrier	Destination	2011 Enplanements	Weekly Trips
Sioux City	IA	Amer. Eagle	Chicago-O'Hare	28,137	12
Waterloo	IA	Amer. Eagle	Chicago-O'Hare	22,297	12
Garden City	KS	Amer. Eagle	Dallas-Ft. Worth	11,690	14
Watertown	NY	Amer. Eagle	Chicago-O'Hare	4,449	12
Joplin	MO	Amer. Eagle	Dallas-Ft. Worth	53,000	14
Grand Island	NE	Amer. Eagle	Dallas-Ft. Worth	47,167	13
Paducah	KY	SkyWest (UA*)	Chicago-O'Hare	17,978	14
Alpena	MI	SkyWest (DL*)	Detroit/Minneapolis	12,320	14
Escanaba	MI	SkyWest (DL*)	Detroit	13,478	12
Hancock/Houghton	MI	SkyWest (UA*)	Chicago-O'Hare	23,024	14
Iron Mountain	MI	SkyWest (DL*)	Minneapolis	11,324	13
Muskegon	MI	SkyWest (UA*)	Chicago-O'Hare	14,101	14
Sault St. Marie	MI	SkyWest (DL*)	Detroit	18,707	13
Pellston	MI	SkyWest (DL*)	Detroit	22,708	12
Brainerd	MN	SkyWest (DL*)	Minneapolis	17,574	12
Chisholm/Hibbing	MN	SkyWest (DL*)	Minneapolis	12,272	12
International Falls	MN	SkyWest (DL*)	Minneapolis	15,157	12
Butte	MT	SkyWest (DL*)	Salt Lake City	24,806	14
Cedar City	UT	SkyWest (DL*)	Salt Lake City	8,690	12
Eau Claire	WI	SkyWest (UA*)	Chicago-O'Hare	19,067	14
Rhinelander	WI	SkyWest (DL*)	Minneapolis	26,764	14
Cody	WY	SkyWest (DL*/UA*)	Salt Lake City/ Denver	28,019	16

Source: USDOT

There are several airlines (Part 135 and Part 121) that operate scheduled public charter flights out of general aviation airports throughout the U.S. that offer an alternative to commercial service offered at larger airports. For example, Ultimate Air Shuttle operates daily flights on 30-seat Fairchild Dornier 328 jets from Cincinnati Lunken Airport to Chicago, New York, and Charlotte. Another carrier, CFM, offers daily flights on 12-seat Jetstream-32 aircraft between Manistee, Michigan and Chicago-Midway. If an airport can prove a gap in point-to-point service this may be option; however, it does not provide real access to the larger global transportation network. A small Part 135 airline, which operates aircraft with less than 10 seats, may not be ideal for Clovis. The weight limits associated with small aircraft would impede the air travel associated with Cannon Air Force Base, the largest source of air travel demand in the market area.

A.4.4 Lifting the Wright Amendment

The Wright Amendment is an amendment to the International Air Transportation Act of 1979, which restricts commercial service from Dallas Love Field. Operations from Love Field with aircraft seating more than 56 passengers are restricted to destinations in Texas and the four neighboring states (Louisiana, Arkansas, Oklahoma, and New Mexico). The repeal of the amendment will go into effect in October 2014. While it does not appear to present an immediate opportunity for air service improvements at Clovis Municipal, an opportunity may appear as carriers add more service at Love Field and additional connecting opportunities arise over the next several years. If Love Field gets additional service to Clovis' top destinations, the community could possibly work with a network or non-network carrier to access the connections at Love Field.

A.5 POTENTIAL FOR AIR SERVICE AND FACILITY IMPROVEMENTS

In the future, the airlines' individual route profitability will continue to decide which airports are served and which are not. Financial incentives may attract service for several months or years, but only economically viable routes will survive. Airlines have shown less patience for achieving route success at small community airports over the last several years; many case studies exist of an airline cutting all flights to a newly served airport after less than one year of trial service due to profitability. Accurately judging the correct-sized airplane to service routes involving small communities will be critical to ensuring continued profitable commercial air transportation for markets such as Clovis Municipal.

In order to understand the true demand for air service associated with of the Clovis Municipal Air Service Market Area, a detailed survey effort and data analysis should be developed. The analysis being conducted in this study is a cursory look at the potential for air service improvements; however, before the community can pursue air service development, a full air service study should be completed. An air service study can provide a detailed demand analysis and pointed air service development opportunities for the community.

A.5.1 Comparable Markets Review

In order to get a better understanding of the type of service improvements Clovis Municipal may be able to support, it is worth looking at the level of commercial air service provided at other similar-sized communities across the U.S. Table A-6 presents a list of comparable markets in terms of MSA population size to Clovis Municipal's market area size. In additional to local community variables, the analysis also provides the distance to each airport's closest competing hub airport. There is a mix of EAS and non-EAS airports included in the analysis.

Passengers continue to be sensitive to fares, as well as, convenient and reliable flying experiences. Small communities throughout the U.S. lose passengers to larger competing airports. No two cities match with regard to all of the factors and

each of the factors impacts small communities to varying degrees. Each of these factors, as well as many others, impact the level of service at an airport and the amount of leakage occurring. The following comparative variables (and sources) were used to compare markets.

- Nearest larger airport (Google Earth)
- Driving distance to the nearest larger airport (Google Earth)
- 2011 MSA/City Population (U.S. Census Bureau)
- 2011 County Population (U.S. Census Bureau)
- 2011 County Households (U.S. Census Bureau)
- 2010 Private Nonfarm County Employment (U.S. Census Bureau)
- Median County Household Income (U.S. Census Bureau)
- 2011 Enplanements (FAA CY 2011 ACAIS)
- Number of nonstop destinations (*Official Airline Guide*, May 2013)
- 2013 Average daily departures (*Official Airline Guide*, May 2013)
- Number of carriers (*Official Airline Guide*, May 2013)
- Enplanements per MSA population (calculated enplanements divided by MSA population)

Table A-6: Comparative Market Analysis

Airport Name	State	Nearest Large Airport	Distance to Large Airport	2011 MSA or City Population	2011 County Population	2011 County Households	2010 Private Nonfarm Employment	Median Household Income (County)	2011 Enplanements	No. of Nonstop Destinations	2013 Avg. Daily Departures	No. of Carriers	Enplanements/ MSA Population
Beckley*	WV	CRW	80	124,890	79,021	31,211	29,046	$38,596	2,966	2	1.7	1	0.02
Brunswick	GA	JAX	81	113,448	81,022	30,980	29,675	$49,828	31,655	1	2.9	1	0.28
Twin Falls	ID	BOI	127	101,094	78,595	27,940	26,792	$43,146	38,533	1	2.9	1	0.38
Clarksburg*	WV	PIT	107	94,428	69,141	27,696	26,931	$40,556	12,012	2	2.6	1	0.13
Brainerd*	MN	MSP	147	91,239	62,882	26,906	24,734	$45,853	17,574	2	2.5	1	0.19
Pullman	WA	GEG	78	84,790	46,606	16,187	9,031	$35,409	39,134	2	3.6	1	0.46
Pocatello	ID	SLC	168	83,800	83,800	30,045	24,888	$45,347	21,566	1	2.7	1	0.26
Grand Island*	NE	OMA	153	83,472	60,345	21,975	29,821	$47,469	47,167	3	2.4	2	0.57
DuBois*	PA	PIT	113	81,184	81,184	32,715	25,512	$39,391	5,986	2	3.7	1	0.07
Port Angeles	WA	SEA	132	71,863	71,863	31,056	17,603	$46,212	8,242	1	3.0	1	0.11
Clovis*	**NM**	**LBB**	**101**	**70,357**	**49,938**	**17,498**	**12,793**	**$40,397**	**2,224**	**2**	**1.7**	**1**	**0.03**
Hobbs	NM	MID	88	66,338	66,338	21,238	19,941	$46,781	7,346	1	1.6	1	0.11
Alamogordo	NM	ABQ	208	66,041	66,041	24,375	12,210	$38,588	390	0	0.0	0	0.01
Klamath Falls	OR	MFR	79	65,912	65,912	27,378	16,436	$41,787	15,856	2	2.0	1	0.24
Roswell	NM	LBB	181	65,784	65,784	23,740	16,761	$37,293	37,262	1	2.9	1	0.57
Walla Walla	WA	GEG	181	63,399	59,404	21,645	19,368	$46,793	32,139	1	1.8	1	0.51
Salina*	KS	ICT	94	62,060	55,988	22,239	26,897	$50,594	2,857	1	2.6	1	0.05
Lewiston	ID	GEG	119	61,419	39,531	16,166	16,374	$44,540	62,845	4	4.6	2	1.02
Rutland*	VT	ALB	99	60,869	60,869	26,108	24,408	$48,190	5,997	1	3.0	1	0.10
Columbus	MS	BRM	122	59,670	59,670	23,243	20,914	$37,626	35,860	1	2.7	1	0.60
Kearney*	NE	OMA	189	53,948	47,463	17,340	20,975	$49,851	11,019	1	3.0	1	0.20
Ft. Leonard Wood*	MO	STL	140	53,259	53,259	15,708	8,581	$46,919	6,978	1	3.5	1	0.13
Elko	NV	SLC	228	53,217	51,216	17,244	18,190	$69,459	23,543	1	2.7	1	0.44
Mason City*	IA	MSP	128	51,307	43,788	20,103	21,781	$45,973	11,594	1	3.7	1	0.23
Del Rio	TX	SAT	158	48,705	48,705	14,909	10,184	$38,747	8,438	0	0.0	0	0.17
Gillette	WY	BIL	233	47,874	47,874	16,472	22,548	$78,356	32,846	3	4.0	2	0.69
Burlington*	IA	MLI	72	47,383	40,340	17,007	19,000	$43,111	7,020	2	3.6	1	0.15
Cedar City*	UT	LAS	180	46,750	46,750	15,313	11,155	$42,226	8,690	1	1.7	1	0.19
Harrison*	AR	LIT	139	45,413	37,327	14,596	12,312	$37,703	2,771	2	1.5	1	0.06
Scottsbluff*	NE	DEN	217	42,420	36,964	14,992	12,442	$40,939	9,912	1	3.6	1	0.23
Aberdeen	SD	MSP	281	41,357	37,331	15,201	17,819	$47,327	24,503	1	2.0	1	0.59
Average of All Markets			143	67,861	57,902	21,911	19,520	$45,323	18,540	1	2.6	1	0.28

Sources: Google Earth, US Census Bureau, Official Airline Guide, FAA ACAIS Database
*Airport enrolled in the Essential Air Service program

By comparing the study market area to similar markets across the United States, the type and quality of air service that might be obtainable at Clovis Municipal can be analyzed.

- The average distance between comparable market and the nearest larger airport was 143 miles, 42 miles further than the Clovis Municipal's proximity to Lubbock, TX. This proximity will make it difficult to gain improved air service at Clovis Municipal Airport.
- The average MSA/City population for the similar-sized airports was nearly 68,000 and the average county population size was nearly 58,000.
- Annual enplanements varied from 390 at Alamogordo, NM to 62,800 at Lewiston, ID. The average enplanements at comparably sized markets in 2011 were 18,500, much higher than the 2,033 enplanements at Clovis Municipal in 2013.

As shown in Table A-6, the level of service and enplanements at each market varies due to a variety of reasons including distance to nearby hubs, airfares, and local demand for air travel. Many airports, like Clovis Municipal, are subsidized as part of the EAS program, and have limited levels of service as outlined by EAS orders. Due to the remoteness of some airports, their market area may be much greater than the MSA.

If you apply the average enplanements per capita of 0.28 to Clovis Municipal's MSA population, nearly 20,000 annual enplanements could be estimated for Clovis Municipal. That number may be lower, due to the agricultural nature of the Clovis Municipal Air Service Market Area, which limits the propensity for air travel.

A.5.2 Parking Lot Survey

A basic parking lot survey of the garages and surface lots at both LBB and AMA was completed in this analysis in February 2013. The survey tallied the parked vehicles by state. This data can provide insight into the amount of leakage from the Clovis Municipal market area that could be occurring. The results were:

- Amarillo - 709 total cars counted; 3.0% from New Mexico
- Lubbock - 393 total cars counted; 7.4% from New Mexico
- Total - 1,102 car counted; 4.5% from New Mexico

It is assumed a small percentage of additional vehicles with "Other" state plates could likely be from the Clovis Municipal Airport as many military personnel have cars with license plates from other states. It also can be assumed that some may have come from New Mexico locations outside of the market area. Also, there are quite a few local passengers that are dropped off at the airport and do not park a vehicle. If it is assumed that about 3.5% to 4% of the departing resident enplanements (not including visitor enplanements) can be associated with the Clovis Municipal Airport market area, that equates to 17,000 to 19,000 passengers per year utilizing Amarillo and Lubbock airports.

A.5.3 Recent Community Air Service Stories

To provide some perspective on the ability of Clovis Municipal to obtain improved air service, this section highlights recent air service successes and losses at several small communities throughout the US.

- Garden City Regional Airport, KS
  - Airport helped secure American Eagle's EAS bid for service to Dallas/Ft. Worth even though it was significantly higher ($3.3 million) than three other bids, including the incumbent, Great Lakes, which was $2.3 million. Service began in April 2012.
  - In July 2011, the airport was awarded $250,000 from the Kansas Affordable Airfare Program (KAAP) and is continuously looking for additional ways to offset the subsidy difference.
  - Dodge City, located 52 miles to the east of Garden City, is proposing foregoing its EAS service in order to put the money towards the Garden City EAS subsidy.
  - In addition, the airport spent an estimated $200,000 in start-up costs to handle the larger aircraft and passenger loads including new airplane stairs, parking space, and new ticket counters and baggage areas.
  - Enplanements were 18,000 in 2012, up 54% from 2011.
  - According to the airport manager, the goal is for American Airlines to be completely self-sufficient, with no need for subsidy by 2016.

- Lea County Regional Airport, NM
  - United ExpressJet (formerly Continental Express) has operated 12 weekly flights to Houston Intercontinental Airport (IAH) under a local revenue guarantee since 2010. The first year revenue guarantee was partially funded as part of Small Community Air Service Development (SCASD) grant.
  - The local business community, largely dependent on the oil and gas industry, demanded better service than the EAS program could provide. The community worked closely with Continental to secure service to Houston and upgraded its terminal in 2011 to meet the needs and security requirements of the 50-seat CRJ aircraft.
  - The airport removed itself from EAS program in June 2009.
  - When United began service, the FlyHobbs marketing and awareness campaign was initiated. This initiative was started by Lea County, the City of Hobbs, and the Economic Development Corporation of Lea County to bring commercial air service to the region through community activities, advertising campaigns, and public awareness activities. Approximately $150,000 from local lodging taxes is spent each year on the FlyHobbs campaign.
  - Enplanements at Lea County Regional Airport have increased from 944 in 2009 to 17,100 in 2012. The airport is looking at a terminal and runway expansion to accommodate the growth.

- Joplin Regional Airport, MO

  - American Eagle was chosen as the EAS carrier in 2011 to replace Great Lakes, who enplaned 4,078 passengers at the airport in 2010.
  - American Eagle provided 14 flights per week from Joplin to Dallas/Ft. Worth with an annual subsidy of $2.8 million per year. In 2012, the airport's annual enplanements reached 27,400, with an 85% load factor.
  - In January 2013, American Eagle's EAS contract was renewed. American Eagle upgraded equipment from 44-seat to 50-seat RJs and the subsidy dropped to just $342,000 per year.
  - The airport is in talks with American Eagle to add an unsubsidized flight to another hub, possibly Chicago.

- Del Rio International Airport, TX

  - United ExpressJet had served the airport on behalf of United Airlines with 37-seat Embraer ERJ-145 regional jet aircraft with nonstop service to Houston Intercontinental Airport (IAH) before discontinuing the route in April of 2013 due to low ridership and retiring of the aircraft. The airport had 8,400 enplanements in 2011 and 11,500 in 2012.
  - The City provided a one-year subsidy to the Continental Airlines partner Colgan Air in 2005 to offset the start-up and operating costs of the airline. When Colgan Air and parent company, Pinnacle Airlines, filed for bankruptcy, United's ExpressJet stepped in to provide upgraded jet service in June 2012. However, the load factors were not strong enough to sustain the service and ExpressJet pulled out in April 2013.
  - The City has hired a consultant and is investigating options for new, viable service, including the development of a $600,000 Small Community Air Service (SCASD) Program grant proposal for new service provided by American Eagle to Dallas/Ft. Worth.

A.5.4 SWOT Analysis for the Clovis Municipal Market Area to Support Improved Service

A thorough understanding of Clovis Municipal Airport's strengths and weaknesses related to air service development will provide the community with an understanding of where opportunities may lie and what the obstacles or threats will be for improving air service. There are many additional items that are not included here that would be identified through an in-depth air service study. The weaknesses are many; not only for Clovis Municipal but for all small communities. However, opportunities for improvement may still exist and the community should explore all possibilities.

- Strengths

  - Convenience: Size, free airport parking, and ease of use are the biggest selling points for utilizing the Airport.
  - Local demand: Cannon Air Force Base provides a source of air service demand. The base processes 2,500-3,000 business related trips per year, amounting to an estimated annual air fare budget of about $3.8 million. This does not include leisure travel base employees or their families may take. Other businesses with air travel demand in the market area include Eastern New Mexico University in Portales, the Tres Amigas Electrical "superstation", and Southwest Cheese Company.
  - Part of EAS Program: The airport is guaranteed commercial air service through the EAS program.

- Weaknesses

  - Existing service not meeting needs of community: The service provided by Great Lakes did not meet the needs of military and local businesses. Cannon AFB noted access is needed to a regional hub such as Dallas/Ft. Worth and current one-stop routing to Denver, is not appealing. In addition, Great Lakes often could not accommodate the number of military personnel and/or their baggage/gear is too heavy to be accommodated. The same seems to be true with respect to Boutique Air.
  - Limited local demand: Market area too small to support more than one carrier, low cost carriers, and larger aircraft. In addition, population projections show a decline in the near-term.
  - No TSA security screening: Passengers must now be screened at their stop at DFW, if continuing on another carrier. When at CVN, Great Lakes indicated that the lack of TSA at the Airport has hampered route development and that it would hamper future air service initiatives. Cannon AFB supports the effort to bring TSA security screening to Clovis Municipal.
  - Terminal size: Terminal facilities cannot support larger aircraft and increased passenger levels. Additionally, the existing terminal will likely not be able to meet TSA long-term space requirements.
  - Parking lot condition: The existing parking lot is small and in poor condition. The parking lot would need to be improved to accommodate more passengers.
  - Airline industry dynamics: There are a limited number of airlines to serve small communities and limited aircraft types available.
  - Cost: It is expensive to fly RJs to small communities, compared to turboprop aircraft.
  - Community funding: The local air service marketing budget and funds for air service development are limited.

- Threats
    - No control: Improved air service is at mercy of airlines. Airlines must assume some risk in an unproven market like Clovis.
    - Fuel prices: High fuel prices and the airline economics associated with small communities will continue to hamper the ability to attract new service.
    - American/US Airways merger: The merger may make it difficult to pursue service in the near term.
    - Local travel habits: It is difficult to change existing travel patterns of market area passengers. Will take a large marketing effort to get the support needed to make local air service a success.
    - Lack of TSA security screening: This may deter carriers from serving Airport.
    - Changes in the EAS program: This has the potential to impact existing and future service.

- Opportunities
    - Reliable air service with appropriate equipment and 2-3 flight per day has never been available at Clovis Municipal, which is the key to military and business usage.
    - Community needs the data to prove to an airline that a strong business market exists in the Clovis market area.
    - Cannon AFB may be willing to sign a contract to support improved air service.
    - Regional jets are increasingly serving smaller communities over the last three years. American Eagle has started 44-seat ERJ service to several small EAS communities to both Chicago-O'Hare and Dallas/Ft. Worth. One community, Joplin, MO, may even get off the EAS subsidy based on service improvements.
    - Strong commitment (financial and time) needed by all community members, especially Curry County, Cities of Clovis and Portales, Clovis IDC, Cannon AFB, and local businesses.

A.5.5 Terminal Building to Support Larger Aircraft at Clovis Municipal Airport

It has been noted in the Airport Master Plan that the existing terminal and parking lot at Clovis Municipal are not sufficient to support an increase in air service levels. Modifications to the existing terminal may be sufficient in the near term, however, if improved levels of air service were pursued, improved facilities would be necessary. As a guide for development, Table A-7 presents the terminal space requirements for commercial air service based on FAA guideline for 20,000 annual enplanements. A terminal building designed to accommodate 20,000 annual enplanements is consistent with similar airports with RJ service and communities the size of Clovis.

Table A-7: Terminal Building Facility Requirements

Requirements for 20,000 Annual Enplanements			
	Enplanements	Deplanements	Total
Peak hour passengers	34	34	68

Airline Space (sq.ft)		Public Space (sq. ft.)	
Airline ticket counter(LF)	12	Lobby/waiting area	750
Airline offices& outbound baggage	1,400	Public circulation	3,000
Ticket counter queuing area	200	Restrooms	600
Passenger hold area	750	Public meeting rooms	800
Baggage claim conveyor (LF)	22	Subtotal public space	5,150
Baggage claim area	600		
Subtotal airline space	2,950		

Concessions (sq. ft.)		Support Space (sq. ft.)	
Rental car counter (LF)	12	Airport admin offices	1,000
Rental car offices	240	TSA offices	1,000
Rental car queuing area	60	Security screening	200
Restaurant	1,000	Maintenance	2,200
News, gift, other	350	Storage	750
Subtotal concessions	1,650	Subtotal support	5,150

TOTAL GROSS SQUARE FEET			14,900
		Public parking spaces	50
Aircraft gates	1	Employee parking spaces	25
Aircraft apron (SY)	5,000	Rental car parking spaces	15
		Total parking spaces	90

Sources: FAA, Advisory Circular 150/5360-9, Planning and Design of Airport Terminal Building Facilities at Nonhub Airports.
Notes: LF=linear feet, SY=Square yard

A.6 SUMMARY

The existing air service offered at Clovis Municipal is capturing a very small portion of the demand associated with Clovis Municipal Airport Air Service Market Area. The realities of the airline industry, coupled with the size of the market area and existing travel patterns of local air travelers, limit opportunities for improvements to air service at Clovis. Other small communities in the U.S. have had recent successes in improving air service, but this success has come by way of significant effort by the local community.

The following next steps should be considered by the Clovis Municipal Airport in its future air service development efforts:

- Undertake an Air Service Market Analysis and Air Service Development Study. This study will educate airline planners on the community issues including passenger diversion, top markets, true market size, and business activity. A business travel survey should be developed to truly understand this important segment of travel.
- Consider the development of improved airport terminal/gate facilities to accommodate potential growth. This includes continued efforts to get TSA security screening located at Clovis Municipal.
- Organize a local air service development group to show a united front for air service development and develop unique ways to raise funds needed for improved service. Include representatives from City of Clovis, City of Portales, Curry County, Roosevelt County, local and regional economic development groups, as well as Cannon Air Force Base, Eastern New Mexico University, and market area businesses.
- Consider airline incentives to bridge the gap between the needs of the airlines and the needs of the community. Incentives could be financial and/or marketing, or services and airport facilities.

In order to improve the commercial air service at Clovis Municipal Airport, the community must take initiative and be prepared to face significant competition for air service. Small communities like Clovis are considered high risk for airlines, and, in most cases, airlines require communities to provide an airline incentive package for air service improvements. There are a few resources for additional funding assistance, like the Small Community Air Service Development (SCASD) grant program, but the community must be prepared for a large time and financial commitment in order to truly improve their air service situation. It can be an arduous process, but if successful, it can result in enhanced air service and, more importantly, a stronger economic base for the community.

Appendix B:

AIR CARGO ANALYSIS

B.1 INTRODUCTION

In order to evaluate the potential for improved air cargo services at Clovis Municipal Airport (CVN), several assessments must be made, including identifying typical air cargo attributes, identifying national and regional air cargo trends, and identifying the CVN market area and competing airports.

B.2 AIR CARGO INDUSTRY OVERVIEW

This section provides information on air cargo demand, aircraft commonly used to transport cargo, and domestic air cargo trends.

B.2.1 Demand for Air Cargo Services

Air cargo demand is generated when there is a need for expeditious transportation of material and goods between two points. In the business world, logistics managers must justify the use of air cargo as their preferred mode of transport, as shipping by air is a greater cost than shipping via truck, rail, and water. Factors involved in deciding to transport via air include:

- Cost of transporting the material
- Level of service commitment to the customer or end user
- Value of the material
- Time-sensitivity of the material

Products that benefit from increased speed of distribution or better stock availability provided by air cargo shipping include those that are high value, relatively light weight, and time critical, including:

- Aerospace/Automotive - Equipment & Parts
- Energy Development
- Pharmaceuticals
- Computers & Computer Components
- Medical Diagnostic Equipment and Specimens
- Medical/Surgical Devices and Equipment
- Textiles - Garments
- Consumer Electronics
- Perishables - Flowers, Fruit, Vegetables & Seafood
- Economically Perishable Materials - Printed Material
- Telecommunications Equipment - Cell Phones, Blackberries, etc.
- Photographic Film

B.2.2 Air Cargo Service Options

There are four primary distribution channels for air freight: all cargo carriers, integrated express operators, commercial airlines, and freight forwarders. Regional air cargo carriers represent a fifth type; however, they typically fall under the umbrella of integrated express carriers since they are often contracted feeders for the larger integrator networks. A brief description of each follows.

All Cargo Carriers

All cargo carriers operate airport-to-airport air cargo and freight services for their customers but do not offer passenger service. All cargo carriers include Polar Air Cargo, Evergreen, Atlas Air, CargoLux, and Kalitta Air Cargo, to name a few. All-cargo carriers offer scheduled service to major markets throughout the world using wide-body cargo aircraft.

Integrated Express Carriers

Integrated express operators move the customer's goods door-to-door, providing shipment collection, transport via aircraft and truck, and delivery as well as provide customs clearance for international shipments. Integrated express operators include FedEx Express[1], UPS, and DHL (DHL's U.S. domestic pickup and delivery service was discontinued in January 2009). Express companies provide next-day and deferred time-definite delivery of documents and small packages (two to 70 pounds).

Regional Air Cargo Carriers

Regional air cargo carriers operate between Origin & Destination/local market stations and smaller or more remote cargo markets, typically in support of a larger integrated express cargo operator such as FedEx, UPS, or DHL. South Aero and Mountain Air Cargo are examples of contracted 'feeder' airlines to both UPS and FedEx. Feeder flights often transport cargo from a smaller market and feed cargo to an awaiting cargo jet bound for the carrier's hub. Feeder aircraft may also fly directly to a hub. Ameriflight is a regional cargo carrier not affiliated with any larger airline, providing custom and time-critical charter flights moving air freight from point-to-point.

Passenger Airlines

Air cargo services provided by passenger airlines vary in scope and size from airline to airline, based on the type of aircraft operating within their fleet. A regional airline, with a fleet of turboprop and regional jets, cannot accommodate bulky cargo due to limited cargo capacity in baggage compartments. Airlines

[1] FedEx has several product types that utilize the FedEx brand name in some form. FedEx Express is the integrated express arm of the company, providing the "overnight service" synonymous with the brand. FedEx Freight is a trucking division which specializes in freight weighing over 150 pounds and offers fast-cycle logistics with regional next- and second-day service, including accelerated service in 3 days or more.

operating wide-body passenger aircraft often have mechanized lower decks that can handle structured unit load devices and thus larger shipments. Passenger airlines generally provide airport-to-airport service, with freight and mail carried as "belly" cargo. Freight on passenger airlines is dropped off at a warehouse or ticket counter at the origination airport by the shipper (or freight forwarder); the freight is then picked up at the destination airport by the customer (or freight forwarder) after arriving on the passenger airline.

Road Feeder Service/Freight Forwarders

Road feeder service (RFS) is a service offered by a scheduled cargo operator to move goods to and from the aircraft and/or terminal by truck road service. This allows a carrier to offer services to a city to which it does not fly aircraft. These services are typically allocated an airline flight number although no aircraft may be involved in the transport. A freight forwarder is an intermediary that arranges the best means of transport for goods, typically by accepting small packages from shippers and consolidating them into container loads. These loads are then transferred to the non-integrated carrier or passenger airline to deliver to an agent or subsidiary at the destination airport.

B.2.3 U.S. Airport Infrastructure Facilitating Air Cargo Demand

There are relatively few airports in the world that are considered strictly "air cargo airports". Nearly all airports that support the air cargo industry are either passenger airports with extensive cargo activity or "industrial" airports where cargo is one of many aviation activities taking place. Commercial, general aviation and industrial airports can each experience various levels of air cargo activity.

O&D/Local Market Station

The criteria for a local market station, or direct air cargo service (origin and destination [O&D] service to an airport's surrounding market area) generally coincides with population centers where there is a concentration of industry, commerce, and transportation infrastructure. Often referred to as a "node" within a cargo carrier's network, the local market station is the simplest and most common type of air cargo facility. These airports represent the "spoke" in a hub-and-spoke air carrier network. For airport-to-airport service providers, the local market station represents the origin or destination point for the cargo they are transporting.

The sole function of a direct air cargo service facility is to collect customer's outbound air cargo and distribute customer's inbound air cargo to the airport's surrounding market area. In order to make direct air cargo service economically feasible, the airport's surrounding market area, or "catchment area," must generate enough inbound and outbound cargo and revenue to offset the carrier's aircraft operational costs. If the carrier cannot meet the aircraft operational costs, the cargo is trucked to the hub or another local market station where it is loaded onto an aircraft.

B.2.4 Typical Aircraft Facilitating Air Cargo Demand

Integrated express carriers, such as FedEx and UPS, as well as all-cargo carrier companies rely heavily on jet aircraft to transport air cargo around the nation and world. These aircraft are comprised of wide-body and narrow-body aircraft and are typically passenger aircraft that were converted for air cargo use. Wide-body aircraft are typically passenger aircraft formerly configured with two passenger aisles while narrow-body aircraft contained a single passenger aisle. Wide-body freighters accommodate containerized and palletized freight on upper and lower (belly) decks and typically operate at airports in major metropolitan areas. They are used on both short domestic and long transoceanic international routes and require long runways for takeoff and landing. Narrow-body freighters accommodate containerized and palletized freight on upper decks only and are used primarily on domestic routes throughout the United States, Canada, Mexico and the Caribbean and service smaller metropolitan areas and also require long runways for takeoff and landing. Figure B-1 identifies sample wide-body and narrow-body cargo planes.

Figure B-1: Jet Aircraft Used for Air Cargo
Sample Wide-body Freighters

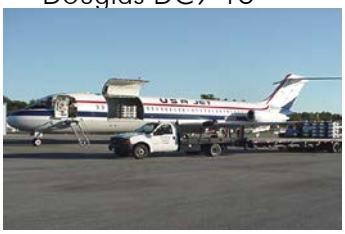
Boeing B747

Boeing 777 Freighter

Boeing 747-8

Sample Narrow-body Freighters

Douglas DC9-15



Boeing 757-200

Boeing B727-100

Integrated express carriers, such as FedEx, DHL, and UPS, also rely heavily on feeder aircraft to support transporting cargo to and from small to medium sized markets to cargo jets at other airports bound for cargo hubs. These aircraft are comprised of piston and turboprop aircraft. Common cargo feeder aircraft are identified in Figure B-2. These aircraft are often owned and operated by small airlines or charter companies and are contracted with large integrated express carriers such as FedEx or UPS. The U.S. Federal Reserve also contracts with small cargo airlines or charter companies to transport bank checks and other finance related paperwork and materials.

Figure B-2: Sample Regional Air Cargo Feeder Aircraft

Cessna Caravan | Fairchild Metro III | Shorts SH360

B.3 AIR CARGO INDUSTRY TRENDS

This discussion provides insight into air cargo trends and the air cargo industry in the United States. This discussion is useful to set a context for future air cargo potential for the Clovis Municipal Airport market area. This overview also provides a brief description of the type of services carriers and airports utilize. Air cargo trends related to airports in proximity to the Clovis Municipal Airport are presented in a subsequent section.

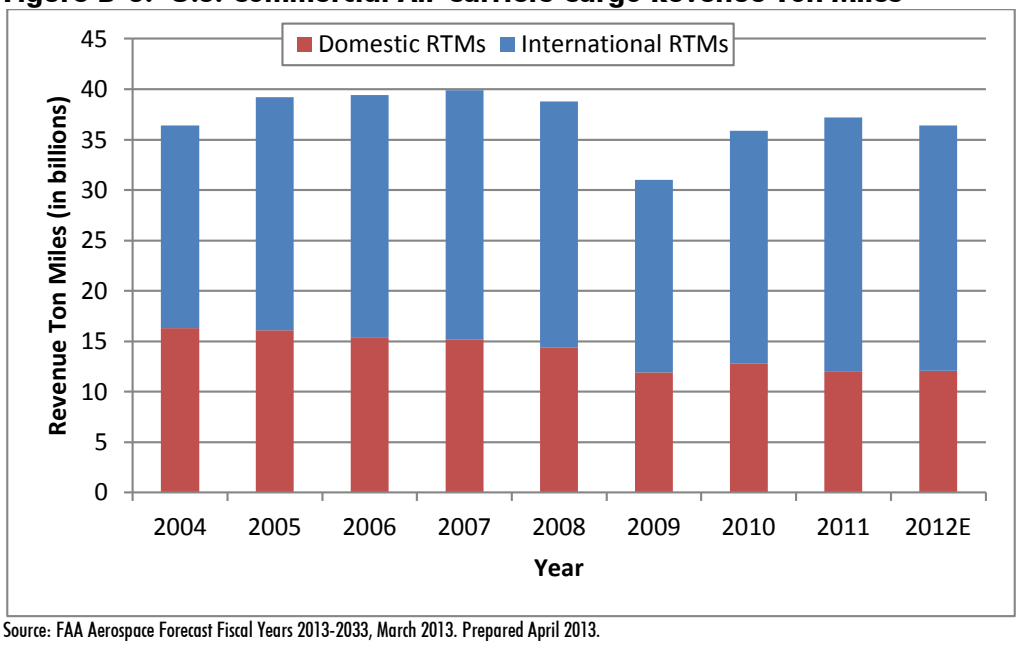
B.3.1 U.S. Air Cargo Trends

Over the past two decades, air freight has been the fastest growing segment of the U.S. cargo industry according to a report by the U.S. Department of Transportation's Bureau of Transportation Statistics. Air freight has grown rapidly as U.S. businesses sought timely delivery of valuable goods. This growth has also created greater demand for truck and inter-modal services, since most air shipments begin and end their journeys by truck.

The *FAA Aerospace Forecasts Fiscal Years 2013 to 2033* provides insight into recent U.S. trends in the air cargo sector of aviation. Growth in the U.S. cargo market continues, but not nearly at the rates seen in the last two decades. This slower growth is a result of a maturing U.S. market. Figures B-3 and B-4 show the degree to which growth in the U.S. air cargo market has slowed since 2004. Air cargo traffic fell precipitously in the U.S. in 2009 as a result of the global recession, declining nearly three times as much as the industry experienced in 2001 as a result of the 9/11 attacks.

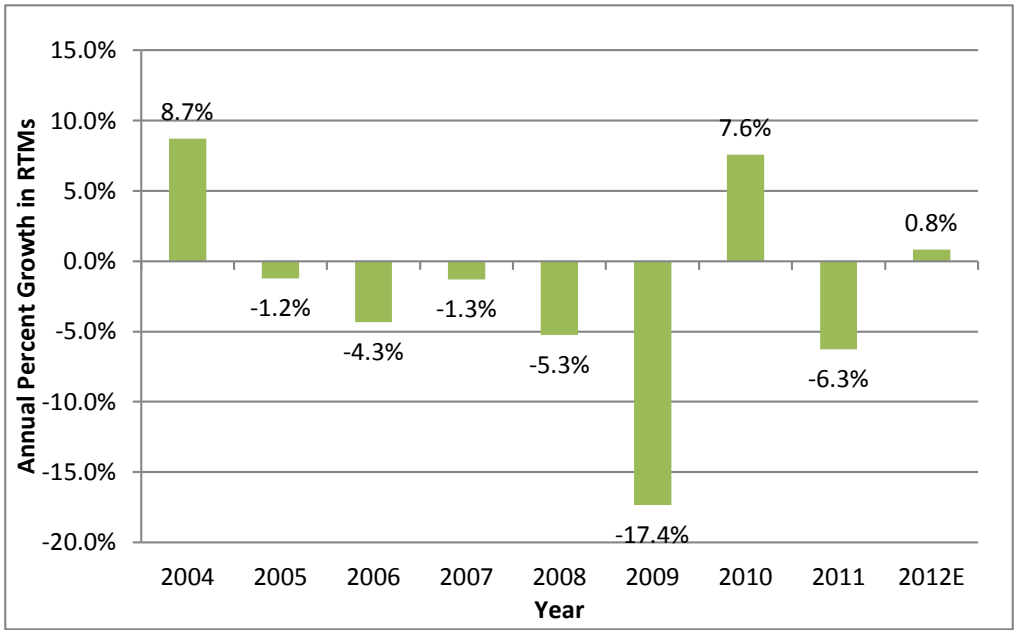
The quantity of air cargo shipped, measured in revenue ton miles (RTM), fell by 2.4 percent from 2011 to 2012, resulting in 36.4 billion RTMs. Domestically, RTMs remained virtually unchanged at 12.1 billion (a 0.1 percent increase from 2011), while international RTMs declined by 3.6 percent to 24.3 billion RTMs, an indication that yet another segment of aviation is struggling to recover from the recession.

Figure B-3: U.S. Commercial Air Carriers Cargo Revenue Ton Miles



Source: FAA Aerospace Forecast Fiscal Years 2013-2033, March 2013. Prepared April 2013.

Figure B-4: U.S. Air Cargo Carrier Demand Changes, 2004-2012



Source: FAA Aerospace Forecast Fiscal Years 2013-2033, March 2013. Prepared April 2013.

High fuel prices have slowed demand for air cargo somewhat and negatively impacted cargo carriers just as it has for passenger airlines. In addition, other factors in the U.S. air cargo industry have resulted in a more mature market that is not expected to produce high growth rates.

In addition to the economic considerations just presented facing the air cargo industry, other factors in the U.S. air cargo industry have resulted in a more mature market that is not expected to sustain the high growth rates seen in previous years. Four primary factors contributing to industry maturity are discussed below.

Vertical Integration

As the air cargo industry has matured, the rapid growth experienced in the 1980s and 1990s has moderated and the industry has shifted from opening new markets to optimizing existing ones. Many companies are looking at vertical integration for opportunities. UPS started as a trucking company and expanded into air cargo, while FedEx began as an integrated express company that is now expanding into trucking through the acquisition of several companies, including RPS and American Freightways. In response to the needs of supply-chain managers, many suppliers of overnight package delivery now offer time-definite cargo services in the form of two- or three-day delivery.

Modal Shift

Air cargo is facing greater competition from trucks, as the cargo industry shifts focus from integrated express to time-definite service and more emphasis is placed on cost-saving measures. This is especially relevant on longer routes where trucks are supplanting the aircraft that traditionally moved cargo. This modal shift is particularly pronounced within the integrated express carrier community. Less-than-truckload (LTL) companies have become major competitors to air freight. These companies enjoy a significant cost advantage over air cargo carriers because of lower capital costs for equipment and lower wage scales. To compete effectively in this segment, FedEx Express has formed its own LTL subsidiary, FedEx LTL. Other larger LTL companies competing for time-definite shipments include ABF Freight System, Inc, Yellow Freight System, and Con-Way. The United States Postal Service (USPS) has also increased the use of trucks to transport mail, finding that mail can be transported by truck for significantly less than by air transportation.

Declining Availability of Belly Space on Domestic Carriers

While 50 percent of international air cargo is transported on passenger aircraft, only a small percentage of air cargo is carried on domestic passenger aircraft in the U.S. This is because fewer wide-body aircraft are in use on domestic routes in North America. The increased use of regional jets offers limited cargo capacity. Higher load factors, which mean more passenger baggage, further reduce belly cargo capacity. In August 2010, new security rules went into effect requiring 100 percent screening of all cargo transported on U.S. domestic passenger aircraft, creating an additional obstacle for providers of air cargo belly space.

Decrease in USPS Mail Volume

The USPS has scaled back the amount of mail it moves by air for a number of reasons. Reduced capacity offered by regional jets has resulted in the USPS relying more heavily on trucks than aircraft. Historically, mail traveling more than 500 miles made use of aircraft, but with the proliferation of regional jets reducing air cargo capacity, the threshold for the use of trucking for mail has shifted to up to 800 miles. In the past, USPS formed several business alliances and capacity agreements with multiple all-cargo carriers, blurring the distinction between postal and private delivery. However, in August 2001, FedEx Express and the USPS initiated an exclusive strategic alliance. Through a business agreement, the USPS allows FedEx Express to locate FedEx overnight service collection boxes at post offices nationwide. FedEx Express, in return, provides space on FedEx Express airplanes for the transportation of Express Mail, Priority Mail, First-Class Mail, and some International Mail. This agreement yielded approximately 3.5 million pounds of mail each day for FedEx Express, enough to fill 30 DC-10-30 freighters. In addition, increased use of email and overnight delivery services like DHL has decreased the amount of mail carried on passenger aircraft by the USPS.

B.3.2 Summary

The U.S. air cargo industry is considered a mature industry, and it is not expected to sustain the high growth rates seen during the 1990s. As a result of the global economic recession, global air cargo capacity is being reduced particularly in smaller markets. High fuel prices continue to hinder efforts to shrink the industry's operating costs as airlines struggle to keep pace with the contraction in cargo revenues. With a large modal shift to trucking on longer routes, a declining availability of belly space on passenger airlines, and a decreasing volume of USPS mail, it is clear that the market for air cargo is changing.

B.4 MARKET AREA IDENTIFICATION

B.4.1 Market Area Overview – Regional Context

Clovis Municipal Airport's primary market area related to air cargo is the Clovis-Portales Combined Statistical Area (CSA), which includes the Curry and Roosevelt Counties. The Texas Counties of Parmer and Bailey are also included in the market area since CVN is the closest commercial service airport to both counties, as depicted in Figure B-5. In addition to the cities of Clovis and Portales, Texico and several other small communities are also included in the Clovis-Portales CSA. Cannon Air Force Base, located 7 miles southwest of Clovis, is also located within the CSA and has a population of over 3,000. Curry, Roosevelt, Parmer, and Bailey Counties encompass 5,555 square miles of land and had a combined estimated population of over 85,000 in 2010. Approximately 70 percent of the CSA population is found in the City of Clovis. The largest industries in the Clovis-Portales CSA are agriculture/ranching, food processing, retail trade, education, and healthcare services. The largest employers in the area are as follows[2]:

[2] http://www.developclovis.com/statistics

- Cannon Air Force Base (active duty and civilian) – 3,222
- Allsup's Convenience Stores, Inc – 2,900
- Eastern New Mexico University – 1,500
- Clovis Municipal Schools – 1,062
- Plains Regional Medical Center – 570
- Wal-Mart – 500
- Burlington Northern Santa Fe Railway - 500
- Clovis Community College – 455
- City of Clovis – 422
- Federal Employees – 372
- Community Homecare – 363
- ENMRSH – 300
- ENMR-Plateau Telecommunications – 300
- Southwest Cheese, LLC – 250
- State of New Mexico – 220
- Curry County – 160
- Coca Cola Bottling – 100

Air cargo demand is typically generated in larger population centers, especially where manufacturing, health care and high tech companies are found. Businesses involved in international trade have a greater propensity to use air cargo in their supply chain management and document processing. The health care industry often relies on rapid shipments of vital pharmaceuticals, medical equipment and products. Air cargo is often the transport mode of choice for local hospitals for surgery and trauma units.

B.4.2 Market Area Air Cargo Businesses

FedEx Express and UPS are the two primary integrated express companies operating in the Clovis-Portales CSA. The US Postal Service offers express mail packages but that traffic is transported on FedEx Express aircraft. It is important to note that in 2003 the NM DOT Aviation Division conducted a statewide Air Cargo System Plan which identified air cargo routes at airports throughout New Mexico. The study indicated that UPS chartered an air cargo feeder airline, South Aero Inc (using twin-engine piston aircraft), to feed into their hub bound jet aircraft at ABQ on a scheduled basis. The study also indicated that the Federal Reserve transported bank materials on a scheduled charter flight out of Clovis.

The UPS feeder service began to operate less frequently in 2006 and 2007, and, by 2008 it was eliminated all together. This trend is not uncommon, as many markets similar in size/composition to Clovis have lost air cargo service via local airport utilization over the last decade. With a lagging economic climate and high fuel prices, integrated express carriers such as FedEx and UPS are migrating to slower, cheaper delivery methods, such as trucking. Carriers are adjusting capacity by shrinking their networks through fleet and air route reductions. This is dictated by the market as customers increasingly shy away from the more

expensive express service[3]. Bank checks as air freight has also largely been eliminated. With the increasing prevalence of electronic banking, many bank check haulers have either ceased operations or transitioned to other commodities. AirNet Systems is an example of one such carrier that has successfully transitioned to a focus on small packages and documents.

As of April 2013, CVN still accommodates some degree of air cargo activity; however, it is operated on what is considered an ad hoc or unscheduled basis.

UPS Profile

UPS operates a Customer Service Center in Clovis on 1100 E Brady Avenue. From this station UPS consolidates parcels and packages originating in the market area and distributes parcels arriving by truck to customers in the market area. This station accommodates both ground and air packages. Air parcels and packages are transported on a tractor trailer truck which operates to and from Lubbock Preston Smith International Airport. This truck is comprised of two 28-foot long tandem trailers. One trailer carries parcels and packages to be transported by air. The other 28-foot long trailer contains ground packages which are transported to a distribution and sort facility in Lubbock. The 97-mile truck drive to and from Lubbock is about one hour and 40 minutes. The latest UPS drop box pickup time for air product in the Clovis market is 5:15 PM, which is trucked to Lubbock to meet the UPS jet flight bound for their hub in Louisville, KY.

FedEx Express Profile

FedEx Express operates a FedEx World Service Center in Clovis on West Plaza Drive. From this station FedEx Express consolidates parcels and packages originating in the market area and distributes parcels arriving by truck to customers in the market area. This local market station accommodates air packages but ground parcels are transported to FedEx Ground, a subsidiary of FedEx Inc. Air parcels and packages are transported on a tractor trailer truck which operates to and from Lubbock Preston Smith International Airport. The latest FedEx Express drop box pickup time for air product in the Clovis market is 5:30 PM. Cargo is then transferred to the FedEx Express jet flight bound for their hub in Memphis, TN which departs each weeknight at approximately 10:00 pm.

B.4.3 Competing Airports

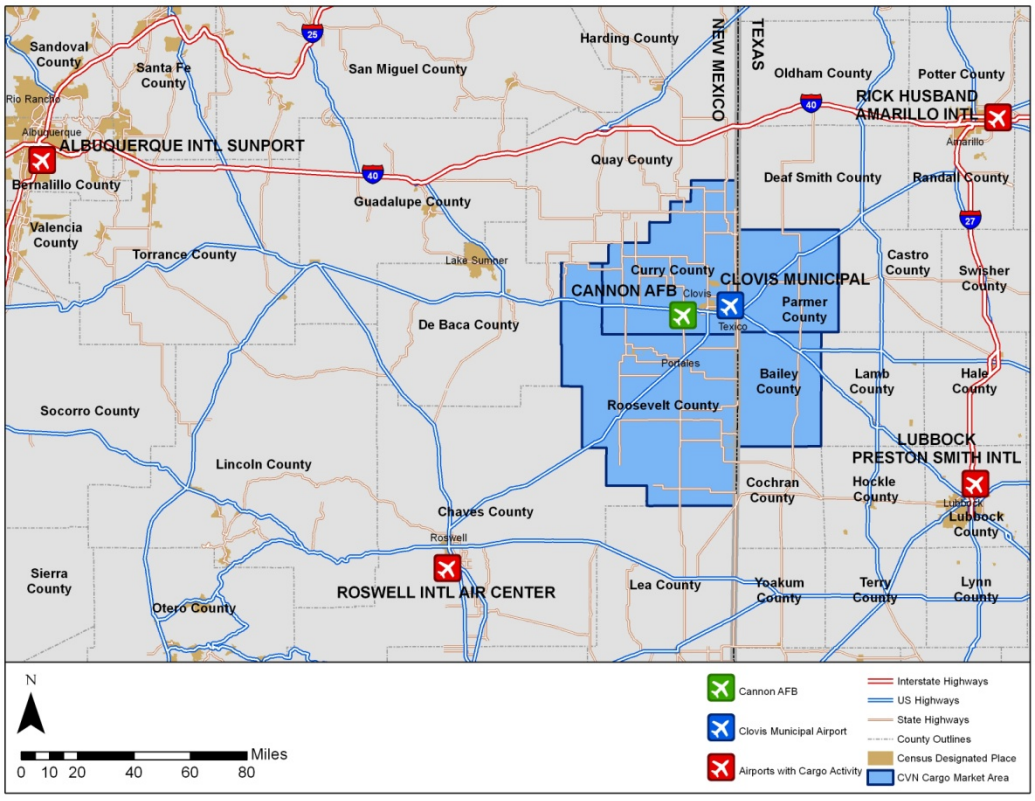
Airports, like other facilities such as shopping malls, compete with other airports for aviation business. Airport tenants, like mall tenants, have the option to relocate their operations to a competing facility. With this in mind, it is important for airport management to provide adequate facilities to retain and attract air cargo providers. Successful airports attract passengers and cargo from their own market area, as well as neighboring market areas. This section identifies airports in the New Mexico and northwestern Texas/ Panhandle region competing with Clovis

[3]http://online.wsj.com/article/SB10001424127887323419104578372073589916676.html

Municipal Airport for air cargo market share. By the very nature of the industry's ability to utilize a host of modal combinations and routes structures, competition amongst airports must be addressed at both the local and national levels.

Some airports are more successful than others in the realm of air cargo development. This is a result of a host of factors which impact demand for aviation services. These factors include airport location in proximity to demand, proximity to other nearby airports offering cargo services and facilities, airport facilities and their ability to meet current and future aviation demand, truck access to the airport, environmental issues, and community support of the airport and its cargo-related activity. Airports with scheduled air cargo service in New Mexico and northwestern Texas/Panhandle are presented in Figure B-5. This exhibit represents the "market area".

Figure B-5: Air Cargo Market Area, Airports with Scheduled Cargo Service



Source: CDM Smith

Clovis primarily competes for air cargo service with four airports within the market area/region. These airports include Albuquerque International Sunport, Rick Husband Amarillo International Airport, Lubbock Preston Smith International Airport, and Roswell International Air Center. Table B-1 identifies these airports and their proximity to Clovis Municipal Airport by both land and air transportation. These airports all accommodate both passenger and air cargo airlines. Albuquerque International and Lubbock International are served by FedEx and UPS jet aircraft as well as related feeder airlines on a scheduled basis, while

Amarillo International and Roswell International are served by regional and feeder cargo airlines on scheduled and ad hoc basis. These airports' market area sizes range from a 1.5 to 3.5-hour trucking time radius depending on the air cargo carrier. As identified in the table below, Clovis is more than a 1.5 hour drive in a truck from LBB and approximately 3.5 hours from ABQ. Therefore, it is more likely that FedEx cargo originating in and destined for Clovis is transported via truck to and from Lubbock only.

Table B-1: Proximity of Competing Airports to CVN

Airport	FAA ID	By Road (miles)	Driving Time (minutes)	By Air (miles)
Albuquerque International Sunport	ABQ	267	250	205
Amarillo International Airport	AMA	108	113	95
Lubbock International Airport	LBB	97	104	89
Roswell International Air Center	ROW	132	165	114

Source: CDM Smith, Google Maps, AirNav

Albuquerque International Sunport

Albuquerque International Sunport (ABQ) is 205 miles by air northwest of CVN and 267 miles by roadway. Estimated trucking time to ABQ from Clovis is about four hours. ABQ is a medium-hub primary commercial service airport that serves greater Albuquerque and Santa Fe region. ABQ has four runways, with the longest over 13,000 feet. It is the largest airport in New Mexico by aircraft operations and enplanements, experiencing over 157,000 aircraft operations and over 2.7 million enplanements in 2011. ABQ is served by four legacy passenger airlines (American/US Airways, Delta, United,), as well as three low-cost carriers (Frontier, JetBlue, Southwest). New Mexico Airlines is a regional commuter airline that also provides passenger service to Carlsbad and Los Alamos from ABQ. Both passenger airlines and cargo carriers accommodate air cargo demand in the airport's market area. Passenger airlines commonly carry air cargo in the belly compartments of passenger aircraft. Larger volumes of cargo are carried on wide-body passenger aircraft; however, passenger airlines operating at ABQ currently only utilize narrow-body aircraft.

ABQ serves as a local market station for major cargo operators FedEx Express and UPS. Feeder aircraft and trucks serving communities in New Mexico transfer cargo to jet freighters that fly to their respective national and regional cargo hubs. FedEx Express operates wide-body (A300, A310, DC-10) aircraft on its hub route between ABQ and Memphis twice daily. One of these return flights is tagged with Lubbock, Texas, to pick up additional cargo bound for Memphis. UPS also operates wide-body (A300) aircraft on hub routes between ABQ and Louisville and Ontario (California). On the route to Louisville, the UPS aircraft first stops in El Paso before continuing on to ABQ. Empire Airlines, a contracted feeder service for FedEx, operates a fleet of Cessna Caravans out of ABQ to various cities in New Mexico and Colorado, such as Farmington, Gallulp, and Durango. Ameriflight is also a likely contracted feeder service for UPS, operating a Piper Navajo from ABQ to their hub in Phoenix.

Rick Husband Amarillo International Airport

Rick Husband Amarillo International Airport (AMA) is 95 miles by air northeast of CVN and 108 miles by roadway. Estimated trucking time to AMA from Clovis is about two hours. AMA is a commercial service airport that serves the Amarillo metropolitan area as well as the Texas Panhandle region. In 2011, the airport experienced nearly 393,000 enplanements. AMA has two runways, with the longest over 13,000 feet, and sees over 81,000 aircraft operations annually. AMA has regular commercial service by legacy carriers American and United Airlines, as well as by low-cost carrier Southwest Airlines to a total of six regional hub destinations. Cargo operators include regional feeder airlines Ameriflight and Aero Charter and Transport operate on a contracted basis to integrated express carriers. Ameriflight operates as a FedEx feeder on routes between Amarillo International and Dallas-Fort Worth International, Lubbock International, and Wichita Falls Municipal. Aero Charter and Transport operates routes between Amarillo, Lubbock, and Addison. Both airlines operate various twin-engine aircraft between AMA and LBB.

Lubbock Preston Smith International Airport

Lubbock Preston Smith International Airport (LBB) is 89 miles by air east of CVN and 97 miles by roadway. Estimated trucking time to LBB from Clovis is an hour and 45 minutes. LBB is a commercial service airport that serves northwestern Texas and experienced over 503,000 enplanements in 2011. LBB has three runways, with the longest over 11,000 feet, and sees nearly 80,000 aircraft operations annually. LBB is served by legacy carriers American Airlines and United Airlines with service to their regional hubs in Dallas, Denver, and Houston. Low-cost carrier Southwest Airlines also serves the airport with service to Austin, Dallas, and Las Vegas. The airport has relatively extensive air cargo activity, as operators include FedEx Express, UPS, Empire Airlines, Ameriflight, Baron Aviation, Martinaire, and Aero Charter and Transport.

FedEx Express serves LBB with routes to its hub in Memphis and to Phoenix using various wide-body aircraft (A300, A310). UPS operates wide-body aircraft (A300) on a multi-segment route that arrives into LBB from Louisville and continues on to El Paso and Albuquerque before returning to Louisville. LBB serves as a consolidation point for several FedEx and UPS feeder airlines, which serve several rural communities within the region. Empire Airlines, a contracted feeder service for FedEx Express, operates an ATR-72 between LBB and FedEx's regional hub in Fort Worth (AFW). Baron Aviation is also a FedEx feeder and operates from LBB to Abilene and Roswell utilizing Cessna Caravans. Martinaire, a UPS feeder airline, operates between LBB and Austin using Cessna Caravans. Ameriflight likely also feeds into UPS and operates a variety of aircraft types from LBB to Dallas-Fort Worth, Midland, and Amarillo. Aero Charter and Transport operates a fleet of Cessna 402 aircraft from LBB to Amarillo and Addison. Central Air Southwest maintains routes between LBB and El Paso using its fleet of Aero Commander aircraft.

Roswell International Air Center

Roswell International Air Center (ROW) is 114 miles by air southwest of Clovis and 132 miles by roadway. ROW is a commercial service airport that serves greater Roswell. ROW has two runways, with the longest over 13,000 feet, and sees approximately 50,000 annual aircraft operations. ROW is served by American Airlines to its hub at Dallas-Fort Worth International Airport and saw over 37,000 enplanements in 2011. ROW serves as an out-station for regional air cargo feeder airlines Baron Aviation and Aero Charter and Transport. Baron Aviation, a contracted feeder service for FedEx, operates a Cessna Caravan between ROW and Lubbock, where the cargo feeds into the FedEx network via larger aircraft. Aero Charter and Transport also serves ROW with service along a multi-segment route between Albuquerque and Hobbs.

B.5 POTENTIAL FOR IMPROVED AIR CARGO SERVICES

Currently at CVN, the only dedicated air cargo activity takes place on an unscheduled or ad hoc basis. South Aero Inc – a small regional airline that formerly contracted for UPS on a regularly scheduled basis – still occasionally operates between CVN and Albuquerque utilizing twin-engine piston aircraft. In terms of passenger service, CVN is served only by Boutique Air on a route to Dallas/Fort Worth using Pilatus PC-12 aircraft. Given the size and cargo capacity of this type aircraft, little to no cargo is expected.

As previously discussed, CVN's competitor airports provide air cargo service on a local and national level. Table B-1 illustrates the location of Clovis Municipal in relation to other regional airports with at least some degree of air cargo activity. Relative to these airports, CVN is geographically central to airports with existing air cargo activity. In order to determine if CVN has a potential market to operate within, the existing cargo networks must be examined.

The eastern New Mexico and northwestern Texas/Panhandle air cargo market is supported by FedEx Express and UPS. It is important to point out that air cargo demand is typically generated in larger population centers and rural areas are often assigned lower priority by integrated express companies. The high level of regional air cargo service surrounding CVN is representative of the region given the relatively long distances between airports and relatively small volumes of cargo capacity required for these populations.

Compared to ABQ, AMA, LBB, and ROW, CVN accommodates smaller and fewer aircraft due to runway limitations and smaller apron/warehouse area. Despite the drastic difference in service volumes, the infrastructure at CVN is not incomparable to that of its competitor airports. However, CVN does not compete directly with ABQ or LBB for national air cargo traffic. It is possible that the three airports could have differing service roles within what are essentially neighboring market areas. However, what will remain the primary restricting factor for CVN in garnering new air cargo service is its proximity to competitor airports, namely Lubbock and its relatively easy trucking distance.

Due to the extensive cargo operations at ABQ and LBB, as well as CVN's relatively close proximity to both, it is likely that the majority of air cargo will continue to be trucked to and from the CVN market. Any possible service enhancement at CVN would likely come in the form of a regularly scheduled out-station stop by an integrated express feeder carrier. An example of this activity would be a FedEx Express route serving ROW-CVN-LBB. However, it is important to note that despite the lack of direct service by cargo aircraft at CVN, the Clovis/Portales market area still has access to air cargo/overnight express services – by way of truck to a waiting aircraft at Lubbock International. As a result, the only noticeable difference to customers is a smaller service window, which means later morning delivery and earlier parcel pick up cut-off times.

B.5.1 Recommendations

To be successful in attracting new air cargo service to the airport, CVN must demonstrate that the local market can support air cargo service and that there are benefits to carriers providing local air cargo service. CVN's geographic relationship to competing airports is an unchangeable fact that CVN must recognize going forward. This proximity will be an obstacle for air cargo development efforts.

The following recommendations are presented as guidelines the Clovis community can take in attracting air cargo activity to the Airport:

- Actively coordinate with various economic development agencies.
- Maintain airport to FAA Part 139 standards and ARFF capabilities.
- Understand operational needs of an air cargo carrier.
- Establish relationships with integrated express carriers; market airport to be included as a stop along existing route (i.e. ROW-CVN-LBB).
- Market airport/region to targeted industries that have consistent need for express/overnight service with later cut-off times.

Appendix C:

TERMINAL BUILDING ASSESSEMENT

C.1 INTRODUCTION

A terminal building at a commercial service airport, such as that at Clovis Municipal Airport (CVN), is intended to process inbound and outbound passengers aboard airline flights. To be effective, a terminal building must have several features to support passenger service. The purpose of this assessment is to provide a generalized evaluation of the spatial allocations currently offered within the commercial terminal building at CVN. This evaluation considers spatial requirements for such items as ticketing lobby, terminal circulation, security, bag make-up, bag claim, concessions, rental cars, airport administration, etc.

Additionally, this analysis establishes a baseline of terminal capacity so that it can be compared against current and future demand. Included in this analysis is a generalized auto parking demand analysis. This analysis also considers the existing facility's current capacity baseline so that it can be compared with future demand requirements.

Note that while a wide variety of concepts and ideas are presented in this assessment, this task does not include a facility condition assessment of the current terminal building with respect to its physical structure (facilities and equipment condition, maintenance requirements, etc). The results of this assessment form the basis of terminal building facility requirements as presented in the master plan.

This assessment presents the results of an evaluation based on airport site visits, interviews with airport/airline staff, photos, drawings and previous studies conducted at the Airport. The requirements and recommendations contained herein are based on several federal agency guiding documents including:

1. FAA Advisory Circular (AC) 150/5360-13, Planning and Design Guidelines for Airport Terminal Facilities,
2. FAA AC 150/5300-13A, Airport Design,
3. Transportation Security Administration (TSA) - Checkpoint Design Guide,
4. TSA – Recommended Security Guidelines for Airport Planning, Design and Construction.

In addition to the resources cited above, much of the methodology behind the analysis is based on consultant experience at many comparable airports throughout the country. Additionally, an understanding of CVN, airline requirements, passenger behavior and airport operations provides valuable inputs into this analysis.

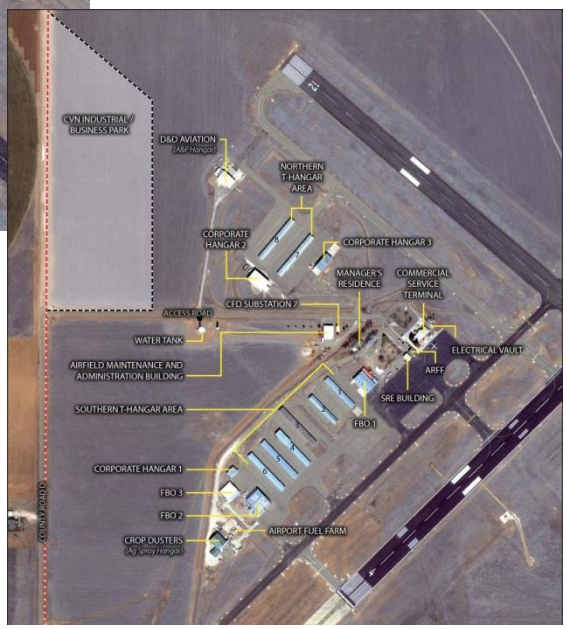
In order to adequately evaluate the terminal building at CVN, this assessment is divided into the following sections:

- Existing Terminal Building at CVN
- Demand for Commercial Passenger Service at CVN
- Terminal Requirements Necessary to Meet Demand
- Summary: Short- and Long-Term Recommendations

Essentially, the steps outlined above follow the typical master planning process by taking inventory of existing features, estimated capacity and future demand, and then identifying possible methods to address future needs. This process will provide a comprehensive evaluation of the terminal building at CVN and suggest areas of improvement or modification.

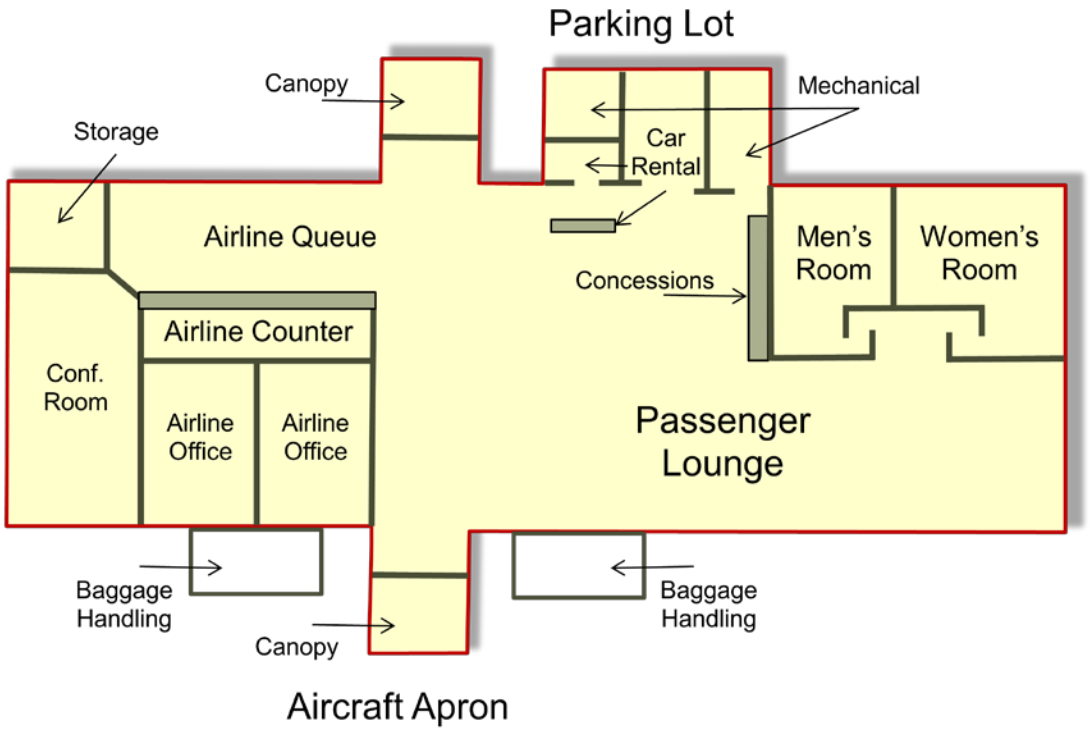
C.2 EXISTING TERMINAL BUILDING AT CVN

The Airport's terminal building is located centrally on the airfield, directly accessible via the airport access road and abutting the main apron area. The original building was estimated to be constructed in 1958, with a significant renovation occurring in 1999. The 5,300 square foot facility includes airline passenger facilities such as a lobby, circulation areas, ticketing counters, airline offices and other amenities.



The terminal building sits near the intersection of Runways 4-22 and 12-30. Two taxilanes off of Taxiways A and C provide easy access for aircraft visiting the terminal building. The following subsections further describe the terminal building, its services, features and neighboring facilities.

The terminal building at CVN serves the needs of inbound and outbound passenger activity for the city of Clovis, New Mexico and surrounding areas. It is designed to accommodate two airlines. Site evaluations, interviews and research materials were used to provide a summary of the features of the terminal building highlighted throughout the remainder of this section. The following graphic was developed to illustrate the basic layout of the terminal building and is based on approximate on-site measurements.



The terminal building is a single-level, brick structure with an open floor plan with easy access to all areas. It can be divided into various functional areas based on passenger and airline needs. Each of these functional areas will be described in more detail, but the following table provides a summary of approximate size for each space and total building square footage.

Based on the areas provided in Table C-1, the total square footage the terminal building is estimated to be 5,311 square feet. This total does not include 1,132 square feet of canopies located at the landside and airside entrances or overhangs located above windows. Approximately 50 percent of the terminal area is open movement area for passenger circulation, lounge and queuing.

Table C-1: Terminal Building Square Footage

Area	Square Footage
Airline Counter Area	280
Airline Office	350
Airline Ticket Queuing	457
Conference Room	318
Baggage Area	588
Passenger Lounge	1,235
Circulation	1,004
Restrooms	543
Concessions	31
Rental Car	240
Mechanical/Storage	265
TOTAL	**5,311**

Sources: CDM Smith, Airport

Based on the space provided in the terminal building and the basic rule-of thumb capacity measures established in FAA AC 150/5360-13, the existing terminal building has a peak hour capacity of 25 enplaned passengers. This exceeds the 20-year forecasted level of passenger activity presented in *Chapter Two: Forecast of Aviation Activity*. Individual functional areas of the terminal building are examined further in the following sections.

C.2.1 Airline Counter Area

The airline ticket counter area is the primary location for passengers to complete ticket transactions and check-in baggage. The counter area allows space for airline agents to stand and move while processing passengers and their baggage for outbound flights. This area at CVN measures 280 square feet and includes the two linear ticket counter positions with openings to receive baggage. This is generally the first area passengers are welcomed to the airport and where first impressions of the terminal and airline are made. Flight information is displayed in this area to provide updated flight and schedule information to passengers as they arrive for their departing flight. Additional information about the airline, airport, city, etc is commonly displayed and made available to passengers and visitors. This area, as well as other areas of the terminal, is routinely decorated for special occasions and holidays.

A common trend at airports over the past decade has been to provide automated ticketing kiosks in the airline counter area for passengers wishing to use an automated process for check-in. These kiosks require very little space (about 2-4 square feet) and add speed, convenience and alternatives to the traditional check-in process. Although there is adequate space within this area to provide kiosk machines, the demand or need for such technology is limited.

C.2.2 Airline Offices

Airline offices provide space for a number of airline support activities. These activities include: accounting and safekeeping of receipts, agent supervision, communications, information display, and personal areas for agent and flight crew rest, personal grooming and training. At low activity airports, like CVN, the office area may also provide additional space for company administrative and operational functions, including outbound baggage processing.

There are two airline offices located behind the airline counter area at CVN. Each office measures approximately 175 square feet and is used to accommodate Boutique Air agents and crew. Because there is no baggage conveyor system at CVN, to carry checked baggage from the ticket counter to the airside baggage area, agents carry checked baggage to carts on the airside before being loaded onto departing aircraft.

C.2.3 Airline Ticket Queuing

As the initial objective for most passengers, the airline ticketing lobby and queuing area should be arranged so that the enplaning passenger has immediate access and clear visibility to the ticket counters upon entering the building. As this area and the ticket counters are the first areas a passenger sees when entering the terminal building at CVN, this objective is certainly met at CVN.

As defined by FAA AC 150/5360-13, *Planning and Design Guidelines for Airport Terminal Facilities*, the terminal building at CVN has a 'Combined Lobby' which merges areas for ticketing, waiting, and baggage claim into a single space. This is common for airports handing less than 100,000 annual enplanements and,

although there may be subtle divisions, it maximizes use and efficiency of small terminals by combining the use of space within the building. The area which is more or less dedicated to airline ticket queuing at CVN is 457 square feet and includes space for seating and line formation. For the level of existing air carrier service provided at CVN as well as the typical passenger volume experienced, the area necessary for ticket queuing is minimal.

C.2.4 Conference Room

Somewhat unique for buildings of this size and type, the terminal at CVN includes a 318 square foot conference room. This room can be utilized for small meetings held by airport management, airlines, tenants, etc and is convenient given the lack of other meeting space located near the Airport.

C.2.5 Baggage Area

There are two covered, outdoor baggage make-up areas at CVN, one for outbound baggage and the other for inbound baggage, each measuring about 300 square feet. The outbound baggage area is where baggage is received from the ticket counters. As with many low-volume commercial service airports, baggage at CVN is manually moved through the terminal building on to carts for subsequent delivery to aircraft.

For inbound baggage, a similar process is followed, whereby a cart carries baggage from the aircraft and is manually transferred into the terminal building via a covered opening into the passenger lounge.

C.2.6 Passenger Lounge

Aside from providing for passenger and visitor circulation, a centralized waiting area or passenger lounge (sometimes referred to as hold room) provides public seating and access to passenger amenities, including restrooms, concessions, etc. The lounge area at CVN measures approximately 1,235 square feet and includes seating for about 50 passengers and visitors.

C.2.7 Circulation

An important feature of any terminal design is the inclusion of adequate circulation space to facilitate passenger movements. Circulation patterns should allow for the option of bypassing counters with minimal interference, avoid congestion and encourage passengers to proceed to the gate area. Without adequate circulation, a terminal may feel confining or congested.

Circulation space in the terminal at CVN accounts for about 1,000 square feet and surrounds the passenger lounge and building entrances/exits. Most circulation space is tiled, where as lounge areas are carpeted. This gives passengers and visitors a subtle distinction between the two areas.

Some circulation space located near the airside access door is, chained off to separate space and notify passengers and visitors that "No one beyond this point without escort" is allowed.

C.2.8 Restrooms

Under typical terminal design standards, restrooms are provided before and after security screening to avoid screened passengers from having to go through screening more than once. At CVN, however, since passenger screening is not required, a single pair of restrooms, measuring a total of 543 square feet, is provided near the passenger lounge. The men's restroom is approximately half the size of the women's.

C.2.9 Concessions

The amount and degree of concessions offered at an airport should be directly related to the volume of passenger enplanements. Many small commercial service airports with low passenger volume place vending machines in lobby areas to accommodate passengers and employees, where staffed shops/stores would be

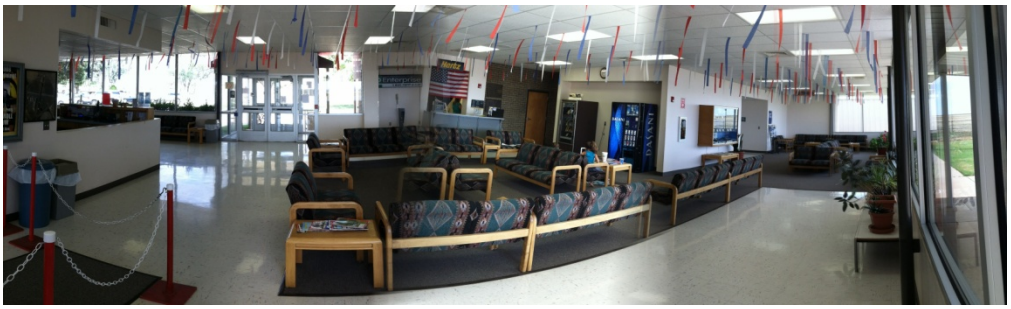
unprofitable. Approximately 30 square feet of terminal space is dedicated to vending machines at CVN and located adjacent to, yet set back from, circulation/lobby space to avoid encroachment.

C.2.10 Rental Cars

Rental car companies are often located at airports due to the number of transient travelers, both commercial and private, needing ground transportation. Two rental car companies serve CVN; Hertz and Enterprise. Combined, these companies utilize about 240 square feet of the terminal building, most of which are taken by counter space where agents interact with customers.

C.2.11 Mechanical/Storage

As with typical terminals, a portion of the building at CVN includes areas for storage and mechanical systems. Generally, these areas account for 12 to 15 percent of the gross total space for all other terminal functions. At CVN, however, the 265 square feet of storage and mechanical space accounts for just five percent of the total area of the terminal building.



C.2.12 Aircraft Apron

The main apron area at Clovis Municipal Airport is located adjacent to the primary T-hangar areas, FBOs, and the terminal building. In total (and including taxilanes), it is approximately 1,000 feet long and 240 wide near the terminal area (and approximately only 200 feet wide at its southern end). This apron has 19 marked aircraft tie-downs. Since all based aircraft at the Airport are located in hangars, these tie-downs are currently used only for transient aircraft. The southern portion of the apron pavement was rehabilitated in 2003 and in good condition, while the apron immediately in front of the terminal building and the FBO is in poor condition. All aprons have pavement strength commensurate with the runways and taxiways.

The apron area nearest the terminal building measures approximately 54,000 square feet and is intended to accommodate one commercial passenger aircraft at a time, although there is room for more. The apron is accessed via two taxilanes connected to Taxiway A, providing convenient and efficient flow. The terminal and aircraft apron follow a taxi-in, taxi-out design whereby aircraft taxi into and away under its own power and park parallel or at a slight angle to the terminal building. Passengers walk across the apron to board aircraft.

C.2.13 Automobile Parking

Automobile parking is available at the airport terminal building, FBO facilities, and in the hangar areas. Specifically, the terminal building has approximately 32 paved parking spots immediately in front of the facility as part of the loop road and 32 additional unpaved spots to the south.

To compute existing and future parking needs, a common methodology provides parking spaces for 1.5 times the number of peak hour passengers. Based on the *Forecast of Aviation Activity*, the peak hour demand for automobile parking at CVN will not exceed 15 spaces within the 20-year planning period. The number of spaces, therefore, exceeds the demand for additional parking.

C.2.14 Other Nearby Facilities

Several airport features lie immediately north of the terminal building. These include the emergency generator, lighting vault, airport beacon mounted on a tower and old fuel tank (not in use). The emergency generator and light vault are in key locations as they provide electricity to the terminal building and airfield. The airport beacon is also in a convenient location as it is positioned central to the airfield. Airport management has expressed interest in relocating or disposing of the old fuel tank, but cost of moving it exceeds the salvage price.

About 40 feet south of the terminal building is the Airport's Aircraft Rescue and Firefighting (ARFF) facility. As a certified Part 139 air carrier airport, CVN is required to have an ARFF station capable of fighting fires on aircraft. The ARFF building is approximately 1,340 square feet and abuts the main apron. It houses the Airport's fire truck and accommodates personnel space.

C.3 DEMAND FOR COMMERCIAL PASSENGER SERVICE AT CVN

Boutique Air is a regional/commuter carrier providing service to CVN through the FAA's Essential Air Service (EAS) program. EAS is a federally subsidized program to guarantee a minimal level of scheduled air service to small communities that otherwise would not be profitable. This came in response to the Airline Deregulation Act, passed in 1978, which gave U.S. airlines almost total freedom to determine which markets to serve domestically and what fares to charge for that service.

Boutique Air operates three daily flights between CVN and DFW using 9-seat, Pilatus PC-12 turbo-prop aircraft. Today, passenger screening offered by the TSA is not required at CVN due to the small number of passengers and the fact that passengers aboard Boutique Air flights from CVN go through TSA screening if they continue on once arriving at DFW. Therefore, screening procedures, staff and equipment normally required for commercial service airports is not required at CVN. The destinations and airlines associated with EAS at CVN may change and the continuation of this program is reliant on federal funding and city acceptance.

Over the past decade, commercial passenger enplanements at CVN have ranged between 1,900 and 2,600 passengers a year. Based on the three daily flights offered by Boutique Air, this equates to less that three passengers per flight. Since it began service in 2014, however, Boutique Air has average over 4 passengers per flight. As part of the Clovis Airport Master Plan, an aviation forecast was prepared which predicts enplanements as well as operations and based aircraft, centered on an understanding of the industry, local demographics and market trends. This forecast presented a range of possible passenger enplanement outcomes based on continuation of the EAS program at CVN.

The forecast of possible passenger enplanements can be used to help determine the need for increased terminal building space and capabilities. Based on the continuation of the EAS program at CVN, the forecasted level of annual enplanements is not expected to be over 7,000 passengers within the 20-year planning period.

The city of Clovis is eager, however, to initiate discussions with domestic mainline carriers to establish expanded airline service for the community. The goal of this effort would to provide reliable, non-stop air transportation for area residents to a medium or large hub airport using regional jet aircraft or larger.

The development of expanded air service is speculation at this point in time and is not considered in the Forecast. If efforts to attract expanded air service are successful, additional passengers beyond those forecasted could be attained through more reliable, frequent flights with larger aircraft than today. Based on the findings presented in *Appendix A: Air Service Analysis*, it is reasonable to assume that CVN could experience annual enplanement levels of 20,000 passengers given the typical enplanement to area population ratios for airports served by regional jets, similar to communities the size of Clovis with comparable airport market areas. This level of activity far exceeds projected enplanements presented in *Chapter Two: Forecast of Aviation Activity*, but is reasonable considering area demographics and typical airline performance.

C.4 TERMINAL REQUIREMENTS NECESSARY TO MEET DEMAND

Chapter Two: Forecasts of Aviation Activity, presented a range forecast to incorporate various potential drivers that would influence activity outcomes at CVN. This range forecast, however, assumed that commercial passenger air service would remain at CVN, with EAS in place throughout the planning period. With this overlying assumption, the forecasted level of annual enplanements is not expected to be over 7,000 passengers within the 20-year planning period. On a daily level, this projection would equate to less than ten enplaned passengers per flight. The existing terminal is designed to easily accommodate this level of passenger activity based on the current method of passenger processing. Therefore, without changes in the level or method that commercial air service passengers are processed at CVN, significant improvements or expansion of the terminal building are not required within the planning period.

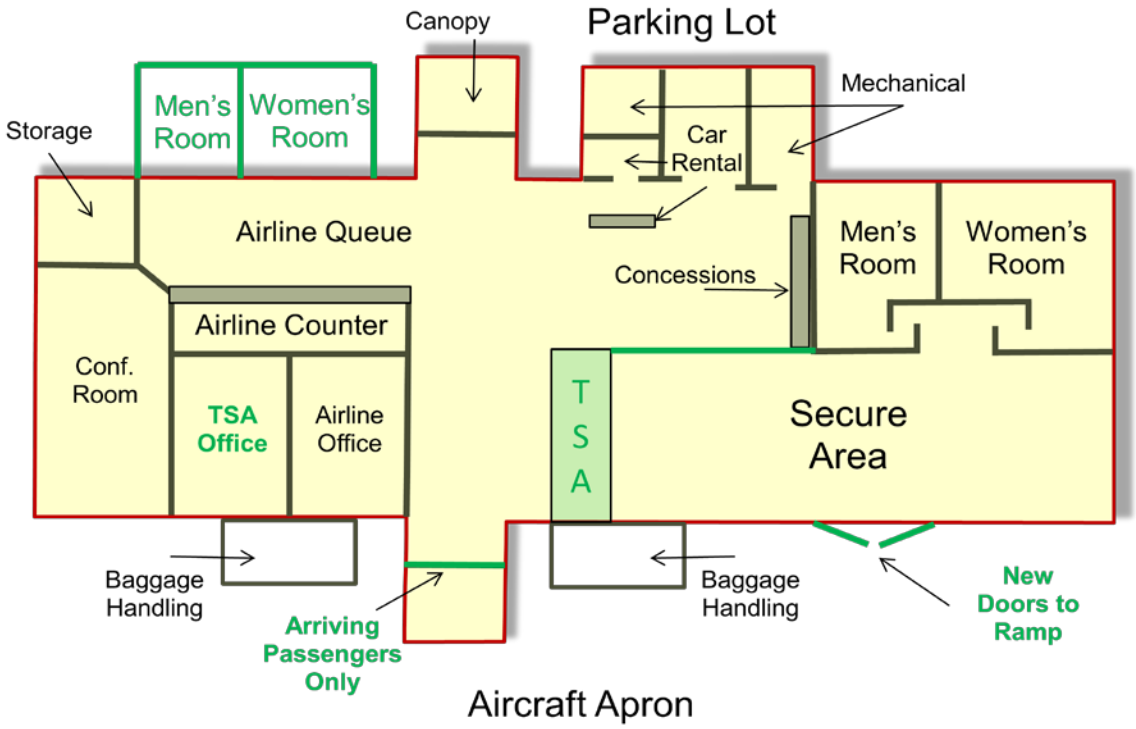
As mentioned in the previous section, *Appendix A: Air Service Analysis* of this study, presents the possibility of expanded air service at CVN. The city of Clovis is eager to attract a national or regional air carrier to establish direct air service to a large or medium hub using regional jet aircraft or larger. This type of service would require expanded passenger facilities beyond those that exist at CVN.

To accommodate passenger levels consistent with expanded air service, almost all aspects of the terminal building would require expansion. Given its age and size, it is recommended that the terminal building be completely be redeveloped if the city is successful in negotiating expanded air service at CVN as referenced above. In the short-term, however, modifications to the existing terminal building may be required while a new facility is designed and constructed. The following section presents and discusses possible modifications to the existing terminal building to accommodate expanded air service at CVN in the short-term.

C.4.1 Modifications to the Existing Terminal Building

Since passenger screening is not currently done at CVN, it must be completed at an intermediate stop, effectively placing CVN outside the national air transportation system. In order to accommodate direct air passenger service to a medium or large hub, it is important that the Airport be a part of the national air

transportation system, allowing passengers to easily connect with flights at other airports. To facilitate this, CVN must provide space for TSA passenger and baggage screening. To accommodate the needs of expanded air service and security screening in the short-term, the existing terminal building may undergo modifications shown below to incorporate security screening until a newly designed terminal building can be constructed.



To accommodate TSA requirements within the existing terminal building, several function areas must be modified. First, a portion of the passenger lounge must be segregated, or walled off, to provide a secure area for outbound passengers to wait for their flights. Passenger and baggage screening will be completed in a zone which separates the secure and non-secure areas. Checked and carry-on baggage may be channeled through this zone. Once screened, checked baggage will be transferred to the baggage handling area through an existing window to the ramp, which was originally installed for arriving passenger baggage delivery. Arriving passengers will retrieve their luggage near the canopy before entering the terminal building through the existing door way. The existing aircraft apron access doors will be used for arriving passengers only. New doors for departing passengers to access the ramp will be installed in the secure area.

In addition to the screening area mentioned above, the TSA will require office space within the terminal building. A vacant airline office space, next to Boutique Air's office, could be used to accommodate TSA office space needs. Since the existing restrooms will be located in the secure area, additional restrooms will be required for visitors or anyone not granted access to the secure area. This is the only development space outside the existing footprint of the terminal building.

While existing automobile parking for the terminal building is adequate based on forecasted demand, temporary/short-term modifications of the terminal to accommodate expanded service would likely require additional parking for passengers, visitors and employees at the terminal. It is estimated that 20 additional parking spaces would be required to meet temporary needs.

As mentioned before, the terminal building modifications suggested above are temporary and intended to meet the short-term requirements for TSA screening while a new, more appropriately-sized terminal is being built. These modifications would not accommodate the long-term TSA, airline or passenger requirements for expanded commercial air service at CVN.

C.4.2 New Terminal Building Development

The basic facility requirements for a newly developed terminal building to house the operations of a domestic mainline air carrier offering regional jet service is provided below in Table C-2. Note these space calculations are based on general industry standards established in FAA AC 150/5360-13, *Planning and Design Guidelines for Airport Terminal Facilities*, and include typical areas to accommodate inbound and outbound domestic passenger processing. As with most airports and terminals offering regional jet passenger service, it is recommended that airport administrative offices be co-located in the terminal building. Space requirements for TSA screening procedures are based on the TSA Checkpoint Design Guide.

An estimated 15,000 square feet of terminal space would be required to accommodate a regional jet aircraft with a configuration of 50 seats, assuming that air carrier flights at CVN would not overlap one another, meaning that the terminal would accommodate one flight at a time. The estimate provided is also consistent with rule-of thumb space requirements established in FAA AC 150/5360-13.

The terminal building size of 15,000 square feet is based on 20,000 annual enplanements. This is consistent with typical enplanement to area population ratios for airports served by regional jets and similar to communities the size of Clovis with similar airport market areas. Additional discussion related to air service and the Clovis market area is included in Appendix A. A terminal building this size would likely accommodate demand beyond the 20-year planning period, as most terminal buildings have a useful life well beyond 20 years.

Table C-2: Terminal Building Requirements

Requirements for 20,000 Annual Enplanements			
	Enplanements	Deplanements	Total
Peak hour passengers	34	34	68

Airline Space (sq.ft)		Public Space (sq. ft.)	
Airline ticket counter(LF)	12	Lobby/waiting area	750
Airline offices& outbound baggage	1,400	Public circulation	3,000
Ticket counter queuing area	200	Restrooms	600
Passenger hold area	750	Public meeting rooms	800
Baggage claim conveyor (LF)	22	Subtotal public space	5,150
Baggage claim area	600		
Subtotal airline space	2,950		

Concessions (sq. ft.)		Support Space (sq. ft.)	
Rental car counter (LF)	12	Airport admin offices	1,000
Rental car offices	240	TSA offices	1,000
Rental car queuing area	60	Security screening	200
Restaurant	1,000	Maintenance	2,200
News, gift, other	350	Storage	750
Subtotal concessions	1,650	Subtotal support	5,150

TOTAL GROSS SQUARE FEET			14,900
		Public parking spaces	50
Aircraft gates	1	Employee parking spaces	25
Aircraft apron (SY)	5,000	Rental car parking spaces	15
		Total parking spaces	90

Sources: FAA, Advisory Circular 150/5360-9, Planning and Design of Airport Terminal Building Facilities at Nonhub Airports.
Notes: LF=linear feet, SY=Square yard

It is important to note and remember that the recommendation for new terminal development is given only with the commitment for expanded air service to a medium or large hub using regional jet aircraft or larger. For air service provided through the EAS program or using similar aircraft, and using similar passenger processing methods as today, the existing terminal building is adequate throughout the planning period. If TSA processing methods are employed at CVN while the Airport remains in the EAS program and has similar levels of service as today, it may be reasonable to modify the existing terminal building as shown in section C.4.1 without the commitment to build a new terminal.

C.5 SUMMARY: SHORT- AND LONG-TERM RECOMMENDATIONS

Although the terminal building at Clovis Municipal Airport is over 50 years old and may require on-going maintenance, it meets the needs of current users and will likely accommodate forecasted passengers within the 20-year planning period. The 5,300 square foot terminal provides airline and car rental facilities necessary to meet the needs of passengers within CVN's existing air service. The level of passenger enplanements at CVN is expected to remain below 7,000 as long as the airport remains in the EAS program.

The city of Clovis has expressed interest in expanded commercial air service to a medium or large hub airport using regional jet aircraft or larger. In addition, nearby Cannon Air Force Base supports the expanded service and a TSA presence at CVN to avoid intermediate stops to screen passengers, thereby improving the level of service to travelers. These possibilities represent opportunities to modify, expand or redevelop the terminal building.

If negotiations with a national or regional air carrier successfully bring expanded regional jet service to CVN, it is recommended that a new terminal building be developed to accommodate a greater number of enplanements than forecasted. Expanded service such as this could generate 20,000 enplanements annually and exceed the capacity of the existing terminal building.

In the short-term, if an airline makes a commitment to operate at CVN, those operations may have to be accommodated temporarily within the existing terminal while a new facility is designed and constructed. Modifications to the existing terminal intended to accommodate TSA passenger and baggage screening, will allow for direct airline service to a medium or large hub airport. Additionally, if the Airport wishes to provide TSA screening as part of its existing level of air passenger service, the modifications to the existing terminal, as recommended in this report, may be adequate until higher levels of passenger volume requires a new terminal building. With expanded air service at CVN, the long-term recommendation is to reconstruct the terminal building to add required space and improve traveler convenience.

Regardless of the direction of commercial air service at CVN, the existing terminal building will continue to play a vital role, whether short- or long-term, in the operation of the Airport.

Attachment

DEPARTMENT OF THE AIR FORCE
27TH SPECIAL OPERATIONS WING (AFSOC)
CANNON AIR FORCE BASE NEW MEXICO

20 December 2012

Colonel Albert M. Elton II
27 SOW/CC
100 Air Commando Way Suite 100
Cannon AFB NM 88103-5214

The Honorable Janet Napolitano
Secretary of Homeland Security
US Department of Homeland Security
Washington DC 20528

Dear Secretary Napolitano

Thank you for giving me the opportunity to express Cannon Air Force Base's interest in an eastbound regional jet service from the City of Clovis Airport in Clovis New Mexico to a regional hub such as the Texas Dallas-Fort Worth International Airport. In order to assist the City of Clovis' request for support in establishing a Transportation Security Administration (TSA) element, I have provided some data below that may be of use.

Currently, all Department of Defense (DoD) travelers from Cannon Air Force Base have three airports they are able to depart from: Preston International Airport in Lubbock, Texas, Rick Husband International Airport in Amarillo, Texas, or Albuquerque International Sunport Airport in Albuquerque, New Mexico. In the past 10 months Cannon Air Force Base has processed 2,129 DoD travelers departing from Lubbock, 130 DoD travelers departing from Amarillo, and 136 DoD travelers departing from Albuquerque. The total cost of air fare during this time frame from the three servicing airports was $3.2M. This does not include mileage, parking, lodging and meals and incidental entitlements, which are listed below for each servicing airport.

Airport	Mileage Entitlement	Travel Time (Round Trip)	Parking (Per Day)	Lodging Entitlement	Meals & Incidentals
Lubbock, TX	$110.16	4 hrs	$8.00	$77.00	$46.00
Amarillo, TX	$107.10	4 hrs	$6.00	$77.00	$46.00
Albuquerque, NM	$227.46	7 hrs	$5.00	$81.00	$56.00

The costs and time expended on travel does not include the air fare or expenses associated with leisure travel that a DoD traveler or their family may take. To ensure a better quality of life for our DoD travelers and their families I fully support the establishment of a TSA element in concert with eastbound flights from the City of Clovis Airport. Please contact me at 575-784-2727 if you have any questions concerning our support for this initiative.

Sincerely

ALBERT M. ELTON II, Colonel, USAF
Commander

cc:
Clovis City Mayor
Curry County Commissioners

Appendix D:

LAND USE PLANNING

D.1 INTRODUCTION

Incompatible land use development around airports is one of today's most important challenges that must be met in order to ensure the long-term success of the aviation industry within the United States, as well as to maintain the livability of those communities that serve as a host to an airport. Plainly stated, incompatible land use development around airports threatens to undermine the long-term growth potential of the aviation industry and its value as a critical transportation asset to the country.

Generally, the purpose of this task is to examine the existing land uses and zoning around Clovis Municipal Airport (CVN) with respect to airport compatibility. Following a review of current state-of-the-industry approaches to this national issue, recommendations will be made for CVN that will help ensure that the lands surrounding the airport remain compatible with its long-term operation and development.

D.2 EXISTING LAND USE IN THE AIRPORT ENVIRONS

Land surrounding Clovis Municipal Airport is generally compatible with airport operations today. As shown in Figure D-1, land use in the areas surrounding Clovis Municipal Airport is almost entirely agricultural, including a feedlot to the northeast and dairy to the northwest. Residential land uses abut small portions of the airport property to the southwest along County Road D near the Runway 4 approach. An industrial area abuts the northeast airport property, near the approach for Runway 22 (located off the map shown in Figure D-1).

Figure D-1: Generalized Existing Land Use near CVN

Source: City of Clovis; KSA.

D.3 ZONING IN THE AIRPORT ENVIRONS

Zoning is the public regulation of land use and involves the adoption of ordinances that divide a community into various districts or zones. Within each particular district, only certain uses of land are allowed, such as residential, commercial, industrial, etc. Typical zoning regulations also address things such as the height of a building, number of people that can occupy a building, lot area, setbacks, parking, signage, and density.

The City of Clovis established the Clovis Municipal Airport Zoning Ordinance (City Ordinance 1022) for the protection of the Airport. Recorded in June 1974, the ordinance was based on State Statutes to protect airport environments with height restrictions or similar incompatibilities. The ordinance also states that no land use shall be permitted that creates electrical interference with airport communications, creates visual confusion between airport lighting and off airport lighting, or otherwise impair visibility for aircraft during any period of an operation. The ordinance is administered and enforced by the office of the City Manager, and a board of adjustment exists to hear any appeals of decisions made by the City Manager, as well as to hear applications for variances.

The ordinance itself is primarily based on the protection of airport airspace surfaces that were accepted as being the industry standard at the time. These surfaces are specifically identified in the ordinance itself on the "Clovis Municipal Airport zoning map consisting of one sheet, prepared by Lydick Engineers and Surveyors, and dated September 1, 1970." The surfaces described in the ordinance consisted of Non-instrument Approach Zones, Transition Zones, a Horizontal Zone, and a Conical Zone. Unfortunately, since that time the industry standards for airport airspace surfaces have changed and is now captured by FAR Part 77, Objects Affecting Navigable Airspace, described previously in this report. As such, the Clovis Municipal Airport Zoning Ordinance should be considered as being in need of being updated to reflect the current standard of airport airspaces.

It is also important to recognize that while it is very beneficial for the Airport that the City of Clovis has the Clovis Municipal Airport Zoning Ordinance (albeit in need of update), there is currently no parcel zoning in the immediate area around Clovis Municipal Airport. This is due to the fact that the Airport, although owned by the City of Clovis, is actually not located within the city limits, but in Curry County. Additionally, it should be noted that a joint powers agreement has never been established. Specifically, such an agreement would ensure that any future development is compatible with airport operations. This is also supported by the State Statutes that endorses airport sponsors in their efforts to protect the airport environs in cooperation with other political jurisdictions. These are addressed specifically in the state zoning laws. Below are presented excerpts from state legislation regarding the establishment of a joint airport zoning board and its powers and duties.

64-2-1. Joint airport zoning board

A. Whenever any political subdivision of the state owns and operates an airport which is located within the jurisdiction of any other political subdivision or whose approach plan area is within the jurisdiction of any other political subdivision, the political subdivision owning and operating the airport may create a joint airport zoning board composed of two members appointed by the political subdivision owning and operating the airport, two members appointed by any political subdivision within whose jurisdiction the airport lies or the approach plan extends and one member selected by the other members within thirty days after the joint airport zoning board is created.

B. Within sixty days of being requested in writing by the political subdivision which owns and operates an airport to appoint members to the joint airport zoning board, any political subdivision which has jurisdiction over the area where the airport is located or the approach plan area for the airport shall appoint the required two members to the joint airport zoning board. After the sixty day period has passed and until the required appointment is made, the failure of any political subdivision within whose jurisdiction the airport lies or the approach plan extends to appoint any members to the joint airport zoning board shall not invalidate any action taken by the joint airport zoning board to implement and enforce the municipal airport zoning laws.

64-2-2. Powers and duties of board

To protect the lives and property of the users of the airport and the occupants of the territory adjacent to the airport, the joint airport zoning board may exercise those powers and duties granted legislative bodies under the Municipal Airport Zoning Law [3-39-16 to 3-39-26 NMSA 1978} in conformity with the provisions of the Municipal Airport Zoning Law or Sections 3-21-1,3-21-2 and 3-21-5 through 3-21-11 NMSA 1978 insofar as it relates to compatible land use zoning around the airport. The area eligible for height, hazard and compatible land use zoning around the airport may not extend more than fifty thousand feet beyond any point on the perimeter of the area of land for the airport which is owned by the political subdivision which operates the airport.

D.4 LOCAL COMPREHENSIVE PLANNING

A local comprehensive plan is a strategic long-range document that addresses land use and zoning as it relates to growth and development of a municipality. With respect to an airport that lies within a community, it is critical that local comprehensive planning efforts acknowledge and address the issue of land use compatibility near an airport.

According to the *City of Clovis Comprehensive Plan* (2007), references to the Clovis Municipal Airport include the following statements:

- Under the City Profile section of the Comprehensive Plan, the following references to Clovis Municipal Airport were made:
    - *The City has a municipal airport located five miles east of City. Currently, no major passenger carriers fly into the Clovis Municipal Airport, however, current expansion plans may make regular commercial flights more attractive.* (Page 5)
    - *The Clovis Municipal Airport, which is owned by, but not within the City, generated $374,612.* (Page 6, in reference to taxable gross receipts reported by the state for 2006-2007)
- Under the Land Use section of the Comprehensive Plan, the following references to Clovis Municipal Airport were made.

- Clovis Municipal Airport is recognized in its own land use category (along with Cannon AFB):

  Airport/Air Force Base. Clovis Municipal Airport and Cannon Air Force Base have been shown on the Land Use Plan as Airport/Air Force Base. These two uses were given a separate designation to emphasize the potential land use conflicts that can occur near them. Both uses create noise, light, and vibration that is not compatible with some uses. Even with uses that are compatible, certain considerations for clear spaces and other safety precautions should be incorporated into the design of new development. (Page 13)

- With respect to land use goals and objectives, the following is included:

  Objective 1c. Adopt land use regulations in the vicinity of the Municipal airport that will ensure that the airport remains viable and that there are minimal land use conflicts. (Page 14)

- With respect to implementation measures for realizing land use goals and objectives, the following is included:

  Land Use Implementation Measure 7. Annex the Clovis Municipal Airport and establish the one-mile extra-territorial zone around the airport. (Page 25)

- Under the Community Services section of the Comprehensive Plan, the following reference to Clovis Municipal Airport was made.

  - *The City owns and operates the Clovis Municipal Airport. It is located approximately six miles east of the City. The airport has not been annexed into the City. The City is in the process of expanding the airport facilities that would allow larger aircraft to use the airport. Since the airport was originally established it has been continuously improved and upgraded. Additional discussion of the airport can be found in the Infrastructure section.* (Page 47)

- Under the Infrastructure section of the Comprehensive Plan, the following references to Clovis Municipal Airport were made.

  - *The Clovis municipal airport is located six miles east of Clovis and Texico, on State Highway 523. The airport has a newly remodeled terminal building. The airport provides a wide range of services, including agriculture, air ambulance, commercial airline, overnight freight, and corporate transit. The airport is serviced by Great Lakes airlines with daily flights to Albuquerque, Amarillo, and Denver, as well as two full time fixed based operations. With the*

new Air Force Base mission, the airport will require 20 million dollars worth of improvements in the next five years as per the Clovis Municipal Airport 5-year plan. An increase of 10,000 passengers per year is expected from military members alone with an undetermined increase from family and contractors. The Capital Outlay Program has provided $700,000 to date. Additional funding sources include the State Aviation Board, bonding, and Federal and/or State legislation. Improvements will include an extension to the runway length and runway asphalt overtopping. Phase Two of the current runway project will lengthen the runway by 1,800' allowing the airport to serve 30 passenger regional jets. Should traffic patterns prove the airport could support a 100 passenger region jet service, the airport would need to expand the runway again to a total length 8,800' in additional phases. The facility will also require additional water storage capacity, a small waste water treatment plant, and parking lot and access road improvements. (Page 53)

- With respect to transportation infrastructure goals and objectives, the following is included:

  Objective 5c. Provide transit service to the Clovis Municipal Airport. (Page 79)

  Transportation Infrastructure Goal 6. Attract regional and national passenger and freight service to the Clovis Municipal Airport.

  Objective 6a. Complete the expansion of the Clovis Municipal Airport.
  Objective 6b. Gather data on the number of residents that travel outside the City for airline service for negotiation with passenger carriers.
  Objective 6c. Gather data on the number of parcels/weight that are shipped in and out of the City/County for negotiation with freight carriers. (Page 79)

- With respect to implementation measures for realizing transportation infrastructure goals and objectives, the following is included:

  Infrastructure Implementation Measure 15. Study the feasibility of providing scheduled transit service to the Clovis Municipal Airport. (Page 81)

Note that the 2006 Airport Action Plan recommended that future updates to the City's Comprehensive Plan and related planning documents include an overview of the airport facilities and activity, a summary of the proposed long-term development plans for the airside and landside areas of the airport, and specific

details of the current and proposed land use protection tools for the airport environs such as zoning and easements.

It should also be recognized that the *2011 Joint Land Use Study - Cannon Air Force Base and Melrose Air Force Range* made several references to Clovis Municipal Airport. These references were limited to acknowledgement of the Airport's history and existence, access to the Airport, a brief description of the Airport, and a detailed review of the airport zoning height restrictions as stipulated in the Clovis Municipal Airport Zoning Ordinance.

D.5 NEW MEXICO AIRPORT SYSTEM PLAN UPDATE (NMASPU)

The 2009 NMASPU noted that incompatible land use in the airport environment has the potential to limit the future growth and development of airports in New Mexico. Land use compatibility can generally be described as the compatibility of the area around each airport where the height of objects should be limited so as not to impede safe airport operations, where noise impacts could most logically be expected, and where typical aircraft traffic patterns would occur. For this study, land use drawings, depicting an "Airport Influence Area", were prepared for every airport as a starting point to identify areas around each airport that should be protected from incompatible land use.

The Airport Influence Areas used for New Mexico reflect the property most likely to have aircraft overflights, particularly on approach or departure. The suggested Airport Influence Area boundaries consider the following FAA clearance zones:

- Runway Protection Zone (RPZ)
- Part 77 Approach Surface
- Part 77 Horizontal Surface

The airport land use planning diagrams show three Airport Influence Areas. **Table D-1** provides the general dimensions of these areas. The Airport Influence Area boundary is centered on the runway midpoint and its centerline. The dimensions take into account the instrument approach procedures to each runway end and the Airport Reference Code for each runway. The criterion was not applied to unpaved runways at airports having at least one paved runway.

The NMDOT is currently updating the NMASPU. CVN should reference this plan once it is complete and ensure that recommended land uses are consistent with its findings.

Table D-1: Suggested NM Airport Influence Areas Dimensions

Airport Influence Area	Approach Type		
	Visual	Non-Precision	Precision
No Development	▪ Length: Runway length+2(200+RPZ length) ▪ Width: Outer width of RPZ	▪ Length: Runway length+2(200+RPZ length) ▪ Width: Outer width of RPZ	▪ Length: Runway length+2(200+RPZ length) ▪ Width: Outer width of RPZ
Limited Development	▪ Length: Runway length + 6,400' ▪ Width: Equal to the longest runway length	▪ Length: Runway length + 10,600' ▪ Width: Equal to the longest runway length	▪ Length: Runway length + 15,400' ▪ Width: Equal to the longest runway length
Controlled Development	▪ Part 77 Horizontal Surface limits (5,000' radius)	▪ Part 77 Horizontal Surface limits (10,000' radius)	▪ Part 77 Horizontal Surface limits (10,000' radius)

The suggested levels of land use controls in each area are described below:

- No Development Area: This area includes the land along each runway, where aircraft operate at relatively low heights. Development in this area should be strictly controlled and limited, to the greatest extent possible, to on-airport developments, and be closely coordinated with the airport sponsor, NMDOT and the FAA. The height of any proposed development within this area should be reviewed through the Part 77 process to ensure existing and future Part 77 surfaces are not penetrated and to determine if airport operations would be negatively impacted. Noise sensitive land uses, such as residences, churches, schools, or hospitals, should not be developed within this area. Thus, land uses would typically be industrial, commercial, or transportation related. Additionally, land uses that are potential wildlife attractants or that have emissions that could be a visual hazard should be carefully screened to ensure they do not negatively affect operational safety for airport users. Avigation easements are strongly recommended within this area, should a community recommend a non-aviation development within this Airport Influence Area.

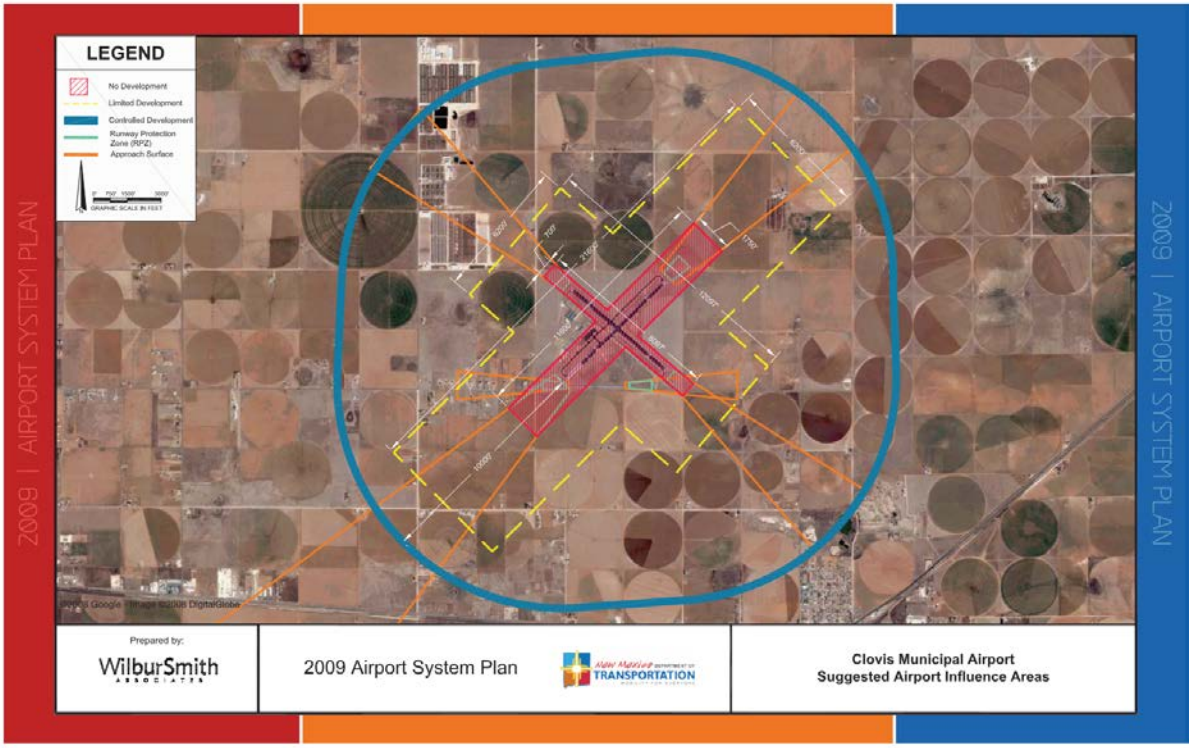
- Limited Development Area: Aircraft operations within the boundaries of the Limited Development Area include training routes and extended approach and departure paths. As such, this area is likely to experience overflights and the associated operational noise. Thus, for safety and quality of life reasons, developments that are noise sensitive or accommodate significant groups of people should be limited within this area. Avigation easements are encouraged within this area; at a minimum, notification should be required of property owners or potential buyers that the property falls within this Airport Influence Area. Tall structures should be submitted under the Part 77 airspace review process.

- Controlled Development Area: The Controlled Development Area extends to the outer boundary of the Part 77 defined horizontal surface. Developments within this Airport Influence Area are likely to experience aircraft overflights, however, at heights greater than within the other Airport Influence Areas. As such, aircraft noise is less of a concern. Thus,

all land use categories are allowable within this area with residential development having the lowest density possible. Notification of the property owner or potential buyers should be required that the property falls within this Airport Influence Area. Tall structures should be submitted under the Part 77 airspace review process.

Figure D-2 shows the Suggested Airport Influence Areas for Clovis Municipal Airport from the 2009 NMASPU. It depicts overlays on the airport and surrounding property that have recommended land use controls described above.

Figure D-2: Suggested Clovis Airport Influence Areas



D.6 RECOMMENDATIONS

There are several actions the City of Clovis can take to plan for the Airport's future land use and zoning considerations. The Airport is considered industrial land use. Within the Airport boundary, industrial land use is compatible for future on-airport development of hangars, terminals, access roads, airfield pavement, and ancillary and support facilities and utilities. Land surrounding the airport is primarily agricultural use. From an aviation standpoint, these uses are considered compatible with one another and do not adversely affect aeronautical operations. Nearby residences are located far enough from aeronautical operations to be considered compatible with the Airport. Going forward, community development near the Airport should consider the industrial nature of the Airport and the height limitations, noise and vibrations associated with building near airports.

The Clovis Municipal Airport Zoning Ordinance is over 40 years old and should be updated to include the industry standards for airport airspace surfaces identified by FAR Part 77, Objects Affecting Navigable Airspace. Airport Influence Area guidelines established in the 2009 NMASPU should be considered when establishing future land use controls. The Airport should continue to emphasize compatible land uses and protective zoning and maintain on-going compliance with updates to the NMASPU should also be maintained.

The Airport is not located within the city limits, but in Curry County, and there is currently no parcel zoning in the immediate area around Clovis Municipal Airport. A joint powers agreement should be established to ensure that any future development is compatible with airport operations. This is supported by the State Statutes that endorses airport sponsors and will help protect the airport environs in cooperation with other political jurisdictions.

Future editions of the Comprehensive Plan for Clovis should expand on the role of the Airport as a transportation and economic asset to the region and valuable resource to the City. It should consider current initiatives to expand the Airport to accommodate increased air passenger service and the infrastructure and city service needs to accompany it.

Appendix E:

SAFETY AND SECURITY

E.1 INTRODUCTION

As an airport certificated by the Federal Aviation Administration (FAA) in accordance with Title 14 Code of Federal Regulations (CFR) Part 139, Clovis Municipal Airport (CVN) is required to conform with the prescripts of 49 CFR Part 1542, "Airport Security" including the formulation and maintenance of a current Transportation Security Administration approved Airport Security Plan (ASP). This task will provide commentary and recommendations that are separate from the Airport's approved ASP and are submitted solely as a planning document for the use and consideration of the Airport management as part of the Master Planning process. Before providing input on the Airport's existing safety and security procedures, an overview of various organizations and their role in aviation safety and security is provided.

E.2 KEY ORGANZIATIONS

There are many organizations, both regulatory and non-regulatory, whose mission it is to promote the safety and security of aviation throughout the United States and which influence the level of safety and security at CVN. Below is an overview of these organizations and some methods they employ to help keep aviation in this country safe. The work of these organizations may be considered as recommendations for safety and security enhancements at CVN.

E.2.1 Federal Aviation Administration

The primary responsibilities of the FAA include the advancement, safety and regulation of civil aviation in the United States. To do this, the FAA has developed rules, known as Federal Aviation Regulations (FARs), governing all aviation activities in the country. The FARs are part of Title 14 of the Code of Federal Regulations. A wide variety of activities are regulated, such as aircraft design and maintenance, typical airline flights, pilot training activities, hot-air ballooning, lighter-than-air aircraft, man-made structure heights, obstruction lighting and marking, and even model rocket launches, model aircraft operation, and kite flying. The rules are designed to promote safe aviation; protecting pilots, flight attendants, passengers and the general public from unnecessary risk. There are many rules governing the operation of aircraft in the U.S., but most of the key FARs that may influence operations at CVN are contained in Part 91 and Part 135.

> Part 91: General Operating and Flight Rules: This section or part of the FARs cover the flight rules and regulations pertaining to non-commercial flight operations. FAR Part 91 provides "rules of the sky" that pilots must comply with to operate as a safe non-commercial pilot.

Part 135 Commuter and On Demand Operations and Rules Governing Persons on Board Such Aircraft: In most cases, if an operator provides air transportation of persons or property for compensation or hire, the FARs require that a commercial operating certificate be issued. Operators of business aircraft that wish to conduct operations for compensation or hire are generally certificated under Part 135 of the FARs. As a certificate holding entity, the operator must comply with a number of FAA requirements regarding areas such as flight operations, maintenance and training.

Safety Management System (SMS): The FAA encourages general aviation operators to implement a SMS and provide information on SMS resources. The FAA does not currently require GA operators to establish an SMS, but aviation authorities in several other countries are imposing such requirements, as directed by the International Civil Aviation Organization (ICAO) standards. Through the use of SMS, airports and aircraft operators can proactively identify and manage risks. Under a formalized SMS, operators identify potential hazards and ensure that a process is put in place to effectively manage them.

Advisory Circulars and Orders: The FAA has published a broad series of Advisory Circulars (ACs) and Orders that provide guidance and direction to airport owners and operators. These materials help ensure the safe and effective design, construction, operation and maintenance of airports throughout the United States. As with other portions of this master plan, the areas of safety and security are subject to ACs and Orders published by the FAA and are to be considered in the development of recommendations.

E.2.2 Transportation Security Administration (TSA)

On November 16, 2001, the Aviation and Transportation Security Act (ATSA) was enacted, creating the Transportation Security Administration (TSA) and transferring aviation security functions from the FAA to the TSA. Since that time, the TSA has developed guidance and enacted policies governing the security of commercial and general aviation airports and its users. TSA's Security Guidelines for General Aviation Airports provides municipalities, owners, operators, sponsors, and other entities charged with oversight of general aviation airports with a set of federally-endorsed recommendations to help keep airports safe. As something that may impact operations at CVN, the TSA's new Part 145 repair station security rule, which took effect on Feb. 27, 2014, applies to all repair stations on or adjacent to an airport covered by a TSA airport security program, but it remains unclear if the new rule should apply to a "private" limited-repair station, often found within a flight department setting and used to conduct testing and repairs to only flight department aircraft. Airport management along with airport-based maintenance providers should follow the on-going developments of this rule. Many organizations work with the TSA to clarify the applicability of the new program.

E.2.3 Transportation Research Board (TRB) – Airport Cooperative Research Program (ACRP)

The ACRP is an industry-driven, applied research program that develops near-term, practical solutions to problems faced by airport operators. ACRP is managed by the TRB of the National Academies and sponsored by the FAA. The research is conducted by contractors who study the issues facing aviation and provide recommendations based on their research. In 2007, the ACRP produced *Synthesis 3: General Aviation Safety and Security Practices*. This synthesis study identifies current practices in safety and security at general aviation airports. It reviews resources used by the general aviation community in the development of safety and security programs, funding sources and issues that determine the amount of money spent on such programs, and describes current practices that general aviation airports use to keep their facilities safe and secure.

E.2.4 National Business Aircraft Association (NBAA)

The NBAA represents over 10,000 companies that manufacture, supply and use business aircraft. Following the September 11, 2001 terrorist attacks the NBAA Security Council developed a method to document and present to the FAA the best practices for business aviation security. NBAA members and airports are urged to review these best practices to help ensure the best possible security for aircraft both at and away from home base.

E.2.5 Aircraft Owners and Pilots Association (AOPA)

With over 100,000 members, AOPA is the largest general aviation advocacy group in the U.S. AOPA's primary areas of focus include aviation safety and security. They have created the Air Safety Institute which provides training, seminars and publications related to the interest and promotion of safety. AOPA has teamed with the TSA to develop the Airport Watch Program which includes warning signs for airports, informational literature, and a training video to teach pilots and airport employees how to enhance security at their airports. A reporting system has been created that allows pilots and airport visitors to report suspicious activity to 866/GA-SECURE (866/427-3287) designed to activate law enforcement when security issues arise.

E.2.6 New Mexico Department of Transportation – Aviation Division

In addition to coordinating, administering, and authorizing state grants for improving the aviation infrastructure in the State of New Mexico, the Aviation Division also conducts pilot seminars dealing with safety issues and inspects New Mexico airports on behalf of the Federal Aviation Administration.

Through the regulation and guidance from these and other aviation organizations, the safety and security of airports throughout the country is continually maintained and improved. For CVN, the rules and regulations, minimum standards and physical conditions of the facilities allow for the safe and secure operation of the Airport. The

following section will evaluate current safety and security practices of the Airport, consider rules and guidance developed by the organizations discussed above, and apply industry best practices to recommend enhancements to safety and security at CVN.

E.3 ENHANCING SAFETY AND SECURITY

Although CVN has commercial air service provided through the Essential Air Service (EAS) Program, most of CVN's operations involve general aviation aircraft and much of the Airport operates as a general aviation airport due to the fact that passenger air service from CVN is not screened by the TSA. In the event passenger screening is provided by TSA at CVN, a new, higher level of security procedures would be instituted that would allow passengers to "enter" the national airspace system for passenger flights and commercial service airports. Currently, passengers are screened at their destination airport, before boarding other flights.

Following the terrorist attacks of September 11, 2001, scheduled airlines resumed their operations within days while most general aviation operations were grounded for weeks, and in some cases months. The general aviation industry instituted a myriad of voluntary and regulatory changes to harden against threats from terrorism. Listed below are some of the nationwide programs and measures related to safety and security at airports that have been instituted since September 11, 2001.

- The Airport Watch Program encourages pilots and visitors at general aviation airports to report suspicious activity to a toll-free number staffed 24 hours a day by TSA operations staff.
- The aircraft manufacturing and sales community has procedures to report suspicious financial transactions during the purchase or sale of an aircraft.
- The flight-training industry complies with strict government standards that screen non-U.S. citizens seeking flight training in the United States.
- The FAA issues tamper-proof licenses for pilots, flight instructors, air traffic controllers and maintenance technicians.
- The nation's law enforcement agencies cross-check the FAA's airman and aircraft registries against known terrorist and criminal databases.
- Chartered business aircraft weighing over 12,500 pounds must comply with TSA mandated security procedures similar to those of the scheduled airlines.
- TSA's Aviation Security Advisory Committee, consisting of government and industry security experts, develops best practices and recommendations to strengthen security at general aviation airports.

The safety and security of an airport is dependent on four key contributing factors: people, facilities, aircraft, and procedures. The operation and safety/security mechanisms in place at CVN were reviewed during the course of the master planning process. Based on that review and using industry best practices, the four contributing factors to airport safety and security at CVN can be enhanced in the following ways:

People

- Establish a Safety and Security Champion role – It is important that the Airport have a designated staff member serve as a safety and security champion, whose role it is to consider the safety and security implications involved with the operation, management and planning of the Airport. Although this role may be combined with other responsibilities, the safety and security champion would always consider the safety and security aspects of the Airport. At CVN, this role may be assumed by the Airport Manager or his designee.
- The Airport should establish and maintain a communications link with the City of Clovis Police Department to ensure rules and regulations to promote a safe and secure operating environment is enforced at the Airport. Part of this communications link may include regular meetings and phone conversations to discuss issues and proper communications channels, but could extend to close-circuit monitoring of key airport areas by police staff in a remote location. This form of surveillance is not uncommon at other similar sized airports.
- Airport safety, security and operations personnel should complete annual safety and security training. The training should cover all unique aspects of CVN and explicitly define the roles of personnel during an emergency or incident. One common form of training is to hold a mock situation where airport staff, tenants, aircraft rescue and firefighting personnel, police, and others gain a practical understanding of their role in a real-time situation.
- Remain diligent and not be complacent to situations outside normal conditions. Airport, FBO and tenant staff should freely approach visitors, those they don't know or individuals that appear out of place, and challenge them. Challenging a suspicious person involves approaching them, asking they who they are, what they are doing, and why.
- Use a government issued photo ID to verify identity of any visitor or vendor. Although CVN does not employ an identification or badging system for tenants and users, asking someone for identification and reporting the event to airport management is good way to ensure the right people are in the right places for the right reasons. A policy to escort all visitors on the ramp and in the hangar area should be instituted.

Facilities

- Ensure facility perimeter security with effective fencing, lighting, security patrols, gates and limited access areas. CVN has limited fencing, lighting, and gates that control and limit access to airfield areas. Based on common industry practices for airports like CVN, it is recommended that fencing enclose the entire airport perimeter. Lighting and gates should be positioned to allow for convenient, yet controlled and monitored access to the airfield and hangar areas.

- Ensure landside gates and doors are closed and locked at all times. It is common practice that the person that enters or leaves a secure area remain close to the access area until the door or gate closes behind them. This ensures no unauthorized person goes through the door or gate after an authorized person goes through. This type of practice and awareness should be taught to airport tenants and users during safety and security training.
- Implement an access control management system for all external gates and doors. Most of the doors and gates at CVN are unrestricted, unmonitored and have no access control. It is recommended that the Airport develop a plan to lay out a limited number of airfield access points. Access through the airfield gates or doors should be controlled with an identification system that records who entered, a password system to grant/deny access, and monitoring system to visually record the event.
- Close and lock hangar doors when that area is unattended. Although this may be viewed as common sense and regularly practiced, this is not always the case. Closing and locking unattended facilities helps deter unwanted visitors. This includes securing all key storage areas (food and liquor, parts and tools, etc.)
- Post emergency numbers prominently around facility and near every access point. Some airports provide access to phones or "panic buttons" in various facility locations (gates, hangar areas, etc.)
- Airports providing FAR Part 139 air carrier operations are required to have Airport Rescue and Firefighting (ARFF) facilities. The CVN ARFF building is approximately 1,340 square feet and is located adjacent to the terminal, abutting the main apron area. It houses the Airport's fire truck and provides appropriate fire personnel support space. This central position allows any emergency operations to provide a rapid response. As indicated in the master plan, it is recommended that the ARFF station be expanded.

Aircraft

- Some states have implemented a statewide two- or three-lock rule whereby general aviation aircraft parked or stored for more than a 24-hour period use a combination of two or three locking devices to secure or disable the aircraft to reduce its chances of being tampered with or misused. Although not many aircraft are parking on the apron at CVN, this rule could apply to aircraft stored in hangars as well. Aircraft door, magneto/ignition, prop, and yoke locks are all considered valid methods for securing an aircraft and could be used in tandem, if this rule were implemented at CVN. If so equipped, an aircraft's security system should be activated whenever it is unattended to prevent unauthorized entry.
- Flight crewmembers, pilots, owners, service technicians or maintenance workers must be present when the aircraft is being serviced (fueling, catering, loaded, etc.)

- Check lavatories, baggage compartments and all cavities for unauthorized people or objects prior to every departure.

Procedures

- Airport and FBO staff, tenants and frequent users should participate in an annual safety and security training seminar. It should be noted that some organizations listed earlier could be contacted to participate in and/or lead the training.
- In addition to the ASP approved by the TSA, the airport manager should maintain a safety and security information program which defines related procedures and documents issues/incidents involving safety and security. The document could also contain a security plan for specific areas and potential events. This is sometime called an Emergency Response Plan and should be developed, maintained, and exercised on a regular basis.
- Methods and policies in place to ensure passengers, crewmembers or their agents maintain positive control of luggage.
- Although it may not currently be enforced, it is recommended that the Airport and FBO staff as well as crewmembers display photo IDs to distinguish themselves as employs of the Airport or key tenant that can and will be expected to assist in the event of an emergency.

E.4 SUMMARY

This element of the master plan is intended to provide some recommendations to improve the safety and security of CVN. These recommendations are things that people can do, facilities that can be improved, aircraft that can be secured and procedures that can be implemented to enhance safety and security. Chief among the recommendations are:

- Implementation of an identification and access control system.
- Airfield and terminal area improvements to include expanded fencing encompassing the entire airport perimeter, access area lighting, and monitoring equipment.
- Expanded ARFF facility, but remaining near its current, central location.
- Methods to restrict aircraft access including a two- or three-lock rule to prevent tampering.
- Safety and security training as well as the on-going development, maintenance and exercise of an emergency action plan.

These and other recommendations made throughout the master plan will help ensure the Airport is safe and secure. Through the development of expanded passenger air service and/or a greater level of general aviation activity, additional enhancements to safety and security may be required. If the TSA decides to locate

an operation at the Airport in order to facilitate passenger screening for CVN passenger flights, a much greater level of terminal building and terminal area security will be required. Terminal building modifications include passenger and baggage screening areas, separation of screened and unscreened passengers and baggage, enhanced access control and monitoring equipment, TSA offices and other accommodations. The Terminal Building Assessment (Appendix C) defines these areas in more detail and provides recommendations for their development. Terminal area improvements include surveillance systems, clearance areas to further separate secure/non-secure areas, and improved fencing.

Appendix F:

RULES AND REGULATIONS

F.1 INTRODUCTION

As part of the master plan effort, updated airport rules and regulations were drafted for consideration by airport management, airport board and city commission. The attached document servers as a draft Rules & Regulations document that may be adopted by the city commission. It is recommended that this document be updated regularly to reflect common and current industry practices as well as ever changing airport conditions.

Clovis Municipal Airport

Clovis, New Mexico

Rules & Regulations

2015

Forward

Best practices, with respect to airport management and administration, dictate that an airport establish, adopt and enforce “rules and regulations” for the operation of the airport. Generally, a rules and regulations document for an airport is typically established to facilitate the safe, orderly, and efficient use of that airport for the benefit of its users and investors. Its primary purpose is to ensure that airport tenants and customers operate in a safe and orderly fashion in order to protect the public health, safety, interest, and welfare, as well as to restrict (or prevent) any activity which would interfere with the safe and orderly use of the airport. An effective document will be applicable and enforced at all times and is designed to focus on all persons or entities that use the airport for any purpose, including lessees (operators and tenants), sub-lessees, consumers and users.

A rules and regulations document should establish the necessary administrative, operational and safety rules and regulations for the management of an airport, and should emphasize those areas (i.e. operations or activities) that are unique. It should also complement, but not duplicate, other aviation guiding documents (i.e. minimum standards) or other applicable regulatory measures. The document itself should be geared to the everyday user, such as an aircraft owner or anyone performing airport maintenance, and should be easy to read and reference. Additionally, since this document should be readily available, many airports have provided links to their documents on their website and/or have printed this particular document in a booklet form with a hard cover for easy storage in a pilot's flight bag.

For Clovis Municipal Airport, (hereinafter referred to as the “Airport”), the establishment of an appropriate and effective rules and regulations document would be consistent with its administrative and management practices. Therefore, adoption of such a document would be advisable for the Airport. Additionally, it should be noted that in order for a rules and regulations document to provide the greatest benefit to the City of Clovis (hereinafter sometimes referred to as the “City”) citizens and its flying public, this document should be adopted by the City Commission. Such an action would provide the Airport Director with enforcement authority, including providing penalties for violations.

This document provides rules and regulations considered to be appropriate for use by Clovis Municipal Airport in the establishment of its own Airport Rules and Regulations document. While every attempt has been made to specifically craft this document toward the attributes of Clovis Municipal Airport, it should nevertheless be specifically examined closely and amended with respect to the unique characteristics and requirements of the Airport and management.

The following provides the general framework for an effective rules and regulations document for Clovis Municipal Airport, as well as supporting sub-sections and narratives.

Table of Contents

Section 1. Definitions

The words and phrases included within this section should be understood as defined below with respect to rules and regulations documentation, unless from the context a different meaning is intended, or unless a different meaning is specifically defined and more particularly ascribed to the use of such words or phrases. All definitions contained in 49 U.S.C. § 40101 et seq. (previously known as the Federal Aviation Act of 1958, hereinafter cited as "FAA Act") and all amendments thereto shall be considered as included herein; and all definitions shall be interpreted on the basis and intention of the FAA Act and amendments thereto unless from the context a different meaning is intended, or unless a different meaning is specifically defined and more particularly ascribed to the use of such words or phrases. The definition of "Airport", "aircraft", "airplane", and other common terms used herein as defined in Part 1, Code of Federal Regulations, Title 14, Aeronautics and Space.

Abandon - as applied to property left at the Airport, means that the object has been left on City property or the property of another without consent of the City for forty-eight (48) hours without the owner moving or claiming it. Such property shall be impounded by the Sheriff's office and/or towed at the owner's expense.

Accident - a collision or other contact between any part of an aircraft or a vehicle, person, stationary object or other thing which results in property damage, personal injury, or death; or an entry into or emerging from a moving aircraft or vehicle by a person which results in personal injury or death to such person or some other person or which results in property damage.

Aeronautical activity - any activity or service that involves, makes possible, or is required for the operation of aircraft, or contributes to, or is required for, the safety of such operations. "Aeronautical activities" include, but are not limited to, scheduled commercial passenger service, charter operations (under either Federal Aviation Regulation (FAR) Part 121 or 135), charter brokerage, aircraft hangar leasing, pilot training, aircraft rental and sight-seeing, aerial photography, crop dusting, fire suppression, aerial advertising and surveying, aircraft sales, leasing and servicing, aircraft management, and sale of aviation petroleum products, whether or not conducted in conjunction with other included activities which have a direct relationship to the operation of aircraft, repair and maintenance of aircraft, sale of general aviation aircraft parts, and other activities which because of their relationship to the operation of aircraft can appropriately be regarded as an "aeronautical activity."

Aeronautical business permit - administrative approval issued by the Airport Director to a person or company to conduct commercial activity and provide such services to based and transient aircraft on the Airport only in facilities on the Airport at which such services are authorized.

Aircraft - any device intended to be used, or designed, to navigate, or fly in the air.

Aircraft fuel - all flammable liquids composed of a mixture of selected hydrocarbons expressly manufactured and blended for the purpose of effectively and efficiently operating: (a) an internal combustion engine; or (b) a jet or turbine engine.

Aircraft operation - an aircraft arrival at, or departure from, the Airport.

Aircraft Operations Area (AOA) - includes aircraft aprons, ramps, taxiways, taxilanes and runways where aircraft movement is expected to occur.

Aircraft parking and storage areas - those hangar and apron locations on the Airport designated by the Airport Director for the parking and storage of aircraft, and such areas of the Airport designated for aircraft maintenance, engine run-up, and self-fueling.

Airport - the entirety of City-owned or leased real or personal property comprising Clovis Municipal Airport as it currently exists or as it may hereafter be expanded and developed. "Airport" includes all of its facilities as shown on the most current Airport Layout Drawing. "Airport" with a capital refers to Clovis Municipal Airport for which these rules are adopted.

Airport Director - the duly appointed director of the Airport or the director's designee, as currently established by the City of Clovis. It may hereafter, however, be designed as another representative duly appointed by the City Manager.

Airside - the area of the Airport that is either contained within the Airport perimeter fence, or which requires access through a controlled access point.

Based aircraft - an aircraft: (1) which the owner physically locates at the Airport with no present intention of definite and early removal and with the purpose to remain for an undetermined period; (2) which, whenever absent from the Airport, its owner intends to return to the Airport for permanent storage or parking; and (3) whose presence on the Airport is something other than merely transitory in nature.

Based location - the location on the Airport that is listed as an aircraft's hangar, shade or tie down location as registered with the Airport Director.

Commercial activity - the conduct of any aspect of a business, concession or service in order to provide goods or services to any person for compensation. An activity is considered commercial activity regardless of whether the business is nonprofit, charitable, or tax-exempt.

CTAF - Common Traffic Advisory Frequency

FAR - Federal Aviation Regulation(s) established by the Federal Aviation Administration.

Fixed Based Operator (FBO) - any person, firm or corporation which maintains facilities at the Airport for the purpose of engaging in the retail sale of aviation petroleum products, associated line service, aircraft airframe and/or engine repair and a minimum of two (2) of the following: flight instruction, aircraft rental/sales, air taxi, aircraft charter operations, avionics, instrument or propeller repair, or aircraft storage.

Fuel handling - the transportation, delivery, fueling, and draining of fuel or fuel waste products, and the fueling of aircraft.

Fuel storage area - any portion of the Airport designated temporarily or permanently by the City as an area in which gasoline or any other type of fuel may be stored or loaded.

General aviation - all phases of aviation other than aircraft manufacturing, military aviation, and scheduled or non-scheduled commercial aircraft operations.

Hazardous material - any hazardous or toxic substance, waste or material:

A. the presence of which requires investigation, removal and/or remediation under any federal, state or local statute, regulation, ordinance, order, action, policy or common law;
B. which is or becomes subject to regulation under any federal, state or local statute, regulation, rule or ordinance or amendments thereto;
C. which is toxic, explosive, corrosive, flammable, infectious, radioactive, carcinogenic, mutagenic, teratogenic, or otherwise hazardous, and is or becomes regulated by any governmental authority, agency, department, commission, board, agency or instrumentality of the United States, the State of New Mexico or any political subdivision thereof; or
D. which, without limitation, contains trichloroethene (“TCE”), 1,1,1 - trichloroethane (“TCA”), 1,1 - dichloroethene (“DCE”), tetrachloroethene (“PCE”), 1,2-dichloroethene, chloroform, gasoline, diesel fuel, propane or other petroleum hydrocarbons, polychlorinated biphenyls ("PCBs"), asbestos, urea formaldehyde foam insulation or radon gas.

Landside - the general public-use common areas of the Airport such as public roadways, parking lots and buildings which are not contained in the airside area.

Local aircraft operations - aircraft operating in the local air traffic pattern or within sight of the airfield; aircraft that are known to be departing for, or arriving from flight in local practice areas located within a twenty (20) mile radius of the Airport; or aircraft making simulated instrument approaches or low passes at the Airport.

Major aircraft alterations and repair - major alterations and/or repairs of the parts or of the types listed in FAR Part 43x.A.a and 43x.A.b.

NOTAM - Notice to Airmen. NOTAMs are created and transmitted by the FAA and airport management to alert aircraft pilots of any hazards en route or at a specific location.

Owner of an aircraft - a person who holds legal title to an aircraft, or any person having exclusive possession of an aircraft pursuant to a written lease for a minimum term of twelve (12) months.

Park or parking - the standing of an aircraft or vehicle, whether occupied or not.

Pedestrian - any person traveling on foot.

Permission or permit - permission granted by the City and/or Airport Director.

Preventive aircraft maintenance - maintenance that is not considered a major aircraft alteration or repair and does not involve complex assembly operations.

Public area - those areas normally used by the general public, including structures and devices such as roadways, sidewalks and terminal facilities that are maintained and kept at the Airport for use by the general public.

Roadway - any street or road whether improved or unimproved, within the boundaries of the Airport and set aside or designated for use by vehicles, whether dedicated or not.

Smoking - burning or carrying any lighted cigarette, tobacco or any other weed or plant, or placing any burning tobacco, weed or plant in an ashtray or other receptacle and allowing smoke to diffuse into the air.

Specialized Aviation Service Operation (SASO) - An aeronautical business that offers a single or limited service.

Taxilane - the portion of the Airport apron area, or any other area, used for access between taxiways and aircraft parking and storage areas.

Taxiway - a defined path established for the taxiing of aircraft from one part of the Airport to another.

Technical specialist - a technical representative of an aircraft manufacturer, aircraft engine manufacturer, aircraft appliance manufacturer, or a non-destructive inspection specialist.

Traffic pattern - the traffic flow that is prescribed for aircraft landing at, taxiing on, or taking off from the Airport.

Through-the-Fence Operator – (also known as an Off-Site Operator) when the owner of a public airport permits access to the public landing area by independent operators offering an aeronautical activity or by aircraft based on land adjacent to, but not a part of, the airport property. Through-the-fence operations include businesses or individuals that have access to the airport infrastructure from outside airport property, or that utilize airport property to conduct a business but do not rent business space at the airport. More common types of through-the-fence agreements are for free-lance flight instruction, aircraft maintenance, and aircraft hangars.

Vehicle - means a device, except aircraft, in, upon, or by which any person or property is or may be propelled or moved, except a device moved by human power.

Vehicle parking area - any portion of the Airport designated and made available temporarily or permanently by the City for the parking of vehicles.

Section 2. Purpose, Scope and Authority

Purpose and Scope

An ordinance providing rules and regulations for the efficient and safe operation of the Clovis Municipal Airport; and to provide the greatest service for the citizens of the City of Clovis and the aviation public is adopted by the City Commission providing enforcement by the Airport Director.

Authority

The Airport Director shall at all times have the authority to enforce the provisions of these Rules and Regulations. In any instance not specifically covered by this article, the Airport Director is authorized to make such emergency rules and regulations and render such decisions as are necessary to protect the public health, welfare, and safety, and the airport property and facilities. Such emergency rules shall be posted in prominent places on the Airport premises and shall remain in effect for a period of 30 days unless sooner adopted or rejected by the City Commission.

Waiver of Liability

Any permission granted by the Airport Director to use the Airport and its facilities, or to fly to, from, or over the same shall be at all times conditioned upon the assumption of full responsibility and risk associated therewith. It shall be a further condition thereof that each person, as consideration of the use of the Airport and its facilities, shall at all times release the Airport, the Airport Director, City and its employees from and against any and all liability, responsibility, loss or damage, resulting to any such person or caused by or on his behalf, and incident to the manner in which Airport is operated, constructed or maintained, or served from within or without, or used from without. The use of the Airport by any person for any purpose, or the paying of fees thereof for the taking off or landing of aircraft therein shall be itself an acknowledgement that such person accepts such privileges on the conditions herein set forth.

Section 3. Use of Airport Restricted

No person, partnership, firm, association, corporation or entity, incorporated or otherwise, shall use the Airport for any commercial activity, unless approved by a written permit from the City Commission, Airport Director or duly authorized agent.

Section 4. General Rules and Regulations

These rules and regulations shall be observed in the use and operation of the Airport:

Rule 4-1. Federal Air Traffic Rules of the Federal Aviation Administration (FAA) for aircraft operated within the United States, and presently or hereafter effective, are hereby referred to, adopted and made a part hereof as though fully set forth and incorporated herein.

Rule 4-2. Safeguard of Persons and Property – The Airport Director shall at all times have authority to take necessary and legal actions to safeguard any person, aircraft, equipment, or property at the Airport.

Rule 4-3. Through-The-Fence Operations Prohibited – No private individual, partnership, FBO, company, or corporation shall be permitted direct ground access to the Airport, runways or taxiways by their aircraft, customers' aircraft, or private vehicle from property not owned by the Airport. Furthermore, no off-airport private individual, partnership, company, corporation, will be permitted to conduct business at the Airport without authorization from the City Commission or Airport Director. Under extenuating circumstances, the City Commission may grant certain through-the-fence operations on a case by case basis.

Rule 4-4. Lien for Charges – To enforce the payment of any charge for repairs, improvements, storage, or care of any personal property by the City or its agents in connection with the operation of the Airport, the City may place a lien upon such personal property, which shall be enforceable as provided by law.

Rule 4-5. Lien Possessory Right – To enforce the payment of any such charge, the Airport Director may retain possession of such personal property until all reasonable, customary, and usual compensation has been paid in full.

Rule 4-6. Unauthorized Signs and Equipment – No signs, non-aeronautical equipment, portable buildings, or trailers may be erected, moved-in, or installed in areas suitable for aircraft storage, except as authorized by the Airport Director. Vacant space within a hangar, which is unsuitable for aircraft storage, may be utilized for alternate uses as long as they adhere to all safety and security requirements outlined within this document.

Rule 4-7. Surreptitious Activities – Any person observing suspicious, unauthorized or criminal activities should report such activities immediately to the Airport Director, Sheriff's office, officers of the New Mexico Department of Public Safety, and the Transportation Security Administration Information Hotline at 1-866-GASECUR(E).

Rule 4-8. Wrecked Aircraft – Every aircraft owner, his/her pilot or agents, shall be responsible for notifying FAA and promptly removing disabled or wrecked aircraft from the operational areas of the Airport, under the direction of the Airport Director.

Rule 4-9. Repairs to Aircraft – No aircraft shall be repaired on any part of the landing or takeoff area. All outside repairs shall be made only at places designated by the Airport Director for such purpose. Major engine, airframe, or avionics repairs shall be conducted by a properly licensed mechanic or other person authorized by the FAA within a hangar or building rented, leased, or owned for such commercial purposes. Any preventative maintenance authorized by FAR Part 43 may be made by the owner or operator of any aircraft, but only within a hangar leased or owned by that aircraft owner or operator or at places designated by the Airport Director for such purpose.

Rule 4-10. Damage to Airport – Any person, individual, or the owner of any aircraft causing damage of any kind to the Airport, whether through violation of any of these rules, through vandalism, or any act of negligence, shall be liable to the City.

Rule 4-11. Injury to Person – Persons entering the Airport groundside property by automobile, other vehicular conveyance, or on foot (does not include persons in aircraft using approved airside facilities) do so at their own risk and with no liability incurring to the City for any injury or damage to person or property. Further, any person desiring to use the Airport shall observe and obey all laws, resolutions, orders, rules, and regulations promulgated and enforced by the City or by any other authority having jurisdiction at the Airport.

Rule 4-12. Licensed Pilots – Only aircraft with current and correct FAA Certificates of Registration and Airworthiness and persons holding valid and current airman and medical certificates issued by the FAA, for those flight operations requiring medical certificates, shall be authorized to operate aircraft upon the Airport except as provided in this ordinance. This limitation shall not apply to student-in-training under licensed instructors or to public aircraft of the Federal government or of a State, Territory, or political subdivision thereof, or to aircraft licensed by a foreign government with which the United States has reciprocal agreement covering the operation of such licensed aircraft. Use of the Airport by ultralight aircraft (FAR 103) and light sport aircraft in the weight shift control and powered parachute class shall be subject to approval by the City Commission and shall be in accordance with FAA Order 5190.6 (latest change) and appropriate FARs Part 61 and 103 and any other rules established by the City.

Rule 4-13. Registration – Each person owning an aircraft based at the Airport, or any person based and receiving flight instruction toward an FAA rating at the Airport shall register at the office of the Airport Director with their name, address, telephone number, aircraft model, aircraft registration “N” number and the name, address and telephone number of their next of kin or person to be notified in case of an accident or emergency.

Rule 4-14. Animals – No person shall enter the Airport with a dog, cat, or other animal unless the animal is, and remains, restrained by a leash or properly confined as determined by the Airport Director.

Rule 4-15. Living Quarters – No person may make permanent living quarters on Airport property unless approved by the Airport Board and City Commission.

Rule 4-16. Intoxicants and Narcotics Prohibited – No person under the influence of any intoxicant, narcotic, or other illicit drug shall operate or fly in any aircraft to or from the Airport. Such prohibition shall not apply to a passenger under the care of a medical doctor and accompanied by a doctor, nurse, or caretaker.

Rule 4-17. Foreign Objects – No foreign objects, including bottles, cans, scrap, nuts, bolts, nails or any object that may cause damage to an aircraft shall be left upon the floor of any building or upon ant part of the surface area of the Airport. Individuals are encouraged to pick up such foreign objects when observed and place them in a trash receptacle.

Rule 4-18. Litter – No boxes, crates, cans, bottles, paper, tall grass, weeds, unusable airplane parts or wreckage, scrap wood or metal, discarded airplane or automobile tires, trash, or other litter shall be permitted to accumulate in or about a hangar, building, or other leased space. If such trash and litter is permitted to accumulate around privately owned, rented, or leased hangar / building, the Airport Director shall notify the hangar / building owner, renter or lessee by registered letter to remove the offending litter. If within ten (10) work days after the receipt of the letter the hangar/building owner, renter, or lessee has not removed the trash and litter as directed, the Airport Director may have the area cleaned and the cost for such cleaning shall be charged to the hangar/building owner, renter, or lessee.

Rule 4-19. Commercial Photography – No person shall take still, motion or sound pictures of, or at, the Airport for commercial purposes without first receiving a duly-authorized permit from the City, written approval from the Airport Director, and paying any applicable fee(s). This regulation does not apply to bona fide coverage by the news media conducting their business in authorized areas.

Rule 4-20. Advertisements – No person shall post, distribute or display signs, advertisements, circulars, printed or written matter at the Airport without written permission from the Airport Director.

Rule 4-21. Soliciting – No person shall solicit funds for any purpose on the Airport, without prior notification to the Airport Director who may demand proper identification and who shall ascertain that all necessary licenses and permits have been secured.

Rule 4-22. Right of Entry – The City of Clovis reserves the right to enter upon any premises leased at the Airport for the purpose of making inspections as to the condition of the premises and proper enforcement of rules to ensure the safety and security of all tenants and users.

Section 5. Ground Operations

Rule 5-1. Air, Ground & Vehicular Traffic – No person shall operate a vehicle on the Airport except in accordance with the following rules, federal, state, and local laws:

A. All vehicular traffic shall be confined to the roads, streets, avenues and alleys provided on the grounds for that purpose.

B. All vehicles shall yield right of way to aircraft in motion or emergency vehicles.

C. No vehicle except ground service and emergency vehicles shall approach so close to any aircraft with running engine(s) as to create a hazard.

D. All vehicles entering or exiting an operating Airport gate shall wait for the gate to completely close behind them before proceeding to their destination so as to not allow the entry of any other vehicle.

E. Any vehicle authorized to operate on the Airport runways or taxiways shall display a rotating or steady beacon that complies with FAA Advisory Circular 150/5210 (latest change). Vehicles used by the City, Airport Director or other authorized personnel to check airfield areas may be required to have an amber flashing/rotating light on top of the vehicle or an approved white and orange checked flag attached to the vehicle.

F. All vehicles that are authorized to operate on taxiways or the runways must be equipped with a two-way aviation radio, and must monitor the published Common Traffic Advisory Frequency (CTAF) for the Airport, and have the ability to communicate with aircraft via two-way aviation radio.

G. Vehicles shall be parked in designated areas so as to minimize conflict with aircraft movement. If vehicles parked in or near the aircraft movement area are deemed to create a safety hazard by the Airport Director, they must be moved by the owner upon notification or otherwise at the owner's expense.

Rule 5-2. Speed Limits – All vehicles shall be operated within the posted speed limits at the Airport. The maximum speed limit for all vehicles in the airside area, with the exception of authorized municipal vehicles in the performance of their duties, is twenty (20) miles per hour, unless posted otherwise.

Section 6. Airport Security

Rule 6-1. Security – The Transportation Security Administration publication "Security Guidelines for General Aviation Airports", Information Publication A-001 dated May 2004, is available for reference at their website – http://www.tsa.gov/sites/default/files/assets/pdf/Intermodal/security_guidelines_for_general_aviation_airports.pdf This document is used by airports as a guideline to security on airports with general aviation activity and is incorporated as a working document.

A. No person shall enter the airside area, except as necessary for the lawful use of an aircraft thereon, or to conduct a permitted business activity and with the consent of the Airport Director.

B. No person shall enter any area posted as being closed to the public, except with the consent of the Airport Director.

C. No person shall enter into, remain in or place in, or remove any object from, any hangar or other building at the Airport without prior written consent of the City or the person with the legal right of possession of such building.

Title 49 of the Code of Federal Regulations (CFR), Chapter XII, Subchapter C contains Transportation Security Administration's (TSA) rules for civil aviation security. Part 1542, Airport Security, requires airport operators to adopt and carry out a security program. It describes requirements for security programs, including establishing secured areas, air operations areas, security identification display areas, and access control systems. This part describes the requirements related to Security Directives

issued to airport operators. Airport users are responsible for following all directives established by the Airport Director in accordance with TSA requirements.

Rule 6-2. Access Codes/Devices – Persons who have been provided either a code or device for the purpose of obtaining access to the Airport shall not divulge, duplicate, or otherwise distribute the same to any other person, unless otherwise approved in writing by the Airport Director. Violation of the aforementioned regulation may result in the loss of access privileges.

Rule 6-3. Doors & Gates

A. At no time shall any Airport access gate be left open and unattended in a manner that would allow unauthorized access.

B. Security doors leading into the airside shall be kept locked when not be used by an authorized person.

C. Automated vehicle gates are for vehicle access only. No pedestrians shall use an automated vehicle gate for pedestrian access.

D. Tenants shall be responsible for doors and gates located in their leased areas. Tenant security doors leading to the airside shall be keyed to the Airport master keying system. Tenants and tenant employees are responsible for safeguarding doors, gates, and other forms of passageways between the airside and public areas. Tenants are responsible for safeguarding aircraft and other private property entrusted to their care within the Airport or other locations on their leased premises.

Rule 6-4. Weapons – No person, except a police officer, authorized air carrier employee, Airport employee, or a member of an armed force of the United States on official duty, shall carry any weapon, explosive, or flammable material on or about his person, openly or concealed, on the Airport without the written permission of the Airport Director. This section shall not apply to persons carrying firearms in cases, broken down or unloaded, when said firearms are being transported by air. No person shall furnish, give, sell, or trade a weapon on the Airport.

Rule 6-5. Suspicious Activity – Any person observing suspicious, unauthorized or criminal activity should report such activities immediately to the Airport Director or Sheriff's Office.

Section 7. Aircraft Operation Rules

Rule 7-1. Aircraft Tie Downs – No person shall operate an aircraft on the Airport except in accordance with the following rules, and all federal, state, and local laws:

A. All aircraft not hangared shall be tied down and additionally should have the wheels chocked when remaining overnight or during inclement weather.

B. All aircraft owners or their agents are responsible for the tie down or security of their aircraft at all times and particularly during inclement weather.

C. Aircraft parked overnight on the apron may be required to pay a tie down fee for each night, as established by the Airport Director.

Rule 7-2. Aircraft Hangars – The use of aircraft hangars are expressly for the storage and parking of aircraft. Aircraft hangars and associated aircraft equipment and supplies are provided through the Airport's FBO(s) as approved by the City and Airport Director. Additional regulations related to the storage of aircraft may also be enacted by FBOs and are enforceable under the terms of their hangar lease agreement. Aircraft parked in hangars shall be parked in a manner so as to be completely contained in the aircraft parking space and not obstruct adjacent aircraft parking and storage areas or taxilanes, except for purposes of immediate and temporary staging and fueling of such aircraft.

Use of aircraft storage hangars shall be subject to the following restrictions:

A. Major aircraft alterations and repairs may be performed in hangars on the based aircraft with prior written approval of the Airport Director and the City Fire Department, unless otherwise approved by a lease with the City.

B. Where no personnel exit is provided, the sliding hangar doors shall remain open thirty-six (36) inches while the hangar is occupied by any person.

C. Oily rags, oil wastes, rags and other rubbish and trash may only be stored in containers with secondary containment and self-closing, tight-fitting lids as approved by the Airport Director.

D. Major aircraft alterations and repairs or preventive aircraft maintenance may be conducted on based aircraft at the based location as approved in writing by the Airport Director.

E. Oxygen or any combustible compressed gas in a cylinder or portable tank must be secured to a fixed location or secured to a portable cart designed for the cylinder(s) or tank(s). Compressed gas cylinders or tanks must have pressure relief devices installed and maintained. Cylinders or tanks not in use shall have a transportation safety cap installed.

F. Slow (trickle) battery chargers must have automatic shut-off capability, if left unattended. All other battery chargers shall only be used while the owner, operator, or tenant is in attendance.

G. Aircraft hangars shall be subject to annual and periodic inspections by the Airport Director and City Fire Department to ensure compliance with all laws, ordinances and these regulations.

Rule 7-3. Running Aircraft Engines

A. Aircraft not equipped with adequate brakes shall not be started until the wheels have been set with chocks attached to ropes or other suitable means of removing them.

B. No aircraft will be left running without a qualified person at the controls.

C. No aircraft engine shall be started or run inside any building or hangar.

D. No engine shall be started, run up, or warmed up until the aircraft is in such position that the propeller stream or jet blast will clear all buildings, other aircraft, and groups of people.

Rule 7-4. Damage to Airport Lighting – Any person damaging any runway, ramp, or taxiway light or fixture by operation of aircraft or otherwise, shall immediately report such damage to the Airport Director. Persons causing damage to runway or taxiway lights as a result of negligent operation of an aircraft or willful acts will be liable for replacement cost and may be charged with a misdemeanor.

Rule 7-5. Taxiing Aircraft

A. No person shall taxi an aircraft until it is reasonably ascertained there will be no danger of collision with any person or object in the immediate area.

B. Aircraft will be taxied at a safe and prudent speed and in such manner as to be under the control of the pilot in command at all times.

C. Aircraft not equipped with adequate brakes will not be taxied near buildings or parked aircraft unless an attendant (wing-walker) is at a wing of the aircraft to assist the pilot.

D. Aircraft shall not taxi onto the runway from the ramp and taxiway area if there is an aircraft approaching to land or on the ground in takeoff position. Aircraft waiting on the taxiway for another aircraft to take off or land will remain behind the runway holding position markings.

E. Aircraft shall not be taxied into or out of any hangar using the aircraft's engine. Aircraft must be towed or pushed using other equipment or machinery, with the aircraft engines off.

F. Although not required in Class E airspace, it is recommended that aircraft taxiing in the movement area be equipped with a two-way aviation radio, monitor the published CTAF for the Airport, and have the ability to communicate with aircraft via two-way aviation radio.

Rule 7-6. Parking Aircraft

A. Unoccupied aircraft shall not be parked or tied down within any protected area (object free area, runway safety area, etc.) as described in FAA AC 150/5300-13A (latest change) and all aircraft not hangared shall be parked in the areas designated by the Airport Director for that purpose.

B. Aircraft shall not be parked within fifty (50) feet on an aircraft fuel pump, or fuel service truck parking area.

C. Aircraft shall not be parked in such a manner as to hinder the normal movement of other aircraft and traffic unless specifically authorized by the Airport Director as an emergency measure.

D. It is the responsibility of the pilot in command when leaving a parked aircraft unattended to see that the brakes are set and/or it is properly chocked and/or tied down.

E. The prolonged storage of damaged/dismantled aircraft or aircraft that appear to be un-airworthy in aircraft shade hangars, tiedowns or other unscreened areas of the Airport shall not exceed thirty (30) calendar days after written notification from the Airport Director. The aircraft owner is required to diligently correct such condition as soon as possible to prevent an unsightly Airport appearance.

F. If any aircraft is parked in violation of this section or, in the determination of the Airport Director, presents an operational or safety concern in any area of the Airport, the Airport Director may cause the aircraft, at the owner's/operator's expense, to be moved. The City shall not be liable for any damages which may result from the relocation of the aircraft.

Rule 7-7. Loading and Unloading Aircraft – Loading and unloading single-engine aircraft with the engine running is prohibited. Exception will be approved by the Airport Director. With prior notification and approval from Airport Director, multi-engine aircraft may load/unload with the engine opposite of the open door running.

Rule 7-8. Authority to Suspend Operations – The Airport Director may suspend or restrict any or all operations whenever such action is deemed necessary in the interest of safety.

Rule 7-9. Aircraft Accident Reports – Any persons involved in an aircraft accident occurring on the Airport, within the City, or that involves aircraft which departed from or were enroute to the Airport, shall make a full report thereof to the Airport Director as soon after the accident as possible, but in no event later than the time required for reporting the accident to the FAA or to any other governmental agency, or within forty-eight (48) hours of the accident, whichever is sooner. The report shall include the names and addresses of the persons involved, and a description of the accident and its cause. When required by federal or state law, regulation, or agency, a copy of such report shall also be submitted to the Airport Director.

Rule 7-10. Standard Traffic Pattern and Altitude – All flight activity will adhere to FAA Advisory Circular 90-66 (latest change) "Recommended Standard Traffic Patterns and Practices for Aeronautical Operations at Airports without Operating Control Towers", also depicted in the Aeronautical Information Manual. Aircraft should follow published/recommended traffic pattern altitudes. The use of standard traffic patterns does not alter the responsibility of each pilot to see and avoid other aircraft. Arrivals and departures to and from the Airport shall avoid flight over populated, residential or noise sensitive areas whenever possible, consistent with safety.

Rule 7-11. Takeoffs on Other Than Runways – Takeoffs or landings shall not be made on the apron, parking ramp, taxiway, or any area other than designated runways by airplanes, gyroplanes, power lift, balloons, airships, ultralight, or light sport aircraft except by prearranged permission from the Airport Director. Helicopters may operate to and from designated helicopter landing areas.

Rule 7-12. Landings and Takeoffs – Low approach, full stop, touch and go, or stop and go landings may be made at the discretion of the pilot in command. Pilots remaining in the traffic pattern making landings should broadcast on the CTAF their pattern direction of turn and their landing (low approach, full stop, touch and go, stop and go) intentions at least by the final segment leg. All aircraft departing shall inspect the traffic pattern for potential conflicting traffic before taxiing into takeoff position. See FAR91.113 (g).

Rule 7-13. Preferred Runway – The preferred runway is determined by the wind, with aircraft landing and taking off into the wind. Contact UNICOM (122.8) for the preferred direction. Runway 22 is designated as the calm wind runway.

Rule 7-14. Student Training, Local Operations

A. Flight instructors shall avail themselves and their students of all rules and regulations, including local rules and FARs in effect at the Airport.

B. The Airport Director may designate and advise Airport users via public posting and electronic transmission of limited areas of the Airport and local areas sanctioned by the FAA for practice flying and student training.

Rule 7-15. Agriculture Spraying Operations – Agricultural (Ag) spraying operations will be conducted in accordance with procedures approved by the Airport Director. Ag operations shall be accomplished in accordance with the standards of the Environmental Protection Agency and the New Mexico Environment Department in an area so designated by the Airport Director. Each Ag operator shall carry liability insurance payable to the City/County for the cleanup of any hazardous chemical spills on the Airport property caused by the Ag operator. Further detail on insurance requirement levels are provided in Section 9.

Rule 7-16. Special Procedures, Parachuting

A. The Airport Director may, in the interest of safety, designate special traffic procedures for certain operations, such as helicopters, air shows or aviation fly-ins, agricultural operations, gyroplanes, powered lift, gliders, balloons, airships, ultalights, and light sport aircraft in the weight shift control or powered parachute class. Any such change from standard procedures shall be published in the FAA's Airport/Facility Directory, if of a permanent nature; or the Airport Director shall issue a NOTAM if such change is of a temporary nature. Permanent changes requiring filing through New Mexico Department of Transportation Aviation Division to the FAA. Temporary closing of a portion of the Airport for special events will be approved by the FAA, through NMDOT Aviation Division. See FAA ORDER 5190.6 (latest change)

B. Parachute descent onto the Airport shall not be permitted without 24-hour advance notice to the Airport Director. The Airport Director may develop operating procedures and landing areas for parachute operations.

Rule 7-17. Model Aircraft, Kites, Fireworks, Balloons, etc. – Flying of model aircraft within the confines of the airport is prohibited. No person shall fly or release a model aircraft, rocket, kite, fireworks, balloon, etc., within five (5) miles of the Airport except in those areas established for such purpose and approved by the Airport Director. Model aircraft operations for specific aeronautical events such as fly-ins or air shows may be approved for specific times by the Airport Director.

Section 8. Fueling, Flammable Fluids, and Fire Safety

Rule 8-1. Fueling Aircraft – Aircraft fuel sales at the Airport may be provided by the Airport or FBO(s) through self-service fuel pump or full-service. The selling of fuel at the Airport by any other person, business or organization is prohibited.

A. All aircraft fueling, fuel equipment, and procedures will be in accordance with current requirements established by the National Fire Protection Association (NFPA) 407, Standard for Aircraft Fuel Servicing, 1 Batterymarch Park, Quincy MA 02169-7471, 800-344-3555, http://catalog.nfpa.org.

B. All transportation, storage and other handling of aircraft and vehicle fuel shall comply with the International Fire Code, 2006 Edition, (or current edition) as published by International Code Council, Inc. and FAA Advisory Circular 150/5230-4B, (latest change).

C. All aircraft shall be fueled clear of all hangars, other buildings, and aircraft by at least fifty (50) feet.

D. Fueling trucks shall not be parked within any building or hangar or within 50 feet of any building, hangar, or parked aircraft. Fuel trucks shall be parked with at least ten (10) feet separation between vehicles.

E. Aircraft fuel storage tanks for below-ground or above-ground use will be constructed and installed, registered, monitored for leakage, operated, and maintained in accordance with Federal and State statutes, rules, and regulations promulgated by the Environmental Protection Agency and the New Mexico Environment Department.

F. Aviation or auto fuels shall not be stored within a T-hangar except in approved three (3) gallon or smaller containers manufactured and marked for such purpose and only with the approval of the Fire Marshal or Airport Director. Fuel stored in other hangars or buildings must be stored in fire storage lockers designed and intended to store fuel and approved by the Fire Marshal or Airport Director.

G. Persons or businesses wishing to dispense fuel into the privately owned aircraft shall not be denied, however, they must meet all reasonable requirements the City places on other fuel suppliers, public or private. Private fueling facilities located on leased or private property must be installed and the fuel dispensed in accordance with all rules applicable to aircraft fueling and fire safety contained herein.

H. Public sale of automobile gasoline for use in aircraft will not be permitted on the Airport without written approval of the Airport Director. Aircraft authorized by the FAA to use auto gasoline may be privately fueled by the owner in a location designated by the Airport Director in accordance with all rules appertaining to aircraft fuel and fire safety contained herein.

I. All aviation fuel storage tanks, aviation fuel pumps, hydrant fuel systems, and aircraft fuel service vehicles, whether publicly or privately owned, shall have the type of aviation fuel dispensed printed in large block letters, including octane if aviation gasoline, plus the fuel I.D. number, and “NO SMOKING” signs. This information shall be printed on all sides of the fueling tanks, pumps, etc so the information is visible from any direction on the ground.

J. All aviation fuel storage tanks, aviation fuel pumps, fuel hydrants, and aircraft fuel service vehicles, whether publicly or privately owned, shall be subject to annual inspections and require applicable certifications.

K. Fuel spills in excess of one gallon must be reported to the Airport Director and immediate action taken by the spilling entity to clean up the spill in accordance with all local, state, and federal regulations.

L. Persons shall not fuel an aircraft in a manner that overfills the tank(s) or causes the tank(s) to leak fuel through its vent. In the event of spillage or dripping of gasoline, oil, grease or any material that may be unsightly or detrimental to the Airport, the same shall be removed immediately and the incident reported to the Director within two hours. The responsibility for the immediate removal of such gasoline, oil, grease or other material shall be assumed by the operator or owner of the equipment causing the same or by

the tenant or concessionaire responsible. In the event of such spillage, and the failure of the operator or owner to restore the area to its original safe and environmentally sound status, the City may clean up any material unlawfully spilled, placed or otherwise deposited at the Airport and may charge the responsible person(s) for the cost of the cleanup, any required environmental remediation, and any expenses incurred by, or fines or damages imposed on, the City as a result thereof.

M. Fueling of boats, motor homes, ATVs or other recreational vehicles is prohibited in the airside area.

N. Any individual or business dispensing fuel at the Airport must have liability coverage with the Airport added. Coverage limits are provided in the Airport Minimum Standards.

Rule 8-2. Fuel Flowage Fee – Any person, corporation, partnership, association, or business entity who dispenses fuel at the Airport for private or commercial purposes directly into any aircraft on the Airport must pay the City a fuel flowage fee (as posted or as established by the City Commission). This fee does not apply to the filling of fuel storage tanks by fuel distributors. Payment to the City of all fuel flowage fees must be made not later than the fifteenth (15) day of the month following the date of the fuel delivery. Payment of fuel flowage fees shall be accompanied by a report in a form approved by the Airport Director that indicates the amount of fuel delivered to the Airport during the preceding month. Military aircraft conducting operations which require fueling from U.S. Government facilities are exempt from fuel flowage fees.

Rule 8-3. Fire Safety

A. Every person using the Airport or its facilities in any manner shall exercise the greatest care and caution to avoid and prevent fire.

B. Smoking or open flame within fifty (50) feet of any fuel tank, fuel pump, or fuel truck is prohibited.

C. Compressed flammable gas shall not be kept or stored upon the Airport, except at such place as designated by the Airport Director and approved by the Fire Marshal.

D. No flammable substance shall be used for the cleaning of any aircraft part or anything inside a hangar, T-hangar, or other building upon the Airport.

E. No one shall smoke or ignite a match or lighter in any building, hangar, or public ramp area except in posted “Designated Smoking Areas” identified by the Airport Director.

F. Hangar entrances must be clear in a manner such that emergency or fire / rescue personnel and equipment can immediately access the hangar without hindrance.

G. The floors in all buildings shall be kept clean and free of oil. Volatile or flammable substances shall not be used to clean floors, walls or any portion of a hangar structure.

H. Airport tenants and lessees are strongly encouraged to supply and maintain adequate and readily accessible fire extinguishers. Each fire extinguisher should carry a suitable tag showing the date of the most recent inspection.

Section 9. Lease of Airport Property and Construction on Airport

Hangars and other buildings or structures owned by the City may be leased to private individuals, companies, or corporations on a monthly or yearly basis for the storage of aircraft and ancillary equipment or to conduct a commercial enterprise, such as an FBO.

The City may lease property within the building area or other portions of the Airport for the construction of hangars, buildings, lean-tos, aprons, taxiways, and auto parking lots in accordance with an approved Airport Master Plan/Airport Layout Plan and designed guidelines. Aviation related use must be given priority in the use of all leased or privately owned property, buildings or structures. If the aviation needs of the Airport are sufficiently met, the City Commission may authorize non-aviation use of any portion of the Airport or any building on the Airport on a case-by-case basis. Application of such non-aviation use shall be made to the City Commission; and approved from NMDOT Aviation Division and/or FAA must be received prior to granting authorization for non-aviation use.

Rule 9-1. Lease Term – Standard leases of airport property or facilities shall have an initial term of 20 years, or less; and the total lease term, including renewals and extensions, shall not exceed a total lease term of 40 years. The City shall consider all factors (type of business, specific needs, loan terms, etc.) in negotiating on a case by case basis, considering consistency, far and uniform treatment, and assurance made to federal agencies.

All leases shall be subject to review and reevaluation at the end of their term or within their period, to adjust lease rates in relation to the consumer price index. If the consumer price index as determined by the City of Clovis has changed, the lease rates may be changed to such percentage as established by the lease.

Rule 9-2. Construction on Leased Property

A. The FAA Form 7460-1, “Notice of Proposed Construction or Alteration,” (or most current FAA approved form) will be completed for all construction and submitted to the Airport Director to forward to NMDOT Aviation Division. NMDOT Aviation Division will review the form for completeness and accuracy, then forward to the FAA for the air space study. A favorable determination must be received from the FAA prior to any construction on the Airport. No hangar or structure may be erected beyond the building restriction line or in conflict with the approved Airport Layout Drawing.

B. All plans and specifications for construction, renovation, remodeling, or refurbishing of the leased premises shall meet all current standards established by the International Building Code and the National Electrical Code, and shall provide for the construction to be from material satisfactory and acceptable to the City Commission. All construction must be of a compatible standard of withstanding winds of 85 miles per hour with doors open or closed.

C. All construction shall be in accordance with design and construction standards required or established by the City of Clovis for the facility or activity involved. The Airport Director must have written approval of the plans and specifications must be obtained prior to construction of the improvements.

D. T-hangars and FBO hangars are constructed for the primary use of Aircraft only. They are not to be used for equipment or personal storage of other contents. This is to be enforced by the Airport Director if it's unsuitable or gone beyond the needs of aircraft storage. A tenant can obtain exception from this rule through application to the Airport Director and approval by the City Commission. Small storage units, not intended to store aircraft, are exempt from this rule.

E. Any privately owned structure or hangar not in use for aviation purposes for a period in excess of ninety (90) days or not available for lease or sublease for aviation purposes, unless so authorized for non-aviation uses by the City Commission, must be removed after due notice to the owner in writing or the City Commission will consider such structures or hangars abandoned and will seek title to such structure or hangar.

F. Title to any and all buildings and apparatuses, which may be built on Airport property, shall revert to the City of Clovis when the subject tenant vacates their lease for any reason.

G. Leased land which any building, hangar, or structure is removed, after due notice will be cleared, cleaned, and returned to its original/acceptable condition.

Rule 9-3. Assignment and Sub-letting – without the prior written consent of the City Commission or as established within the lease itself, the leased premises or any rights there under (except to a leasehold mortgagee as herein provided) may not be assigned. Any assignment or subletting shall be expressly subject to all the terms and provisions of the original lease.

Rule 9-4. Flying Clubs – A flying Club ("Club") shall meet the following standards:

A. At the time of applying for a lease, license, permit or agreement to operate at the Airport, the Club shall furnish the Airport Director with a copy of its documents of organization; the Club's list of members, including names of officers and Directors; evidence of required insurance; a description of all aircraft used; evidence that such aircraft are properly certificated; evidence of ownership of such aircraft; any operating rules of the Club.

B. All aircraft used by the Club shall be owned by the Club or leased exclusively by written agreement to the Club, and all ownership or lease rights to such aircraft must be vested on a pro-rata basis in all of the Club's members. The property rights of the Club members shall be equal, and no part of any revenues received by the Club shall inure to the direct benefit of any member (e.g. by salary or bonus). The Club shall not derive greater revenue from the use of its aircraft than the amount necessary for the operation, maintenance and replacement of its aircraft and facilities.

C. The Club's aircraft shall not be used by any person other than the Club's members and shall not be used by any person for hire, charter, or air taxi. Flight instruction may be given in Club aircraft.

Rule 9-5. Environmental Issues and Indemnification – Any tenant of the Airport, its agents, employees, independent contractors, or sub lessee shall not install, store, use, treat, transport or dispose of any:

A. Asbestos in any form.

B. Urea formaldehyde foam insulation.

C. Transformers or other equipment which contain dielectric fluid containing levels of polychlorinated biphenyls in excess of 50 parts per million; or

D. Any other chemical, material, air pollutant, waste, or substance which is regulated as toxic or hazardous or exposure to which is prohibited, limited or regulated by the Resource Conservation Recovery Act, the Comprehensive and Environmental Response Compensation and Liability Act, the Hazardous Materials Transportation Act, the Toxic Substances Control Act, the Clean Air Act, and/or the Clean Water Act or any other Federal, State, County, Regional, Local or other governmental authority or which, even if not so regulated, may or could pose a hazard to the health and safety of the occupants of the Leased Premises, and which is either:

1. in amounts in excess of that permitted or deemed safe under law;
2. or in any manner which is prohibited or deemed unsafe under applicable law. (The substances referred to in (A), (B), (C) or (D) are collectively referred to hereinafter as "Hazardous Materials").

Rule 9-6. Environmental Cleanup Laws – An Airport tenant will, at their own expense, comply with all existing or hereafter enacted laws relating to Hazardous Materials (collectively, "Cleanup Laws") in effect at the same time of the lease, and all future laws thereafter. An Airport tenant will, at their own expense, make all submissions to provide all information to, and comply with all requirements of the appropriate governmental authority (the "Authority") under Cleanup Laws. Should any Authority require that a cleanup plan be prepared and that a cleanup be undertaken because of the existence of Hazardous Materials which were installed, stored, used, treated, transported, disposed of or discharged on the leased premises, by an Airport tenant, its agents, employees, independent contractors or sub lessees during the term of a lease, the

Airport tenant will prepare and submit the required plans and financial assurances in accordance with such Cleanup Laws. The Airport shall be indemnified and held harmless from and against all obligations, damages, injunctions, fines, penalties, demands, claims, costs, expenses, actions, liabilities, suits, proceedings and losses of whatever nature (including, without limitation, attorney's fees and court costs). And all cleanup or removal costs and all actions of any kind arising out of or in any way connected with the installation, storage, use, treatment, transporting, disposal or discharge of Hazardous Materials in or on the leased premised by an Airport tenant.

Rule 9-7. Environmental Notices – An Airport tenant shall promptly supply the Airport Director with copies of any notices, correspondence and submissions made or received from any governmental authorities of the United States Environmental Protection Agency, the United States Occupational Safety and Health Administration, or any other local, state of federal authority that requires submission of any information concerning environmental matters or hazardous materials.

Rule 9-8. Environmental Survival – An Airport tenant's liability pursuant to any environmental issue shall survive the expiration or earlier termination of their lease.

Rule 9-9. Storm Water Compliance

A. The Airport is subject to federal storm water regulations, 40 C.F.R. Part 122 for "vehicle maintenance shops" (including vehicle rehabilitation, mechanical repairs, painting, fueling and lubrication), equipment cleaning operations and/or deicing operations that occur at the Airport as defined in these regulations and if applicable, state storm water regulations. Each Airport tenant shall become familiar with these storm water regulations if it conducts "vehicle maintenance" or operates equipment cleaning operations and/or deicing activities as defined in the federal storm water regulations.

B. The City shall take steps necessary to apply for or obtain a storm water discharge permit as required by the applicable federal and/or state regulations, including the leased property occupied or operated by an Airport tenant. A permit issued to the City may name an Airport tenant as a co-permittee.

C. An Airport tenant's close cooperation is necessary to ensure compliance with any storm water discharge permit terms and conditions, as well as to ensure safety and to minimize costs. An Airport tenant may implement and maintain "Best Management Practices" to minimize the exposure of storm water (and snow melt) to "significant materials" generated, stored, handled or otherwise used as defined in the federal storm water regulations.

D. The City's storm water discharge permit is incorporated by reference into each lease and any subsequent renewals.

E. The City will provide an Airport tenant with a written notice of those storm water discharge permit requirements that are in the City storm water permit, that a tenant will be obligated to perform from time to time, including, but not limited to:

1. certification of non-storm water discharges;
2. collection of storm water samples;
3. preparation of storm water pollution prevention or similar plans;
4. implementation of “good housekeeping” measures or best management practices; and maintenance of necessary requirements.

F. Each Airport tenant shall participate in any organized task force or other work group established to coordinate storm water activities of the Airport.

Rule 9-10. Non Discrimination Covenants

A. Pursuant to 49 CFR, Department of Transportation, Part 21, each lease will include as a covenant to ensure that:

1. No person on the grounds of race, color, sex, or national origin shall be excluded from participation in, denied the benefits of, or be otherwise subjected to discrimination in the use of the leased property; and
2. that in the construction of any improvements on, over or under such land and the furnishing of services thereon, no person on the grounds of race, color, sex, or national origin, shall be excluded from participation in, denied benefits of, or otherwise be subjected to discrimination.

B. The right to conduct aeronautical activities for furnishing services to the public is granted to an Airport tenant subject to the agreement:

1. to furnish services on a fair, equal and not unjustly discriminatory basis of all users;
2. to charge fair, reasonable, and not unjustly discriminatory prices for each unit or service provided an allowance may be made to make reasonable and nondiscriminatory discounts, rebates or other similar types of price reductions to volume purchasers.

Rule 9-11. Insurance – An Airport tenant shall during the term of lease maintain at their cost and expense insurance relating to the leased premises as follows:

A. Insurance against loss or damage to improvements by fire, lightning, and other risks included under standard extended coverage policies

B. General public liability insurance against claims for bodily injury, death or property damage occurring on, in or about the leased premises, such insurance to afford protection of not less than $300,000 with respect to any one person, $500,000 with respect to each occurrence of personal injury and not less than $200,000 with respect to property damage. These limit requirements represent minimum coverage and the City of Clovis may require increases in bodily injury or property damage insurance. Detailed insurance requirements are provided in each lease.

C. Supplemental insurance such as hangar keeper's liability or product liability may be required for associated airport businesses. The amounts and limits of these requirements are to be detailed in the lease agreements established for these businesses and are included in the Clovis Municipal Airport Minimum Standards document.

D. All such policies of insurance shall be issued by insurance companies acceptable to the City, shall name the City as an additional insured or loss payee, as the case may be, and shall provide for at least ten (10) days written notice prior to cancellation or modification. A certificate of said insurance must be furnished to the City of Clovis.

Rule 9-12. Hold Harmless – The City shall not be liable to Airport tenant's employees, agents, servants, customers, invitees, or to any other person whomsoever, for any injury to persons or damages to property on or about the leased premises or any adjacent area owned by the City.

Section 10. Knowledge of Rules Implied and Responsible Party

By publication and adoption of this ordinance, all persons shall be deemed to have knowledge of its contents. However, the Airport Director is directed to have copies of the ordinance posted in paper or electronically, where appropriate. Copies shall be available at all times in the Airport Director's office, and copies shall be furnished to all owners and operators of aircraft based at the Airport. Any person accessing the Airport shall be responsible for their actions and all actions of any person to whom they provide access, whether directly or indirectly.

Section 11. Conflicting Laws, Ordinances, Regulations and Contracts

If and where there are conflicts in the Rules and Regulations prescribed herein and the FAA's Federal Aviation Regulations (FAR) the latter shall prevail. In any case where a provision of these regulations is found to be in conflict with any other provision of these regulations adopted hereunder or in conflict with a provision of any zoning, building, fire, safety, health or other ordinance, code, rule, or regulation of the City, the provision which establishes the higher standard for the promotion and protection of the health and safety of the people shall prevail.

In cases where two (2) or more provisions of these regulations are in conflict, the most stringent or restrictive shall prevail. It is not intended by these regulations to repeal, abrogate, annul, or in any way impair or interfere with existing provisions of other laws, ordinances, codes, rules or regulations except those specifically repealed by these regulations, or to excuse any person from performing obligations to the City under any lease or other contract.

No existing or future City contract, lease agreement or other contractual arrangement, nor any payment or performance thereunder, shall excuse full and complete compliance with these regulations. Compliance with these regulations shall not excuse full and complete

compliance with any obligations to the City under any existing or future City contract, lease, agreement or other contractual arrangement.

Compliance with these regulations does not excuse failure to comply with any other law.

Section 12. Penalty for Violation

The Airport Director may deny use of the Airport for a period not exceeding fifteen (15) days for any person violating or refusing to comply with any of these rules or regulations prescribed herein pending a hearing by the City Commission. Upon such hearing, such person may be deprived of the further use of the Airport and its facilities for a period of time as may appear necessary for the protection of life and property. Any violation of this ordinance shall be a misdemeanor, and upon conviction, be punishable by a fine and each day of violation continues to exist shall constitute a separate offense. This section is cumulative of all other penalties for violation of Federal, State, and Local laws, rules, regulations, ordinances, and orders. Citation for violation or issuance of a violation ticket of any of the rules and regulations prescribed herein may be made by any authorized police officer. The Airport Director or City Commission may request authorized agents to investigate suspected violations of these rules.

Section 13. Severability

If any of the provisions of this ordinance or the application thereof to any person or circumstances is held invalid, such invalidity shall not affect other provisions or applications of the ordinance which can be given effect without the invalid provision or application, and to this end the provisions of this ordinance are declared to be severable.

Appendix G:

MINIMUM STANDARDS

G.1 INTRODUCTION

As part of the master plan effort, updated airport minimum standards were drafted for consideration by airport management, airport board and city commission. The attached document servers as a draft Minimum Standards document that may be adopted by the city commission. It is recommended that this document be updated regularly to reflect common and current industry practices as well as ever changing airport conditions.

Clovis Municipal Airport

Clovis, New Mexico

Minimum Standards
For Fixed Base and Commercial Operators

2015

Forward

By definition, minimum standards are the "qualifications that may be established by an airport owner/operator as the minimum requirements to be met as a condition for the right to conduct an aeronautical activity on the airport." The purpose of minimum standards is "to provide a fair and reasonable opportunity, without unlawful discrimination, to all applicants to qualify, or otherwise compete, to occupy available airport land and/or improvements and engage in authorized aeronautical activities at an airport." In essence, by establishing minimum entry-level requirements (or thresholds), essentially, minimum standards level the playing field. If consistently applied and enforced, they permit the airport sponsor to maintain a high level of service to the public while also offering consistent, predictable decision-making criteria to potential tenants. These guidelines are critical to operating today's airport in a professional and business-like manner.

These Minimum Standards are considered to be appropriate for use by the Clovis Municipal Airport in the establishment of its own document. Similar to the Airport Rules and Regulations, it must be understood that such documents are generally most effective when they are specifically tailored for a particular Airport through an iterative process to ensure their appropriateness. While it is reasonable that many elements included below can be directly applied to Clovis Municipal Airport, this document should be considered as a guide for the development of a final Minimum Standards document. Therefore, this guiding document should be examined closely with respect to the unique characteristics and requirements of the Airport before it is adopted.

Generally, minimum standards are established for commercial operators on an airport, not for private and corporate tenants. Their primary purpose is to set threshold requirements for aeronautical service providers who want to operate on a particular airport. Ideally, they should consider the individual circumstances of an airport, including its existing and future development, as well as its current and future roles in the aviation system. Once established, minimum standards require that aviation businesses seeking to operate on an airport agree to offer a minimum level of service for their type of business as detailed in the standards to be allowed to do business on the airport. In doing so, minimum standards will help the sponsor to ensure that undercapitalized or doubtful operators are not awarded the use of a public facility to operate their businesses.

Where consistently applied, minimum standards will help the airport sponsor evaluate businesses wishing to locate on the airport and provide a mechanism to achieve:

- Ensure safe, efficient, and quality service at the airport,
- Establish a template for safe airport operations,
- Minimize exposure to claims of discrimination or unfair treatment by providers of aeronautical services and their users,
- Address environmental liability, and
- Assure that prospective tenants are treated equally and without unjust discrimination.

Additionally, a minimum standards document is the appropriate location for an airport to address a wide variety of airport-related operations. For example, a Specialized Aeronautical Service Operator (SASO) is any individual aviation-related activity that can generate revenue for the business and the airport operator, and as such, is a critical contributor to an airport. This type of operator should be specifically addressed within a minimum standards document to protect both the airport and the operator from noncompliance with the standards.

A minimum standards document should include a formal application process as a way to negotiate with an interested party. The minimum standards document is the appropriate place to include requirements for a general airport business permit or independent flight instructor permit. These items can serve as a deterrent to illegal business and help the airport to keep track of individual providers. Some airports also charge a minimal annual fee to help update the airport's information annually. If the airport decides to implement any type of permit, a blank form should be included and attached as part of the minimum standards.

The following provides the general framework of an effective Minimums Standards document for Clovis Municipal Airport, as well as supporting sub-sections and narratives.

Table of Contents

Section 1. Introduction

1-1. Purpose – The purpose of this document is to establish acceptable qualifications of participants, level and quality of service, and other conditions which will be required of all those proposing to conduct Fixed Base and Commercial Operations at Clovis Municipal Airport. The City of Clovis adopted these Minimum Standards to foster, encourage, promote and develop general aviation and related aeronautical activities at Clovis Municipal Airport, while promoting safety in all activities, enhancing the availability of high quality services for Airport users and promoting the orderly development of Airport land. In promulgating these Minimum Standards, the City of Clovis and Airport Board will provide a fair and reasonable opportunity without creating an exclusive right or unjust discrimination to any potential operators to qualify or otherwise compete for available Airport facilities and the furnishing of selected aeronautical activities. These standards ensure that each operator is reasonably fit and able to perform both its service and economic obligations to the Airport community. These Minimum Standards will be administered by the Airport Director or designee.

All persons conducting commercial aeronautical activities at the Airport, shall, as a condition of conducting such activities, comply with all applicable requirements concerning such activities as set forth in these Minimum Standards and any amendments thereto. The requirements set forth herein are the minimum standards which are applicable to persons conducting commercial aeronautical activities at the Airport and all persons are encouraged to exceed such minimum standards in conducting their activities. This document shall be deemed to be a part of each commercial operator's lease agreement with or from the City of Clovis unless any such provisions are waived or modified by the City of Clovis, Airport Board or Airport Director. The mere omission of any particular standard from a commercial operator's written lease agreement with the City of Clovis shall not constitute a waiver or modification of such standard in the absence of clear and convincing evidence that the City of Clovis intended to waive or modify such standard.

1-2. Amendments to Standards – In consultation with the Airport Board, the Airport Director may create future amendments, additions, deletions or corrections to these standards. The Airport Director may waive or modify any portion of these Minimum Standards for the benefit of any governmental agency performing non-profit public services, fire protection or fire-fighting operations. He may also waive or modify any portion of these Minimum Standards for any person when it is determined that such waiver or modification is in the best interest of the City of Clovis and will not result in unjust discrimination among commercial operators at the Airport.

1-3. Enforcement by City of Clovis – City of Clovis Sheriff Department, Police Department as well as State Police and other representatives as designated by the Airport Director are empowered to require compliance with these Standards.

1-4. Previous Standards – These Minimum Standards supersede and cancel all previous related documents for Clovis Municipal Airport as set forth by the Airport Director.

1-5. Special Regulations, Notices or Directives – Special notices, memorandums or directives of interest to persons engaged in business with the City of Clovis, shall be issued under the authority of these Minimum Standards.

1-6. Violation of Standards – Any person who knowingly or willfully violates any standard prescribed in this document or any order of instruction issued by the Airport Manager or his representative, authorized herein may be removed or ejected from the Airport and its facilities, if it is determined by the Airport Manager that such denial is necessary under the circumstances.

1-7. Validity – Voiding of any particular standard contained herein shall not affect the validity of the remainder of these Minimum Standards. Any activities for which there are no specific minimum standards set forth herein shall be subject to such standards and provisions as are developed by the Airport Director on a case-by-case basis and set forth in such commercial operator's written lease.

Section 2. Definitions

Terms used in these Minimum Standards are defined below. Words relating to aeronautical practices, processes and equipment will be construed according to their general usage in the aviation industry, unless a different meaning is apparent from the context or specifically defined otherwise. All other words will be construed to their common literal meaning.

Airport - the entirety of Clovis Municipal Airport.

Airport Director - the Airport Director (his designee) for Clovis Municipal Airport as assigned by the City Manager for the City of Clovis.

Aircraft - vehicle for traveling through the air.

Aircraft Operations Area (AOA) - includes aircraft aprons, ramps, taxiways, taxilanes and runways where aircraft movement is expected to occur.

Airport Tenant - a person, firm or corporation leasing or using airport property solely for the purpose of storing an aircraft and is not engaged in or providing any aviation related commercial activity or service at the Airport. An airport tenant is not authorized to function as or provide the services of an FBO.

Building - the main portion of each structure, all projections or extensions there from, and any additions or changes thereto, and shall include garages, outside platforms, awnings, carports, canopies, eaves, and porches. Paving, ground cover, fences, signs and landscaping shall not be included.

City - the City of Clovis.

Commercial Operator - any person, firm or corporation providing goods or services relating to the operation, maintenance or fabrication of aircraft to others on the Airport, except aviation fuel sales.

CTAF - Common Traffic Advisory Frequency

Fixed Base Operator (FBO) - any person, firm or corporation which maintains facilities at the Airport for the purpose of engaging in the retail sale of aviation petroleum products, associated line service, aircraft airframe and/or engine repair and a minimum of two (2) of the following: flight instruction, aircraft rental/sales, air taxi, aircraft charter operations, avionics, instrument or propeller repair, or aircraft storage.

Ramp/Apron - paved area suitable for aircraft parking.

Section 3. General Requirements

3-1. Application – Any person, firm or corporation wishing to perform commercial aeronautical activities shall submit an application, in writing, to the Airport Director, Airport Board and City Commission, who must approve or deny it. The application shall include the following information:

A. Name and address;

B. Proposed date for commencement of operations;

C. Services to be offered;

D. Amount, size, location of land to be lease;

E. Description of buildings and improvements to be constructed or leased;

F. Number of aircraft provided;

G. Number of personnel to be employed;

H. Hours of proposed operation;

I. Intent to comply with City insurance requirements;

J. Evidence of financial responsibility from a bank or from such other source that may be readily verified through normal banking channels;

K. Evidence of financial capability to initiate operations and for the construction of buildings or improvements, and the ability to provide working capital to carry on the contemplated operation, once initiated;

L. Statement of past experience in the specified aviation services proposed to be provided at the Airport together with a statement setting forth personnel to be used for the operations and the experience of said personnel.

3-2. Processing; denial – The Airport Director shall be responsible for processing the application. The City Attorney will prepare a lease agreement for space necessary to conduct activities at the Airport. The Airport Director, Airport Board or City Commission may deny any application if they determine that:

A. The applicant does not meet the qualifications and standards set forth in the Rules and Regulations, or these Minimum Standards;

B. The proposed activities are likely to create a safety hazard at the Airport;

C. The activities will require the City to expend funds or to supply labor or materials as a result of the applicant's activities, or will result in a financial loss to the Airport;

D. No appropriate space or land is available to accommodate the proposed activities;

E. The proposed activities are not consistent with the Airport's Master Plan and/or Airport Layout Plan;

F. The proposed activities are likely to result in a congestion of aircraft or buildings, a reduction in Airport capacity, or an undue interference with Airport operations or the operations of any existing users at the Airport;

G. The applicant or any of its principals has knowingly made any false or misleading statements in the application process;

H. The applicant does not have the technical capabilities, experience or financial resources to properly conduct the proposed activities;

I. The applicant has not submitted appropriate documentation supporting the proposed activity as outlined in Section 3-1.

3-3. Appeal Process – The applicant shall have the ability to appeal the denial of an application by the Airport Director, subject to the following provisions:

A. Providing written notice of appeal to the Airport Director within ten (10) days of said denial.

B. The notice of appeal will be forwarded to the Airport Board and considered for review by the City Commission.

C. Applicant shall be notified in writing of the date of the scheduled appeal review.

D. Applicant shall be present at the appeal review to defend the application. If applicant is not present, the Airport Director’s denial shall remain unchanged.

E. The Airport Board and/or City Commission shall render its decision in writing within ten (10) calendar days of the conclusion of the hearing and the decision shall be final as to the denial or approval of the application.

3-4. Written Contract – Any person, firm or corporation capable of meeting the Minimum Standards set forth herein for a Fixed Base or Commercial Operator is eligible to become a Fixed Base or Commercial Operator at Clovis Municipal Airport, subject to the execution of a written lease for not less than five (5) years containing such terms and conditions as may be determined by the City Commission. An exception to this is the duration of airline agreements which may be for a period of 2 years. A Fixed Base or Commercial Operator shall not engage in any business or activity on the Airport other that authorized under his particular category. Any Fixed

Base or Commercial Operator desiring to extend his operation by expansion or sublease into more than one category or to discontinue operations in a particular category, shall first apply in writing to the Airport Director for permission to do so, setting forth in detail the reasons and conditions of the request. The City Commission, with input from the Airport Board, shall then grant or deny the request on such terms and conditions as the Commission deems to be prudent and proper under the circumstances. Each Fixed Base or Commercial Operator shall provide his own buildings, personnel, equipment, and other requirements as herein stated upon leased lands form the City of Clovis. A Fixed Base or Commercial Operator may utilize a City owned building if one is suitable for such a business and is available for lease.

3-5. Maintenance – All operators shall be required to maintain their leased property in a condition of repair, cleanliness and general maintenance in a manner acceptable to the Airport Director, in accordance with their lease agreements and free from all hazards.

3-6. Improvements – Before any operator makes any changes, improvements, additions, removal to any real property, appurtenances, or signs thereof, shall, before the fact, notify the Airport Director, who will in turn approve or disapprove the improvement(s).

3-7. Fire Equipment – All operators shall supply and maintain such adequate and readily accessible fire extinguishers as are required and approved by the City of Clovis Fire Marshal for the particular hazard involved.

3-8. Damages – All operators shall be fully responsible for all damages to building, equipment, real property and appurtenances in the ownership or custody of Clovis Municipal Airport. Property damage caused by negligence, abuse or carelessness on the part of their employees, agents, customer, visitors, suppliers or persons with whom the operator may do business will be the responsibility of the operator.

3-9. Prohibited Activities

A. No residential domicile may be established anywhere on Airport premises unless approved by the Airport Director, Airport Board and City Commission.

B. No non-aeronautical operators are allowed within the AOA.

C. No personal vehicles are allowed on the AOA without approval from the Airport Director or FBO.

D. Ramp speed must not exceed 15 mph.

E. Any vehicle operating on the runways or taxiways must be equipped with 2-way radio communication with Airport Operations and aircraft operating within the Airport environment via the Airport's CTAF frequency.

F. Vehicle parking is reserved for working, registered vehicles only. No vehicle shall be parked in a public parking area for more than fourteen (14) days

unless prior permission is obtained from the Airport Director. No vehicle will be left unattended in the passenger loading and unloading zone in front of the terminal building. Vehicles parked in the passenger loading and unloading zone in front of the terminal building or for more than 14 days in a public parking area may be towed at the owner's expense.

3-10. Pets – Pets must be accompanied on a leash within airport grounds and/or confined within a leased building or outside of the aircraft operations area.

Section 4. Minimum Standards for Fixed Based Operators

A Fixed Base Operator (FBO) is defined as any person, firm or cooperation performing as a fuel dealer by furnishing ramp service and the sale of aviation petroleum products.

4-1. General

Any Fixed Base Operator shall satisfy the Airport Director, Airport Board and City Commission that it is technically and financially able to perform the services of a Fixed Base Operator. This shall include the responsibility of demonstrating continued financial solvency and business ability by submitting balance sheets, credit references and any other proof that the lessor may require.

Any Fixed Base Operator shall provide a paved walkway within the leased area to accommodate pedestrian access to the operator's office, when appropriate, a paved aircraft apron with tie-down facilities within the leased area sufficient to accommodate the activities being performed. Sufficient hard surface and on-site automobile parking space shall also be provided.

All construction required of such operators shall be in accordance with design and construction standards established by the City of Clovis for the facility or activity involved. Title to any and all buildings and appurtenances, which may be built on City property, shall revert to the City of Clovis when the subject lessee vacates the lease for any reason, or at the end of the lease period. All operators shall be required to furnish the City of Clovis payment and performance bonds commensurate with any construction required under the standards herein fixed or under any contract or lease by and between such operator and the City of Clovis. No commercial operator shall do or permit to be done anything that may interfere with the effectiveness or accessibility of any public utility system, drainage system, sewer system, fire protection system, sprinkler system, alarm/security system or fire hydrant and hoses.

The rates and charges for any and all activities and services for such operators shall be determined by the operators and subject to the requirement that all such rates and charges shall be reasonable and be equally and fairly applied to all users of the services. All rates and charges established by an operator shall be communicated to the Airport Director.

All operators at the Airport shall be financially sound and progressive business enterprises, with adequately manned and equipped facilities, and who observe normal or specifically required business hours.

In the event the operator becomes insolvent, or the subject of any kind or chapter of bankruptcy proceeding, or if a receiver, assignee, or other liquidating officer is appointed for the business, the City of Clovis may cancel the lease at the City's option based upon the terms stated in the lease.

All Fixed Base Operators shall, at their own expense, pay all taxes and assessments against any building or other structures placed on the premises by them as well as all taxes and assessments against the personal property used by them in their operations.

A Fixed Base Operator means a person or business engaged in a wide range of commercial aeronautical activities on Airport property including at least one of the following:

A. Aircraft fueling and lubrication;

B. Aircraft line services;

C. Major aircraft maintenance and repair services;

D. Aircraft storage, parking, and tiedown;

E. Retail sale of aircraft parts and accessories; and

F. Provision of customary facilities, amenities, and ancillary services to general aviation users including, at a minimum, the following: public restrooms, telephones, passenger waiting areas/lounges, conference rooms. Crew member lounges, and weather briefing/flight planning services.

A Fixed Base Operator shall comply with all of the standards and requirements contained in this article. In addition, an FBO may engage in any general aviation specialty service activity identified below upon meeting all standards identified for the specific activity.

Services described in Sections 4-3 through 4-12, are not limited to FBOs. Other commercial operators may apply for approval to provide these services.

4-2. Aircraft Fuels and Oil Dispensing Service – Only an FBO and City of Clovis may dispense fuel for resale at the Airport. Any FBO proposing to engage in the retail sale of aircraft fuels and oils must lease and/or provide as a minimum the following:

A. Land – The leasehold shall contain adequate square footage of land to provide space for building, aircraft parking area equipped with four (4) tie downs and dispensing equipment

B. Buildings - Lease or construct a minimum of 1,000 contiguous square feet of properly lighted, air-conditioned and heated floor space for office, public lounge, and restroom.

C. Personnel – Properly trained personnel on duty during normal operating hours. Personnel must be adequately trained to operate fuel dispensing equipment in accordance with all applicable local, state and federal laws.

D. Services – Fuel, park and tie down, oil, inflate tires, emergency starting equipment, fire extinguisher, portable pressure tanks, towing equipment, and office space.

E. Fuel – The operator must provide at least two (2) grades of aircraft fuel, including standard Avgas (i.e. 100LL-octane) and Jet A.

F. Fuel Dispensing Equipment – Two (2) metered filter-equipped dispensers fixed or mobile for dispensing two (2) grades of fuel. Separate dispensing pumps and meters for each grade of fuel are required.

Mobile dispensing trucks, if used, shall have a minimum capacity of 600 gallons for Avgas and 2,000 gallons for Jet A. Trucks shall be properly maintained, operated and equipped in accordance with applicable FAA, New Mexico Environment Department, and National Fire Protection Association (NFPA) recommendations, requirements and regulations.

4-3. Hangar Leasing Services – Hangar leasing services involves the business of leasing, renting or licensing hangars/shade hangars to aircraft owners or operators solely for aircraft: storage purposes. A hangar leasing services operator may engage in the business of constructing and operating hangars and shade space to be leased. A hangar leasing services operator shall comply with the following:

A hangar leasing services operator shall lease sufficient land to accommodate the proposed number of hangars based on the following.

A. The FAA has established minimum standards for hangars/shade hangars for the storage of aircraft: as follows: 2,500 square feet for jet aircraft, 2,000 square feet for turboprop and twin engine aircraft, and 1,000 square feet for single-engine aircraft and helicopters.

B. The construction plans and specifications for any hangars to be constructed, including minimum hangar sizes and architectural design plans, are subject to the written approval of the City.

C. A hangar services operator leasing, renting or licensing hangars in its operations shall maintain the types and amounts of insurance required by Section 5 for any of its activities which may be covered by such insurance.

D. A hangar leasing services operator's hangars shall include at least two (2) indoor restrooms for each thirty (30) hangar/shade facilities for the use by operator's lessees, and appropriate office and lounge areas for the operator's employees. Requirements for providing restrooms may be met through facilities available at the Fixed Base Operator, terminal building, airport administration building, or other public buildings.

4-4. Aircraft Brokerage – Any operator desiring to engage in the brokerage of new or used aircraft must provide as a minimum the following:

A. Land – The leasehold shall contain adequate square footage of land to provide space for building, storage of aircraft and display as dictated by expected on-site inventory.

B. Personnel – One (1) person having a current commercial pilot certificate with rating appropriate for the types of aircraft to be demonstrated.

C. Dealerships – New aircraft dealers shall hold an authorized factory or sub-dealership license. All aircraft dealers shall hold a dealership license or permit if required by the state.

D. Aircraft – A dealer of new aircraft shall have available or on-call one (1) current model demonstrator.

E. Services – A dealer of new aircraft shall provide for adequate parts and servicing of aircraft and accessories during warranty periods.

4-5. Aircraft Rental – Any aircraft rental operator must provide as a minimum the following:

A. Land – The leasehold shall contain sufficient square footage of land to provide space for aircraft parking.

B. Aircraft – Aircraft must be airworthy and owned or leased in writing to the operator. Records of airworthiness and maintenance must be made available to renter.

4-6. Flight Training – Any operator proposing to engage in pilot flight instruction shall provide as a minimum the following:

A. Personnel – One (1) person properly certified by the FAA as a flight instructor to cover the type of training offered.

B. Aircraft – One (1) airworthy aircraft owned or leased in writing to the operator. Aircraft shall be properly certified and equipped for the type of flight instruction offered.

4-7. Airframe and/or Powerplant Repair – Any operator proposing to engage in airframe and/or powerplant repair service must provide as a minimum the following:

A. Land – The leasehold shall contain sufficient square footage to provide space to accommodate parking for at least one (1) aircraft and building.

B. Buildings – Lease or construct building that will provide adequate area to service aircraft undergoing maintenance.

C. Personnel – One (1) person properly licensed by the FAA as an airplane mechanic with ratings appropriate for work being performed.

D. Equipment – Sufficient equipment, tools, supplies and availability of parts to perform maintenance in accordance with manufacturer's recommendations or equivalent.

4-8. Air Taxi Service – Any operator proposing to engage in air taxi service must hold an FAA Air Taxi Commercial Operator's Certificate with ratings appropriate to function, and provide as a minimum:

A. Land – The leasehold shall contain sufficient square footage of land to provide space and buildings to accommodate intended level of operations at the Airport.

B. Buildings – Make satisfactory arrangements for checking-in passengers, handling of luggage, ticketing, ground transportation, and other related activities within the terminal building or other facility. Air-conditioned space with restrooms and seating must be provided to passengers.

C. Personnel – One (1) person properly certified by the FAA as a commercial pilot who is appropriately rated to conduct the air taxi service offered.

D. Aircraft – One (1) four-place aircraft, owned or leased in writing to the operator, meeting all the requirements of the Air Taxi/Commercial Operator Certificate held. Requires instrumentation capability under FAR Part 135.

4-9. Radio, Instrument, Avionics or Propeller Repair Service – Any operator proposing to provide radio, instrument, avionics or propeller repair service must hold a FAA Repair Station Certificate and ratings for it and provide as a minimum the following:

A. Land – The leasehold shall contain sufficient square footage of land for building.

B. Buildings - Lease or construct building which will accommodate service for intended aircraft.

C. Personnel – One (1) person properly certified by FAA as a repairman qualified in accordance with the terms of the Repair Station certificate.

4-10. Specialized Commercial Flight Services – A specialized commercial air activity is any person, firm or corporation performing aircraft support services or providing the use of aircraft for, but not limited to, the activities listed below:

A. Non-stop, sight-seeing flights; Aerial photography or survey;

B. Banner towing and aerial advertising;

C. Fire fighting or fire patrol;

D. Power line, underground cable, or pipe line patrol;

E. Any other operations specifically excluded from FAR Part 135 or directly related to aircraft support or transportation.

Any operator proposing to engage in specialized commercial air activities including but not limited to those listed above shall provide as a minimum the following:

A. Land – The leasehold shall contain sufficient square footage of land for aircraft parking and tie downs.

B. Buildings – Lease or construct building which will accommodate aircraft intended for use in the service

C. Personnel – One (1) person properly certified by the FAA as a commercial pilot with appropriate ratings for the aircraft to be flown.

D. Aircraft – One (1) airworthy aircraft owned or leased to the operator.

E. Hours of Operation – The hours of operation shall be at the operator's discretion, but should be reasonably available to the public.

4-11. Flying Clubs – A Flying Club is any person, firm or cooperation engaged in ownership or lease of aircraft that provide flying services only to its members. Any flying club proposing to base their operation at the Airport must comply with the applicable provisions in these Minimum Standards. However, they shall be exempt from regular Commercial Operator requirements upon satisfactory fulfillment of the conditions listed below:

A. Club must be a non-profit corporation or partnership organized for the expressed purpose of providing its members with aircraft for their personal use.

B. Each member must be a bona fide owner of the aircraft, a stockholder in the corporation or a partner in the partnership.

C. The club nor any member may derive a profit from the operation, maintenance, or replacement of its aircraft. Club aircraft may not be used by other than members for rental, and by no one for commercial operations.

D. Flight instruction may be given in club aircraft provided that the instructor is authorized to provide flight training and is a member of the club and who shall not receive remuneration in any manner for such service.

The flying club shall file with the Airport Director a copy of its by-laws, rules, articles of association, partnership agreement or other documentation supporting its existence; shall keep current with the Airport Director a roster or list of members, including the names of the officers and director; evidence that ownership of the club aircraft is vested in the club; investment share held by each member to be revised on a semi-annual basis; number/type aircraft.

The club shall maintain a set of books showing all club income and expenses. These books shall be available for inspection by the Airport Director. The club must also provide as a minimum the following:

A. Land – The leasehold shall contain sufficient square footage of land for building, aircraft parking or tie downs.

B. Personnel – If the operator conducts flight training, it shall have in its employ or as a member sufficient flight instructor who have been properly certificated by the FAA.

C. Aircraft – One (1) certificated and airworthy aircraft owned or leased in writing to the operator.

4-12. Commercial Flying Club – A Commercial Flying Club is any person, firm or cooperation engaged in the ownership or lease of aircraft and providing flying services for its members and others but which does not meet requirements for Flying Club as define above in Section 4-11. Any operator establishing a commercial flying club at the Airport must provide as a minimum the following:

A. Land – The leasehold shall contain sufficient square footage of land for building, aircraft parking or tie downs.

B. Personnel – If the operator conducts flight training, it shall have in its employ or as a member sufficient flight instructor who have been properly certificated by the FAA.

C. Aircraft – One (1) certificated and airworthy aircraft owned or leased in writing to the operator.

Section 5. Minimum Standards for Commercial Operators

A Commercial Operator is defined as any person, firm or corporation providing goods or services relating to the operation, maintenance or fabrication of aircraft to others on the Airport, except aviation fuels sales. This includes services detailed in Sections 4-3 to 4-12 above. No person, firm or corporation shall engage in any commercial activity unless done in full compliance with the standards herein.

5-1. General

Any commercial operator shall satisfy the Airport Director, Airport Board and City Commission that it is technically and financially able to perform the services of a commercial operator. This shall include demonstrating financial solvency and business ability by submitting balance sheets, credit references and other proof that the lessor may require.

Any commercial operator shall provide a paved walkway within the leased area to accommodate pedestrian access to the operator's office. When appropriate, a paved aircraft apron with tie-down facilities and auto parking within the leased area sufficient to accommodate the activities being performed.

All construction required of such operators shall be in accordance with design and construction standards required of such established by the City of Clovis for the facility or activity involved. Title to any and all buildings and appurtenances, which may be built on City property, shall revert to the City of Clovis when the subject lessee vacates the lease for any reason, or at the end of the lease period. All operators shall be required to furnish the City of Clovis payment and performance bonds commensurate with any construction required under the standards herein fixed or under any contract or lease by and between such operator and the City of Clovis.

All operators at the Airport shall be financially sound and progressive business enterprises, with adequately manned and equipped facilities, and who observe normal or specifically required business hours. In the event the operator becomes insolvent, or the subject of any kind of chapter of bankruptcy proceeding, or if a receiver, assignee, or other liquidating officer is appointed for the business of the operator, the City of Clovis may cancel the lease, at the City's option, upon giving written notice to the operator.

All commercial operators shall, at their own expense, pay all taxes and assessments against any building or other structures placed on the premises by the operator as well as all taxes and assessments against the personal property used by their operations.

5-2. Multiple Commercial Aeronautical Activities

A multiple commercial aeronautical activity business is any person, firm or cooperation performing any combination of commercial aeronautical activities listed in this chapter. Whenever a commercial operator conducts multiple activities pursuant to one lease agreement, such commercial operator must comply with the minimum standards set forth herein for each separate activity being conducted. If the minimum standards for one of the commercial operator's activities are inconsistent with the minimum standards for another of the commercial operator's activities, then the more demanding minimum standards which are most beneficial to the City and/or are most protective of the public's health, safety and welfare, shall apply. Any operator proposing to offer a combination of commercial aeronautical activities must provide the following:

A. Land – The leasehold shall contain sufficient square footage of land for specific use area requirements. Specific use spaces need not be additive where the combination use can be reasonably and feasibility established.

B. Buildings – Lease or construct building, which will provide proper area for aircraft storage and customer interaction. Repair stations must provide shop and hangar space as required by FAA Repair Shop Certification.

C. Personnel – Multiple responsibilities may be assigned to personnel to meet the requirements for all activities.

D. Aircraft – All requirements for aircraft for the specific activities to be engaged in must be provided; however, multiple uses can be made for all aircraft to

meet these requirements.

E. Equipment – All equipment required for activity must be provided.

F. Services – All services required for each activity must be provided during the hours of operation.

G. Hours of Operation – The hours of operation shall adhere to the operating schedule as required for each activity.

5-3. Insurance Requirements – Each commercial operator shall at all times maintain in effect the following types and minimum amounts of insurance as applicable to the business to be conducted (suggested levels of coverage are also provided below):

Schedule of Minimum Insurance Requirements for Liability Coverage for Premises, Operation and Products

	Minimum	Suggested
Fixed Base Operator (FBO) Commercial general aviation liability policy with coverage for premises, operation and products.	$1,000,000 Combined Single Limit (CLS)	$5,000,000 Combined Single Limit (CLS)
Aircraft Fueling (Self-Service) Individuals – liability and clean-up coverage Corporation – liability and clean-up coverage	$1,000,000 CLS $1,000,000 CLS	$1,000,000 CLS $5,000,000 CLS
Airframe and Powerplant Repair, Avionics, Instrument, or Propeller Repair Commercial general aviation liability policy with coverage for premises, operation and products.	$1,000,000 CLS	$5,000,000 CLS
Air Taxi and Charter Commercial general aviation liability policy with coverage for premises, operations and products. Aircraft liability with coverage for bodily injury and property damage including passengers.	$1,000,000 CLS $1,000,000 CLS	$5,000,000 CLS $10,000,000 CLS
Aircraft Rental and Flight Training Commercial general aviation liability policy with coverage for premises, operations and products. Aircraft liability with coverage for bodily injury and property damage including passengers. Student and renters liability	$1,000,000 CLS $1,000,000 CLS $1,000,000 CLS	$5,000,000 CLS $5,000,000 CLS $1,000,000 CLS
Clubs Commercial general aviation liability policy with coverage for premises, operations and products.	$1,000,000 CLS	$1,000,000 CLS
Hangar Operations General Liability Policy	$1,000,000 CLS	$1,000,000 CLS

In addition to the types and amounts of insurance required, each commercial operator shall at all times maintain such other insurance as the City's risk management director may reasonably determine to be necessary for such commercial operator's activities. Additional insurance requirements will be detailed within the tenant lease and will supersede these minimum requirements.

5-4. Indemnification – All FBOs, Commercial Operators and Tenants shall secure public liability and property damage insurance in which the City of Clovis shall be named as an insured prior to commencement of operation. The policies of insurance shall be maintained in full force and effect during the term of the Lease, or any renewals or extensions thereof. The insurance shall protect the City against any and all liability for death, injury, loss or damage for activities and concessions granted to the Operator. Such policy (policies) shall be for not less than the amount of the existing New Mexico Tort Claims limit and shall be placed with a company authorized to do business in the State of New Mexico. Minimum policy limits may be adjusted or increased in the future based on changes to the New Mexico Tort Claim Act and adopted by the City. Proof of insurance of all such policies shall be furnished on a timely basis to the Airport Director and shall be held for the benefit of the parties. The insurance company shall notify the City of any changes or cancellation of the policy (policies). The amounts of insurance shall not be deemed a limitation on the Operator to save and hold the City and Airport harmless, and if the City/Airport becomes liable for an amount in excess of the insurance, the Operator will save and hold the City/Airport harmless for the whole amount thereof.

5-5. Penalties – Violation of any of the terms, conditions, requirements, standards, or prohibitions of this regulation by a person or entity that does not have a current concession agreement with the City shall be punished in accordance with Clovis City Code Section16.04.420.

Violation of any of the terms, conditions, requirements, standards, or prohibitions of this regulation by a person or entity that has an existing concession agreement with the City may be punished in accordance with Clovis City Code Section 16.04.420, as provided in the default provisions of the concession agreement, or both, cumulatively.

Each day a violation continues to exist shall constitute a separate offense.

Appendix H:

TERMINAL OPTIONS EVALUATION

H.1 INTRODUCTION

The Project Team developed the master plan in close coordination with Airport Management, Civil Aviation Board and other City of Clovis representatives (collectively referred to herein as the "Sponsor"), a Project Advisory Committee (PAC) comprised of representatives from the Airport Sponsor, New Mexico Department of Transportation - Aviation Division (NMDOT Aviation Division), various project stakeholders, and other interested parties to ensure that the plan truly reflects the long-term development needs of the Airport and the local community. To this end, the Project Team and Sponsor have identified and recognized the relevant issues and conditions throughout the previous and on-going stages of the master plan.

During the initial stages of the Master Plan, it was discovered that Department of Defense (DoD) staff from Cannon Air Force Base (CAFB) routinely fly on commercial service flights from Amarillo or Lubbock, Texas or Albuquerque, New Mexico. Although CVN is served by a regional air carrier through the Essential Air Service (EAS) program, most area passengers do not fly from CVN due to limited service. CAFB commanders have expressed interest in expanded, direct commercial passenger service from Clovis to a major airline hub using regional jet or large aircraft to better serve their staff and families. During a 10-month period in 2012, the base processed almost 2,400 travelers with an estimated air fare cost of $3.2 million. This activity does not include personal travel for DoD staff and their families.

Since 2012, base commanders have continued to record a higher number of travelers and have expressed renewed interest in having increased airline passenger service closer to Clovis. Most recently, base commanders have presented the idea of operating a portion of Cannon Air Force Base as a joint-use facility to allow commercial passenger service on the base.

Through discussions with Airport and NMDOT staff, an additional task to study and evaluate suitable optional locations for terminal building development was added to the master plan. This appendix is intended to summarize discussions with advisory committee members organized through this task, outline and evaluate the options for passenger terminal development at CVN and CAFB, and present findings and recommendations.

H.2 TERMINAL ASSUMPTIONS

Based on findings established in the master plan, several assumptions regarding the future development of an expanded passenger terminal building can be made. The following key factors were considered as criteria when identifying a suitable location for a terminal building at either CNV or CAFB:

1. Terminal area should encompass at least 15 acres to accommodate the building, apron, parking, circulation roadways and other important features common with a commercial service passenger terminal building and area.
2. Terminal building should be approximately 15,000 sq. ft. to accommodate at least 20,000 annual enplanements.
3. Convenient access to existing highway network to minimize roadway construction costs and take advantage of possible frontage locations for increased visibility and access.
4. Separate from other airport functions such as general aviation activity or military operational areas.

H.3 TERMINAL LOCATION OPTIONS

There are three operational configurations for passenger terminal development that may meet the needs of the community and potential air carriers. Operational configurations have to do with how the terminal building is operated and managed, either by the City of Clovis or a third party. These options include:

1. Terminal building constructed at Clovis Municipal Airport,
2. Terminal building constructed at Cannon Air Force Base and operated by the City of Clovis, or
3. Terminal building constructed at Cannon Air Force Base and operated by a third party.

Intrinsic to how the terminal is operated and managed, the location of the building plays a crucial role.

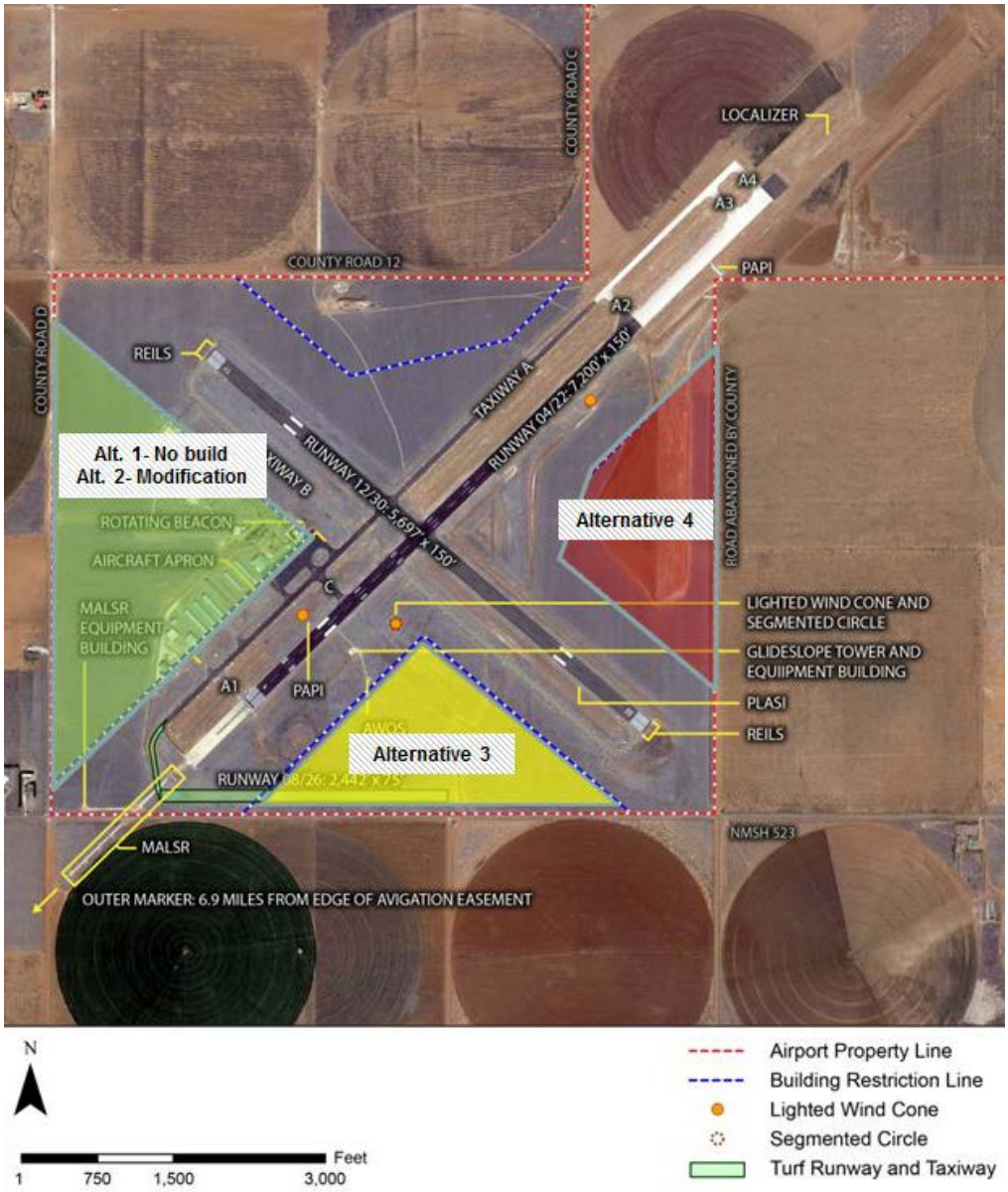
H.3.1 Terminal location at CVN

Various alternative locations for a terminal building at CVN that accommodates a far greater level of activity than today were studied and evaluated in the Master Plan. Figure H-1 shows the four possible alternative locations for terminal development.

Alternative 1 represents the "No build" option and may accommodate existing and future airline operations under the current conditions using small non-jet aircraft and no security screening. This would not satisfy the needs of a large domestic carrier using regional jet or large aircraft. Alternative 2 modifies the existing

terminal to accommodate a greater level of air service. This option may be viable as an interim solution while a larger, more modern terminal is constructed elsewhere. Alternative 3 provide adequate acreage, frontage, separation and access to utilities to accommodate a terminal building at CVN. Alternative 4 provides plenty of room and separation from other airport activities, but lacks access to utilities and major roadway frontage. As explained in greater detail in the *Chapter 4: Airport Development Alternatives*, location Alternative 3 is preferred for developing a terminal building at CVN.

Figure H-1: Alternative Terminal Building Locations at CVN

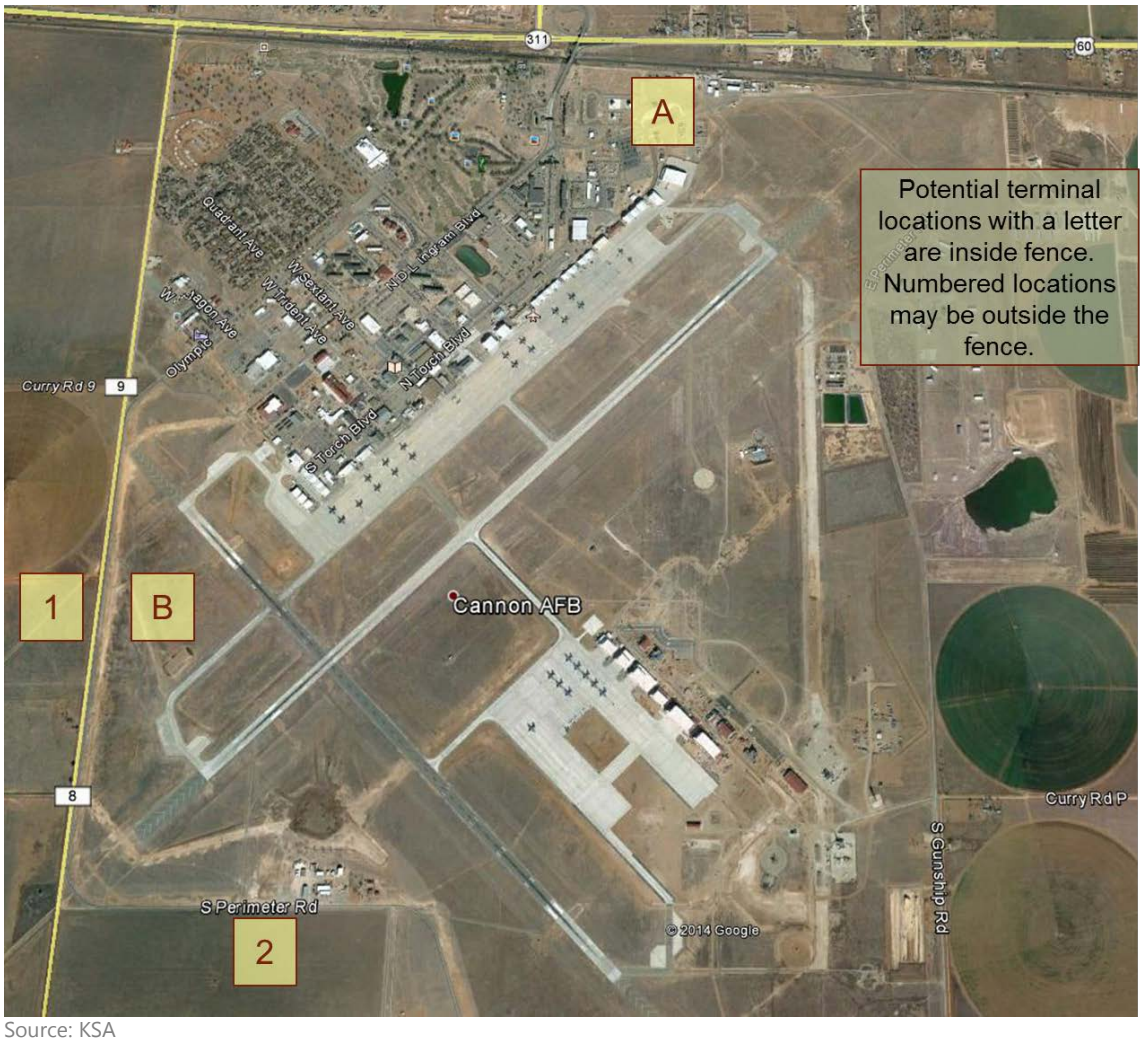


Source: CDM Smith

H.3.2 Terminal location at CAFB

After a preliminary evaluation of the Cannon Air Force Base property and operational configuration, four possible locations around CAFB to accommodate a terminal building were identified. **Figure H-2** illustrates these locations.

Figure H-2: Alternative Terminal Building Locations at CAFB



Source: KSA

As mentioned in the figure above, potential locations identified by a letter are located inside the CAFB fence and on Base property. Location A is adjacent to the Base's main entrance and convenient to Highways 60/84. Location B is located near the intersection of the Base's runways and close to a perimeter road that encircles the base and airfield.

Locations identified by a number are situated outside the Base. Location 1 is placed near the intersection of the Base's runways, but outside the fence and along a dirt road (Route 9) that runs adjacent to the Base's western boundary. Location 2 is south of the Base fence and near the southern entrance.

Through discussions with CAFB personnel, it was made clear that, because the terminal would be public-use, it could not be located on Base property. As a result, Locations A and B were eliminated from consideration. Furthermore, the Base was recently granted almost 600 acres along the southern and western boundary, where Location 2 was proposed. Since this would ultimately place the terminal building within Base property, Location 2 was eliminated from consideration. As a result, the preferred location for a terminal building at CAFB is Location 1.

H.4 TERMINAL LOCATION EVALUATION

The preferred locations at CVN and CAFB as well as the operational configuration and consideration of how these terminals would function at their respective locations were evaluated and compared to one another to determine a recommended location. Table H-1 provides a comparison of some of the key attributes related to the development of a terminal building at CVN versus CAFB.

Table H-1: Comparison Matrix

	Terminal at Municipal Airport	Terminal at CAFB
Cost	Terminal: $ 11,900,000 Runway 4/22 Ext: 6,500,000 Taxiway: 3,500,000 Total: $ 21,900,000	Terminal: $ 11,900,000 Taxiway: 3,400,000 Roadway Access: 7,400,000 Property Acq (est): 800,000 Total: $ 23,500,000
Funding Sources	AIP, PFCs, local funds	MAP (AIP), PFCs, local funds
Staffing	Airport Manger Administrative Assistant Operations Staff - 3 Maintenance	Facility Manager Operations Staff -1 Maintenance
ARFF	Increased presence (ARFF Level B)	Provided by Base
Revenue Sources	Aircraft Fuel Lease (rental cars and concessions) Parking (optional)	Fuel through Base agreement Lease (rental cars/concessions) Parking (optional)

Source: KSA

With the cost of the terminal, apron and related development being equal at each location, the leading cost factors are: 1) the extension to Runway 4/22 to achieve 8,800 feet necessary accommodate larger jet aircraft at CVN and 2) the development of a public road necessary at access the terminal building adjacent to CAFB property. Considering these costs, the development of a terminal at CAFB is estimated to cost more than at CVN.

Funding sources for development also differentiate these optional locations. Building a terminal at CAFB would potentially allow for Military Airport Program (MAP) funding that would not be available at CVN. MAP funding is a competitive process by which military or joint-use airport may gain funding assistance for parking, roadway, utility, airfield and terminal development projects. It is important to note, however, that entry into the program and funding availability is limited. Additionally, with potentially lower activity at CVN as a result of a terminal at CAFB, CVN may see a reduction in future funding from NMDOT.

Additional attributes for comparison that may be more difficult to quantify were evaluated and are highlighted in the pros and cons list shown in **Table H-2**.

Table H-2: Pros and Cons Evaluation

	Terminal at CVN	Terminal at CAFB
Pros	On-going State assistance Convenient terminal/airfield access Independent, no Base involvement	Potential MAP eligibility Adequate runway length ARFF needs met
Cons	Potential greater financial burden Requires runway extension Loss of EAS with new airline Increased ARFF requirements	No State assistance, reduced $ at CVN Inconvenient roadway access Loss of EAS at CVN with new airline Base coordination for operations Subject to DoD

Source: KSA

With input and feedback from the advisory committee established for this task, it is recommended that, if or when a new commercial airline passenger terminal is developed in Clovis, it be built at Clovis Municipal Airport. The rationale for this conclusion is based on, but not limited to, the following primary considerations:

a. CVN provides better level of service through easier access
b. Fosters continued growth and development of CVN
c. Maintains City ownership in all aspects – airfield priorities, operations, etc.
d. MAP funding at CAFB speculative – focus on capacity enhancement