



JOINT LAND USE STUDY





JUNE 2016



This study was prepared under contract with the City of Klamath Falls, with financial support from the Office of Economic Adjustment, Department of Defense. The content reflects the views of the City of Klamath Falls and the jurisdictions, agencies and organizations participating in the JLUS program, and does not necessarily reflect the views of the Office of Economic Adjustment.



KINGSLEY FIELD JOINT LAND USE STUDY

Prepared under Contract with:



City of Klamath Falls
500 Klamath Avenue
Klamath Falls, OR 97601

Prepared by:



June 2016

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Acknowledgements

Policy Committee

The *Policy Committee* (PC) served an active and important role in providing policy direction during the development of the Kingsley Field Joint Land Use Study. The Policy Committee was composed of the following individuals:

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Technical Committee

The *Technical Committee* (TC) served a key role in the development of the Kingsley Field Joint Land Use Study. They provided the overall technical support, review, and guidance of the study. The TC was composed of the following individuals:

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Matrix Design Group was the project consultant hired to conduct the JLUS project through coordination with and assistance from the City of Klamath Falls, the PC, the TC, the public, and other stakeholders.



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Table of Contents

Acronyms	iii
1 Introduction	1
JLUS Project Overview	1
What Is A Joint Land Use Study?	1
JLUS Goal	1
JLUS Objectives	2
Why Prepare a Joint Land Use Study?	2
Regional and Local Importance	2
Military Strategic Importance	3
Local Communities Working Together	3
Stakeholders	3
Policy Committee and Technical Committee	3
Public Meetings	4
Public Outreach Materials	4
JLUS Study Area	5
2 Community Profile	7
JLUS Participating Communities	7
Study Area Growth Trends	7
3 Military Profile	9
Installation Setting	9
Kingsley Field Military Operations	9
Kingsley Field Mission Footprint	9
4 Compatibility Tools	21
Federal Programs and Policies	21
Clean Air Act	21
State of Oregon Plans and Programs	22
Oregon Air National Guard / Kingsley Field Plans and Programs	23
Local Jurisdictional Plans and Programs	23
City of Klamath Falls	25
5 Compatibility Assessment	27
Identification of Compatibility Issues	27
Methodology and Evaluation	27
Kingsley Field Compatibility Issues by Factor	27

6	Implementation Plan	33
	Implementation Plan	33
	Military Influence Areas	34
	How to Read the Implementation Plan	41
	Issues / Strategies by Compatibility Factor (Alphabetized by Factor)	43

Tables and Figures

Table 1.	Study Area Population, 2000-2010	7
Figure 1	Kingsley Field Economic Impact FY 2014.....	2
Figure 2	Kingsley Field JLUS Study Area	6
Figure 3	Forecasted Growth Trends for Klamath County	7
Figure 4	Runway Protection Zones.....	11
Figure 5	DOD Airfield Safety.....	13
Figure 6	Aircraft Noise Contours	14
Figure 7	BASH Relevancy Area (Proposed).....	15
Figure 8	FAR Part 77: Vertical Obstruction.....	17
Figure 9	Imaginary Surfaces (Proposed).....	18
Figure 10	Range Safety Zones & Munitions Storage Areas	19
Figure 11	Airfield Safety Military Influence Area	35
Figure 12	ESQD Military Influence Area	36
Figure 13	Noise Military Influence Area.....	38
Figure 14	Vertical Obstruction Military Influence Area	39
Figure 15	Military Influence Area Overlay District (MIAOD)	40
Figure 16	How to Read JLUS Strategies.....	42



Acronyms

A

AFI	Air Force Instruction
AFPD	Air Force Policy Directive
AGL	above ground level
ANG	Air National Guard
ARFF	Airport Rescue and Firefighting
ASK	Kingsley Field
ATC	Air Traffic Control
ATCS	Air Traffic Control Squadron
ATCT	Air Traffic Control Tower
APZ	Accident Potential Zone
AT	Anti-Terrorism / Force Protection

B

BASH	Bird / Wildlife Aircraft Strike Hazard
------	--

C

CAA	Clean Air Act
CATM	Combat Arms Training and Maintenance Range
CBRNE	Chemical, Biological, Radiological, Nuclear and Explosives
CDO	Community Development Ordinance
CERF-P	Enhanced Response Force Package
CL-KR	Crater Lake - Klamath Regional Airport
COM	Communication / Coordination
CZ	Clear Zone

D

dB	decibel
dBA	A-weighted decibel
dBp	peak decibels
DLCD	Oregon Department of Land Conservation and Development
DNL	Day-Night Average Sound Level
DOD	Department of Defense
DODI	Department of Defense Instruction
DOI	United States Department of Interior
du	dwelling unit

E

ED	Energy Development
EFU	Exclusive Farm Use
e.g.	for example
EPA	Environmental Protection Act
ESQD	Explosive Safety Quantity Distance

F

FAA	Federal Aviation Administration
FAR	Federal Aviation Regulation
FW	Fighter Wing

G, H

GA	General Aviation
GIS	geographic information system

I

IDP	Installation Development Plan
INRMP	Integrated Natural Resources Management Plan

J, K

JLUS	Joint Land Use Study
JUA	Joint Use Agreement

L

LCDC	Land Conservation and Development Commission
LU	Land Use

M

MIA	Military Influence Area
MIAOD	Military Influence Area Overlay District
MOU	Memorandum of Understanding

N

NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NGOs	Nongovernmental Organizations
NOI	Noise

O

ODEQ	Oregon Department of Environmental Quality
OE	Obstruction Evaluation
OEA	Office of Economic Adjustment
OFZ	Obstacle Free Zone
ONG	Oregon National Guard
ORANG	Oregon Air National Guard

P, Q

PC	Policy Committee
PL	Public Law
PM	Particulate Matter
PM _{2.5}	Particulate Matter, Fine Particles

R

REPI	Readiness and Environment Protection Integration
ROFA	Runway Object Free Area
RPZ	Runway Protection Zone
RSA	Runway Safety Area

S

SA	Safety Zones
SIPs	State Implementation Plans
SDZ	surface danger zone

T

TC	Technical Committee
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Acronyms

U

USAF	United States Air Force
UGB	Urban Growth Boundary
US	United States
USC	United States Code
USFWS	United States Fish and Wildlife Service

V

V	Vibration
VO	Vertical Obstructions

W, X, Y, Z

WQQ	Water Quality / Quantity
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Please see the next page.



Introduction

1

JLUS Project Overview

Military installations are critical to local economies, generating thousands of jobs and millions of dollars in economic activity and tax revenue annually. In the past, incompatible development has been a factor in the loss of training operations and the restructuring of mission-critical components to other military installations. To protect the missions of military installations and the health of the economies and industries which rely upon them, encroachment must be addressed through collaboration and joint planning between installations and local communities. This Joint Land Use Study (JLUS) attempts to prevent future issues and strengthen coordination between the local communities and the training programs at Kingsley Field.

Kingsley Field is located in southern Oregon, approximately 15 miles north of the California border. Kingsley Field resides within the Klamath Falls city limits in Klamath County. Kingsley Field is collocated with the Crater Lake - Klamath Regional Airport and occupies 254 acres of exclusive use land leased from the City of Klamath Falls, while sharing an additional 526 acres of joint-use land with the City of Klamath Falls.

The City of Klamath Falls and Klamath County, along with several agencies, participated as partners in this JLUS. An organized communication effort between these jurisdictions, Kingsley Field, and other stakeholder entities that own or manage land or resources in the JLUS Study Area is needed to ensure that future growth around Kingsley Field is coordinated and compatible with military training activities.

What Is A Joint Land Use Study?

A JLUS is a planning process accomplished through the collaborative efforts of a comprehensive list of stakeholders in a defined study area, with a focus on identifying compatible land uses and growth management guidelines, and adjacent to, active military installations. These stakeholders may include

local, state, and federal officials; residents; business owners; Native American tribes; nongovernmental organizations; and the military.

Encroachment refers to incompatible uses of land, air, water, and other resources that may individually or cumulatively impact the military's ability to carry out its training mission. The intent of the JLUS process is to encourage a working relationship between military installations and their surrounding communities so they can act as a team to prevent and / or reduce encroachment issues associated with current and future missions and local community growth.

Although primarily funded by the United States (US) Department of Defense's (DOD), Office of Economic Adjustment (OEA), a JLUS is produced by and for local communities. The local project sponsor for the Kingsley Field JLUS is the City of Klamath Falls.

This JLUS intends to establish and preserve long-term land use compatibility between Kingsley Field and the surrounding communities. By doing so, this JLUS will enhance protection of the health, safety, and welfare of surrounding communities and Kingsley Field. The JLUS is representative of collaboration between Kingsley Field and the local municipal governments for the purpose of planning for compatible land use, while ensuring the continued presence of the military.

JLUS Goal

The goal of the Kingsley Field JLUS is to protect the viability of current and future training operations, while simultaneously guiding community growth, sustaining the environmental and economic health of the region, and protecting public health, safety, and welfare.

JLUS Objectives

To help accomplish this goal, three primary JLUS objectives were identified.

Understanding. Convene community and military representatives to identify, confirm, and understand the issues in an open forum, taking into consideration both community and Kingsley Field perspectives and needs. This includes public awareness, education, and input organized in a cohesive outreach program.

Collaboration. Encourage cooperative land use and resource planning among Kingsley Field and surrounding communities so that future community growth and development are compatible with the training and operational missions at Kingsley Field, while at the same time seeking ways to reduce operational impacts on nearby land.

Actions. Provide a set of mutually supported tools, activities, and procedures from which local jurisdictions, agencies, and Kingsley Field can select, prepare, and approve / adopt to implement the recommendations developed during the JLUS process. The actions proposed include both operational measures to mitigate installation impacts on surrounding communities, and local government and agency approaches to reduce community impacts on military operations. The tools identified through the JLUS process will help decision makers resolve compatibility issues associated with Kingsley Field and prioritize projects within the annual budgeting process of their respective entity / jurisdiction.

Why Prepare A Joint Land Use Study?

Although military installations and nearby communities may be separated by a fence, they often share natural and man-made resources such as land, airspace, water, and infrastructure. Despite the many positive interactions among local jurisdictions, agencies, and the military, and because so many resources are shared, the activities or actions of one entity can inflict unintended negative impacts on another, resulting in conflicts. As communities develop and expand, potentially incompatible development can move closer to military installations and associated operational areas. This can create new, or exacerbate existing, land use and other conflicts. This threat to military

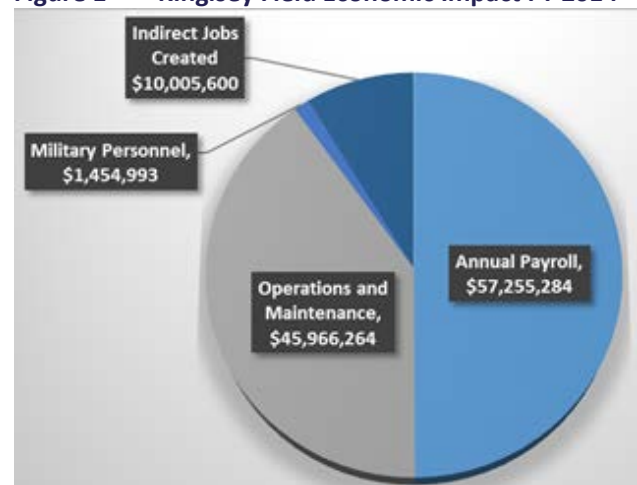
readiness activities is currently one of the military's greatest operational challenges.

Collaboration and joint planning among military installations, local communities, and agencies should occur to protect the long-term viability of existing and future military missions. Working together also enhances the health of economies and industries of the communities before incompatibility becomes an issue. Recognizing the close relationship that should exist between installations and adjacent communities, the OEA implemented the JLUS program in an effort to mitigate existing and prevent future conflicts, and to enhance communication and coordination among all affected stakeholders. This program aims to preserve the sustainability of local communities within the JLUS Study Area, while protecting current and future Kingsley Field missions.

Regional and Local Importance

Kingsley Field is located at the Crater Lake - Klamath Regional Airport, approximately seven miles southeast of the Klamath Falls city center, in south central Klamath County. Kingsley Field is an important asset to the regional economy, as it is the third largest employer in the county with approximately 1,263 military personnel and state employees, and provides roughly \$114 million to the local and regional economy through various direct and indirect activities as illustrated on Figure 1.

Figure 1 Kingsley Field Economic Impact FY 2014



Military Strategic Importance

Kingsley Field has served as a training site for the Oregon Air National Guard (ORANG) since 1971 and provides support for both the ORANG and the nation's military. For the State of Oregon, the National Guard is a vital asset that can be called upon by the Governor to help respond to natural and man-made disasters or events within the state. For the United States, Kingsley Field's federal mission is to provide the best air-to-air combat pilots, intelligence specialists, and healthcare professionals.

Local Communities Working Together

The benefit of Kingsley Field extends beyond the financial impact flowing through the community. Volunteerism at the base is institutionalized and expected from every service member. The following are some examples of programs and outreach that Kingsley Field provides to the community:

- The 173 FW invites the Boy Scouts and local schools to visit and tour the base. Unit members also work with schools and coach youth teams.
- An open house and training exercise, Sentry Eagle, returned in August 2015 after being cancelled in 2011 due to sequestration. The gates are opened to the public to educate the community on daily base activities.
- Unit members participate in community charity events and parades, volunteer at food banks and nursing homes, and organize holiday toy drives and fundraisers.
- The 173 FW Security Forces Squadron shares resources with the Klamath Falls Police Special Weapons and Tactics (SWAT) Team.
- Members of the Kingsley Field Fire Department train with the Klamath County Fire Department.
- The 114th Fighter Squadron hosts the Fighter Pilot for a Day program, which brings children to the base to experience "a-day-in-the-life" of a Kingsley pilot.

- Members of the 173 FW work with the Klamath County Chamber of Commerce to share the success they have had using Public-Public Public-Private (P4) partnerships.
- The 173 FW Speakers Bureau program provides presentations for various groups, updating them with the latest information regarding Kingsley Field and the U.S. Air Force Public Outreach.

The JLUS process was designed to create a locally relevant plan that builds consensus and obtains support from the various stakeholders involved. To achieve the JLUS goal and objectives, the JLUS process utilized a stakeholder and public outreach program that included a variety of opportunities for interested parties to contribute to its development.

Stakeholders

An early step in any planning process is the identification of stakeholders. Stakeholders include individuals, groups, organizations, and governmental entities interested in, affected by, or affecting the outcome of the JLUS project. Informing and involving them early in the process is instrumental in identifying their compatibility issues so they can be resolved through the development of integrated strategies and measures. Stakeholders identified for the Kingsley Field JLUS include, but were not limited to:

- Local jurisdictions (Klamath County and Klamath Falls);
- ORANG and DOD officials;
- Local, regional, and state planning, regulatory, and land management agencies;
- Federal agencies with resource or land management responsibilities in the Study Area;
- The public;
- Environmental advocacy organizations; and
- Nongovernmental organizations (NGOs).

Policy Committee and Technical Committee

The development of the Kingsley Field JLUS was guided by two committees, made up of city, county, state, and federal agencies, Kingsley Field personnel and ORANG, resource agencies, and other stakeholders.

JLUS Policy Committee (PC). The PC consisted of elected officials from participating jurisdictions and military installation leadership. The PC was responsible for the direction of the JLUS, preparation and approval of the study design, approval of policy recommendations, and approval of draft and final JLUS documents.

Technical Committee (TC). Membership on the TC included area planners, military base planners, business and development community representatives, and other subject matter experts as needed. The TC was responsible for identifying and studying technical issues, providing feedback on report development, and assisting in the development and evaluation of implementation strategies and tools. Items discussed by the TC were brought before the PC for consideration and action.

The PC and TC served as liaisons to their respective stakeholder groups. PC and TC members were charged with conveying committee activities and information to their organizations and constituencies and relaying their organization's comments and suggestions to both committees for consideration. PC members were encouraged to set up meetings with their organizations and / or constituencies to facilitate this input.

Public Meetings

In addition to the PC and TC meetings, several public workshops were held throughout the development of the JLUS. These workshops provided an opportunity for the exchange of information with the greater community, assisted in identifying the issues addressed in the JLUS, and provided input on proposed strategies. Each workshop included a traditional presentation and a facilitated exercise to provide a "hands on," interactive opportunity for the public to participate in the development of the plan.



Photo from the Kingsley Field JLUS Public Meeting 2, October 5, 2015

Public Outreach Materials



JLUS Overview Fact Sheet: At the beginning of the JLUS project, a fact sheet was developed describing the JLUS program, objectives, methods for the public to provide input into the process, an overview of the 25 compatibility factors that would be analyzed

throughout the project, and the proposed Kingsley Field JLUS Study Area. This fact sheet was made available at the public workshops, as well as posted on the website for download.



Strategy Tools Brochure:

The Strategy Tools Brochure was prepared for the second public workshops. JLUS strategies constitute a variety of actions that local governments, military installations, agencies, and other stakeholders can take to promote compatible

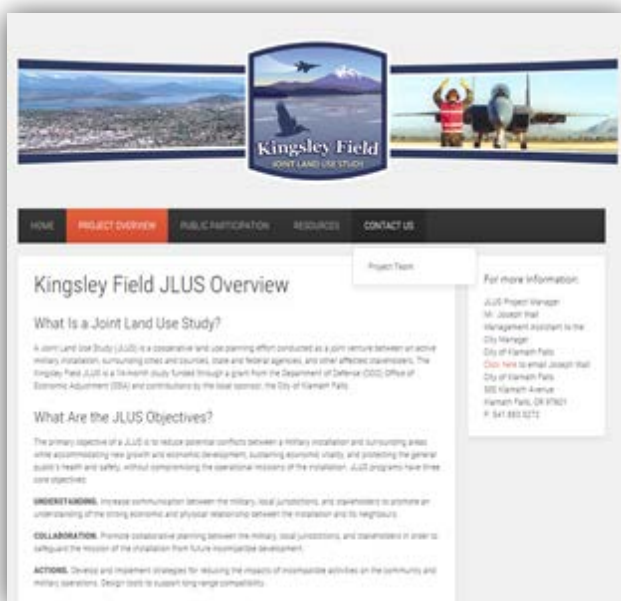
land use planning. This brochure provides an overview of the strategy types that could be applied to address compatibility issues around Kingsley Field.

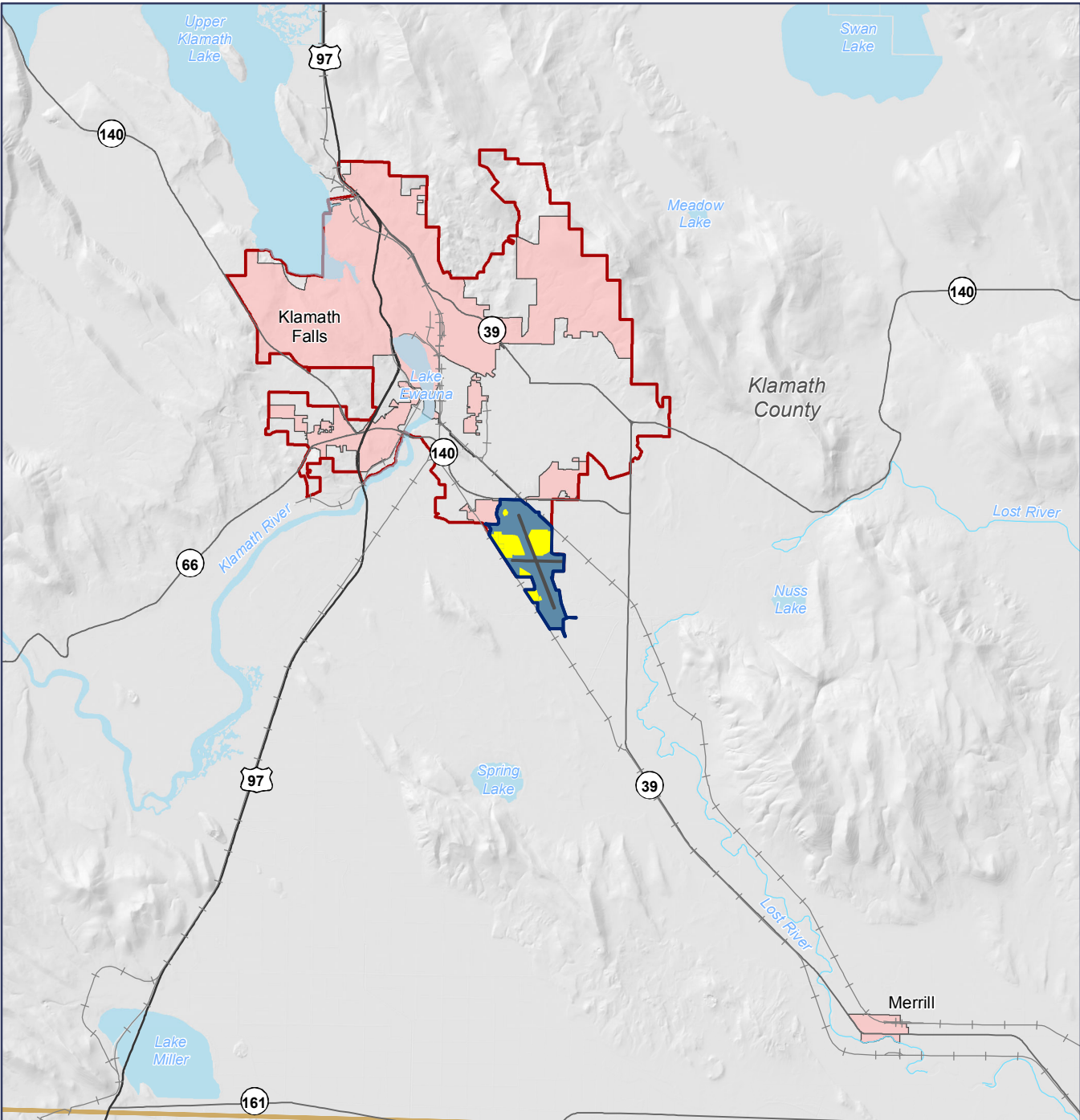
Website: A project website was developed and maintained to provide stakeholders, the public, and media representatives with access to project information. This website was maintained for the entire duration of the project to ensure information was easily accessible. Information on the website included program points of contact, schedules, documents, maps, and public meeting information. The website included features that allowed individuals to sign up for email notifications and project updates and submit comments electronically. The project website is: www.kingsleyjlus.com.

JLUS Study Area

The Kingsley Field JLUS Study Area, as depicted on Figure 2, is designed to address all lands near Kingsley Field, where uses and activities may impact current or future military operations or where such uses and activities may be impacted by Kingsley Field operations.

The primary characteristics used to determine the extent of the Study Area included various compatibility factors such as heights of structures that may impact aircraft operations; safety associated with aircraft landing zones and the small arms firing range; and noise and vibrations associated with aircraft activities.





Legend

- | | | |
|------------------------|-----------------|----------|
| Kingsley Field | Water Body | Railroad |
| CL-KR Airport | River | Runway |
| Incorporated Community | Federal Highway | |
| Urban Growth Boundary | State Highway | |
| State Boundary | | |

Source: Kingsley Field ANG, 2015.

0 1 2 3 Miles



Figure 2
Kingsley Field JLUS Study Area



Community Profile

2

JLUS Participating Communities

The Kingsley Field JLUS participating communities included Klamath County, the City of Klamath Falls, and several agencies. The agencies included but are not limited to Crater Lake – Klamath Regional (CL-KR) Airport, Oregon Department of Land Conservation and Development (DLCD), and Oregon Department of Environmental Quality (ODEQ). While this is a rural area in Oregon, it is important to characterize the communities individually to assist in the understanding of the community activities outside the fence line that can impact the military operations inside the fence line.

Study Area Growth Trends

The following section provides a profile of the Study Area's population and economic growth trends. This information assists in setting the regional context and growth potential for the JLUS Study Area.

Population

Population data is based on the 2010 data provided by the US Census. Population numbers show the growth or decline of people in a geographical area. Population is a major factor for the economy of the Study Area and ultimately supports employment and housing opportunities. The following information provides a comparison of the changes in population in the Kingsley Field JLUS Study Area from 2000 to 2010.

The population figures represent the permanent population in the Study Area, but do not consider the temporary population surges associated with the tourism industry and migration from seasonal employment or transient workers in the Klamath Falls metropolitan region. Table 1 shows the 2000 and 2010 census totals and percent change in populations of jurisdictions within the JLUS Study Area.

Table 1. Study Area Population, 2000-2010

Jurisdiction	2000	2010	Number Change	Percent Change
State of Oregon	3,421,399	3,837,300	415,901	12.2%
Klamath County	63,893	66,505	2,612	4.1%
City of Klamath Falls	20,025	20,840	815	4.1%

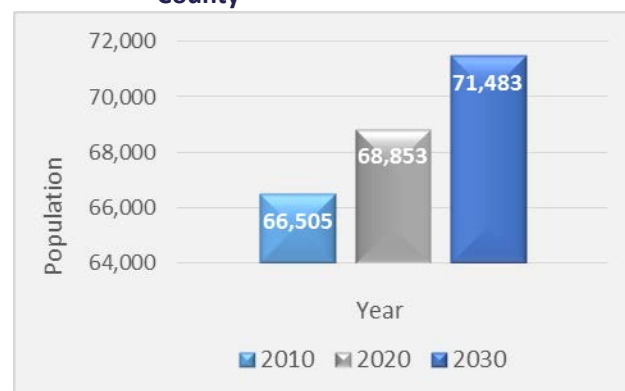
Sources: 2000 - 2010 US Census

Future Population Projections

Population projections for Klamath County from 2010 to 2020 and 2020 to 2030 is consistent with the four percent growth rates experienced from 2000 to 2010, with estimated 3.5 and 3.8 percent increases being predicted for 2020 and 2030, respectively. This suggests that growth in the county is expected to maintain a conservative but steady course through 2030.

The US Census population projections for Klamath County through the year 2030 are shown on Figure 3.

Figure 3 Forecasted Growth Trends for Klamath County



Sources: Oregon Office of Economic Analysis, 2000, 2010 Housing Trends

Economic Growth Trends

Oregon is the only state in the nation that is dependent mostly on trade. Timber, agriculture, and fishing have been the traditional resources for the area. However, over the past three decades, the state has been transitioning from a resource-based economy to a marketing and mixed manufacturing economy.

The top employment sectors for Klamath County and Klamath Falls is the educational, health care, and social assistance sector, with over 20 percent of the workforce in the category.

Manufacturing is one of the top three sectors, and JELD-WEN, Inc. is reported as being the largest private sector employer in the county, with approximately 1,200 employees. According to the South Central Oregon Demographic Report for 2013, there were approximately 4,703 employees between federal, state, and local government departments in Klamath County.

Klamath Falls also supports various professional services, with emphasis on outdoor recreation and tourism. The second largest sector is the arts, entertainment, recreation, accommodation, and food sector, which employed an estimated 1,193 personnel in 2013.

Sky Lakes Medical Center is the largest employer in Klamath Falls, followed by the Klamath Falls City School District. Kingsley Field is the third largest employer in the area, employing approximately 1,263 military and state personnel. Other major employers in the area include JELD-WEN, Inc., Collins Products, Columbia Forest Products, NEW Corp, Klamath County School District, and the Oregon Institute of Technology.

Ultimately, the county and city have continuously diversified their economies in the past several decades, which provide multiple amenities for the jurisdictions residents and visitors to the area.



Military Profile

3



173 FW jet at Kingsley Field

Installation Setting

Kingsley Field is located south of State Highway 140, and west of State Highway 39 in southern Oregon, approximately 15 miles north of the California border, providing a convenient link to military bases on the west coast. It is situated within the southern portion of Klamath Falls city limits in Klamath County. The installation is located in a primarily rural area characterized by agriculture farmland and forests. A couple of unincorporated communities including Midland and Keno are also found near the installation.

Klamath Falls is located in Oregon's high desert. It has a dry, hot summer and a cold, snowy winter, with low annual precipitation. It is also located near an active fault network that has caused several recorded earthquakes in the last 10 years.

The base is located on 254 acres of exclusive use land at Crater Lake - Klamath Regional (CR – KR) Airport that is leased from the City of Klamath Falls and shares an additional 526 acres of joint use land with the City. There are 70 buildings totaling approximately 500,000 square feet. The 173rd Fighter Wing (173 FW) has a lease with the City that expires in 2045 and an Airport Joint Use Agreement (JUA) associated with the areas shared with the City that expires in 2023.

Kingsley Field Military Operations

According to Kingsley Fields 2015 installation development plan, Kingsley Field currently has 26 primary aircraft authorized, with a total of 33 jets in inventory. Included in this inventory are 27 F-15 Eagles, which is a twin-engine, all-weather tactical fighter. The maneuverability, acceleration, avionics, electronic system, and weapons capabilities all contribute to making this aircraft a superior airframe for air-to-air combat. This aircraft is designed to detect, acquire, track, attack and outfight any enemy aircraft.

There are two aircraft training exercise periods scheduled every day between the hours of 9:00 am and 11:00 am, and 1:00 pm and 3:00 pm. The number of aircraft engaged during routine daily missions typically involve between eight and 12 aircraft per training period. Training periods may include as many as 50 aircraft when factoring in additional transient aircraft and special events, such as Sentry Eagle. Night training occasionally takes place at the base, which usually eliminates the need for a morning period. The night training period begins at sunset and ends four hours later.

The 173 FW's mission is to produce the best air-to-air combat pilots, intelligence specialists, and healthcare professionals and serve the state and nation in times of peace and war. The Wing's vision is to have citizen soldiers build a world class training center to serve the community, the State of Oregon, and the nation.

Kingsley Field Mission Footprint

Primary operations at Kingsley Field include flight training, aircraft testing, and disaster response. Several operational footprints are associated with these activities. These footprints are either tangible, meaning that they are physically seen and / or heard, or intangible, meaning that they exist without being seen or heard. One example of a tangible footprint is noise associated with aircraft activity; one example of an intangible footprint is the flight path taken by an

aircraft. A person can see a plane in the sky and see it moving, but cannot necessarily see the path it has taken or see where it will continue. These tangible and intangible footprints comprise the overall mission footprint. Oftentimes, the footprint is not contained within the confines of the military installation; noise, for example, does not stop at the fence line. The mission footprint can potentially affect areas adjacent to or near the installation. Conversely, activities occurring in communities near or adjacent to a military installation can potentially affect the mission footprint.

Footprints associated with the Kingsley Field mission are both localized and regional in nature.

Kingsley Field footprint elements include:

- Civilian Airfield Safety Zones
- DOD Airfield Safety Zones (future potential)
- Airfield Noise Contours
- Bird and Wildlife Air Strike Hazards (BASH)
- Part 77 Vertical Obstructions
- Imaginary Surfaces
- Airfield Approach and Departure Flight Tracks
- Controlled Airspace
- Surface Danger Zone
- Munitions Storage

Maintaining and sustaining these operational footprints plays a significant role in the long-term viability of Kingsley Field and continued mission readiness of the ORANG.

Runway Protection Zones

- The purpose of the RPZ is to enhance the protection of people and property by clearing them of incompatible objects and activities. RPZs are recommended to be free and clear of high intense / dense and noise sensitive land uses. Prohibited land uses include: residences, places of public assembly, fuel storage facilities, and proposed uses that can potentially attract wildlife or generate dust or smoke.

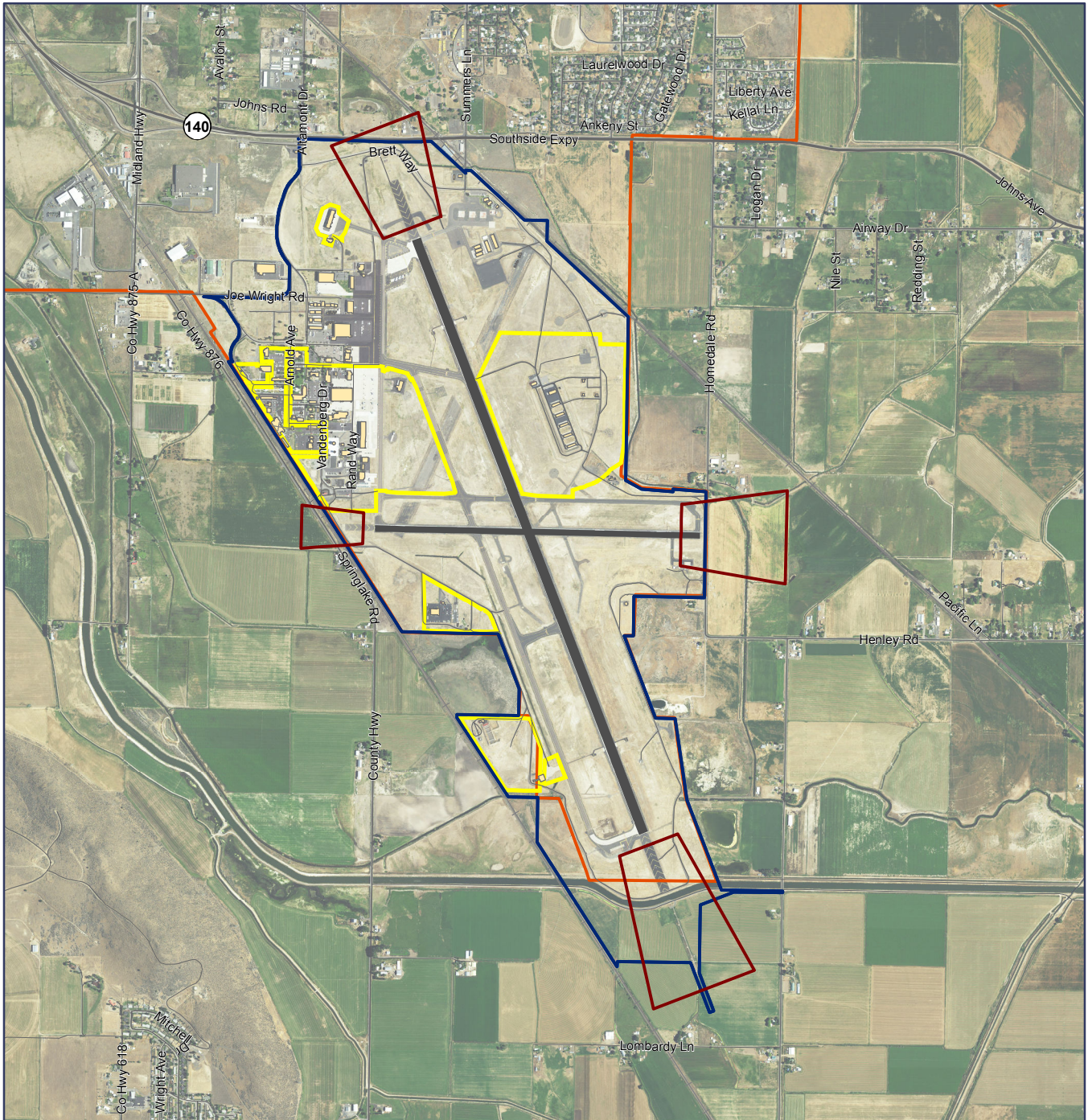
The RPZ is a trapezoidal-shaped area extending outward into the approach area beyond each runway end. Kingsley Field RPZ dimensions are based on approach visibility minimums to each runway end and the runway approach category. The Runway 14 / 32 RPZ has a 1,000-foot inner width, a 1,750-foot outer width, and a

2,500-foot length beginning 200 feet from the runway end. Approximately 27 acres extend off-airport and are currently maintained as compatible farmland. There are RPZs associated with Runway 7 / 25 that represent the approach and departure, as well as a designated potential RPZ that is associated with a future GPS-based approach with a 3/4-statute mile visibility minimum. In order to maintain the highest level of capability for future runway improvements, the largest RPZs associated with Runway 7 / 25 have been utilized in the assessments for the Kingsley Field JLUS. The RPZs are illustrated on Figure 4.

FAA / DOD Airfield Safety Zones

Kingsley Field is located at a municipally-owned / operated airport and is not subject to the more stringent DOD airfield safety zones that comprise a clear zone and two accident potential zones. Though Kingsley Field does not utilize these DOD airfield safety zones, they have been developed for the purposes of the JLUS to assist with the assessment of land use compatibility and safety. Dimensions of the APZs are defined by their length and the percentage of operations that involve Class B (large, high- performance, heavy) aircraft. Runway 14 / 32 is considered a Class B runway. While Runway 7 / 25 does not meet the minimum length of 8,000 feet or use requirements that would classify it as a Class B runway, the 3,000 feet runway expansion, proposed for Runway 7 / 25 would achieve the length required for this classification. As the runway, in its current state cannot be effectively utilized by Kingsley Field, and there are plans for expansion which could impact the future operational capacity of this runway, assessments of the DOD safety zones have been performed based on the dimensions of the future expanded runway.

Per Air Force regulations, APZs are developed to assist military and community planners in developing land uses that are compatible with airfield operations, thereby protecting health and safety. Within these zones, there are recommended types, densities, and intensities of land uses. While the likelihood of an aircraft mishap occurring is remote, the Air Force



Legend

- Runway Protection Zone (RPZ)
- Kingsley Field
- CL-KR Airport
- Building
- Urban Growth Boundary
- State Highway
- Local Road
- Railroad
- Runway



Source: Kingsley Field ANG, 2015.

0 1,000 2,000 Feet



Figure 4
Runway Protection Zones

identified APZs provide the best practical solution for public safety. The individual areas that compose the DOD airfield safety zones are:

- **Clear Zone (CZ):** A CZ is the area that begins at each end of a runway and measures 3,000 feet wide by 3,000 feet long. The center line of the zone corresponds to the center line of the runway. This is the area where an aircraft accident has the highest potential to occur (although highly unlikely) due to aircraft flying at slower speeds and lower altitudes. It is recommended that development of any type be prohibited in these areas.
- **Accident Potential Zone I (APZ I):** The APZ I is the area that begins at the end of the CZ. It is 3,000 feet wide and 5,000 feet long. The potential for an accident in the APZ I is less than that of the CZ, so some development is acceptable, but is limited to specific types with low occupancy levels.
- **Accident Potential Zone II (APZ II):** The APZ II is the area that starts at the end of the APZ I, and is 3,000 feet wide and 7,000 feet long. The potential for an accident in APZ II is less than that of the CZ and the APZ I. Some types of development are still restricted, but APZ II standards are less restrictive than the CZ and the APZ I.

Figure 5 illustrates the locations of the CZs and APZs and their interface with the local community. To protect future expansion potential, the safety zones for Runway 14 / 32 and Runway 7 / 25, are depicted on Figure 4. Due to these safety zones not being implemented at Kingsley Field, the lines on the figure are dotted indicating a proposed, recommended footprint for the airfield safety zones at Kingsley Field, to be congruent with DOD standards.

Airfield Noise Contours

Given the factors, e.g. aircraft type, frequency of operations, and type of operations, that went into modeling the noise contours at Kingsley Field, the NOISEMAP modeling program produced four DNL-based noise contours associated with the aircraft activities occurring at Kingsley Field, and are illustrated on Figure 6.

Because the sound profile is attributed to transportation / military operation, an A-weighted DNL is applied. The A weighting serves to minimize higher and lower frequencies to more truly match the sound that the human ear would hear. The noise contours are the 85 decibel (dB) DNL contour, 80 dB DNL contour, 75 dB DNL contour, 70 dB DNL contour, and the 65 dB DNL contour.

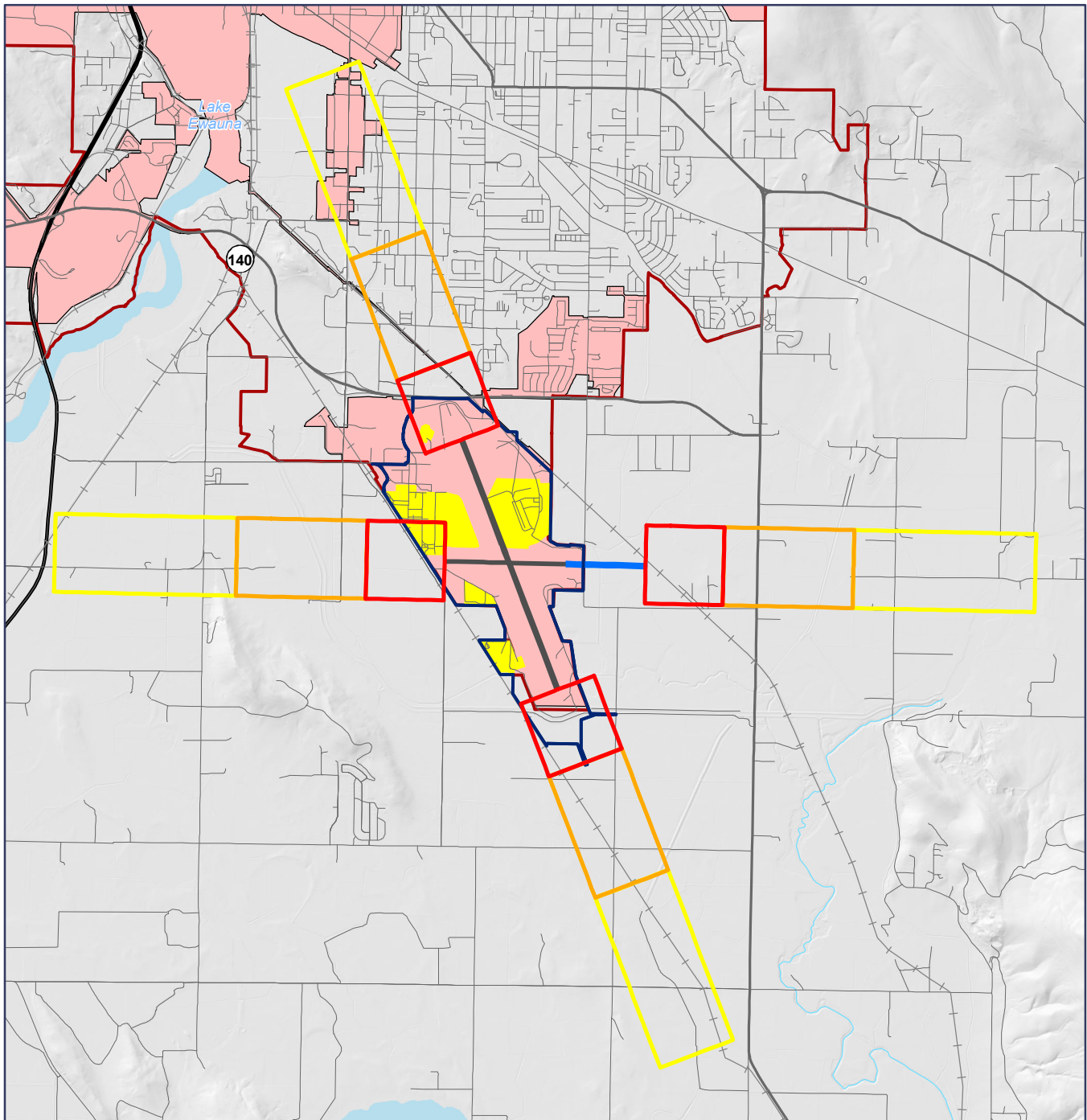
Bird Air Strike Hazard

Birds and wildlife can represent a significant hazard to military training and flight operations. Certain types of land uses attract birds and wildlife such as standing water and grasslands. While there have been an insignificant number of fatalities associated with bird air strike hazards (BASH) in the past 30 years, the concern associated with BASH is the significant amount of damage a BASH incident can cost the federal government. Since fiscal 1985, the Air Force has spent more than \$820 million repairing aircraft damaged by collisions with birds.

The BASH Relevancy Area illustrated in Figure 7 shows the FAA five-statute mile around the air operations area that has been studied as having a high risk profile associated with aircraft collisions with birds and wildlife due to aircraft flying at lower altitudes and slower speeds. The FAA also identified that birds usually fly in the area from ground level upwards to 3,500 feet above ground level (AGL).



Birds seen in the vicinity of Kingsley Field



Legend

Accident Potential Zone	Kingsley Field	Federal Highway
CZ	CL-KR Airport	State Highway
APZ I	Klamath Falls	Local Road
APZ II	Urban Growth Boundary	Railroad
	Water Body	Runway
	River	Proposed Runway Extension

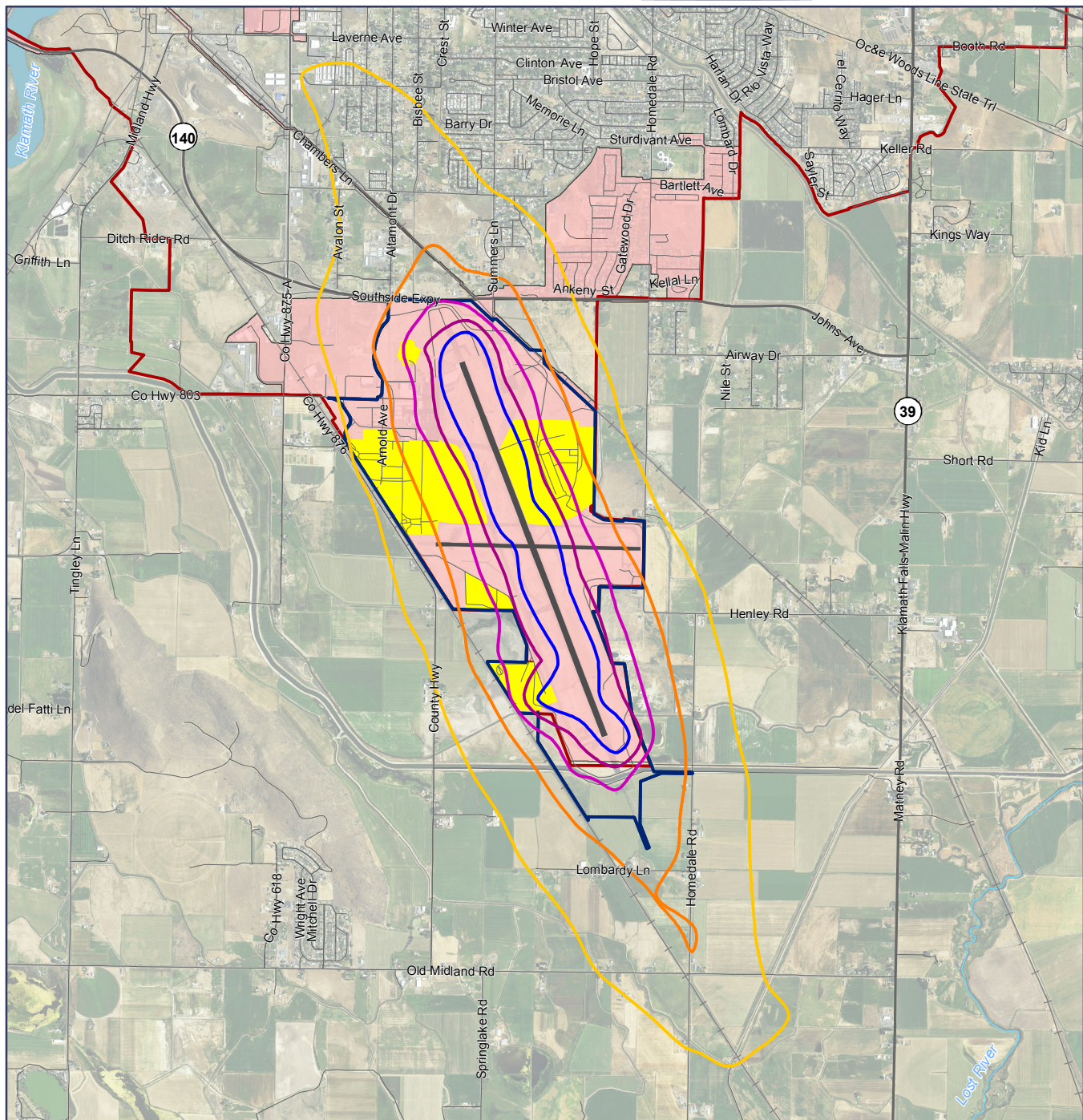
Note: The proposed runway is not to scale.
Source: Matrix Design Group, 2015.



0 1/2 1 Miles



Figure 5
DOD Airfield Safety



Legend

- Noise Contour (dB DNL)**
- 65
 - 70
 - 75
 - 80
 - 85
- Other Features:**
- Kingsley Field
 - CL-KR Airport
 - Klamath Falls
 - Urban Growth Boundary

- Water Body**
- River
- Transportation**
- State Highway
 - Local Road
 - Railroad
 - Runway



Source: Oregon Air National Guard, 2015.

0 1/2 1 Miles



Figure 6
Aircraft Noise Contours

Vertical Obstructions

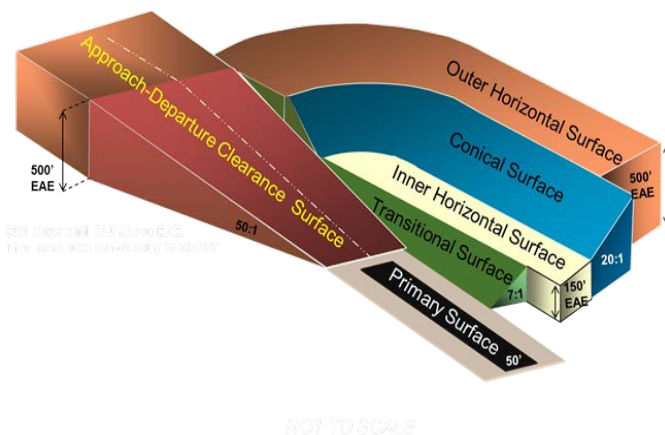
As of January 29, 2013, the main focus of Part 77.17 is to establish standards to determine obstructions within navigable airspace, typically within a certain distance from an airport or airfield. It defines an obstruction to air navigation as an object that is of greater height than any of the following heights or surfaces in the following manner:

- A height of 499 feet AGL at the site of the object.
- A height that is 200 feet AGL or above the established airport elevation, whichever is higher, within 3 nautical miles of the established reference point of an airport, excluding heliports, with its longest runway more than 3,200 feet in actual length. This height increases in the proportion of 100 feet for each additional nautical mile of distance from the airport up to a maximum of 499 feet, as illustrated on Figure 8.

Airfield Imaginary Surfaces

To reduce the potential for accidents surrounding an airfield, a series of imaginary surfaces are employed around the perimeter of the entire airfield to regulate heights of man-made or natural structures and protect and preserve navigable airspace.

The imaginary surfaces that help to define acceptable height limits are established by the DOD, according to military department and runway type, i.e., Class A versus Class B. Kingsley Field Imaginary Surfaces are illustrated on Figure 9.



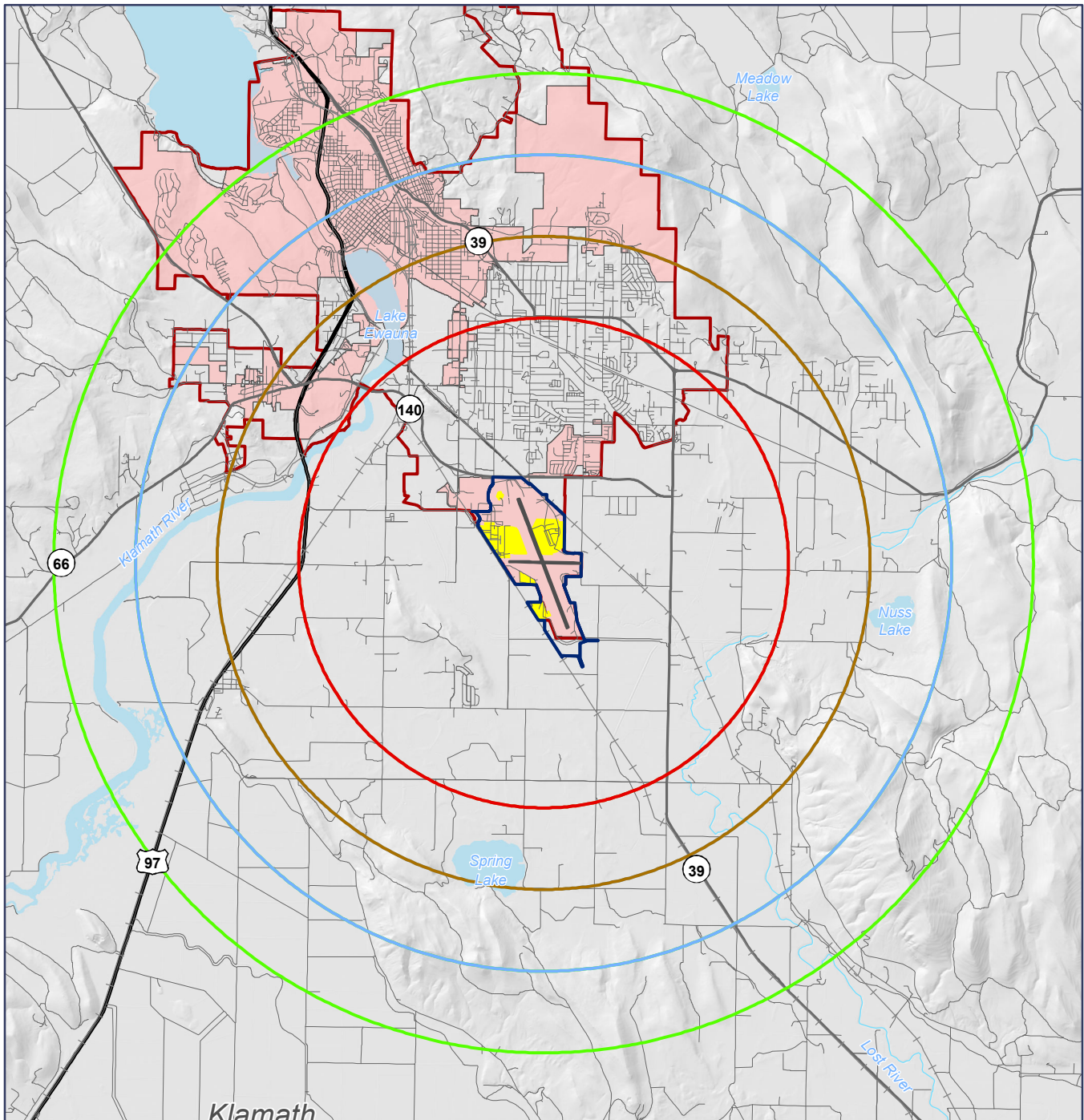
Surface Danger Zone

While Kingsley Field is an installation that provides numerous aviation capabilities, another capability and asset of Kingsley Field is the Combat Arms Training and Maintenance (CATM) Range. Currently, this is a partially contained outdoor range that is not utilized often. The range is utilized approximately five times per month by Security Forces and Shooting Team personnel. The requirement for the partially contained range is for the military to control 50% of the surface danger zone (SDZ) distance, which extends 7,874 feet from the firing line. The recent Installation Development Plan for Kingsley Field indicates that currently only 1,000 feet is controlled. The footprint associated with the SDZ is illustrated on Figure 10.

The SDZ's purpose is to allow for a safe, unobstructed area for which debris from weapons fired can land without cause for concern or impacting or causing damage to other properties or persons.

Munitions Storage

There are explosive safety zones at Kingsley Field in which munitions are stored. There is a 1,250 foot Explosive Safety Quantity Distance (ESQD) arc around the munitions storage area, which is in an annex at the northeast border of CL-KR Airport as illustrated in Figure 10. The ESQD arc crosses a road on the airport boundary, and the roadway must be closed when munitions are being moved. The 1,250-foot arc around the munitions storage area does go off installation and interfaces with the community. However the area that the arc mostly impacts is characterized by agricultural uses.



Legend

FAR Part 77

- Up to 200' @ 3NM
- Up to 300' @ 4NM
- Up to 400' @ 5NM
- Up to 500' @ 6NM
- Kingsley Field
- CL-KR Airport
- Klamath Falls
- Urban Growth Boundary

- Water Body
- ~ River
- Federal Highway
- State Highway
- Local Road
- Railroad
- Runway

Sources: Kingsley Field ANG, 2015; FAA, 2015.

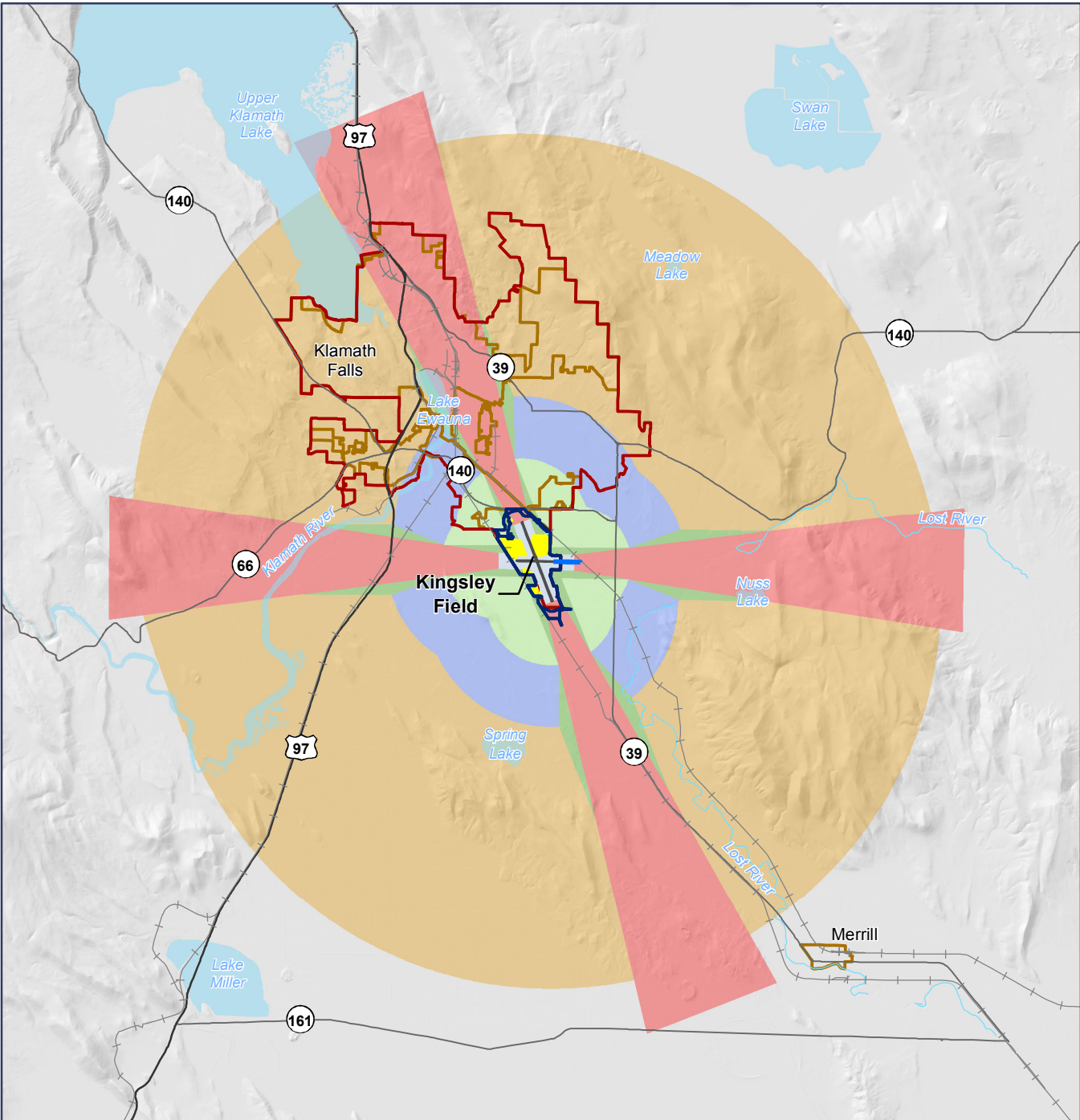


0 1 2 Miles



Matrix
DESIGN GROUP

Figure 8
FAR Part 77: Vertical Obstruction



Legend

Imaginary Surface

Primary Surface
Approach/Departure
Clearance
Surface = 50:1

Inner Horizontal
Surface = 150 ft
Conical Surface = 20:1
Outer Horizontal
Surface = 500 ft
Transitional Surface = 7:1

Kingsley Field
CL-KR Airport
Incorporated
Community
Urban Growth Boundary
Water Body
River

Federal Highway
State Highway
Railroad
Runway
Proposed Runway
Extension



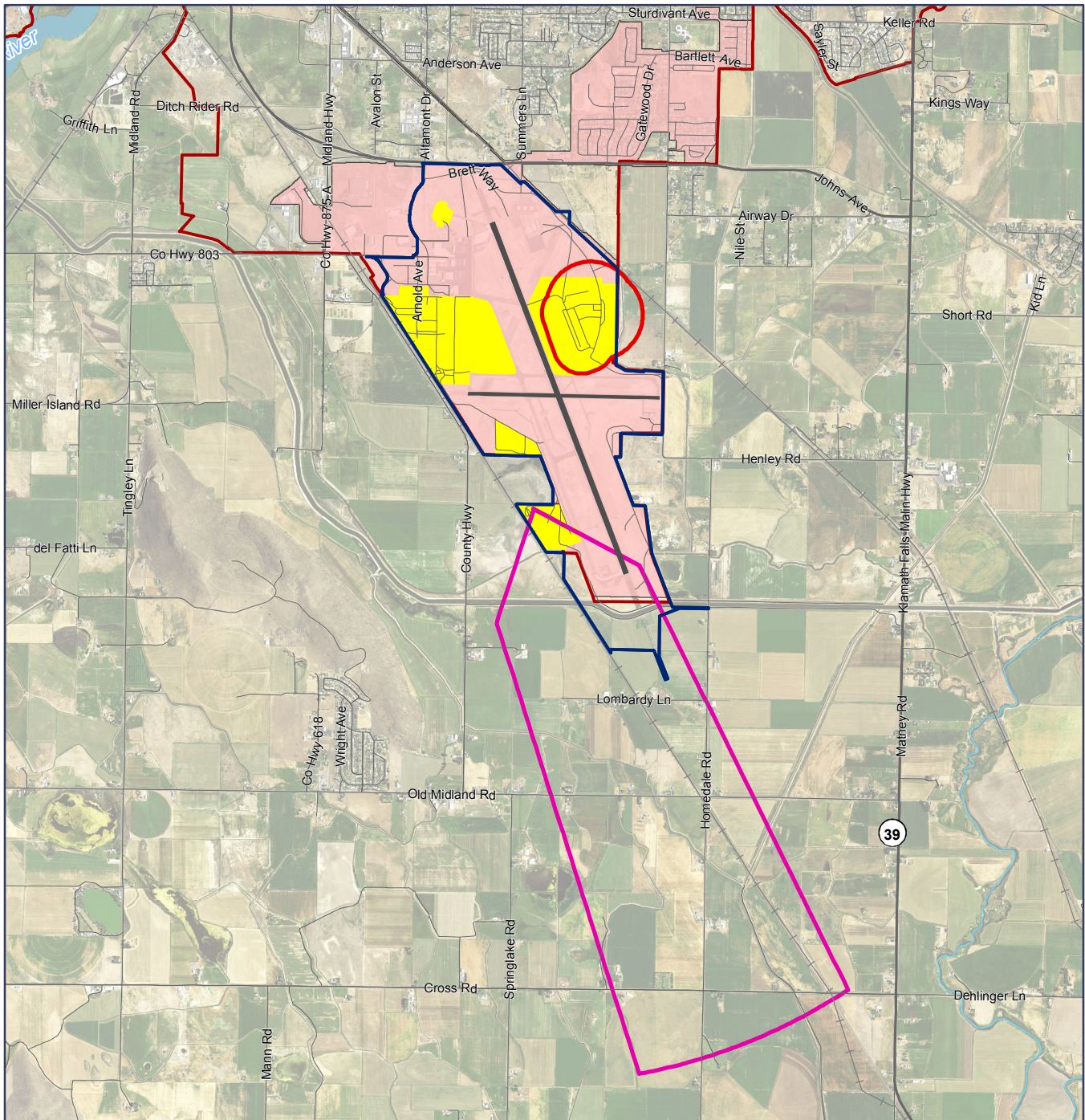
Source: Matrix Design Group, 2015. Note: The proposed runway is not to scale.

0 2 4 Miles



Matrix
DESIGN GROUP

Figure 9
Imaginary Surfaces (Proposed)



Legend

- | | | | |
|--|-----------------------|-----------------|---------------|
| Surface Danger Zone (SDZ) | Kingsley Field | Water Body | Railroad |
| Explosive Safety Quantity Distance Arcs (ESQD) | CL-KR Airport | River | Runway |
| Klamath Falls | Urban Growth Boundary | Federal Highway | State Highway |
| | | Local Road | |



Source: Matrix Design Group, 2015.

0 1/2 1 Miles



Figure 10
Range Safety Zones & Munitions Storage Areas

Please see the next page.



Compatibility Tools

4

There are many existing tools that can be used to encourage, promote, and manage compatibility between military installations and their neighboring communities. This chapter provides an overview of compatibility tools currently used or applied in evaluating and addressing compatibility issues in the Kingsley Field JLUS. Relative to compatibility planning, there are a number of existing plans and programs which are either designed to address compatibility directly or which indirectly address compatibility issues through the topics they cover.

This section lists some of the key tools that are applicable to addressing the compatibility issues identified through the Kingsley Field JLUS process. The tools listed in this section are not exhaustive, but are meant to provide a brief overview of the primary tools currently utilized in the JLUS Study Area. For a comprehensive listing of tools, see Chapter 4, Existing Compatibility Tools in the Background Report.

Federal Programs and Policies

Federal tools authorize other federal, state, and local agencies to implement regulatory measures and policies to protect the multiple resources that are involved in land use and military compatibility planning. The intent of these regulatory measures and policies includes the protection and preservation of the quality of life and general welfare of the public and natural resources including land, water, and airspace.

These tools assist land use decision makers and planners of all levels of government to make informed decisions that enable compatible land use development between the military and the communities that benefit from the military's operations.

Federal programs provide authority for state and local governments to implement actions to protect the military and the community.

Clean Air Act

The Clean Air Act (CAA) is a comprehensive federal law that regulates air emissions from stationary and mobile sources in order to control air pollution. Under the CAA, the Environmental Protection Agency (EPA) establishes limits on six criteria pollutants through the National Ambient Air Quality Standards (NAAQS). Standards are established to protect public health and welfare. The CAA also gives EPA the authority to limit emissions of air pollutants originating from sources such as chemical plants, utilities, and steel mills. Individual states may have more stringent air pollution laws, but they may not have weaker pollution limits than those set by EPA. Under the law, states have to develop a State Implementation Plan that outlines how each state will control air pollution under the CAA.

DOD Conservation Partnering Initiative

In 2003, Congress amended Title 10 U.S.C. §2684a and §2692a (P.L. 107-314), the National Defense Authorization Act, to add authority to give the Department of Defense (DOD) to partner with other federal agencies, states, local governments, and conservation based nongovernmental organizations (NGOs) to set aside lands near military bases for conservation purposes and to prevent incompatible development from encroaching on, and interfering with, military missions. This law provides an additional tool to support smart growth, conservation, and environmental stewardship on and off military installations.

DOD Energy Siting Clearinghouse

Section 358 of the 2011 National Defense Authorization Act authorized the study of the effects of new construction and obstructions on military installations and operations. The Energy Siting Clearinghouse serves to coordinate the DOD review of existing applications for energy projects. Several key elements of Section 358 include designation of a senior official and lead organization to conduct the review of energy project applications, a specific timeframe for completion of a hazard assessment associated with an

application (30 days), specific criteria for DOD objections to projects, and a requirement to provide an annual status report to Congress. This legislation facilitates procedural certainty and a predictable process that promotes compatibility between energy independence and military capability.

Federal Aviation Act

The Federal Aviation Act was passed in 1958 to provide methods for overseeing and regulating civilian and military use of airspace. The Act requires the Secretary of Transportation to make long-range plans that formulate policy for the orderly development and use of navigable airspace. The intent is to serve the needs of both civilian aeronautics and national defense, but the law does not address specific needs of military agencies. The Federal Aviation Administration (FAA) was created as a result of the Act for a variety of purposes, including the management of airspace over the US.

State of Oregon Plans and Programs

The state tools listed here authorize or mandate local counties and cities to provide for the protection of the state's valuable industries including the DOD. In addition, the state's tools require communities and developers to protect and preserve the state's natural resources, by establishing further regulatory measures to ensure the natural environment is preserved and protected from excess consumptive practices.

Oregon Statewide Planning Goals

Since 1973, Oregon's land use planning program has been focused on achieving the "19 Statewide Planning Goals". The goals act as a collective vision for the state, counties, and cities, and communicate policies on land use subjects, such as citizen involvement, housing, and natural resources. Most of the goals have associated guidelines that provide information and examples about how that particular goal can be achieved; however, following these guidelines is not mandatory.

Each city and county in Oregon is required through state law to adopt a comprehensive plan and zoning and land division ordinances that comply with the Statewide Planning Goals. Per ORS 197, Oregon's Department of Land Conservation and Development (DLCD), a branch of the Land Conservation and

Development Commission (LCDC) reviews local comprehensive plans to ensure consistency with the Statewide Planning Goals. Once a plan is officially approved, it is considered to be "acknowledged" and serves as the controlling land use planning document for that jurisdiction.

Oregon's Statewide Planning Goals also apply to special districts and state agencies. There is a strong emphasis on coordination among entities and keeping plans and programs among various local government, special district, and state agencies consistent with each other and currently acknowledged in local plans.

The 19 Statewide Planning Goals are:

- Goal 1: Citizen Involvement
- Goal 2: Land Use Planning
- Goal 3: Agricultural Lands
- Goal 4: Forest Lands
- Goal 5: Open Spaces, Scenic and Historic Areas, and Natural Resources
- Goal 6: Air, Water and Land Resources Quality
- Goal 7: Areas Subject to Natural Hazards
- Goal 8: Recreational Needs
- Goal 9: Economic Development
- Goal 10: Housing
- Goal 11: Public Facilities and Services
- Goal 12: Transportation
- Goal 13: Energy Conservation
- Goal 14: Urbanization
- Goal 15: Willamette River Greenway
- Goal 16: Estuarine Resources
- Goal 17: Coastal Shorelands
- Goal 18: Beaches and Dunes
- Goal 19: Ocean Resources

Oregon Air National Guard / Kingsley Field Plans and Programs

The Kingsley Field installation tools provide guidance for land uses and development activities on and adjacent to the installation. These tools govern land use decisions that occur inside the fence line or within the boundary of the military mission footprint in relation to current or future military missions.

These tools provide guidance and establish measures for standard operating procedures during certain events such as a bird / wildlife aircraft strike hazard condition and / or the parameters for conducting missions within the range of the complex. There are various installation tools that are instrumental in assisting and guiding land use decisions in regards to base missions.

Kingsley Field Installation Development Plan

The Kingsley Field Installation Development Plan (IDP) was published in March 2015 and provides a planning, programming, and development strategy that addresses current and future mission deficiencies and opportunities. As a planning tool, the IDP will guide the base in developing properly-configured facilities and infrastructure aligned to current and programmed mission requirements. The program addresses facility and infrastructure findings, identifies the respective mission needs, and defines prioritized solutions, ranging from current year out to twenty years, in support of the current and programmed missions.

The IDP contains the following:

- Existing conditions,
- Installation findings and program needs, and
- IDP development concepts.

Source: Kingsley Field Installation Development Plan, 2015

Integrated Natural Resources Management Plan

The Integrated Natural Resources Management Plan (INRMP) was created as a tool to ensure proper management and stewardship of all natural resources at Kingsley Field. It outlines various natural resources including threatened and endangered species and important habitat; management of noxious weeds,

grasslands, and wildland fire; wildlife and riparian management; water resources and water rights; inter-agency responsibilities and coordination efforts; and the overall management of natural resources at Kingsley Field to ensure no loss of capability for training activities. The most recent Kingsley Field INRMP was prepared in 2011, in accordance with Air Force Instruction 32-7064, Integrated Natural Resource Management, and Air Force Policy Directive (AFPD) 32-70, Environmental Quality.

Source: Integrated Natural Resource Management Plan / Environmental Assessment for Kingsley Field, 2011

Local Jurisdictional Plans and Programs

Klamath County

Klamath County Comprehensive Plan

The Comprehensive Plan Policies characterize the county's land uses, existing urban growth and community boundaries, as well as the goals and objectives of the plan.

The County's Comprehensive Plan Policy document is used to assist the county in achieving goals that are consistent with the Land Conservation and Development Commission (LCDC). To ensure consistency between Klamath County and Statewide Planning Goals, the Comprehensive Plan integrates the county's policies and objectives into the 14 goal categories utilized by the LCDC. The 14 categories include: Citizen Involvement; Land Use Planning; Agricultural Lands; Forest Lands; Open Space, Scenic and Historic Areas; Air, Water and Land; Areas Subject to Natural Disasters and Hazards; Recreation Needs; County Economy; Housing; Public Facilities; Transportation; Energy Conservation; and Urbanization.

Existing policies in under Land Use Planning, such as Policy 3, could benefit the military compatibility factor of coordination and communication by requiring the County to coordinate plans and programs with regional, state, and federal plans and policies, which includes Kingsley Field.

Land Use Planning Policy 12 requires the county to utilize the plan amendment process when requesting to change zoning on Exclusive Farm Use (EFU) and Forest zones. This can help control incompatible development around Kingsley Field, which is surrounded to the west, east, and south by large areas of EFU zoned land.

Land Use Planning Policy 13 is meant to encourage compatible development around airports, to increase public safety, through limiting residential encroachment within flight paths. This policy is limited, as lands designated as agricultural or forest lands would be required to go through the plan amendment process.

County Economy Policy 15 is meant to encourage commercial / industrial development, while maintaining a sufficient amount of land around the Crater Lake - Klamath Regional (CL – KR) Airport / Kingsley Field. The Policy's intent is to help protect public health and safety by limiting encroachment of residential development into critical areas necessary for the continued economic viability of CL – KR Airport.

The Airport / Railroad Transportation Development Zone was developed by the County as an implementation tool which restricts rezoning within this zone to commercial / industrial uses.

Source: Klamath County Comprehensive Plan, 2010

Klamath County Land Development Code

The purpose of the Land Development Code (LDC) is to implement the policies defined in the County's Comprehensive Plan.

The LDC describes the requirements for permitting, lands subdivisions, and rezoning. The permitted uses, conditional uses, and development standards for the 27 basic and the eight special purpose land use zones are described. Amendments to the LDO have been made as recently as 2015.

Klamath County's LDO includes two Special Use Zones that are specific to Kingsley Field. Details of these overlays are described below.

Article 58 of the LDC is the Airport Safety Overlay – Kingsley Field (ASK), which outlines the restrictions associated with the lands within the ASK. The zone prohibits land uses that:

- Create electrical interference with navigational signals and radio communications;
- Pose light and glare concerns for pilots;
- Impair airport visibility by means of smoke or other visual impairment;
- Attract concentrations of birds within 10,000 feet of airport;
- Attract large groups of people, or serve as places of congregation;
- Serve as residences for multiple families, groups, or single family residences that have more than one dwelling unit (du) per five acres of land.

ASK includes additional restrictions on land that is within the approach zones of Kingsley Field, including:

- Development shall be subject to a conditional use permit.
- Uses determined by the review body as attracting large groups of people shall be prohibited.
- Multifamily residences or any other group residential facility shall be prohibited.
- Single-family residences may be permitted at a density not greater than one dwelling unit per five acres, except that a dwelling may be permitted on a lot or parcel lawfully existing on November 15, 1990 regardless of the property's size.

The ASK also limits tree and structure heights to the maximums prescribed by FAA vertical obstruction zones.

Article 58.2 of the LDC is the Airport Noise Overlay – Kingsley Field (ANK), which outlines the permitted and conditionally permitted uses within this zone. The zone identifies the following land uses that are permitted or conditionally permitted within this zone:

- Areas within the 65 – 70 Ldn contours:
 - A. Permitted uses include parks, playgrounds, golf courses, riding stables, water – based recreational areas, cemeteries, industrial, and all agricultural use types in accordance with the basic zone designation.
 - B. Conditionally permitted uses include single – family and multifamily residential uses, commercial uses, civic uses, offices, lodging, and sports arenas and stadiums in accordance with the basic zone designation.
- Development provisions shall apply as conditions of approval for any residence or land division in conjunction with a conditional use permit or site plan review.
- Shall include a written statement recorded with the deed which recognizes the existence of the Klamath Falls Airport and all present and future operational activities and practices. Said statement shall incorporate a health and safety agreement of “no remonstrance / no complaint”, and the acceptance of present and future noise impacts.
- Placement of a dwelling through the conditional use permit process may be permitted on a lot or parcel created regardless of property’s size; unless, prohibited by the underlying land use zone.
- Area within the 70 and greater Ldn contours.
- Permitted uses include golf courses, riding stables, water – based recreation areas, cemeteries, industrial, and all agricultural uses in accordance with the basic zone designation.
- Conditionally permitted uses include civic and commercial uses, offices, and lodging uses in accordance with the basic zone designation.

- Prohibited uses include permanent residential, community education, religious assembly, cultural exhibits and library services, and any health care related use.

ANK requires applicants to prepare and submit a plan that provides adequate noise insulation prior to development approval. Inspection of the insulation installation is required prior to building permit approval.

Klamath County’s LDC includes restrictions that can be used to control and monitor the development of land within safety and noise zones. However, since CL – KR Airport is a municipal airport, FAA safety standards are utilized during the review of conditional use permits. Kingsley Field personnel and DOD standards are not included in the review process.

Source: Klamath County Land Development Code, 2014

City of Klamath Falls

City of Klamath Falls Comprehensive Plan

The most recent City of Klamath Falls Comprehensive Plan was completed in April 1981. It is divided into three elements: natural resources, community resources, and public facilities and services. Numerous topics are covered, including housing, transportation, land use, the economy, and more. Each topic contains history, current conditions, problems, and future alternatives, goals, policies, and implementation measures. The plan is designed as a framework for all decisions and actions relating to the community, and is intended to provide an adequate, factual base for such decisions and actions.

The Plan states that all proposed land use decisions within the city’s UGB will be consistent with the Comprehensive Plan, but most of the lands, excepting those to the north of Kingsley Field are not within the existing urban growth boundary.

The City’s Comprehensive Plan has not been updated since 1981, and does not contain information regarding Kingsley Field or any policies related to military compatibility planning.

City of Klamath Falls Community Development Ordinance

The purpose of the Community Development Ordinance (CDO) is to serve the general welfare of the City and to recognize specific, sustainable, and compatible uses for areas within its jurisdiction. The ordinance divides the land within the city into 11 base districts and 5 overlay districts. Chapter 12 describes the regulations and permitted uses for each district.

Requirements associated with light and glare, regarding military and airport compatibility planning is not addressed in the CDO.

The Airport Safety and Hazard Prevention Overlay (ASHPO) zone is an overlay zone supplementing the provisions of the underlying zone. The ASHPO zone includes the Airport Noise Impact Boundary, the Hazard Zones, the Airport Imaginary Surfaces, and the Airport. The purpose of the ASHPO is to establish safety standards to promote air navigational safety and reduce potential safety hazards for persons living, working or recreating near the CL – KRA, thereby encouraging and supporting its continued operation and vitality.

The ASHPO zone limits and restricts uses that do not meet Federal Aviation Regulation Part 77, which regulates objects that affect navigable airspace. The overlay also outlines permitted uses in the Airport Noise Impact Boundary.

A building permit application for an area within the ASHPO zone must provide the following information in addition to any other information required in the permit application:

- (1) Property boundary lines as they relate to the Airport Noise Impact Boundary, Hazard Zones, and the end of the runway.
- (2) Location and height of all existing and proposed buildings, structures, utility lines and roads.
- (3) If a height variance is requested, letters of support from the airport sponsor, the Department of Aviation, and the FAA shall be submitted with the application.
- (4) If a zone change is requested, the applicant must prove the proposed zoning is permitted within a higher Noise Impact Boundary Zone.

Due to Kingsley Field being a tenant of the airport, the associated aircraft safety zones are based on FAA regulations, not the more restrictive regulations established for DOD airfields. DOD-regulated airfields utilize clear zones and accident potential zones which impose restrictions on land uses and densities that would extend beyond the areas currently included in the ASHPO.

Klamath Falls Airport Master Plan Report

The Klamath Falls Airport Master Plan Report was finalized in December 2004. This plan outlines the airfield capabilities and operations—both civilian and military operations.

The Plan also identifies various missions the airport supports such as Firefighting and Search and Rescue; this is contracted through the ORANG: 173rd Fighter Wing. Most importantly, the Plan identifies limitations and constraints in conjunction with the airport's plan for expansion to increase additional capabilities, including runway expansion.



Compatibility Assessment

5

Identification of Compatibility Issues

Compatibility, in relation to military readiness, can be defined as achieving a balance between the needs and interests of a military installation, including its operational areas, and the communities that surround it. The goal of compatibility planning is to promote an environment where both community and military entities communicate, coordinate, and implement mutually supportive actions that allow both to achieve their respective objectives.

A number of factors assist in determining whether community and military plans, programs, and activities are compatible or in conflict with joint land uses such as community activities and military installations. For this Joint Land Use Study (JLUS), the 25 compatibility factors below were reviewed to identify, determine, and establish a set of key JLUS compatibility issues.

COMPATIBILITY FACTORS			
AQ	Air Quality	LAS	Land / Air / Sea Spaces
AT	Anti-Terrorism / Force Protection	LU	Land Use
BIO	Biological Resources	LEG	Legislative Initiatives
CA	Climate Adaptation	LG	Light and Glare
COM	Coordination / Communication	MAR	Marine Environments
CR	Cultural Resources	NOI	Noise
DSS	Dust / Smoke / Steam	PT	Public Trespassing
ED	Energy Development	RC	Roadway Capacity
FSC	Frequency Spectrum Capacity	SA	Safety Zones
FSI	Frequency Spectrum Impedance / Interference	SNR	Scarce Natural Resources
HA	Housing Availability	VO	Vertical Obstructions
IE	Infrastructure Extensions	V	Vibration
		WQQ	Water Quality / Quantity

Methodology and Evaluation

The methodology for the Kingsley Field JLUS consisted of a comprehensive and inclusive discovery process to identify key stakeholder issues associated with the compatibility factors. At the initial Policy Committee (PC) and Technical Committee (TC) workshops and public meetings, stakeholders were asked to identify the location and type of issue in conjunction with compatibility factors they thought existed today or could occur in the future. As a part of the evaluation

phase, the PC, TC, and the public examined and prioritized the extent of existing and potential future compatibility issues that could impact land within or near the Study Area. Other factors and associated issues were analyzed based on available information and similarity with other community JLUS experiences around the country.

Of the 25 compatibility factors considered, several were determined to be inapplicable to this JLUS:

- Climate Adaptation
- Cultural Resources
- Dust / Smoke / Steam
- Frequency Spectrum Capacity
- Housing Availability
- Infrastructure Extensions
- Light and Glare
- Marine Environments
- Public Trespassing
- Roadway Capacity
- Scarce Natural Resources
- Vibration

Kingsley Field Compatibility Issues by Factor

Air Quality

Air quality is defined by numerous components that are regulated at the federal and state level. For compatibility, the primary concerns are pollutants that limit visibility (such as particulates, ozone, etc.) and potential non-attainment of air quality standards that may limit future changes in operations at the installation or in the area. The following Air Quality issue was identified:

- **Nonattainment for Particulate Matter_{2.5}**
The study area is in a federal nonattainment for Particulate Matter (PM)_{2.5}.

Anti-Terrorism / Force Protection

Anti-Terrorism / Force Protection (AT) relates to the safety of personnel, facilities, and information on an installation from outside threats. Methods to protect the installation and its supportive facilities can impact off-installation uses.

■ Perimeter Security

Air National Guard has concerns over runway, taxiway, and apron security due to the number of airport and general aviation users with access to the airport and airfield.

Biological Resources

Biological resources include federal and state listed species (threatened and endangered species) and the habitats they live in or utilize. These resources may also include areas such as wetlands and migratory corridors that support these species. The presence of sensitive biological resources may require special development considerations and should be included early in the planning process. The following Biological Resources issue was identified:

■ Endangered Species (Applegate's Milk - vetch) Limiting Uses on Portions of the Installation

The largest population of Applegate's milk - vetch, within the limited region where it grows, is located around Kingsley Field with concentrations near the runways and taxiways. This causes concern regarding the balance of species protection and new mission capabilities.



Applegate's Milk-vetch – Crater Lake – Klamath Regional Airport 2013

Communication / Coordination

Communication / coordination relates to the level of interaction on compatibility issues among military installations, jurisdictions, land and resource management agencies, and conservation authorities. The following Communication / Coordination issues were identified:

■ Communication / Coordination between Jurisdictions and the Air National Guard

No formal communication process for including the airport or Kingsley Field on permitting and development applications that are on the airport's property and within the vicinity of the airfield.

■ Coordination of Multi-Jurisdictional Manuals for Joint Use Property

There is currently no formal coordination process for facilitating all jurisdictions involved in the Kingsley Field and CL-KR Airport operational footprints, (e.g., FAA, DOD, and USAF) in the development and update of operational manuals to provide equivalent standards of training within joint use areas (e. g., Airport Driving and Snow Removal Certificate Programs).

Energy Development

Development of energy sources, including alternative energy sources (such as solar, wind, or biofuels) could pose compatibility issues related to glare (solar energy), vertical obstruction (wind generation), or water quality / quantity. The following Energy Development issues were identified:

■ Alternative Energy Development

General concern over potential alternative energy development.

■ Development of Geothermal Energy near Kingsley Field

Proposed geothermal development near Kingsley Field could affect future mission expansion capabilities.



Example of a geothermal energy plant

Frequency Spectrum Impedance / Interference

Frequency spectrum impedance and interference refers to the interruption of electronic signals by a structure or object (impedance) or the inability to distribute / receive a particular frequency because of similar frequency competition (interference). The following Frequency Spectrum Impedance / Interference issues were identified:

- **Frequency Interference**
Radio transmissions from towers on KAGO Hill can interfere with aircraft communications.

Land / Air / Sea Spaces

The military manages or uses land and air space to accomplish testing, training, and operational missions. These resources must be available and of a sufficient size, cohesiveness, and quality to accommodate effective training and testing. The following Land / Air / Sea Space Competition issues were identified:

- **Existing Airfield Easements Could Be Inadequate for Ensuring Land Use Compatibility**
The terms of existing easements associated with land surrounding CL-KR Airport could be inadequate for ensuring land use compatibility.

Legislative Initiatives

Legislative initiatives include those existing and proposed federal, state, and local laws and regulations that may have a direct or indirect effect on a military installation to achieve its current or future mission. Federal, state, and local legislative initiatives are important regulatory tools to guide the actions of both local jurisdictions and the military installation. This legislation is not mutually exclusive, and as such, it fosters both parties to work together in partnership to improve operational and community sustainability objectives.

- **Oregon Department of Fish and Wildlife Policies and Bird / Wildlife Aircraft Strike Hazards (BASH)**
Oregon Department of Fish and Wildlife policies limit mitigation strategies available for BASH.

Land Use

The basis of land use planning relates to the government's role in protecting the public's health, safety, and welfare. County and local jurisdictions' growth policy plans, zoning ordinances, and subdivision regulations can be the most effective tools for preventing or resolving land use compatibility issues. These tools ensure the separation of land uses that differ significantly in character. Land use separation also applies to properties where the use of one property may impact the use of another. For instance, industrial uses are often separated from residential uses to avoid impacts related to noise, odors, lighting, etc. The Land Use issues were identified as:

- **Incompatible Land Development**
Specific land uses and increased development intensity within the Study Area have the potential to inhibit mission critical activities at Kingsley Field.
- **Explosive Safety Quantity Distance Arc Footprint Limits Civilian Airport Development**
The location and use of ORANG's munition storage and alert facilities, and AT / FP standards pose limitations to airport development.



ATCT at Crater Lake – Klamath Regional Airport

Noise

Sound is the mechanical energy transmitted by pressure waves in a compressible medium such as air. More simply stated, sound is what we hear. As sound reaches unwanted levels, this is referred to as noise. The central issue of noise is the impact, or perceived impact, on people, animals (wild and domestic), and general land use compatibility. Exposure to high noise levels can have a significant impact on human activity, health, and safety. The following Noise issues were identified:

- **Potential Future Development within the Noise Contours**

There is a potential for an increase in noise issues or complaints caused by aircraft noise from overflight due to new residents not being aware of aviation operations in the area.

- **Noise Impacts on Modular Homes**

Modular homes are perceived to have lower noise insulation construction because they are manufactured in a factory. It is suggested modular homes may be impacted by aircraft noise more than traditional homes.

- **Concentrated Air Operations**

Operations involving more than one aircraft increase the potential for noise complaints.

- **Summer Night Training**

During the summer months, nighttime air operations create additional noise concerns.

- **Commercial Dairy Farms Near the Airfield**

Commercial dairy farms may not be compatible with areas exposed to high levels of aircraft noise.



F-15 Eagle Departure from Kingsley Field

Safety Zones

Safety zones are areas in which development should be more restrictive, in terms of use and concentrations of people, due to the higher risks to public safety. Issues to consider include aircraft accident potential zones, weapons firing range safety zones, and explosive safety zones. The following Safety Zones issues were identified:

- **Explosive Safety Quantity Distance (ESQD) Arc Extends Off-Installation**

The ESQD arc extends outside of the installation boundaries onto private properties.

- **Land Uses Near the Airfield Can Increase the Incidence of Bird / Wildlife Aircraft Strike Hazards (BASH)**

Surface waters (e.g., canals, open ponds, and nature preserves), vegetation, and land uses near the airfield can attract birds which can impact air operations.

- **Surface Danger Zone (SDZ) is Not Owned by the Oregon National Guard**

Land in the SDZ associated with the Combat Arms Training and Maintenance (CATM) is not owned by the Oregon National Guard (ONG) and is subject to jurisdictional land use controls.

■ Runway Clear Zones and Runway Protection Zones Extend Outside the Airport Boundaries

Runway clear zones and runway protection zones currently extend onto private properties and traverse railroad tracks to the north and west of the airport. Plans for future runway expansion is also constrained by railroad tracks on the east side of the property.

■ Airfield Safety Zones

Because ORANG is a tenant on a civilian airport, the airfield safety zones are based on FAA commercial airfield safety zones, which create the potential for incompatible land use associated with military operations.

■ New Federal Emergency Management Agency Maps Identify Crater Lake-Klamath Regional Airport within Flood Plain

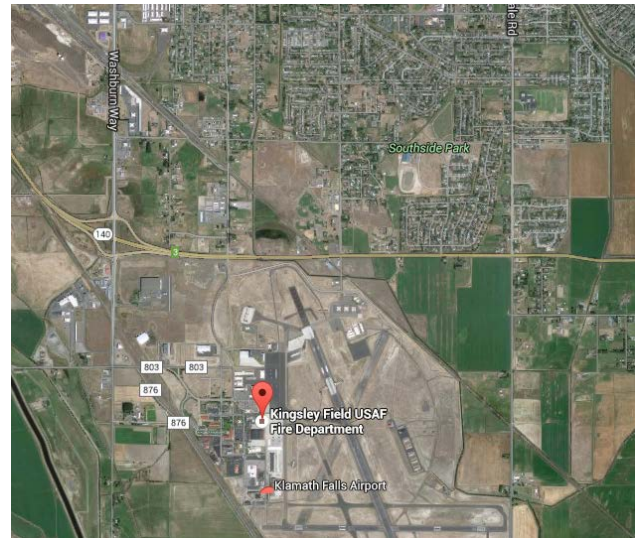
The Federal Emergency Management Agency (FEMA) is considering new maps which indicate that the CL-KR Airport is located within the 100-year floodplain. The information provided to FEMA is being updated by the Bureau of Land Management. If the hazard extends onto areas used by Kingsley Field/ORANG, safety related to flooding could degrade military readiness.

■ Recreational Area in the DOD CZ

There are recreational baseball fields that could encourage the congregation of people in the DOD CZ of Runway 14.

■ Proposed Development Could Potentially Impact the Safety of Aircraft Operations

The location, height, and design features of proposed structures at Kingsley Field may obstruct line-of-sight between the ATCT and the area around the airfield and could increase bird activity in the vicinity of the airport.



Land Uses near Kingsley Field

Vertical Obstructions

Vertical obstructions are created by buildings, trees, structures, or other features that may encroach into the navigable airspace used for military operations (aircraft approach, transitional, inner horizontal, outer horizontal, and conical areas, as well as military training routes). These can present a safety hazard to both the public and military personnel.

■ Maximum Building or Structure Height Limits are Not Established in Local Development / Zoning Codes

Jurisdictions surrounding Kingsley Field do not establish maximum heights for some land uses, such as telecommunications towers.

■ FAA Obstruction Evaluation (OE)

There is no formal process for requiring OEs at the jurisdictional level.

Water Quality / Quantity

Water quality / quantity concerns include the assurance that adequate water supplies of good quality are available for use by the installation and surrounding communities as the area develops. Water supply for agricultural and industrial use is also considered.

- **Concern Over the Sustainability of Water Resources**

Limited water quantities have the potential to increase compliance and regulatory restrictions on water usage for agriculture and development, which could impact and/or limit ORANG mission.



Implementation Plan

6

Implementation Plan

This section identifies and organizes the recommended courses of action (strategies) developed through a collaborative effort between representatives of applicable local jurisdictions, Kingsley Field / the ORANG, state and federal agencies, local organizations, the general public and other stakeholders that own or manage land or resources in the region. Since the Kingsley Field JLUS is the result of a collaborative planning process, the strategies in this section represent a true consensus plan; a realistic and coordinated approach to compatibility planning developed with the support of stakeholders involved throughout the process.

JLUS strategies incorporate a variety of actions that can be taken to promote compatible land use and resource planning. Upon implementation, existing and potential compatibility issues arising from the civilian / military interface can be removed or significantly mitigated. As such, the recommended strategies function as the heart of the JLUS document and are the culmination of the planning process. It is important to note that the JLUS is not an adopted plan, but rather a recommended set of strategies which should be implemented by the JLUS participants to address current and potential future compatibility issues

The goal of the Kingsley Field JLUS is to promote compatibility planning to foster the successful coexistence of the communities' economic activities and the military mission and potential opportunities.

The key to the implementation of the strategies is the establishment of a JLUS Coordination Committee (see Strategy COM-1A) to maintain efficient and effective coordination among the JLUS partners and to oversee the implementation of JLUS recommendations and increase coordination on military compatibility issues.

Implementation Plan Guidelines

The key to a successful plan is balancing the different needs of all involved stakeholders. Several guidelines formed the basis upon which the strategies were developed:

- The Implementation Plan was developed with the understanding that the recommended strategies must not result in a taking of property value as defined by state law.
- In some cases, the recommended strategies can only be implemented with new enabling legislation.
- In order to minimize regulation, many of the strategies are only recommended within the certain geographic area for which the issue they address occurs (e.g. within the noise contours), instead of recommended for the whole JLUS Study Area.
- Similar to other planning processes that include numerous stakeholders, the challenge is to create a solution or strategy that meets the needs of all parties. In lieu of eliminating strategies that do not have 100 percent buy-in from all stakeholders, it was determined that the solution / strategy may result in the creation of multiple strategies that address the same issue but is tailored to individual circumstances.
- Since this JLUS is intended to be a "living document", and state and federal regulations are subject to change, before implementing one of the suggested strategies included in the Implementation Plan, the implementing jurisdiction or party should ensure there is no conflict between the strategy and any existing state or federal law.

Military Influence Areas

As part of the strategy development process, Military Influence Area Overlay District (MIAOD) containing MIAs is proposed that reflect the types and intensity of compatibility issues. The MIAOD is the collective geographic area of all of the MIAs combined. The MIAs are proposed to be used by local jurisdictions to identify areas where specific compatibility issues are more likely to occur. Implementation of the MIAOD and associated strategies are designed to accomplish the following:

- Promote an orderly transition between community and military land uses so that land uses remain compatible.
- Create a broader framework for making sound planning decisions around military installations.
- More accurately identify areas that can affect or be affected by military missions.
- Protect the public health, safety, and welfare.
- Protect the military missions.
- Establish compatibility requirements within the designated area, such as requirements for sound attenuation or aviation easements.
- Promote an orderly transition between community and military land uses so that land uses remain compatible.
- Maintain operational capabilities of military installations and areas.

For the Kingsley Field JLUS, There are four MIAs with associated MIA subzones proposed. The MIAs are as follows:

- 1) Airfield Safety MIA,
- 2) Explosion Safety Quantity Distance (ESQD) Safety MIA,
- 3) Noise MIA, and
- 4) Vertical Obstruction MIA.

The MIAOD contains all the MIAs and associated subzones proposed for the Kingsley Field JLUS. The MIAOD and MIAs are defined as follows, and are

illustrated on Figures 11 through 15. For strategies that apply to the entire Study Area, the term “Study Area” is used.

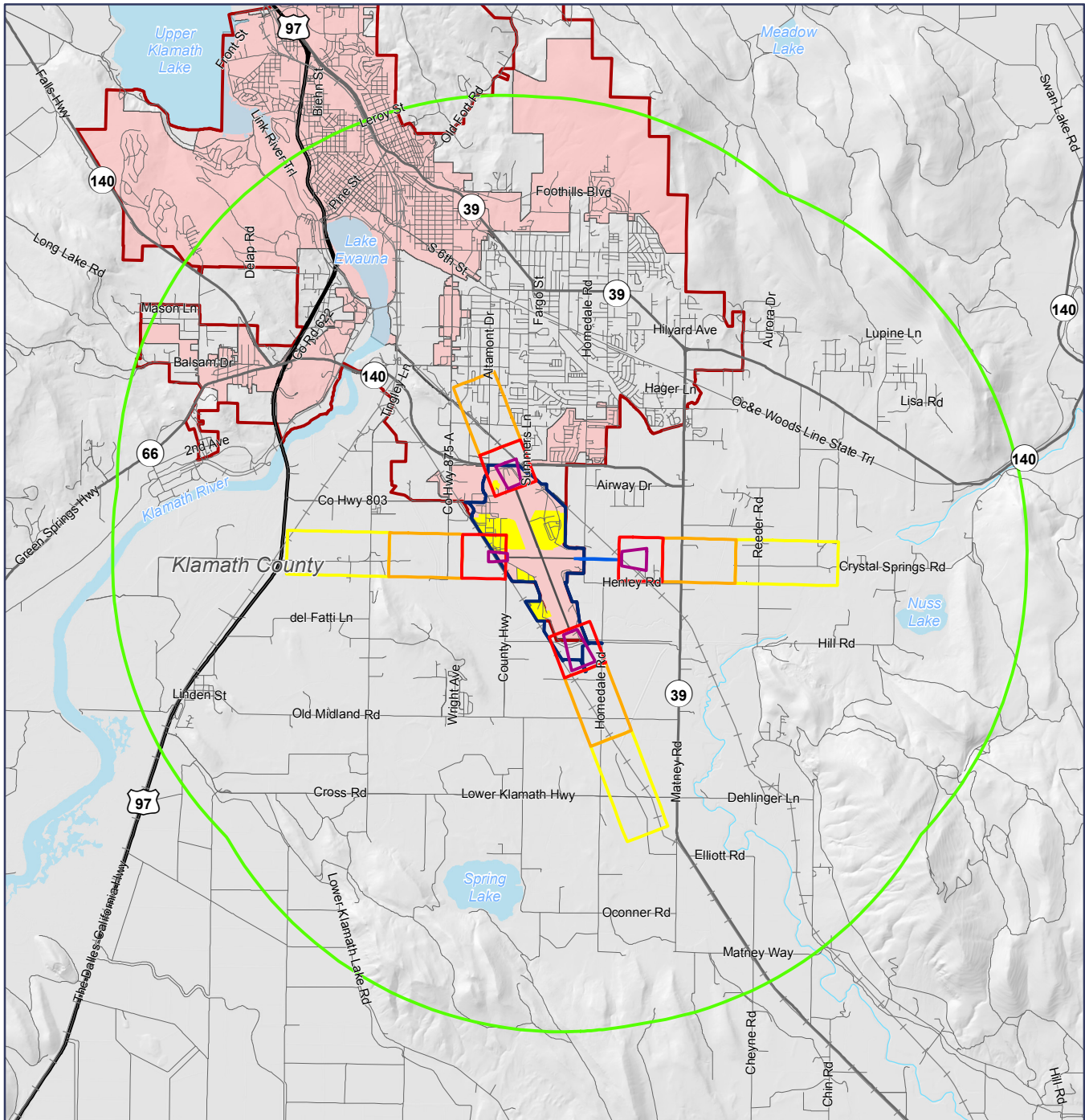
Kingsley Field Airfield Safety Military Influence Area (Figure 11)

The Kingsley Field Airfield Safety MIA encompasses the land within the civilian Runway Protection Zones (RPZs), the Department of Defense-standard (DOD-standard) accident potential zones (APZs), and the five-mile BASH relevancy area, as illustrated on Figure 11. The types of strategies recommended for the Airfield Safety MIA are regulatory in nature and restrict intensity, density, or uses that attract birds and other wildlife.

- **RPZs Subzone** – This includes the land that is located within all four RPZs that extend beyond each runway end. This is an existing footprint for the Airfield Safety MIA as this airport is designated a civilian / municipal airport, and thus operates using the RPZs.
- **DOD-Standard APZs Subzones** – This area encompasses the land recommended by the DOD and Federal Aviation Administration (FAA) as areas where aircraft accidents are most likely to occur. This area is made up of the clear zone (CZ) and the two APZs.
- **BASH Subzone** – This subzone encompasses an area that measures five statute miles around the air operations area, which is the area including the runway, where the central activity for air operations occurs.

Kingsley Field ESQD Safety Military Influence Area (Figure 12)

As illustrated on Figure 12, the ESQD Safety MIA encompasses the land within the ESQD arc for the munitions storage facility. Due to the stand-off distances associated with the munitions storage facility, the extent of areas that should be protected is illustrated in this MIA.



Legend

Airfield Safety MIA Subzones

- 5-mile BASH
- Runway Protection Zone
- CZ
- APZ I
- APZ II

- Kingsley Field
- CL-KR Airport
- + Klamath Falls
- + Urban Growth Boundary
- ~ Water Body
- River

- Federal Highway
- State Highway
- Local Road
- Railroad
- Runway
- Proposed Runway Extension

Sources: Matrix Design Group, 2015; FAA, 2015.



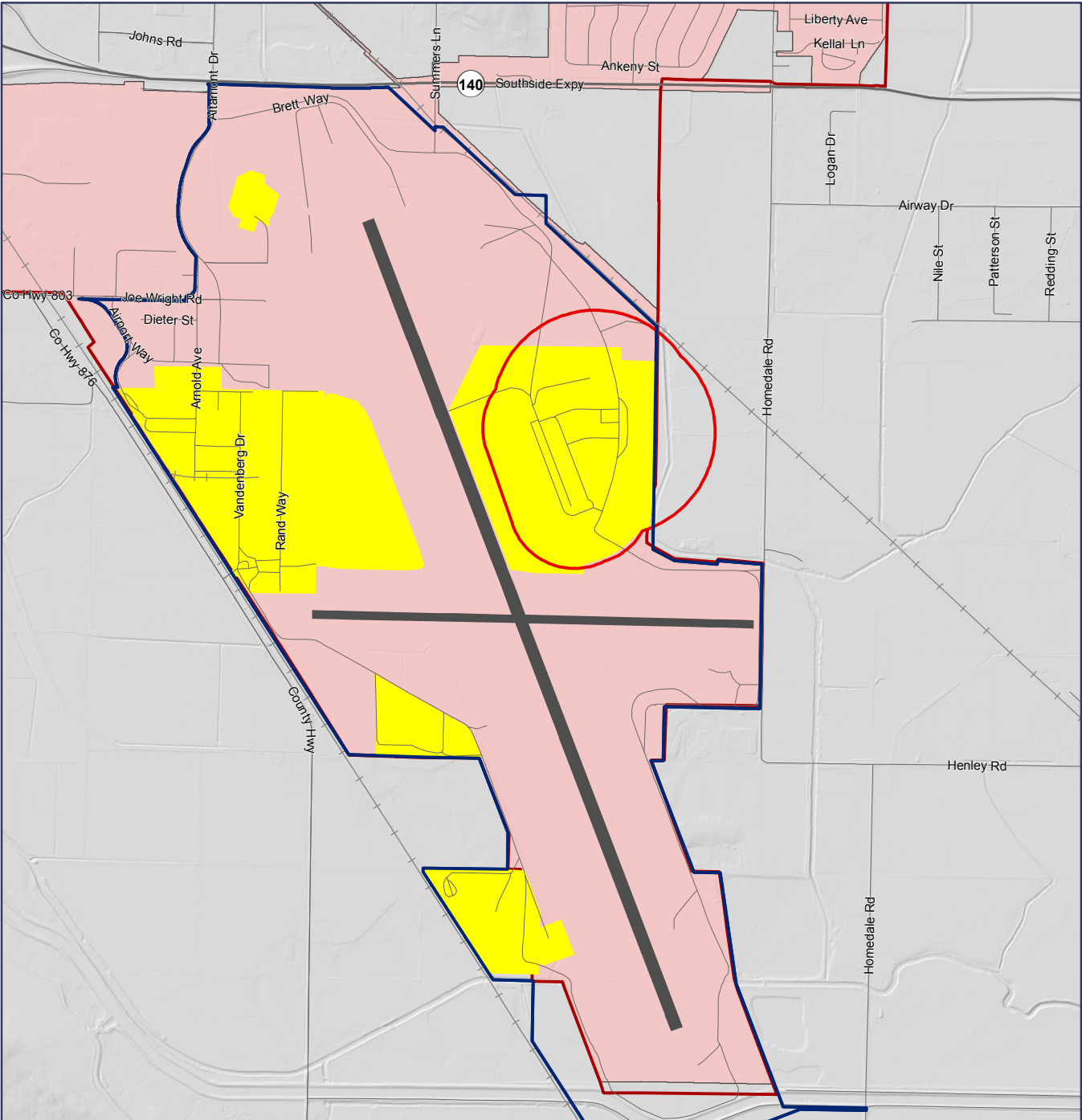
0 1 2 Miles



Matrix
DESIGN GROUP

Figure 11

Airfield Safety Military Influence Area



Legend

Explosive Safety Quantity
Distance Arc (ESQD) Safety MIA

Kingsley Field

CL-KR Airport

Klamath Falls

Urban Growth Boundary

State Highway

Local Road

Railroad

Runway



Sources: Klamath County, 2015; DoDI 4165.57, Rev. March 2015; Kingsley Field Real Property rec'd 2015

0 1/4 1/2 Miles



Matrix
DESIGN GROUP

Figure 12
ESQD Safety Military Influence Area

Kingsley Field Noise Military Influence Area (Figure 13)

Figure 13 illustrates the Kingsley Field Noise MIA. This MIA includes all land under the noise contours received from ORANG's Kingsley Field Master Plan database, and adopted by Klamath County and the City of Klamath Falls in 2008 and 2009, respectively. This MIA has four subzones, which are the different noise contours. They are:

- 65 dB DNL noise contour subzone
- 70 dB DNL noise contour subzone
- 75 dB DNL noise contour subzone
- 80 dB DNL noise contour subzone

Each of these subzones recommends various degrees of noise level reduction depending on how close certain types of land uses are to the airfield.

Kingsley Field Vertical Obstruction Military Influence Area (Figure 14)

The Vertical Obstruction MIA is illustrated on Figure 14. The MIA subzones include all the land under the Federal Aviation Regulation (FAR) Part 77 area and the imaginary surfaces, which are described in Chapters 3 and 5 of the JLUS Background Report. There are two subzones associated with the Vertical Obstruction MIA. They are:

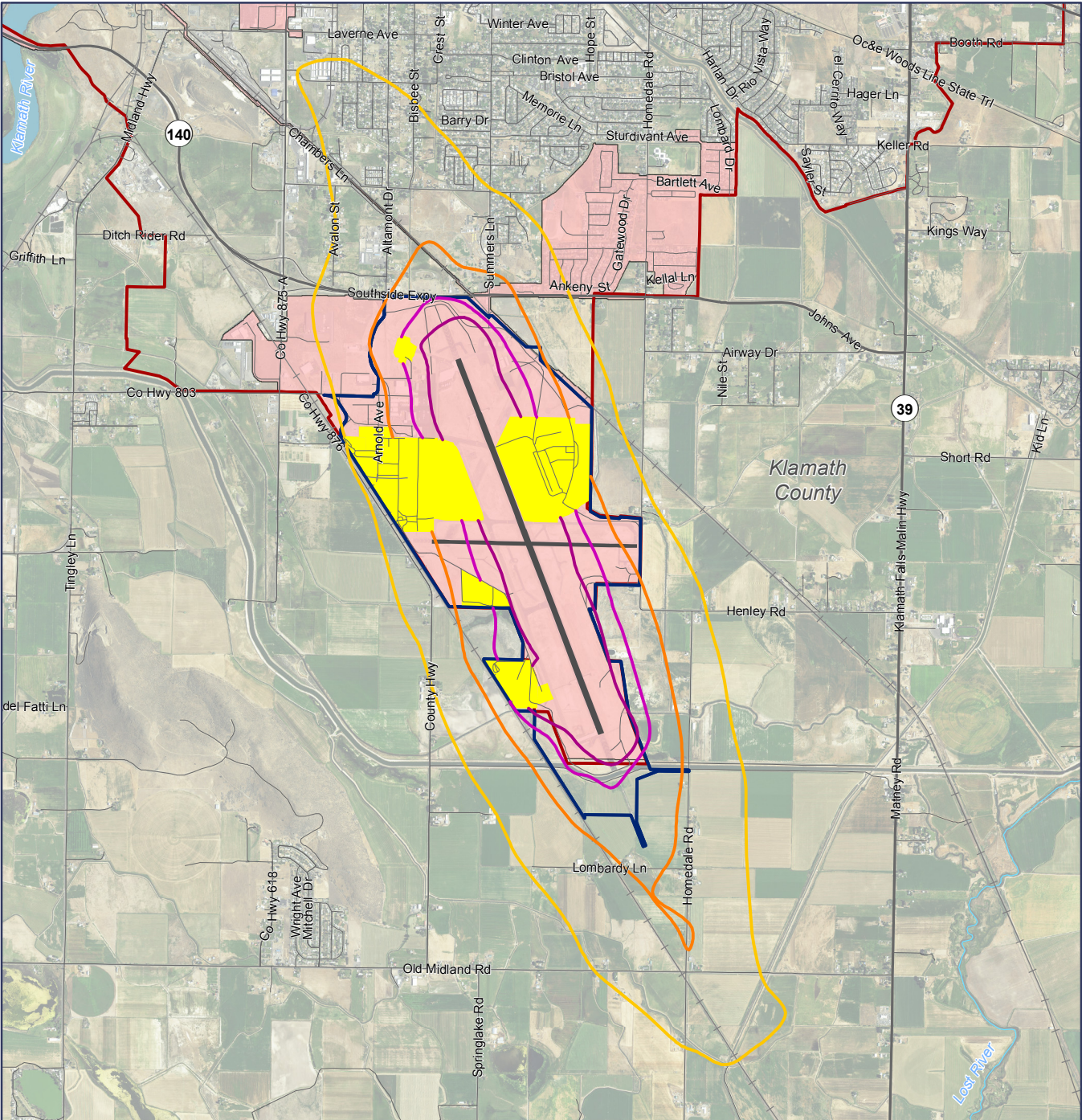
- **FAR Part 77 Subzones** – These MIA subzones include all the land under the FAR Part 77 area, which was described both in Chapters 3 and 5 of the JLUS Background Report. There are four subzones associated with this area, they are:
 - Up to 200 feet @ 3 nautical miles (NM) subzone
 - Up to 300 feet @ 4 NM subzone
 - Up to 400 feet @ 5 NM subzone
 - Up to 499 feet @ 6 NM subzone
- **Imaginary Surfaces MIA Subzone** – This MIA subzone includes all land within the imaginary surfaces of the airfield. The imaginary surfaces are:

- Primary Surface
- Approach/Departure Clearance Surface
- Inner Horizontal Surface
- Conical Surface
- Outer Horizontal Surface
- Transitional Surface

Kingsley Field Military Influence Area Overlay District (Figure 15)

The MIAOD is a composite of all the following MIAs and associated subzones to create one overlay district for the application of Kingsley Field JLUS strategies. Figure 15 illustrates the overall MIAOD, which includes all of the MIAs:

- Airfield Safety
- ESQD Safety
- Noise
- Vertical Obstruction



Legend

Noise MIA Subzones

- 65 (dB DNL)
- 70 (dB DNL)
- 75 (dB DNL)
- 80 (dB DNL)

- Kingsley Field
- CL-KR Airport
- Klamath Falls
- Urban Growth Boundary

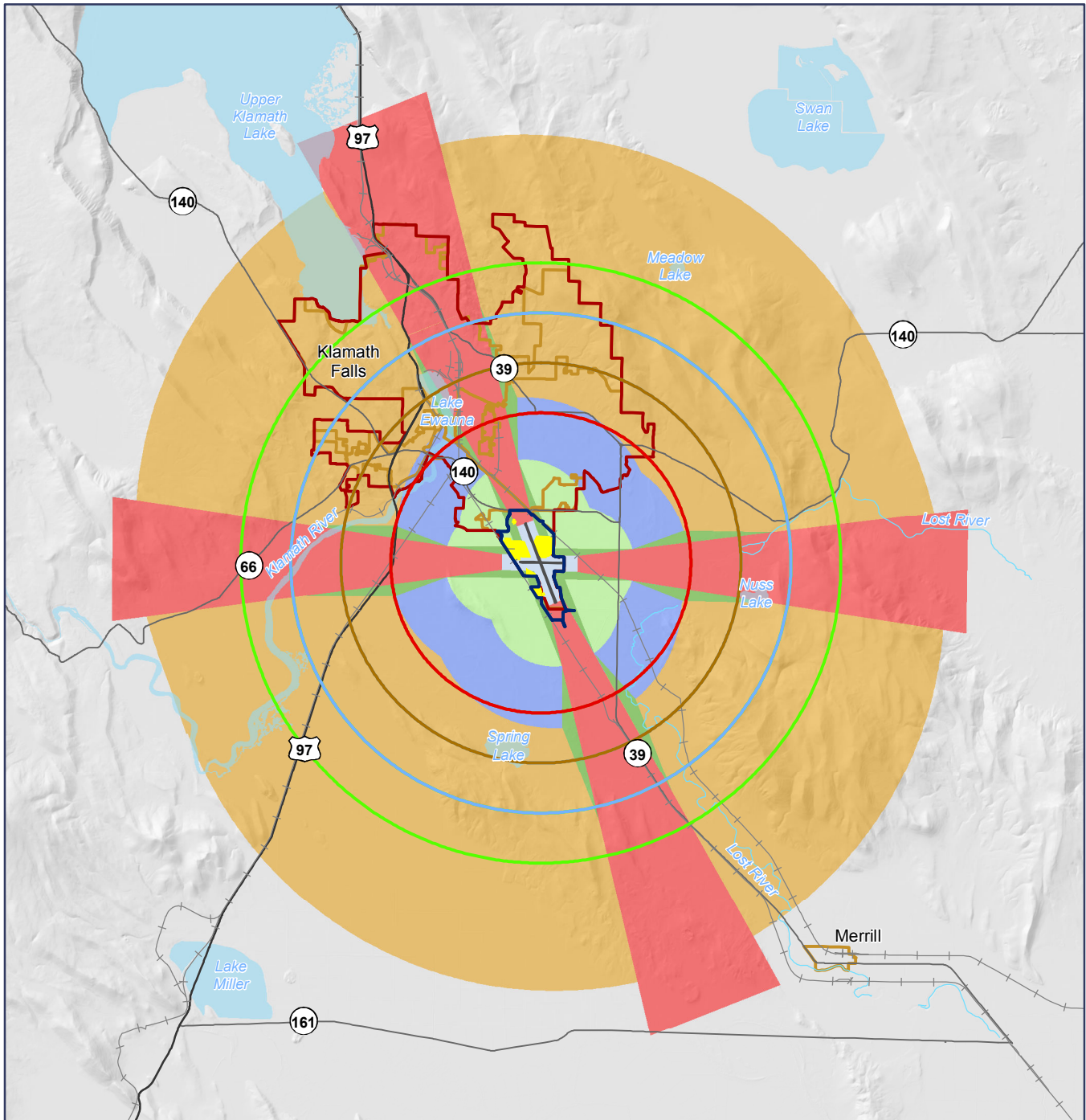
- Water Body
- River
- State Highway
- Local Road
- Railroad
- Runway

Source: Oregon Air National Guard, 2015.

0 1/2 1 Miles



Figure 13
Noise Military Influence Area



Legend

Vertical Obstruction MIA Subzones

Imaginary Surfaces

- Primary Surface
- Approach/Departure Clearance Surface = 50:1

- Inner Horizontal Surface = 150 ft
- Conical Surface = 20:1
- Outer Horizontal Surface = 500 ft
- Transitional Surface = 7:1

FAR Part 77

- Up to 200' @ 3NM
- Up to 300' @ 4NM
- Up to 400' @ 5NM
- Up to 500' @ 6NM

- Kingsley Field
- CL-KR Airport
- Incorporated Community
- Urban Growth Boundary

- Water Body
- River
- Federal Highway
- State Highway
- Railroad
- Runway



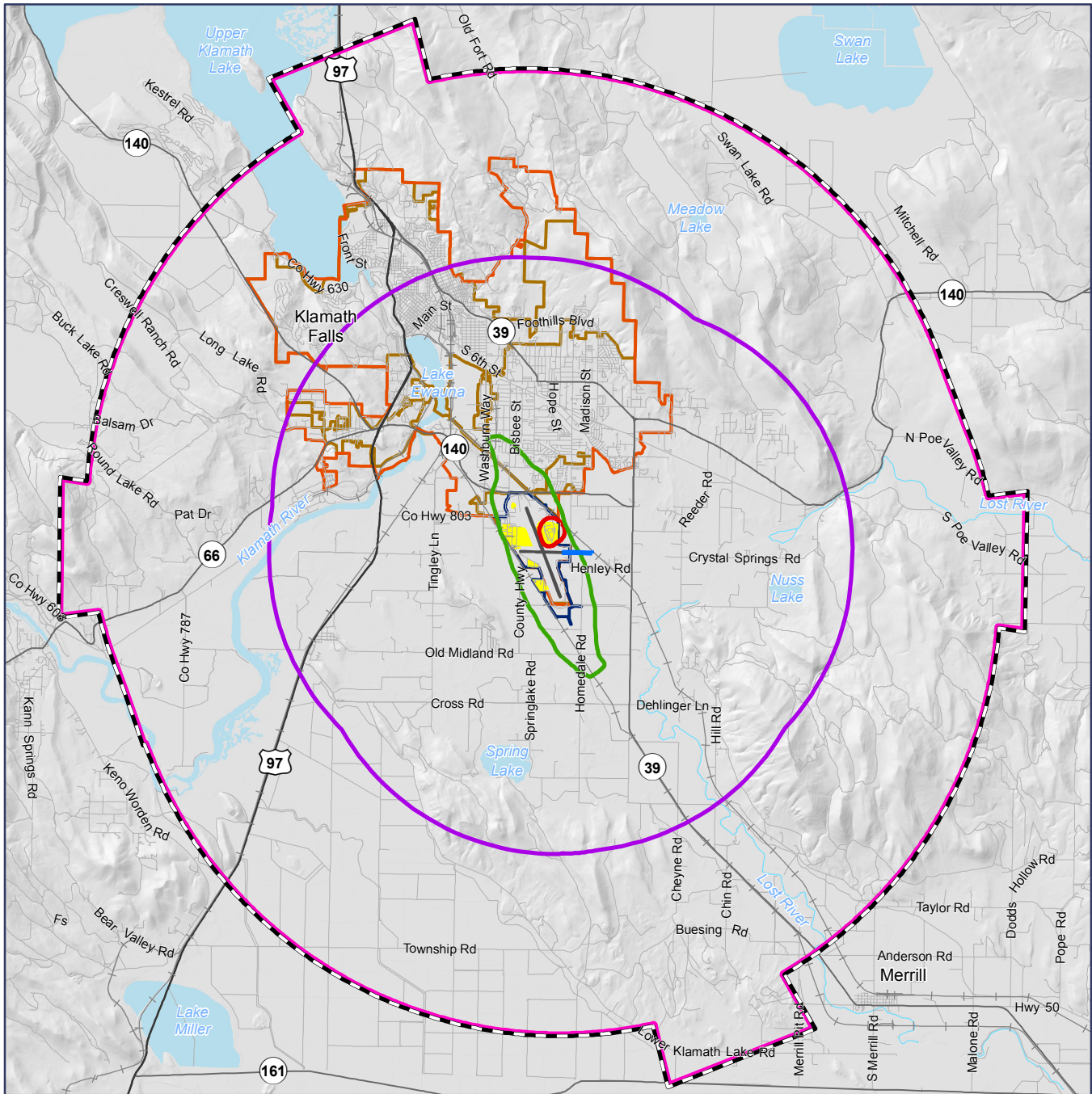
Source: Matrix Design Group, 2015.

0 2 4 Miles



Matrix
DESIGN GROUP

Figure 14
Vertical Obstruction Military Influence Area



Legend

- | | | | |
|---------------------|-------------------------------------|---------------------------|-----------------|
| MIAOD Boundary | Vertical Obstruction MIA | Kingsley Field | Federal Highway |
| Airfield Safety MIA | ESQD Safety MIA | CL-KR Airport | State Highway |
| Noise MIA | Klamath Falls Urban Growth Boundary | Railroad | Runway |
| | Water Body | Proposed Runway Extension | |
| | River | | |

Note: The proposed runway is not to scale.
Source: Matrix Design Group, 2015.



0 2 4 Miles



Figure 15
Military Influence Area Overlay District (MIAOD)

How to Read the Implementation Plan

The strategies are designed to address the issues identified during preparation of the JLUS. The purpose of each strategy is to:

- Avoid future actions, operations, or approvals that may cause a compatibility issue;
- Eliminate or reduce the adversity of existing compatibility issues where possible; and
- Provide for enhanced and on-going communications and collaboration.

To make the strategies easier to use, they are presented in a table format that provides the strategy and information on when and how that strategy will be implemented. The strategies are arranged in a table to correspond with their compatibility factor. The issue within each factor is presented first to provide a linkage between the strategy and the condition it is intended to resolve or minimize. Figure 16 highlights the format and content of the strategy table. The following paragraphs provide an overview of how to read the information presented for each strategy.

Issue or Strategy #. The issue # and strategy # are unique alpha-numeric numbers that provide a reference for each specific issue and strategy. A strategy's reference number is composed of the Compatibility Issue number and this ID (e.g., COM-1, COM-1B, etc.).

Military Influence Area (MIA). This column indicates the applicable MIA in which the strategy should be applied, or if the strategy relates to the whole JLUS Study Area. The MIA geographies for the Kingsley Field JLUS strategies are defined in Strategy LU-1A. Some of the strategies are designated as "Study Area", meaning that they apply to the entire study area.

Strategy. In bold type is a title that describes the strategy. This is followed by the complete strategy statement that describes the recommended action.

Timeframe. This column indicates the projected timeframe of each strategy. The timeframes describe the year in which a strategy will be initiated or if it is an on-going action.

Short-Term	Strategy proposed for initiation in 2016 – 2017 (within year of JLUS completion)
Mid-Term	Strategy proposed to be initiated in 2018 – 2019 (within 1-2 years of JLUS completion)
Long-Term	Strategy proposed to be initiated in 2020 – 2022 (3 to 5 years from JLUS completion)
On-going	An on-going implementation action

Responsible Party. At the right end of the strategy table are a series of columns, one for each jurisdiction, military entity, agency, and organization with responsibility for implementing the JLUS strategies. If an entity has responsibility relative to implementing a strategy, a mark is shown under their name. This mark is one of two symbols that represent their role. A solid square (■) designates that the entity identified is responsible for implementing the strategy. A hollow square (□) designates that the entity plays a key supporting role, but is not directly responsible for implementation. The responsible parties are identified by their name or assigned acronym in the heading at the top of each page.

Issue or Strategy ID	Geographic Area	Strategy	Timeframe	City of Klamath Falls	Klamath County	Crater Lake – Klamath Regional Airport	Kingsley Field / ORANG	ODOT	Other
Communication / Coordination (COM)									
COM-1	Communication / Coordination Between Jurisdictions and the Air National Guard No formal communication process for including the airport or Air National Guard on permitting and development applications that are on the Airport's property and within the vicinity of the airfield.								
COM-1A	Study Area	Establish a JLUS Coordination Committee Establish a JLUS Coordination Committee to maintain efficient and effective coordination among the JLUS partners and to oversee the implementation of JLUS recommendations and increase coordination on military compatibility issues. The JLUS Coordination Committee should meet on a regular basis as agreed upon by the Committee. This could be integrated into another advisory committee appropriate to the area and issues addressed. Other Partners: ODFW, USFWS	Short	■	□	□	□	□	□

Issue / Strategy Number:
Alpha-numeric identifier used for reference.

Military Influence Area:
Where each strategy applies. For example, if only MIA is indicated, then that strategy only applies to areas within the MIA.

Strategy:
Description of the strategy.

Timeframe:
The expected initiation date for strategy implementation.

Responsible Party: The primary and partner responsible agencies. For example, the ■ denotes the primary agency who will take the lead in implementation. The □ denotes partner agency who will assist the primary agency in implementation.

Figure 16. How to Read JLUS Strategies

Issues / Strategies by Compatibility Factor (Alphabetized by Factor)

Issue / Strategy ID	Geographic Area	Issue / Strategy	Timeframe	City of Klamath Falls	Klamath County	Crater Lake – Klamath Regional (CL–KR) Airport	Kingsley Field / ORANG	ODOT	Other
Air Quality (AQ)									
AQ-1	Nonattainment for Particulate Matter_{2.5} The study area is in a federal nonattainment for Particulate Matter (PM) _{2.5}								
AQ-1A	Study Area	Coordinate with Oregon Department of Environmental Quality on PM_{2.5} Monitoring Efforts Klamath County and the JLUS partners should coordinate with members of the Oregon Department of Environmental Quality's Air Quality Committee on PM _{2.5} pollution monitoring efforts, and assist in the development of programs designed to improve air quality by reducing contaminant emissions. <i>Other Partner: Oregon Department of Environmental Quality (ODEQ)</i>	On-going	<input type="checkbox"/>	<input checked="" type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
AQ-1B	Study Area	Educate the Public on the Importance of No Burning on Red Days Klamath County should coordinate with the JLUS partners to assist in educating the public about the Air Quality program by helping to communicate the importance of no burning on Red Days. The County should create an educational brochure regarding Red Days and encourage all JLUS Partners to make the brochures available on partner websites. <i>Other Partner: ODEQ</i>	On-going	<input type="checkbox"/>	<input checked="" type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
Anti-Terrorism / Force Protection (AT)									
AT-1	Perimeter Security Air National Guard has concerns over runway, taxiway, and apron security due to the number of airport and general aviation users with access to the airport and airfield.								
AT-1A	CL–KR Airport	Update CL-KR Airport Master Plan CL-KR Airport should coordinate with Kingsley Field / ORANG when they update the Airport Master Plan to address military compatibility specifically as it relates to the security concerns and the DOD AT / FP regulations associated with airfield safety.	Mid			<input checked="" type="checkbox"/>	<input type="checkbox"/>		

Issue / Strategy ID	Geographic Area	Issue / Strategy	Timeframe	City of Klamath Falls	Klamath County	Crater Lake – Klamath Regional (CL–KR) Airport	Kingsley Field / ORANG	ODOT	Other
AT-1B	CL-KR Airport	Budget for and Construct Airfield Perimeter Fencing that Meets DOD Regulations CL–KR Airport should coordinate with Kingsley Field to ensure airfield perimeter fencing meets DOD regulations and that it is included in the budget, programming, and construction of the fence. Shared resources or public-public / public-private funding mechanisms should be considered for funding for this project.	Mid			<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Biological Resources (BIO)									
BIO-1	Endangered Species (Applegate's Milk-vetch) Limiting Uses on Portions of the Installation The largest population of Applegate's milk-vetch, within the limited region where it grows, is located around Kingsley Field with concentrations near the runways and taxiways. This causes concern regarding the balance of species protection and new mission capabilities.								
BIO-1A	Study Area	Evaluate the Feasibility of Transferring Milk-vetch from the Airfield Area to the Collins Tract Site The ORANG and CL–KR Airport should evaluate the feasibility to transfer the milk-vetch to the Collins Tract site. <i>Other Partner: Collins Tract land owner</i>	Short			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input type="checkbox"/>
BIO-1B	Study Area	Conduct a Feasibility Study for Transfer of Milk-vetch Species to the Collins Tract The ORANG and CL–KR Airport should partner to conduct a feasibility study to transfer the species from the Kingsley Field site to the Collins Tract. The ORANG and Airport should coordinate with Oregon Department of Fish and Wildlife (ODFW) and the United States Fish and Wildlife Service (USFWS). <i>Other Partners: ODFW, USFWS, land owner</i>	Mid			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input type="checkbox"/>
BIO-1C	Study Area	Develop Management Plan for Milk-vetch If strategy BIO-1B determines that it is feasible to relocate milk-vetch, then a management plan for the milk-vetch at the Collins Tract should be developed to promote the sustainability of the species. Consider the use of public-public / public-private funding mechanisms for this project. <i>Other Partners: ODFW, USFWS, Oregon Department of Agriculture (ODA)</i>	Long			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input type="checkbox"/>

Issue / Strategy ID	Geographic Area	Issue / Strategy	Timeframe	City of Klamath Falls	Klamath County	Crater Lake – Klamath Regional (CL-KR) Airport	Kingsley Field / ORANG	ODOT	Other
Communication / Coordination (COM)									
COM-1	Communication / Coordination between Jurisdictions and the Air National Guard No formal communication process for including the airport or Kingsley Field on permitting and development applications that are on the airport's property and within the vicinity of the airfield.								
COM-1A	Study Area	Establish a JLUS Coordination Committee Establish a JLUS Coordination Committee to maintain efficient and effective coordination among the JLUS partners, to oversee the implementation of JLUS recommendations, and to increase coordination on military compatibility issues. The JLUS Coordination Committee should meet on a regular basis as agreed upon by the Committee. This committee should coordinate with the State Solutions Committee on implementing statewide strategies. <i>Other Partners: Agencies or entities deemed relevant and interested in participating</i>	Short	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COM-1B	Study Area	The JLUS Coordination Committee to Develop a JLUS Committee Charter and Apply for an OEA Grant to Fund JLUS Recommendations The JLUS Coordination Committee should develop a Committee Charter to define at a minimum, the Committee's purpose and meeting frequency, and to provide guidelines for monitoring, assisting, and managing the Committee's activities. The City of Klamath Falls should apply for an OEA grant to implement the JLUS strategies. <i>Others Partners: Agencies or entities deemed relevant and interested in participating</i>	Short	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COM-1C	Study Area	Full-Time City Employee to Administer JLUS Coordination Committee The City should explore grant funding or city budget options to support a full-time city employee to facilitate administration of the JLUS Coordination Committee and any additional grant funded projects that support the JLUS.	Short	<input checked="" type="checkbox"/>					

Issue / Strategy ID	Geographic Area	Issue / Strategy	Timeframe	City of Klamath Falls	Klamath County	Crater Lake – Klamath Regional (CL-KR) Airport	Kingsley Field / ORANG	ODOT	Other
COM-1D	Study Area	<p>Incorporate Kingsley Field / ORANG as One of the Agencies that Reviews and Comments on Development Applications / Proposals and Rezoning via Memorandum of Understanding</p> <p>Establish a Memorandum of Understanding (MOU) between the local jurisdictions and Kingsley Field/ORANG to formalize a process that allows Kingsley Field to be integrated into the development/rezoning review process. The process should provide copies of certain types of development proposals, rezoning, and other land use or regulation changes for lands located within the MIAOD to Kingsley Field/ORANG for review and comment. Such review periods shall conform to existing jurisdictions/agencies review periods for providing comment. This supports a proactive approach to identifying potential conflicts early in the proposed development application phase.</p> <p>The process of formalizing Kingsley Field/ORANG review and comment should include:</p> <ul style="list-style-type: none"> ■ Definition of project types that require review; ■ Definition of project types that require military attendance at pre-application meetings; ■ Identification of the points of contact for all coordination; ■ Establishment of a formal procedures for requesting and receiving comments; ■ Establishment of a standard timeline for responses, keeping in mind mandated review time periods as specified by state law and local/county procedures; and ■ Providing notice to the military on all public hearings regarding projects identified for coordination. <p>Procedures should be reviewed annually and updated as appropriate by each individual jurisdiction or agency.</p> <p><i>Other Partner: ODFW</i></p>	Short	■	■	■	<input type="checkbox"/>	■	■

Issue / Strategy ID	Geographic Area	Issue / Strategy	Timeframe	City of Klamath Falls	Klamath County	Crater Lake – Klamath Regional (CL-KR) Airport	Kingsley Field / ORANG	ODOT	Other
COM-1E	MIAOD	Invite an ORANG Representative to Serve as a Non-voting Technical Advisor Invite an ORANG representative to serve as a non-voting technical advisor to each adjacent jurisdiction planning commission/group to allow for Kingsley Field/ORANG to provide input on proposed developments that may impact the mission. Formalize the position through a resolution or an MOU.	Mid	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input type="checkbox"/>		
COM-1F	MIAOD	Invite Kingsley Field into Planning Process for Plans/Policy Updates Invite Kingsley Field/ORANG into the planning process of any update to plans or policies that may affect Kingsley Field. When jurisdiction or agency growth policy/development plans are updated or amended, such as comprehensive plans, land development code/zoning ordinances, resource management plans, or other related plans, the documents should be submitted to Kingsley Field/ORANG for review and comment. Timeframes for the military to provide written comment on projects should be defined. Formalize this process in a Memorandum of Agreement (MOA).	On-going	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
COM-1G	MIAOD	Technical Support for Local Decision-Making Process ORANG should assign a point of contact person that has access to the appropriate technical information necessary for providing assistance to local jurisdictions in an effort to present facts on projects with potential compatibility issues at jurisdiction planning commission meetings. This information should be provided as needed relative to projects. <i>Other Partners: ODFW, USFWS, ODEQ, Oregon Department of Land Conservation and Development (DLCD)</i>	Short	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COM-1H	Study Area	Train Local Jurisdiction Planning Staff ORANG should establish a program for the technical training of local jurisdiction planning departments or equivalent staff to educate them on the issues, concerns, and compatible or incompatible development that could occur within the MIAOD so that the appropriate municipal staff have the technical	On-Going	<input type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/>		

Issue / Strategy ID	Geographic Area	Issue / Strategy	Timeframe	City of Klamath Falls	Klamath County	Crater Lake – Klamath Regional (CL-KR) Airport	Kingsley Field / ORANG	ODOT	Other
COM-1H (cont'd)		background and knowledge when reviewing development proposals. This could include annual training, informational brochures, or new-hire training.							
COM-1I	Study Area	<p>Create and Maintain a Local GIS Data Clearinghouse</p> <p>The City of Klamath Falls should develop a GIS data clearinghouse to share GIS data (e.g., military footprints, geothermal development sites, and other agreed upon pertinent GIS data) to promote enhanced long-range compatibility planning. In addition, a protocol for accessing and updating the information should be developed to ensure information accuracy, and to verify that appropriate security measures are established.</p> <p><i>Other Partners: Oregon DLCD, ODFW, USFWS, South Central Oregon Economic Development District (SCOEDD), and others as appropriate</i></p>	Short	■	□	□	□	□	□
COM-1J	Study Area	<p>Establish a Communication Process for Notifying Local Jurisdictions of Mission Activities and Changes</p> <p>Kingsley Field shall work with the JLUS jurisdictions and other relevant agencies to establish procedures for communication relative to base operations and changes to base operations and activities. This will include:</p> <ul style="list-style-type: none"> ▪ Definition of operations and changes in operations that warrant public knowledge ▪ Identification of points of contact for all coordination and communication ▪ Defined process for responding to comments or questions from jurisdictions and the public ▪ Defined timeframe for responding to questions and/or concerns <p>Procedures should be reviewed annually and updated as appropriate by the JLUS Coordination Committee (See Strategy COM-1A).</p>	Short	□	□	□	■		

Issue / Strategy ID	Geographic Area	Issue / Strategy	Timeframe	City of Klamath Falls	Klamath County	Crater Lake – Klamath Regional (CL–KR) Airport	Kingsley Field / ORANG	ODOT	Other
COM-2	Coordination of Multi-Jurisdictional Manuals for Joint Use Property There is currently no formal coordination process for facilitating all jurisdictions involved in the Kingsley Field and CL- KR Airport operational footprints (e.g., FAA, DOD, and USAF) in the development and update of the operational manuals to provide equivalent standards of training within joint use areas (e.g., Airport Driving and Snow Removal Certificate Programs).								
COM-2A	Study Area	Develop Memorandum of Understanding to Communicate Policy/Regulation Updates Kingsley Field’s Airfield Manager and CL–KR Airport’s Operations Manager should coordinate to develop an MOU which delineates protocol to share information on any updates of policy / regulations / manuals pertinent to the Kingsley Field / CL–KR Airport operations. The MOU should establish the following: <ul style="list-style-type: none"> ▪ Schedule for development / update of manuals / regulation ▪ Identification of all agencies that need to be involved in manual updates / development ▪ Points of contact for each agency ▪ Review timeframes to facilitate the speedy review of updates ▪ Deconfliction procedures 	Short			■	■		
COM-2B	CL-KR Airport	Coordinate Information Sharing between Kingsley Field and CL-KR Airport Amend administrative policies to formalize and reinforce existing bi-weekly communication and coordination between the CE Vice Wing Commander at Kingsley Field and the CL-KR Airport Director. Include enabling language that supports and facilitates an open dialog to improve the flow of information that will assist in improving FAA and DOD coordination. <i>Other Partner: FAA</i>	Short			■	■		□
Energy Development (ED)									
ED-1	Alternative Energy Development General concern over potential alternative energy development.								
ED-1A	Study Area	Develop and Adopt Solar Energy Ordinance Develop and adopt solar energy ordinance in surrounding jurisdictions, which apply to areas within the approach and departure zones.	Short	■	■		□		

Issue / Strategy ID	Geographic Area	Issue / Strategy	Timeframe	City of Klamath Falls	Klamath County	Crater Lake – Klamath Regional (CL-KR) Airport	Kingsley Field / ORANG	ODOT	Other
ED-1B	Study Area	Coordinate with DOD Siting Clearinghouse The DOD Siting Clearinghouse requirements and standards published in Title 32, Code of Federal Regulations, Part 211 shall advise and guide the process to facilitate the early submission of renewable energy project proposals to the Clearinghouse for military mission compatible review. Amend applicable local planning and regulatory documents, such as comprehensive plans and rezonings, to incorporate policies and procedures for coordinating and obtaining clearinghouse comments that address military compatibility on alternative energy development applications with the DOD Siting Clearinghouse, prior to approval. To the extent possible, coordinate renewable energy development with the DOD Siting Clearinghouse to promote compatibility with Kingsley Field operations. If JLUS communities become aware of any wind energy development projects, they should get contact information for the developer and inform them of the need to coordinate with the DOD Clearinghouse.	On-going	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
ED-1C	Study Area	Formalize the Review of Alternative Energy Proposals Jurisdictions should develop an MOU to formalize the review process of alternative energy proposals with ORANG.	Short	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input type="checkbox"/>		
ED-1D	State-wide	Advocate to State Legislature on Alternative Energy Klamath County and the City of Klamath Falls, should advocate to the Oregon State Legislature for state-wide legislation on the siting and permitting of alternative energy facilities in relation to military installations, to promote military compatibility. <i>Other Partner: Oregon State Legislature</i>	Long	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input type="checkbox"/>

Issue / Strategy ID	Geographic Area	Issue / Strategy	Timeframe	City of Klamath Falls	Klamath County	Crater Lake – Klamath Regional (CL-KR) Airport	Kingsley Field / ORANG	ODOT	Other
ED-2	Development of Geothermal Energy near Kingsley Field Proposed geothermal development near Kingsley Field could affect future mission expansion capabilities.								
ED-2A	Study Area	Amend Geothermal Overlay Zone Klamath County should amend its Geothermal Overlay Zone to consider military and civilian aviation compatibility. Dry cooling techniques should be considered during the winter months and on days where the cloud and other weather conditions are dense causing the steam plumes to linger in the atmosphere longer. In addition, the County should identify the Geothermal Overlay Zone as an illustrated map showing boundaries of where the geothermal resources are located and where geothermal plants should be discouraged due to aviation operations. <i>Other Partners: State Agencies</i>	Mid		■	□	□		□
ED-2B	Study Area	Develop a Geothermal Ordinance The City of Klamath Falls should develop a Geothermal Ordinance that considers military compatibility. The ordinance should do at a minimum the following: <ul style="list-style-type: none"> Establish and identify an appropriate area for geothermal development, Require dry cooling technology during winter months and on days where humidity and other weather elements are dense to reduce the risk of lingering steam plumes in the atmosphere, and Establish height limits for towers in the Geothermal Ordinance area. <i>Other Partners: State Agencies</i>	Mid	■		□	□		□

Issue / Strategy ID	Geographic Area	Issue / Strategy	Timeframe	City of Klamath Falls	Klamath County	Crater Lake – Klamath Regional (CL-KR) Airport	Kingsley Field / ORANG	ODOT	Other
ED-2C	Study Area	Develop a Geothermal Development Compatibility Map Develop a “Red”, “Yellow”, “Green” map that communicates and illustrates specific locations where geothermal development should be encouraged and areas where development should be prohibited in order to avoid incompatibility with Kingsley Field operations. Identify and publish locations for geothermal development that have ideal conditions for geothermal endeavors that are also compatible with military operations.	Mid	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
		See Strategies ED-1B, ED-1C							
Frequency Spectrum Impedance / Interference (FSI)									
FSI-1	Frequency Interference Radio transmissions from towers on KAGO Hill can interfere with aircraft communications.								
FSI-1A	MIAOD	Conduct a Frequency Source Identification Study The ORANG and CL-KR Airport should coordinate to conduct a frequency source identification study to determine what the source of interruption is to the Air Traffic Control Tower (ATCT). <i>Other Partners: Federal Communications Commission (FCC), FAA</i>	Mid			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input type="checkbox"/>
FSI-1B	Study Area	Advocate for Additional Bandwidth The City of Klamath Falls, Klamath County, and ORANG should coordinate to advocate to the FCC for additional bandwidth in support of continued military missions at Kingsley Field. <i>Other Partner: FCC</i>	Long	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>

Issue / Strategy ID	Geographic Area	Issue / Strategy	Timeframe	City of Klamath Falls	Klamath County	Crater Lake – Klamath Regional (CL–KR) Airport	Kingsley Field / ORANG	ODOT	Other
Land / Air / Sea Spaces (LAS)									
LAS-1	Existing Airfield Easements Could Be Inadequate for Ensuring Land Use Compatibility The terms of existing easements associated with land surrounding CL-KR Airport could be inadequate for ensuring land use compatibility.								
LAS-1A	Airfield Safety MIA	Update Avigation and Perpetual Easements The U.S. Air Force, ORANG, and Kingsley Field should collaborate with the City, the County, and other land owners to review and identify language in existing easements that may need to be updated in order to protect the property from the development of incompatible uses. <i>Other Partner: U.S. Air Force</i>	Long	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		<input type="checkbox"/>
LAS-1B	Airfield Safety MIA	Update CL-KR Airport Master Plan The 2005 Airport Master Plan should be updated to include the details of the avigation easements relevant to specific height limitations and incompatible land uses within the runway protection zones.	Mid	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Legislative Initiatives (LEG)									
LEG-1	Oregon Department of Fish and Wildlife Policies and Bird / Wildlife Aircraft Strike Hazards (BASH) Oregon Department of Fish and Wildlife policies limit mitigation strategies available for BASH.								
LEG-1A	State-wide	Explore Wildlife Policies for Military Compatibility CL-KR Airport and ORANG should coordinate and collaborate with ODFW on the inclusion of additional or revised wildlife policies that incorporate concerns related to BASH and assist in minimizing the risk of bird / wildlife air strikes in areas proximate to military training ranges. The airfield's location within the Pacific Flyway in addition to the state's maintenance of nearby wildlife areas, such as the Klamath Wildlife Area, make it important for the state to include policies in their Wildlife Management Plans that do not increase risk to aviation operations at Kingsley Field, and include provisions for managing and controlling avian populations in areas where they increase risk to both military and civil air operations. <i>Other Partner: ODFW</i>	Long			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input type="checkbox"/>

Issue / Strategy ID	Geographic Area	Issue / Strategy	Timeframe	City of Klamath Falls	Klamath County	Crater Lake – Klamath Regional (CL-KR) Airport	Kingsley Field / ORANG	ODOT	Other
Land Use (LU)									
LU-1	Incompatible Land Development Specific land uses and increased development intensity within the Study Area have the potential to inhibit mission-critical activities at Kingsley Field.								
LU-1A	MIAOD	<p>Establish a Military Influence Area Overlay District (MIAOD) and Topical Military Influence Areas (MIAs)</p> <p>Create a Military Influence Area Overlay District (MIAOD) composed of the Military Influence Areas (MIAs) that reflect the types and intensity of potential compatibility issues. The MIAs established should be used by local jurisdictions to achieve military compatibility. Implementation of the MIAOD, MIAs, and associated strategies for these areas will:</p> <ul style="list-style-type: none"> ▪ Create a broader framework for making sound planning decisions around military airfields; ▪ More accurately identify areas that can influence or be influenced by military missions; ▪ Protect public health, safety, and welfare; ▪ Protect the viability of military missions; ▪ Create a compatible mix of land uses; and ▪ Promote an orderly transition and rational organization of land use around military airfields. <p>The MIAs are defined as follows, and are illustrated on Figures 11 through 15.</p> <ul style="list-style-type: none"> ▪ Military Influence Area Overlay District – The MIAOD contains all the MIAs and associated subzones to create one overlay district. ▪ Airfield Safety MIA – encompasses the land within the civilian runway protection zones (RPZs) and the DOD-standard accident potential zones (APZs). <ul style="list-style-type: none"> ○ RPZs subzone – This includes the land that is located within all four RPZs that extend beyond each end of the runways. Since this airport is designated a civilian / municipal airport, it already has RPZs established. ○ DOD-standard APZs subzones – This area encompasses the land where the DOD provides recommendations for land uses due to higher incident rates near the runways. This 	Mid	■	■				

Issue / Strategy ID	Geographic Area	Issue / Strategy	Timeframe	City of Klamath Falls	Klamath County	Crater Lake – Klamath Regional (CL–KR) Airport	Kingsley Field / ORANG	ODOT	Other
LU-1A (cont'd)		<p>area includes the clear zone (CZ), APZ I, and APZ II.</p> <ul style="list-style-type: none">○ BASH Subzone – This subzone encompasses an area the measures five statute miles around the air operations area, which is the area where the central activity for air operations occurs.▪ ESQD Safety MIA – is the area that encompasses the land within the explosive safety quantity distance (ESQD) arc for munitions.▪ Noise MIA – includes all land under the noise contours received from ORANG’s Kingsley Field Master Plan database, and adopted by Klamath County and the City of Klamath Falls in 2008 and 2009, respectively. This MIA has four subzones, which are the different noise contours. They are:<ul style="list-style-type: none">○ 65 dB DNL noise contour subzone○ 70 dB DNL noise contour subzone○ 75 dB DNL noise contour subzone○ 80 dB DNL noise contour subzone▪ Vertical Obstruction MIA – includes all land within the FAA Part 77 area and the DOD imaginary surfaces.<ul style="list-style-type: none">○ FAA Part 77 Subzones – include all the land under the FAA Part 77 area, which is described both in Chapters 3 and 5 of the Background Report. There are four subzones associated with this area; they are:<ul style="list-style-type: none">● Up to 200 feet @ 3 Nautical Miles (NM) subzone● Up to 300 feet @ 4 NM subzone● Up to 400 feet @ 5 NM subzone● Up to 499 feet @ 6 NM subzone○ Imaginary Surfaces Subzone – includes all land within the imaginary surfaces of the airfield; they are:<ul style="list-style-type: none">● Primary Surface● Approach/Departure Clearance Surface● Inner Horizontal Surface● Conical Surface● Outer Horizontal Surface● Transitional Surface							

Issue / Strategy ID	Geographic Area	Issue / Strategy	Timeframe	City of Klamath Falls	Klamath County	Crater Lake – Klamath Regional (CL-KR) Airport	Kingsley Field / ORANG	ODOT	Other
LU-1A (cont'd)		Where appropriate, and when it does not create scenarios of inverse condemnation, the jurisdictions should incorporate the MIAOD and MIA boundaries on their zoning and land use maps and include the zones on their websites for easy access by the public.							
LU-1B	Study Area	Develop an AICUZ Study Explore the funding opportunities from the DOD in support of the Total Force Initiative to develop an AICUZ study for Kingsley Field. The Air Force should develop an AICUZ study to establish DOD standards for noise contours and safety zones, which can be used by the local communities to facilitate planning that is compatible with the Kingsley Field mission. The AICUZ study would need to be updated whenever significant changes to the mission occur. <i>Other Partner: US Air Force Civil Engineering Center (AFCEC)</i>	Mid				■		□
LU-2	Explosive Safety Quantity Distance Arc Footprint Limits Civilian Airport Development The location and use of ORANG's munitions storage and alert facilities and AT / FP standards pose limitations to airport development.								
LU-2A	Study Area	Kingsley Field Officials in Airport Planning CL-KR Airport should coordinate with Kingsley Field / ORANG relative to operational changes at the airport, updates of airport master plans, and on expansion plans that affect or may affect operations at Kingsley Field. The Kingsley Field officials will cooperate in an advisory capacity. Coordination between the CL-KR Airport and Kingsley Field on planned changes or modifications on or related to areas of mutual importance should be formalized through an MOU.	On-going			■	□		
LU-2B	State-wide	Update Statewide Planning Goals Members of the JLUS Coordination Committee should advocate for the Oregon State Legislature to consider updating statewide land use planning goals in order to incorporate goals and policies that consider military compatibility, including but not limited to, recommended safety zone and noise zone land use tables for application in the jurisdictions affected by civilian and military airports and aviation operations. <i>Other Partners: Oregon DLCD, Oregon State Legislature</i>	Long	■	■	□			□

Issue / Strategy ID	Geographic Area	Issue / Strategy	Timeframe	City of Klamath Falls	Klamath County	Crater Lake – Klamath Regional (CL–KR) Airport	Kingsley Field / ORANG	ODOT	Other												
Noise (NOI)																					
NOI-1	Potential Future Development within the Noise Contours There is a potential for an increase in noise issues or complaints caused by aircraft noise from overflight due to new residents not being aware of aviation operations in the area.																				
NOI-1A	Noise MIA	<p>Obtain State Authorization to Establish Local Sound Attenuation Standards for New Construction</p> <p>Klamath County and the City of Klamath Falls should obtain state authorization to amend their building codes to require sound attenuation measures for all new construction of noise sensitive land uses (e.g., residential uses, hospitals, elderly care facilities, schools, churches) located within the Noise MIA. These structures should be designed and constructed so as to limit their interior noise level to no greater than 45 dB DNL.</p> <p>The minimum sound transmission class (STC) rating of structure components shall be provided in compliance with the following table. As an alternative to compliance with this table, structures shall be permitted to be designed and constructed so as to limit their interior noise level to no greater than 45 DNL. Exterior structures, terrain and permanent plantings shall be permitted to be included as part of the alternative design.</p> <table><tr><th>dB DNL</th><th>STC of Exterior Walls and Roof / Ceiling</th><th>STC of Doors / Windows</th></tr><tr><td><u>65-69</u></td><td><u>39</u></td><td><u>25</u></td></tr><tr><td><u>70-74</u></td><td><u>44</u></td><td><u>33</u></td></tr><tr><td><u>>75</u></td><td><u>49</u></td><td><u>38</u></td></tr></table> <p><i>Other Partner: Oregon State Building Codes Division (BCD)</i></p>	dB DNL	STC of Exterior Walls and Roof / Ceiling	STC of Doors / Windows	<u>65-69</u>	<u>39</u>	<u>25</u>	<u>70-74</u>	<u>44</u>	<u>33</u>	<u>>75</u>	<u>49</u>	<u>38</u>	Mid	■	■				□
dB DNL	STC of Exterior Walls and Roof / Ceiling	STC of Doors / Windows																			
<u>65-69</u>	<u>39</u>	<u>25</u>																			
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Issue / Strategy ID	Geographic Area	Issue / Strategy	Timeframe	City of Klamath Falls	Klamath County	Crater Lake – Klamath Regional (CL-KR) Airport	Kingsley Field / ORANG	ODOT	Other
NOI-1B	Noise MIA	Obtain State Authorization to Establish Local Sound Attenuation Standards for Significant Expansion / Remodeling Klamath County and the City of Klamath Falls shall obtain authorization from the state to establish building standards that would apply to the significant extension, enlargement, relocation, reconstruction, or substantial alteration of an existing residential use within the Noise MIA. The standard shall include the implementation of sound attenuation as part of the structure, and be designed to reduce interior noise to 45 dB DNL. A significant expansion or remodel is defined as an activity that modifies, alters, or expands an existing use by 50 percent. This shall also apply to changes in a structure that result in an increase in the number of habitable units within the structure (with habitable units as defined by the 2010 U.S. Census). <i>Other Partner: Oregon State BCD</i>	Long	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input type="checkbox"/>
NOI-1C	Noise MIA	Develop and Provide Sound Attenuation Educational Support Develop and provide educational materials describing building techniques which can be used to achieve the required 45 dB interior noise maximum threshold, and the potential incompatibilities associated with the construction of modular homes. <i>Other Partner: Oregon State BCD</i>	Mid	<input checked="" type="checkbox"/>					<input type="checkbox"/>
NOI-1D	Noise MIA	Record Notes on Titles to Real Property Require that a note be recorded on a title for real property located within the Noise MIA as part of any discretionary development permit or approval. The note shall state that the real property is located in proximity to an active military training facility that performs day and night time training operations, both ground and air, and that the military operations may produce noise, vibration, and other related effects.	Mid	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				
		See Strategy LU-1B							

Issue / Strategy ID	Geographic Area	Issue / Strategy	Timeframe	City of Klamath Falls	Klamath County	Crater Lake – Klamath Regional (CL-KR) Airport	Kingsley Field / ORANG	ODOT	Other
NOI-2	Noise Impacts on Modular Homes Modular homes are perceived to have lower noise insulation construction because they are manufactured in a factory. It is suggested modular homes may be impacted by aircraft noise more than traditional homes.								
		See Strategy NOI-1C							
NOI-3	Concentrated Air Operations Operations involving more than one aircraft increase the potential for noise complaints.								
NOI-3A	Study Area	Enhance and Formalize Communications About Scheduled Operations via Media and Social Media Notifications Kingsley Field should enhance existing notification measures and formalize communication procedures with Klamath County and the City of Klamath Falls to improve and enhance information distribution regarding operations. Such enhancements should include, but not be limited to, the following: <ul style="list-style-type: none"> Media advisories distributed to the county and city public information offices; Link social media accounts and advisories webpage to local jurisdictions' websites for the broad distribution of notifications; Public service announcements; Consider developing a brochure to incorporate on local jurisdictions' websites; Include days and hours of firing range use and flight training; and Include links to official noise contours and safety zones on city website. 	Short	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
NOI-4	Summer Night Training During the summer months, nighttime air operations create additional noise concerns.								
		See Strategy NOI-3A							

Issue / Strategy ID	Geographic Area	Issue / Strategy	Timeframe	City of Klamath Falls	Klamath County	Crater Lake – Klamath Regional (CL-KR) Airport	Kingsley Field / ORANG	ODOT	Other
NOI-5	Commercial Dairy Farms Near the Airfield Commercial dairy farms may not be compatible with areas exposed to high levels of aircraft noise.								
NOI-5A	Noise MIA	Amend County LDC and City Zoning Ordinance for Military Compatibility Klamath County and the City of Klamath Falls should consider amending their zoning regulations to consider military compatibility. Such considerations should include, but not be limited to the following: <ul style="list-style-type: none"> Adopt the Noise MIA in the zoning regulations and discourage noise sensitive land uses from high noise areas, such as the land under aircraft approach/departure paths; Incorporate the DOD Instruction 4165.57 recommendations on recommended land uses within specific noise contours; and Not allow dairy farming within the 75 dB DNL or higher noise contours. <i>Other Partner: Oregon Department of Agriculture</i>	Long	■	■		□		□
Safety Zones (SA)									
SA-1	Explosive Safety Quantity Distance (ESQD) Arc Extends Off-Installation The ESQD arc extends outside of the installation boundaries onto private properties.								
SA-1A	ESQD Safety MIA	Resolve ESQD Arc Easement Status Kingsley Field should coordinate with the Air Force or ORANG Real Property Division to resolve the status of the Air Force's easement pertaining to the ESQD arc. The easement language should be amended to include restrictions on structures off installation that are not compatible within the ESQD arc. <i>Other Partners: Air Force, land owners</i>	Short				■		■

Issue / Strategy ID	Geographic Area	Issue / Strategy	Timeframe	City of Klamath Falls	Klamath County	Crater Lake – Klamath Regional (CL-KR) Airport	Kingsley Field / ORANG	ODOT	Other
SA-2	Land Uses Near the Airfield Can Increase the Incidence of Bird / Wildlife Aircraft Strike Hazards (BASH) Surface waters (e.g., canals, open ponds, and nature preserves), vegetation, and land uses near the airfield can attract birds which can impact air operations.								
SA-2A	BASH Subzone	Update Plans and Amend Zoning Ordinances The City of Klamath Falls and Klamath County should consider updating plans, amending zoning ordinances, and land development codes to consider military compatibility, including but not limited to: <ul style="list-style-type: none"> ▪ Incorporate DOD Instruction 4165.57 recommended guidelines for land uses near the airfield to reduce the potential for increased BASH incidents within DOD airfield safety zones. ▪ Klamath County and the City of Klamath Falls should include diagrams of the BASH Subzone and encourage uses that would not attract more birds and wildlife in this area. ▪ Adopt the Airfield Safety MIA and incorporate the BASH Subzone on maps and in planning documents. 	Mid	■	■	□	□		
SA-2B	BASH Subzone	Acquisition of Land Near Airfield Kingsley Field, local agencies, and land conservancies should identify and collaborate to acquire or place into easement the land near the airfield with high potential for BASH related incidents, including the ponds north of the runway. This would help to encourage management of the area in a manner that is compatible with airfield operations. Additional areas within the 5-mile BASH Subzone that are prone to bird and wildlife activity, including water bodies and other wildlife attractants, should also be evaluated for potential acquisition or easement. <i>Other Partners: Land conservancies, environmental groups, other state agencies</i>	Long	□	□	■	■		■

Issue / Strategy ID	Geographic Area	Issue / Strategy	Timeframe	City of Klamath Falls	Klamath County	Crater Lake – Klamath Regional (CL-KR) Airport	Kingsley Field / ORANG	ODOT	Other
SA-2C	Study Area	Readiness Environmental Protection Integration (REPI) Kingsley Field should consider applying for REPI funding to secure acquisition funding for strategic areas around the airfield, such as the ponds located north of the runway, in order to protect the land from being managed in ways that are incompatible with current and potential future Kingsley Field missions. <i>Other Partners: Nature conservancies, land trusts, willing landowners</i>	Long				■		□
SA-3	Surface Danger Zone (SDZ) is Not Owned by the Oregon National Guard Land in the SDZ associated with the Combat Arms Training and Maintenance (CATM) range is not owned by the Oregon National Guard (ONG) and is subject to jurisdictional land use controls.								
SA-3A	Study Area	Consider Public-Public Public-Private (P4) Partnerships for Cost Savings Identify opportunities for jurisdictions and Kingsley Field to partner on mutual endeavors to acquire or exchange land in order to achieve cost savings and to secure / protect land for military use.	Mid	■	■	■	■	■	
SA-3B	MIAOD	Public Notification of Rifle Range Activity Kingsley Field/ORANG should establish public notification procedures using website postings and other available resources, to inform the public of the days and times that the firing range will be utilized. Neighbors who are located within the firing range area should be notified in writing via the US Postal Service.	Short				■		
SA-3C	Study Area	Fund and Construct Indoor Firing Range The National Guard, Klamath County, and the City of Klamath Falls should coordinate to advocate to the state congressional delegation to support an emergency MILCON to build an indoor firing range at Kingsley Field. Additional funding to support the construction should be explored through state and federal grant opportunities, as well as funding from other potential users of the facility, including local law enforcement agencies.	Mid	■	■	■	■		
		See Strategy SA-2C							

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SA-4	Runway Clear Zones and Runway Protection Zones Extend Outside the Airport Boundaries Runway clear zones and runway protection zones currently extend onto private properties and traverse railroad tracks to the north and west of the airport. Plans for future runway expansion is also constrained by railroad tracks on the east side of the property.								
SA-4A	Airfield Safety MIA	Coordinate with Burlington Northern Santa Fe (BNSF) and Union Pacific (UP) on Consideration of Railroad Relocation Kingsley Field and CL–KR Airport should coordinate with BNSF and UP to discuss possible railroad relocation to minimize risk associated with active railways and related railroad infrastructure within CZs and RPZs, and to enable potential runway expansion. <i>Other Partners: BNSF, UP</i>	On-going			■	■		■
SA-4B	Airfield Safety MIA	Possible Land Swap Between Kingsley Field / CL–KR Airport and BNSF and UP Due to the incompatibilities of structures and infrastructure within DOD CZs, Kingsley Field and CL–KR Airport should facilitate discussions about possible land swap between CL–KR Airport and the railroads. DOD Instruction 4165.57 provides recommended guidelines for land uses near the airfield to minimize risk associated with DOD airfield safety zones, and defines a CZ as an area that should be kept clear of all structures and objects that extend above ground level. These guidelines are identified in DOD AICUZ tables in Chapter 5 of the JLUS Background Report. The Airfield Safety MIA should be adopted and the DOD Airfield Safety Zones should be included on maps and in planning documents to encourage compatibility between the goals of military and civil aviation and the railroads. <i>Other Partners: BNSF, UP</i>	Long			■	■		■

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SA-5	Airfield Safety Zones Because ORANG is a tenant on a civilian airport, the airfield safety zones are based on FAA commercial airfield safety zones, which create the potential for incompatible land use associated with military operations.								
SA-5A	Airfield Safety MIA	Explore the Advantages of an FAA Joint Civilian-Military Use Airfield Designation CL–KR Airport, in collaboration with Kingsley Field and the City of Klamath Falls, should explore the advantages and disadvantages of obtaining an official designation of Joint Use-Civilian/Military by the FAA to enable implementation of DOD-airfield safety zones. <i>Other Partner: FAA</i>	Long	■		■	□		□
SA-5B	Airfield Safety MIA	Map Future Approach, Departure, and Safety Zones for Crosswind Runway Extension The approach, departure, and RPZ/APZ areas for the crosswind runway need to be mapped by Klamath County, the airport, and Kingsley Field to be able to evaluate the compatibility of future development.	Short	□	■	■	□		
SA-5C	Airfield Safety MIA	Airfield DOD Safety Zone Land Use Evaluation The JLUS Coordination Committee should work with Klamath County and the City of Klamath Falls to prepare a comprehensive land use evaluation of the land within the safety zones (DOD-standard CZ & APZs) of the airfield to identify property owners, vacant land, entitled land, and other recorded instruments on the land within the safety zones. <ul style="list-style-type: none"> ▪ This information will be used to determine lands that have willing sellers that can be acquired to secure lands within the CZs and APZs that are not developed. ▪ The study should also identify funding mechanisms for acquisition, such as the REPI, municipal bonds, sales tax revenue, grants, etc. <i>Primary Partner: JLUS Coordination Committee</i>	Long	□	□		□		■
		See Strategies LU-1B and SA-2A							

Issue / Strategy ID	Geographic Area	Issue / Strategy	Timeframe	City of Klamath Falls	Klamath County	Crater Lake – Klamath Regional (CL–KR) Airport	Kingsley Field / ORANG	ODOT	Other
SA-6	New Federal Emergency Management Agency Maps Identify CL–KR Airport within Flood Plain The Federal Emergency Management Agency (FEMA) is considering new maps which indicate that the CL–KR Airport is located within the 100-year floodplain. The information provided to FEMA is being updated by the Bureau of Land Management. If the hazard extends onto areas used by Kingsley Field/ORANG, safety related to flooding could degrade military readiness.								
SA-6A	Study Area	Update Klamath County Multi-Jurisdictional Natural Hazards Mitigation Plan Klamath County should update the Hazards Mitigation Plan to incorporate new FEMA reaches and actions to mitigate flooding for CL–KR Airport and military compatibility policies.	Short		■	□	□		
SA-7	Recreational Area in the DOD CZ There are recreational baseball fields that could encourage the congregation of people in the DOD CZ of Runway 14.								
SA-7A	MIAOD	Amend County LDC for Military Compatibility Klamath County should consider amending its LDC to incorporate military compatibility regulations and the DOD recommended land use tables for safety. If Klamath County adopts the DOD airfield safety zones, then areas within the CZs would need to be maintained free of all structures and would restrict uses that promote public gatherings in order to foster military compatibility and safety for the general public.	Mid		■	□	□		
SA-8	Proposed Development Could Potentially Impact the Safety of Aircraft Operations The location, height, and design features of proposed structures at Kingsley Field may obstruct line-of-sight between the ATCT and the area around the airfield and could increase bird activity at the airport.								
SA-8A	CL–KR Airport	Continue to Coordinate on Airfield Development Kingsley Field and CL–KR Airport should continue to coordinate on designs for new facilities and existing facility improvements to minimize incompatible airfield design elements, such as water features that attract birds, and elevations that could interfere with aircraft operations.	On-going			■	■		

Issue / Strategy ID	Geographic Area	Issue / Strategy	Timeframe	City of Klamath Falls	Klamath County	Crater Lake – Klamath Regional (CL–KR) Airport	Kingsley Field / ORANG	ODOT	Other
Vertical Obstructions (VO)									
VO-1	Maximum Building or Structure Height Limits are Not Established in Local Development / Zoning Codes Jurisdictions surrounding Kingsley Field do not establish maximum heights for some land uses, such as telecommunications towers.								
VO-1A	Imaginary Surfaces Subzone	Create Overlay District for Imaginary Surfaces Heights and Slopes Klamath County and the City of Klamath Falls should establish and adopt an overlay district that reflects the U.S. Air Force's (USAF) Airfield Imaginary Surface guidelines. These surfaces define a maximum height based on location in relation to the airfield. The new overlay districts should incorporate the slopes and heights associated with each imaginary surface. <i>Other Partners: FAA, DOD / USAF</i>	Mid	■	■		□		□
VO-1B	Imaginary Surfaces Subzone	Update Airport Master Plan for Imaginary Surfaces Heights and Slopes CL–KR Airport should update its Master Plan to comply with the USAF's Airfield Imaginary Surfaces. The master plan should incorporate the slopes and heights associated with each imaginary surface.	Mid			■	□		
VO-1C	Imaginary Surfaces Subzone	Create Imaginary Surface Maps of Study Area The City of Klamath Falls should develop imaginary surface maps that define area elevations as they relate to the topography of the area, to better inform decision makers on the siting of structures that could potentially impede navigable airspace. These maps would identify areas with strict limitations on height due to the area's topography.	Mid	■			□		
		See Strategy SA-5B							
VO-2	FAA Obstruction Evaluation (OE) There is no formal process for requiring OEs at the jurisdictional level.								
VO-2A	FAA Part 77 Subzone	Establish Local Process for FAA Obstruction Evaluation Klamath County and the City of Klamath Falls should require cellular communication companies and other industries that submit proposals for towers or antennas within the FAA Part 77 Subzone to participate in the FAA's Obstruction Evaluation Process.	Short	■	■				

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Water Quality / Quantity (WQQ)									
WQQ-1	Concern over the Sustainability of Water Resources Limited water quantities have the potential to increase compliance and regulatory restrictions on water usage for agriculture and development, which could impact and / or limit ORANG mission.								
WQQ-1A	Study Area	Regional Water Resources Studies Klamath County, the City of Klamath Falls, and Kingsley Field should participate collaboratively in regional studies of the area's water resources. <i>Other Partners: Oregon DLCD, Oregon Water Resources Department</i>	Mid	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		<input type="checkbox"/>

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