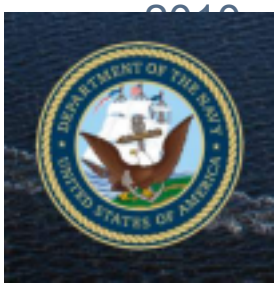
Air Installations Compatible Use Zones Study for NAS Pensacola and NOLF Saufley



Air Installations Compatible Use Zones Study for Naval Air Station Pensacola and Navy Outlying Landing Field Saufley

2010

Prepared by:

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Acronyms, Abbreviations, and Definitions

AICUZ Air Installations Compatible Use Zones

AIPD Air Influence Planning District

ALF Auxiliary Landing Field

ANSI American National Standards Institute

APZ Accident Potential Zone

BASH Bird/Animal Aircraft Strike Hazard

CNEL Community Noise Exposure Level

CNET Chief of Naval Education and Training

CNATRA Chief of Naval Air Training

CSO Combat Systems Officer

CY Calendar Year

dB decibel

dBA A-weighted decibel

DNL day-night average sound level

DoD United States Department of Defense

EA environmental assessment

EIS environmental impact statement

EMI electromagnetic interference

EPA U.S. Environmental Protection Agency

EUL Enhanced Use Lease

FAA Federal Aviation Administration

Acronyms, Abbreviations, and Definitions, *continued*

FCLP Field Carrier Landing Practice FDEP Florida Department of Environmental Protection FEMA Federal Emergency Management Agency FICON Federal Interagency Committee on Noise FICUN Federal Interagency Committee on Urban Noise FTG Flying Training Group

GCA ground control approach

ha hectares

HSU Helicopter Support Unit

HUD Housing and Urban Development IFLOS Improved

Fresnel Lens Optical System IFR instrument flight rules

JLUS Joint Land Use Study

JPATS Joint Primary Aircraft Training System JSF Joint Strike

Fighter

km kilometer

LDC Land Development Code

LSA Logistical Staging Area

MATSG Marine Aviation Training Support Group MOA Military

Operating Area

MSL Mean Sea Level

MWR Morale, Welfare, and Recreation NAMI Naval Aerospace

Medical Institute NAMRL Naval Aerospace Medical Research

Laboratory NAS Naval Air Station

NASC Naval Aviation Schools Command

Acronyms, Abbreviations, and Definitions, *continued*

NATC Naval Air Training Command

NATTC Naval Air Technical Training Center

Navy United States Department of the Navy

NEPA National Environmental Policy Act

NETC Naval Education & Training Command

NETPDTC Naval Education & Training Program Development & Technology Center NFO Naval

Flight Officer

NOLF Navy Outlying Landing Field

NOMI Naval Operational Medicine Institute

NORU Naval Orientation Recruiting Unit

NWFWMD North West Florida Water Management District

OLF Outlying Landing Field

OPNAVINST Chief of Naval Operations Instruction

SHP shaft horsepower

STOVL short takeoff and vertical-landing variant

SUA Special Use Airspace

TDR Transfer of Development Rights

TRAWING Training Air Wing

USAF United States Air Force

U.S.C. United States Code

VFR visual flight rules

WWII World War II

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1 Introduction

Historically, military bases were established in rural areas of the country. However, over time, many of these areas have experienced associated population growth and increased development in close

proximity to the military installation. This growth can be seen immediately outside facility fence lines as well as throughout the surrounding areas, and the developments primarily take the form of new housing and commercial sites. New homes are constructed close to the installation to allow both military and civilian personnel to live near their employer. Similarly, businesses are established near the facility to take advantage of the large workforce that becomes a strong consumer base for goods and services.

As the number of residences, commercial developments, and other land uses around the military installations rise, the potential for the establishment of incompatible land uses can also increase. If the growth of a community is not controlled by local government through the use of comprehensive zoning and land use planning that takes the operational activities of a military airfield into account, both the mission of the military field and the well-being of the community can be adversely impacted.

The United States Department of Defense (DoD) initiated the Air Installations Compatible Use Zones (AICUZ) Program to help governmental entities and communities anticipate, identify, and promote compatible land use and development near military installations. The goal of this program is to protect the health, safety, and welfare of those living or working near military air installations, as well as protect the military operational capabilities of the air station. This is achieved by promoting compatible land use patterns and activities in the vicinity of a military installation.

The goal of the AICUZ Program is to protect military operational capabilities and the health, safety, and welfare of the public by achieving compatible land use patterns and activities in the vicinity of a military installation.

The AICUZ Program recommends that noise levels, Accident Potential Zones (APZs), and flight clearance requirements associated with military airfield operations be incorporated into local community planning programs in order to maintain the airfield's operational requirements while minimizing the impact to residents in the surrounding community. Mutual cooperation between military airfield planners and community-based counterparts serves to increase public awareness of the importance of air installations and the need to address mission requirements and associated noise and risk factors. As the communities

that surround airfields grow and develop, the United States Department of the Navy (Navy) has the responsibility to communicate and collaborate with local government on land use planning, zoning, and similar matters that could affect the installations' operations or missions.

This AICUZ study has been prepared for Naval Air Station (NAS) Pensacola and Navy Outlying Landing Field (NOLF) Saufley, both of which are located in Pensacola, Florida. This 2010 AICUZ looks comprehensively at past, present, and future operational requirements and expectations for the two fields, in association with current and proposed land use trends within Escambia County. The purpose of this document is to assist Navy and community planners in ensuring compatible development around NAS Pensacola and NOLF Saufley, while simultaneously maintaining the operational integrity of both airfields into the foreseeable future.

This study provides background on the AICUZ Program and historical data from previous AICUZ studies for both NAS Pensacola and NOLF Saufley (Section 1) and describes locations and features of these facilities (Section 2). Section 3 discusses present-day and projected aircraft operations. Section 4 presents the updated aircraft noise contours, outlining the methodology for how the noise contours were determined, what changes have occurred, and what the future expectations are for change, as well as what measures have been implemented by the Navy to mitigate any community noise concerns. Aircraft safety issues and the development of APZs are discussed in Section 5. Section 6 evaluates the compatibility of both current and

proposed land uses as provided by Escambia County. Finally, Section 7 provides recommendations to Navy installation planners for promoting land use compatibility consistent with the goals of the AICUZ Program.

1.1 AICUZ Program Requirements

In the early 1970s, the DoD established the AICUZ Program to balance the need for aircraft operations and community concerns over aircraft noise and accident potential. The AICUZ Program was developed in response to growing incompatible urban development (encroachment) around military airfields. The objectives of the AICUZ Program,

according to the Chief of Naval Operations Instruction (OPNAVINST 11010.36C), are as follows:

- To protect the health, safety, and welfare of civilians and military personnel by encouraging land use which is compatible with aircraft operations;
- To protect Navy and Marine Corps installation investments by safeguarding the installations' operational capabilities;
- To reduce noise impacts caused by aircraft operations while meeting operational, training, and flight safety requirements, both on and in the vicinity of air installations; and
- To inform the public about the AICUZ Program and seek cooperative efforts to minimize noise and aircraft accident potential impacts by promoting compatible development in the vicinity of military air installations.

Noise zones and APZs are planning tools for both the air installation and local planning departments. These zones represent areas that are vital to the continuing operations of the air installation. Since they may extend beyond the "fence line" of the installation, presentation of the most current dimensions of noise zones and APZs through development of an updated AICUZ study to community-based planners is essential to fostering mutually beneficial land use.

In addition to the Navy AICUZ instruction, the Federal Aviation Administration (FAA) and DoD also have developed specific instructions and guidance to encourage local communities to restrict development or land uses that could endanger aircraft in the vicinity of

The AICUZ study analyzes community development trends, land-use tools, and mission requirements to develop a recommended strategy for communities to prevent incompatible land development adjacent to the installation.

the airfield, including lighting (direct or reflected) that would impair pilot vision; towers, tall structures, and vegetation that penetrate navigable airspace or are constructed near the airfield; uses that generate smoke, steam, or dust; uses that attract birds, especially waterfowl; and electromagnetic interference (EMI) sources that may adversely affect aircraft communication, navigation, or other electrical systems. These issues are discussed in greater detail in Section 5 of this study.

Key documents that outline the authority for the establishment and implementation of the NAS Pensacola and NOLF Saufley AICUZ Programs, as well as guidance on facility requirements, are derived from:

- DoD Instruction 4165.57, "Air Installations Compatible Use Zones," dated November 8, 1977;
- OPNAVINST 11010.36C, "Air Installations Compatible Use Zones Program," dated October 9, 2008;
- Unified Facilities Criteria 3-260-01, "Airfield and Heliport Planning and Design," dated May 19, 2006;
- Naval Facilities Engineering Command P-80.3, "Facility Planning Factor Criteria for Navy and Marine Corps Shore Installations: Airfield Safety Clearances," dated January 1982; and
- United States Department of Transportation, FAA Regulations, Code of Federal Regulations, Title 14, Part 77, "Objects Affecting Navigable Airspace."

1.2 Purpose, Scope, and Authority

The purpose of the ACIUZ Program is to achieve compatibility between air installations and neighboring communities. OPNAVINST 11010.36C is the current Navy guidance document that governs the AICUZ Program. To satisfy the purpose of the AICUZ Program, the military installation must work with the local community to discourage incompatible development of lands adjacent to the installation. As development encroaches upon the airfield, more people are potentially exposed to noise and accident potential associated with aircraft operations. The scope of the AICUZ study includes an analysis of:

- Aircraft noise zones for existing conditions and future-year forecasts, as well as APZs;

- Land use compatibility;
- Operational alternatives;
  - Noise reduction strategies; and
- Possible solutions to existing and potential incompatible land use problems.

The AICUZ study uses an analysis of community development trends, land use tools, and mission requirements at the airfield to develop a recommended strategy for communities that prevents incompatible land development adjacent to the installation. AICUZ considerations are based on the impacts of noise, the safety considerations of aircraft accidents, and economic considerations relating to public funds and local economic viability. The basis for implementing AICUZ guidelines lies in the air installation commander's cooperation with the local governments to protect the installation's mission requirements while simultaneously protecting and promoting the public's health, safety, and welfare.

1.3 Responsibility for Compatible Land Use

Ensuring land use compatibility within the AICUZ is the responsibility of many organizations, including the DoD and Navy, the local naval air installation command, local planning and zoning agencies, real estate agencies, residents, developers, and builders. Military installations and local government agencies with planning and zoning authority share the responsibility for preserving land use compatibility near the military installation. Cooperative action by all parties is essential to prevent land use incompatibility and hazards to the neighboring community. Table 1-1 identifies some responsibilities for various community stakeholders residing in proximity to an installation.

Table 1-1 Responsibility for Compatible Land Uses

Navy	▪ Examine air mission for operation changes that could reduce impacts. ▪ Conduct noise and APZ studies. ▪ Develop AICUZ maps. ▪ Examine local land uses and growth trends. ▪ Make land use recommendations. ▪ Release an AICUZ study. ▪ Work with local governments and private citizens. ▪ Monitor operations and noise complaints. ▪ Update AICUZ plans, as required.
Local Government	▪ Incorporate AICUZ guidelines into a comprehensive development plan and zoning ordinance. ▪ Regulate height and obstruction concerns through an airport ordinance. ▪ Regulate acoustical treatment in new construction. ▪ Require fair disclosure in real estate for all buyers, renters, lessees, and developers.
Private Citizens	▪ Educate oneself on the importance of the installation's AICUZ Program. ▪ Identify AICUZ considerations in all property transactions. ▪ Understand AICUZ effects before buying, renting, leasing, or developing property.
Real Estate Professionals	▪ Ensure potential buyers and lessees receive and understand AICUZ information on affected properties. ▪ When working with builders/developers, ensure an understanding and evaluation of the AICUZ Program.
Builders/Developers	▪ Develop properties in a manner that appropriately protects the health, safety, and welfare of the civilian population by constructing land use facilities which are compatible with aircraft operations (e.g., sound attenuation features, densities, occupations).

1.4 Previous AICUZ Efforts and Studies

The original, complete AICUZ for NAS Pensacola was approved by the Chief of Naval Operations and published in January 1976. This study was partially updated through various addenda, studies, and technical memoranda between 1983 and 1990. These addenda were developed to account for changes in aircraft that were being used at the facilities, changes in operational parameters such as revised flight tracks, and changes derived from revisions to the Navy AICUZ instructions.

The following list highlights the NAS Pensacola AICUZ timeline along with key changes which triggered the modifications to the 1976 AICUZ study:

- **1976 AICUZ Study for NAS Pensacola.** This original AICUZ was a result of exhaustive analysis of all known methods of reducing

noise impacts on the surrounding community and incorporated flight patterns, increased and modified operations, and methods for achieving compatible land uses within the impact areas. "Aircraft Noise Study Naval Station Pensacola, Florida," from June 1972, was the source for existing composite noise rating zones and some of the flight operations.

- **1988 AICUZ Technical Memorandum for NAS Pensacola.** This memorandum was an update to the 1976 AICUZ study and provided a historical assessment of flight operations between 1976 and 1987, which validated the accuracy of prior updates. This memorandum collectively presented data that was made available in the following updates for NAS Pensacola:

  - *1983 AICUZ Noise Footprint Update.* This update was completely superseded in 1986 due to a change in flight operations and changes in aircraft.

  - *1987 AICUZ Noise Footprint Update.* Airfield field noise measurements were collected in 1986 to support this study. In addition, detailed data on numbers of operations, percent use of each arrival, departure, and pattern, aircraft power settings, speed and altitudes, and number and duration of run-ups were collected. No records summarizing this type of detailed information were collected or kept at NAS Pensacola prior to this update.

- **1990 AICUZ Addendum for NAS Pensacola.** This update to the 1976 AICUZ included the use of revised noise methodology, operations that are flown by quieter aircraft, new APZ guidelines, and changes in runway utilization. The update also included data made available from the 1987 update.

A noise study was completed for NOLF Saufley in 1986 as part of a larger study for NAS Whiting Field and several other outlying landing fields (OLFs) in Florida and Alabama. The noise study for NOLF Saufley was revised in 2000 and again in 2007 through updates that were developed to assess the impacts of replacing the T-34 "Turbomentor" aircraft with the T-6 "Texan" Joint Primary Aircraft Training System (JPATS). There is limited information for activities for NOLF Saufley prior to the 1986 noise study. Therefore, early operational activities are based on historic accounts and not necessarily AICUZ or noise study specific documents.

Previous AICUZ documents for NAS Pensacola and NOLF Saufley were examined and used as the baseline for the Escambia County 2003 JLUS.

The noise contours for NAS Pensacola (1990 AICUZ addendum) and the noise contours for NOLF Saufley (2000 noise study update) were utilized in the 2003 JLUS.

1.5 Changes that Require an AICUZ Update

AICUZ studies should be updated when an air installation has a significant change in aircraft operations (i.e., the number of takeoffs and landings), a change in the type of aircraft stationed and operating at the installation, or changes in flight paths or procedures. The history of prior AICUZ studies and the changes that resulted in revisions to earlier AICUZ documents were described in the previous section.

In accordance with OPNAVINST 11010.36C, this AICUZ update has been prepared to reflect changes in airfield operations at NAS Pensacola since the last AICUZ update (prepared in 1976) including changes in aircraft type, to incorporate NOLF Saufley into the study, to examine any reasonable projected mission changes over the next five years, and to incorporate the Joint Strike Fighter (JSF) as a transient aircraft as it is expected to be operational within this decade.

1.5.1 Changes in Operations Level

The primary mission of NAS Pensacola in 1976 was associated with aviation, naval training, and aircraft research. As a result, flight activities at NAS Pensacola were extremely varied, from student pilots making their first jet aircraft flight, to experienced pilots flying the Navy's most advanced aircraft. In 1976, NAS Pensacola also trained helicopter pilots to fly the large twin-rotor HH-46 Boeing Sea Knight aircraft. Navigation and radar training was also conducted at NAS Pensacola. Due to training missions, flight operations over this time period varied depending on the number of student aviators at NAS Pensacola. The five-year average between 1970 and 1974 was 187,539 annual flights.

Currently, NAS Pensacola conducts significant naval aviation training and serves as the home field for all Training Air Wing (TRAWING) 6 operations. Fixed-wing and rotary-wing operations are also generated by the Blue Angels Flight Demonstration Team training, 479th Flying Training Group, fleet detachments, and transient aircraft. Touch-and-go, emergency landing practice and instrument approach practice account for the bulk of NAS Pensacola operations (Table 1-2).

Table 1-2 Annual Military and Civilian Operations by Year at NAS Pensacola

Calendar Year	Annual Operations		
	Military	Civilian	Total

	Navy	Other	Air Carrier	General Aviation	
2008	79,954	8,534	144	880	89,512
2007	77,188	7,977	8	166	85,339
2006	76,025	6,799	23	874	83,721
2005	88,025	9,100	68	1,682	98,875
2004	86,958	9,117	53	2,133	98,261
2003	119,996	8,685	74	1,200	129,955
2002	99,115	9,021	75	1,375	109,586
2001	94,203	7,342	43	1,013	102,601
2000	96,433	10,177	44	1,541	108,135
1999	89,549	13,613	119	1,138	104,419

Source: Adapted from Wyle August 2008 and NAS Pensacola 2009

Over time, the operational tempo at NOLF Saufley has fluctuated. NOLF Saufley has been redesignated several times, and most recently has been used in coordination with the Federal Emergency Management Agency (FEMA) in response to Hurricane Ivan in 2004. Additionally, NOLF Saufley has been used as a NOLF to support TRAWING 5 of NAS Whiting Field and TRAWING 6 of NAS Pensacola. Prior to Hurricane Ivan, during 2002, NOLF Saufley generated 43,093 flight operations.

1.5.2 Changes in Aircraft Mix

Aircraft mix at NAS Pensacola has changed significantly since the 1976 AICUZ. At that time, 11 types of aircraft used the airfield and, by 1985, there were 16 types. For Calendar Year (CY) 2008, there were 27 types of aircraft that utilized NAS Pensacola and NOLF Saufley. Table 1-3 outlines the mix of both permanently stationed and transient aircraft operating from the two airfields being studied.

1.5.3 Changes in Flight Tracks and Procedures

There have been notable changes that have occurred in flight tracks and procedures for NAS Pensacola since the 1976 AICUZ Study and 1990

AICUZ update were published. Flight tracks established by NAS Pensacola are dependent on aircraft mix, operational level, runway usage, and control measures. As summarized in Table 1-3, there has been a significant change in aircraft mix, which results in changes in flight tracks and procedures as each individual aircraft has specific requirements for operation. Additionally, as summarized in Table 1-2, the operational level over time has changed which, in turn, results in changes in flight tracks and procedures.

Since its designation as an OLF in 1976, NOLF Saufley has had notable changes in flight tracks and procedures due to previous inconsistent use as an OLF, changes in runway conditions, and changes in aircraft that use the field. However, today, NOLF Saufley is an established NOLF used regularly by NAS Whiting Field and NAS Pensacola.

Table 1-3 Aircraft Types at NAS Pensacola and NOLF Saufley by Year

1976	1985	2008	2012*
Permanent	**Permanent**	**Permanent**	**Permanent**
T-2	T-2	T-6	**T-6**
A-4	A-4	T-39	T-39
TA-4	TA-4	T-1	T-1

T-39	T-39	T-2	T-45
H-34	HH-46A	F/A-18A/B	F/A 18-C/D
A-6	A-6	H-60	**Transient**
F-14	F-14	**Transient**	F/A-18E/F
T-28	T-34	T-45	F-35A/B/C
F-9	T-47	**TH-57**	T-45
S-2	P-3	**T-34**	BE20
A-7	C-130	AV-8	**TH-57**
T-39	C-141	F-5	P-3C
F-4	C-5	P-3	**H-60**
VT-4	F/A-18	H-60	T-38
VT-10	UH-IN	T-38	H-3
HH-46	SH-3D	H-3	BE-9
		BE-9	F-16
		F-16	C-40
		S-3	C-130
		DC-9	B-190
		C-130	C-2
		B-190	C-560
		B-737	EA-18G
		C-2	EA-6B
		C-560	F-15
		EA-6B	F-22
		F/A-18E/F	UAVs (RQ-4, MQ-8)
		F-15	P-8
		C-40	
		BE-20	

Source: AICUZ 1976; AICUZ Addendum 1985; Wyle Noise Study August 2008
Notes:
* = All foreseeable projections out to 2012 and includes projections of the F-35 as transient aircraft which are expected to occur this decade
Bold = also at NOLF Saufley.

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2 NAS Pensacola & NOLF Saufley

2.1 Location

Naval Air Station (NAS) Pensacola and Navy Outlying Landing Field (NOLF) Saufley are located in Escambia County in the Florida Panhandle. NAS Pensacola is located on a peninsula within the Pensacola Bay system between Pensacola Bay and Bayou Grande, approximately 5 miles (8.3 kilometers [km]) from downtown Pensacola, Florida (Figure 2-1). NAS Pensacola comprises approximately 5,800 acres (2,350 hectares [ha]) and Corry Station comprises an additional 2,623 acres (1,060 ha), collectively known as the NAS Pensacola Complex. NOLF Saufley, comprises approximately 970 acres (392 ha.) and is geographically separated from, but part of, the NAS Pensacola Complex. It is located approximately 10 miles (16 km) north of NAS Pensacola and approximately 8 miles (12.8 km) west of Pensacola Regional Airport (Figure 2-1) and borders Tarklin Bayou.

2.2 Mission

NAS Pensacola supports many activities, including headquarters and staff of Chief of Naval Education and Training (CNET), Training Air Wing (TRAWING) 6, Naval Operational Medicine Institute (NOMI), Naval Aerospace Medical Institute (NAMI), Naval Aerospace Medical Research Laboratory (NAMRL), Naval Orientation Recruiting Unit (NORU), Naval Air Technical Training Center (NATTC), Naval Aviation Schools Command (NASC), Naval Computer and Telecommunications Station, Marine Aviation Training Support Group (MATSG-21), USAF 479th Flying Training Group, and the Navy Flight Demonstration Squadron (Blue Angels).

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Crestview

Figure 2-1

Regional Location Map NAS Pensacola and NOLF Saufley Field

NOLF
Saufley

Mobile

Bay Choctawhatchee Bay Pensacola Bay Pensacola

Legend

NAS Pensacola

Air Installations Compatible Use Zones Study 2010 ***NAS Pensacola and NOLF Saufley, Florida***

Both NAS Pensacola and NOLF Saufley are established and recognized airfields in the Florida Panhandle region.

NAS Pensacola also supports non-defense related tenants including the National Park Service, Barrancas National Cemetery (administered by Veterans Affairs), the Federal Aviation Administration (FAA), and the National Museum of Naval Aviation. Support services located on NAS Pensacola include bachelor officers' quarters, morale, welfare, and recreation (MWR), a family services center, security, a commissary, and exchanges.

NOLF Saufley is used for practice landings and takeoffs ("touch and-go's") by training aircraft from NAS Pensacola and other fields. Currently, NOLF Saufley hosts the Naval Education and Training Program Development and Technology Center (NETPDTC), a subordinate command of the Naval Education & Training Command (NETC), and is also home to a minimum-security federal prison camp, a Naval Reserve Center, and NETC's Professional and Technology Center.

2.3 History

The Navy's presence was first established at the site of NAS Pensacola in 1825 when President John Quincy Adams and Secretary of the Navy, Samuel Southard, arranged to build a Navy Yard on the southern tip of Escambia County. Construction of the Pensacola Navy Yard began in 1826 and grew to be one of the best equipped naval stations in the country. The Navy Yard was decommissioned in 1911. However, in 1914, the first U.S. NAS was established on the abandoned Navy Yard site and has become the primary installation providing aviation training to the Navy. In 1971, NAS Pensacola was selected as the headquarters site for CNET, a new command that combined the direction and control of all Navy education and training. The Naval Air Basic Training Command was absorbed by the Naval Air Training Command (NATC) (which moved to Corpus Christi, Texas) and is known as Chief of Naval Air Training (CNATRA); NAS Pensacola provides support for the operation of the Chief of Naval Air Training. Known as the "Cradle of Naval Aviation," the air station serves as the launching point for the flight training of every Naval Aviator, Naval

Flight Officer (NFO), and enlisted air crewman. In addition, it is the Navy's premier location for enlisted aviation technical training. What was originally known as "Felton's Field," NOLF Saufley was constructed in 1933 as a satellite airfield for NAS Pensacola. Due to pre-World War II (WWII) military build-up, the Navy significantly expanded the airfield, officially opening Saufley Field in 1940. It conducted primary training, instrument training, and fighter training. Then, in 1943, Saufley Field was commissioned as a Naval Auxiliary Air Station used for a variety of training in SNJ-1 Texans and N2S Kaydet aircraft. In 1944, the number of aircraft peaked at 160 with over 2,200 personnel, and remained open following the end of WWII. Saufley Field was then redesignated as a NAS in 1968 having four active runways, was decommissioned less then 10 years later in 1976, and became a NOLF. Saufley Field was again reactivated in 1979 when NETPDTC, a subordinate command of NETC, relocated to Saufley Field and when NAS Whiting Field (TRAWING 5) began to use Saufley Field as a NOLF for pilot training.

In 2004, the United States Department of Defense (DoD) and the Federal Emergency Management Agency (FEMA) designated NOLF Saufley as a temporary Logistical Staging Area (LSA) for federal, state, and non-governmental agencies in response to Hurricane Ivan. Hundreds of 18-wheeled trucks filled with ice, food, and drinking water were staged on NOLF Saufley ramps to provide relief for victims of Hurricane Ivan. Continuing through 2006, NOLF Saufley's north/south runway was used to house FEMA trailers for victims displaced by the hurricane. Flying operations were temporarily suspended while the runways were being used by FEMA.

Today, NOLF Saufley is an active runway and spans an area of approximately 860 acres (348 ha). The site currently has 63 buildings and three aircraft hangars. As of 2008, two runways were active and serve as an NOLF for Training Air Wings 5 and 6, where the facility is used for practice landings and take-offs of T-34C and T-6A aircraft. Other flight activities include touch-and-go operations by the TH-57 aircraft.

2.4 Operational Areas

Figures 2-2 and 2-3 provide a depiction of NAS Pensacola and NOLF Saufley airfields, respectively. The landing area at NAS Pensacola, also commonly called Sherman Field, consists of three runways, Runway 01/19, Runway 07L/25R, and Runway 07R/25L. As of July 2007, the field elevation at NAS Pensacola averaged 28 feet (8.5 meters) above Mean Sea Level (MSL). The landing area at NOLF Saufley consists of two runways, Runway 05/23 and Runway 14/32, and one helicopter pad. Runways are numbered according to their magnetic heading for aircraft on approach or departure. For example, on Runway 01/19, the numbers 01 and 19 signify that this runway is most closely aligned with a compass heading of 10 and 190 degrees, respectively. Table 2-1 provides detailed information about the length and width of each runway.

Table 2-1 NAS Pensacola and NOLF Saufley Runways

NAS Pensacola Runway	Length (feet)	Width (feet)
01/19	7,137	200
07L/25R	8,000	200
07R/25L	8,000	200
NOLF Saufley Runway	**Length (feet)**	**Width (feet)**
05/23	4,000	200
14/32	4,000	200

Source: NAS Pensacola 2008

2.5 Local Economic Impacts

Similar to other areas where major military bases are located, the NAS Pensacola Complex has a significant impact on the economy in the greater Pensacola area. The jobs associated with NAS Pensacola and its tenants, the salaries paid to its workers, and the spending associated with both the workers and the facility ripple through the entire region's economy.

\Path: L:\Buffalo\NAS_Pensacola\Maps\MXD\Draft_AICUZ\April_2011\Figure 2-2 Pensacola Airfield Map.mxd

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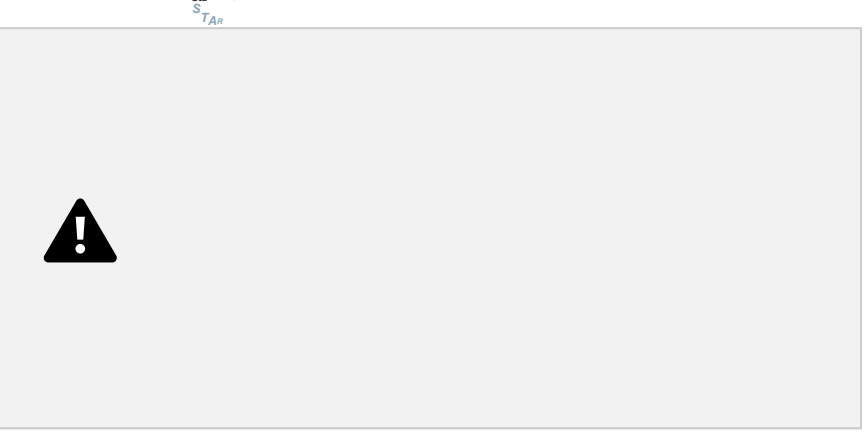

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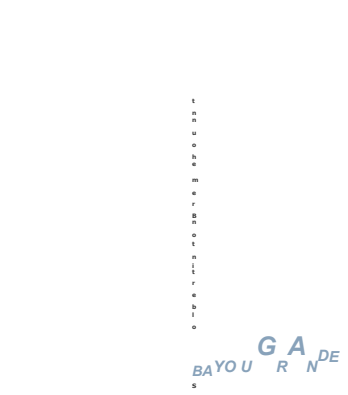
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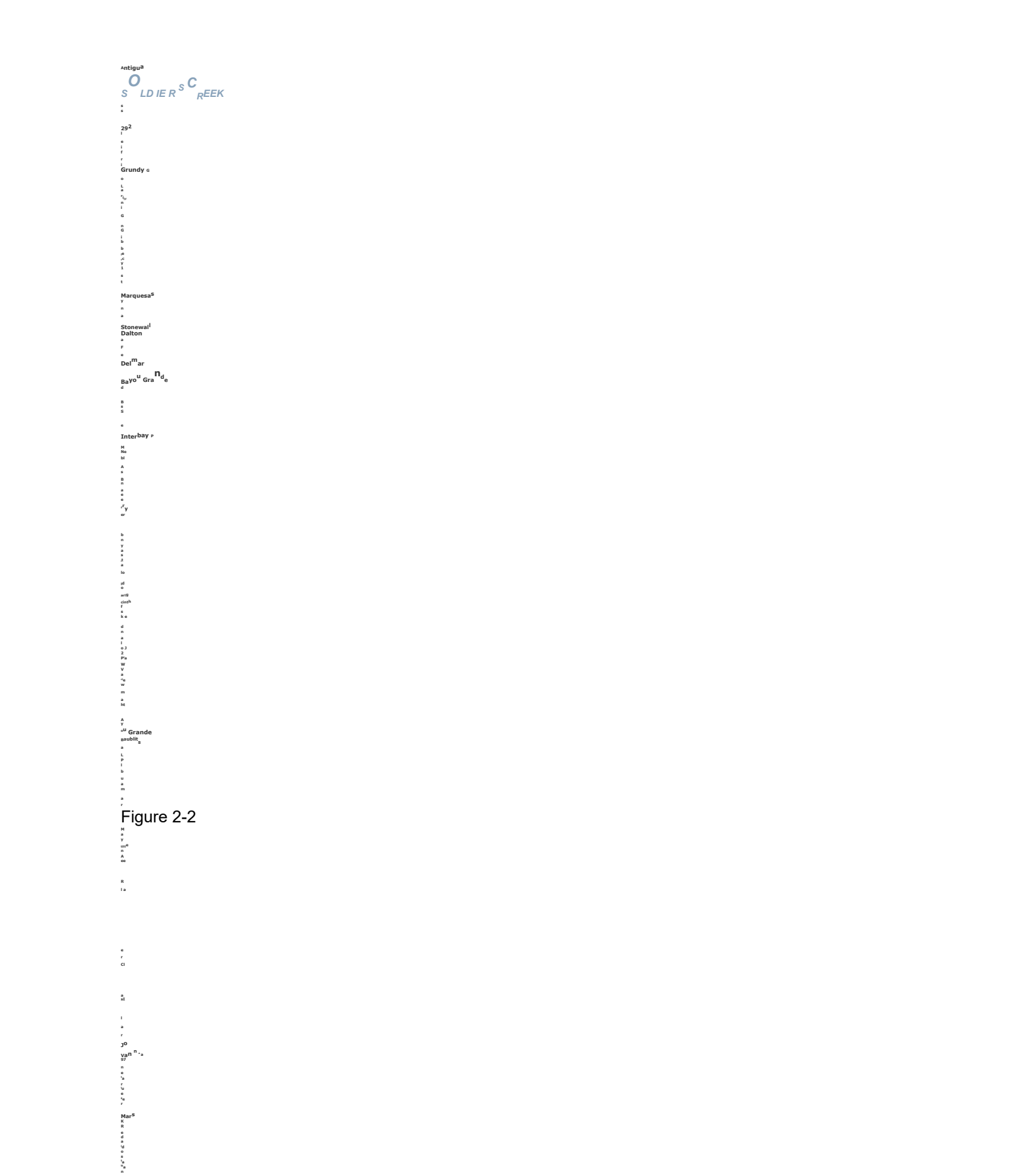
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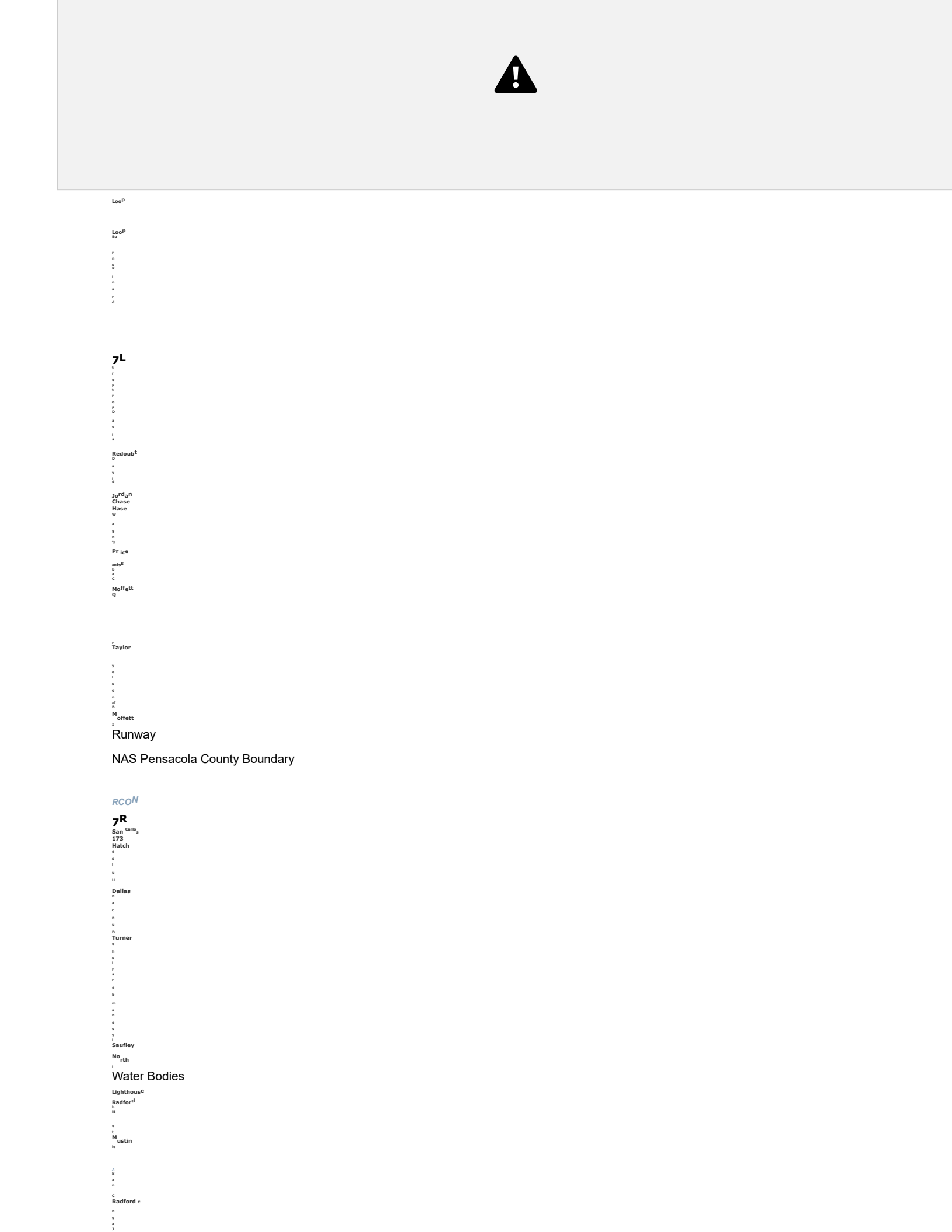
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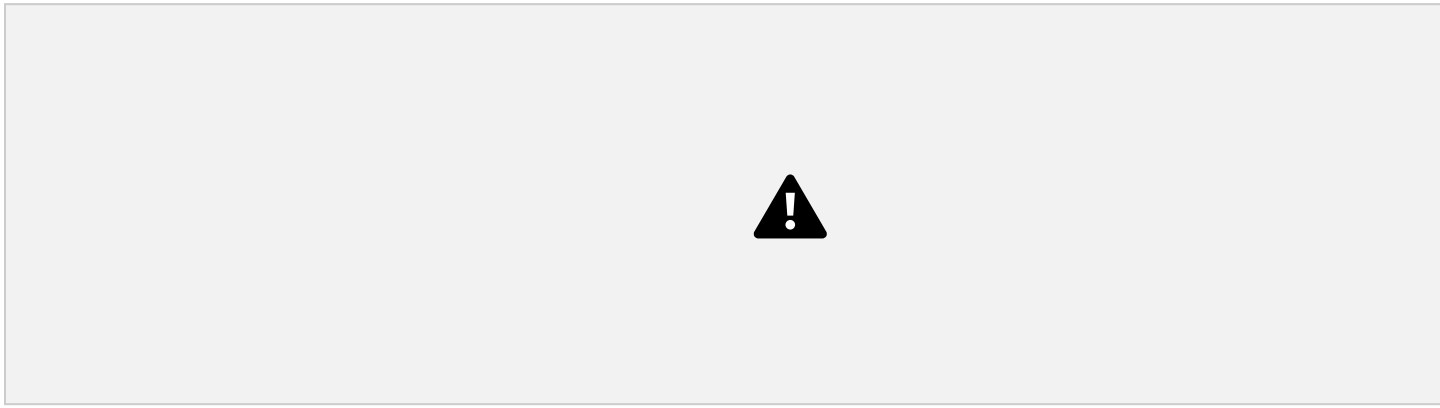

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© Ecology & Environment, Inc. GIS Department Project #
\Path: L:\Buffalo\NAS_Pensacola\Maps\MXD\Draft_AICUZ\April_2011\Figure 2-3 Saufley Airfield Map.mxd

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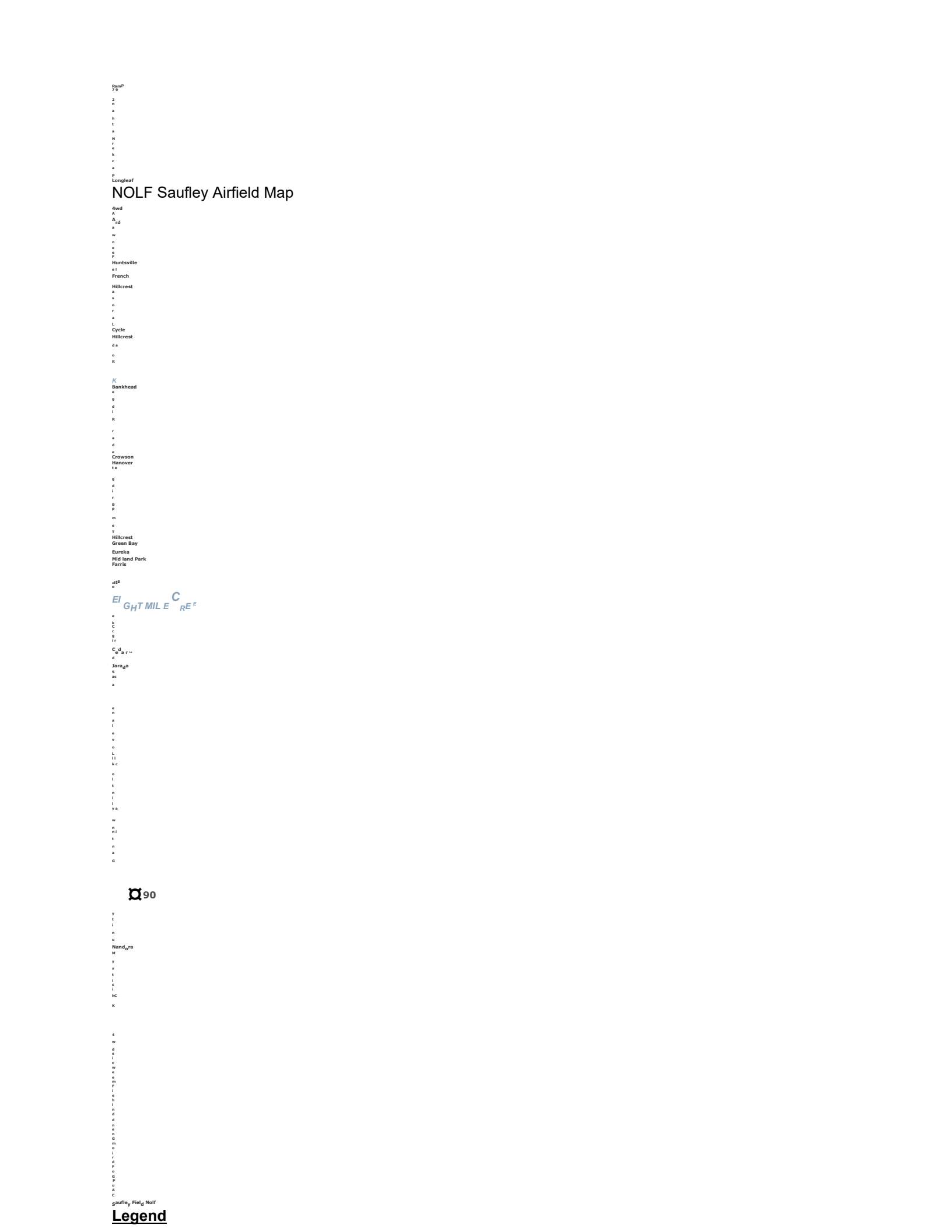
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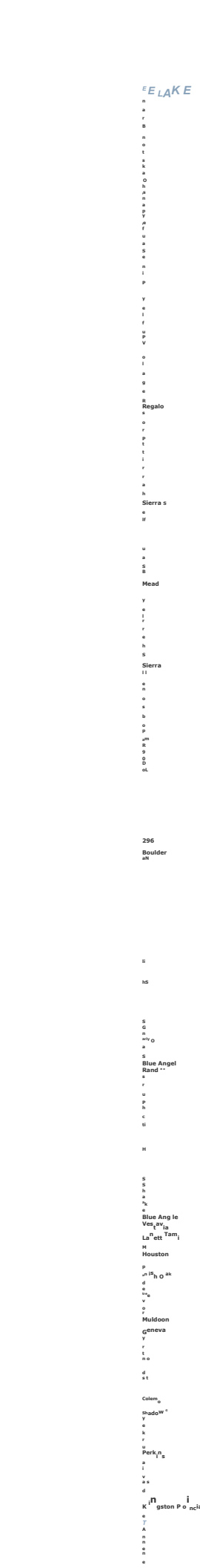
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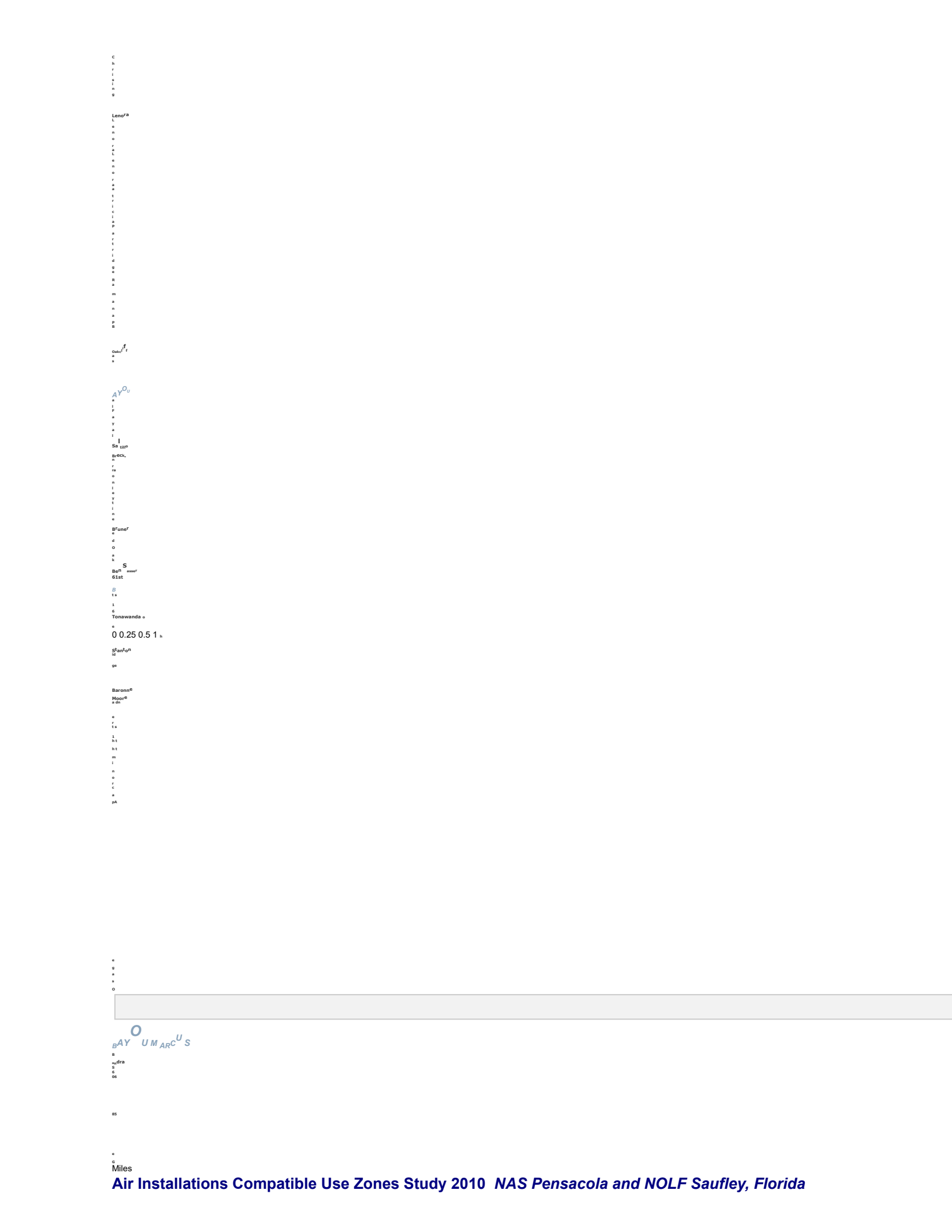


Air Installations Compatible Use Zones Study 2010 ***NAS Pensacola and NOLF Saufley, Florida***

NAS Pensacola is the employer of a combined workforce of approximately 23,000 military and civilian personnel (NAS Pensacola, 2008). The DoD (including NAS Pensacola) is the largest economic engine in the greater Pensacola area, with more than $5.1 billion in salary and wages produced (Pensacola Bay Area Chamber of Commerce 2008). Specifically, the economic benefits are from the following sources:

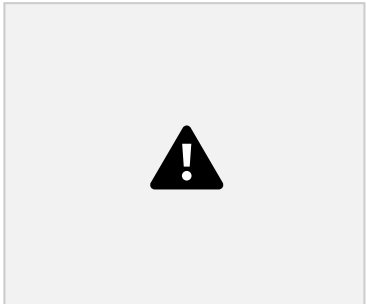
- Jobs;
- Worker salaries or personal income;
- Local sales to workers and their families;
- Revenues to local businesses; and
- Residential property in the community owned or occupied by military personnel and employees of the facilities.

3 Aircraft Operations

Aircraft noise consists of two major sound sources: flight operations and ground engine maintenance "run-ups" which are associated with pre-flight and maintenance checks. Navy Outlying Landing Field (NOLF) Saufley does not have any ground engine maintenance "run-up" locations, since there are no aircraft permanently stationed at the airfield and maintenance is done at either Naval Air Station (NAS) Whiting Field or NAS Pensacola.

The level of noise exposure modeled is related to a number of variables including the aircraft type, engine power setting, altitude, direction of the aircraft, duration of run-ups, flight tracks, temperature, relative humidity, frequency, and time of operations. Generally, these factors fluctuate from year to year. Small fluctuations in the annual number of operations of like aircraft will not have a significant effect on community noise exposure.

NAS Pensacola primarily is utilized for pilot and navigation training for Navy and sister service pilots and navigators. NOLF Saufley is used primarily for touch-and-go operations by Whiting Field Training Air Wing (TRAWING) 5, and NAS Pensacola TRAWING 6, T-34s and T-6s. Below is a representation of the some of the more prominent aircraft that utilize NAS Pensacola and NOLF Saufley. Additionally included are some of the new aircraft that may be stationed at NAS Pensacola and NOLF Saufley in the coming months and years.

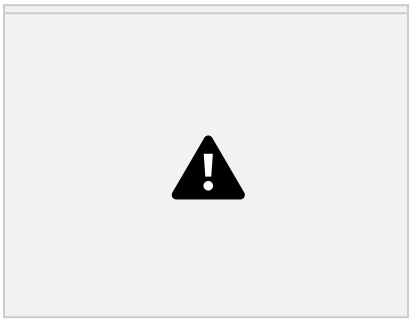


A fixed-wing aircraft is an aircraft whose lift is generated not by wing motion relative to the aircraft, but by forward motion through the air. The term is used to distinguish from rotary-wing aircraft.

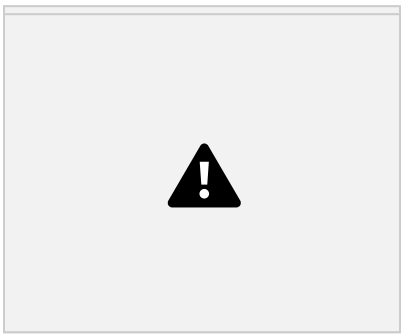
3.1 Aircraft Types

Aircraft types that typically utilize NAS Pensacola and NOLF Saufley are described in the following subsections.

3.1.1 Fixed-Wing Aircraft



T-6A Texan II. The T-6A Texan II is a military, single-engine trainer used by the United States Department of the Navy (Navy) and the United States Air Force (USAF) to train pilots, Naval Flight Officers (NFOs), and Combat System Officers (CSOs). The 5,000-pound (2,268-kilogram) air craft is powered by a Pratt & Whitney PT-6A-68 turboprop engine that generates 1,100 horsepower. With a wingspan of 33 feet (10 meters) and a length of 33 feet (10 meters), this aircraft can reach speeds of 270 knots at altitudes of 31,000 feet (945 kilometers [km]). The Texan II operates with a crew of two and has a range of 850 nautical miles.



T-39N/G Sabreliners. The T-39 Sabreliner is a multi-purpose, low-wing, twin-engine, jet trainer whose mission is to train Navy and Marine Corps flight officers. The 15 T-39Ns—derivatives of the commercial Sabre model 265-40—are used for training undergraduate military flight officer students in radar navigation and airborne radar intercept procedures. These aircraft replaced Cessna T-47As during the early 1990s. The eight T-39Gs—derivatives of the commercial Sabre model 265-60—are used for student non-radar training. These aircraft began replacing USAF T-1A Jayhawks in Navy training squadrons in mid-1999.

T-1A Jayhawks. The T-1A Jayhawk is a medium-range, twin engine, jet trainer used in the advanced phase of specialized undergraduate pilot and navigator training for USAF students selected to fly airlift or tanker aircraft. The swept-wing T-1A is a military version of the Beech 400A. It has cockpit seating for an instructor and two students and is powered by twin turbofan engines capable of an operating speed of Mach .73. The T-1A differs from its commercial counterpart with structural enhancements that provide for a large number of landings per flight hour, increased bird strike resistance, and an additional fuselage fuel tank.

F/A-18 A/B Hornet. The F/A-18 Hornet, an all-weather aircraft, is used as an attack aircraft as well as a fighter. In its fighter mode, the F/A-18 is used primarily as a fighter escort and for fleet air defense; in its attack mode, it is used for force projection, interdiction, and close and deep air support. The Navy's Blue Angels Flight Demonstration Squadron proudly flies them. It is projected that by 2012, the F/A-18 A/B model will be replaced by the FA-18 C/D model for the Blue Angels.

T-38 Talon. The Talon is a twin-engine, high-altitude, supersonic, jet trainer used primarily for undergraduate pilot and pilot instructor training. Student pilots fly the T-38A to learn supersonic techniques, aerobatics, formation, night and instrument flying, and cross country navigation. Advanced training for the bomber-fighter track is accomplished using the T-38 Talon and prepares pilots for the transition to fighter and bomber aircraft. The T-38 needs as little as 2,300 feet (695 meters) of runway to take off and can climb from sea level to nearly 30,000 feet (9,068 meters) in one minute.

T-45 Goshawks. The T-45A aircraft is used for intermediate and advanced portions of the Navy pilot and navigator training program for jet carrier aviation and tactical strike missions. The T-45A replaced the T-2 Buckeye trainer and the TA-4 trainer with an integrated training system that includes the T-45A Goshawk aircraft, operations and instrument fighter simulators, academics, and a training integration system.

F/A-18 E/F Super Hornet. The newest model of F/A-18, the Super Hornet (F/A-18 E/F), is highly capable across the full mission spectrum: air superiority, fighter escort, reconnaissance, aerial refueling, close air support, air defense suppression, and day/night precision strike. Compared to the original F/A-18 A through D models, the Super Hornet has longer range, an aerial refueling capability, increased survivability/ lethality, and improved carrier suitability. The F/A-18 E/F Super Hornet is a combat-proven strike fighter with built-in versatility. The Super Hornet's suite of integrated and networked systems provides enhanced interoperability and total force support for the combatant commander and

for the troops on the ground. The F/A -18 E/F uses NAS Pensacola's runways as a transient aircraft.

T-34C Turbo Mentor. The T-34C is a two-seat, tandem cockpit, turboprop, fixed-wing aircraft used to train Navy and Marine Corps pilots. The aircraft is powered by a Pratt & Whitney model PT6A 25 engine and has a wingspan of 34 feet (10 meters), length of 29 feet (8.8 meters), and weight of 4,000 pounds (1,814 kilograms). The T-34C can reach airspeeds of 280 knots, an altitude of 25,000 feet (7,620 meters), and can fly up to 740 nautical miles during a single flight.

C-12 King Air. The C-12 is a twin turboprop, fixed-wing aircraft used for flight training operations. The aircraft is powered by two Pratt & Whitney PT-6A-42 engines that produce 850 shaft horsepower (SHP) each. The C-12 is 44 feet (13 meters) long with a height of 15 feet (4.6 meters) and a maximum gross take-off weight of 15,000 pounds (6,804 kilograms). The range of the aircraft is approximately 1,974 nautical miles with a maximum airspeed of 294 knots and has a flight ceiling of 35,000 feet (10,668 meters).

C-9 Skytrain. The C-9 fleet is located throughout the continental United States, Europe, and Asia. The Navy and Marine Corps C-9 aircraft provide cargo and passenger transportation as well as forward deployment logistics support. The Air Force C-9s are used for medical evacuation, passenger transportation, and special missions.

Projected Missions

F-35 A/B/C Joint Strike Fighter, Lightning II. The F-35 has three different variants: the first is the conventional takeoff and landing variant (Air Force F-35 A); the second is a short takeoff and vertical-landing variant (STOVL) (Marine F-35 B); and the third is a carrier-based variant (Navy F-35 C). The F-35 C carrier variant will have a larger, folding wing and larger control surfaces for improved low speed control, and stronger landing gear for the stresses of carrier landings. The F-35 B is the STOVL variant aircraft. The F-35 B is similar in size to the Air Force F-35 A, trading fuel volume for vertical

flight systems. The F-35 is not anticipated to be stationed at NAS Pensacola or NOLF Saufley; however, all three variants are expected to use NAS Pensacola's runways as a transient aircraft.

Unmanned Aerial Vehicles (UAVs). UAVs include such aircraft as RQ-2A (Pioneer), MQ-8 (Fire Scout) the MQ-1 (Predator) and (Global Hawk). A UAV is a remotely piloted or self-piloted aircraft that can carry cameras, sensors, communications equipment, weapons or other payloads. UAVs can be both fixed and rotary-wing and vary in size and range from the Global Hawk, which is approximately 44 feet in length and has a performance range of 36 hours to the small UAV such as the Pioneer, which is about 14 feet long and has a range of four to five hours. UAV missions are diverse ranging from data collection and surveillance to target acquisition support. please format and place in margin

3.1.2 Rotary-Wing Aircraft

TH-57 Sea Ranger. The TH-57 is a derivative of the commercial Bell Jet Ranger 206. Although primarily used for training, these aircraft are also used for photo, chase, and utility missions. The TH-57 Sea Ranger provides advanced instrument flight rules (IFR) training to several hundred aviation students a year at NAS Whiting Field.

H-60 and Other Variants. The H-60 is a twin-engine, four bladed, single-rotor helicopter. The aircraft's primary function and performance specifics vary by user. The aircraft is 64 feet (19.5 meters) long, has a height of 18 feet (5.5 meters), a rotor diameter of 54 feet (16.5 meters), and weight that varies from 21,000 to 23,000 pounds (9,525 to 10,433 kilograms), depending on variation. Its operational ceiling is 19,000 feet (5,791 meters), and it has a general operational range of approximately 380 nautical miles. The H-60 comes in many variants, including: the UH-60A/L Blackhawk; the SH-60B/F Seahawk; the MH-60R/S Multi-Mission Helicopter; and the HH-60H Jayhawk.

3.2 Airspace

The use of airspace over NAS Pensacola is dictated by the Federal Aviation Administration (FAA) National Airspace System (Figure 3-1). This system is designed to ensure the safe, orderly, and efficient flow of commercial, private, and military aircraft. NAS Pensacola is located in the airspace assigned to Jacksonville Center by the FAA. NAS Pensacola is located within Class C airspace. All visual flight rules (VFR) departures must have clearance to depart. VFR arrivals must contact Pensacola Approach prior to entering the Class C airspace for radar services and sequencing over the appropriate VFR entry points.

Pensacola Tower airspace is that airspace within a 5-nautical mile radius of the center of the airport extending from the surface up to and including 4,200 feet (1,280 km) Mean Sea Level (MSL).

Airspace over NOLF Saufley is administrated by NAS Pensacola. NOLF Saufley is located within Class C airspace. NAS Pensacola and NOLF Saufley have limited airspace to fulfill their mission. NAS Pensacola and NOLF Saufley's operational areas include Special Use Airspace (SUA). SUA in the region includes Alert Areas, Military Operating Areas (MOAs), Restricted Areas, and Warning Areas (Figure 3-1). NAS Pensacola and NOLF Saufley SUA includes:

- **Alert Area 292.** Located north and east of NAS Pensacola.
- **Pensacola North and South MOA.** Located over NAS Pensacola and north of NAS Whiting Field.
- **Restricted Area 7908**. Located approximately 35 nautical miles southwest of NAS Pensacola
- **Warning Areas W-155A/W-155B/W155C/W-453.** Located approximately 30, 50, and 100 nautical miles south and southwest of NAS Pensacola, respectively.

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Figure 3-1
Special Use Air Space NAS Pensacola and NOLF Saufley

Legend

NAS Pensacola and
NOLF Saufley Boundaries

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Water Bodies

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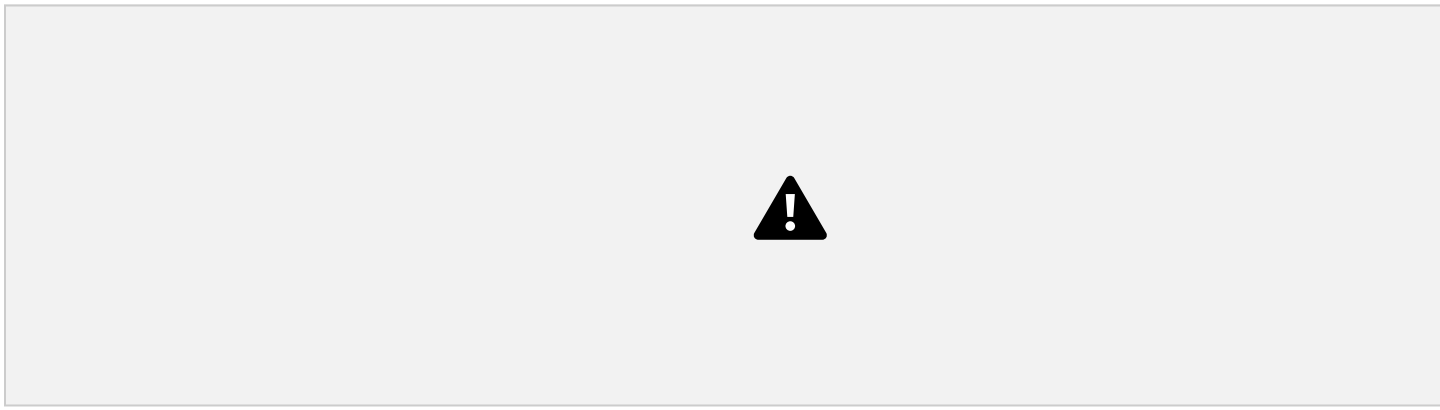
M i s s i s s i p p i S o u n d
Dauphin Island

NAS Pensacola

Florida Counties State Boundary

Special Use Airspace



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Source:
ESRI, 2005
Alert Area

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Restricted Area Warning Area

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Air Installations Compatible Use Zones Study 2010 ***NAS Pensacola and NOLF Saufley, Florida***

3.3 Aircraft Operations

The main noise sources at NAS Pensacola and NOLF Saufley are aircraft operations, including engine run-up operations, flight arrivals, departures, and touch-and-go patterns.

3.3.1 Engine Run-Up Locations

Engine maintenance run-up operations conducted at NAS Pensacola are associated with TRAWING 6, 479th Flying Training Group, and the Blue Angels Flight Demonstration Team (Table 3-1 and Figure 3-2). There are no engine maintenance run-up operations at NOLF Saufley.

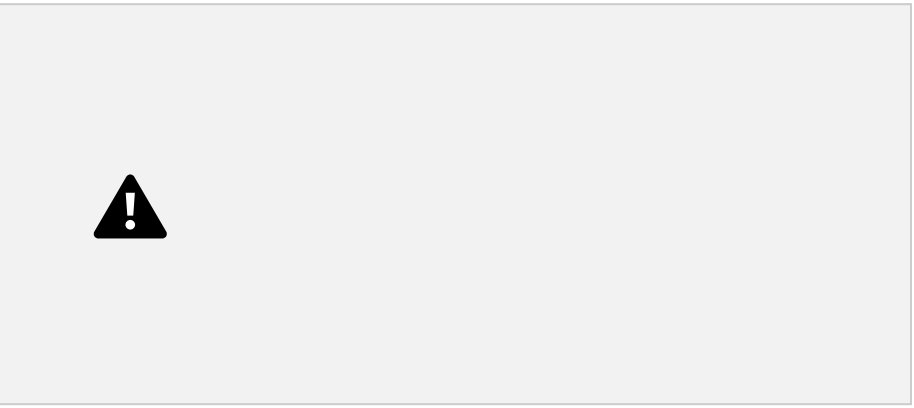
Table 3-1 NAS Pensacola Run-Up Locations

Location ID	Run-Up Operation	Aircraft Serviced
HP T6	High Power Pad	T-6
BA FW	Blast Area	T-45, T-39
FL T1	South Ramp and Blast Fence (Hanger 3260)	T-1
BLUE LO	Blue Angel Low Power Turns	F/A-18 A/B
FL T2 T39	Flight Line	T-45, T-39
WR T2 T39	Wash Rack	T-45, T-39
1853 LINE	1853 Line	T-6
BLUE HI	Blue Angel High Power Turns	F/A-18 A/B
WR H3 H60	Wash Rack	H-60

3.3.2 Flight Operations

A "flight operation" refers to anytime an aircraft crosses over the runway threshold at an airfield. The takeoff and landing may be part of a training maneuver (or pattern) associated with the runway or may be associated with a departure or arrival of an aircraft to or from defense related, special-use airspace. Certain flight operations are conducted as patterns (e.g., touch-and-go, etc.). Departures and arrivals each count as one operation and a pattern counts as two. Basic flight operations at NAS Pensacola and NOLF Saufley are:

\Path: L:\Buffalo\NAS_Pensacola\Maps\MXD\Draft_AICUZ\April_2011\Figure 3-2 Pensacola Aircraft Runup Locations.mxd***Myrtle***



!(
Pe r di d o
Ba y

98 90

!(
Paradise
Beach

TARKILN BAYOU
PRESERVE STATE
PARK

19

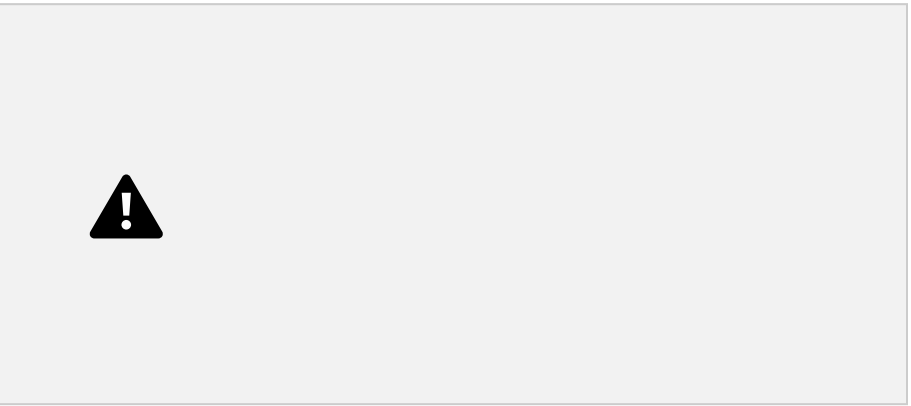
Grove***Pensacola***

Warrington
!(

P E N S A C O L A
B A Y

Figure 3-2
Aircraft Run-Up Locations NAS Pensacola

7L



25R

25L

1853 LINE WR T2 T39

Legend

") Engine Run-Up Locations County Boundary

7R
HP T6
FL T2 T39 BLUE LO
Runway
BLUE HI 01

") ") ")

WR H3 H60
NAS Pensacola Park Boundary

BIG LAGOON STATE PARK

Big Lagoon
BA FW

PERDIDO
KEY AREA
GU
LF ISLANDS
NATL SEASHORE
Water Bodies

Source: Wyle Labs, 2008

GULF OF MEXICO

0 0.5 1 2 Miles

- **Departure.** An aircraft taking off to a local training area, a non local training area, or as part of a training maneuver (i.e., touch-and go).

- **Straight-In/Full-Stop Arrival.** An aircraft lines up on the runway centerline, descends gradually, lands, comes to a full stop, and then taxis off the runway.

- **Overhead Break Arrival.** An expeditious arrival using visual flight rules. An aircraft approaches the runway 500 feet (152 meters) above the altitude of the landing pattern. Approximately halfway down the runway, the aircraft performs a 180-degree turn to enter the landing pattern. Once established in the pattern, the aircraft lowers landing gear and flaps and performs a 180-degree descending turn to land on the runway.

- **Touch-and-Go.** An aircraft lands and takes off on a runway without coming to a full stop. After touching down, the pilot immediately goes to full power and takes off again. The touch-and-go actually is

counted as two operations—the landing is counted as one operation, and the takeoff is counted as another.

3.3.3 NAS Pensacola Operations

Flight operations at NAS Pensacola have generally decreased over the past nine years. Annual operations for Calendar Year (CY) 2012 were established based on assumptions provided by NAS Pensacola personnel. All foreseeable missions were projected to 2012 and include projections for the F-35 as transient aircraft, as they are expected to be operational within this decade. Within this timeframe, NAS Pensacola would be expected to experience a total of approximately 110,226 operations annually. The flight operations for 2012 are utilized in this study to develop the 2010 AICUZ Noise Contours (see Section 4, Aircraft Noise) and Accident Potential Zones (APZs) (see Section 5, Aircraft Safety). Annual operations for CY2012 include the USAF CSO Training Squadron. The USAF 479th Flying Training Group (FTG) will consist of three squadrons and, for purposes of the study, their operations are included under TRAWING 6 operations.

Table 3-2 presents the total projected annual flight operations at NAS Pensacola. Flight operations grouped by aircraft and flight track can be found in the 2008 Wyle Noise Study (WR 08-23). Departure and arrival portions of ground control approach (GCA) flight patterns at NAS

Table 3-2 Projected Annual Air Operations for NAS Pensacola

Category	Operation Type	Day	Night	Total
		0700-2200	2200-0700	
T-6*	Departure	20,300	1,364	21,664
	Arrival	20,042	1,622	21,664
	Touch-and-Go	9,094	630	9,724
	Total	**49,436**	**3,616**	**53,052**
T-39	Departure	4,733	207	4,940
	Arrival	4,070	870	4,940
	Touch-and-Go	578	80	658
	Total	**9,381**	**1,157**	**10,538**
T-1	Departure	6,479	281	6,760
	Arrival	6,301	459	6,760

	Touch-and-Go	960	80	1,040
	Total	**13,740**	**820**	**14,560**
T-45*	Departure	6,037	740	6,777
	Arrival	6,162	615	6,777
	Touch-and-Go	2,738	188	2,926
	Total	**14,937**	**1,543**	**16,480**
F/A-18 E/F	Departure	1,348	59	1,407
	Arrival	1,236	171	1,407
	Touch-and-Go	30	0	30
	Total	**2,614**	**230**	**2,844**
F-35 A/B/C	Departure	1,938	365	2,303
	Arrival	2,028	275	2,303
	Touch-and-Go	22	0	22
	Total	**3,988**	**640**	**4,628**
T-38	Departure	253	0	253
	Arrival	253	0	253
	Touch-and-Go	0	0	0
	Total	**506**	**0**	**506**
Other Transient Aircraft	Departure	2,684	569	3,253
	Arrival	2,796	457	3,253
	Touch-and-Go	657	455	1,112
	Total	**6,137**	**1,481**	**7,618**
Grand Total	Departure	43,772	3,585	47,357
	Arrival	42,888	4,469	47,357
	Touch-and-Go	14,079	1,433	15,512
	Total	**100,739**	**9,487**	**110,226**

Sources: Wyle Noise Study November 2008
Notes: Arrivals include both straight-in and overhead break.
Touch-and-go counted as two operations—a takeoff and a landing.
* Total of TRAWING 6 and Transient Aircraft

Pensacola are included in the departure and arrival flight tracks.

Pensacola Approach's GCA box pattern is assigned to each runway at NAS Pensacola.

3.3.4 NOLF Saufley Operations

Annual operations for CY2012 were established based on assumptions provided by NAS Pensacola personnel. Within this timeframe, NOLF Saufley would be expected to experience a total of approximately 71,238 operations annually. The flight operations for 2012 are utilized in this study to develop the 2010 AICUZ Noise Contours (see Section 4, Aircraft Noise) and APZs (see Section 5, Aircraft Safety).

Table 3-3 presents the total projected annual flight operations at NOLF Saufley. Flight operations grouped by aircraft and flight track can be found in the 2008 Wyle Noise Study (WR 08-23).

Table 3-3 Projected Annual Air Operations for NOLF Saufley

Category	Operation Type	Day	Night	Total
		0700-2200	2200-0700	
T-6	Departure	4,429	0	4,429
	Arrival	4,429	0	4,429
	Touch-and-Go	41,304	0	41,304
	Total	**50,162**	**0**	**50,162**
TH-57	Departure	1,861	0	1,861
	Arrival	1,861	0	1,861
	Touch-and-Go	17,354	0	17,354
	Total	**21,076**	**0**	**21,076**
Grand Total	Departure	6,290	0	6,290
	Arrival	6,290	0	6,290
	Touch-and-Go	58,658	0	58,658
	Total	**71,238**	**0**	**71,238**

Sources: Wyle Noise Study November 2008
Notes: Arrivals include both Straight-in and Overhead Break.

3.3.5 Runway and Flight Track Utilization

Aircraft approaching or departing from the air stations are assigned specific routes or flight tracks. The designated runways for the airfields are identified in Section 2.4. Flight tracks are represented as single lines, but flights vary due to aircraft performance, pilot technique, and weather conditions, such that the actual flight track is a band, often one-half to several miles wide. The flight tracks shown in this AICUZ study are idealized representations. Predominant arrival, departure, and pattern flight tracks for NAS Pensacola and NOLF Saufley are shown on Figures 3-3 through 3-8 (presented at the end of Section 3). As discussed in Section 3.3.1, flight operations include departure, straight-in arrival, overhead break arrival, and touch-and-go operations. Abbreviations for the flight operations are:

- Departure – D
- Straight-In Arrival – A
- Overhead Break Arrival – O
- Touch-and-Go Pattern – T

The flight operations at NAS Pensacola are conducted on Runways 19, 25R, 25L, 01, 07R, or 07L. Abbreviations used to distinguish the parallel runways are:

- Left – L
- Right – R

Flight operations at NOLF Saufley are conducted on Runways 05, 23, 14, or 32. Section 2.4 provided a discussion and explanation of runway names. Individual flight track IDs are labeled according to the runway used, flight operation, and flight rules used while conducting the operation. Example flight track IDs for NAS Pensacola and NOLF Saufley are provided below and color-coded for example purposes only:

- NAS Pensacola Flight Track ID: **01D1**

Runway: 01
Flight Operation: Departure
Flight Rules: VFR (visual flight rules)

➢ NOLF Saufley Flight Track ID: **23T1**

Runway: 23

Flight Operation: Touch-and-Go Pattern

Flight Rules: Touch-and-Go

Tables 3-4 and 3-5 identify flight tracks at NAS Pensacola and NOLF Saufley, respectively.

Table 3-4 NAS Pensacola Flight Tracks

Operation Type	Runway	Flight Track ID	Flight Track Rule
Departure	**01**	01D1	VFR
		01D2	IFR/Jet
	07L	7LD1	VFR
		7LD2	IFR/Jet
	07R	7RD1	VFR
		7RD2	IFR/Jet
	19	19D1	VFR
		19D2	IFR/Jet
	25L	5LD1	VFR
		5LD2	IFR/Jet
	25R	5RD1	VFR
		5RD2	IFR/Jet
Overhead Break Arrival	**01**	01O1	Break
		01O2	Break
		01O3	Short Break
	07R	7RO1	Break
		7RO2	Break
		7RO3	Short Break
	19	19O1	Break
		19O2	Break
		19O3	Short Break
	25L	5LO1	Break

		5LO2	Break
		5LO3	Short Break

Table 3-4 NAS Pensacola Flight Tracks

Operation Type	Runway	Flight Track ID	Flight Track Rule
Straight-In Arrival	**01**	01A1	IFR
		01A2	VFR
	07L	7LA1	IFR
		7LA2	VFR
	07R	7RA1	IFR
		7RA2	VFR
	19	19A1	IFR
		19A2	VFR
	25L	5LA1	IFR
		5LA2	VFR
	25R	5RA2	VFR
Touch-and-Go Pattern	**01**	01T1	Prop
		01T2	Jet
	07R	7RT1	Prop
		7RT2	Jet
	19	19T1	Prop
		19T2	Jet
	25L	5LT1	Prop
		5LT2	Jet

Notes:
VFR - Visual Flight Rules
IFR - Instrument Flight Rules
Prop - Propeller Aircraft
Jet - Jet Aircraft

Table 3-5 NOLF Saufley Flight Tracks

Operation Type	Runway	Flight Track ID	Flight Track Rule
Departure	**05**	05D1	Departure to Relay Tower - 600/900 ft
	23	23D1	Departure to Relay Tower - 600/900 ft
	14	14D1	Departure to Relay Tower - 600/900 ft
	32	32D1	Departure to Relay Tower - 600/900 ft
Arrival	**05**	05O1	Overhead Break Arrival from Grassy Point - 900/1200 ft entry
	23	23O1	Overhead Break Arrival from Grassy Point - 900/1200 ft entry
	14	14O1	Overhead Break Arrival from Grassy Point - 900/1200 ft entry
	32	32O1	Overhead Break Arrival from Grassy Point - 900/1200 ft entry
Touch-and-Go Pattern	**05**	05T1	Touch-and-Go
	23	23T1	Touch-and-Go
	14	14T1	Touch-and-Go
	32	32T1	Touch-and-Go

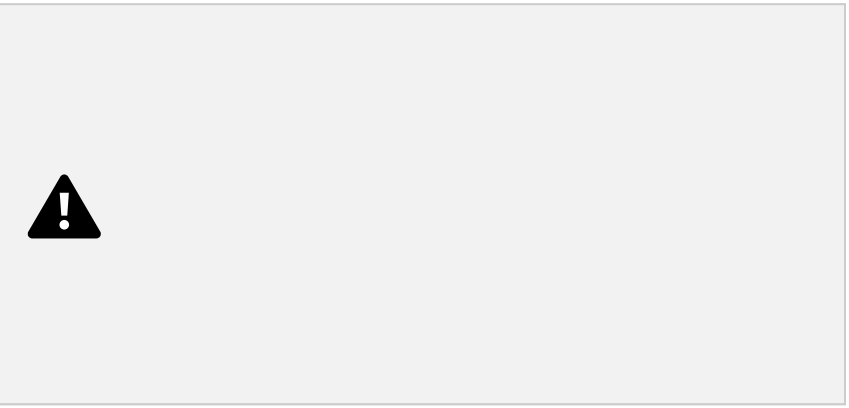
\Path: L:\Buffalo\NAS_Pensacola\Maps\MXD\Draft_AICUZ\April_2011\Figure 3-3a Pensacola Overhead Break Arrival Flight Tracks.mxd

Figure 3-3a
Overhead Break
Arrival Flight Tracks
NAS Pensacola

Legend

Overhead Break
Arrival Flight Tracks

Runway



Source: Wyle Labs, 2008

0 0.5 1 2 Miles

\Path: L:\Buffalo\NAS_Pensacola\Maps\MXD\Draft_AICUZ\April_2011\Figure 3-3b Pensacola Overhead Break Arrival Flight Tracks.mxd

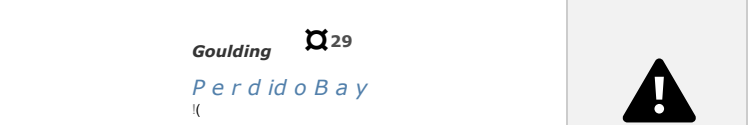
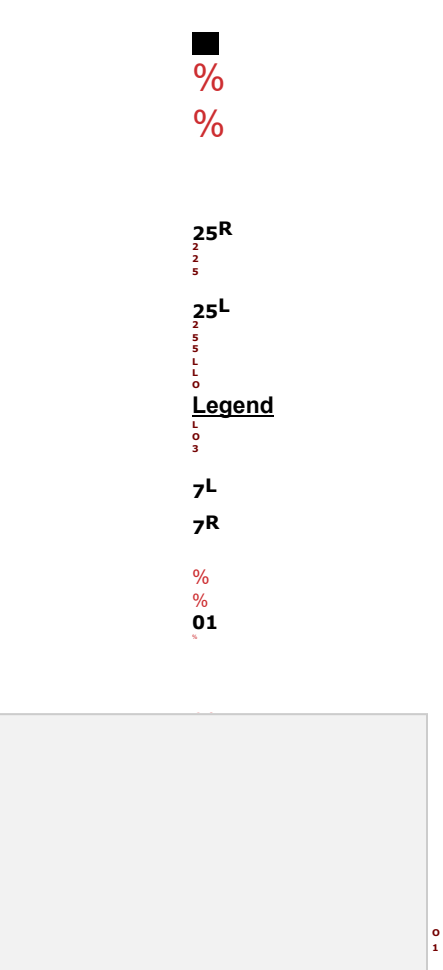
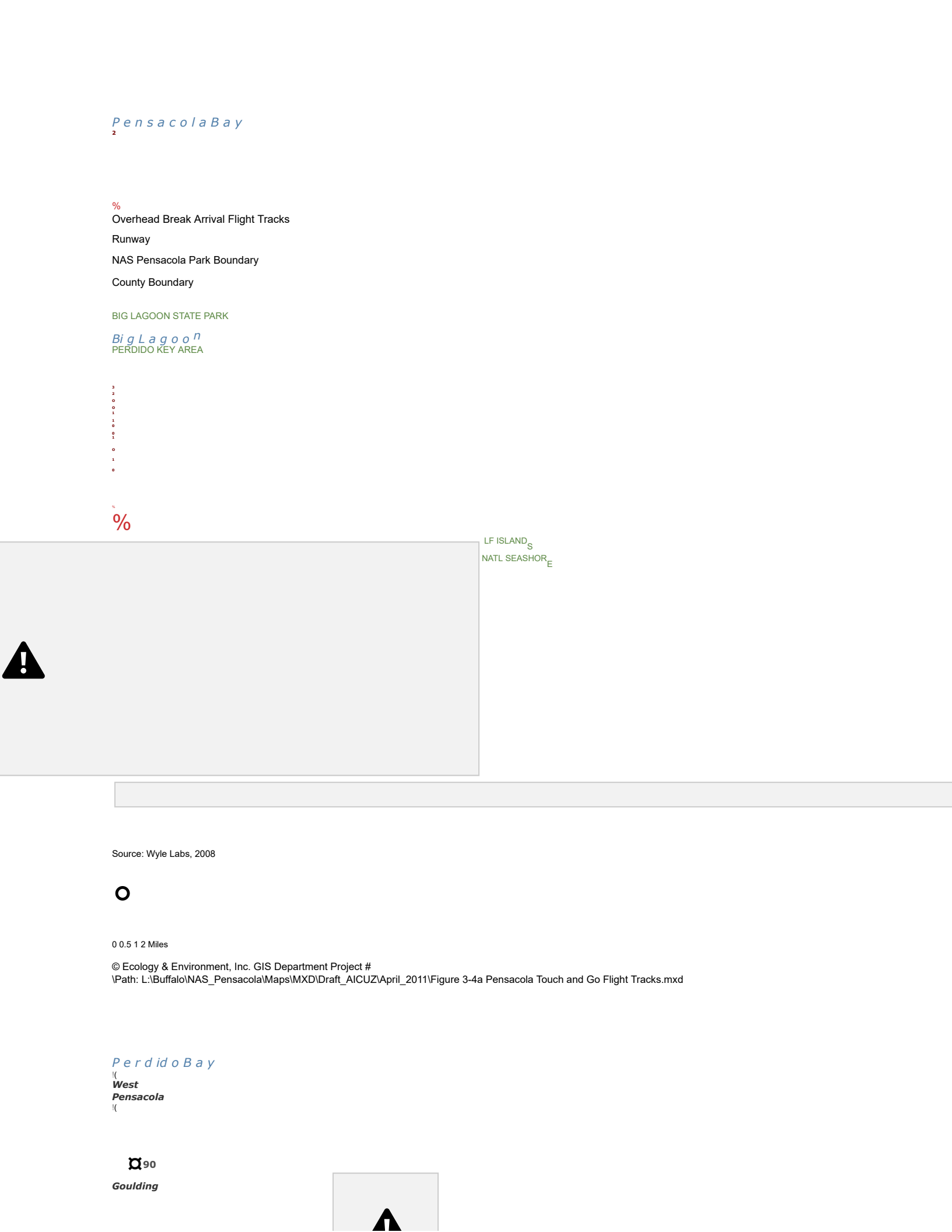


Figure 3-3b
Overhead Break Arrival Flight Tracks NAS Pensacola




Pensacola Bay
Overhead Break Arrival Flight Tracks
Runway
NAS Pensacola Park Boundary
County Boundary
BIG LAGOON STATE PARK
Big Lagoon
PERDIDO KEY AREA
LF ISLAND S
NATL SEASHOR E
Source: Wyle Labs, 2008
0 0.5 1 2 Miles
© Ecology & Environment, Inc. GIS Department Project #
\Path: L:\Buffalo\NAS_Pensacola\Maps\MXD\Draft_AICUZ\April_2011\Figure 3-4a Pensacola Touch and Go Flight Tracks.mxd
Perdido Bay
West
Pensacola
90
Goulding

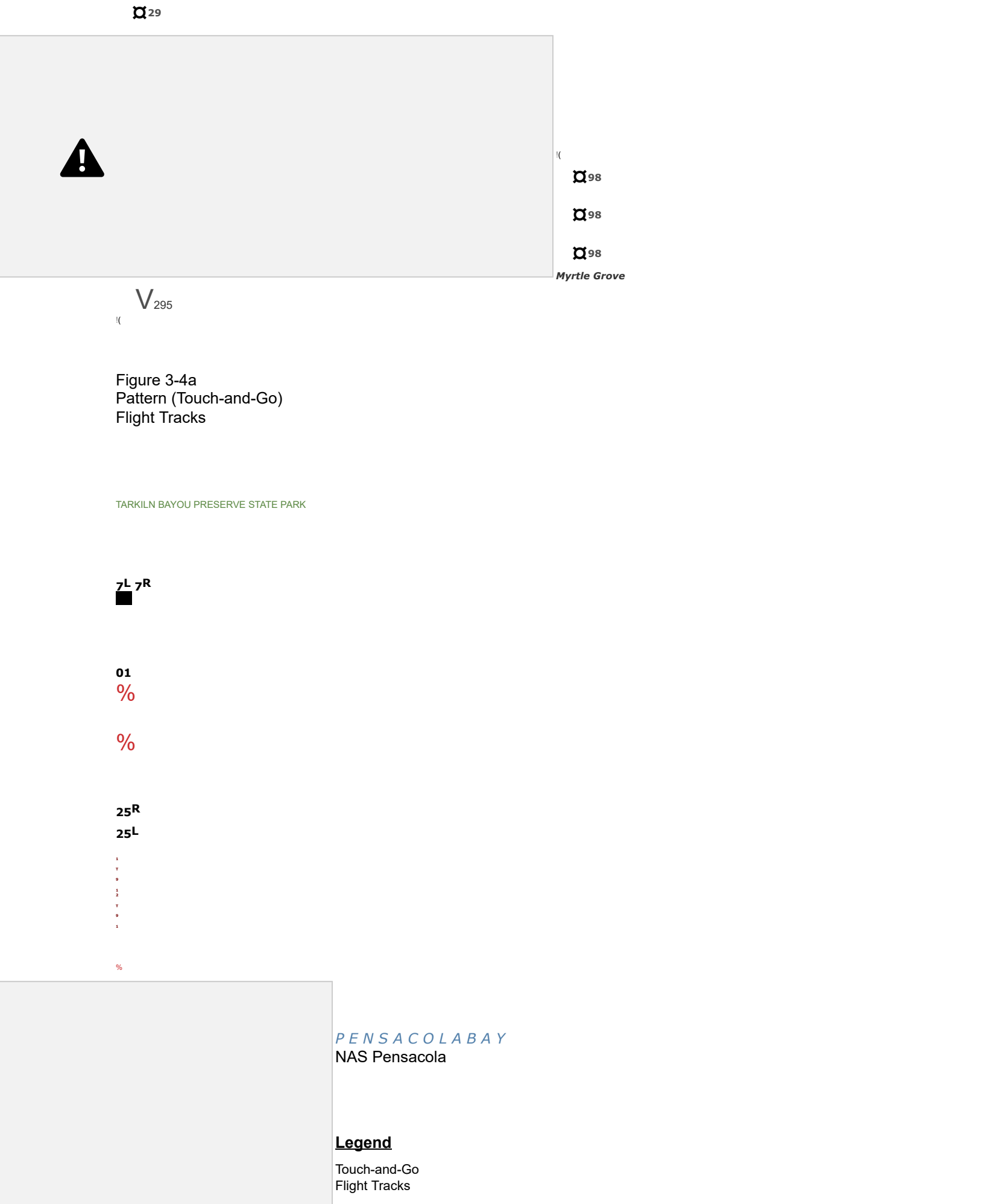


Figure 3-4a
Pattern (Touch-and-Go)
Flight Tracks

Runway

NAS Pensacola

%
%
%

7RT1
County Boundary Park Boundary

BIG LAGOON STATE PARK

Big Lagoon

7RT2

PERDIDO KEY AREA

% %

GULF ISLANDS NATL SEASHORE

Water Bodies

Source: Wyle Labs, 2008

0 0.5 1 2 Miles

\Path: L:\Buffalo\NAS_Pensacola\Maps\MXD\Draft_AICUZ\April_2011\Figure 3-4b Pensacola Touch and Go Flight Tracks.mxd

Perdido Bay

!(
West Pensacola
!(

90

Goulding

29

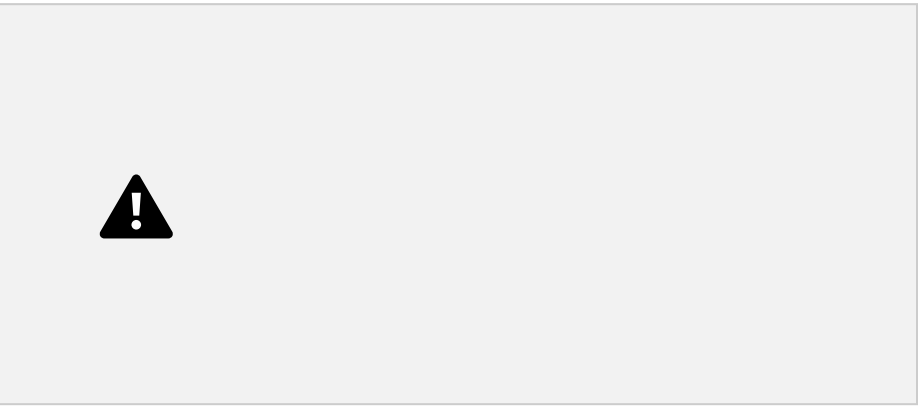
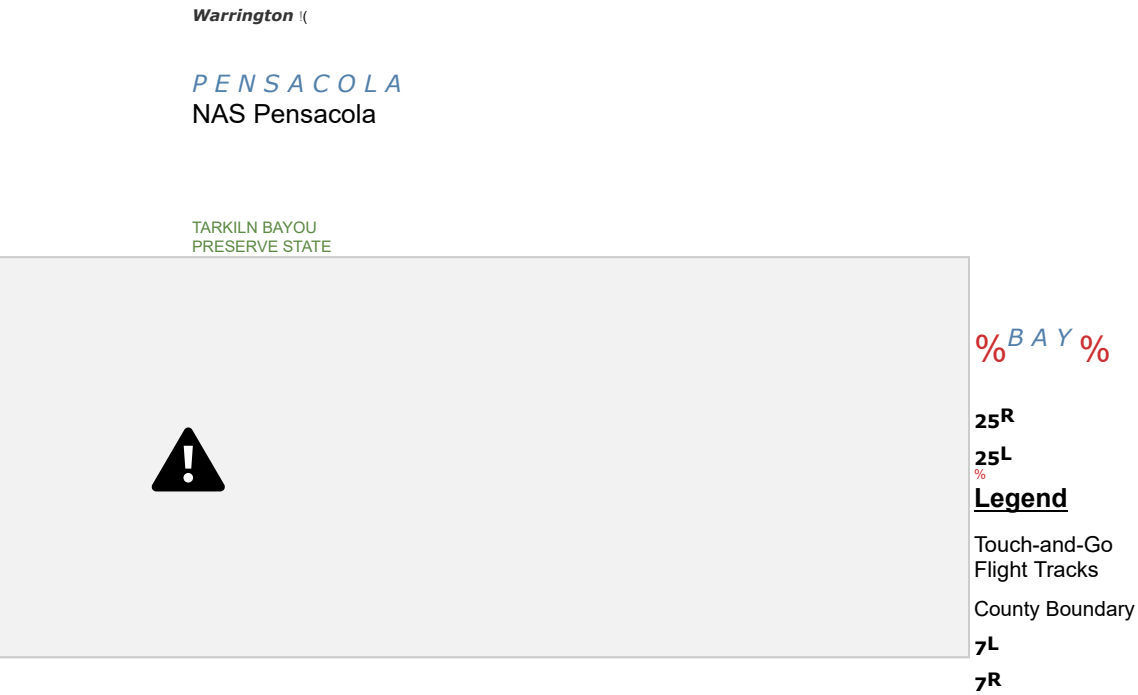
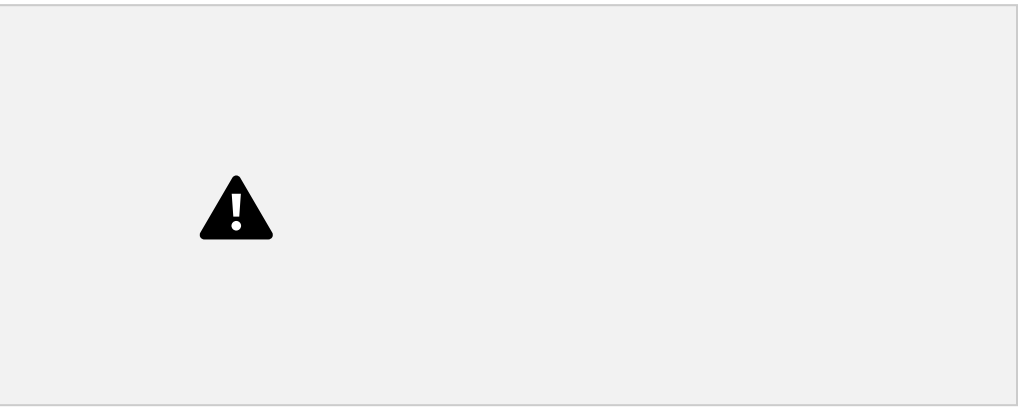


Figure 3-4b
Pattern (Touch-and-Go)
Flight Tracks





Water Bodies

Source: Wyle Labs, 2008

0 0.5 1 2 Miles

\Path: L:\Buffalo\NAS_Pensacola\Maps\MXD\Draft_AICUZ\April_2011\Figure 3-5 Saufley Arrival Flight Tracks.mxd

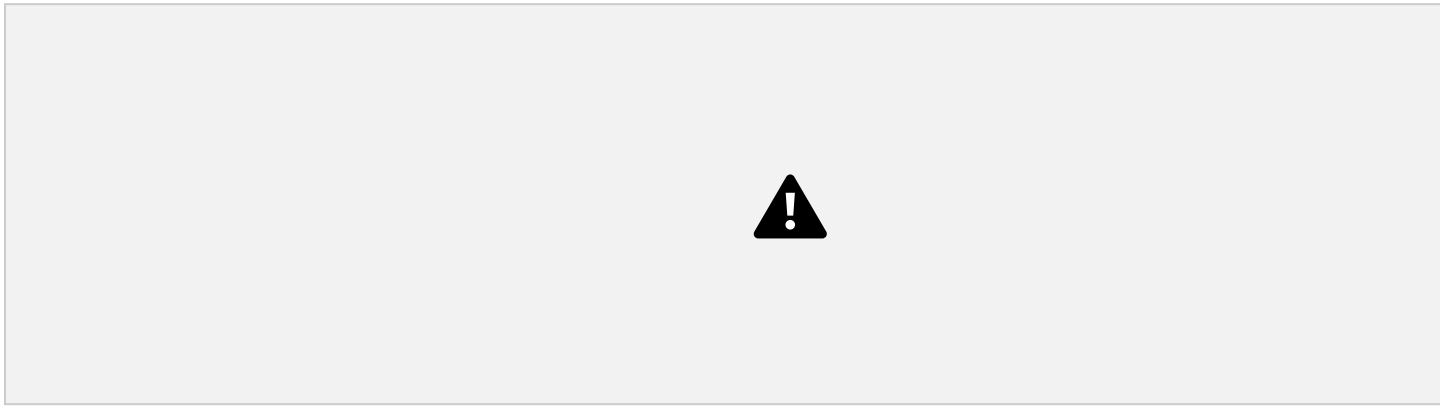


Figure 3-5
Arrival Flight Tracks NOLF Saufley

14A1

90

29

Brent

98

Lillian

Paradise Beach

05A1 32A1 90

0 5

23A1

Perdido Bay

3 2

Bellview

Myrtle Grove

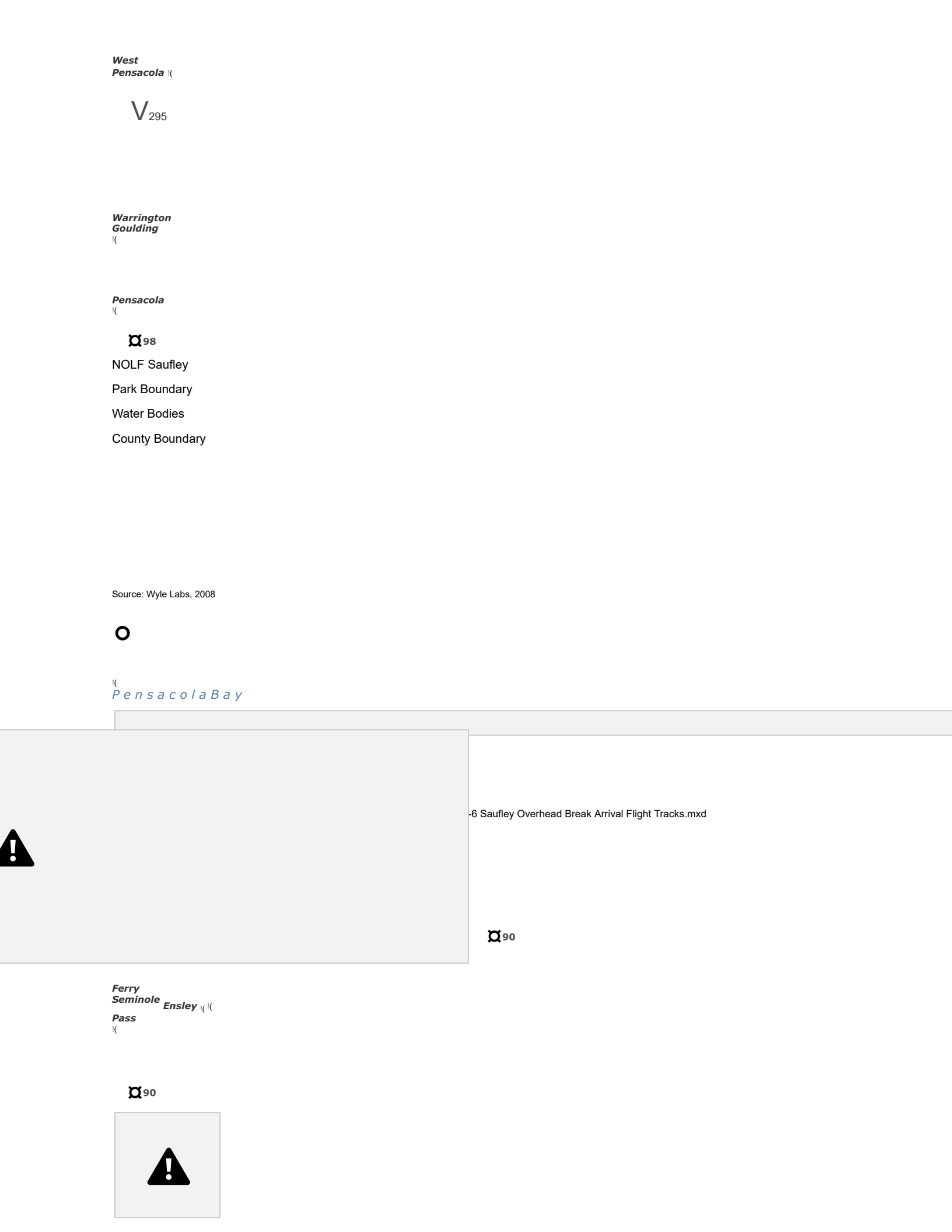
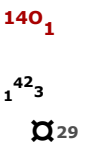
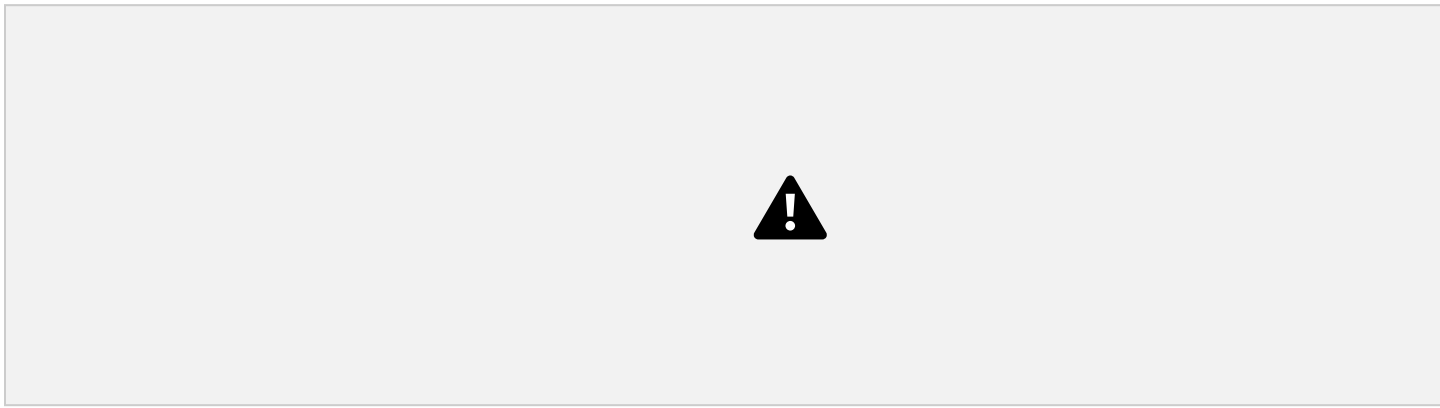

West
Pensacola
V295
Warrington
Goulding
Pensacola
98
NOLF Saufley
Park Boundary
Water Bodies
County Boundary
Source: Wyle Labs, 2008
P e n s a c o l a B a y
-6 Saufley Overhead Break Arrival Flight Tracks.mxd
90
Ferry
Seminole
Ensley
Pass
90

Figure 3-6
Overhead Break Arrival Flight Tracks
NOLF Saufley



Legend

Overhead Break
Arrival Flight Tracks



050[1]

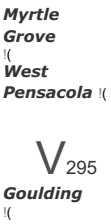
P e r d id o B a y

Lillian
!(
Paradise
Beach
0
5

320[1]

3[2]

230[1]
Bellview
!(



Runway

NOLF Saufley

Park Boundary

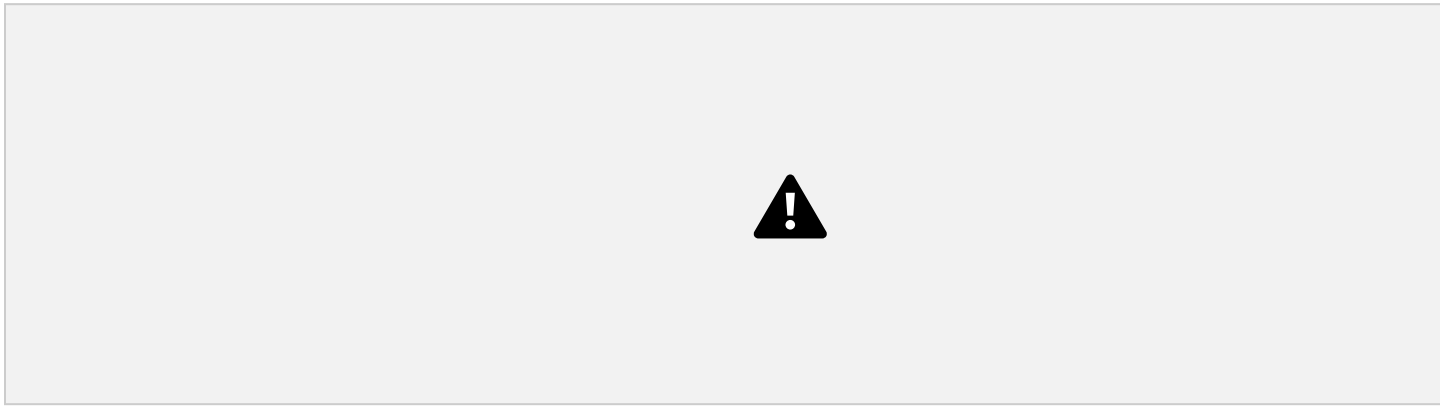
Water Bodies

County Boundary

Source: Wyle Labs, 2008

0 0.5 1 2 Miles

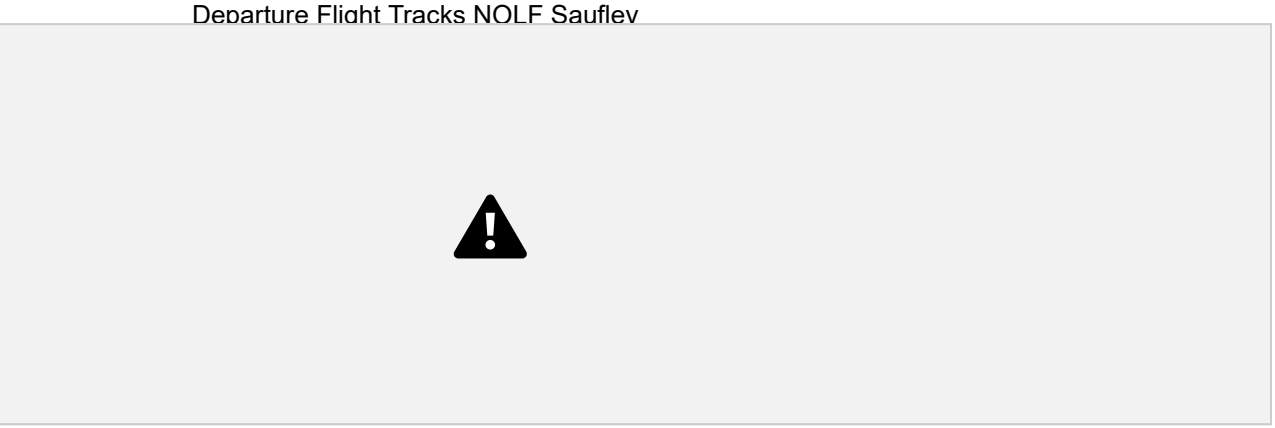
\Path: L:\Buffalo\NAS_Pensacola\Maps\MXD\Draft_AICUZ\April_2011\Figure 3-7 Saufley Departure Flight Tracks.mxd



90

Ferry
Seminole *Ensley*
Pass

Figure 3-7
Departure Flight Tracks NOLF Saufley



32D1

23D1

90

1 42 3

29

Brent

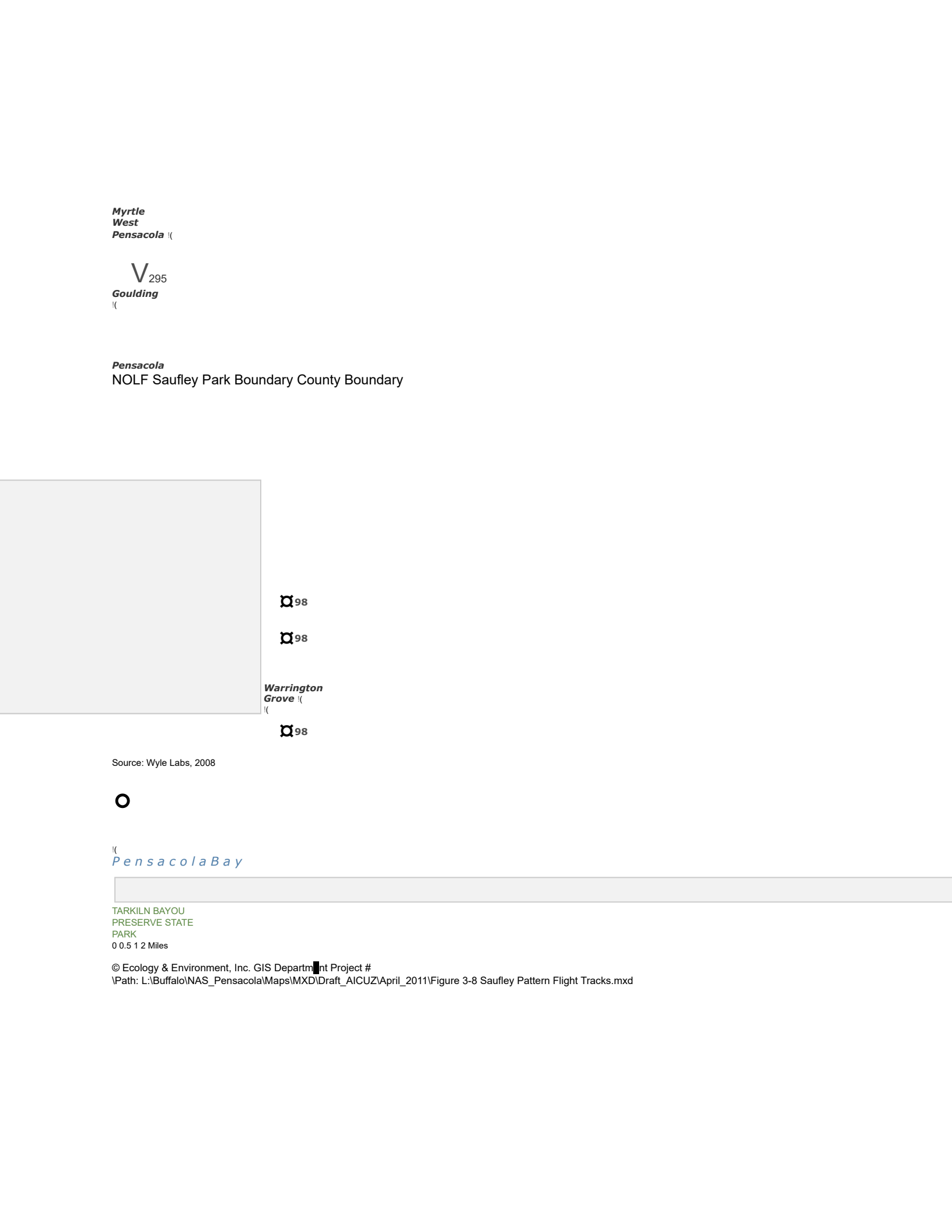
Legend

Departure Flight Tracks Runway

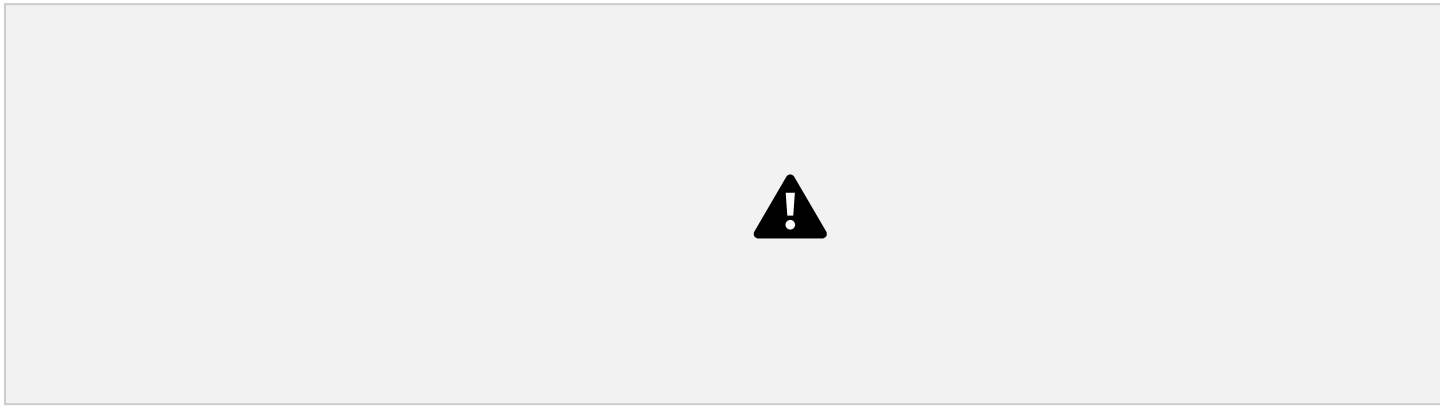
98

14D1
P e r d id o B a y
05

32
Bellview

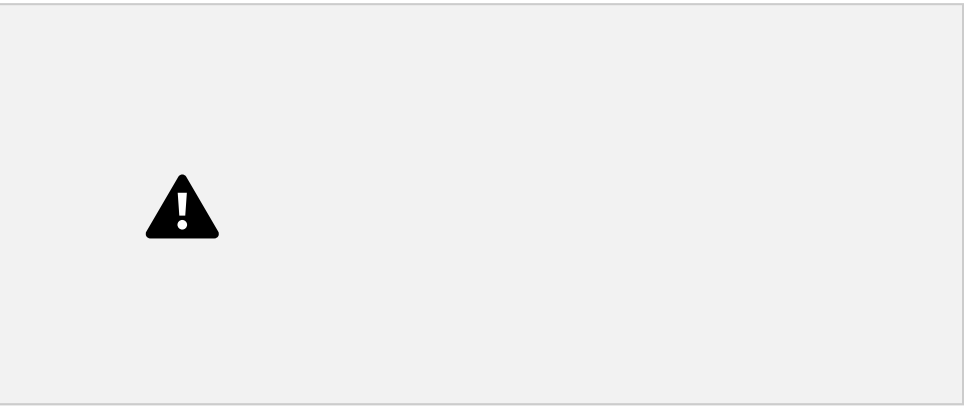


\Path: L:\Buffalo\NAS_Pensacola\Maps\MXD\Draft_AICUZ\April_2011\Figure 3-8 Saufley Pattern Flight Tracks.mxd



90

Ferry
Seminole *Ensley*
Pass



90

29

1 42 3
Brent
23T 1
05T 114T 1

Figure 3-8
Pattern (Touch-and-Go) Flight Tracks

NOLF Saufley

Legend

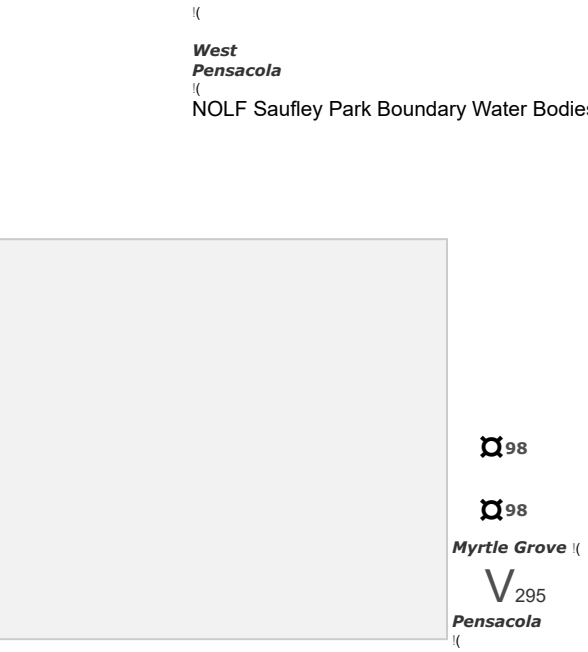
Touch-and-Go
Flight Tracks

Runway
0 5

P e r d i d o B a y

3 2
32T 1
Bellview

Goulding



4 Aircraft Noise

The impact of aircraft noise is a critical factor in the planning of future land use near air facilities. Because the noise from aircraft operations may significantly impact areas surrounding an installation, NAS Pensacola has defined certain areas as noise zones under the AICUZ Program. This section discusses noise associated with aircraft operations at NAS Pensacola, including average noise levels, noise complaints, noise abatement/flight procedures, and noise contours.

4.1 What is Sound/Noise?

Sound is vibrations in the air, which can be generated by a

Noise exposure at NAS Pensacola and NALF Saufley is measured using the

daynight average sound level (DNL) noise metric.

multitude of sources. Some of the potential sources of noise include roadway traffic, land use activities, railway activities, and aircraft operations. Noise occurs when the sound is judged unwanted. Generally, sound becomes noise to a listener when it interferes with normal activities. For further discussion of noise and its effect on people and the environment, see Appendix A.

In this document, all sound or noise levels are measured in A weighted decibels (dBA), which represents sound pressure adjusted to the range of human hearing with an intensity greater than barely audible sound, which is set at 0 dB. Normal speech has a sound level of approximately 60 to 65 dBA. Generally, a sound level above 120 dBA will begin to provide discomfort to a listener (Berglund and Lindvall 1995), and the threshold of pain is 140 dBA.

The noise exposure from aircraft at NAS Pensacola, as with other installations, is measured using the day-night average sound level (DNL) noise metric. The DNL noise metric, established in 1980 by the Federal Interagency Committee on Urban Noise (FICUN), presents a reliable measure of community sensitivity to aircraft noise and has

For land-use planning purposes, noise zones are grouped into three noise zones:

—Noise Zone 1 (less than 65 DNL) generally considered an area of low or no noise impact.

—Noise Zone 2 (65 to 75 DNL) is an area of moderate impact, where some land-use controls are required.

—Noise Zone 3 (greater than 75 DNL) is the most severely impacted area and requires the greatest degree of land use control.

become the standard metric used in the United States (except California, which uses the Community Noise Exposure Level [CNEL]). DNL averages the sound energy from aircraft operations at a location over a 24-hour period. DNL also adds an additional 10 decibels to events occurring between 10:00 p.m. to 7:00 a.m. This 10-decibel "penalty" represents the added intrusiveness of sounds occurring during normal sleeping hours, both because of the increased sensitivity to noise during those hours and because ambient sound levels at night are typically lower.

By combining factors most noticeable about noise annoyance— maximum noise levels, duration, and the number of events over a 24- hour period—DNL provides a single measure of overall noise impact. Scientific studies and social surveys conducted to evaluate community annoyance to all types of environmental noise have found DNL to be the best

correlation to community annoyance (FICUN 1980, U.S. Environmental Protection Agency [EPA] 1982, American National Standards Institute [ANSI] 1990, Federal Interagency Committee on Noise [FICON] 1992).

Although DNL provides a single measure of overall noise impact, it does not provide specific information on the number of noise events or the individual sound levels that occur during the day. For example, a day-night average sound level of 65 dBA could result from a few noisy events or a large number of quieter events.

The DNL is depicted visually as a noise contour that connects points of equal value. The noise contours in this document are depicted in 5-dBA increments. The AICUZ Program generally divides noise exposure into three categories known as noise zones:

- **Noise Zone 1:** Less than 65 DNL;
- **Noise Zone 2:** 65 to 75 DNL; and
- **Noise Zone 3:** Greater than 75 DNL.

Noise Zone 1 (less than 65 DNL) is generally considered an area of low or no noise impact. Noise Zone 2 (65 to 75 DNL) is an area of moderate impact, where some land use controls are required. Noise

Aircraft noise consists of two major sources: flight operations and ground engine maintenance “run ups.”

Zone 3 (greater than 75 DNL) is the most severely impacted area and requires the greatest degree of land use control.

4.2 Airfield Noise Sources

The main sources of noise at airfields are flight operations and pre-flight and/or maintenance run-ups. Computer models are used to develop noise contours, based on information about these operations, including:

- Type of operation (arrival, departure, and pattern);
- Number of operations per day;
- Time of operation;
- Flight track;
- Aircraft power settings, speeds, and altitudes;
- Number and duration of pre-flight and maintenance run-ups;
- Terrain;
- Surface type; and
- Environmental data (temperature and humidity).

4.3 Noise Complaints

Noise complaints originating from operations at NAS Pensacola are handled through representatives at NAS Pensacola and Navy Outlying Landing Field (NOLF) Saufley. The Noise Hotline has been established for the public to notify Navy officials of noise complaints. The origin and nature of noise complaints within the geographic region is often a tangible barometer of the success or failure of noise abatement procedures. Noise complaints can arise from a variety of causes, often related to the intensity and frequency of the events, wind speed, wind direction, and cloud cover, as well as the individual sensitivity of the person complaining. They often also arise outside the areas depicted by noise contours. This is frequently due to a single event that is unusual, such as a loud plane flying over an area not commonly overflown. In some

cases, the complaints outside the areas included in the noise

contours are due to the fact that noise contours and land use recommendations are based on average annoyance responses of a population, and some people have greater noise sensitivity than others. There is only an occasional complaint received at NAS Pensacola, normally related to the Blue Angels practice sessions. These complaints are investigated by the NAS Pensacola Aviation Safety Officer and the Blue Angels.

If there are concerns or complaints about aircraft noise in the area, citizens are encouraged to contact representatives at the appropriate hotline number:

NAS Pensacola and NOLF Saufley
Aviation Safety Officer
(850) 452-4231 extension 3130 or 3116

A small increase in noise level generally will not be notable but, as the change in noise level increases, individual perception is greater, as shown in Table 4-1.

Table 4-1 Subjective Response to Noise

Change	Change in Perceived Loudness
1 decibel	Requires close attention to notice
3 decibels	Barely noticeable
5 decibels	Quite noticeable
10 decibels	Dramatic – twice or half as loud
20 decibels	Striking – fourfold change

4.4 Noise Abatement/Flight Procedures

NAS Pensacola and NOLF Saufley actively pursue operational measures to reduce noise. The purpose of these procedures is to minimize noise in recognition of community response to aircraft noise at NAS Pensacola and NOLF Saufley. All naval aviators are held to high standards of professionalism and are required to comply with noise abatement procedures. Procedures used to reduce noise upon takeoff include securing afterburners no later than the airfield boundary and

climbing rapidly on departure, taking the noise away from the

Flight crews are periodically briefed by Air Traffic Control personnel who provide briefs to the air crews regarding airspace issues, flight patterns and operational restrictions.

The Navy uses NOISEMAP – a computer model to project noise impacts.

community. Flight crews are periodically briefed by Air Traffic Control personnel who provide briefs to the air crews regarding airspace issues, flight patterns and operational restrictions. Night operations are limited to those that are necessary and essential (NAS Pensacola AICUZ 2008). Noise abatement procedures also apply to engine run-up operations.

4.5 Noise Contours

The Navy periodically conducts noise studies to assess the noise impacts of aircraft operations. The need to conduct a noise study is generally prompted by a significant change in aircraft operations—either by the number of operations conducted at the airfield, the number and type of aircraft using the airfield, or the flight paths used for airfield departure/arrival changes.

The Navy uses NOISEMAP, a widely accepted computer model that projects noise impacts around military airfields. NOISEMAP calculates DNL contours resulting from aircraft operations using such variables as power settings, aircraft model and type, maximum sound levels, and duration and flight profiles for a given airfield. The contours connect points of equal value. Noise contours on the AICUZ map are normally shown in 5-decibel (dB) increments from 60 DNL to 85 DNL, as appropriate. The area between two specific contours is known as a noise zone. The noise exposure area is divided into noise zones that are shown on the AICUZ maps and are as follows:

- Less than 65 DNL;
- 65-70 DNL;
- 70-75 DNL; and
- Greater than 75 DNL.

Calculated noise contours do not represent exact measurements. Noise levels inside a contour may be similar to those outside a contour line. If the contour lines are close together, the change in noise level is greater. If the lines are far apart, the change in noise level is gradual (NAS Pensacola AICUZ 2008).

4.5.1 NAS Pensacola

The main noise sources at NAS Pensacola are aircraft operations. This section describes the historic noise contours (1988 and 1990 as provided in the 2003 Escambia County Joint Land Use Study (JLUS) [EDAW, Inc. 2003]) and the 2010 AICUZ noise contours (modeled Calendar Year (CY) 2012. The AICUZ process calls for the modeling and analysis of existing conditions and any future aircraft operational changes that can be reasonably predicted for the air station. Prospective flight operations, including noise associated with run-up locations, were modeled as part of the 2010 noise contours. Also important to note is that the noise contours presented in this study include augmented F-35 aircraft noise data. This AICUZ study includes the most current noise measurement data gathered at Edward AFB for the F- 35 and provided to the Navy by the USAF.

Prospective flight operations at NAS Pensacola that were modeled as part of the 2010 noise contours include increased training of T-6s for Training Air Wing (TRAWING) 6, replacement of the T-2 with the T-45, phase-out of aircraft (EA-6, S-3, T-34, and DC-9), and the addition of the F-35 (Joint Strike Fighter [JSF]) operations. The F-35 is not anticipated to be stationed at NAS Pensacola or NOLF Saufley; however, all three variants (Navy [F-35C], Marine Corps [F-35B], and Air Force [F-35A]) are expected to use NAS Pensacola's runways as transient aircraft.

4.5.1.1 2010 AICUZ Noise Contours

The 2010 AICUZ noise contours (modeled CY2012, including F-35 as transient aircraft) have increased in overall size from the 1988 and 1990 AICUZ noise contours as provided in the 2003 Escambia County JLUS (EDAW, Inc. 2003) (Figure 4-1). The concentrations of the 2010 AICUZ noise contours are on Runways 07L/25R and 07R/25L. The 65- as well as some of the 75 DNL noise contours extend off-station, specifically at the edge of Runway 01/19 and the western edge of Runways 07L/25R and 07R/25L (see Figure 4-1).

TARKILN BAYOU
PRESERVE STATE
PARK

Warrington

PENSACOLA BAY

Figure 4-1 2010 AICUZ

Perdido
Bay

25R 25L
Noise Contours
NAS Pensacola

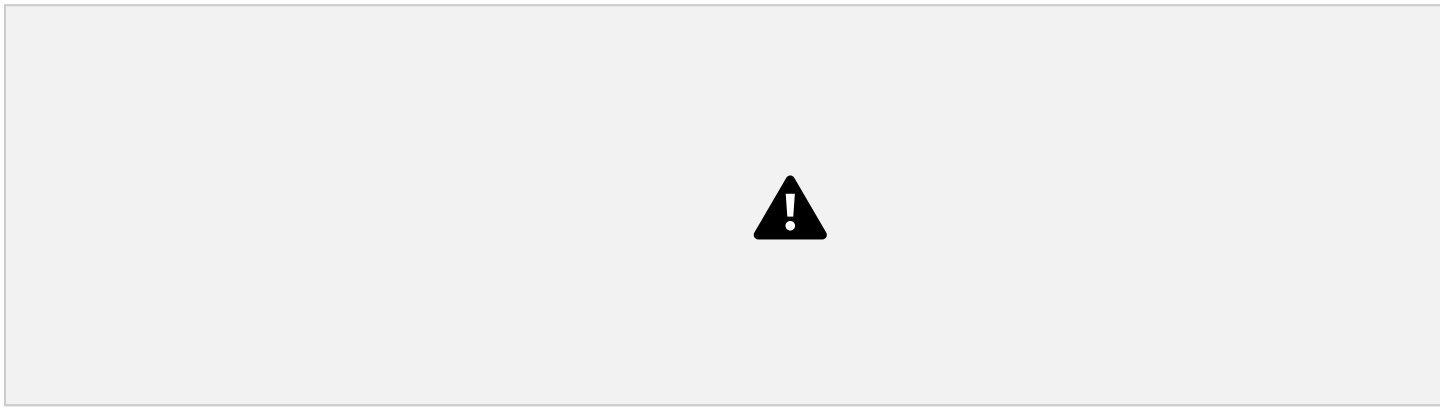
Legend

2010 Noise Countour

BIG LAGOON STATE PARK

Big Lagoon

PERDIDO KEY AREA



60 DNL

65 DNL

70 DNL

75+ DNL

") Gate

Park Boundary

Water Bodies

County Boundary

Source: Wyle Labs, 2008

G U L F O F M E X I C O

0 0.5 1 2 Miles

Air Installations Compatible Use Zones Study 2010 ***NAS Pensacola and NOLF Saufley, Florida***

The total amount of off-station acreage within the 65 DNL noise contour is approximately 5,000 acres (2,023 ha). Figure 4-2, provides a DNL color gradient of the noise propagating from NAS Pensacola into the surrounding community. The highest noise levels are concentrated within the installation and decrease to much lower levels into the surrounding community. The figure also depicts the noise outside the 65 DNL noise contours, which are deemed minimal by the AICUZ Program.

As previously mentioned, the 2010 noise contours include noise associated with engine run-up locations. The engine run-up locations are within the 85 DNL noise contours concentrations (Figure 4-3).

4.5.1.2 Comparison of 1988/1990 and 2010 AICUZ Noise Contours

The 2010 AICUZ noise contours have changed in size and location from the 1988 and 1990 AICUZ noise contours (see Figure 4-4 and Table 4-2). A complete study methodology was not provided in the 2003 JLUS or previous AICUZ documents. Sufficient information now exists to conduct a thorough comparative analysis of the two sets of noise contours.

Table 4-2 Areas within Noise Zones (DNL), NAS Pensacola

Noise Zone	TOTAL LAND AREA	
	1988 and 1990 AICUZ Noise Zones (acres)	2010 AICUZ Noise Zones (acres)
65-70 DNL	3,795	4,778
70-75 DNL	1,582	3,048
75-80 DNL	(75 + DNL) 2,548	2,066
80+ DNL	NA	2,119*
TOTAL AREA	**7,926**	**12,011**

Source: E & E 2009
Notes:
NA = Data Not Available
*= All on station land area

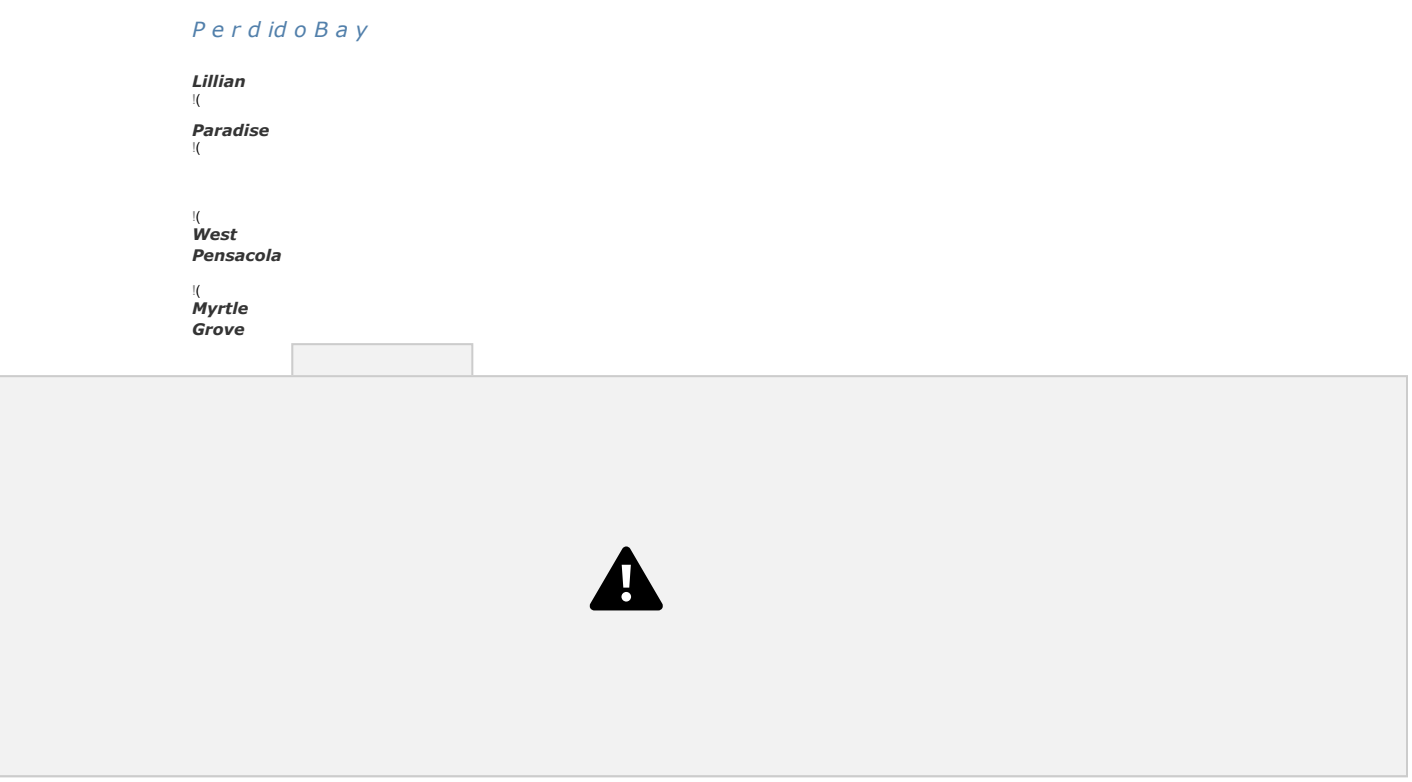


Figure 4-2
2010 AICUZ Noise Gradients NAS Pensacola


Legend
") Gate
2010 Noise Contour
GU
Park Boundary County Boundary
BIG LAGOON STATE PARK
Big Lagoon
PERDIDO KEY AREA
GULF OF MEXICO
Noise Value
> 85 DNL
45 DNL

Source: Wyle Labs, 2008

0 0.5 1 2 Miles

Bayou Grande

60

70

65

70

58

25R 25L

Figure 4-3
Engine Run-Up Locations and 2010 AICUZ
Noise Contours
NAS Pensacola

BLUE LO

")
1853 LINE

Legend

7L

WR T2 T39

")")")
FL T2 T39

2010 Noise Countour 60 DNL

7R

65 DNL 70 DNL 75+ DNL

75
") Engine Run-Up Locations

75
")
")
85

HP T6
BLUE HI
WR H3 H60
NAS Pensacola Runway

01

85
")
BA FW

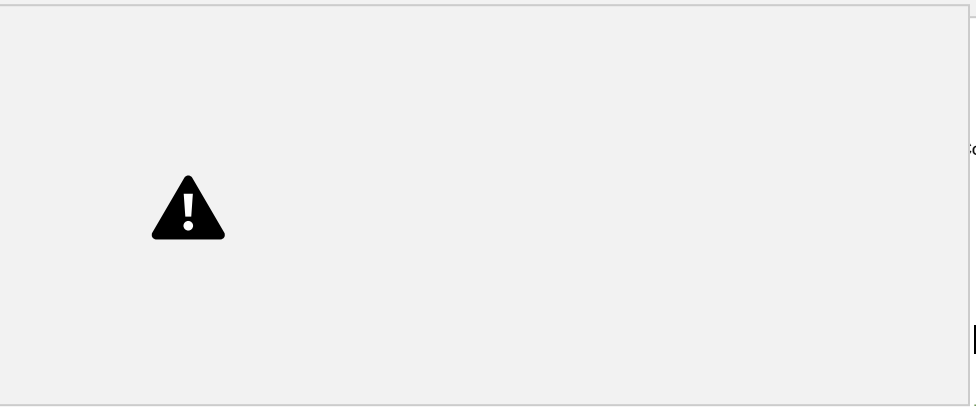
P e n s a c o l a B a y

80Source: Wyle Labs, 2008.
Florida Department of Revenue, 2007.

70

75
Bi g L a g o o n

75



ontour Comparison.mxd !(

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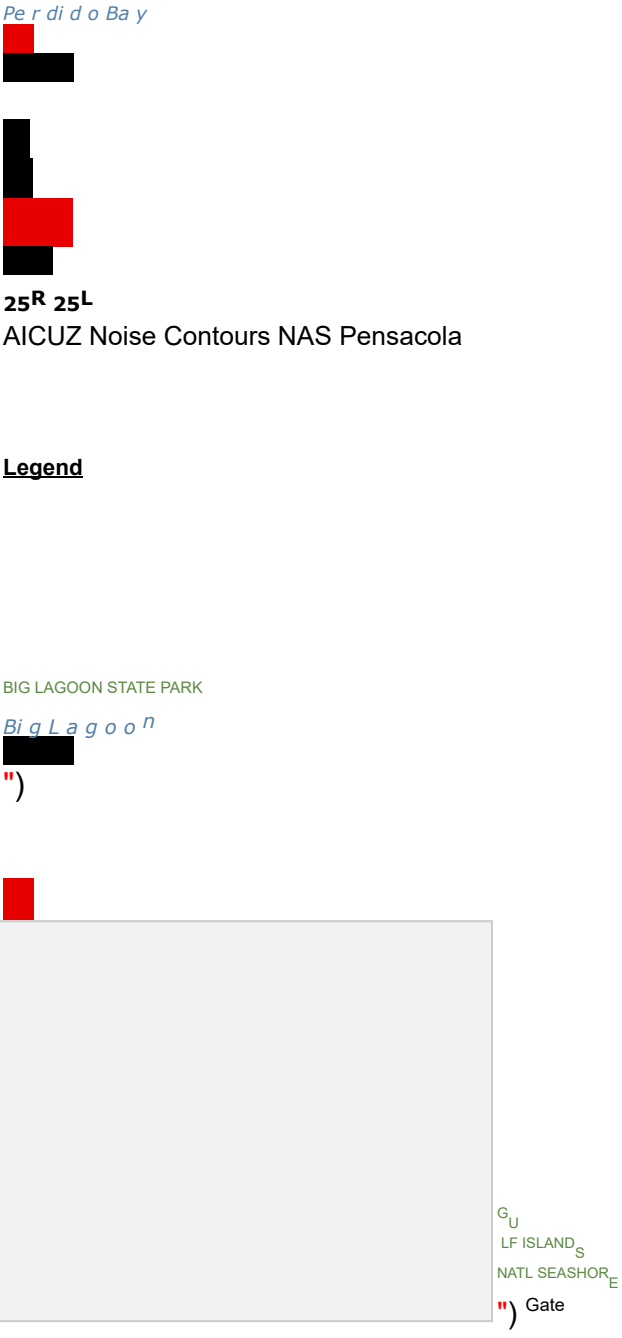
P E N S A C O L A B A Y

Figure 4-4
Comparison of 1980 (2003 JLUS) and 2010



Water Bodies

Source: Wyle Labs, 2008

G U L F O F M E X I C O

0 0.5 1 2 Miles

Air Installations Compatible Use Zones Study 2010 ***NAS Pensacola and NOLF Saufley, Florida***

The 65 DNL noise contour under the 1988 and 1990 AICUZ noise contours extended significantly off base to the north from Runway 01/19, and moderately off base to the south from Runway 01/19. At the north end of Runway 01/19, the 2010 AICUZ 65 DNL noise contour does not extend as far off base as the previous contours; however, it extends further off base to the south and southeast over the barrier islands and the Gulf of Mexico.

The 65 DNL noise contour extends approximately 1 mile (1.6 kilometer [km]) north of the installation, 2.45 miles (3.94 km) south of the installation, and 2.04 miles (3.28 km) west of the installation (distances measured from the installation boundary to the furthest directional extent of the contour).

The 75 DNL noise contour under the 1988 and 1990 AICUZ noise contours are contained primarily on base. The 2010 AICUZ noise contour of 75 DNL is also contained primarily on base except where it minimally extends off base to the southwest.

The 75 DNL noise contour extends approximately 0.2 mile (0.32 km) north of the installation, 1.09 miles (1.75 km) south of the installation, and 0.47 mile (0.76 km) west of the installation (distances measured from the installation boundary to the furthest directional extent of the contour). Noise contours do not extend off the installation to the east.

As described above and depicted in Figure 4-4, the 2010 AICUZ noise contours have changed in size and location from the 1988 and 1990 AICUZ noise contours. The changes are due, in part, to a change in aircraft mix, flight patterns, operational level, and improved noise

mapping techniques. Noise contours, as discussed in Section 4.5, incorporate aircraft specific noise data, including aircraft operations using such variables as power settings, aircraft model and type, maximum sound levels, and duration and flight profiles for a given airfield. Therefore, the addition and/or removal of an aircraft from the installation will result in a change in the noise contours. As such, each aircraft has specific operational profiles that determine flight patterns. As mapped, noise propagates from the flight pattern and, as such, will

vary from aircraft to aircraft and pattern to pattern as they change over time. As a result, aircraft mix and flight patterns have changed since the 1988 and 1990 AICUZ noise contours and the 2010 AICUZ contours, resulting in changes in size and location of noise contours. Additionally, improvements in the noise model contribute to changes in the size and location of the 2010 noise contours.

The operational tempo of an installation also impacts the noise contours. As the operational tempo of an installation varies over time, so do the noise contours. However, noise contours are not a direct reflection of the operational tempo. If operations decrease, the noise contours do not necessarily decrease; likewise, if operations increase the noise contours do not necessarily increase. This is true with respect to the aircraft mix at the installation as noise associated with specific aircraft varies.

NOISEMAP, as specified in Chief of Naval Operations Instruction (OPNAVINST) 11010.36C was used to calculate and plot the 60 through 85 DNL noise contours for the 2010 AICUZ noise contours. The 1988 and 1990 noise contours used in the 2003 JLUS were modeled based on requirements in OPNAVINST 11010.36A. Noise mapping technology has significantly progressed since the 1988 and 1990 noise contours were developed. Advancements in noise mapping technology contribute to the changes in size and location of the 2010 noise contours.

4.5.2 NOLF Saufley

The main noise sources at NOLF Saufley are touch-and-go aircraft operations. This section describes the historic noise contours (2000 noise study update as provided in the 2003 Escambia County JLUS [EDAW, Inc. 2003]) and the 2010 AICUZ noise contours (modeled

CY2012). The AICUZ process calls for the modeling and analysis of existing conditions and any future aircraft operational changes that can be reasonably predicted for the air station.

Prospective flight operations modeled for NOLF Saufley include replacement of the T-34 with the T-6 and reduction of night operations to zero.

4.5.2.1 2010 AICUZ Noise Contours

The 2010 AICUZ noise contours have significantly increased the overall size of the 2000 AICUZ noise contours (see Figure 4-5). The concentrations of the 2010 AICUZ noise contours increased to the north, east, and west, and with no notable differences in the contours to the south. The 55 DNL did not increase from the 2000 AICUZ noise contours, as 55 DNL remains the highest noise contour in the 2010 study. The total amount of off-station acreage within the 55 DNL noise contour is approximately 1,750 acres (708 ha). The 65 DNL noise contour does not extend off the installation. The 55 DNL noise contour is shown for informational purposes since it is considered an area of low or no noise impact and no land use controls are required. Figure 4-6, provides a DNL color gradient of the noise propagating from NOLF Saufley into the surrounding community. The highest noise levels are concentrated within the installation and decrease to much lower levels into the surrounding community. The figure also depicts the noise outside the 55 DNL noise contours, which are deemed minimal by the AICUZ Program.

4.5.2.2 Comparison of 2000 and 2010 AICUZ Noise Contours

The 2010 AICUZ noise contours have changed in size and location from the 2000 AICUZ noise contours (Figure 4-7). The 55 DNL noise contour under the 2000 AICUZ extended significantly off base in the direction of the runways, in an 'X' shape, with wider coverage to the north. The off-base portion of the 55 DNL noise contour in the 2010 AICUZ surrounds the airfield, includes a larger area, and extends further north than the 2000 AICUZ noise contours (see Table 4-3). The 55 DNL noise contour is shown for only informational purposes since it is considered an area of low or no noise impact and no land use controls are required. See Section 4.5.1.2 for further explanation of changes in

size and location of noise contours.

Table 4-3 Areas within Noise Zones (DNL), NOLF Saufley

Noise Zone	TOTAL LAND AREA	
	2000 AICUZ Noise Zones (acres)	2010 AICUZ Noise Zones (acres)
55-60 DNL	703	1,750
60-65 DNL	272	830
65-70 DNL	(65+ DNL) 80	184
70+ DNL	NA	26
TOTAL AREA	**1,055**	**2,790**

Source: E & E 2009
Notes:
NA = Data Not Available

55 60

90

Figure 4-5 2010 AICUZ

Huntsville Cycle
Hillcrest
Noise Contours

60
Saufley Field Nolf
Cedar
60
55
Crowson
Godwin
Green Bay
Eureka
Midland Park
NOLF Saufley **Legend**
55
Alton
1 4
2 3
70

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B
Dominic
3
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1

Zachary
Shelly
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Seitz
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Petra
Garl^{a}
Sequo»
55 DNL 60 DNL

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Bellview
Brydon
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Hogan
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65+ DNL
60 60
$^{0}_{5}$
Sprague
70
e
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F

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55
Treahna
vendale
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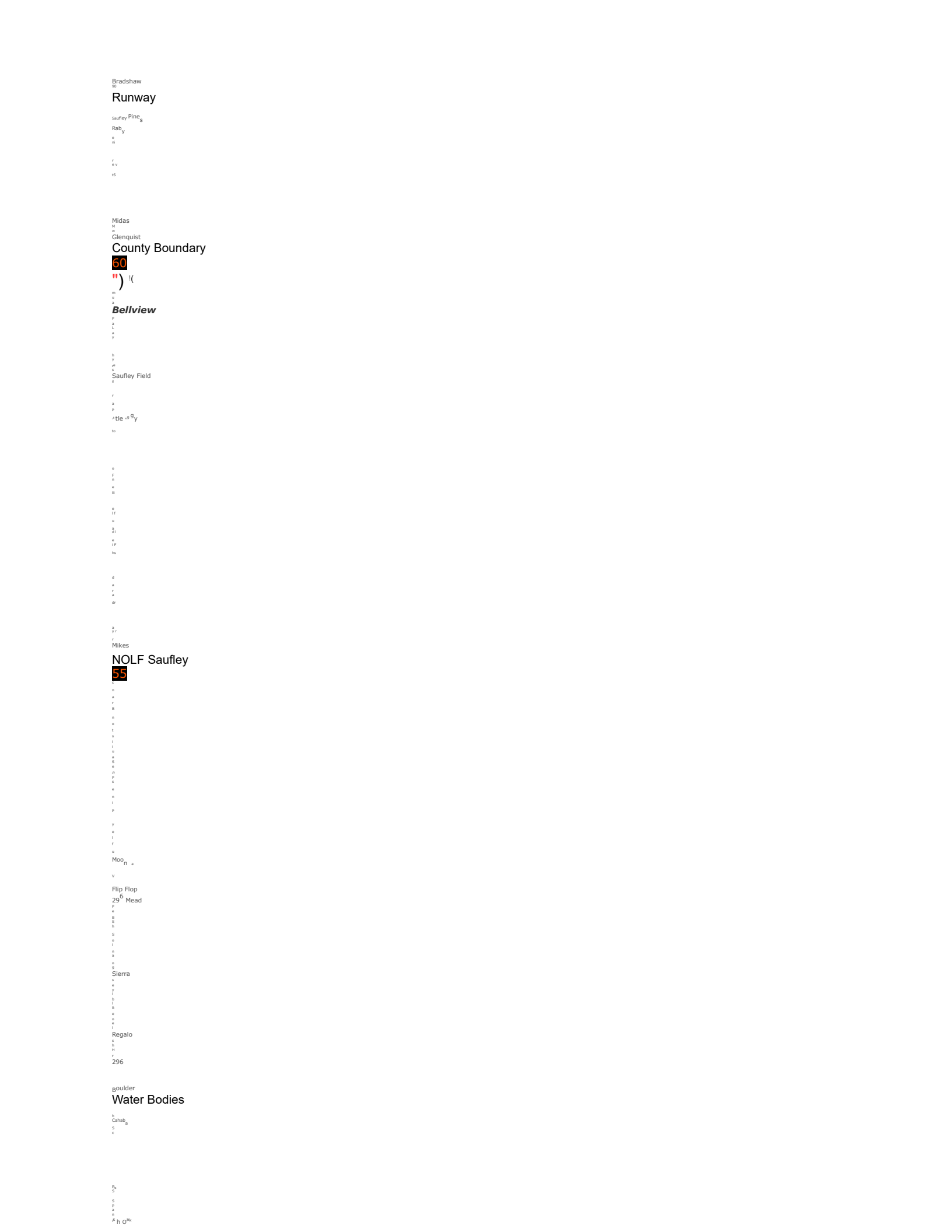
o
Cotton
C


Bradshaw
Runway
Midas
Glenquist
County Boundary
60
Bellview
Saufley Field
Mikes
NOLF Saufley
55
Moon
Flip Flop
Mead
Sierra
Regalo
296
Boulder
Water Bodies

Shadow

Grove

55

Blue Angel Blue Angle

Muldoon

Vestavia

Randel

Lanett

Tamul

Geneva Kingston

Colem

Elcino

Perkins

Polnciana

Forest

Perkins

Perkins

La Venta na

Durham

PA

Scotland

Oakfield

Cel b

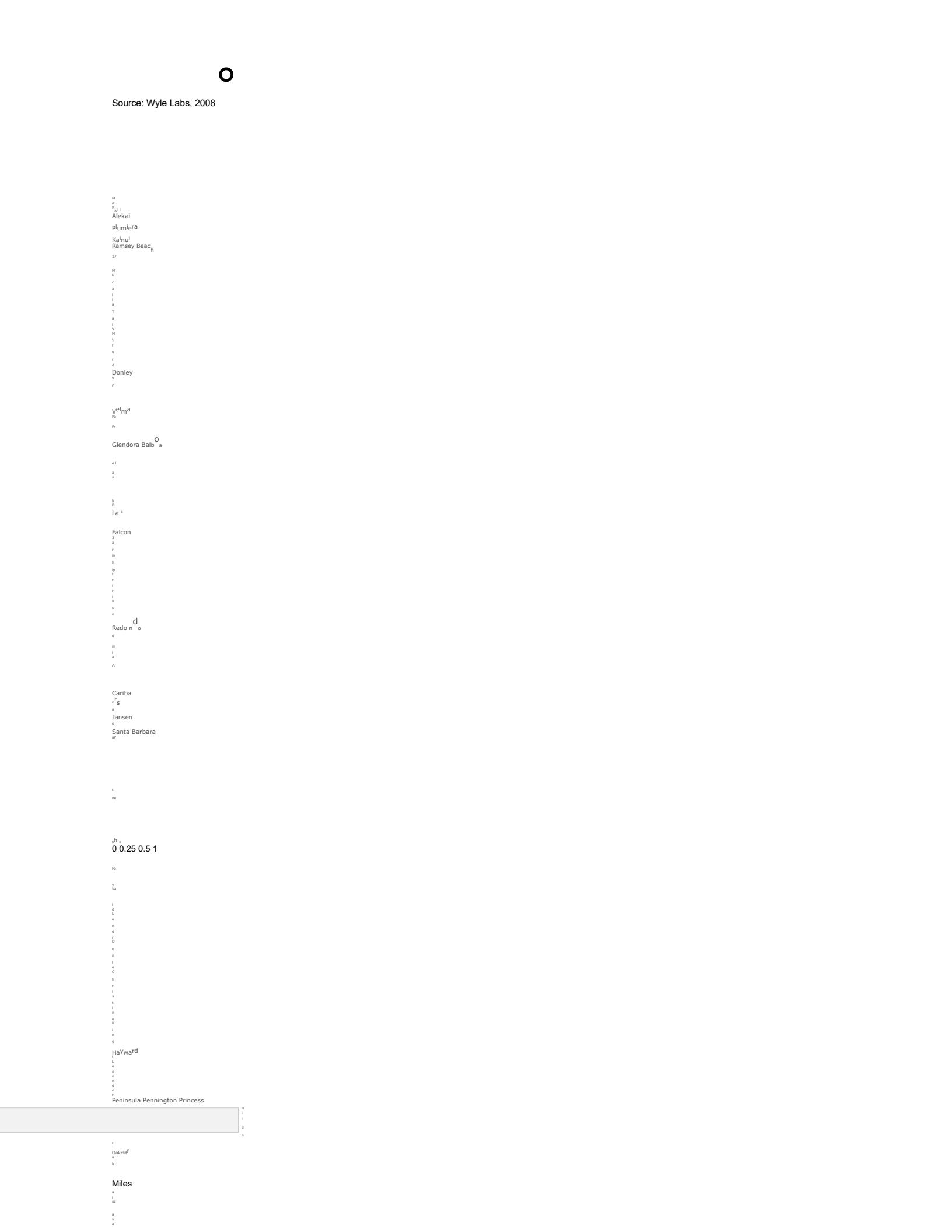
Oakland

Cerny

Clara

Marlane

Blue Angel Blue Angle


Source: Wyle Labs, 2008
Alekai
Ramsey Beach
Donley
Glendora Balboa
Falcon
Redondo
Cariba
Jansen
Santa Barbara
0 0.25 0.5 1
Peninsula Pennington Princess
Miles

© Ecology & Environment, Inc. GIS Department Project #
\Path: L:\Buffalo\NAS_Pensacola\Maps\MXD\Draft_AICUZ\April_2011\Figure 4-6 Saufley 2010 Noise Gradient.mxd

Mandeville

Klondike

Ard
Klondike

Huntsville

Green Valley

55

60

Figure 4-6

Cedar
Bankhead

55

R

Crowson
Hanover
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2010 AICUZ Noise Gradients NOLF Saufley

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Legend

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Brownfield
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Zachary Shelly
Godwin

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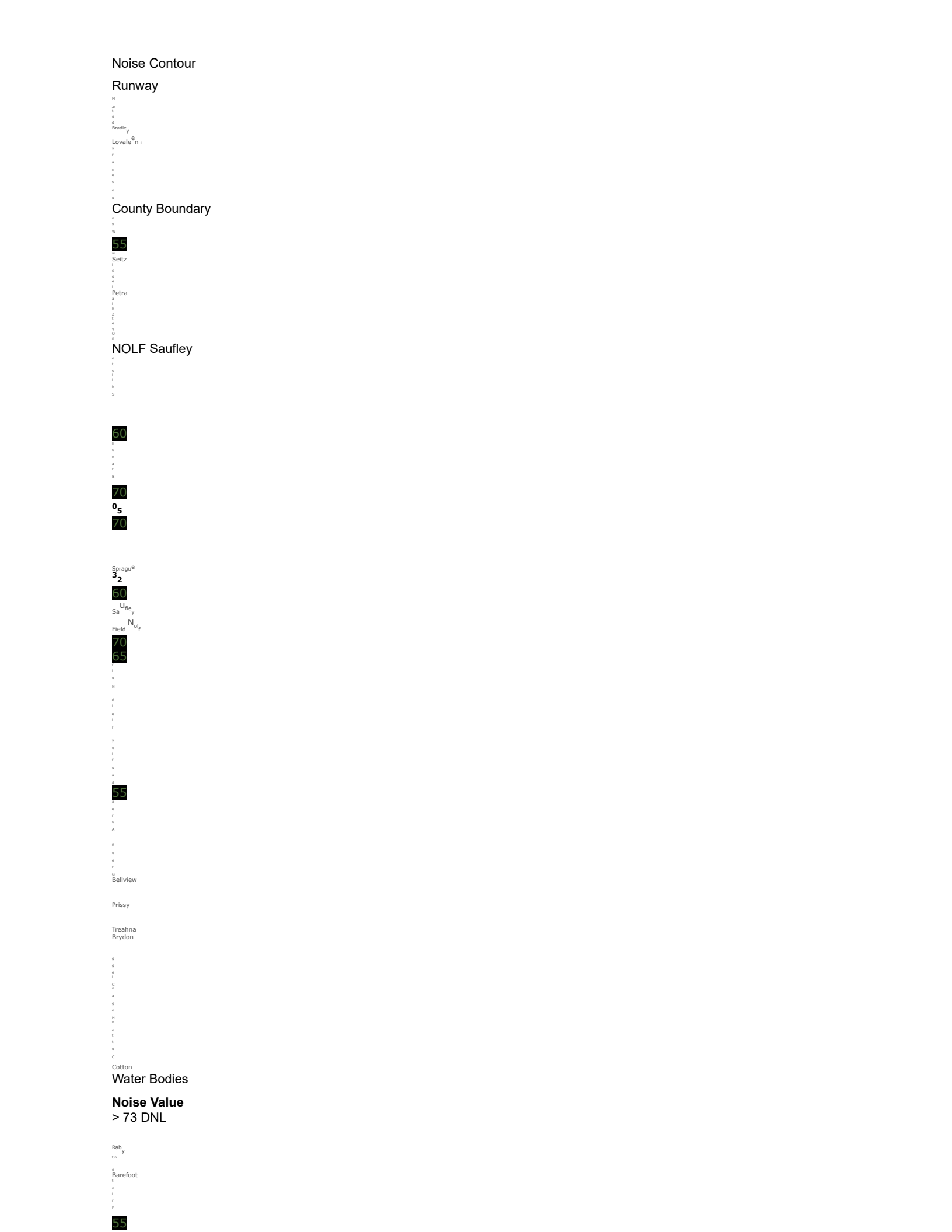
2010 AICUZ


Noise Contour
Runway
Bradley
Lovaleen
County Boundary
55
Seitz
Petra
NOLF Saufley
60
70
05
70
Sprague
32
60
Sauney
Field
70
65
Ion
55
Bellview
Prissy
Treahna
Brydon
Cotton
Water Bodies
Noise Value
> 73 DNL
Rabby
Barefoot
55

Stevendale

Midas

45 DNL

60

55

Saufley Field

296

Bellview

Mead

Moon

Gow

Flip Flop

Blue Angel

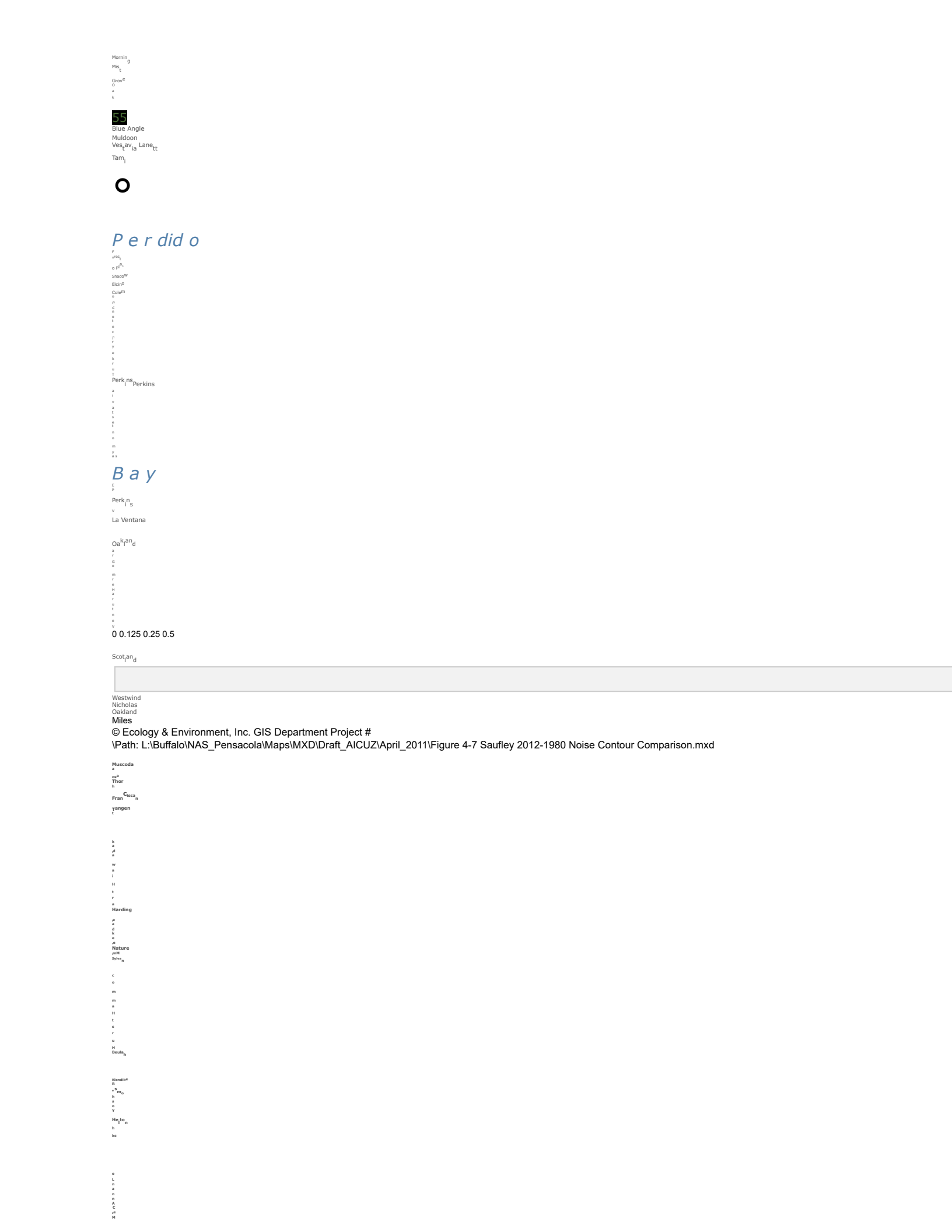
Sierra

Randee

Randee

Lanett

Source: Wyle Labs, 2008


Morning Mist Grove Oak
55
Blue Angle
Muldoon
Vesta via Lane
Tam
Perdido
Shadow
Elicino
Colemo
Perkins
Perkins
Bay
Perkins
La Ventana
Oakland
Scotland
Westwind
Nicholas
Oakland
Miles
0 0.125 0.25 0.5
© Ecology & Environment, Inc. GIS Department Project #
\Path: L:\Buffalo\NAS_Pensacola\Maps\MXD\Draft_AICUZ\April_2011\Figure 4-7 Saufley 2012-1980 Noise Contour Comparison.mxd
Muscoda
Thor
Frances
Tangent
Harding
Nature
Sylvan
Beulah
Klondike
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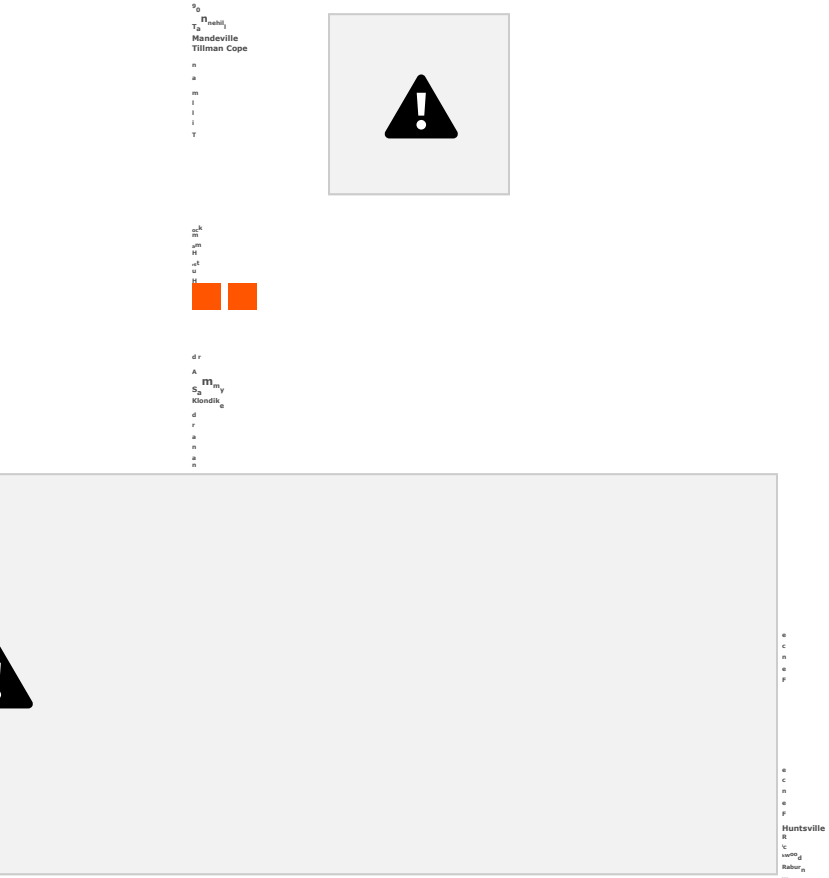

Figure 4-7
Comparison of 2003 JLUS and 2010

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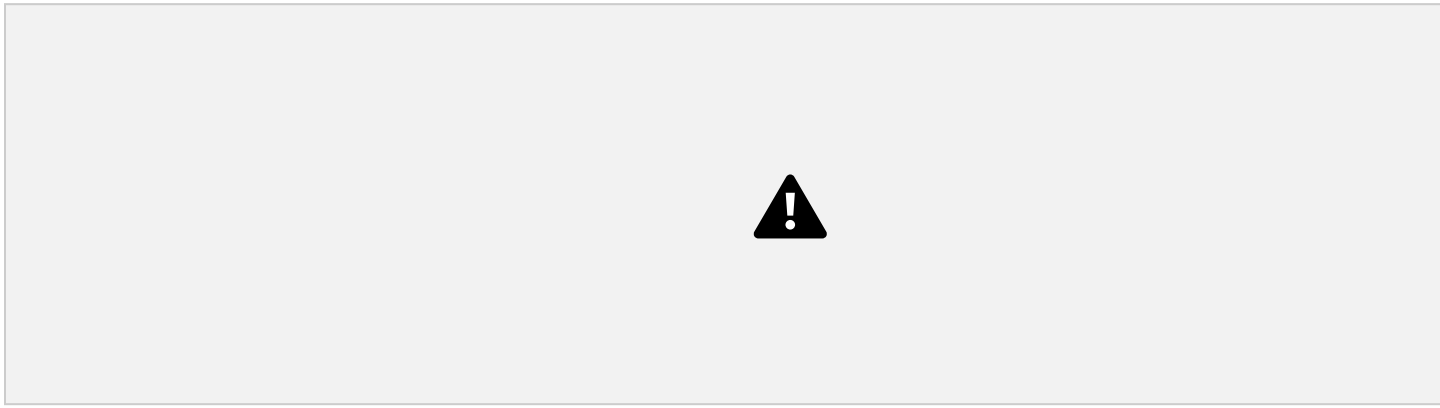
Source: Wyle Labs, 2008



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5 Airfield Safety

The United States Department of the Navy (Navy) has identified airfield safety issues to assist the community in developing land uses compatible with airfield operations. These issues include accident potential and hazards within the airfield vicinity that obstruct or interfere with aircraft and departures, pilot vision, communications, or aircraft electronics.

While the likelihood of an aircraft mishap occurring is remote, the Navy identifies areas of accident potential to assist in land use planning. The Navy has identified Accident Potential Zones (APZs) around its runways based on historical data for aircraft mishaps. The Navy recommends certain land uses that concentrate large numbers of people—such as apartments, churches, and schools—be constructed outside the APZs.

In addition, the Federal Aviation Administration (FAA) and the

military have defined flight safety zones (imaginary surfaces) below aircraft arrival and departure flight tracks and surrounding the airfield. For the safety of the aircraft, the heights of structures and vegetation are restricted in these zones. The flight safety zones are designed to minimize the potential harm if a mishap does occur.

Other hazards to flight safety that should be avoided in the airfield vicinity include:

- Uses that would attract birds, especially waterfowl;
- Lighting (direct or reflected) that would impair pilot vision;
- Uses that would generate smoke, steam, or dust; and
- Electromagnetic Interference (EMI) with aircraft communication, navigation, or other electrical systems.

5.1 Accident Potential Zones

5.1.1 Aircraft Mishaps

In the 1970s and 1980s, recognizing the need to identify areas of accident potential, the military conducted studies of historic accident and operations data throughout the military. The studies showed that most aircraft mishaps occur on or near the runway or along the centerline of the runway, diminishing in likelihood with distance. Based on the study, the United States Department of Defense (DoD) has identified APZs as areas where an aircraft accident is most likely to occur (if one was to occur); however, the APZs do not reflect the probability of an accident. APZs follow departure, arrival, and pattern flight tracks and are based upon analysis of historical data.

There are three categories of aircraft mishaps. The most severe is a Class A mishap. This is an accident in which the total cost of damage to property or aircraft exceeds $1 million, an aircraft is destroyed or missing, or any fatality or permanent total disability results from the direct involvement of naval aircraft.

There has been one Class A mishap at NAS Pensacola in the past 15 years according to the Naval Aircraft Safety Center (Naval Aircraft

Safety Center 2007). This mishap occurred over the Gulf of Mexico during a Blue Angels practice session. There have been other, minor incidents at or around the airfield that are not considered Class A mishaps (Naval Air Station [NAS] Pensacola Aviation Safety Officer 2008). There have been zero Class A mishaps at Navy Outlying Landing Field (NOLF) Saufley in the past 15 years.