

## 1. Introduction

Airport facilities, operations, and procedures have safety and land use compatibility need and requirements that extend beyond airport property. Land use surrounding airports can impact airport operations, and compromise the health, safety, and welfare of citizens living and working near the airport. This chapter presents the existing land use surrounding Coeur d'Alene Airport (COE), evaluates land use compatibility strategies in the comprehensive plans of communities nearby,



and analyzes the potential impact of aircraft noise resulting from normal airport operations. The chapter is organized in the following sections.

- Federal Regulations
- State Regulations
- Aircraft Noise Analysis
- Airport Safety Compatibility Zones
- Existing Land Use Evaluation
- Planned Land use Evaluation
- Land Use Recommendations

This chapter identifies existing and future land use compatibility concerns, and provides recommendations to address these concerns. Coordination with Kootenai County and the City of Hayden is a key element in enacting land use compatibility policies that will maintain operability at COE, and promoting compatibility with citizens living and working near the Airport.



## 1.1 Federal Regulations Relating to Airport Land Use Compatibility

The Federal Aviation Administration (FAA) is responsible for administering matters of national aviation. Per the Supremacy Clause, Article VI, Clause II, of the U.S. Constitution, federal law takes precedence over state and local regulations. Through the supremacy clause, state and local governments may not impose restrictions on federal airport development or operations through their zoning laws or operational restrictions. This does not restrict what local governments may do outside of airport property, and coordination between airport management and local stakeholders is a key element to promoting compatible development.

The FAA provides regulations and guidance that pertain to height and compatible land use surrounding airports. The FAA oversees airport noise emissions, and noise impacts on surrounding land use.

### 1.1.1 Federal Aviation Regulation Part 77

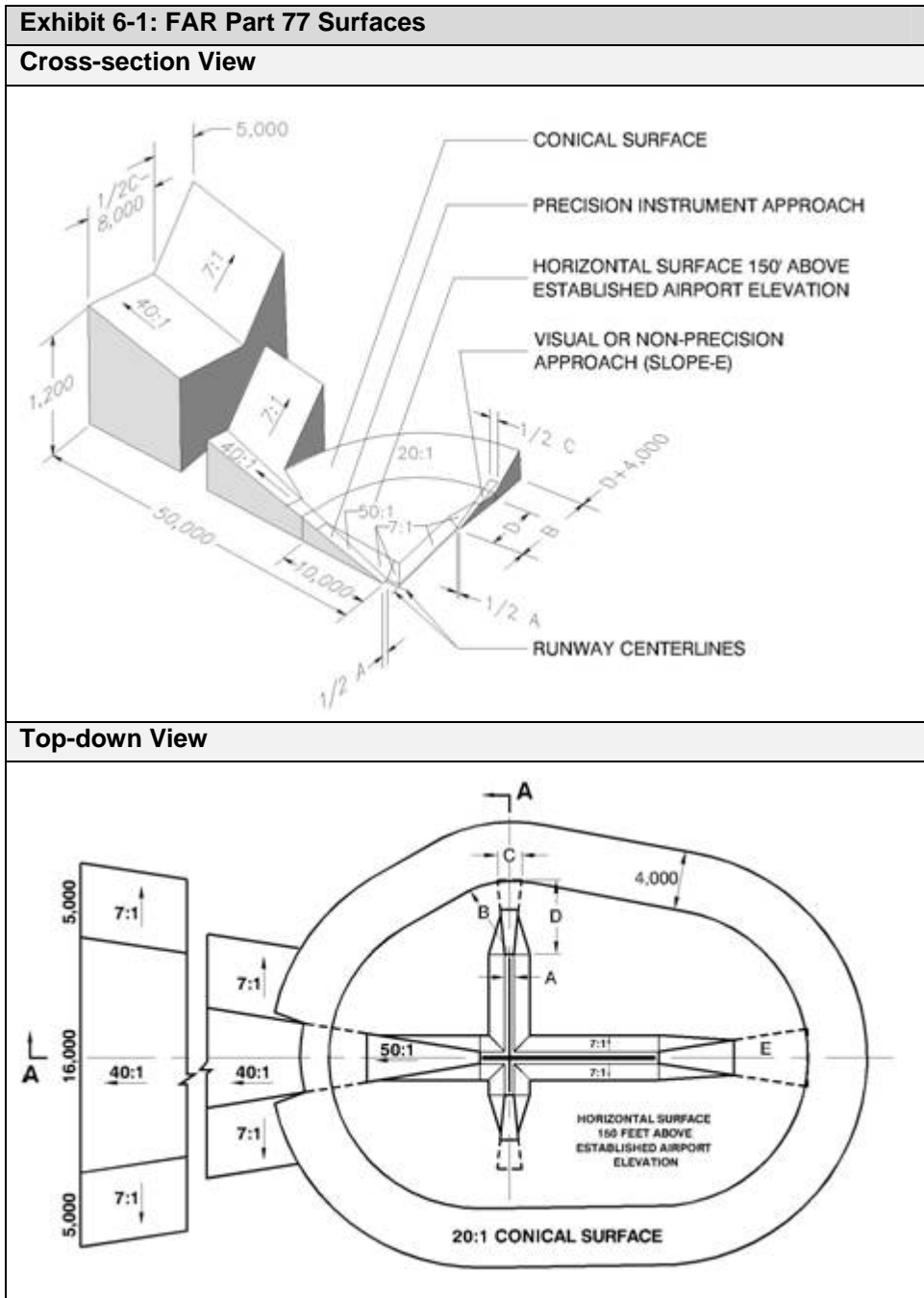
Airport operators must work with local governments to maintain airfield and airspace protection surfaces to FAA standards. This includes keeping approach and departure paths, and the surfaces contained in Federal Aviation Regulation (FAR) Part 77, clear of obstacles and hazards to air navigation.

Failure to keep FAR Part 77 surfaces free of obstructions can be a violation of an airport's grant assurances. Airport sponsors agree to federal grant assurances as part of their project funding applications. Upon acceptance of grant money, these assurances are incorporated into and become part of the grant agreement, and the airport sponsor is obligated to comply. Grant Assurance 21, included in the September 1999 amendment to 49 United States Code 47107, requires airports that accept federal money to take appropriate actions against incompatible land uses in the immediate vicinity of the airport. Such actions include working with neighboring jurisdictions to adopt zoning laws, change existing zoning, and purchasing property to protect federal investments through the maintenance of a safe operating environment.

State and local regulations assist grant assurance compliance, and provide a safe environment for aircraft operations and protecting people on the ground.

A diagram of FAR Part 77 surfaces is included in **Exhibit 6-1**, and FAR Part 77 surfaces for COE are shown on the **Airport Layout Plan (ALP)**.





Source: FAA



### 1.1.2 Noise

Aircraft noise can be a nuisance to noise sensitive land uses surrounding an airport. Noise sensitive land uses can include residences, hotels, schools, churches. Noise can be a detrimental factor in the relationship between an airport and the surrounding community. Proper land use planning and protection are essential to mitigate the negative externality of airport noise, to keep the airport free of operational restrictions and incompatible land uses.

To evaluate noise impacts, the FAA, the Environmental Protection Agency (EPA), and the Department of Housing and Urban Development (HUD) have established the 65 decibel day-night average sound level (65 DNL) as a threshold for determination of significant noise impacts. Areas experiencing aircraft noise levels at or above 65 DNL are considered to have significant noise impacts.

## 1.2 Idaho Airport Land Use Compatibility Regulations

In 2007, the Idaho Transportation Department Division of Aeronautics (ITD-Aero) introduced a legislative proposal for “Airport Development Zoning” in response to growing land use incompatibility concerns from the state’s airport sponsors. The proposal involved coordination between aviation and municipal stakeholders; however municipalities, raised concerns over the absence of compatible land use guidance.

To address municipal concerns, the 2008 Idaho Airport System Plan (2008 Idaho Plan) included a land use compatibility element. In 2009, in conjunction with the 2008 Idaho Plan, the American Council of Engineering Companies of Idaho—Aviation Committee (ACEC) began efforts to educate municipal, county, and state stakeholders about the importance of airport land use compatibility. The ACEC education efforts are expected to continue through the 2011 legislative session.

ITD-Aero decided not to pursue “Airport Development Zoning” legislation in the 2011 legislative session. ACEC continues to seek support of Idaho legislators to sponsor the bill for the 2011 legislative session.

### 1.2.1 Airport Zoning Act

Idaho Statutes, Title 21, Chapter 5, *Airport Zoning Act* grants counties and municipalities the authority to “adopt, administer, and enforce, under the police power and in the manner and upon the conditions hereinafter prescribed, airport zoning regulations for aviation hazard areas within the state.” The Airport Zoning Act permits zoning review committees to make a determination of hazard to air flight for existing and proposed structures, terrain modifications, and natural growth. The Airport Zoning Act allows zoning boards to administer fines for violations and court injunctions for non-compliance. Standards for the determination of hazards mirror FAA Part 77 surfaces.



### 1.2.2 2008 Idaho Plan Land Use Compatibility Guidelines

The 2008 Idaho Plan Appendix C, *Airport Land Use Guidelines*, introduces strategies and guidelines for identifying incompatible land use around airports, and examples to assist communities in developing airport zoning regulations.

The 2008 Idaho Plan identifies noise associated aircraft approach, departure, and overflight as the primary source of land use incompatibility. The 2008 Idaho Plan recommends airports conduct a noise analysis using the FAA's Integrated Noise Model (INM) software to delineate the noise footprint. This information is supplemented with local information regarding approach and departure procedures, and traffic patterns. Noise analysis for COE is presented in **Section 2**.

Land use compatibility concerns stem from aircraft accident areas. Studies on the frequency and location of aircraft accidents indicate that areas adjacent to the approach and departure ends of the runway are more likely to experience accidents than other property near airports. The State of California uses the information from these studies to generate safety compatibility zones in the 2002 *California Airport Land Use Planning Handbook* (California Handbook). Safety compatibility zones provide airports and nearby communities with guidelines regarding the type and intensity of land use around airports. In 2011, the Washington Department of Transportation (WSDOT) released the *Airport and Compatible Land Use Guidebook* (WSDOT Guidebook), as an update to the California Handbook. The WSDOT Guidebook reflects recent developments in land use compatibility theory and practice in the United States. Safety compatibility zones for COE are presented in **Section 3.1**, and used to evaluate existing and planned land use near the Airport.



## 2. Aircraft Noise Analysis

Aircraft noise can be a nuisance to noise sensitive land uses surrounding an airport. Noise sensitive land uses can include residences, hotels, schools, hospitals, and nursing homes. Noise can be a detrimental factor in the relationship between an airport and the surrounding community. Land use planning and protection are key airport noise mitigation techniques.

The FAA's Integrated Noise Model (INM) is used to evaluate existing and forecasted noise associated with aircraft operations at COE. INM is the accepted industry tool for evaluating aircraft noise impacts. The INM assists in analyzing changes in noise impacts resulting from new or extended runways or runway configurations; assessing new traffic demand, fleet mixes and alternative flight profiles; and evaluating modifications to operational procedures.

Existing and forecasted noise contours are presented in the following sections, and used in land use compatibility analysis in **Section 4** and **Section 5**.

### 2.1 Methodology

To prepare a noise exposure map, the INM requires information concerning the number of aircraft operations, the types of aircraft (fleet mix), the time of day (day or night), runway utilization, and the typical flight tracks. Coordination with airport staff and aircraft operators, and evaluation of the aviation demand forecasts, presented in **Chapter 2**, provide the necessary information to model existing and forecasted noise exposure levels at COE. Data input into INM are included in **Appendix C**.

#### 2.1.1 Aircraft Fleet Mix

COE has a diverse fleet mix. Aircraft range from small, single-engine general aviation aircraft such as the Cessna 172 to regional and narrow-body commercial service aircraft like the Bombardier Q400 that visit COE for maintenance. The Airport accommodates private corporate turboprop and jet aircraft, military aircraft, and helicopters. COE's fleet mix was provided by airport management.

#### 2.1.2 Airport Operations

The frequency of aircraft operations are based on the FAA-approved aviation activity forecasts. Aircraft operations, with the exception of touch and go operations were divided into approach and departure operations. According to COE staff, touch and go operations account for 30 percent of annual aircraft operations.

#### 2.1.3 Daytime-Nighttime Operations

Nighttime operations are those that occur between 10:00 pm and 7:00 am. The INM assigns "penalties" to nighttime operations because aircraft noise is perceived to be louder at night when ambient sound levels are lower. COE staff estimate that 90 percent of aircraft operations occur during the daytime, and 10 percent occur during the nighttime.



### 2.1.4 Runway Utilization

Runway utilization includes the number, location, and orientation of the active runways, as well as the directions and types of operations that occur on each runway. Runway utilization depends primarily on wind direction and speed, but is also a function of terminal area location, taxiing distances, and runway lengths. Runway utilization percentages are presented in **Table 6-1**.

Runway End	Percent of Annual Operations
01	15%
05	25%
19	40%
23	20%

Source: COE Staff and Aircraft Operator Estimates

### 2.1.5 Flight Tracks

Flight track information represents the path over the ground followed by an aircraft. Instead of using all of the tracks created by individual aircraft during the course of one year, the FAA suggests that tracks be consolidated to represent corridors of average flight tracks. Flight tracks are developed based on discussions with COE staff and aircraft operators.

## 2.2 Existing Noise Contours

Existing noise contours consider 2008 aircraft operations as reported by the FAA Terminal Area Forecast. Existing runway endpoints are used. The FAA threshold for significant noise impact is 65 DNL; however areas outside of the 65 DNL contour will be subject to aircraft noise and overflight. The 2008 65 DNL contour is largely contained within airport property, with some areas outside of the property boundary beyond Runway Ends 01 and 19. The 65 DNL contour associated with departures from Runway End 19, located beyond Runway End 01, extends beyond the airport property.

The 55 DNL contour helps identify properties that will be subject to aircraft noise and overflight outside of airport property, although noise impacts within the 55 DNL contour are not considered significant by the FAA. The City of Hayden 2008 Comprehensive Plan Update (Hayden Plan) states that “all community and land use activities are found to be compatible in areas with noise levels less than 65 [DNL].” The Hayden Plan suggests that local concern with aircraft noise expands beyond the 65 DNL contour. For this reason, the 55 DNL contour is included in airport noise analysis.

The 55 DNL contour generally follows a similar shape as the 65 DNL contour, but covers a greater area. An exception is part of the 55 DNL contour associated with single-engine GA touch and go operations on Runway 01-19, which passes over residential areas south of the Airport before crossing the City of Hayden and U.S. Highway 95.



### 2.3 Forecasted Noise Contours

Forecasted noise contours consider 2028 aircraft operations and planned runway configuration of the preferred runway alternative in **Chapter 5**. Aircraft operations are forecasted to grow at an average annual rate of 2.4 percent between 2008 and 2028. Scheduled commercial airline operations forecasts have been included in noise modeling for Runway 05-23 only because of scheduled commercial airlines runway length and instrumentation requirements.

Forecasted noise exposure covers a greater area than existing noise exposure. The 65 DNL contour extends outside airport property beyond Runway Ends 01 and 19. Growth of noise contours in these locations is caused by forecasted growth in touch and go operations on at COE.

Increased touch and go operations associated with Runway End 19 produce a 55 DNL loop that passes over central Hayden. The 55 DNL contour represents the preferred training flight pattern, which avoids flight through the airspace beyond Runway End 05, keeping training activities clear of the Airport's primary instrument runway.

The forecasted introduction of scheduled commercial airline operations on Runway 05-23 increases extent to the 55 DNL contour farther beyond airport property. The size of the 55 DNL contours are largely due to the introduction of the Boeing MD-83 aircraft as a possible scheduled commercial aircraft on Runway 05-23, in addition to the forecasted increased in jet general aviation operations.

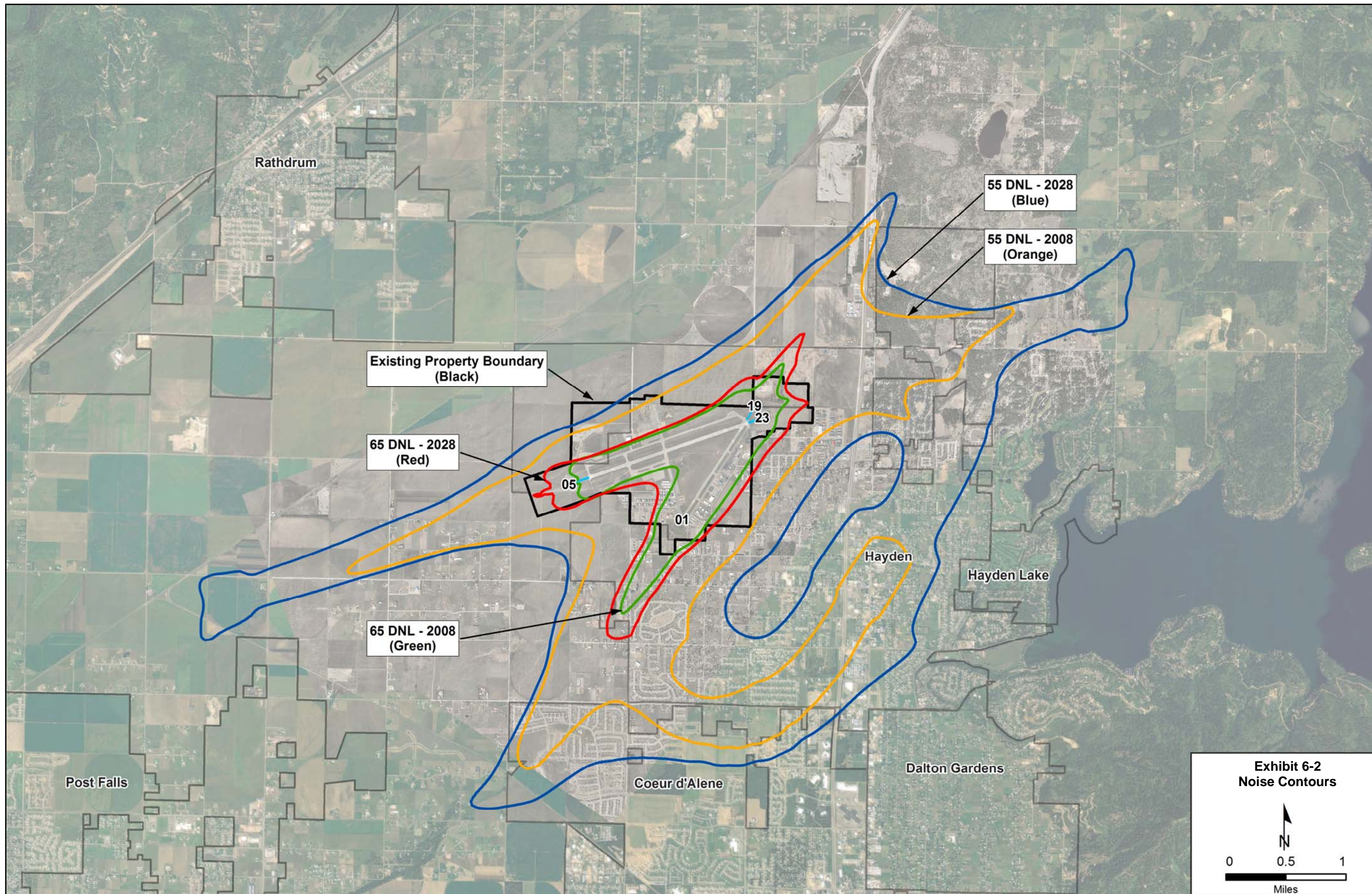
The Boeing MD-83 is one of the older and louder aircraft in the domestic scheduled commercial airline fleet, and is in the process of being phased out by some scheduled commercial airlines. Niche market low cost carriers (NMLCCs) have acquired MD-83 aircraft due to lower acquisition cost compared to newer aircraft that offer similar characteristics.

The MD-83 is popular with NMLCCs in 2010. It is expected that traditional airlines will begin to upgrade their fleets within five to ten years, releasing Airbus A319 and Boeing 737 models that offer similar characteristics to the MD-83, but have improved fuel economy and produce less noise.

Noise impacts associated with NMLCC operations are expected to decrease as NMLCCs modernize their fleets over the next 10 to 15 years. The forecasted 55 DNL contour should be retained for planning purposes because properties within the contour will likely be subjected to overflight by operations occurring on Runway 05-23, even if the properties are outside of a revised 55 DNL contour.

Existing and forecasted noise contours are presented in **Exhibit 6-2**.





### 3. Airport Safety Compatibility Zones

The WSDOT Guidebook airport safety compatibility zones (ASCZs, or Zones) are developed for COE to assess existing land use compatibility. There are six ASCZs, defined by proximity to the runway end, and the types of aircraft operations that generally occur within each zone. ASCZs have template dimensions; however, the WSDOT Guidebook states that these dimensions can be modified to reflect local conditions. ASCZ 4 beyond Runway End 23 is extended to the northeast to consider rising terrain. ASCZ 6 has been expanded to include touch and go flight tracks. ASCZs are defined in **Table 6-2**, and shown in **Exhibit 6-3**.

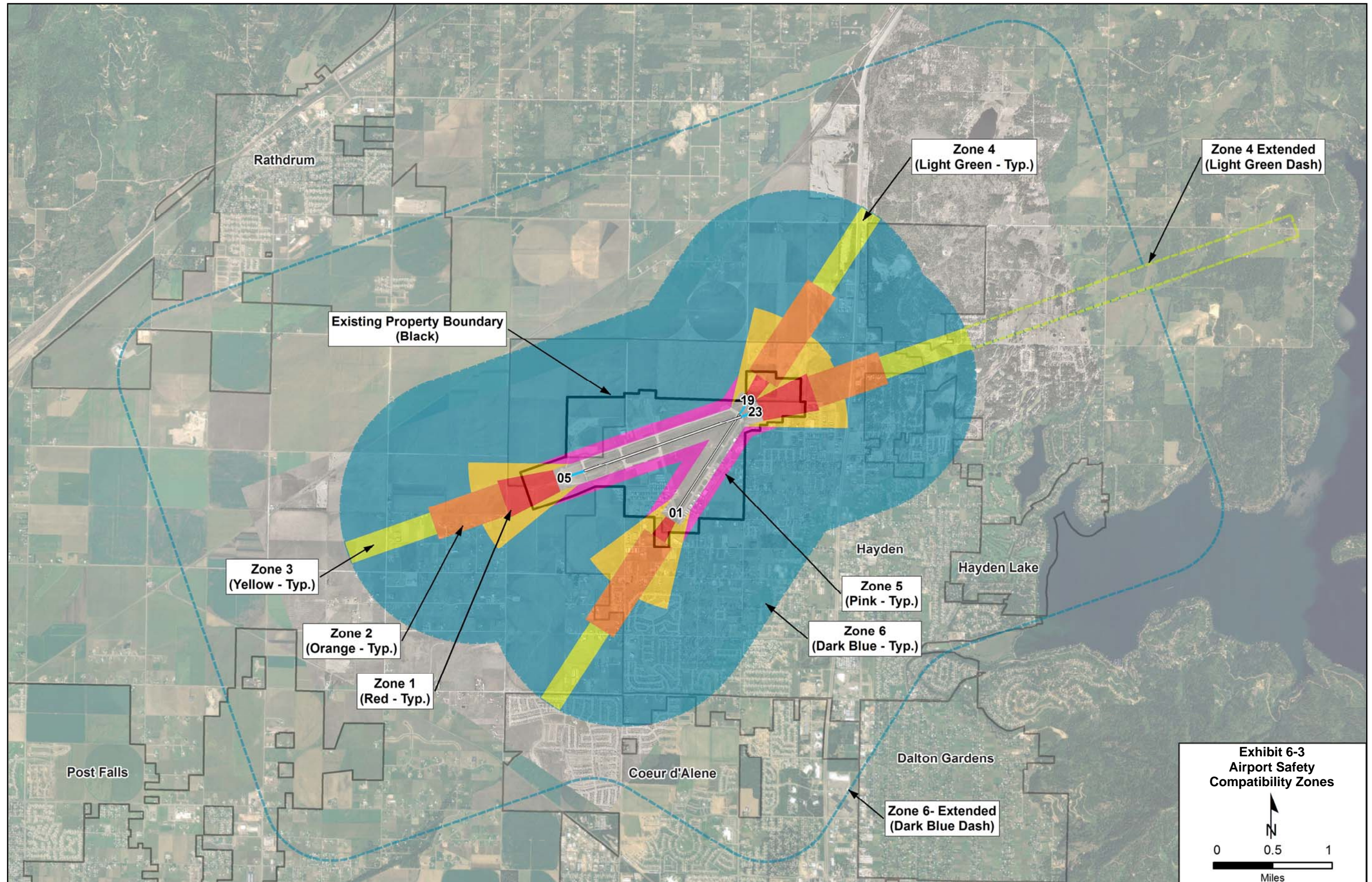
<b>Zone</b>	<b>Land Use Guidelines</b>
1—Runway Protection Zone	<ul style="list-style-type: none"> <li>• Airport ownership encouraged,</li> <li>• Prohibit new structures,</li> <li>• Prohibit residential land uses,</li> <li>• Non-residential land uses discouraged.</li> </ul>
2—Inner Approach/Departure Zone	<ul style="list-style-type: none"> <li>• Prohibit residential except on agricultural parcels,</li> <li>• Limit non-residential uses,</li> <li>• Discourage uses that attract large numbers of people,</li> <li>• Prohibit schools, hospitals, and nursing homes,</li> <li>• Prohibit hazardous material storage.</li> </ul>
3—Inner Turning Zone	<ul style="list-style-type: none"> <li>• Limit residential to low density (unless prohibited),</li> <li>• Avoid high-intensities of non-residential land uses,</li> <li>• Prohibit schools, hospitals, and nursing homes,</li> <li>• Prohibit hazardous material storage.</li> </ul>
4—Outer Approach/Departure Zone	<ul style="list-style-type: none"> <li>• Limit residential to low densities (unless prohibited),</li> <li>• Avoid high-intensities of non-residential land uses,</li> <li>• Prohibit schools, hospitals, and nursing homes.</li> </ul>
5—Sideline Zone	<ul style="list-style-type: none"> <li>• Avoid residential uses unless airport related,</li> <li>• Allow aviation uses that meet height requirements,</li> <li>• Avoid high-intensities of non-residential land uses,</li> <li>• Prohibit schools, hospitals, and nursing homes.</li> </ul>
6—Traffic Pattern Zone	<ul style="list-style-type: none"> <li>• Allow residential use</li> <li>• Allow most non-residential use, prohibit stadiums and other large gathering areas,</li> <li>• Avoid schools, hospitals, and nursing homes.</li> </ul>

Source: 2002 California Airport Land Use Planning Handbook, 2011 WSDOT Airport and Compatible Land Use Guidebook



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## 4. Existing Land Use

Existing land use evaluation reviews local zoning maps and 2010 aerial photography to determine existing development near COE. Land use compatibility strategies and recommendations from the WSDOT Guidebook and 2008 Idaho Plan are considered. ASCZ dimensions incorporate the preferred runway lengths and planned airport improvement projects from **Chapter 4**.

### 4.1 Kootenai County

Land within Kootenai County's jurisdiction is primarily zoned for agricultural use. Property surrounding COE is zoned as light industrial. Other zoning within the ASCZs includes agricultural-suburban, rural, and mining and mining development. Residential development is mostly located in Zone 6, with single-family residential development in Zones 2 and 4 beyond Runway Ends 01 and 05, and in Extended Zone 4 beyond Runway End 23. Churches are located within Zone 6, which is compatible but expected to experience aircraft overflight. No schools are located within the ASCZs on land within Kootenai County's jurisdiction.

The WSDOT Guidebook recommends that residential properties be prohibited except on agricultural properties in Zone 2, limited to low density in Zone 4, and permitted in Zone 6. Parcels within Zone 4 beyond Runway Ends 01, 05, and 23 are defined as "Rural Zone." Kootenai County Zoning Ordinance No. 401 (Kootenai Zoning) defines "Rural Zone" as property "suitable for rural uses, such as rural residential uses and agricultural pursuits, including farming and forestry." Maximum density within the "Rural Zone" is one dwelling unit per five acres. "Rural Zone" is considered to be low density compared to other residential zoning in Kootenai County, and is expected to be generally compatible in Zones 2 and 4.

Additional property designated as "Rural Zone" located in Zone 6 is expected to generally be compatible with aircraft overflight. Property under the jurisdiction of Kootenai County, surrounding Hayden Lake, and within Zone 6 is defined as "Restricted Residential." Kootenai Zoning defines "Restricted Residential" as "a district suitable for residential use which is, or will become, a one- or two-family unit living area. Uses are generally limited to residential uses." It is expected that "Rural Residential" properties are generally compatible with aircraft overflight in Zone 6.

Property zoned as "Agricultural" located north and west of the Airport is generally expected to be compatible with aircraft operations. Crops, and unused fields located within Zones 1, 2, 3, and 4 that attract and provide nesting and resting areas for birds may be hazards to aircraft operations.

The 2008 65 DNL noise contour passes over residential properties beyond Runway End 01, and remains within airport property beyond Runway End 05. The 2008 55 DNL contour follows a similar path of ASCZs 2 and 4 beyond Runway End 05, with residential land use within the 2008 55 DNL contour. These parcels likely experience aircraft overflight, but are expected to be compatible at their existing density. The 2008 55 DNL contour beyond Runway End 23 includes residential subdivisions north and south of Lancaster Road, east of U.S. Highway 95.



## 4.2 City of Hayden

Land use near COE and within the City of Hayden's jurisdiction includes residential, agricultural, and light industrial. Land uses located farther away from the Airport include agricultural-suburban, commercial, multi-family residential, and residential subdivision. Single-family residential is located in Zones 2 and 3 beyond Runway End 01, and in Zone 4 beyond Runway End 23. Churches and schools are located within Zone 6.

The existing subdivision beyond Runway End 01 is located within Zones 2 and 3, and classified as a "Residential Zone," which the Hayden, Idaho: City Code, Title 11: Zoning Regulations (Hayden Zoning) defines as a zone that is "established to protect stable neighborhoods of single-family dwellings on smaller lots." Hayden zoning permits homes on parcels 8,250 square feet and larger, which is density of 5.3 dwelling units per acre.

Airport user surveys indicated that in 2008, 52.5 percent of aircraft operations occurred on Runway 01-19. It is expected that this number will decline as facilities are constructed north of Runway 05-23; however prevailing winter winds favor Runway 01-19; and it is expected to remain utilized by smaller aircraft that are affected by crosswinds. Utilization of Runway 01-19 is expected to remain near 50 percent of aircraft operations.

It is recommended that the Airport work with the City of Hayden to discourage further residential development beyond Runway End 01, particularly at the existing density of 5.3 dwelling units per acre. It is expected that properties beyond Runway End 01 will continue to see high levels of aircraft overflight.

Churches are generally compatible within Zone 6, but schools are not recommended. Two schools are located within Zone 6 as defined by the WSDOT Guidebook, and two schools are located within the Extended Zone 6, for a total of four schools in the City of Hayden within Zone 6.

The 2008 65 DNL contour extends over single-family residential properties beyond Runway End 01. Continued development of single-family residential properties is not recommended in this area, particularly within the 65 DNL contour. Developable property west of Atlas Road is under the jurisdiction of Kootenai County. The 2008 65 DNL contour extends over properties zoned as light industrial beyond Runway Ends 19 and 23, which are generally more compatible with aircraft noise exposure than residential land uses.

The 2008 55 DNL contour covers much of southern and central Hayden, representing the traffic pattern for flight training on Runway 01-19. The Hayden Plan states that "all community and land use activities are found to be compatible in areas with noise levels less than 65 [DNL]"; however, aircraft overflight may be perceived as an annoyance.



### 4.3 Other Jurisdictions

Kootenai County and the City of Hayden are the primary jurisdictions within the ASCZs and noise contours. Properties under the jurisdiction of the City of Coeur d'Alene are within Zone 4 beyond Runway End 01, and properties under the jurisdiction of the cities of Coeur d'Alene, Dalton Gardens, Hayden Lake, Post Falls, and Rathdrum are within Zone 6. Most types of development are compatible with aircraft operations that commonly occur in Zone 6.

Single-family residential properties are located in Zone 4 beyond Runway End 01. It is recommended that the Airport work with the City of Coeur d'Alene to discourage increasing residential densities in Zone 4 beyond Runway End 01.

Jurisdictions with properties in Zone 6 are evaluated for stadiums, large gathering areas, schools, hospitals, and nursing homes per WSDOT Guidebook recommendations. Two schools and one daycare center are located in the City of Coeur d'Alene at the southern edge of Zone 6. This area of Zone Six represents the traffic pattern for aircraft performing touch and go operations on Runway 01-19. The schools are located outside of the 55 DNL noise contour. Potential land use compatibility issues were not identified in the other jurisdictions in Zone 6.

Hospitals in the region are located along Interstate 90, outside of the noise contours and ASCZs. Land use compatibility issues between existing hospitals and aircraft operations are not anticipated.

The 2008 65 DNL contour is contained to properties within the jurisdictions of the City of Hayden and Kootenai County. The 2008 55 DNL contour passes over the Atlas-Prairie and Ramsey-Woodland neighborhoods in the City of Coeur d'Alene, which include existing single-family residential properties, and undeveloped properties zoned for single-family residential land use. The 2007 Coeur d'Alene Comprehensive Plan (Coeur d'Alene Plan) does not mention COE in the land use chapter concerning with the Atlas-Prairie and Ramsey-Woodland neighborhoods. It is expected that these neighborhoods will experience aircraft overflight.

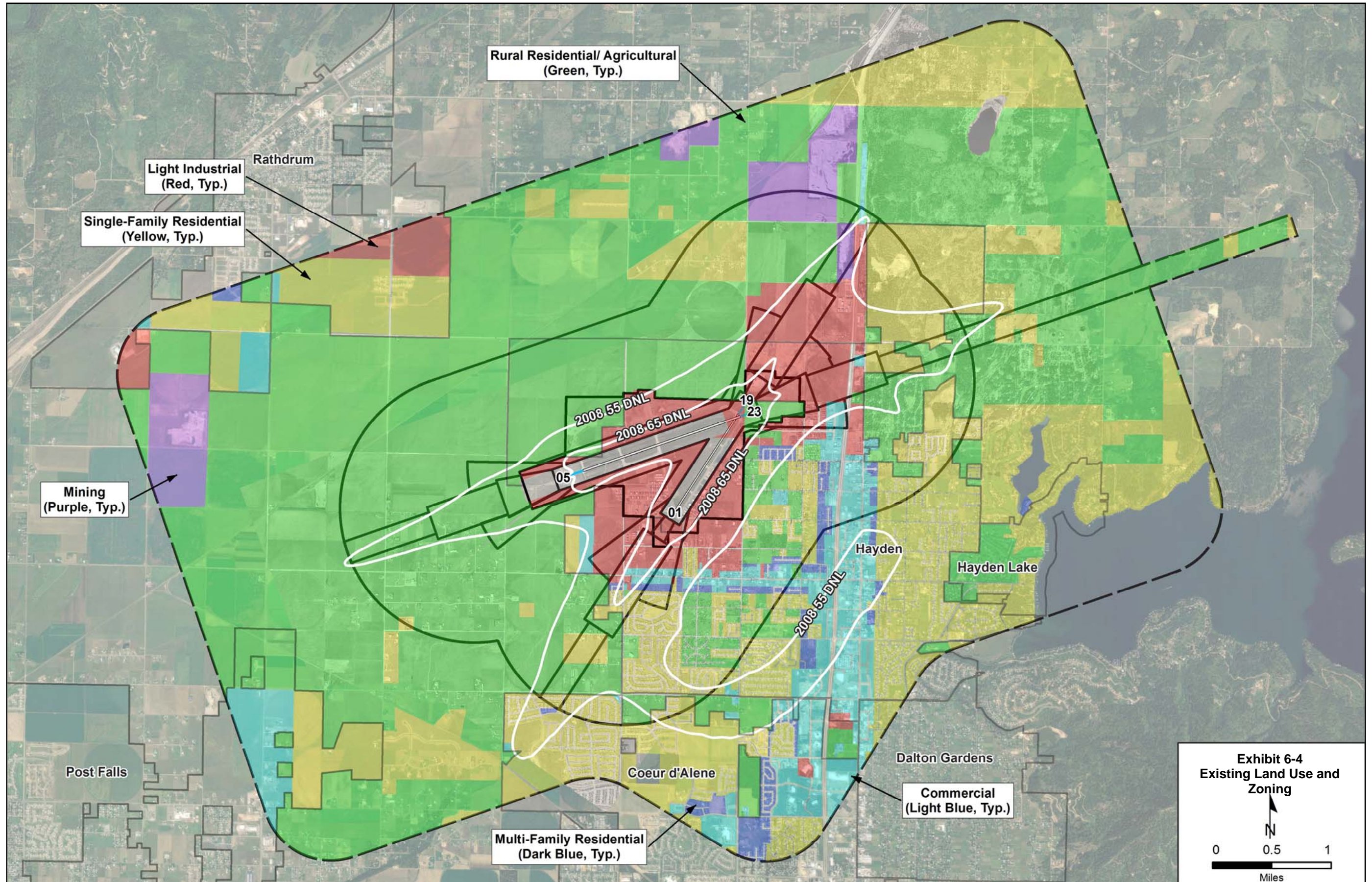
### 4.4 Existing Land Use Summary

A summary graphic of zoning in Kootenai County, the City of Hayden, and other jurisdictions is presented in **Exhibit 6-4**.



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## 5. Planned Land Use

Comprehensive plans represent a community's vision of development. Comprehensive plan land use designations are not legally enforceable land use controls like zoning designations; however, communities generally verify comprehensive plan compliance when considering rezoning. Review of comprehensive plan land use maps helps identify land use incompatibility before development occurs. This section will help the Airport and local jurisdictions identify potential conflicts before they occur, facilitating land use compatibility planning for the benefit for aviation and municipal stakeholders.

Comprehensive plan land use maps reviewed do not include location information for proposed schools, stadiums, hospitals, and nursing homes. Per WSDOT Guidebook land use compatibility strategies, it is recommended that the ASCZs and 2028 noise contours are considered when siting these facilities.

### 5.1 Kootenai County

Planned land use in Kootenai County comes from the Kootenai County Comprehensive Plan (Kootenai Plan), adopted in December 2010. During the development of the Kootenai Plan, the Airport provided Kootenai County with two technical memos that reviewed the draft plan elements with respect to the Airport. These memos are included in **Appendix B**.

The Airport master plan process is identified in Kootenai Plan Goal LU-24, which expresses Kootenai County's intent to "support the adopted Coeur d'Alene Airport Master Plan by providing for land uses that are compatible with aircraft noise, approach zones, and operation activities and protect the health, safety, and welfare of the general public." Policies and implementation strategies of Goal LU-24 include coordinating development regulations with Hayden, promoting compatible development, discouraging incompatible development, and considering guidelines proposed by the Airport Master Plan.

The Kootenai Plan designates land to the north and south of COE as "Urban Residential" and "Rural Residential." Much of this land is zoned as "Agricultural," and the Kootenai Plan suggests that this area will transition from farmland and agricultural uses to single-family housing. Properties planned for transition are mostly in Zone 6, which is compatible with single-family residential development. It is recommended that properties within Zone 4 remain at existing density, as these properties are likely to experience more frequent overflight than those in Zone 6.

Land east of the Airport is planned to become "Rural Residential." Elevated terrain in this area will reduce the vertical separation between aircraft approaching and departing Runway End 23 and the ground, potentially increasing noise exposure. Kootenai Plan Goal LU-13A indicates that this area is planned to remain "small-scale farms, dispersed single-family homes, and open space," which is generally compatible with Zone 4. High density single-family development should be avoided within Zone 4.

Land to the west of the Airport is planned to remain agricultural. Agricultural land uses are generally less sensitive to aircraft noise and overflight than land uses characterized by higher concentrations of people.



The 2028 65 DNL contour is contained on airport property except for beyond Runway Ends 01 and 19. Agricultural-suburban land use is planned beyond Runway End 01 which is compatible; however, these properties will experience aircraft noise. Properties beyond Runway End 19 are planned to be light industrial, with agricultural-suburban land use at the far reach of the 2028 65 DNL contour. Properties beyond Runway Ends 01 and 19 are included in the City of Hayden area of impact, which is a term used by the City of Hayden to indicate properties of interest to the City, outside of the City's jurisdiction. Development and land use plans in these areas are coordinated by an agreement between Kootenai County and the City of Hayden.

The 2028 55 DNL contour follows Extended Zone 4 beyond Runway End 23. The planned development in this area is expected to be farms and dispersed houses. Land use is planned to remain agricultural-suburban and agricultural within the 2028 55 DNL contour beyond Runway End 05. These land uses are generally compatible with aircraft operations.

## 5.2 City of Hayden

Planned land use in the City of Hayden comes from the Hayden Plan. Hayden's vision statement includes "we seek to encourage and promote light-industrial development in and around the Coeur d'Alene Airport [...]." Light industrial land use is generally compatible with airport operations, provided the land use does not generate dust, smoke, and glare.

The Hayden Plan defines the city's area of impact, which includes unincorporated areas in Kootenai County. These lands are not planned for annexation by the City of Hayden, but identified as areas that "have the potential for future development that could affect the provision of public services or the quality of life in Hayden." Development and land use plans in these areas are coordinated between Kootenai County and Hayden.

Land use implications associated with COE are addressed in Section II-C-3 of the Hayden Plan. Although the FAA considers the 65 DNL noise contour as the threshold for significant noise impacts, Hayden Plan Section II-C indicates that the City of Hayden considers the larger 55 DNL contour for determining the impact of the Airport on existing and planned development. The Hayden Plan recommends incorporating noise mitigation features during the development of properties within the 55 DNL contour.

City of Hayden goals regarding COE are addressed in Section III-M-1 of the Hayden Plan. City of Hayden goals include coordinating development near the Airport with Kootenai County, and developing and Airport Impact Area overlay zone to address height restrictions and noise mitigation strategies, and construction standards. It is expected that an updated Airport Influence Zone will be created based on and following the guidance of this Airport Master Plan.



The City of Hayden is approaching full development within existing city limits. Property within the ASCZs, indicated in the Hayden Plan for potential annexation, is designated as “Agricultural-Suburban.” The Hayden Plan residential density map indicates that properties annexed into the City of Hayden are planned to have a lot density of one to four dwelling units per acre. It is recommended that COE coordinate with the City of Hayden to promote low residential densities within Zones 2 and 4 beyond Runway End 01, Zones 2, 3, and 4 beyond Runway End 19, and Zones 3, 4 and Extended Zone 4 beyond Runway End 23 as these properties are annexed into the City of Hayden.

The 2028 65 DNL contour is within the City of Hayden on the Hayden Plan land use map. Properties are generally planned to remain light industrial beyond Runway Ends 05, 19, and 23. The 2028 65 DNL contour is contained within Zone 2, which includes existing single-family residential development. Properties in this area may experience increasing aircraft overflight as operations increase at COE. It is recommended that no additional single-family residential properties be developed within Zone 2.

The 2028 55 DNL contour extends over the City of Hayden. Properties beyond Runway End 23 may experience occasional overflight by scheduled commercial passenger aircraft when service commences at COE. It is recommended that single-family residential land uses are kept at low densities, particularly in Zones 2, 4, and Extended 4 within the 2028 55 DNL contour.

### 5.3 Other Jurisdictions

Similar to existing land use, planned land use in the cities of Coeur d’Alene, Dalton Gardens, Hayden Lake, Post Falls, and Rathdrum are within Zone 6. The City of Coeur d’Alene neighborhood within Zone 4 beyond Runway End 01 is already developed, and the Coeur d’Alene Plan does not indicate a change in land use intensity in this area.

The 2028 65 DNL contour does not impact the cities of Coeur d’Alene, Dalton Gardens, Hayden Lake, Post Falls, and Rathdrum. The 2028 55 DNL contour extends farther south into the City of Coeur d’Alene than the 2008 55 DNL noise contour as a result of the forecasted increase in activity on Runway 01-19. It is recommended that the Airport work with the City of Coeur d’Alene to consider aircraft overflight.

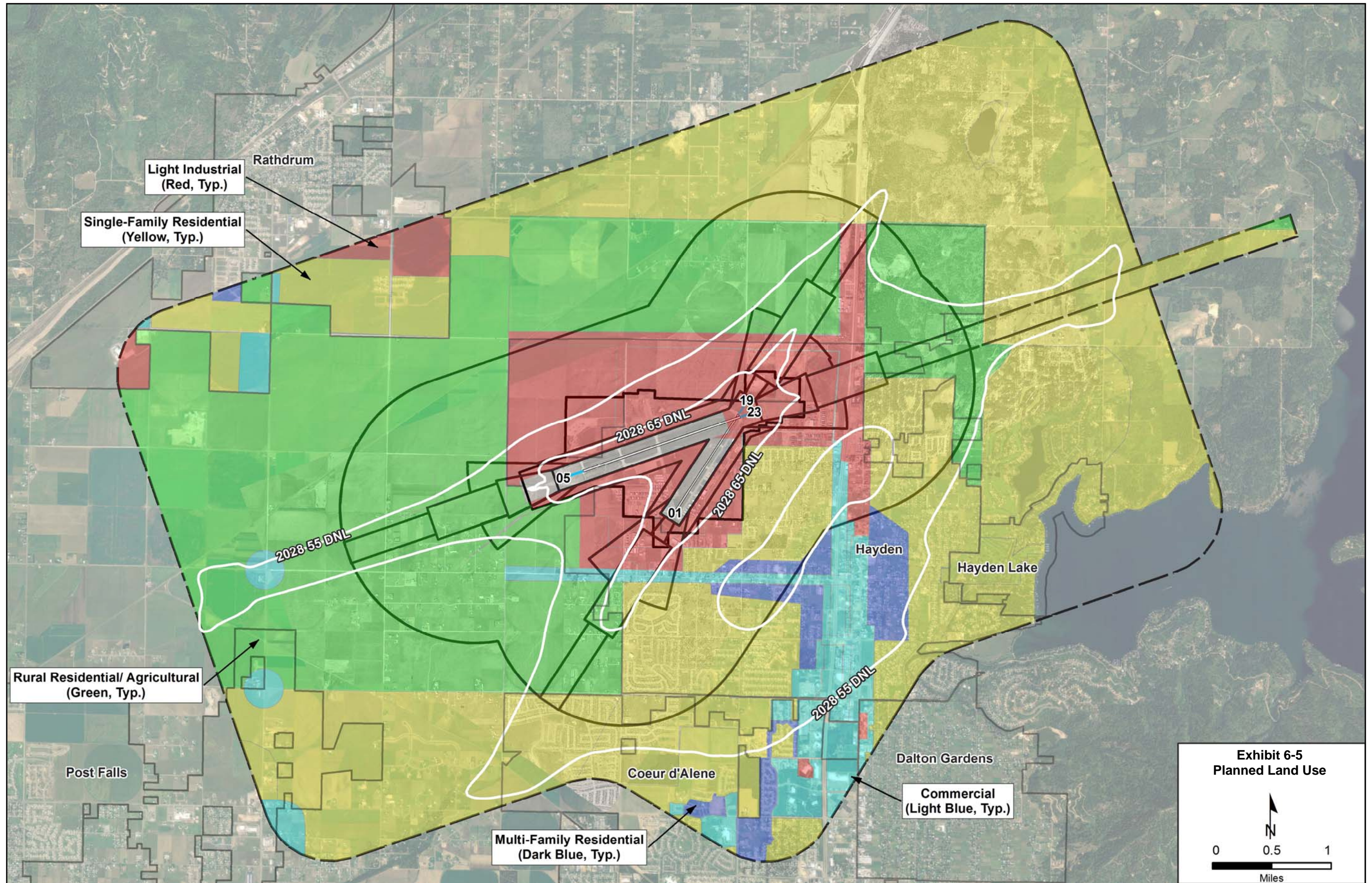
### 5.4 Planned Land Use Summary

A summary graphic of planned land use in Kootenai County, the City of Hayden, and other affected jurisdictions is presented in **Exhibit 6-5**.



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## 6. Land Use Compatibility Strategies

Airport land use compatibility addresses safety and operational viability of aircraft and airports, and the health, safety, and welfare of people that live and work near airports. The goal of land use compatibility planning is to allow airports to serve communities without infringing on community development; and vice versa.

Hazards to air navigation include structures that penetrate imaginary surfaces around airports, and land uses that produce smoke, glare, and dust that may impact runway visibility. Hazards to communities surrounding airports include aircraft noise and emissions. As indicated by the ASCZs, land use compatibility concerns are greatest near the runway ends. Land use compatibility concerns generally decrease in severity farther from the runway and away from the extended runway centerline.

Land use compatibility guidelines in the WSDOT Guidebook provide communities with a baseline for land use within the different ASCZs. The 2008 Idaho Plan includes land use compatibility guidelines for planning within noise contours, and a variation of the WSDOT ASCZs adapted from the Denver (Colorado) Regional Council of Governments guidelines. ASCZ terminology differs between the WSDOT Guidebook and the 2008 Idaho Plan; however, the methodology behind their development stems from the same source: the 2002 California Airport Land Use Planning Handbook.

### 6.1 Land Use Compatibility Recommendations

Land use compatibility recommendations for COE and the surrounding communities consider ASCZs and 2028 noise contours. Recommendations are intended to protect the Airport from encroachment by incompatible land uses while supporting growth and development in the surrounding communities.

#### 6.1.1 Overlay Zone

Airport overlay zones and airport specific zoning are two land use controls commonly employed to enhance land use compatibility. Multiple jurisdictions surrounding COE present a challenge to developing a comprehensive zoning solution that benefits all stakeholders. The 2008 Idaho Plan suggests that local governments establish a joint multi-jurisdiction airport land use planning and zoning commission to develop a zone or overlay zone with homogenous standards across multiple jurisdictions.

The 2008 Idaho Plan includes a draft airport zoning ordinance that protects the FAR Part 77 surfaces from height obstructions, and a compatible land use overlay zone, similar to those found in the WSDOT Guidebook. Kootenai County Zoning Chapter 16 includes an airport overlay zone that uses FAR Part 77 surfaces as a basis for determining height limitations.

The ASCZs assist local governments in identifying existing land use incompatibilities, and in planning for future land use compatibility. The ASCZs and the forecasted noise contours help local government site noise sensitive land uses (such as residential properties, schools, and hospitals) in locations less likely to experience overflight. This helps protect the health, safety, and welfare of citizens on the ground, and allows COE to operate at full functionality.



Existing and planned land use review identifies areas of concern beyond Runway Ends 01 and 23. Existing and planned single-family residential development in Zone 4 of this area may lead to conflict between the Airport and the community. It is recommended that residential development in this area is located in Zone 6, where it will not be subject to as much aircraft overflight.

Land use compatibility measures include attaching a notice of airport proximity to the title of the property. This will inform property owners about the Airport's existence, and what types of activity to expect.

### **6.1.2 Development Pattern**

An overlay zone with dimensions and language based on the ASCZs will help guide compatible land development around COE. General development guidelines include siting offices, retail, and light manufacturing near the Airport. Agricultural land use is preferred in Zones 1, 2 and 3, and light manufacturing is acceptable in Zones 2 and 3. Low density residential development is acceptable in Zone 4; however, it is recommended that notice of airport proximity is included on the title of these properties as they will likely experience aircraft overflight. Zone 6 is preferred for land uses considered incompatible in the other zones. Zone 6 does not see as much aircraft low altitude overflight as the other ASCZs; however, touch and go operations contribute 30 percent of annual aircraft operations, and properties in Zone 6 will be subject to aircraft overflight.

### **6.1.3 Structure Height**

Kootenai County zoning regulations near COE enforce FAR Part 77, per Idaho Statutes, Title 21, Chapter 5, *Airport Zoning Act*. Enforcement of the height restrictions contained in the Airport Zoning Act will help keep airspace near COE free of hazards to air navigation. It is recommended that the airport overlay zones of other jurisdictions include provisions to limit structure height to an altitude at or below the FAR Part 77 surfaces. The 2008 Idaho Plan suggests parcel height be limited to the maximum height allowed by existing zoning, or by the overlay zone; whichever is lower.



## 7. Summary

The following is a summary of the research and recommendations contained in **Chapter 6**.

### **Federal and State Regulations and Guidelines**

- Airport required to do all in its power to keep FAR Part 77 surfaces clear of obstructions to continue receive federal funding
- The 65 DNL contour is the federal threshold for a significant noise impact
- Statewide Airport Development Zoning is being pursued in the State legislature
- The 2008 Idaho Plan includes an appendix of land use guidelines
- The 2011 WSDOT Guidebook is the most recent land use compatibility tool in the U.S.

### **Aircraft Noise Analysis**

- Forecasted aviation activity and the introduction of scheduled commercial airline service will likely increase the size of COEs noise contours
- Flight training on Runway 01-19 extends the 2008 and 2028 55 DNL contours over the cities of Hayden and Coeur d'Alene
- Increased utilization of Runway 05-23 will increase the size of the 55 DNL noise contour
- The 2008 and 2028 65 DNL contours are compatible with existing and planned land use, except for existing single-family residential properties in the City of Hayden beyond Runway End 01

### **Airport Safety Compatibility Zones**

- ASCZs have been modified to reflect local terrain and traffic patterns. Zone 4 is extended beyond Runway End 23, and Zone 6 is expanded around the Airport
- It is recommended that land use beyond Runway End 01 be developed at low densities within Zones 2 and 4
- It is recommended that land use beyond Runway End 23 be developed at low densities within Extended Zone 4
- Most types of development in Zone 6 are compatible with airport operations; however, stadiums, large gathering areas, schools, hospitals, and nursing homes are discouraged

### **Land Use Compatibility Recommendations**

- It is recommended that the government stakeholders, primarily Kootenai County and the City of Hayden, develop a comprehensive overlay zone based on the ASCZs to support compatible land use development
- The 2008 Idaho Plan recommends a joint multi-jurisdictional airport land use planning and zoning commission to develop homogenous standards across multiple jurisdictions.
- It is recommended that local jurisdictions continue to enforce height restrictions in Idaho Statutes, Title 21, Chapter 5, Airport Zoning Act
- It is recommended that overlay zoning include the requirement of a notice of airport proximity on a properties title

