McDermitt State Airport

Airport Layout Plan Report

Prepared for the

July 2003

McDermitt State Airport
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Final Report
July 2003

Prepared for

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CHAPTER ONE
INTRODUCTION AND CONCLUSIONS

The preparation of this document may have been supported, in part, through the Airport Improvement Program financial assistance from the Federal Aviation Administration as provided under Title 49, United States Code, section 47104. The contents do not necessarily reflect the official views or policy of the FAA. Acceptance of this report by the FAA does not in any way constitute a commitment on the part of the United States to participate in any development depicted therein nor does it indicate that the proposed development is environmentally acceptable with appropriate public laws.

PROJECT OBJECTIVES

This study will evaluate the configuration and condition of existing facilities and address the current and long-term needs of McDermitt State Airport. The current airport layout plan (ALP) was approved in 1984 and has not been updated since that time. This study will examine prior airport development recommendations and evaluate any changes in activity or utilization, which may affect future demand for aviation facilities.

The primary objective of this Airport Layout Plan Report is to identify current and future facility needs and the improvements necessary to maintain a safe, efficient, economical, and environmentally acceptable air transportation facility. The Airport Layout Plan Report will:

- *Examine previous recommendations and development alternatives as appropriate to meet the current and projected airport facility needs;*
- *Determine current and future activity and facility requirements;*

- *Update the airport layout plan and airspace plan, and prepare a land-use plan for the airport and its surrounding areas; and*

- *Schedule priorities of improvements and estimate development costs for the 20-year planning period.*

The Oregon Department of Aviation (ODA) has undertaken the Airport Layout Plan Report project with the support of the Federal Aviation Administration (FAA). FAA's approval of the updated Airport Layout Plan will enable McDermitt State Airport to continue to qualify for federal Airport Improvement Program (AIP) grants for eligible facility improvement projects. This plan was funded with a 90 percent grant from the FAA, with the remaining 10 percent funded by ODA.

OVERVIEW

McDermitt State Airport is located on the Oregon side of the Oregon-Nevada border and serves the community of McDermitt, which extends across the state line. The airport is owned and operated by ODA and is included in the National Plan of Integrated Airport System (NPIAS), making it eligible for federal funding assistance through the FAA.

The airport underwent a major reconstruction in 1986 when state's nearby unpaved airstrip was closed and replaced with the current paved and lighted runway. The current airport site consists of property owned by ODA and land leased from the U.S. Bureau of Land Management (BLM) and is located west of the original unpaved runway.

McDermitt is categorized as a "Low Activity General Aviation Airport" in the Oregon Aviation Plan and is also included in Oregon's Core System of Public Airports, which denotes its significance in the statewide aviation system.[1] Low Activity General Aviation Airports typically accommodate limited general aviation activity in smaller communities and remote areas, and provide emergency and recreational use functions.

McDermitt is the only paved, lighted runway in southern Malheur County. The region is sparsely populated with small communities located along the highways traveling throughout southeastern Oregon and nearby Idaho and Nevada. McDermitt serves a wide range of users including local residents, businesses, government agencies and visitors to the area. The airport is available to support medevac service for the local community and the Fort McDermitt Indian

[1] Oregon Aviation Plan, © 2000, Oregon Department of Transportation.

Reservation, and a large area extending throughout southeastern Oregon and northern Nevada. The day/night availability of the airport also provides a significant safety benefit for aircraft encountering poor weather conditions or mechanical difficulties on the common flight route between Boise and Nevada/California.

PUBLIC INVOLVEMENT

The public involvement element of the planning process provided opportunities for all interested individuals, organizations, or groups to participate in the project. At the beginning of the project, a Joint Planning Conference (JPC) was held by teleconference, on January 29, 2002, in which all parties with known interests in the airport were contacted by telephone. The purpose of the JPC was to identify any concerns or issues, which needed to be addressed as part of this airport layout plan update. The input provided by airport users, state airport staff, local citizens, several federal, state, and county government agencies, and a representative of the Fort McDermitt Paiute and Shoshone Tribe provided valuable information that was used in formulating the plan.

During the study, draft working papers were prepared and provided to ODA and FAA staff for review. Follow-up coordination with the county planning departments in Oregon and Nevada was also conducted as part of the preparation of the environmental review checklist and review of existing land use and zoning. Based on current conditions and the updated projections of facility needs, a recommendation was made to retain the general development scheme that was defined when the airport was reconstructed in 1986. Some minor refinements were made to future landside facilities, but no significant changes in airfield configuration were recommended. The components of the preferred alternative were then incorporated into the updated airport layout plan. One notable change reflected in the plan was the recommendation to plan airfield facilities and airspace based on the future development of a non-precision instrument approach. Upgrading a utility airport from "visual" to "non-precision instrument" requires some changes in the protected airspace, although at McDermitt, these changes are not expected to significantly affect any current or planned development on or near the airport. With these changes reflected on the ALP and Airspace Plan, development of an instrument approach can be initiated at any time once the required obstruction and runway surveying is completed.

The Draft ALP Report and associated drawings represents the entire project work effort and reflects the input provided by all participants. Following a review period, public and agency comments will be integrated into the final plans and documents.

AIRPORT LAYOUT PLAN REPORT CONCLUSIONS

1. McDermitt State Airport is owned and operated by the State of Oregon Department of Aviation (ODA). An airport has been continuously operated in McDermitt by the State of Oregon since 1967. The current airport site was developed in 1986 when the original unpaved runway was closed and the new paved runway was constructed.

2. McDermitt State Airport is categorized as a "Low Activity General Aviation Airport" in the 2000 Oregon Aviation Plan and is included in Oregon's core system of airports. The airport is also included in the National Plan of Integrated Airport System (NPIAS) administered through the Federal Aviation Administration (FAA).

3. The airport role (design category) identified on the 1984 ALP was Basic Utility II[2], which was based on most single-engine and small twin-engine aircraft weighing 12,500 pounds or less. The future design category was defined as General Utility II, which was based on aircraft larger than 12,500 pounds. The dimensions of the existing airport facilities are generally consistent with FAA Airport Design Group I (ADG I) standards, although the future facility improvements depicted on the 1984 ALP appear to be consistent with ADG II dimensional standards.

4. The current design aircraft type for McDermitt is a light single- or twin-engine aircraft (12,500 pounds or less), which is representative of the wide range of local and itinerant aircraft that use the airport on a regular basis. Runway 16/34 is designed to accommodate light aircraft weighing 12,500 pounds or less.

5. Based on FAR Part 77 criteria, runways designed for use by aircraft weighing 12,500 pounds or less are classified as "utility." Runway 16/34 was designed and constructed based on utility standards and this designation remains appropriate based on current use.

6. McDermitt State Airport had two based aircraft in April 2002. The most recent activity count at the airport was made in 1987, with 1,734 annual operations (takeoffs and landings). It is estimated that current airport traffic is comparable to earlier counts (estimated between 1,500 to 2,000 annual operations), most of which is generated by itinerant aircraft.

7. McDermitt State Airport operates under day and night visual flight rules (VFR) and does not currently have instrument approach capabilities.

[2] Airport Role definitions per National Plan of Integrated Airport Systems (NPIAS).

8. McDermitt State Airport has a single paved and lighted runway (5,900 feet by 60 feet). Runway 16/34 is not served with a parallel taxiway, but has three east-side taxiway exits: an aircraft turnaround loop located at the Runway 16 threshold; a mid-field holding area/turnaround; and an exit taxiway at the Runway 34 threshold that connects to the aircraft apron and hangar area. The existing turnaround/holding areas and the aircraft parking apron are configured to be compatible with future development of an ADG II parallel taxiway.

9. The condition of pavements at McDermitt State Airport ranges from poor (north turnaround) to good (apron, runway, south and mid-field taxiways) based on the most recent ratings done in 2000. Visual observations conducted during this project in 2002 were consistent with the 2000 ratings.

10. All existing landside facilities are located on the east side of the runway, near its south end. The airport has a single aircraft parking apron with 16 light aircraft tiedowns. One conventional hangar is located adjacent to the apron. The terminal area facilities are served by a paved airport access roadway that connects to Cordero Mine Road and U.S. Highway 95. An unpaved vehicle parking area is located at the south end of the apron.

11. Airfield lighting includes low-intensity runway edge lighting (LIRL), runway threshold lights, taxiway edge lights marking the exit taxiway locations and a rotating beacon. A lighted wind cone and segmented circle are located near the mid-point of the runway on its west side. Unlighted wind cones are also located at each runway end (west side). Overhead flood lighting is provided for the apron.

12. The McDermitt State (RMD) nondirectional beacon (NDB) is located on the airport, east of the runway. The NDB is restricted to VFR use only.

13. McDermitt State Airport has a land area of approximately 139 acres and is zoned Exclusive Range Use (ERU) by Malheur County. The Exhibit "A" property map for the airport indicates that the southern 74.33 acres of the airport is owned by the State of Oregon and the northern 64.45 acres is leased from the U.S. Bureau of Land Management (BLM).[3] The current BLM lease was negotiated for a period of twenty years and is due to expire in 2004.

14. The Malheur County Planning Department indicates that they do not have zoning jurisdiction over federally owned lands, including the northern section of the airport.

[3] Exhibit "A" Property Map, McDermitt State Airport. Oregon State Aeronautics Division (Approved 9/82; modified 8/84 to match construction plans).

15. According to the Malheur County Planning Department, the ERU zone does not permit the construction of structures such as hangars, nor does it is permit development of aviation facilities as outright or conditional uses. The Planning Department acknowledges that the existing ERU zoning is not appropriate for the airport and they would support a change in zoning.

16. Malheur County has a runway approach overlay zone described in its zoning ordinance, but the overlay zone does not appear on county zoning or comprehensive/transportation plan maps for the McDermitt area. There is no comparable zone in place on the Nevada side, according to Humboldt County (Nevada) planning personnel. However, both the Malheur County and Humboldt County planning agencies indicated that their jurisdictions have airport approach overlay zoning capabilities, and that their jurisdictions would adopt maps of the same if provided by this Airport Layout Plan Update Report.

17. The sewage treatment lagoons for the community of McDermitt are located approximately ¼ mile south of the runway. According to local residents, the aeration ponds are not significant bird attractants. However, the close proximity of the lagoons to the runway is not consistent with FAA guidelines on water impoundments and airports; it is not known whether any risk assessments were conducted for this facility prior to, or subsequent to construction.

AIRPORT LAYOUT PLAN RECOMMENDATIONS

The recommendations of previous planning efforts were examined and revalidated or modified as appropriate, based on current considerations and design standards.

1. The (Malheur County) zoning of McDermitt State Airport should be changed from the existing Exclusive Range Use (ERU) zone to an "airport friendly" zone that would recognize aviation related uses as "outright permitted" consistent with Oregon Revised Statutes (ORS) Chapter 836.600 through 836.630.

2. Airfield facilities at McDermitt State Airport should be designed to meet FAA Airport Design Group I (ADG I) dimensional standards. The use of ADG II development reserves is recommended to preserve the long-term expansion potential of the airport. A single wheel weight bearing capacity of 12,500 pounds (single wheel) is recommended for airfield pavements

3. Based on existing and forecast use, the current "utility" designation for Runway 16/34 continues to be appropriate and is recommended in conjunction with an upgrade to accommodate non-precision instrument approach capabilities early in the planning period. The ultimate airspace surfaces for the airport are based on a "larger than utility" runway designation with nonprecision instrument approach capabilities.

4. A regular schedule of pavement maintenance (vegetation control, crack filling, fog seals, patching, etc.) should be conducted on airfield pavements to maximize the useful life and optimize life cycle maintenance expenditures.

5. Based on the existing and projected pavement condition, the runway, apron, and taxiway exits/turnarounds should be resurfaced/rehabilitated early in the planning period to maintain safe operating conditions for airport users.

6. The portions of the expanded Runway 16 and 34 RPZs that extend beyond airport property should be incorporated into the existing lease (if BLM owned) or controlled through avigation easement or purchase, if privately owned.

7. A full length parallel taxiway is recommended for the east side of Runway 16/34, primarily to reduce the lengthy back-taxi now required on the runway. It is recommended that the parallel taxiway be located using the ADG II runway separation distance of 240 feet to preserve the long-term potential of upgrading the runway-taxiway system to meet ADG II design standards.

8. New landside developments (aircraft hangars, parking, fuel, FBO, etc.) should be located in the vicinity of the main apron. The undeveloped land areas located immediately adjacent (east and south) of the apron should be reserved for future aviation use; the undeveloped area located immediately north of the apron should be reserved for hangar development and related aviation uses.

9. Electrical service should be extended to the new hangars and other buildings (as needed) in the terminal area in conjunction with future landside development.

10. Precision approach path indicators should be installed on Runways 16 and 34 to provide basic visual descent guidance for pilots.

11. Lighted wind cones should be installed near the ends of Runway 16 and 34 to improve the representation of surface wind conditions on the airfield.

12. The development of a non-precision instrument approach procedure (IAP) is recommended for McDermitt State Airport. The IAP will improve the airport's existing functional capabilities in serving itinerant aircraft traveling through the area, in addition to expanding fixed-wing and helicopter medevac access to the local community and surrounding area, particularly for operations during nighttime or poor weather conditions.

13. Based on current FAA policy on instrument approach development, it is recommended that a new IAP based on global positioning system (GPS) satellite navigation (SATNAV) technology be formally requested through the FAA's Seattle Flight Procedures Office (FPO). If feasible based on the TERPS analysis, a straight-in approach should be developed for Runway 16/34.

14. In conjunction with development of the IAP, surveying will be required to document and chart obstructions within the non-precision instrument Part 77 and TERPS protected airspace surfaces and to provide runway end coordinates and elevations in accordance with **FAA No. 405 - Standards for Aeronautical Surveys and Related Products.**

15. The runway primary surface should also be cleared and graded to the full width of 500 feet (250 feet either side of the runway). Any obstructions identified during the survey phase should be removed or lighted, per FAA requirements.

16. The markings on Runway 16/34 will need to be upgraded from basic to non-precision instrument upon commissioning the instrument approach.

17. An automated weather observation system (AWOS) should be installed in conjunction with development of an instrument approach procedure. A recommended AWOS site is located near the NDB on the east side of the runway.

18. Fencing should be added along the airport boundary to limit unauthorized human, animal, and vehicle access to the airfield.

19. The local McDermitt sewerage authority should initiate coordination with the Federal Aviation Administration's Seattle Airports District Office, in conjunction with the Oregon Department of Aviation, Humboldt County, Nevada and appropriate state or federal wildlife agencies, to assess and mitigate, if necessary, bird attractant risk associated with the uncovered wastewater treatment lagoons in the vicinity of the airport.

20. Malheur County should develop, adopt and map an airport overlay zone that coincides with the airport's FAR Part 77 Airspace Surfaces and is consistent with state law (ORS Ch. 836.600-630). It is recommended that Malheur County jointly develop the overlay

zone with Humboldt County, Nevada to ensure consistent and uniform ordinance language and mapping.

21. ODA should adopt the Airport Layout Plan Report and drawings in a timely manner to guide airport activities. Malheur County should adopt the Airport Layout Plan Report and drawings for incorporation in the County Comprehensive Plan and Transportation Plan. Local adoption of the plan should also reflect the need to address zoning issues identified in **Recommendation Number 1**.

22. ODA should initiate the recommended improvements and major maintenance items in a timely manner, requesting funding assistance under FAA and other federal, state or county funding programs for all eligible capital improvements.

CHAPTER TWO
INVENTORY AND FORECASTS

INTRODUCTION

The purpose of this chapter is to document existing conditions and aviation activity at the airport. Existing forecasts of aviation activity will be evaluated and updated as necessary, to identify in broad terms, anticipated trends that may affect development needs at McDermitt State Airport through the twenty-year planning period and beyond. The existing airfield facilities were also examined during recent on-site inspections. Historical data from a variety of sources are used in this evaluation:

- **McDermitt State Airport Pavement Evaluation Maintenance-Management Program** (Pavement Consultants, Inc., 2000)
- **McDermitt State Airport – Airport Layout Plan; Aircraft Service Area; and Approach and Clear Zone Plan Drawings.** (Oregon State Aeronautics Division, Approved 1/27/84)
- **Construction Plans – McDermitt State Airport, Sheets 1-10.** (Hodges & Shutt, 8/84)
- **Exhibit A Property Map –McDermitt State Airport** (Oregon State Aeronautics Division, 8/82)
- **Oregon Continuous Aviation System Plan. Volume I - Inventory and Forecasts** (AirTech, 1997)
- **Oregon Aviation Plan** (Dye Management Group, 2000)
- **Malheur County Transportation System Plan** (1999, W&H Pacific)
- **Malheur County Comprehensive Plan and Zoning Ordinance, Assessor Maps**
- **Humboldt County (Nevada) Zoning Ordinance**
- FAA Airport Master Record Form (5010-1), Terminal Area Forecasts.
- Local documents and regional socioeconomic data.

AIRPORT LOCALE

McDermitt State Airport is located in southern Malheur County less than one mile northwest of the town of McDermitt. McDermitt is situated on the border between Oregon and Nevada, with most of the community located in Humboldt County, Nevada. The airport is located in an unincorporated area of Malheur County. Malheur County is located in the southeastern corner of Oregon and borders Harney and Grant Counties to the west; Baker County to the north; Nevada to the south; and Idaho to the east. The nearest major city is Nampa, Idaho, located approximately 162 miles northeast. Winnemucca, Nevada is located approximately 75 miles south on U.S. Highway 95. An airport location map is provided in **Figure 2-1**.

Malheur County is the second largest county in Oregon, with a total area of 9,926 square miles (6,352,640 acres). The southern portion of the county is comprised mainly of rangeland and moderately mountainous terrain. More than 70 percent of the county land area is in federal ownership, mostly rangelands administered by the Bureau of Land Management (BLM).

Recreational activities in the local area include gaming, hunting, fishing, camping, and visiting historical sites. Malheur County has one primary north-south highway route, U.S. Highway 95 (U.S. 95) that extends east into Idaho and south into Nevada. State Route 78 connects with U.S. 95 at Burns Junction, approximately 55 miles north of McDermitt, to serve Burns.

McDermitt is located along a common flight route, which extends nearly 200 miles between the Boise area and Winnemucca or Elko, Nevada. McDermitt State Airport is the only paved, lighted runway on much of this route and is often used by aircraft encountering weather or mechanical difficulties.

CLIMATE

Temperatures in southeastern Oregon can range widely. Detailed climatic data for McDermitt is available for a 45-year period between 1955 and 2000.[4] The average maximum temperature is 91.1 degrees Fahrenheit (July) and the average minimum temperature is 18.9 degrees (January). The daily extreme temperatures for McDermitt are –29 degrees Fahrenheit (January) and 111 degrees (July). McDermitt averages 9.43 inches of precipitation and 14.8 inches of snowfall annually. Local airport users indicated that winds are generally from the south in the summer and from the north in the winter, although crosswinds occur occasionally.

[4] Western Regional Climate Center.

Figure 2-1: Airport Location Map

PHYSICAL CHARACTERISTICS

Southern Malheur County is predominantly rangeland, with sagebrush vegetation common throughout the area. The physical geography of the area includes elevations that range from about 4,000 feet to more than 8,000 feet. The published elevation of McDermitt State Airport is 4,478 feet above mean sea level.[5] The area surrounding the airport is comprised largely of undeveloped rangeland. The USDA Soil Conservation Service staff provided the following information regarding the soils surrounding the airport site:

> *"Based on soil mapping on the Nevada side of the State line, and some on ranches west and east of the airport, I would expect to find well drained sandy loam and well drained gravelly silt loam soils on the airport property. The soils in that area have formed from alluvium and loess on gently sloping fans and low terraces. The soils generally are deep, but there may be some areas with cemented pans that limit the effective depth of the soil."*[6]

SOCIOECONOMIC CONDITIONS

Population

According to data compiled by the U.S. Census Bureau and Portland State University Center for Population Research and Census, the population of Malheur County was 31,615 in 2000. The majority of the county population is concentrated in and around the communities located in the Treasure Valley area, in northeastern Malheur County. The town of McDermitt straddles the Oregon-Nevada border with the Oregon portion located in an unincorporated area of southern Malheur County. The only population data available was for McDermitt, Nevada, with a population estimated to be 373 in 2001.

The population of Malheur County increased by 21.4 percent between 1990 and 2000 and is forecast to increase by another 22 percent by the year 2040.[7] The majority of population growth is expected to continue being concentrated in the northern part of the county. Changes in population within the local area are not expected to significantly affect demand for aviation services at the airport during the current planning period.

[5] Published Airport Elevation. Airport/Facility Directory, NACA
[6] Natural Resource and Conservation Service
[7] State of Oregon, Office of Economic Analysis.

Economy

A review of the socioeconomic data generated for Malheur County reveals some significant differences between the northern and southern parts of the county. The concentration of population and industry in the northern part of the county tends to dominate readily available statistical data, which limits its direct application to the local McDermitt area.

Approximately 71 percent of Malheur County consists of publicly owned lands managed by BLM and overall, more than 94 percent of the county is classified as range land. According to agricultural census data, Malheur County ranks among the top 100 counties nationally for both the number and value of cattle and calves sold.[8] The county also ranks highly in a variety of other agricultural production categories, although most crop production and food processing are located in the northern part of the county.

The economy in the lower part of Malheur County has relied heavily on cattle ranching and mining as key economic anchors, although both segments have suffered through weak market conditions in recent years. McDermitt serves local ranching and agriculture businesses, in addition to itinerant travelers and tourists (fuel, food, lodging, gaming casino, etc.) from Highway 95. Other sources of jobs in the community include county and tribal government, and the local school district.

The nearby Cordero mercury mine, which in the past provided local employment, is not currently in production. The mine is now owned by Gold Canyon Resources, a Vancouver, Canada based company. According to company officials, the discovery of Gallium, a rare metal used in semiconductors is currently being evaluated to determine whether large-scale extraction and processing is economically feasible. Although the airport has not been used extensively to support past or present mining activities, it does provide an important transportation option for the company in the event that future operations are pursued.

Airport History

McDermitt State Airport is owned by the State of Oregon Department of Aviation (ODA). A state-owned airport has been operated in McDermitt since 1967. A new, expanded runway was built in 1985-1986, through a combined effort involving the State of Oregon, FAA and Humboldt County, Nevada. The new runway was constructed just west of the original landing strip, which

[8] USDA Oregon Agricultural Statistics Service, 1997.

has been closed. ODA owns the southern portion of the airport (74 acres) and leases the northern 65 acres of the airport from BLM.

AIRFIELD FACILITIES

Historically, McDermitt State Airport has served a variety of general aviation users, including business, recreational and government-related aviation. The current runway, apron, taxiways and airfield lighting were newly constructed in 1985-1986. **Figure 2-2** depicts existing conditions at the airport and **Table 2-1** summarizes airport data.

TABLE 2-1
AIRPORT DATA

Airport Name/Designation	McDermitt State Airport (26U)
Airport Owner	State of Oregon Department of Aviation
Date Established	1967
Airport Category	National Plan of Integrated Airport Systems (NPIAS) General Aviation FAA Airport Reference Code: B-I
Airport Acreage	139 Acres (as depicted on Exhibit "A")
Airport Coordinates	N 42º00.13' W 117º 43.39'
Airport Elevation	4,478 feet Mean Sea Level (MSL)
Airport Traffic Pattern Configuration/Altitude	Left Traffic – 1,000 feet above ground level

Figure 2-2: Existing Conditions

Runways and Taxiways

McDermitt State Airport has one paved, lighted runway (16/34), oriented on a 160-340 degree magnetic alignment. The runway is not served by a parallel taxiway, but has three exit taxiways located on its east side. The runway and taxiways were constructed in 1985-1986 with asphaltic concrete (AC). **Table 2-2** and **Table 2-3** summarize existing runway and taxiway facilities.

TABLE 2-2
RUNWAY DATA

Dimensions	5,900 x 60 feet
Effective Gradient	.93%
Surface	Asphaltic Concrete (AC)
Weight Bearing Capacity (WBC)	12,500 pounds – Single Wheel Landing Gear[1]
Marking	Basic (runway numbers, threshold bar, centerline stripe)
Lighting	Low Intensity Runway Edge Lighting (LIRL); Threshold Lights; Unlighted Hold Position Signs at Each Taxiway
Wind Coverage	Not Available

1. Pavement Strength as published in U.S. Airport/Facility Directory

The exit taxiways are designated Taxiway A (north), B (midfield), and C (south). Taxiways A and B provide access to aircraft turnarounds; Taxiway C provides access the aircraft parking apron and hangar area. Aircraft hold lines are marked 125 feet from runway centerline.

During a recent inspection of the airport, the condition of the runway and taxiway pavements were consistent with the most recent formal rating completed in 2000. The pavements have continued to deteriorate and currently show cracking from 1 to 3 inches on all sections. It appears that repeated crack filling has been applied in recent years, which has effectively maintained a usable surface. The pavements will require rehabilitation early in the planning period and may require full reconstruction during the current planning period.

TABLE 2-3
TAXIWAY DATA

Configuration/ Dimensions	Taxiway A – 607 x 35 feet (aircraft turnaround loop) Taxiway B – 225 x 35 feet (access to 85-foot wide aircraft turnaround) Taxiway C – 300 x 40 feet (access to apron and hangar area)
Surface (Condition)	Taxiway A: Asphalt Concrete (Poor) Taxiway B: Asphalt Concrete (Fair/Good) Taxiway C: Asphalt Concrete (Good)
Marking	Centerline Stripe (Taxiways A and C), Aircraft Hold Lines 125' from runway centerline
Lighting/Reflectors	No Taxiway Edge Lighting or Reflectors Edge Lights marking each exit taxiway location on runway
Runway-Parallel Taxiway Separation	N/A

Wind data for the airport was unavailable. Local pilots indicate that the current runway alignment generally corresponds with the wind speed and direction in the vicinity of the airport, although some brief, but forceful east-west crosswinds are not uncommon in the spring or fall. The 1984 ALP includes the following note:

> *"Wind data is unavailable for this location. A 10 year period of general and pilot observation of the immediate area indicates that the relationship of the proposed runway alignment to the wind speed and direction is satisfactory."*

Aircraft Apron

McDermitt State Airport has one aircraft parking apron, located at the south end of Runway 16/34, on its east side. The apron is connected to the runway by Taxiway C, which extends directly from the threshold of Runway 34.

The apron is configured with three rows of aircraft tiedowns that accommodate a total of 16 aircraft. Taxilane access is provided between each tiedown row and along the western edge of the apron. The northern tiedown row is located directly south of Taxiway C and is identified as the "larger aircraft row" with four north-facing positions. The center tiedown row has seven tail-in tiedown positions facing north and south. The southern tiedown row has five north-facing tail-in tiedown positions located adjacent to vehicle parking area. **Table 2-4** summarizes existing apron facilities at the airport.

TABLE 2-4
AIRCRAFT APRON DATA

Main Apron	225' x 316' (7,900 square yards) Three east-west rows of aircraft tiedowns (16 positions) Asphaltic Concrete (AC) (Good Condition)

Agricultural Aircraft Facilities

McDermitt State Airport does not accommodate regular agricultural-related operations and does not have any designated agricultural aircraft facilities.

Airfield Pavement Condition

As part of the **Oregon Aviation System Plan**, ODA manages a program of pavement evaluation and maintenance for Oregon's general aviation airports. This evaluation provides standardized pavement condition index (PCI) ratings, pavement features and current conditions. Through the use of MicroPAVER computer software, current pavement condition ratings are entered into the system with the specifics of each pavement section. The program is able to predict the future condition of the pavements if no action is taken (i.e. rate of deterioration) while also identifying the recommended measures needed to extend the useful life of the pavement section.

Table 2-5 summarizes airfield pavement conditions for McDermitt State Airport based on the most recent inspection conducted in 2000. During the most recent pavement inspection, the ratings for the PCC pavements ranged from "good" to "poor." Based on normal use, the runway pavement is projected to fail by 2010 without rehabilitation. Although the runway was rated fair in 2000, it will require a rehabilitation project early in the current planning period.

TABLE 2-5
SUMMARY OF AIRFIELD PAVEMENT CONDITION
(APRIL 2000)

Pavement	Section Design/Age	PCI Rating[1]	Condition
Runway	2" AC (1985); 3" Crushed Aggregate (1985); 7-10" Aggregate Subbase (1985)	51	Fair
Taxiway A *(Rwy 16 turnaround)*	2" AC (1985); 6" Crushed Aggregate (1985); 7" Aggregate Subbase (1985)	34	Poor
Taxiway B *(Mid Field Exit)*	2" AC (1985); 6" Crushed Aggregate (1985); 7" Aggregate Subbase (1985)	55	Fair
Taxiway C *(Apron Taxiway)*	2" AC (1985); 6" Crushed Aggregate (1985); 7" Aggregate Subbase (1985)	56	Good
Main Apron	2" AC (1985); 6" Crushed Aggregate (1985); 7" Aggregate Subbase (1985)	57	Good

1. The Pavement Condition Index (PCI) scale ranges from 0 to 100, with seven general condition categories ranging from "failed" to "excellent." For additional details, see *Oregon Aviation System Plan Pavement Evaluation/Maintenance Management Program* for McDermitt State Airport.

LANDSIDE FACILITIES

Airport Buildings

The airport has two structures including one conventional hangar located near Taxiway C at the north end of the aircraft apron and a 6- by 7-foot concrete block structure that houses the non-directional beacon (NDB) located east of the runway.

Airport Lighting

The airport lighting at McDermitt State Airport accommodates day-night operations in visual flight rules (VFR) conditions. The airport has runway edge lighting, threshold lights, a lighted wind cone/segmented circle, and an airport beacon. The airport beacon is mounted on a wooden pole on the east side of the runway. **Table 2-6** summarizes existing airport lighting at McDermitt State Airport.

Low intensity runway edge lighting (LIRL) was installed had when the runway was constructed in 1985-1986. The runway edge lights are set on a dusk-to-dawn automatic switch and appear to

be in good condition. Light fixtures mark the location of each exit taxiway. Lighting on the aircraft apron is provided by two 35-foot high pole-mounted floodlights, each with two lamps, located along the eastern edge of the apron.

TABLE 2-6
AIRPORT LIGHTING

Component	Type	Condition
Runway Lighting	Low Intensity Runway Edge Lighting (LIRL)	Good
Taxiway Lighting or Reflectors	No Reflectors or Taxiway Edge Lighting Exit Taxiway Location Lighting (blue lenses)	N/A Good
Lighted Airfield Signage	None (3 Unlighted Rwy. Guidance Signs – Fair Condition)	N/A
Visual Guidance Indicators	None	N/A
Airport Lighting	Airport Rotating Beacon; Lighted Wind Cone	Good

Airspace and Navigational Aids

McDermitt State Airport operates exclusively under visual flight rules (VFR). A VFR-only non-directional beacon (NDB) is located on the airport. **Table 2-7** summarizes existing navigational aids and related items.

TABLE 2-7
NAVIGATIONAL AIDS AND RELATED ITEMS

Type	Facilities
Electronic Navigational Aids	McDermitt State Non-directional Beacon (RDM) 204 KHz (VFR Only) NDB Designated "MHW" (homing) power less than 50 watts (25 NM all altitudes) Other Navaids: Rome VORTAC (36 nm NW) 112.0 MHz Sod House VORTAC (36 nm SW) 114.3 MHz
Instrument Approaches	None
Weather Observation	None
Communication	Common Traffic Advisory Frequency (CTAF) - 122.9 MHz

The area surrounding the airport consists primarily of open rangeland and the airspace is free of any terrain obstructions (as noted on the 1984 Approach and Clear Zone Plan). Cordero Mine

Road is located approximately 1,600 feet south of the end of Runway 34, although vehicles traveling on the roadway remain below the runway approach surface. The Airport Facility Directory (AFD) also notes the presence of overhead power lines east and south of the runway; these lines do not appear to obstruct any existing airspace surfaces for Runway 16/34. The local airport traffic pattern altitude is 1,000 feet (AGL) with standard left traffic.

Tables 2-8 and 2-9 summarize notable obstructions, special airspace designations and IFR routes in the vicinity of McDermitt State Airport, as identified on the Klamath Fall Sectional Aeronautical Chart. Local airport operations are not affected by the noted airspace or obstructions located in the vicinity of the airport.

TABLE 2-8
LOCAL AIRSPACE OBSTRUCTIONS/FEATURES
(10 NAUTICAL MILE RADIUS)

Type of Obstruction	Description	Distance From Airport
Overhead Power Line	Transmission Line	3 NM west of airport.
Overhead Power Line	Local Service Lines	0-1 NM east and south of runway

TABLE 2-9
AIRSPACE/INSTRUMENT ROUTES

Airspace Item	Description	Location
Low Altitude Enroute Airway	Victor 113 – 10,000 feet mean sea level minimum enroute altitude (MEA)	10 NM west. Connects Rome and Sod House VORTACs on a 167-348 degree course.
Class E Airspace	Associated with low altitude federal airways (1,200 feet above ground level)	10 NM west
Military Operations Area (MOA)	Paradise West MOA – Altitude of Use: 14,500-17,999 feet MSL	West edge of MOA is located directly above airport and extends east, northeast and southeast.
Military Training Route	IR 300 (surface upward)	4 NM east
Military Training Route	VR 1352 (surface upward)	6 NM west

AIRPORT SUPPORT FACILITIES/SERVICES

Aircraft Fuel

There is no aviation gasoline (AVGAS) or jet fuel available for sale at the airport.

Surface Access and Vehicle Parking

Vehicle access to the airport is provided by a paved roadway that connects to Cordero Mine Road, which connects with U.S. Highway 95. A designated vehicle parking area (gravel-surfaced) is located adjacent to south side of the apron. The access road extends along the eastern airport property line, approximately ¼ mile north of the apron to the rotating beacon and the NDB.

Fencing

Most of the airport boundary is fenced with wire range fencing. A small section of chain-link fencing and a swing vehicle gate is located on the airport access road near the aircraft apron. The gate limits vehicle access to the hangar, apron and airfield and is normally closed and locked. The public vehicle parking area located at the south end of the apron is outside the gate. Posts and cable fence are located along north side of vehicle parking area to reduce unauthorized vehicle access to the apron. Local users report that a deer trail crosses the airport and that deer are occasionally observed on the airfield during the winter.

Utilities

Local utility providers include Green Mountain Energy (electric) and Humboldt Telephone Company (telephone). Electrical service on the airport is provided to the airfield lighting, the apron flood lighting, airport rotating beacon and the NDB. The existing aircraft hangar is not connected to electrical service. The existing overhead electrical line serving the airport is located along the east side of the airport access road and ties into the overhead line traveling along Cordero Mine Road.

Water service is provided by an 8-inch water line along the north side of Cordero Mine Road, near the closed landing strip, although no water service is available in the apron/hangar area. The McDermitt Community Fund administers the water system.

Land Use Planning and Zoning

McDermitt State Airport is located in Malheur County near the southeastern corner of Oregon. The airport is zoned "Exclusive Range Use" (ERU) by Malheur County. The southern portion of the airport is owned by ODA and the northern portion of the airport is owned by BLM and is leased to ODA for aviation use. During initial project coordination, the Malheur County Planning Department indicated that county zoning does not apply to BLM land, therefore the county does not have any land use jurisdiction over the northern section of the airport or other adjacent federally owned lands.

The airport is surrounded to the north, west and east by Malheur County lands predominantly in open space and range use. Sparse single-family residential uses, and primarily abandoned commercial structures, are also located east of the airport property in the County's "Rural Service Center" (RSC) Zone. Opposite those scattered dwellings and the nearby rodeo grounds, is US Highway 95, which roughly parallels the runway, approximately 1,500 feet to the east. A public right of way is located along the airport's southern side (Cordero Mine Road).

Directly southeast of the airport is the community of McDermitt, Nevada, which is under the zoning jurisdiction of Humboldt County, Nevada. This area consists primarily of mixed residential and limited commercial uses and a hotel/casino. Existing zoning is Humboldt County Open Land Use (M-3) and General Commercial (GC). The community's sanitary sewer treatment lagoons are located approximately ¼ mile south of the south end of Runway 16/34. According to local residents, the lagoons are not significant bird attractants and have not created a hazard for aircraft operating at the airport to date. However, it is not known if any risk assessment has been conducted for the facility. **Table 2-10** summarizes the existing land uses and zoning in the vicinity of the airport.

TABLE 2-10
AIRPORT VICINITY LAND USE AND ZONING

Land Use	Zoning
Airport Site:	Malheur County Exclusive Range Use (ERU). The northern portion of airport is federally owned and therefore not subject to local zoning.
North: Open Space / Range Use	 Malheur County ERU
South: Public right of way Nevada Open Space / Range Use *Southeast:* Residential, Commercial, Casino and Hotel	 Humboldt County, Nevada Open Land Use (M-3) Humboldt County, Nevada M-3, General Commercial (GC) Humboldt County, Nevada GC
East: Open Space / Range Use Abandoned Airstrip Single Family Residential Rodeo Grounds / Race Track US Highway 95, Open Space / Range Use	 Malheur County ERU Malheur County Rural Service Center (RSC) Malheur County ERU
West: Open Space, Range Use, Canyon Creek	 Malheur County ERU

Both Malheur County and Humboldt County have existing airport overlay zoning in their zoning ordnances, although it appears that these zones have not been applied to McDermitt State Airport. Both planning departments have indicated a willingness to apply overlay zoning to this site if provided with required dimensions, heights, etc. As part of this project, the consultant will provide both planning agencies with a copy of the recommended airport land use plan, which will depict the boundaries of the overlay zone.

Airport Service Area

The airport service area refers to the area surrounding an airport that is directly affected by the activities at that airport. A 30 or 60-minute surface travel time is generally used to approximate the boundaries of a service area. However, there are only a two public use airports located in the vicinity of McDermitt, which effectively extends the airport's service area beyond a typical 30 or 60-minute travel time. As noted earlier, McDermitt is the only airport capable of accommodating night operations, including medical evacuation (medevac) flights, on the extended flight route

between Boise and Winnemucca. **Table 2-11** lists the public airports in the vicinity of McDermitt.

TABLE 2-11
PUBLIC AIRPORTS IN VICINITY

Airport	Location	Runway Dimension (feet)	Surface	Lighted Runway?
Rome State Airport	40 NM northwest	6,000 x 150	Asphalt	No
Winnemucca Airport	67 NM south	7,000 x 100 (main rwy)	Asphalt	Yes

AVIATION ACTIVITY AND FORECASTS

Historical Aviation Activity

Aviation activity data for McDermitt State Airport is limited to state aviation system plan inventory and forecast documents and measurements taken as part of the Acoustical Activity Counting program, conducted by ODA. Acoustical activity counts are only available for McDermitt State Airport for 1997. Other estimates of historical activity are provided in the state aviation system plan inventory and the FAA Terminal Area Forecast (TAF). A summary of historical activity is provided in **Table 2-12**.

Current aircraft activity is estimated between 1,500 and 2,000 annual operations, based on historical the number of based aircraft and operations and local pilot estimates of flight activity. **Table 2-13** summarizes current based aircraft at the airport.

Based on the limited information available, it appears that activity at McDermitt has remained relatively stable since the airport was reconstructed in 1985-1986. Based aircraft numbers have fluctuated between one and three and annual aircraft operations are estimated to have fluctuated between 1,000 and 2,000. The level of locally generated operations appears to have remained relatively consistent in relationship to the based aircraft levels. Itinerant traffic has continued to represent the largest portion of aircraft operations.

TABLE 2-12
HISTORICAL AVIATION ACTIVITY
MCDERMITT STATE AIRPORT

Year	Based Aircraft	Aircraft Operations	Avg. Operations per Based Aircraft	Data Source
1987	1	1,734	1,734	Rens Activity Counts
1994	2	1,500	750	OASP Estimate
2002	2	1,500-2,000 est. (1,583)	750-1,000 (792)	Updated Based Aircraft Inventory (FAA/TAF Estimate for 2002)

TABLE 2-13
2002 BASED AIRCRAFT
MCDERMITT STATE AIRPORT

Aircraft Type	Quantity
Single Engine	2
Multi-Engine	0
Other	0
Total	**2**

Source: Updated airport inventory (2002)

FORECASTS OF ACTIVITY

Table 2-14 summarizes the forecasts of based aircraft and aircraft operations (takeoffs and landings) developed through statewide aviation system plans and the FAA TAF. Both forecasts reflect low growth rates, which are typical of lower activity general aviation airports in Oregon. For planning purposes, the OASP forecasts are recommended as the preferred forecasts for the ALP update.

Based Aircraft

The 1997 OASP based aircraft forecasts range from two aircraft (1994) to three (2014) for McDermitt State Airport. The 2000 Oregon Aviation Plan (OAP) forecast update, projects four based aircraft in Year 2018. The FAA TAF projects three based aircraft through 2015. As noted

above, there are currently two based aircraft at the airport. McDermitt State Airport has averaged two based aircraft over the last twenty years.

Aircraft Operations

The OASP and FAA TAF aircraft operations forecasts reflect low annual growth rates (approximately 1.0 to 1.2 percent). The OASP split between local traffic (touch and go, local traffic area) (15 percent) and itinerant traffic (85 percent) appears to be reasonable based on current indications. Both the OASP and TAF forecasts provide reasonable projections of aircraft activity for the planning period. The OASP reflects a slight decrease in the average number of operations per based aircraft as the number of locally based aircraft increases during the planning period. The existing and projected utilization levels are consistent with the high percentage of transient aircraft activity at the airport.

Airfield Capacity

Airfield capacity for a single runway without a parallel taxiway ranges from 30 to 60 operations per hour, which is adequate for current and forecast activity

TABLE 2-14
OASP/TAF FORECASTS
MCDERMITT STATE AIRPORT

	Base Year (2002)	2004[1]	2014	2018[2]	2022[2]
OASP Based Aircraft (Preferred Forecast)					
Single Engine	2	2	3	4	4
Multi Engine	0	0	0	0	0
Rotor	0	0	0	0	0
Other	0	0	0	0	0
Total	2	2	3	4	4
OASP Aircraft Operations *(Preferred Forecast)*					
Local	630	693	790	830	880
Itinerant	870	957	1,090	1,150	1,179
Total	1,500	1,650	1,880	1,980	2,059
Average Operations per Based Aircraft	*750*	*825*	*627*	*495*	*515*
FAA TAF Aircraft Operations					
Local	670	679	984	751	781
Itinerant	913	925	725	1,022	1,064
Total	1,583	1,604	1,709	1,773	1,845
FAA TAF Based Aircraft	3	3	3	3	3
Average Operations per Based Aircraft	*528*	*535*	*570*	*591*	*615*

1. Century West Engineering Data Interpolation of OASP Forecasts (1994-2014)
2. Century West Engineering Data Extrapolation of TAF (7 years: 2016-2022).
3. TAF Forecasts 2001-2015.

CHAPTER THREE
AIRPORT FACILITY REQUIREMENTS

INTRODUCTION

This chapter uses the results of the inventory and forecasts conducted in **Chapter Two** and established planning criteria to determine the airport's airside and landside facility requirements through the twenty-year planning period. Airside facilities include runways, taxiways, navigational aids and lighting systems. Landside facilities include hangars, fixed base operator (FBO) facilities, aircraft parking apron, aircraft fuel storage and dispensing facilities, automobile parking, utilities and surface access.

The facility requirements evaluation is used to identify the adequacy or inadequacy of existing airport facilities and identify what new facilities may be needed during the current twenty-year planning period based on forecast demand. Options for providing these facilities will be evaluated in **Chapter Four** to determine the most cost effective and efficient means for implementation.

As noted in the previous chapter, activity at McDermitt State Airport is low and has remained relatively steady since the facilities were upgraded in 1985-1986. Annual aircraft operations appear to have fluctuated between 1,500 and 2,000 since the last activity count in 1987 with two or three based aircraft. The two aircraft currently based at the airport are stored in the only aircraft hangar on the airport. The aircraft parking apron has sixteen tiedown spaces, which are used by itinerant aircraft.

The projected activity at the airport over the next twenty years is expected to remain low. As a result, the majority of facility requirements identified for the airport are associated with maintaining current facilities and overall capabilities. Some facility improvements are also identified that are not activity based. Despite the modest projections of growth, it is difficult to predict how quickly demand for facilities can change. For this reason, basic facility improvements (aircraft parking, hangar areas, fuel storage, etc.) will be incorporated into

alternatives that are able to meet projected long-term demand while providing adequate reserve areas to accommodate unanticipated demand.

AIRPORT PLANNING OVERVIEW

The current airport site was developed in 1985-86. The runway was constructed based on standards comparable to Airplane Design Group I (ADG I), although the initial property acquisition for the site reflects a plan to accommodate a future upgrade to ADG II standards. [9] The 1984 Airport Layout Plan (ALP) depicts a future east side parallel taxiway with ADG II runway separation standards (240 feet).[10] The apron and other landside facilities (and the corresponding building restriction and aircraft parking lines) were also designed to accommodate a future ADG II parallel taxiway separation. The aircraft turnarounds located at the north end and midpoint of the runway were designed to connect with a future ADG II east side parallel taxiway. The ultimate runway width is depicted at 75 feet, which is standard for ADG II runways.

The 1984 ALP lists the future runway pavement strength at 30,000 pounds for aircraft with single wheel landing gear configurations. A future increase in pavement strength would normally be based on a design aircraft weighing more than 12,500 pounds and would result in the runway being categorized as "larger than utility," as defined in FAR Part 77. However, the 1984 Approach and Clear Zone Plan[11] depicts visual airspace surfaces for a utility class runway, which is standard for "small" aircraft. It is not evident why the drawings reflect inconsistent planning criteria. However, based on current and projected activity, it is unlikely that a change in design aircraft (weighing more than 12,500 pounds) will occur during the current planning period.

Based on the factors described above, it is recommended that ADG I standards and a utility runway designation continue to be used for facility planning at McDermitt State Airport. Construction or reconstruction of physical facilities (runways, taxiways, safety areas, etc.) should be based on ADG I standards until a change in facility use and design aircraft justifies an upgrade to ADG II. This would be triggered by a specific change in air traffic that meets the FAA activity-based criteria for design aircraft (a minimum of 500 annual itinerant operations of that aircraft type). The increased development setbacks previously used for hangars and the aircraft parking apron should be maintained. The use of ADG II standards to define long-term development continues to be appropriate based on the existing configuration of facilities,

[9] See Page 3-6 for a detailed description of FAA airport planning/design criteria
[10] McDermitt State Airport – Airport Layout Plan, State of Oregon Aeronautics Division (1/84)
[11] McDermitt State Airport – Approach and Clear Zone Plan, State of Oregon Aeronautics Division (1/84)

available land area, and a desire to protect the airport's long-term development options. The FAA has indicated that "other-than-utility" airspace planning criteria should be applied when ADG II standards (B-II) are implemented.

The airport was previously planned to accommodate operations exclusively in visual flight rules (VFR) conditions. As noted in the previous chapter, air traffic activity at McDermitt State Airport is unique. Although the volume of flight activity is relatively low, the airport accommodates a high percentage of itinerant aircraft activity. This is largely attributed to the limited number of paved and lighted runways in the region and the airport's location along a busy north-south flight route. The addition of an instrument approach would enhance the airport's current role as a safe landing location during poor weather conditions and would improve the airport's ability to accommodate medevac flights.

Recent changes in FAA standards for establishing instrument approaches at small airports now require that straight-in non-precision approach surfaces be planned in order to authorize the procedure for nighttime use. Based on these factors, it is recommended that Runway 16/34 and the associated airspace surfaces be planned based on future non-precision instrument approach capabilities for utility runways. A long-term upgrade to ARC B-II for Runway 16/34 would warrant an upgrade in airspace surfaces to "other-than-utility" with non-precision instrument approach capabilities. **Table 3-1** summarizes the planning assumptions and recommendations for the airport based on the initial design and updated evaluations conducted as part of this project.

TABLE 3-1
AIRPORT PLANNING STANDARDS
MCDERMITT STATE AIRPORT

Element	As Constructed *1984-85 "Existing"*	Future *(As Depicted on 1984 ALP)*	Existing *(Based on 2002 Evaluation)*	Updated Future *(Based on 2002 Evaluation)*
Airport Design Standards				
Airplane Design Group (ADG)	ADG I	ADG II	ADG I	ADG II
Aircraft Approach Category	Approach Category B	Approach Category B	Approach Category B	Approach Category B
Airport Reference Code (ARC)	B-I	B-II	B-I	B-II
Airspace Planning				
FAR Part 77 Airspace Category	Utility, Visual	Utility[1], Visual	Utility, Visual	Other-than-utility, Nonprecision

1. ALP list future pavement design 30,000# SW (large aircraft); Airspace Plan depicts utility runway airspace surfaces (small aircraft).

LAND UTILIZATION

The total airport land area consists of 139 acres, which includes a long narrow section that runs closely along the runway and a wider development area to accommodate landside facilities near the south end of the airport. **Table 3-2** summarizes existing airport land uses based on current and previously planned airfield configurations.

In its current configuration, the runway and all required clear areas (including visual runway protection zones) associated with the airside facilities are contained entirely within airport property. The existing airside area has adequate space to accommodate a full-length parallel taxiway on the east side of Runway 16/34 and the ADG II development setbacks discussed in the previous section. However, due to its limited size, the airside area cannot accommodate other facility expansions, such as runway extensions, without acquiring additional property to provide adequate clear areas and control runway protection zones (RPZ). In addition, the upgraded runway protection zones associated with a future instrument approach may extend beyond airport property boundaries. This would warrant acquisition of property or avigation easements in order to protect the entire RPZ from incompatible land uses.

The airport's landside area consists of approximately 28 acres, of which just over 6 acres is currently developed. Existing development includes vehicle access roads and parking, aircraft apron, a hangar, and the area surrounding the non-directional beacon. Approximately 80 percent of the existing landside area is available for development, which appears adequate to accommodate facility demand through the current planning period and well beyond.

TABLE 3-2
AIRPORT LAND USE CONFIGURATION
MCDERMITT STATE AIRPORT

Existing Land Use	Acreage	Percentage of Total Airport Property
Airside *(Developed or Reserved)* Runway & Parallel Taxiway, Runway Protection Zones, Object Free Area, Runway Safety Area, Obstacle Free Zone, Primary Surface.	111	81%
Landside *(Developed or Reserved)* Aircraft Apron, Hangars, Vehicle Parking, Access Roads, Undeveloped Land.	28	19%
Total	**139**[1]	**100%**

1. Rounded from 138.78 acres, Exhibit "A" drawing.

According to the Airport Exhibit "A" Property Plan,[12] the northern section of the airport (64.45 acres) is leased from the U.S. Bureau of Land Management (BLM). The current lease was signed in 1984 with a term of twenty years. The BLM staff located at the Vale Ranger District Office indicated that the State of Oregon lease will need to be updated, preferably before it expires in 2004. It may be appropriate for the Oregon Department of Aviation (ODA) to investigate the possibility of purchasing the BLM land outright, rather than continuing with split property ownership of airport lands. If the expanded RPZ dimensions noted earlier fall outside the current airport boundary (owned or leased) onto other BLM land, those areas should also be included in land discussions between ODA and BLM.

Another issue that should be evaluated is whether short-term leases may affect the Grants and Assurances associated with FAA AIP grants. Normally, the execution of each FAA grant requires a commitment from the airport sponsor to maintain facilities for at least twenty years. It is not clear whether having a lease for a major portion of the airfield for less than twenty years would affect the sponsor's ability to meet the conditions of the grant. However, considering the unique circumstances involving ODA, BLM and FAA, it seems reasonable that the involved agencies could reach an understanding on this unique property arrangement. If purchasing the property is not an option, extending the lease term to a 40- or 50-year period may limit potential conflicts.

AIRSPACE

The airport is located in a valley with moderately rising terrain to the north, east and west. No terrain penetrations or man-made penetrations to the airport's airspace surfaces are depicted on the 1984 Approach and Clear Zone Plan. The Approach and Clear Zone Plan has a revision (dated 9/28/84) indicating a change in runway length (increased to 6,300 feet long), although no corresponding revision was made on the ALP. The airspace surfaces depicted on the previous airspace plan were based on utility runways and visual approaches. The recommended upgrade in airspace surfaces for non-precision instrument approaches will not significantly change the size or shape of the airport's airspace, although the clear area surrounding the runway (primary surface) will be increased. The inner and outer widths of the runway approach surfaces will also be increased, although the length and slope of the approach surfaces will not change.

[12] McDermitt State Airport - Exhibit A Property Map, Oregon State Aeronautics Division (9/82)

The airspace features described in Chapter Two (IFR airways, military training routes, etc.) do not affect local airport operation. The airspace structure surrounding McDermitt State Airport is uncomplicated and is not expected to constrain future airport development or operation.

INSTRUMENT APPROACH CAPABILITIES

The airport does not currently have a published instrument approach procedure (IAP). Based on current FAA requirements, a nighttime non-precision instrument approach will require non-precision airspace surfaces for utility runways, as defined by FAR Part 77. For planning purposes, non-precision instrument airspace surfaces and their corresponding clear areas will be depicted on the airport layout plan and airspace plan drawings.

To accommodate a straight-in non-precision instrument approach to a specific runway end, the runway primary surface and inner width of the approach surfaces will need to be widened to 500 feet (250 feet from runway centerline in each direction). According to the Exhibit "A" Property Map and the 1984 ALP drawing, the width of airport property along most of the runway is 550 feet (250 feet from runway centerline on the west side and 300 feet on the east side). This width is sufficient to accommodate a 500-foot wide primary surface, but would require relocation, removal or lighting of the fence that runs along the west property line (approximately 250 feet from runway centerline). The fence would need to be surveyed to determine its precise location along the entire runway and whether it obstructs the primary surface, transitional surface (or both if not located exactly along the property line).

AIRPORT DESIGN STANDARDS

The selection of the appropriate design standards for the development of airfield facilities is based primarily upon the characteristics of the aircraft that are expected to use the airport. The most critical characteristics are the approach speed and wingspan of the design aircraft anticipated for the airport. Planning for future aircraft use is important because design standards are used to determine separation distances between facilities that could be very costly to relocate at a later date.

Federal Aviation Administration (FAA) **Advisory Circular (AC) 150/5300-13, Airport Design**, serves as the primary reference in planning airfield facilities. **FAR Part 77, Objects Affecting Navigable Airspace**, defines airport imaginary surfaces, which are established to protect the airspace immediately surrounding a runway. The airspace and ground areas surrounding a

runway should be free of obstructions (i.e., structures, parked aircraft, terrain, trees, etc.) to the greatest extent possible.

FAA **Advisory Circular 150/5300-13** groups aircraft into five categories based upon their approach speed. Categories A and B include small propeller aircraft, some smaller business jet aircraft, and some larger aircraft with approach speeds of less than 121 knots. Categories C, D, and E consist of the remaining business jets as well as larger jet and propeller aircraft generally associated with commercial and military use; these aircraft have approach speeds of 121 knots or more. The advisory circular also establishes six aircraft design groups, based on the physical size (wingspan) of the aircraft. The categories range from Airplane Design Group (ADG) I, for aircraft with wingspans of less than 49 feet, to ADG VI for the largest commercial and military aircraft.

McDermitt State Airport currently has two based aircraft, both of which are included in Airplane Design Group I (ADG I) and Approach Category A. The airport also accommodates itinerant general aviation activity that consists predominately of Approach Category A and B aircraft in Airplane Design Group I. A summary of typical aircraft and their respective design categories is presented in **Table 3-3.**

As noted earlier, a future upgrade to ARC B-II was reflected on the previous ALP. Based on the existing airfield and property configuration, preserving the long-term expansion potential will not constrain current or near term development. **For planning purposes, the use of Airport Reference Code (ARC) B-I is appropriate for current and short-term facility improvements until an upgrade to B-II standards is warranted.** The "future" design criteria for the airfield will be based on ADG II standards, but will only be implemented when activity meets the FAA criteria for use as design aircraft.

Airfield design standards for ADG I and II are summarized in **Table 3-4**. A summary of McDermitt State Airport's current compliance with ADG I/II design standards is presented in **Table 3-5**. A detailed description of the applicable airport design standards is presented later in this chapter.

TABLE 3-3
TYPICAL AIRCRAFT & DESIGN CATEGORIES

Aircraft	Design Group	Approach Category	Maximum Gross Takeoff Weight (Lbs)
Grumman/American Tiger	A	I	2,400
Cessna 182T Skylane	A	I	3,110
Lancair Columbia 300	A	I	3,400
Cirrus Design SR22	A	I	3,400
Cessna 206	A	I	3,600
Beechcraft Bonanza A36	A	I	3,650
Piper Seneca V (PA-34)	A	I	4,750
Beechcraft Baron 58	A	I	5,524
Ayres 400 Turbo Thrush	A	I	9,300
Socata TBM 700	A	I	6,614
Piper Aerostar 602P	B	I	6,000
Cessna 340	B	I	5,990
Cessna 402	B	I	6,300
Cessna 421	B	I	7,450
Cessna Citation I	B	I	11,850
Learjet 45	B	I	20,500
Learjet 60	C	I	23,100
Air Tractor 502B	A	II	9,700
Piper Malibu Mirage (PA-46)	A	II	4,340
Ayres 660 Turbo Thrush	A	II	12,500
Cessna Caravan 1	A	II	8,000
Pilatus PC-12	B	II	9,965
Beech King Air B200	B	II	12,500
Cessna Citation III	B	II	22,000
Dassault Falcon 20	B	II	28,660
Gulfstream III	C	II	65,300

Source: FAA Advisory Circular (AC) 150/5300-13 and Aircraft Manufacturers Data.

TABLE 3-4
AIRPORT DESIGN STANDARDS SUMMARY
(Dimensions in feet)

Standard	Existing Runway 16/34	ADG I[1] A&B Aircraft	ADG [2] A&B Aircraft
Runway Length	5,900	5,610/5,880[2]	5,610/5,880[2]
Runway Width	60	60	75
Runway Shoulder Width	10	10	10
Runway Safety Area Width	120	120	150
Runway Safety Area Length (Beyond Rwy End)	240	240	300
Obstacle-Free Zone	250	250	400
Object Free Area Width	400	400	500
Object Free Area Length (Beyond Runway End)	240	240	300
Primary Surface Width	250	500[1]	500[2]
Primary Surface Length (Beyond Runway End)	200	200[1]	200[2]
Runway Protection Zone Length	1,000	1,000[1]	1,000[2]
Runway Protection Zone Inner Width	250	500[1]	500[1]
Runway Protection Zone Outer Width	450	700[1]	700[1]
Runway Centerline to:			
Parallel Taxiway Centerline	n/a	225	240
Aircraft Parking Area	350[7]	320[4]	320[4]
Building Restriction Line	375[7]	376[5]	376[5]
Taxiway Width	35/40[6]	25	35
Taxiway Shoulder Width	Varies	10	10
Taxiway Safety Area Width	Varies	49	79
Taxiway Object Free Area Width	Varies	89	131
Taxiway Centerline to Fixed/Movable Object	Varies	44.5	65.5

Notes:

1. Utility runways (Per FAR Part 77); all other dimensions reflect non-precision runways with not lower than 3/4-statute mile approach visibility minimums (per AC 150/5300-13, Change 7). RPZ dimensions based on visual and not lower than 1-mile approach visibility minimums.
2. Other-than-utility runways (Per FAR Part 77); all other dimensions reflect non-precision runways with not lower than 3/4-statute mile approach visibility minimums (per AC 150/5300-13, Change 7). RPZ dimensions based on visual and not lower than 1-mile approach visibility minimums.
3. Runway length required to accommodate 95 and 100 percent of General Aviation Fleet 12,500 pounds or less. 88.6 degrees F, 55-foot change in runway centerline elevation
4. Distance required to accommodate a 10-foot aircraft tail height (at the APL) beneath the 7:1 Transitional Surface with non-precision instrument approaches; also protects ADG I/II parallel taxiway object free area.
5. Distance required to accommodate an 18-foot structure (at the BRL) beneath the 7:1 Transitional Surface with non-precision instrument approaches; also protects ADG I/II parallel taxiway object free area.
6. Existing width of Taxiways A and C.
7. As depicted on 1984 ALP (BRL) and front edge of apron (aircraft parking line).

TABLE 3-5
RUNWAY 16/34 COMPLIANCE
WITH FAA DESIGN STANDARDS

Item	Airplane Design Group I[1]	Airplane Design Group II[1]
Runway Safety Area	Yes	No[2]
Runway Object Free Area	Yes	No[2]
Runway Obstacle Free Zone	Yes	No[2]
Taxiway Safety Area	Yes	Yes
Taxiway Object Free Area	Yes	Yes
Building Restriction Line	Yes	Yes
Aircraft Parking Line	Yes	Yes
Runway Protection Zones	Yes	Yes
Runway-Parallel Taxiway Separation	N/A (Yes Future)	N/A (Yes Future)
Runway Width	Yes	No
Runway Length	Yes[3]	Yes[3]
Taxiway Width	Yes	Yes

Notes:

1. Runway design standards for A&B aircraft; visual runways and runways with not lower than ¾-statute mile approach visibility minimums.
2. Based on current configuration; adequate clear area exists to meet ADG II dimensional standard with grading and/or compaction per FAA specifications.
3. Per FAA Runway Length Model – length needed to accommodate 95% of the general aviation fleet under 12,500 pounds.

Airport Design Standards Note:

The following airport design standards are based on visual runways and runways with not lower than ¾ statute mile visibility minimums. For defining runway protection zones (RPZ), the visibility standard is "visual and not lower than 1-mile." All references to the "standards" are based on these approach visibility assumptions, unless otherwise noted. (Per FAA Advisory Circular 150/5300-13, change 7). Airport Design Standards are based on Airport Reference Code (ARC) B-I (existing) and B-II (future). The ultimate FAR Part 77 airspace planning criteria is based on "other-than-utility" runways with non-precision instrument approaches.

Runway Safety Area (RSA)

The runway safety area (RSA) is "A defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway." Runway safety areas are most commonly used by aircraft that inadvertently leave (or miss) the runway environment during landing or takeoff.

By FAA design standard, the RSA *"shall be:*

(1) cleared and graded and have no potentially hazardous ruts, humps, depressions, or other surface variations;

(2) drained by grading or storm sewers to prevent water accumulation;

(3) capable, under dry conditions, of supporting snow removal equipment, aircraft rescue and firefighting equipment, and the occasional passage of aircraft without causing structural damage to the aircraft; and

(4) free of objects, except for objects that need to be located in the runway safety area because of their function. Objects higher than 3 inches above grade should be constructed on low impact resistant supports (frangible mounted structures) of the lowest practical height with the frangible point no higher than 3 inches. Other objects such as manholes, should be constructed at grade. In no case should their height exceed 3 inches."

The recommended transverse grade for the lateral RSA ranges between 1½ and 5 percent from runway shoulder edges. The recommended longitudinal grade for the first 200 feet of extended RSA beyond the runway end is 0 to 3 percent. The remainder of the RSA must remain below the runway approach surface slope. The maximum negative grade is 5 percent. Limits on longitudinal grade changes are plus or minus 2 percent per 100 feet within the RSA.

The RSA along the sides and beyond the ends of Runway 16/34 has been cleared and graded to meet FAA dimensional standards. The RSA appears to be free of physical obstructions and within grade standards. The airport sponsor should regularly clear the RSA of brush or other debris and periodically grade and compact the RSA to maintain FAA standards.

The runway edge lights and threshold lights located within the RSA are mounted on frangible supports (breakable coupling and disconnect plug). Any future lighting (such as PAPI or REIL) located within the RSA will also need to meet the FAA frangibility standard.

A future upgrade to ADG II standards will require expansion of the RSA to meet the appropriate dimensional standards (see Table 3-4).

Runway Object Free Area (OFA)

Runway object free areas (OFA) are two-dimensional surfaces intended to be clear of ground objects that protrude above the runway safety area edge elevation. Obstructions within the OFA may interfere with aircraft flight in the immediate vicinity of the runway. The FAA defines the OFA clearing standard:

"The OFA clearing standard requires clearing the OFA of above ground objects protruding above the runway safety area edge elevation. Except where precluded by other clearing standards, it is acceptable to place objects that need to be located in the OFA for air navigation or aircraft ground maneuvering purposes and to taxi and hold aircraft in the OFA. Objects non-essential for air navigation or aircraft ground maneuvering purposes are not to be placed in the OFA. This includes parked airplanes and agricultural operations."

The OFA meets the ADG I dimensional standards and appears to be free of physical obstructions. The airport sponsor should periodically inspect the OFA and remove any objects that protrude into the OFA. A future upgrade to ADG II standards will require expansion of the OFA to meet the appropriate dimensional standards (see Table 3-4).

Obstacle Free Zone (OFZ)

The OFZ is a plane of clear airspace extending upward to a height of 150 feet above runway elevation, which coincides with the FAR Part 77 horizontal surface elevation. The FAA defines the following clearing standard for the OFZ:

"The OFZ clearing standard precludes taxiing and parked airplanes and object penetrations, except for frangible visual NAVAIDs that need to located in the OFZ because of their function."

The OFZ may include the runway OFZ, the inner-approach OFZ (for runways with approach lighting systems), and the inner-transitional OFZ (for runways with lower than ¾-statute mile approach visibility minimums. For McDermitt State Airport, only the runway OFZ is required based on runway configuration and instrument approach capabilities. The FAA defines the runway OFZ as:

"The runway OFZ is a defined volume of airspace centered above the runway centerline. The runway OFZ is the airspace above a surface whose elevation at any point is the same as the elevation of the nearest point on the runway centerline. The runway OFZ extends 200 feet beyond each end of the runway."

The standard OFZ for runways serving small aircraft is 250 feet wide. This dimension corresponds with both visual and non-precision instrument approaches (not lower than ¾ mile approach visibility minimums) for the existing runway. The existing OFZ for Runway 16/34 appears to be free of physical obstructions and will meet the dimensional standards for either configuration. The long-term upgrade to ADG II and the corresponding change to "other-than-utility" runway designation would require a 400-foot wide OFZ based on the runway's ability to accommodate large aircraft.

The aircraft turnarounds and exit taxiways located on the east side of the runway have aircraft hold lines located 125 feet from runway centerline, which marks the outer edge of the existing OFZ boundary. The holding areas have adequate area to allow aircraft to remain clear of the OFZ. A future OFZ width of 400 feet will require the relocation of aircraft hold lines to 200 feet from runway centerline.

Taxiway Safety Area

The existing taxiways at McDermitt State Airport consist of three exit taxiways on the east side of the runway. These taxiways vary in width (35 and 40 feet) and appear to meet the dimensional standard for ADG I taxiway safety area. The taxiway safety areas should be regularly cleared of brush or other debris and periodically graded and compacted to maintain FAA standards. A future upgrade to ADG II standards will require expansion of the taxiway safety area to meet the appropriate dimensional standards (see Table 3-4).

Taxiway/Taxilane Object Free Area

The existing exit taxiways meet the dimensional standard for ADG I taxiway object free area. The taxiway that leads into the aircraft parking apron splits into taxilanes that provide access to the rows of aircraft tiedowns and the adjacent hangar area. The ADG I taxilane OFA dimension is 79 feet wide. The rows of aircraft tiedowns are located 60 feet from taxilane centerline, which provides adequate clearance to clear the taxilane OFA (39.5 feet from taxilane centerline). All future buildings and parked aircraft located along the taxilane should have a minimum setback (building restriction line and/or aircraft parking line) of 57.5 feet, which corresponds to the outer edge of the ADG II taxilane OFA, which preserves a long-term upgrade to ADG II design standards.

Building Restriction Line (BRL)

The 1984 ALP depicts a 375-foot building restriction line (BRL) on the east side of the runway, adjacent to the southeast landside development area. This dimension is compatible with a future (ADG II) parallel taxiway and allows an 18-foot high building at the BRL without penetrating a utility non-precision instrument runway transitional surface. Structures with higher roof elevations will require additional setback distances to remain clear of the transitional surface 7:1 slope.

Due to the narrow configuration of the airport, no areas outside the southeast section of the airport can accommodate buildings without conflicting with protected airspace or airfield development setbacks. The 1984 ALP depicted future property acquisition along the east and west sides of the airport, if this recommendation is retained, the BRLs should be extended along the entire length of the runway.

Runway Protection Zones (RPZ)

The FAA provides the following definition for runway protection zones (RPZ):

"The RPZ's function is to enhance the protection of people and property on the ground. This is achieved through airport owner control over RPZs. Such control includes clearing RPZ areas (and maintaining them clear) of incompatible objects and activities. Control is preferably exercised through the acquisition of property interest in the RPZ. The RPZ is trapezoidal in shape and centered about the extended runway centerline. The RPZ begins 200 feet beyond the end of the area useable for takeoff or landing."

The 1984 ALP depicted RPZs that are consistent with visual and not lower than 1-mile approach minimums for runways serving small aircraft exclusively. However, based on recent FAA changes in standards for establishing instrument approaches, the previous RPZ dimensions are not sufficient to support day and night instrument approach capabilities on utility runways.

Based on the new FAA requirements, the RPZ dimensions recommended for Runways 16 and 34 are based on Aircraft Approach Categories A & B with approach visibility minimums "visual and not lower than 1-mile." It appears that portions of the expanded RPZs for Runways 16 and 34 will extend beyond airport property. In order to control the entire RPZ, the areas that fall outside the airport should be acquired through lease, purchase or easement.

Aircraft Parking Line (APL)

The 1984 Airport Layout Plan does not depict an aircraft parking line (APL), although the front edge of the aircraft parking apron is located approximately 350 feet from the runway. Aircraft parking areas could be located as close as 305.5 feet from runway centerline based on an ADG II parallel taxiway separation of 240 feet, plus 65.5 feet to clear the ADG II taxiway object free area. However, at this distance, a tail height clearance (under the transitional surface) of less than 8 feet would be provided along the APL. Most light aircraft have tail heights ranging from 8 to 10 feet, which suggests that additional separation should be provided. An APL located 320 feet from runway centerline is recommended to accommodate aircraft with tail heights of up to 10 feet at the APL, with larger aircraft parking positions located further from the APL.

Runway-Parallel Taxiway Separation

Runway 16/34 is not currently served by a parallel taxiway. As noted earlier, the 1984 ALP depicted a future full-length parallel taxiway on the east side of the runway with a separation of 240 feet. Maintaining this separation is recommended to preserve the option of a future upgrade to ADG II standards.

FAR PART 77 SURFACES

Airspace planning for U.S. airports is defined by Federal Air Regulations (FAR) Part 77 – Objects Affecting Navigable Airspace. FAR Part 77 defines imaginary surfaces (airspace) to be protected surrounding airports. **Figure 3-1** illustrates plan and isometric views of the Part 77 surfaces.

The 1984 Approach and Clear Zone Plan depicted airspace surfaces that were consistent with visual approach capabilities and utility runways based on an ultimate runway length of 6,300 feet. No terrain penetrations were identified within the airspace surfaces.

The runway length depicted on updated airspace plans should be consistent with the ultimate runway length depicted on the airport layout plan. For airspace planning purposes, the use of other-than-utility runway standards with non-precision instrument capabilities (per FAR Part 77) is appropriate for Runway 16/34. However, in the event that an instrument approach is developed before an upgrade in airfield design standards is required, the existing "utility" runway designation with non-precision instrument airspace surfaces would be appropriate. **Table 3-6** summarizes FAR Part 77 standards with the corresponding runway type and approach capability. The airspace surfaces to be depicted on the Airport Airspace Plan will reflect the ultimate runway and instrument approach capabilities.

Figure 3-1: FAR Part 77 Diagram

TABLE 3-6
FAR PART 77 AIRSPACE SURFACES
MCDERMITT STATE AIRPORT

Item	Utility (Non-precision)[1]	Other-than-utility (Non-precision)[1]
Width of Primary Surface	500 feet	500 feet
Radius of Horizontal Surface	5,000 feet	10,000 feet
Approach Surface Width at End	2,000 feet	3,500 feet
Approach Surface Length	5,000 feet	10,000 feet
Approach Slope	20:1	34:1

Notes:
1. Utility runways are designed for aircraft weighing 12,500 pounds or less; other-than-utility runways are designed for aircraft weighing more than 12,500 pounds.

Approach Surfaces

Runway approach surfaces extend outward and upward from each runway end, along the extended runway centerline. The standard slope for all utility runway approach surfaces is 20:1. The inner edge of the approach surface connects to the primary surface and extends outward 5,000 feet. For Runway 16/34, the inner width of the ultimate other-than-utility non-precision approach surface is 500 feet, the outer width is 3,500 feet, and the slope is 34:1.

No obstructions exist within the 20:1 approach surfaces for Runway 16/34 and none appear to potentially affect future 34:1 approach surfaces. Cordero Mine Road and an overhead power line runs along the south airport property line, approximately 1,600 feet beyond the south end of the runway. Based on the distance from the runway end, the top elevations of these items remain well below both the 20:1 and 34:1 approach surfaces for Runway 34.

Primary Surface

The primary surface is a rectangular plane of airspace, which rests on the runway (at centerline elevation) and extends 200 feet beyond the runway end. The primary surface should be free of any penetrations, except items with locations fixed by function (i.e., VASI, edge lights, etc.). The primary surface end connects to the inner portion of the runway approach surface.

The primary surface for Runway 16/34 has historically been maintained to meet utility/visual runway standards (250 feet wide). Based on new instrument approach requirements, the recommended primary surface for Runway 16/34 is now 500 feet wide, centered on the runway. This dimension is based on the standard for utility runways with non-precision instrument approaches and other-than-utility runways with either visual or non-precision instrument approaches. It appears that a 500-foot wide primary surface for Runway 16/34 can be developed to meet FAA standards through minor grading and clearing of vegetation within the newly defined boundary.

Transitional Surface

The transitional surface is a plane of airspace that begins at the outer edge of the primary surface and rises perpendicularly at a slope of 7 to 1 until reaching an elevation 150 feet above runway elevation. This surface should be free of obstructions (i.e., parked aircraft, structures, trees, natural terrain, etc.).

As noted above, widening Runway 16/34 primary surface to 500 feet is recommended to accommodate a future instrument approach and upgrade in airspace planning criteria. As a result, the beginning of the transitional surface slope will be moved to a point 250 feet from runway centerline (it currently starts 125 feet from centerline). By relocating the transitional surface, two existing items on the airport that are not currently obstructions will become obstructions that will require mitigation.

On the east side of the runway, it appears that one of the existing wooden poles supporting the nondirectional beacon (NDB) antennae will penetrate the new transitional surface. According to the original design drawings, the nearest wooden pole is located 475 feet from runway centerline with an above-ground exposure of 42 feet. The pole will penetrate a non-precision transitional surface by approximately 10 feet and should be lighted as an obstruction. A range fence is located along the west airport property line, approximately 250 feet from runway centerline. The fence will need to be relocated, removed or lighted to address the obstruction issue. Surveying these obstructions is recommended to determine the amount of penetration that actually exists and the appropriate disposition for each item.

Horizontal Surface

The horizontal surface is a flat plane of airspace located 150 feet above runway elevation. The outer boundary of the Runway 16/34 horizontal surface is defined by two 10,000-foot radii, which extend from the runway ends (the intersection point of the extended runway centerline, the outer edge of primary surface, and the inner edge of the approach surface). The outer points of the radii for each runway are connected to form an oval, which is defined as the horizontal surface. No penetrations to the horizontal surface were identified on the 1984 Approach and Clear Zone Plan, although a small area of terrain penetration may exist within the expanded surface (other-than-utility non-precision instrument).

Conical Surface

The conical surface is an outer band of airspace, which abuts the horizontal surface. The conical surface begins at the elevation of the horizontal surface and extends outward 4,000 feet at a slope of 20:1. The top elevation of the conical surface is 200 feet above the horizontal surface and 350 feet above airport elevation. No penetrations to the conical surface were identified on the 1984 Approach and Clear Zone Plan, although a small area of terrain penetration may exist within the expanded surface (other-than-utility non-precision instrument).

AIRSIDE REQUIREMENTS

Airside facilities are those directly related to the arrival and departure and movement of aircraft:

- *Runways*
- *Taxiways*
- *Airfield Instrumentation and Lighting*

RUNWAYS

The adequacy of the existing runway system at McDermitt State Airport was analyzed from a number of perspectives including runway orientation, airfield capacity, runway length, and pavement strength.

Runway Orientation

The orientation of runways for takeoff and landing operations is primarily a function of wind speed and direction, combined with the ability of aircraft to operate under adverse wind conditions. Runway 16/34 is oriented in a north-south direction, which generally corresponds to the surrounding area with rising terrain located east and west of the airport. Wind data for the airport was unavailable. Local pilots indicate that the runway alignment generally corresponds with local wind conditions, although some brief, but forceful east-west crosswinds are not uncommon in the spring or fall. A local pilot indicated that adding a crosswind runway would be very helpful to address the occasional east-west winds, although the low frequency of severe crosswinds combined with the limited airport property area makes development of a crosswind runway impractical. The 1984 ALP includes the following note:

> *"Wind data is unavailable for this location. A 10 year period of general and pilot observation of the immediate area indicates that the relationship of the proposed runway alignment to the wind speed and direction is satisfactory."*

Runway Length

Runway 16/34 has a published length of 5,900 feet.[13] Runway length requirements are based primarily upon airport elevation, mean maximum daily temperature of the hottest month, runway gradient, and the critical aircraft type expected to use the runway. When determining runway length requirements, the type of aircraft based at the airport and the itinerant aircraft operating at the airport should be considered. For McDermitt State Airport, this may be best represented by the percentage of the general aviation (GA) fleet that can be accommodated. Aircraft weighing less than 12,500 pounds represent most aircraft operating at the airport, including single and twin-engine piston, or the occasional turbine aircraft.

Based on local conditions and the methodology outlined in **AC 150/5325-4A**, a runway length of 5,880 feet would be required to accommodate 100 percent of small aircraft (12,500 pounds or less maximum gross takeoff weight) in the GA fleet. **At 5,900 feet, Runway 16/34 is capable of accommodating 100 percent of the general aviation fleet** in the same conditions. Despite a runway length of nearly 6,000 feet, the FAA model confirms that the high airfield elevation combined with moderately high summer temperatures effectively limit potential use by large aircraft. Accordingly, the runway is best suited to accommodate small aircraft. A summary of

[13] U.S. Government Airport/Facility Directory.

FAA-recommended runway lengths for a variety of aircraft types and load configurations is described below:

FAA Runway Lengths Recommended For Airport Design (From FAA Computer Model):

Airport Elevation: 4,478 MSL
Mean Max Temperature in Hottest Month: 88.6 F
Maximum Difference in runway centerline elevation: 55 Feet
Current Runway Length: 5,900 feet

Small Airplanes with less than 10 seats
75 percent of these airplanes 4,270 feet
95 percent of these airplanes 5,610 feet
100 percent of these airplanes 5,880 feet
Small airplanes with 10 or more seats 5,880 feet

Large Airplanes of 60,000 pounds or less
75 percent of these airplanes at 60 percent useful load 6,910 feet
75 percent of these airplanes at 90 percent useful load 9,150 feet
Airplanes of more than 60,000 pounds 6,580 feet

The 1984 Airport Layout Plan depicts the existing and ultimate runway length at 5,900 feet. It appears that based on current use, no lengthening of the runway will be required during the current planning period.

The existing width of Runway 16/34 is 60 feet, which meets the Airplane Design Group (ADG) I standard. The future width of the runway is listed at 75 feet, which is the ADG II standard. The need to widen the runway should be made based on changes in aircraft utilization, which meet FAA design aircraft criteria (i.e., a minimum of 500 annual itinerant operations by design aircraft type). It is appropriate to retain the recommendation for a future upgrade to ADG II dimensional standards. It is recommended that the airport sponsor evaluate aircraft demand conditions prior to major runway projects (reconstruction or resurfacing) to determine the whether an upgrade to ADG II standards is warranted.

Airfield Pavement

Table 3-7 summarizes existing and forecast airfield pavement conditions for McDermitt State Airport based on the most recent inspection conducted in 2000. The projected pavement

condition for 2010 reflects a normal rate of deterioration that would occur if maintenance were not performed in the intervening years. Although the runway was rated fair in 2000, it will require a rehabilitation project early in the current planning period.

TABLE 3-7
SUMMARY OF AIRFIELD PAVEMENT CONDITION
(APRIL 2000)

Pavement	Existing (2000) PCI Rating[1] / Condition	Forecast (2010) PCI Rating[1] / Condition[2]
Runway	51 / Fair	0 / Failed
Taxiway A *(Rwy 16 turnaround)*	34 / Poor	25 / Very Poor
Taxiway B *(Mid Field Exit)*	55 / Fair	32/ Poor
Taxiway C *(Apron Taxiway)*	56 / Good	33 / Poor
Main Apron	57 / Good	42 / Fair

1. The Pavement Condition Index (PCI) scale ranges from 0 to 100, with seven general condition categories ranging from "failed" to "excellent." For additional details, see *Oregon Aviation System Plan Pavement Evaluation/Maintenance Management Program* for McDermitt State Airport.
2. Forecast PCI based on pavement deterioration models developed by MicroPAVER and present condition if no additional maintenance is performed.

The 2000 Pavement Report outlined a five-year pavement maintenance and rehabilitation program, which included the following items:

- Runway - 2" Asphalt Overlay
- Taxiway A, B and C - 2" Asphalt Overlay
- Apron – Slurry Seal

Based on an updated review of pavement condition conducted in 2002 by ODA, the short-term pavement maintenance program for McDermitt has been revised. Due to the extensive cracking of the pavement, it was determined that a simple asphalt overlay would only provide temporary relief before the cracks reflect through the new pavement. The revised strategy will consist of a triple bituminous surface treatment (Triple BST). The triple BST will provide some additional

surface wear for pavements and is expected to provide several years use before another project is required. A decision about reconstruction will be made at that time and the options may include another BST application, asphalt overlay or full reconstruction. Longer term reconstruction options may include standard asphalt-concrete (AC) pavement, a cold mix pavement, which is more resistant to thermal cracking (used at Lake County and McDermitt State Airports), a new BST surface (used at Chiloquin State Airport) or Portland Cement Concrete (PCC) (used at Burns (Rwy 3-21) and Condon State Airport).

The current Airport/Facility Directory, published by NOAA, lists pavement weight bearing capacity for Runway 16/34 at 12,500 lbs. (single wheel land gear design), which is standard for runways serving general aviation aircraft. All future runway, taxiway and apron pavement designs should be based on the 12,500-pound single wheel weight bearing capacity.

The existing pavement markings will require repainting following the upcoming resurfacing and again periodically during the planning period. The future addition of a non-precision instrument approach will require the runway markings to be upgraded from visual or basic to nonprecision instrument. The non-precision markings will include longitudinal stripes located at the threshold, runway end numbers and centerline stripes. For runways longer than 4,000 feet that are used by jet aircraft, aiming point bars are located 1,020 feet from each runway threshold. Based on forecast activity, Runway 16/34 is not expected to be used regularly by jet aircraft and therefore will not require aiming bars.

Airfield Capacity

Airfield capacity for Runway 16/34 without a parallel taxiway ranges from 30 to 60 operations per hour. Based on forecast operations, the runway will operate below capacity during the twenty-year planning period and well beyond with the existing runway-taxiway configuration.

Taxiways

Taxiways are constructed primarily to facilitate aircraft movements to and from the runway system. Some taxiways are necessary simply to provide access between apron and runways, while other taxiways become necessary as activity increases and safer and more efficient use of the airfield is needed.

Runway 16/34 is not served by a parallel taxiway and taxiway access is not provided to the runway end opposite the parking apron and hangar area. The runway has three east-side exit taxiways that enable aircraft to maneuver on the runway. The exits and holding areas also allow aircraft to hold clear of the runway when performing preflight checks, engine run-ups, turnarounds, etc., which allows other aircraft takeoffs or landings to occur. The south taxiway serves the apron and hangar area; the mid-field and north taxiways are used primarily for aircraft turnarounds.

From the apron and hangar area located at the southern end of runway, aircraft must back-taxi the full 5,900-foot length of the runway to reach the Runway 16 end for takeoff. Aircraft landing on Runway 34 use the mid-field or north turnaround or execute a 180-degree turn on the runway before taxiing back to the apron and hangar area. Providing a partial- or full-length parallel taxiway would reduce or eliminate aircraft back-taxiing, which would provide safety benefits.

A future parallel taxiway is depicted on the 1984 Airport Layout Plan with a width of 35 feet and a runway separation of 240 feet. As noted earlier, protecting a 240-foot ADG II taxiway setback from the runway is recommended because it can be accommodated without constraining existing or future landside developments. Depending on the timing of the project, the parallel taxiway may be constructed at either the ADG I width (25 feet) or the ADG II width (35 feet) with the ADG II runway separation. The existing taxiways have widths of 35 feet (north and mid-runway) and 40 feet (south), which meet or exceed ADG I/II dimensional standards.

Airfield Instrumentation and Lighting

Runway 16/34 has low-intensity runway edge lighting (LIRL). The LIRL system is in good condition and will not require replacement during the current planning period.

Runways 16 and 34 are not equipped with visual guidance indicators (VGI). The Precision Approach Path Indicator (PAPI) is currently the primary visual guidance system used at general aviation airports and is recommended for Runways 16 and 34. Runway end identifier lights (REILS) may be added to both runway ends to improve safety for landing in conjunction with development of an instrument approach. Edge reflectors should be maintained on all access taxiways and aircraft turnarounds for safety.

Overhead lighting is available in the aircraft hangar and apron area and consists of two pole-mounted floodlights. Additional flood lighting is recommended for all expanded operations areas for improved utilization and security.

On-Field Weather Data

Weather data is not available at the airport. The addition of an automated weather observation system (AWOS) at the airport may offer valuable weather information for pilots traveling through the region and for local flight activity, particularly in conjunction with a future GPS instrument approach. It is recommended that a site be identified and reserved on the airport that meets FAA AWOS clearance criteria and has reasonable access to electrical power.

LANDSIDE FACILITIES

The purpose of this section is to determine the space requirements associated with landside facilities during the planning period. Based on historic use, the following landside facility needs should be evaluated at McDermitt State Airport:

- **Hangars**
- **Aircraft Parking and Tiedown Apron**
- **Agricultural/Fire Fighting Aircraft Facilities**

Hangars

McDermitt State Airport currently has one conventional hangar that houses both of the airport's based aircraft. It is expected that the current level of hangar utilization will remain high during the planning period. For facility planning purposes, it is assumed that 80 percent of future based aircraft will be stored in hangars and 20 percent will be parked on an apron. A planning standard of 1,500 square feet per based aircraft stored in hangars was used to project gross space requirements for single engine aircraft. For the purposes of projecting gross hangar requirements, it is assumed that the existing hangar is fully utilized and will not be available to accommodate future demand.

Projections of hangar needs for McDermitt State Airport are presented in **Table 3-8.** Despite the modest projections of hangar demand that extend from the modest activity forecasts during the planning period, individual aircraft owners needs vary and demand can be influenced by a wide range of factors beyond the control of an airport. For this reason, it is recommended that additional hangar development reserves be identified to accommodate unanticipated demand for conventional hangars and T-hangars.

Aircraft Parking and Tiedown Apron

Aircraft parking apron is provided for locally based aircraft that are not stored in hangars and for transient aircraft visiting the airport. Currently, with both locally based aircraft stored in the single hangar located on the airport, the aircraft apron is used exclusively by itinerant aircraft. The apron has 13 tiedown positions for light aircraft and 3 parking positions for larger general aviation aircraft. For the purpose of estimating long-term demand for aircraft parking, it is assumed that 20 percent of locally based aircraft will be parked on the apron.

The approach for estimating demand for itinerant parking spaces at McDermitt reflects the short-term peak demands that may occur when weather conditions force aircraft to land and wait for better weather. The forecasts of parking demand are based on a percentage of busy day itinerant operations during the peak month. For McDermitt, the peak month is estimated to equal 15 percent of annual operations. Busy day activity is estimated to account for 25 percent of the operations that occur during average week in the peak month. Due to the high percentage of itinerant activity, it was estimated that 80 percent of the airport's busy day operations were associated with itinerant aircraft. One-half of that total equals the number of itinerant aircraft on the airport during the busy day. Because the airport is often used to wait out bad weather, it would not be uncommon for a high percentage of this demand to occur during the same brief periods. For this reason, the calculation of peak period parking demand is based on 90 percent of the busy day itinerant operations. This peak demand translates into 5 to 7 itinerant parking spaces through the current planning period. Based on this analysis, the 16 existing tiedown spaces appear to be adequate to accommodate forecast demand by a wide margin.

The FAA planning criterion of 360 square yards per itinerant aircraft was applied to the demand for itinerant parking spaces to determine future itinerant ramp requirements. Locally based aircraft tiedowns are planned at 300 square yards per position. The aircraft parking area requirements are summarized in **Table 3-8.** A portion of the aircraft apron could also accommodate the periodic parking and passenger loading needs of larger fixed wing government, business or medevac aircraft.

Demand for aircraft parking could also exceed the modest projections developed for the airport. Apron development reserves should be identified to accommodate unanticipated needs and the needs beyond the current planning period.

Agricultural & Firefighting Aircraft Facilities

McDermitt State Airport does not have a designated agricultural apron or operations area, nor does the airport accommodate regular aerial applicator activity. As such, no apparent demand exists to develop an agricultural aircraft loading facility. If demand does occur in the future, the airport has ample space available adjacent to the apron and hangar area to accommodate a loading pad. Single engine air tankers (SEAT) are used throughout the region to provide quick response capabilities for seasonal firefighting. Many of these aircraft are turbine powered agricultural aircraft, similar to aerial applicators. McDermitt could easily accommodate this type of activity on the existing apron without significantly affecting the ability to accommodate current itinerant aircraft parking demand. If an agency such as BLM required a seasonal or temporary operations base at McDermitt, there is ample space to accommodate aircraft and support/operations equipment on and immediately adjacent to the apron.

TABLE 3-8
APRON AND HANGAR
FACILITY REQUIREMENTS SUMMARY

Item	Base Year (2002)	2004	2014	2018	2022
Demand					
Based Aircraft	2	2	3	4	4
Itinerant GA Peak Day Aircraft[1]	5	5	6	6	7
Existing Facilities					
Light Aircraft Tiedowns	16				
Existing Hangar Spaces	1 hangar 2 spaces / 1,512 sf				
Total Apron Area	7,900 sy				
Projected Needs					
Itinerant Aircraft Parking (@ 360 sy each)		5 spaces / 1,800 sy	6 spaces / 2,160 sy	6 spaces / 2,160 sy	7 spaces / 2,520 sy
Locally-Based Tiedown Needs (@ 300 sy each)		0 spaces / 0 sy	1 space / 300 sy	1 space / 300 sy	1 space / 300 sy
Total Apron Needs		5 spaces / 1,800 sy	7 spaces / 2,460 sy	7 spaces / 2,460 sy	8 spaces / 2,820 sy
Hangar Spaces		2 spaces /	2 spaces /	3 spaces /	3 spaces /

(@ 1,500 sf per space)		1,500 sf	1,500 sf	3,000 sf	3,000 sf

1. Assumes Peak Month 15% of annual operations. Peak day equal to 25% of average week in peak month; 80% of peak day activity is estimated to be itinerant aircraft operations; 80% of busy day itinerant operations used to determine number of aircraft parking spaces required.

Surface Access Requirements

Surface access to the airport appears to be adequate for the planning period. Improvements to existing access roads may be needed as new facilities are developed on the airport. Vehicle parking adjacent to the aircraft apron and hangar area appears to be adequate based on current and projected activity.

SUPPORT FACILITIES

Aviation Fuel Storage

Aviation fuel is not available for public sale at McDermitt State Airport. The potential demand for aviation fuel at McDermitt is difficult to predict. However, for planning purposes, a fuel storage development reserve capable of accommodating one or two small (6,000 to 9,000 gallon) aboveground fuel tanks should be identified adjacent to the aircraft apron. Some aircraft operators such as law enforcement or resource agencies and medevac operators maintain fuel storage caches at remote locations to support their flight operations. With a lighted and paved runway and a future instrument approach, McDermitt could be an effective support location for this type of activity. However, providing adequate security for unattended fuel storage on the airport would be essential.

Airport Utilities

Water service is provided by an 8-inch water line along the north side of Cordero Mine Road, near the closed landing strip, although the line does not extend to the apron/hangar area. Extending water service to the airport terminal area should be considered to support local and itinerant users. Potential use of the airport to support seasonal fire related operations or other similar activities would generally require water service and/or storage on site.

Providing a portable chemical toilet at the airport should be considered for visitors, although concerns about servicing the toilet and the potential for vandalism would need to be addressed locally since the airport is unattended.

Electrical service on the airport is extended to the airfield lighting, the flood lighting on the apron, the rotating beacon and the NDB. The existing aircraft hangar is not connected to electrical service. Extending electrical service to hangars should be considered to provide interior/exterior lighting and heat inside the structures. New airfield electrical requirements include providing power to the PAPIs and REILs on the runway ends and new, lighted wind socks.

Security

The airport has limited wire fencing on its boundary and a section of chain-link fencing with a vehicle gate at the entrance to the apron. Local law enforcement officials report that some vandalism has occurred in the past, although damage to aircraft or facilities has been minor. Some bullet holes were observed in the exterior of the aircraft hangar during a recent site visit. The limited fencing does not appear to prevent all unauthorized access around the airfield. Large numbers of discarded beer, wine and alcohol bottles and beer cans were also recently observed in the brush areas east of the runway and along the airport access road. Upgrading security fencing along the southeast and southern portions of the airport may discourage this activity.

According to local airport users, deer are occasionally encountered on the runway. Upgrading fencing around the airport property line or to surround active areas of the airfield may be helpful in reducing animal incursions and may reduce vandalism to aircraft and facilities.

Flood lighting is provided for the aircraft parking apron. Electrical service is not currently extended to the aircraft hangar area. Extending electrical power to the hangar area should be considered to allow for exterior/interior lighting.

FACILITY REQUIREMENTS SUMMARY

The projected facility requirements are based on the forecasts of aviation activity contained in **Chapter Two**. These projections reflect very nominal growth that will result in modest facility demands beyond existing capabilities. The existing airfield facilities have the ability to accommodate a significant increase in activity, without requiring major facility upgrades or

expansion. For the most part, the need for new or expanded facilities, such as aircraft hangars, will be market driven. As noted before, the use of development reserves is recommended to accommodate any unforeseen changes in facility demand, particularly hangars and aircraft parking. The projected twenty-year facility needs are summarized in **Table 3-9**. The next step in the planning process is to analyze alternatives that can accommodate these requirements.

TABLE 3-9
FACILITY REQUIREMENTS SUMMARY

Item	Short Term	Long Term
Runway	Triple BST Rehabilitation	Periodic Slurry Seal & Pavement Maintenance Pavement Reconstruction Widen to 75 feet (ADG II Upgrade)
Taxiways	Triple BST Rehabilitation	Periodic Slurry Seal & Pavement Maintenance Reconstruction of Existing Taxiways Taxiways to New Hangars Parallel Taxiway
Aircraft Aprons	Triple BST Rehabilitation	Periodic Slurry Seal & Pavement Maintenance Pavement Reconstruction Apron Development Reserves
Agricultural Aircraft Facilities	AG Reserve	Same
Hangars	T-Hangar and Conventional Hangar Development	Hangar Development Reserves
Navigational Aids and Lighting	PAPI (Rwy 16 & 34) Taxiway Edge Reflectors Lighted Wind Socks	GPS Instrument Approach REIL (Rwy 16 & 34) AWOS
Fuel Storage	Fuel Storage Reserve	Same
Utilities	Extend Water & Electrical Service to Apron/Hangars	Same
Roadways	None	Extend Access to New Landside Developments
Security	Terminal Area Fencing	Additional Flood Lighting (hangar area) Airport Perimeter Fencing

CHAPTER FOUR
AIRPORT DEVELOPMENT ALTERNATIVES AND AIRPORT LAYOUT PLANS

OVERVIEW

An updated evaluation of airport development options for McDermitt State Airport was conducted based on the information generated in the inventory, forecasts and facility requirements chapters. As noted earlier, facility improvements at the airport have been minimal since several major projects were completed in 1984-85. The airport layout plan that was prepared in conjunction with the runway construction identified several future facility improvements and a general development scheme. The updated review of development options will begin with an evaluation of the previous recommendations.

AIRPORT DEVELOPMENT ALTERNATIVES

Original Development Concept

The 1984 Airport Layout Plan (ALP) and associated design drawings depicted as "existing" the facilities that were to be constructed as part of the airport redevelopment on a new site. The project included the runway, aircraft turnarounds, aircraft apron, hangar development area, airport access road, airfield lighting and vehicle parking. All landside facilities were located near the end of Runway 34 on its east side. The facility dimensions reflected design standards comparable to ADG I.

Recommended future facility improvements included a full-length eastside parallel taxiway and expansion of the aircraft hangar area. A future runway width of 75 feet and a parallel taxiway width of 35 feet were depicted, which are consistent with ADG II standards. The parallel

taxiway-runway separation was depicted at 240 feet, which is also consistent with ADG II standards. The ALP also depicted future property acquisition on the east and west sides of the airport. No future facilities or development reserves were identified in these areas.

Updated Development Concept

A review of the original development concept found that the previous recommendations continue to provide an effective approach for accommodating the airport's modest facility expansion needs. An updated development concept was prepared for McDermitt that retains the original concept for future facility improvements, provides additional detail for the landside facilities, and reflects current FAA airport design standards. The future east side parallel taxiway is unchanged and the area located along the north edge of the apron remains the prime hangar development location.

The slightly modified long-term facility layout includes an aircraft apron development reserve immediately south of the existing apron. If the apron reserve is developed, the existing vehicle parking area would be relocated to the area adjacent to the access road and the north end of the apron. The undeveloped area located between the airport access road and the east edge of the apron is reserved for fixed base operator or other commercial aviation use, government, or business related aviation use. This area would be leased to accommodate larger hangars, fuel storage, equipment storage, and other aviation support facilities.

The existing hangar area will accommodate the development of several additional hangars immediately adjacent to the north end of the apron. Once this space is developed, a taxiway would be extended from the northwest corner of the apron to serve additional rows of hangars. The hangar taxiway would provide a single point of access to all hangars from the south taxiway and apron. Individual hangar taxiway connections directly to the runway are not recommended, however connections to a future parallel taxiway from the hangar area are acceptable.

The facility configuration depicted in **Figure 4-1** provides adequate flexibility and development capacity to accommodate facility needs through the current planning period and beyond. The simplicity of the configuration minimizes the need to develop expensive new facilities by maximizing use of existing facilities and developed areas.

Figure 4-1: Development Option

PREFERRED ALTERNATIVE

Based on a review of the updated facility layout options, ODA selected the "updated development concept" as the preferred alternative. The elements of the preferred alternative will be integrated into the airport layout plan, presented at the end of this chapter.

AIRPORT LAYOUT PLAN DRAWINGS

Options for the long-term development of McDermitt State Airport were evaluated in the Alternatives section. This evaluation resulted in the selection of a preferred alternative. The set of airport plans, which is referred to in aggregate as the "Airport Layout Plan" (ALP) has been prepared in accordance with FAA guidelines. The drawings illustrate existing conditions, recommended changes in airfield facilities, existing and recommended property ownership, land use, and obstruction removal. The ALP set is presented at the end of this chapter:

- *Drawing 1– Airport Layout Plan*
- *Drawing 2– FAR Part 77 Airspace Plan*
- *Drawing 3– FAR Part 77 Airspace Plan (Plan & Profile Detail)*
- *Drawing 4 - Airport Land Use Plan with 2004 Noise Contours*

Airport Layout Plan

The Airport Layout Plan (ALP) presents the existing and ultimate airport layout and depicts the improvements that are recommended to enable the airport to meet forecast aviation demand. Detailed airport and runway data tables and a list of existing/future buildings are provided to facilitate the interpretation of the planning recommendations. An enlarged view of the existing/planned facilities within the terminal area is also provided.

The improvements depicted on the ALP reflect all major airfield developments recommended in the twenty-year planning period. Decisions made by the airport sponsor regarding the actual scheduling of projects will be based on specific demand and the availability of funding. Long-term development reserves are also identified on the ALP to accommodate potential demand that could exceed current expectations or could occur beyond the current twenty-year planning period. The major improvements depicted on the ALP are summarized below:

- The ALP depicts Runway 16/34 with existing/future length of 5,900 feet. The width of the runway is recommended to be increased from 60 to 75 feet when an upgrade to Airplane Design Group II (ADG II) is justified. No runway extensions are planned at this time.

- A full-length parallel taxiway is planned on the east side of Runway 16/34 with an ADG II runway separation.

- The area surrounding the existing apron is planned and reserved to support future aviation-related landside development needs. The area will accommodate a variety of conventional and T-hangar buildings, and associated facilities. The continued development of small/medium conventional hangars is depicted in the area immediately adjacent to the north end of the apron. Additional space is provided for larger conventional hangars that may be associated with aviation-related business or government activities (aerial application, natural resource management, aircraft services, fixed base operator, etc.) is provided along the east edge of the apron.

- Long term development reserves are identified for hangar and aircraft apron expansion needs that extend beyond the current planning period. The area accommodating the existing vehicle parking area at the south end of the apron is identified as a long-term apron development reserve. If additional apron is needed, the vehicle parking area will be relocated behind the apron, adjacent to the access road near the northeast corner of the apron.

- Future hangar taxiway connections are depicted extending from the apron and/or future parallel taxiway.

- An aircraft fuel storage reserve is identified at the rear of the apron.

- A site for an automated weather observation system (AWOS) is identified north of the apron, near the existing NDB facility.

- Precision approach path indicators (PAPI) are recommended for both runway ends.

- Lighted wind cones are recommended at both ends of the runway.

Projects such as maintenance or reconstruction of airfield pavements, which are not depicted on the ALP, are described in the Capital Improvements Program, in **Chapter Five**.

FAR Part 77 Airspace Plan

The FAR Part 77 Airspace Plan for McDermitt State Airport was developed based on Federal Aviation Regulations (FAR) **Part 77, Objects Affecting Navigable Airspace**. The Airspace Plan provides the plan view of the airspace surfaces, profile views of the runway approach surfaces, and a detailed plan view of the runway approach surfaces. This information is intended to define and protect the airspace surfaces from encroachment due to incompatible land uses, which could adversely affect safe airport operations. By comparing the elevations of the airspace surfaces with the surrounding terrain, an evaluation of potential obstructions to navigable airspace was conducted.

The airspace surfaces depicted for McDermitt State Airport reflect the ALP-recommended runway length of 5,900 feet and the "other-than-utility" runway designation under FAR Part 77. The planned development of a non-precision instrument approach further defines the airspace surfaces as non-precision instrument. This planned change in instrument capability increases the dimensions of some airspace surfaces, which are reflected in the drawing.

The airspace surfaces for McDermitt State Airport are generally free of terrain penetrations, with only one small area of terrain penetration identified near the northwest edge of the horizontal surface and inner edge of the conical surface. The planned reconfiguration of airspace surfaces results in two new obstructions (an existing 50-foot tall wooden pole supporting an NDB antenna and a boundary fence located along the west side of the runway). By increasing the width of the runway primary surface from 250 to 500 feet, the 7:1 transitional surface slope begins 250 feet closer to the obstructions. Based on available data, it appears that the NDB antenna will create an 11-foot penetration in the east transitional surface. It is recommended that an obstruction light be added to the top of the antenna pole. The nearest pole is located approximately 475 feet east of runway centerline; a second pole in the antenna array is located approximately 640 feet from the runway centerline and it does not penetrate the transitional surface. A range fence is located along the west airport property line, approximately 250 feet from runway centerline. The fence will need to be relocated, removed or lighted to address the obstruction issue. Surveying these obstructions is recommended to determine the amount of penetration that actually exists and the appropriate disposition for each item.

Cordero Mine Road and an overhead power line are located approximately 1,600 feet south of Runway 34 and do not penetrate the approach surface.

Land Use Plan

The Airport Land Use Plan for McDermitt State Airport depicts existing zoning in the immediate vicinity of the airport. The area consists primarily of open range land and sparsely developed parcels in the vicinity of McDermitt. The communities located on either side of the Oregon-Nevada border are not incorporated, therefore land use and zoning is under county jurisdiction (Malheur County, Oregon and Humboldt County, Nevada).

The airport and the majority of the surrounding land areas are zoned Exclusive Range Use (ERU) within Malheur County. Other Malheur County zoning in the vicinity of the airport includes a rural service center (RSC) zone which extends along Highway 95 toward the border. Humboldt County (Nevada) zoning includes both open space (M-3) and general commercial (GC) in town along the highway. The area south of the airport is predominantly zoned open space (M-3).

The northern section of the airport and large areas in the vicinity of the airport are in U.S. Bureau of Land Management (BLM) ownership, which according to the Malheur County Planning Department, are not subject to county zoning jurisdiction (federally owned land). The topographical map used as a base for the Land Use Plan depicts an "old military reservation boundary" that divides the airport near mid runway. This line also represents the boundary of the current BLM-owned land on the airport.

Another issue related to zoning exists for the part of the airport that is subject to the ERU zoning (the state-owned airport portion). According to Malheur County Zoning Ordinance, construction of buildings such as aircraft hangars are not allowed (either outright or conditional) within the ERU zone. The County Planning Director, Mr. Jon Beal indicated that no exceptions are available based on proposed use. As a result, the county will not be able to issue any building permits for construction of hangars or other structures at the airport as long as the ERU zoning is in effect. Aside from the practical issues associated with potential development, this restrictive zoning does not meet the land use requirements contained in Oregon Revised Statutes (ORS) Chapter 836.600 through 836.630. Mr. Beal indicated that the county would support a change in zoning that is more consistent with existing airport function.

No information was located during data collection that explained how the existing hangar at the airport was approved based on the ERU zoning limitation. However, it is possible that a building permit may not have been issued, the zoning limitation may not have been recognized during formal planning/design review, or formal planning/design review may not have been conducted. Although the county has not indicated that any retroactive action is needed to address the existing

land use-zoning conflict, future structures will not be permitted on the airport under current zoning.

Noise exposure contours based on the 2004 forecasts of aircraft activity are depicted on the Land Use Plan. The noise contours were created using the FAA's Integrated Noise Model (INM). Data from activity forecasts and aircraft fleet mix are combined with common flight tracks and runway use to create a general indication of airport-generated noise exposure. The 2004 55 DNL noise contour extends outward along the sides of the runway, with some portions extending beyond airport property over undeveloped rangelands. The 60 and 65 DNL contours are contained entirely within airport property. Based on the modest forecasts of air traffic, the level of noise exposure during the twenty-year planning period is not expected to increase significantly above current levels. A detailed description of airport noise and land use compatibility is presented in **Chapter Six**.

Drawing 1 - Airport Layout Plan

Drawing 2a - Airport Airspace Plan

Drawing 2b - Airport Airspace Plan

Drawing 3 - Airport Land Use Plan

CHAPTER FIVE
FINANCIAL MANAGEMENT AND DEVELOPMENT PROGRAM

The analyses conducted in the previous chapters have evaluated airport development need based on forecast changes in aircraft activity, environmental factors, and operational efficiency. One of the most important elements of the master planning process is the application of basic economic, financial and management rationale so that the feasibility of the implementation can be assured.

The funding for the last major capital projects (runway and apron construction) at the airport consisted of federal aviation trust fund monies, with additional funding support provided by the State of Oregon and Humboldt County, Nevada. The FAA Airport Improvement Program (AIP) is expected to continue as the primary source of funding for major capital improvements at the airport. However, in cases where federal grant monies and sponsor funds are not sufficient to conduct a particular project or group of projects, other funding sources may need to be pursued, or the project deferred until adequate funding may be obtained.

Minor pavement maintenance items such as crack filling or localized patching are not included in the capital improvement program, but will need to be undertaken by the airport sponsor on an annual or semi-annual basis. Funds from the ODA Pavement Management Program (PMP) are available to address airfield pavement maintenance needs on established multi-year cycles. This program is intended to preserve and maintain existing airfield pavements in order to maximize their useful lives and the economic value of the pavement. As noted earlier, several short-term pavement maintenance projects are identified for McDermitt State Airport in the current PMP.

AIRPORT DEVELOPMENT SCHEDULE AND COST ESTIMATES

The analyses presented in Chapter Four described the airport's overall development needs for the next twenty years. Estimates of project costs were developed based on 2002 dollars. A 30 percent contingency overhead for engineering, administration, and unforeseen circumstances has

been included in the estimated component and total costs. In future years, as the plan is carried out, these cost estimates can continue to assist management by adjusting the 2002-based figures for subsequent inflation. This may be accomplished by converting the interim change in the United States Consumer Price Index (USCPI) into a multiplier ratio through the following formula:

$$\frac{X}{I} = Y$$

Where:

X = USCPI in any given future year

Y = Change Ratio

I = Current Index (USCPI)

USCPI
181.1
(1982-1984 = 100)
January 2003

Multiplying the change ratio (Y) times any 2002-based cost figures presented in this study will yield the adjusted dollar amounts appropriate in any future year evaluation.

The following sections outline the recommended development program and detailed funding distribution assumptions. The scheduling has been prepared according to the facility requirements determined earlier and overall economic feasibility. The staging of development projects is based upon projected airport activity levels. Actual activity levels may vary from projected levels; therefore, the staging of development in this section should be viewed as a general guide. When activity does vary from projected levels, implementation of development projects should occur when demand warrants, rather than according to the estimated staging presented in this chapter. In addition to major development projects, the airport will require regular facility maintenance.

A summary of development costs during the twenty-year capital improvement plan is presented in **Table 5-1**. The twenty-year CIP is divided between short-term and long-term projects. The distribution of project types within the CIP is summarized in **Table 5-2**. The tables provide a listing of the major capital projects included in the twenty-year CIP, including each project's

eligibility for FAA funding. The FAA will not participate in vehicle parking, hangar development, building renovations, utilities, or costs associated with non-aviation developments.

The short-term phase of the capital improvement program includes the highest priority projects recommended during the first five years. Long-term projects are expected to occur beyond the next five years, although changes in demand or other conditions could accelerate or slow demand for some improvements. As with most airports, pavement related improvements represent the largest portion (70 % +) of CIP needs at McDermitt State during the current planning period:

• *Preserve/Resurface Existing Airfield Pavement*	*44%*
• *New or Reconstructed Airfield Pavement*	*32%*
• *NAVAIDS, Lighting, Marking*	*13%*
• *Other Items (Fencing, Access Roads, etc.)*	*11 %*
Total	*100%*

Short Term Projects

The most significant short-term project at McDermitt State Airport is the resurfacing of the runway, apron, taxiways and holding areas with a triple bituminous surface treatment (BST).

Other short-term projects include the addition of lighted windsocks at both ends of the runway. Precision approach path indicators (PAPI) are also recommended for both ends of the runway. A project to provide fencing in the terminal area and along the southeast and southern portions of the airport perimeter is included in the short-term development program to address concerns about vandalism and unauthorized vehicle access on the airport. Additional fencing along the remaining perimeter of the airport is recommended later in the planning period, as funding permits.

Acquisition of the BLM-owned 65 acres that makes up the north section of the airport is included in the short term period due to expiration of the current lease in 2004. For the purposes of capital program planning, it is assumed that the property ownership could be transferred between federal and state governments at no cost. If the property is not acquired, ODA will need to extend the current lease before it expires in October 2004.

Long Term Projects

Long-term projects at McDermitt State Airport include several pavement maintenance and resurfacing projects for the runway and aircraft apron. The short-term project described earlier to resurface the runway, apron, taxiways and holding areas is expected to be repeated toward the end the twenty-year planning period. The precise timing and effort associated with the project will depend on how well the major resurfacing and subsequent minor resurfacing projects perform.

Improvements associated with aircraft hangar development will be completed based on demand that develops during the planning period. Specific improvement projects would include an access taxiway that extends from the northeast corner of the apron to serve hangar rows and additional overhead flood lighting in the hangar area. Based on the current availability of hangar development space with direct apron frontage (north and east sides), the need to construct the access taxiway is not anticipated until well into the planning period.

The installation of an automated weather observation system (AWOS) and runway end identifier lights (REIL) for both runway ends is recommended in conjunction with development of a GPS instrument approach procedure.

A second phase of airport fencing is recommended for the west, north, and east sections of the airport boundary.

An eastside parallel taxiway is included as a long-term project to reduce the back-taxiing distances currently required on the runway. The taxiway is currently being planned with ADG I width of 25 feet and an ADG II runway separation of 240 feet. These planning assumptions should be reevaluated during pre-design in the event that a change is warranted based on conditions in effect at that time. The taxiway is listed as a single project, however, it may be constructed in phases (south to north) if funding is limited. Based on the low volume of night operations anticipated at the airport, edge reflectors are recommended for the taxiway in lieu of edge lighting.

A project to widen Runway 16/34 to 75 feet is listed at the end of the long-term planning period to address the potential upgrade to ADG II standards. It is anticipated that demand sufficient to meet FAA funding criteria will not exist until late in the planning period and perhaps beyond the current planning period. The project is included in the 20-year CIP in the event that the demand occurs earlier than expected.

TABLE 5-1
20-YEAR CAPITAL IMPROVEMENT PROGRAM
2003 TO 2022

Project	Qty.	Unit	Unit $	Total Cost*	FAA Eligible	State
Short Term Projects (Years 1 - 5)						
Triple Bituminous Surface Treatment (BST) Runway, Taxiways & Turnarounds (2003)**	44,300	SY	$10.25	$454,075	$408,668	$45,408
Triple Bituminous Surface Treatment (BST) Apron	7,900	SY	$10.25	$80,975	$72,878	$8,098
Airport Fencing Phase I (Terminal Area; South End of Airfield; Pedestrian Gate to Apron)	3,400	LF	$15	$51,000	$45,900	$5,100
Airport Property Acquisition (BLM owned land)*	65	acres	$0	$0	$0	$0
Lighted Wind Socks (Both Ends of Rwy)	2	ea	$7,500	$15,000	$13,500	$1,500
Precision Approach Path Indic. (PAPI) - Rwy 16 & 34	2	ea	$50,000	$100,000	$90,000	$10,000
** assumes intergovernmental transfer of ownership or lease extension without acquistion cost*						
*** project cost based on engineers estimate based on final design (2003)*						
Total Short Term Projects				**$701,050**	**$630,945**	**$70,105**
Long Term Projects (Years 6 - 20)						
Construct Hangar Taxiway (550 x 25 feet) w/ BST or AC; Edge Reflectors	1,528	SY	$30	$47,490	$42,741	$4,749
Apron Flood Lighting (new hangar area)	2	ea	$6,000	$12,000	$10,800	$1,200
AWOS (in conjunction with GPS approach)	1	ea	$150,000	$150,000	$135,000	$15,000
REIL (in conjunction with GPS approach)	2	ea	$25,000	$50,000	$45,000	$5,000
Construct East Parallel Taxiway (5,900 x 25) w/ BST or AC (2013)	16,042	SY	$30	$481,260	$433,134	$48,126
BST Runway, Taxiways, Hold Areas, Apron (2014)	52,191	SY	$5.00	$260,955	$234,860	$26,096
Parallel Taxiway Edge Reflectors	5,900	LF	$3	$17,700	$15,930	$1,770
Airport Fencing Phase II (Airport Perimeter)	16,000	LF	$15	$240,000	$216,000	$24,000
Slurry Seal Parallel Taxiway (2019)	16,042	SY	$3.60	$57,751	$51,976	$5,775
Triple Bituminous Surface Treatment (BST) Runway, Taxiways, Turnaround and Apron; Grind in Place and Resurface (2020)	41,706	LF	$9	$375,354	$337,819	$37,535
Widen Runway to 75 feet (ADG II Upgrade) 2022+	9,833	SY	$30	$294,990	$265,491	$29,499
Total Long Term Projects				**$1,987,500**	**$1,788,750**	**$198,750**
TOTAL SHORT & LONG TERM PROJECTS				**$2,688,550**	**$2,419,695**	**$268,855**

** Project costs include 30% engineering and contingency.*

TABLE 5-2
CIP PROJECTS BY CATEGORY

Project	Qty.	Unit	Unit $	Total Cost*	FAA Eligible	State
Short Term Projects						
Preserve/Resurface Existing Pavement						
Triple Bituminous Surface Treatment (BST) Runway, Taxiways & Turnarounds (2003)**	44,300	SY	$10.25	$454,075	$408,668	$45,408
Triple Bituminous Surface Treatment (BST) Apron **	7,900	SY	$10.25	$80,975	$72,878	$8,098
Subtotal				*$535,050*	*$481,545*	*$53,505*
New or Reconstructed Pavement						
No Projects						
Subtotal				*$0*	*$0*	*$0*
NAVAIDS, Lighting, Marking						
Lighted Wind Socks (Both Ends of Rwy)	2	ea	$7,500	$15,000	$13,500	$1,500
Precision Approach Path Indic. (PAPI) - Rwy 16 & 34	2	ea	$50,000	$100,000	$90,000	$10,000
Subtotal				*$115,000*	*$103,500*	*$11,500*
OTHER ITEMS						
Airport Fencing Phase I (Terminal Area; South End of Airfield; Pedestrian Gate to Apron)	3,400	LF	$15	$51,000	$45,900	$5,100
Airport Property Acquisition (BLM owned land)	65	acres	$0	$0	$0	$0
Subtotal				*$51,000*	*$45,900*	*$5,100*
Total Short Term Projects				**$701,050**	**$630,945**	**$70,105**
Long Term Projects						
Preserve/Resurface Existing Pavement						
BST Runway, Taxiways, Hold Areas, Apron (2014)	52,191	SY	$5.00	$260,955	$234,860	$26,096
Slurry Seal Parallel Taxiway (2019)	16,042	SY	$3.60	$57,751	$51,976	$5,775
Triple Bituminous Surface Treatment (BST) Runway, Taxiways, Turnaround and Apron; Grind in Place and Resurface (2021)	41,706	LF	$9	$375,354	$337,819	$37,535
Subtotal				*$694,060*	*$624,654*	*$69,406*
New or Reconstructed Pavement						
Construct Hangar Taxiway (550 x 25 feet) w/ BST or AC; Edge Reflectors	1,528	SY	$30	$47,490	$42,741	$4,749
Construct East Parallel Taxiway (5,900 x 25) w/ BST or AC (2013)	16,042	SY	$30	$481,260	$433,134	$48,126
Widen Runway to 75 feet (ADG II Upgrade) 2022+	9,833	SY	$30	$294,990	$265,491	$29,499
Subtotal				*$823,740*	*$741,366*	*$82,374*
NAVAIDS, Lighting, Marking						
Apron Flood Lighting (new hangar area)	2	ea	$6,000	$12,000	$10,800	$1,200
AWOS (in conjunction with GPS approach)	1	ea	$150,000	$150,000	$135,000	$15,000
REIL (in conjunction with GPS approach)	2	ea	$25,000	$50,000	$45,000	$5,000
Parallel Taxiway Edge Reflectors	5,900	LF	$3	$17,700	$15,930	$1,770
Subtotal				*$229,700*	*$206,730*	*$22,970*
OTHER ITEMS						
Airport Fencing Phase II (Airport Perimeter)	16,000	LF	$15	$240,000	$216,000	$24,000
Subtotal				*$240,000*	*$216,000*	*$24,000*
Total Long Term Projects				**$1,987,500**	**$1,788,750**	**$198,750**
TOTAL SHORT & LONG TERM PROJECTS				**$2,688,550**	**$2,419,695**	**$268,855**

* Project costs include 30% engineering and contingency.

FINANCING OF DEVELOPMENT PROGRAM

Federal Grants

A primary source of potential funding identified in this plan is the Federal Airport Improvement Program (AIP). As proposed, approximately 90 percent of the airport's 20-year CIP will be eligible for federal funding. Funds from this program are derived from the Aviation Trust Fund, which is the depository for all federal aviation taxes collected on such items as airline tickets, aviation fuel, lubricants, tires, aircraft registrations, and other aviation-related fees. These funds are distributed under appropriations set by Congress to all airports in the United States that have certified eligibility. The funds are distributed through grants administered by the Federal Aviation Administration (FAA).

According to FAA guidelines, McDermitt State Airport is eligible under AIP to receive discretionary grants and general aviation entitlement grants. Under the current authorization, airports like McDermitt may receive up to $150,000 per year in the GA entitlement grants. Under current guidelines, AIP grants fund 90 percent of eligible project cost and require a 10 percent local match. The future availability of the GA non-primary entitlement funding is dependent on congressional reauthorization. However, based on the favorable response to current legislation, these grants have become a very significant source of FAA funding for general aviation airports. Because the GA non-primary grants can only be rolled over for a maximum of three years and $450,000, AIP discretional grants may be used for projects requiring additional funding.

The constraints of AIP funding availability will dictate in large part, the actual schedule for completing airport improvement projects through the planning period. As a result, some projects included in the twenty-year CIP may be deferred beyond the twenty-year time frame. However, federal grants are expected to continue playing a significant role in the financing of the airport's projected capital expenditures.

State Funding

The ODA Pavement Maintenance Program (PMP) provides funding for pavement maintenance and associated improvements (crack filling, repair, sealcoats, etc.), which have not traditionally

been eligible for FAA funding. As a state-owned airport, routine airport maintenance and operations (M&O) expenses are funded through the ODA operating budget. The PMP program combined with M&O funding is expected to be adequate to address the airport's normal maintenance needs during the planning period.

As noted earlier, ODA as the owner of McDermitt State Airport is responsible for funding the local 10 percent match for FAA grants and 100 percent of non-eligible projects (except for tenant-specific projects like hangars, which are privately funded). In some cases, ODA will seek funding assistance from the local community or county government for projects.

Financing the Local Share of Capital Improvements

The development of facilities such as aircraft hangars, fuel storage, or other tenant specific projects that are not eligible for federal funding would typically be funded through private development sources. As noted above, local funding may periodically for larger projects. This occurred in 1985 when Humboldt County, Nevada participated with the State of Oregon and FAA in funding the airfield reconstruction project.

CHAPTER SIX
ENVIRONMENTAL CHECKLIST

INTRODUCTION

The purpose of the Environmental Checklist is to identify physical, social and environmental conditions of record, which may affect the ability to undertake future improvements at McDermitt State Airport. In comparison to an Environmental Assessment, the project scope for this review is limited and focuses on gathering and summarizing information of record from the applicable local, State and Federal sources, pertaining to existing conditions as they apply to the subject site and its environs. The scope of the review research does not involve extensive professional interpretation of the information; in-depth analyses; detailed descriptions of preferred development alternatives and their potential impacts; or the more comprehensive, follow-up correspondence and inquiries with affected agencies and persons as are normally associated with an Environmental Assessment (EA). However, as each federally funded project is undertaken, the FAA, in the capacity as the lead federal agency, will evaluate the need for more detailed environmental analyses on a case-by-case basis.

All research activities for this report, including correspondence, data collection and documentation, proceeded under the provisions of FAA Order 5050.4A, The Airport Environmental Handbook, which is intended to implement the requirements of Sections 1505.1 and 1507.3 of the National Environmental Policy Act (NEPA). This report briefly addresses, either in narrative or in the attached checklist format, each potential impact category identified by Order 5050.4A. If, however, a particular specific impact category does not appear to apply to this study site, the checklist is noted accordingly.

The southern section of the airport is zoned "Exclusive Range Use (ERU)" by Malheur County. ERU zones do not permit airport use. As noted earlier, it is recommended that "airport friendly" zoning be applied to the entire airport site. Such zoning designation would recognize aviation related uses as "outright permitted" uses, and should, at a minimum, be applied to the entire subject property, consistent with Oregon Revised Statutes (ORS) Chapter 836.600 through

836.630. As noted earlier, the northern section of the airport is owned by BLM; federal lands are not subject to local zoning.

This legislation further addresses the appropriate zoning and protection of Oregon's airports through placing some zoning controls on adjacent and neighboring properties; it requires height restrictive zoning and, to some extent, use-restrictive zoning, as necessary components affecting neighboring lands around an airport. Both the Malheur County, Oregon and Humboldt County, Nevada planning agencies indicated that their jurisdictions have Airport Approach Overlay Zoning capabilities, and that their jurisdictions would adopt maps of the same if provided by this Airport Layout Plan Update Report. Malheur County has an approach overlay zone described in the local code, but it is not mapped on the Zoning or Comprehensive/Transportation Plan Maps. There is no such existing zone in place on the Nevada side, according to Humboldt County, Nevada, planning personnel. In addition to ensuring quality mapping of the areas affected by the overlay zone, the overlay ordinance language should be reviewed and amended, as necessary, to ensure compliance with ORS Chapter 836.600-630. Among the provisions of this statute:

OAR 660-13-160(1) Requires jurisdictions to update Plan, land use regulations at Periodic Review to conform with provisions of this statute, or at next update of Transportation System Plan, per OAR 660-12-0015(4) and OAR 660-12-0045(2)(c)&(d). If more than one local government is affected by the Airport Safety Overlay (see below), a Coordinated Work Program for all jurisdictions is required, concurrent with timing of Periodic Review (or TSP update) for the jurisdiction having the most land area devoted to the airport use(s). The Malheur County, Oregon Comprehensive Plan, Zoning Ordinance, and mapping should be amended no later than the next Periodic Review work cycle to ensure compliance with these provisions. The consultant recommends that the sponsor request the same for the pertinent Humboldt County, Nevada documents and maps. If possible, a work program should be developed between these two counties, consistent with these guidelines.

(8)Adopt map delineating Safety Zones, compatibility zones, and existing noise impact boundaries identified by OAR 340-35. See also OAR 660-13-0070(1) and Exhibits 1 & 2 to Division 13. No mapping exists in either affected planning jurisdiction, as discussed above.

OAR 660-13-0070(2): Review future development in Airport Safety Overlay for compliance with maximum height limitations. The overlay zone provided by the Malheur County Planner includes some use and height limitations in airspace surfaces as defined by the FAA; however, many of these ordinances are old and the definitions of the surfaces may have changed in the interim.

In addition, the Safety and Compatibility zones and noise impact boundaries required by ORS 836 and OAR 660-13 must be applied to these existing overlay zone ordinances, and the associated mapping must be produced and adopted by Malheur County, at a minimum. In addition to Airport Hazard Overlay requirements described above, OAR 660-13-0040(1)-(3) also require that jurisdictions adopt a map of existing and planned airport improvements.

The Oregon Airport Land Use Compatibility Guidelines[14] provides guidance in defining airport development areas for general aviation (GA) airports. It appears that some of the planning guidelines defined for both small and medium GA airports would apply to McDermitt based on the combination of low airport activity levels, a longer runway length and future non-precision instrumentation. According to the guidelines, the definition of the Airport Development Area (No development) provides the following recommendation:

"...No development should occur in this area other than airport-specific development whose needs are airfield related; this property, according to Federal guidelines, should be under the airport's control to prevent incompatible land use development."

However, the limited width of airport property (less than 600 feet wide) along most of Runway 16/34 suggests that implementing a "no development" zone of either 1,300 feet (Small GA Airport) or 1,600 feet (Medium GA Airport) may be impractical without substantial property acquisition.

A detailed review of all Ordinance and Comprehensive Plan language, and mapping pertaining to the McDermitt State Airport should be performed to compare those with the requirements of ORS Chapter 836.600-630 to ensure airport compatibility. This would identify any amendments to the Malheur County codes, Plans and maps, which may be necessary in order to demonstrate compliance. It is further recommended that this Airport Layout Plan Report be adopted as part of the Transportation Element of the County's Comprehensive Plan. As referenced above, it is recommended that Humboldt County, Nevada planning officials be requested to adopt, as a courtesy, zoning provisions which are consistent with the above specifications from ORS Ch. 836, and to further adopt this document as part of that jurisdiction's Transportation Planning element. Land uses and zoning immediately abutting the airport are described in **Table 6-1**.

[14] AirTech (November 1994)

TABLE 6-1
SUMMARY OF LAND USE AND ZONING
IN VICINITY OF AIRPORT

Land Use	Zoning
Airport Site:	Malheur County Exclusive Range Use (ERU); Coordination with BLM required regarding portion of airport under their ownership
North: Open Space / Range Use	 Malheur County ERU
South: Public right of way Nevada Open Space / Range Use *Southeast:* Residential, Commercial, Casino and Hotel	 Humboldt County, Nevada Open Land Use (M-3) Humboldt County, Nevada M-3, General Commercial (GC) Humboldt County, Nevada GC
East: Open Space / Range Use Abandoned Airstrip Single Family Residential Abandoned(?) Rodeo Grounds / Race Track US Highway 95 Open Space / Range Use	 Malheur County ERU Malheur County Rural Service Center (RSC) Malheur County ERU Malheur County ERU
West: Open Space, Range Use Canyon Creek	 Malheur County ERU

NOISE EVALUATION – INTRODUCTION

Noise is sometimes defined as unwanted sound. However, sound is measurable, whereas noise is subjective. The relationship between measurable sound and human irritation is the key to understanding aircraft noise impact. A rating scale has been devised to relate sound to the sensitivity of the human ear. The A-weighted decibel scale (dBA) is measured on a "log" scale, by which is meant that for each increase in sound energy level by a factor of 10, there is a designated increase of 1 dBA. This system of measurement is used because the human ear functions over such an enormous range of sound energy impacts. At a psychological level, there is a rule of thumb that the human ear often "hears" an increase of 10 decibels as equivalent to a "doubling" of sound. The challenge to evaluating noise impact lies in determining what amount

and what kind of sound constitutes noise. The vast majority of people exposed to aircraft noise are not in danger of direct physical harm. However, much research on the effects of noise has led to several generally accepted conclusions:

- The effects of sound are cumulative, therefore, the duration of exposure must be included in any evaluation of noise.
- Noise can interfere with outdoor activities and other communication.
- Noise can disturb sleep, TV/radio listening, and relaxation.
- When community noise levels have reached sufficient intensity, community wide objection to the noise will likely occur.

Research has also found that individual responses to noise are difficult to predict.[15] Some people are annoyed by perceptible noise events, while others show little concern over the most disruptive events. However, it is possible to predict the responses of large groups of people – i.e. communities. Consequently, community response, not individual response, has emerged as the prime index of aircraft noise measurement.

DNL Methodology

On the basis of the findings described above, a methodology has been devised to relate measurable sound from a variety of sources to community response. It has been termed "Day-Night Average Sound Level" (DNL) and has been adopted by the U. S. Environmental Protection Agency (EPA), the Department of Housing and Urban Development (HUD), and the Federal Aviation Administration (FAA) for use in evaluating noise impacts. In a general sense, it is the yearly average of aircraft-created noise for a specific location (i.e., runway), but includes a calculation penalty for each night flight.

The basic unit in the computation of DNL is the sound exposure level (SEL). An SEL is computed by mathematically summing the dBA level for each second during which a noise event occurs. For example, the noise level of an aircraft might be recorded as it approaches, passes overhead, and then departs. The recorded noise level of each second of the noise event is then added logarithmically to compute the SEL. To provide a penalty for nighttime flights (considered to be between 10 PM and 7 AM), 10 dBA is added to each night-time dBA

[15] Beranek, Leo, *Noise and Vibration Control*, McGraw-Hill, 1971, pages ix-x.

measurement, second by second. Due to the mathematics of logarithms, this calculation penalty is equivalent to 10 day flights for each night flight.[16]

A DNL level is approximately equal to the average dBA level during a 24-hour period with a weighing for nighttime noise events. The main advantage of DNL is that it provides a common measure for a variety of different noise environments. The same DNL level can describe an area with very few high noise events as well as an area with many low level events.

Noise Modeling and Contour Criteria

DNL levels are typically depicted as contours. Contours are an interpolation of noise levels drawn to connect all points of a constant level, which are derived from information processed by the FAA-approved computer noise model. They appear similar to topographical contours and are superimposed on a map of the airport and its surrounding area. It is this map of noise levels drawn about an airport, which is used to predict community response to the noise from aircraft using that airport. DNL mapping is best used for comparative purposes, rather than for providing absolute values. That is, valid comparisons can be made between scenarios as long as consistent assumptions and basic data are used for all calculations. It should be noted that a line drawn on a map by a computer does not imply that a particular noise condition exists on one side of the line and not on the other. These calculations can only be used for comparing average noise impacts, not precisely defining them relative to a specific location at a specific time.

Noise contours are typically plotted in 5 DNL increments, starting at 55 DNL based on the 2004 forecast activity levels. Due to the minor increase in flight activity anticipated at the airport during the planning period, the 2004 noise contours provide a reasonable indication of both existing and long-term noise exposure within the local area.

The 2004 60 and 65 DNL noise contours are contained within airport property. Due to the narrow configuration of the airport, portions of the 55 DNL contour extends beyond airport property along both the east and west sides of the runway. The areas immediately surrounding the airport are undeveloped rangeland that do not include any known incompatible or noise

[16] Where Leq ("Equivalent Sound Level") is the same measure as DNL without the night penalty incorporated, this can be shown through the mathematical relationship of:

$$Leq_d = 10 \log \left(\frac{N_d \times 10^{(SEL/10)}}{86{,}400} \right) \qquad Leq_n = 10 \log \left(\frac{N_n \times 10^{((SEL+10)/10)}}{86{,}400} \right)$$

If SEL equals the same measured sound exposure level for each computation, and if $N_d = 10$ daytime flights, and $N_n = 1$ night-time flight, then use of a calculator shows that for any SEL value inserted, $Leq_d = Leq_n$.

sensitive land uses. The noise contours prepared for McDermitt State Airport are depicted in **Figure 6-1**.

Noise and Land-Use Compatibility Criteria

Federal regulatory agencies of government have adopted standards and suggested guidelines relating DNL to compatible land uses. Most of the noise and land-use compatibility guidelines strongly support the concept that significant annoyance from aircraft noise levels does not occur outside a 65 DNL noise contour. Federal agencies supporting this concept include the Environmental Protection Agency, Department of Housing and Urban Development, and the Federal Aviation Administration. As noted above, the 2004 65 DNL noise contour is located entirely within airport property and no noise-related land use compatibility conflicts exist.

FAR Part 150 Airport Noise Compatibility Planning provides guidance for land-use compatibility around airports, which are summarized in **Table 6-2**. Compatibility or non-compatibility of land use is determined by comparing the noise contours with existing and potential land uses. All types of land uses are compatible in areas below 65 DNL. Generally, residential and some public uses are not compatible within the 65-70 DNL, and above. As noted in **Table 6-2**, some degree of noise level reduction (NLR) from outdoor to indoor environments may be required for specific land uses located within higher-level noise contours. Land uses such as commercial, manufacturing, some recreational uses, and agriculture are compatible within 65-70 DNL contours.

TABLE 6-2
LAND-USE COMPATIBILITY WITH DNL

Land Use	Yearly Day-Night Average Sound Level (DNL) In Decibels					
	Below 65	65-70	70-75	75-80	80-85	Over 85
Residential						
Residential, other than mobile homes & transient lodgings	Y	N(1)	N(1)	N	N	N
Mobile Home Parks	Y	N	N	N	N	N
Transient Lodgings	Y	N(1)	N(1)	N(1)	N	N
Public Use						
Schools	Y	N(1)	N(1)	N	N	N
Hospitals and Nursing Homes.	Y	25	30	N	N	N
Churches, Auditoriums, and Concert Halls	Y	25	30	N	N	N
Governmental Services	Y	Y	25	30	N	N
Transportation	Y	Y	Y(2)	Y(3)	Y(4)	Y(4)
Parking	Y	Y	Y(2)	Y(3)	Y(4)	N
Commercial Use						
Offices, Business and Professional.	Y	Y	25	30	N	N
Wholesale and Retail—Building Materials, Hardware and Farm Equipment	Y	Y	Y(2)	Y(3)	Y(4)	N
Retail Trade--General	Y	Y	25	30	N	N
Utilities	Y	Y	Y(2)	Y(3)	Y(4)	N
Communication	Y	Y	25	30	N	N
Manufacturing and Production						
Manufacturing General	Y	Y	Y(2)	Y(3)	Y(4)	N
Photographic and Optical	Y	Y	25	30	N	N
Agriculture (except livestock) and Forestry	Y	Y(6)	Y(7)	Y(8)	Y(8)	Y(8)
Livestock Farming and Breeding	Y	Y(6)	Y(7)	N	N	N
Mining and Fishing, Resource Production and Extraction	Y	Y	Y	Y	Y	Y
Recreational						
Outdoor Sports Arenas, Spectator Sports	Y	Y(5)	Y(5)	N	N	N
Outdoor Music Shells, Amphitheaters	Y	N	N	N	N	N
Nature Exhibits and Zoos	Y	Y	N	N	N	N
Amusements, Parks, Resorts and Camps	Y	Y	Y	N	N	N
Golf Courses, Riding Stables and Water Recreation	Y	Y	25	30	N	N

Y (Yes)	Land-use and related structures compatible without restrictions.
N (No)	Land-use and related structures are not compatible and should be prohibited.
NLR	Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into design and construction of the structure.
25, 30 or 35	Land uses and structures generally compatible; measures to achieve NLR or 25, 30, or 35 dB must be incorporated into design and construction of the structure.

NOTES:

1. Where the community determines that residential uses must be allowed, measures to achieve outdoor to indoor Noise Levels Reduction (NLR) of at least 25dB and 30dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dB; thus, the reduction requirements are often stated as 5, 10, or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year-round. However, the use of NLR criteria will not eliminate outdoor noise problems.
2. Measures to achieve NLR of 25 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level is low.
3. Measures to achieve NLR of 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level is low.
4. Measures to achieve NLR of 35 dB must be incorporated into the design and construction of portions of these buildings where the public is received office areas, noise sensitive areas, or where the normal noise level is low.
5. Land-use compatible, provided special sound reinforcement systems are installed.
6. Residential buildings require an NLR of 25.
7. Residential buildings require an NLR of 30.
8. Residential buildings not permitted.

SOURCE: Federal Aviation Regulations, Part 150, Airport Noise Compatibility Planning, dated January 18, 1985.

Figure 6-1: Noise Contours

OTHER ENVIRONMENTAL CONSIDERATIONS

Correspondence and other documentation gathered during the compilation of the environmental checklist are provided in Appendix 3.

The presence of sanitary sewer treatment lagoons, associated with the community of McDermitt, Nevada located approximately ¼ mile to the south of the runway, presents a potential hazard for existing and future aviation activities at McDermitt State Airport. While the open lagoons reportedly are not significant bird attractants, further study should be conducted to assess the levels of risk associated with the facility.

Social and induced socio-economic impacts of airport improvement projects would be expected to be positive. Implementation of the preferred alternative will result in the creation of temporary construction jobs, and improvements to the safety and longevity of the airport facility, which will benefit the local community and region. A viable airport facility serving a community generally provides increased opportunities for diversifying the local economy; responding to transportation needs of the area's commerce; and enhancing non-commercial travel options for local citizens with access to aircraft. These are considered as positive economic and social impacts, which may be anticipated to result from the recommended improvements and continued operation of the airport.

Air quality is not expected to be adversely impacted as the result of the recommended improvements or continued airfield operations. No significant increase over existing levels of air and/or surface traffic is anticipated under the preferred alternative. A representative of the Oregon Department of Environmental Quality (DEQ) stated that the area is "in attainment for" (meaning 'in compliance with') applicable air quality standards.

Water quality impacts are always a concern with any construction project, and especially where potentially hazardous materials, such as aviation fuel, fire retardants, and/or agricultural chemicals is involved. No aerial applicators of agricultural chemicals are currently based at the airport and no fuel is presently located on site. Oregon DEQ generally recommends that investigations be performed for airports that document past agricultural spraying practices, aviation fuel storage facilities, and other potential sources for adverse water quality impacts associated with past, present and potential future activities at the site. Agricultural chemical operators and airport sponsors must ensure that wash down, collection, treatment and storage devices comply with Oregon Administrative Rule 340-109 and all applicable environmental standards. This includes, but is not limited to, obtaining and complying with a National

Discharge Elimination System (NPDES) Permit for all airport construction projects and ongoing operations.

During construction, adherence to the applicable local, state, and federal regulations and standards, and compliance with the guidelines of FAA Advisory Circular 150/5370-10, would help to further protect against adverse water quality impacts. DEQ's Eastern Oregon Region Water Quality Division representative, Mr. Dick Nichols, indicated in telephone communication with the consultant that his office has no specific concerns regarding existing water quality conditions in this location relative to potential projects.

The Oregon State Historic Preservation Office, SHPO, indicated that effective April 15, 2001, considerable documentation is required to be provided by any party inquiring about the existence of any significant cultural resources. This new procedure requires such information as architectural classification, window and roof types of all structures within the study area, if they may be considered as a resource; dates of any alterations; and "Significance Statements" for all types of resources. SHPO has specific forms, "Section 106 (of the National Historic Preservation Act) Documentation Forms" and "Section 106 Level of Effect Forms" for use in making such a request. This level of investigation surpasses the scope of this ALP Update Report. It is therefore unknown at this time whether cultural resources are recorded in the immediate area proposed for development or in the airport's vicinity. However, if any historic or cultural resources are discovered during construction, the sponsor will be responsible for immediately notifying SHPO and the other appropriate authorities. Any such resource(s) discovered would be required to be protected from adverse impacts or damages resultant from activities associated with the improvements to the McDermitt State Airport.

Under the Department of Transportation Act, Section 4(f), (49 USC, Subtitle I, Section 303), projects that would require use of lands having historic significance on a national, state or local level must be demonstrated to be the only feasible and prudent alternative and must be planned to minimize harm resulting from the use. It does not appear that Section 4f lands are involved with the airport; the federally owned land that is leased to ODA is specifically authorized for airport-related use only.

According to Oregon Department of Fish and Wildlife District Biologist Walt Van Dyke, the airport experiences encroachment from mule deer, antelope, and jack rabbits. This ODFW representative recommended that perimeter fencing be considered to address the problem of wildlife encroaching on the airfield. In addition, Mr. Van Dyke indicated that the low, wet nature of the surrounding lands, which consists primarily of wet meadow habitat that is in crop production in alternate years (and is flood irrigated), attracts various species of water fowl, including sand hill cranes. A number of natural springs located northwesterly of the subject site

also serve as bird attractions. Mr. Van Dyke noted that the "Kit fox" makes its habitat in the study environs, and that he believed that species is listed as sensitive with the State of Oregon. Sage grouse were also noted as being somewhat frequent in the area.

A search of the database of the Oregon Natural Heritage Program, Nature Conservancy, revealed two noteworthy species of fauna as occurring in the project vicinity. The Pygmy rabbit, or *Brachylagus Idahoensis,* is listed as a "Species of Concern" by the US Department of Interior's Fish and Wildlife Service (USFWS). It is listed as "Sensitive-Vulnerable" by the State of Oregon. This was collected at an unknown date in Section 18 of Range 43E, north of and near the airport. The Wyoming Ground Squirrel, or *Spermophilus Elegans Nevadensis,* was reported in the same section in 1915, but was not located upon follow up to the historical sites in 1971. Notes in the Natural Heritage database indicate that the subject species is "*…presumed extirpated in Oregon*." Belding ground squirrels (scientific name not provided) were noted as being abundant in the area on the 1971 site inspection, though no Federal or State Status is provided in the records for either of these squirrel species.

The U.S. Fish and Wildlife Service (USFWS) lists one species of bird which is listed as Threatened, and which is found in the vicinity of the McDermitt State Airport. The Bald Eagle, *Haliaeetus leucocephalus*, is listed as a Threatened Species. In addition, one species of amphibian, the Columbia spotted frog, or *Rana luteiventris*, is a Candidate species for some type of Federal protection. Nine (9) species of mammals, ranging from the Pygmy rabbit; Pale western big-eared bat, *Corynorhinus townsendii pallenscens*, the Silver–haired bat, *Lasionycteris noctivagans*, and five additional species of Myotis bats; and the Preble's shrew, *Sorex preblei,* are indicated in the USFWS' database as "Species of Concern".

Five birds are also Species of Concern, including the Western burrowing owl, *Athene cunicularia hypugea*; Ferruginous hawk, *Buteo regalis*; Greater sage-grouse, *Centrocercus urophasianus*; Willow flycatcher, *Emidonax trailli adastus*; and Yellow –breasted chat, *Icteria virens*. One fish, the Interior redband trout, or *Oncrhynchus mykiss gibbsi*, is also a Species of Concern, though it would not be affected by the project, and three plants, the Barren valley collomia, or *Collomia renacta;* the Grimy ivesia, or *Ivesia rhypara* var. *rhypara*; and Davis' pepper cress, *Lepidium davisii,* are also a Federal Species of Concern which may occur within the project area or its environs.

The USFWS states in the attached correspondence that a Biological Assessment is required for "*construction projects (or other undertakings having similar physical impacts) which are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (NEPA) (42 U.S.C. 4332 (2) (c)). For projects other than major construction activities,"* the USFWS' correspondence continues, "*the Service suggests that*

a biological evaluation similar to the Biological Assessment be prepared to determine whether they may affect listed and proposed species."

According to a review of the US Fish and Wildlife's National Wetlands Inventory (NWI), Two Mile Creek, which flows through the airport property northeasterly to southwesterly, is a Riverine wetland that is an intermittently flooded streambed. Any activities that would affect this or any other potential jurisdictional wetland must be prior approved by the Oregon Division of State Lands and/or the US Army Corps of Engineers, as applicable. No other wetland resources appear on the NWI Map within the airport site.

According to the local planner, no flood plain areas are located on or near the airport. This portion of Malheur County is not mapped by the US Natural Resources Conservation Service's Soil Survey. Airport Layout Plans and associated projects are exempt from the Farmland Protection Policy Act (FPPA), and no further investigation under this impact category is necessary to demonstrate compliance with NEPA.

Silt fences, runoff diversion tactics, and stormwater detention are commonly implemented in similar projects, and should be utilized for any project on the airport in order to minimize adverse impacts of construction. FAA Advisory Circular 150/5370-10 provides additional measures which should be implemented to minimize adverse impacts of airport construction activities. Please see the above discussion regarding water quality impacts.

Table 6-3 contains a summary of the above information, and also addresses those potential impact categories not discussed above due to a lack of records indicating a significant concern.

TABLE 6-3
MCDERMITT STATE AIRPORT
ENVIRONMENTAL CHECKLIST

Potential Impact Category	Existing Conditions / Comments	Further Action Needed?
Noise	No significant noise exposure beyond airport property	NO
Compatible Land Use	Future uses in the vicinity must have the burden of demonstrating compatibility with aviation and compliance with ORS Ch. 836.600-630. Existing ERU surface zoning does not permit hangar construction on the airport. Local governments must adopt and Map Airport Overlay Zoning, planned improvements, consistent with State law.	YES
Social / Socio-Economic	Expected to be positive, as is typical with airport projects, including but not limited to the enhancement of safety features at the airfield, creation of jobs, and improvement to the region's transportation systems base.	YES
Air Quality	Area is in attainment for air quality; no change in current conditions is anticipated.	NO
Water Quality	DEQ Eastern Region Water Quality Division requires that the location of disposal for domestic wastewater (sewage) from the airports facilities be divulged, and surface storm water runoff must be contained, treated, prior to discharge to any natural drainage system, water body. NPDES Permit; silt fences, maintaining the maximum physical separation between construction and sensitive waterways, and adherence to FAA Advisory Circular 150/5370-10 required. See Construction Impacts, below. If fuel or agricultural chemical storage are to be established at this site, see Water Quality section of the above narrative and observe compliance with DEQ requirements.	POSSIBLE
Special Land Uses, DOT Act	No parks, recreation areas, or refuge areas per This section affected. Federal Government	NO

TABLE 6-3
MCDERMITT STATE AIRPORT
ENVIRONMENTAL CHECKLIST

Potential Impact Category	Existing Conditions / Comments	Further Action Needed?
Section 4(f) (continued)	owns portion of airport property on north. Procurement of additional acreage from BLM may be desirable.	
Historic, Architectural, Archaeological, and Cultural Resources	Records no longer provided by SHPO. Please see above discussion. Avoid impacting known or suspected resources, notify SHPO immediately if new resources located during construction.	POSSIBLE
Biotic Communities	A number of species of fauna were discussed in the narrative above as possibly occurring in the project vicinity. Fencing is recommended by ODFW.	YES
Endangered and Threatened Species	Varied T&E, Proposed, Candidate Species, and Species of Concern found in vicinity. A Biological Evaluation or Assessment is recommended by USFWS prior to construction or similar undertakings. See narrative.	YES
Wetlands	According to National Wetlands Inventory Maps produced by the USFWS, one Riverine Wetland, Two Mile Creek, traverses the site. Activities must avoid impacting the creek bed or be prior approved as discussed above.	POSSIBLE
Floodplain	No mapping available from Federal Emergency Management Agency (FEMA). No flood plain suspected by local planning officials.	NO
Shoreline Management	Not Applicable to this facility.	NO
Coastal Barriers	Also Not Applicable.	NO

TABLE 6-3
MCDERMITT STATE AIRPORT
ENVIRONMENTAL CHECKLIST

Potential Impact Category	Existing Conditions / Comments	Further Action Needed?
Wild and Scenic Rivers	Not Applicable.	NO
Farmland	Soils on airport property are not mapped by the NRCS. Public airport improvement projects are exempt from Farmland Protection Policy Act (FPPA). It cannot be determined, from the information currently available whether soils on the site which are under Federal ownership qualify for protection under the FPPA. Further coordination with either local planning officials or the Department of Land Conservation and Development is necessary to answer this question.	POSSIBLE
Energy Supply and Natural Resources	No adverse impacts anticipated.	NO
Light Emissions and Glare	No analysis of existing light emissions, which might pose potential hazards to aviation, performed. No such hazards reported by local planners or operators, upon inquiry.	POSSIBLE
Solid Waste Impacts	Ground and surface water systems must be considered and protected from contamination during the handling of waste materials. Development under the Preferred Alternative would not considerably increase production of waste at the facility, except during construction phase.	NO
Construction Impacts	Temporary impacts will accrue during construction phase. Adherence to the provisions of FAA Advisory Circular 150/5370-10 should preclude foreseeable adverse impacts.	NO