Eglin BRAC Program 2005

PROPOSED IMPLEMENTATION OF THE BASE REALIGNMENT AND CLOSURE (BRAC) 2005 DECISIONS AND RELATED ACTIONS AT EGLIN AFB, FL

OCTOBER 2008

FINAL ENVIRONMENTAL IMPACT STATEMENT EXECUTIVE SUMMARY

This volume contains the printed Executive Summary of the Proposed Implementation of the Base Realignment and Closure (BRAC) 2005 Decisions and Related Actions at Eglin AFB Final Environmental Impact Statement (EIS) and the entire Final EIS on the CD in the pocket below. For your convenience, a list of acronyms is on the last page of this document.

To view the Final EIS on CD, you will need Adobe Acrobat® Reader. If you do not already have Adobe Acrobat® Reader, you can download it at www.adobe.com.

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The CD files are read-only, which means you may view and/or print them. A printed copy of the Eglin BRAC EIS is available at each of the public libraries in Crestview, Fort Walton Beach, Niceville, Okaloosa-Walton College, and Valparaiso (Florida) and Monroeville and Andalusia (Alabama). The EIS is also available online at www.eglin.af.mil/.

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EXECUTIVE SUMMARY

1. INTRODUCTION

On 8 September 2005, the 2005 Defense Base Closure and Realignment Commission (DBCRC) completed its review of the base realignment and closure (BRAC) recommendations made by the Secretary of Defense and forwarded a Final Report to the President (DBCRC, 2005). The President approved the Commission's recommendations, forwarded them to Congress, and Congress did not disapprove the recommendations. Therefore, those 2005 BRAC recommendations associated with Eglin Air Force Base (AFB) must be implemented as stated in the Final Report without any deviation or consideration of alternate locations. As such, Eglin AFB is the only installation under consideration for the Proposed Action and alternatives described in this Environmental Impact Statement (EIS).

The recommendations that the Commission identified for Eglin AFB and addressed in this EIS are:

1. **Army 7th Special Forces Group (7SFG) Airborne (A) (DBCRC, 2005, p. 9):** Relocate the Army 7SFG(A) to Eglin AFB, Florida, from Fort Bragg, North Carolina.
2. **Joint Strike Fighter (JSF) Initial Joint Training Site (IJTS) (DBCRC, 2005, p. 184):** Locate sufficient numbers of Air Force and Marine pilots and Naval aviators and operations support personnel to establish the JSF IJTS at Eglin AFB.

The Army 7th Special Forces Group, Airborne, has a history that dates back to commando raids during World War II and has supported similar efforts in nearly every action since then. Today, they conduct reconnaissance and direct action missions when and where needed.

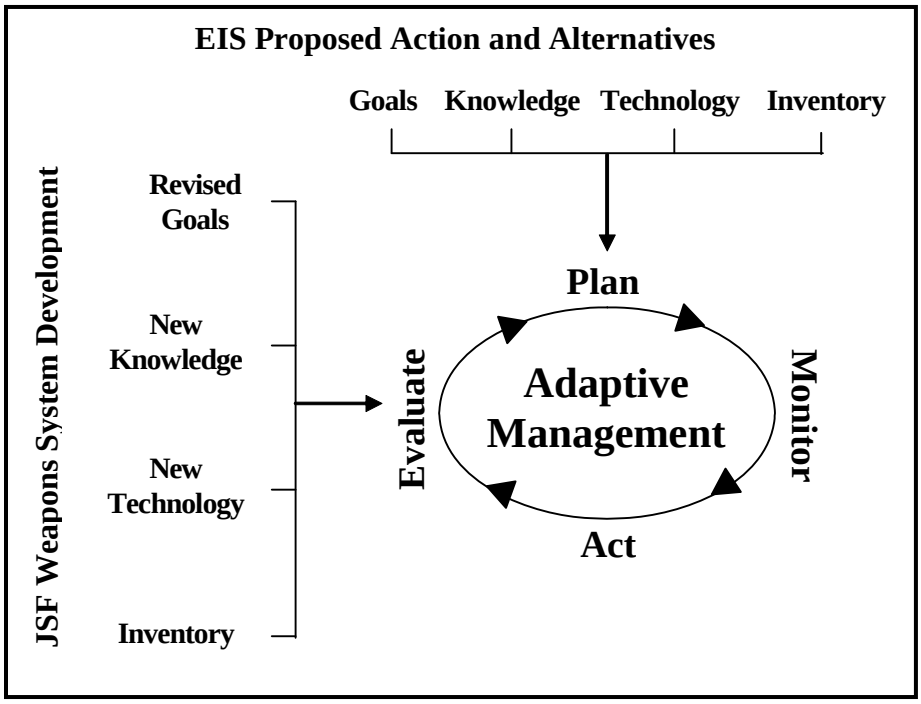
The Joint Strike Fighter is designed to replace and supplement a variety of Air Force, Navy, and Marine aircraft.

The 7SFG(A) is an existing organization with established cantonment and training requirements. The F-35 is a new weapons system for which operational scenarios, such as how pilots will train, the number of training operations, and activities within the airspace, will be refined as the system matures. This Final EIS recognizes that a large number of operational scenarios are possible. The JSF IJTS and JSF training are presented in a programmatic approach with a range of alternatives to bracket the facilities and training activities expected to occur. The final decision could be a selection of one of the alternatives in its entirety or a selection of parts of each alternative from within the range of alternatives for each decision.

Cantonment Area: *Permanent buildings and facilities at a main location to support a military mission.*

The Air Force recognizes that even after the EIS and ROD are complete, the JSF IJTS and the 7SFG(A) would need to be managed as a program. Adaptive management principles and tiering of National Environmental Policy Act (NEPA) information will be needed as the DoD services learn more about the aircraft and its capabilities, and subsequently what types of pilot and maintenance training are needed. This is a process of learning; as we learn, we will adapt our training program.

Figure ES-1 describes the adaptive management process applied in this EIS. The process consists of providing the best information available to the public and agencies, conducting environmental planning based on that information, continually monitoring the plan as the F-35 weapon system develops, taking steps to identify and reduce potential environmental consequences, evaluate the results in light of new information on the weapons system and/or environmental resources, and informing the public of substantial changes. That information could include tiered environmental analyses for changes which could constitute a major Federal action.



Source: Interagency Ecosystem Management Task Force, The Ecosystem Approach: Healthy Ecosystems and Sustainable Economies, Volume I – Overview. 1995

Figure ES-1. Adaptive Management Process

This Executive Summary presents information derived from the Final EIS for the Proposed Implementation of the BRAC 2005 Decisions and Related Actions at Eglin AFB, Florida (referred to in this document as the Eglin BRAC Implementation). This Executive Summary is not meant to replace the EIS. This summary refers the reader to the EIS and its sections for complete review of information.

This Final EIS incorporates the most up-to-date details for the 7SFG(A) and the JSF IJTS beddown and training. The Air Force has sought, through scoping and associated community meetings, to involve affected communities and their government officials by providing as much information as available to the communities. The EIS has been prepared in accordance with NEPA and its implementing regulations. This EIS, including the Executive Summary, is issued for a 30-day waiting period. Comments received on the Draft EIS have been incorporated into the Final EIS as required by the regulations implementing NEPA. These comments, in addition to the EIS analysis and other factors, will be considered in decision-making regarding the BRAC actions.

As you review this Executive Summary, you will find boxes such as this one summarizing public comments. Text near the box addresses the comment raised. For example, one scoping commentor expressed concern with the adequacy of the involvement of affected communities and their government officials. Please see the EIS Section 1.4.

2. PURPOSE OF AND NEED FOR THE ACTION

The purpose is to implement the BRAC 2005 decisions, as required by law, to relocate the 7SFG(A) from Ft. Bragg to Eglin AFB, and establishing the JSF IJTS at Eglin AFB.

To implement the Eglin BRAC 2005 decisions, the Air Force, Army, Navy, and Marine Corps identified the following four required actions at the Eglin Reservation:

- Requirement 1: Establish 7SFG(A) cantonment area on Eglin AFB. The cantonment area for the 7SFG(A) includes operations and maintenance facilities; housing; dining facilities; munitions storage and loading facilities, and all supporting construction and operations. The decision to be made is where to locate the cantonment area.
- Requirement 2: Accommodate 7SFG(A) training requirements. The decision to be made is where to provide, on Eglin, the range space, airspace, ground support, and scheduling needed for training missions.
- Requirement 3: Establish the JSF IJTS cantonment area on Eglin Main Base with its two existing runways in accordance with the BRAC Commission's direction. The decision to be made is where to locate the IJTS, which includes required training and maintenance facilities; hangars, dormitories; munitions storage and loading facilities; and all supporting construction and operations.

7SFG(A) training requires exclusive use ranges which permit maneuvers and bivouacking. Air Force Special Operations Command and Army personnel currently train together and would continue to do so on Eglin AFB.

- Requirement 4: Accommodate JSF IJTS flight training requirements within Eglin-managed airspace by providing airfields, airspace, ground support, and scheduling for training missions. The decision to be made is what airfields, airspace, and supporting areas would accommodate the JSF IJTS flight training requirements. Each of the alternatives considers Eglin as the Main Operating Base (MOB) from which aircraft depart for and terminate their training activities consistent with BRAC requirements.

Three versions of the F-35 would train at Eglin. The F-35B is the short take-off and vertical landing aircraft for the Marines and the Royal Navy.

These four requirements form the basis for alternative development addressed in this EIS. Each requirement is addressed in a separate chapter of the EIS. The Air Force will consider the potential environmental impacts described in the Final EIS and public and agency comments as inputs for how to implement the BRAC decisions. Because the BRAC decisions by law must be implemented, the Air Force cannot select the No Action Alternative. The No Action Alternative is used for comparisons to the action alternatives in the Final EIS. The Air Force is the military department exercising real property accountability for Eglin AFB. Consequently, the EIS has been developed in compliance with the promulgated Air Force NEPA-implementing regulations (32 Code of Federal Regulations [CFR] 989), as directed by 32 CFR 174.17, *Revitalizing Base Closure Communities and Addressing Impacts of Realignment*.

3. PROPOSED ACTION AND ALTERNATIVES

The Proposed Action is to implement the 2005 BRAC decisions by locating and training the 7SFG(A) at Eglin AFB, Florida, and locating and conducting joint initial graduate-level pilot and maintenance training in the JSF for the Navy, Marines, Air Force, and the United Kingdom at Eglin AFB. This section summarizes the alternatives for locating and training the missions.

Figure ES-2 presents Eglin AFB and airspace used by Eglin aircraft in the southeastern United States. Figure ES-3 conceptually describes the different types of airspace that would be used for F-35 training. JSF training would primarily occur within Eglin AFB-controlled Special Use Airspace. Training on MTRs and in MOAs in the Eglin AFB vicinity would increase low level flights from a very few to an average of two per weekday at an altitude as low as 500 feet AGL. Figure ES-4 shows the Restricted Airspace, MOAs, and MTRs that overlay Florida and Alabama. The F-35 is capable of supersonic flight and would conduct supersonic training in overwater warning areas in accordance with established Eglin procedures.

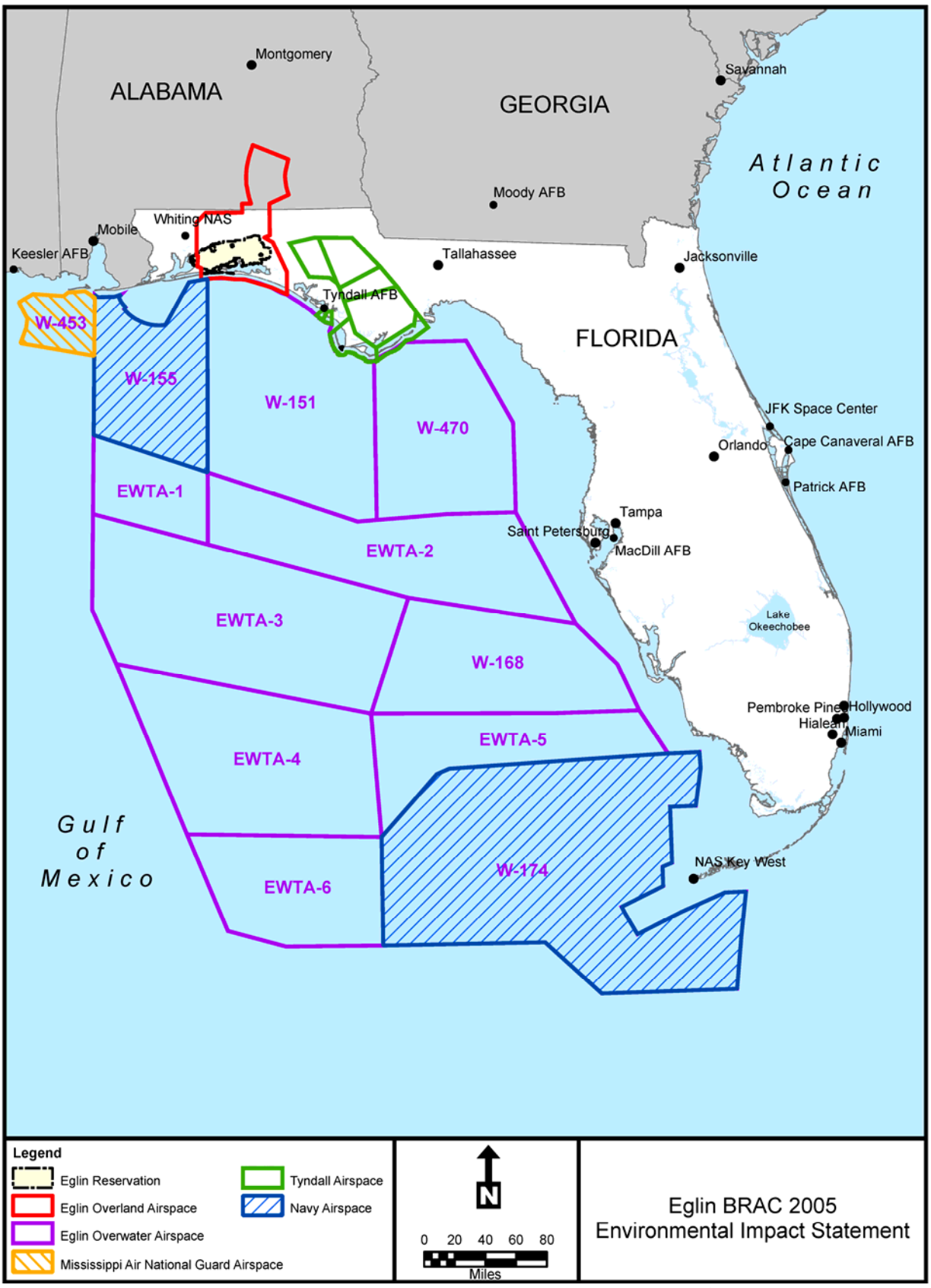


Figure ES-2. Airspace Used by Eglin AFB Aircraft

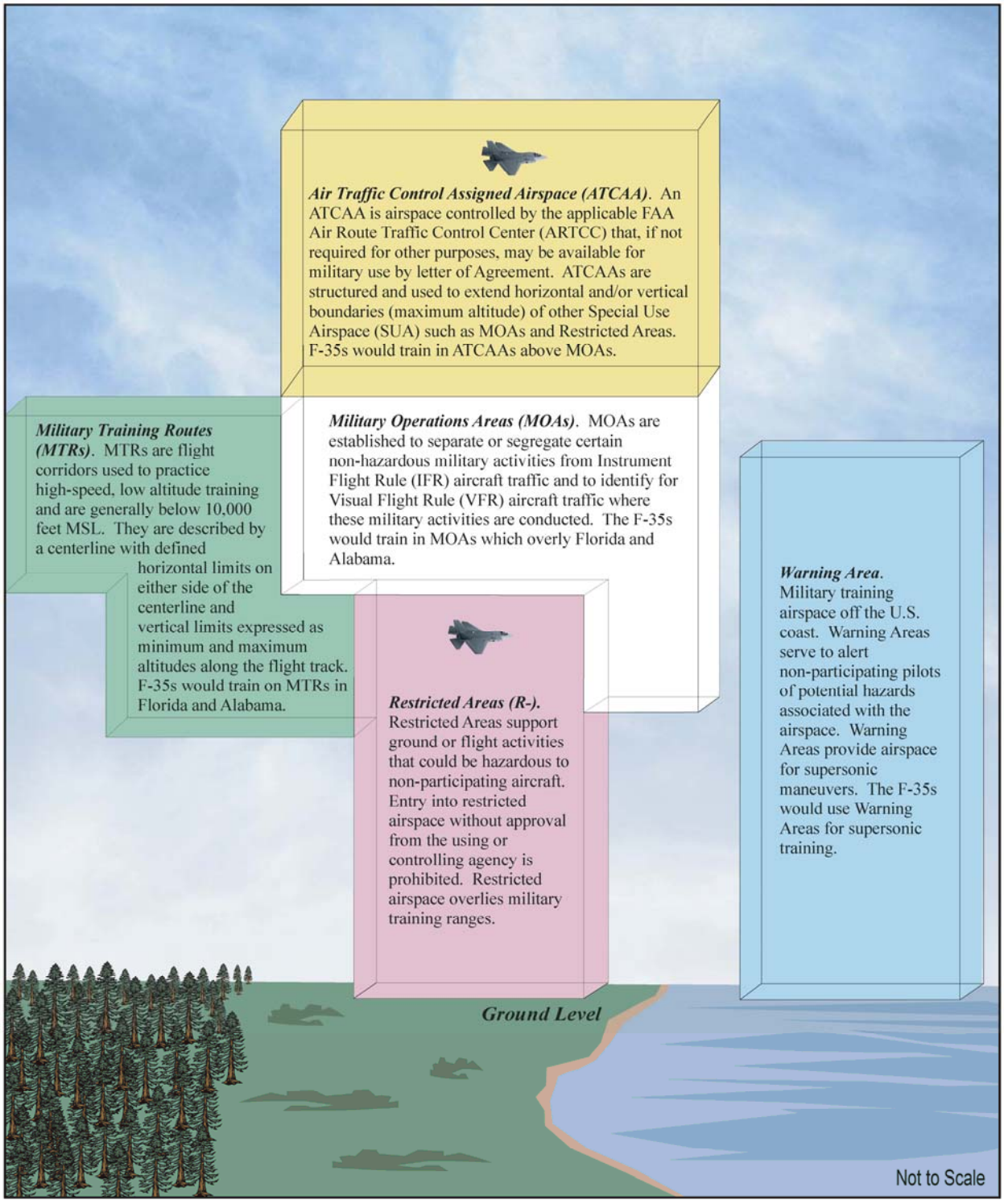


Figure ES-3. Types of Airspace

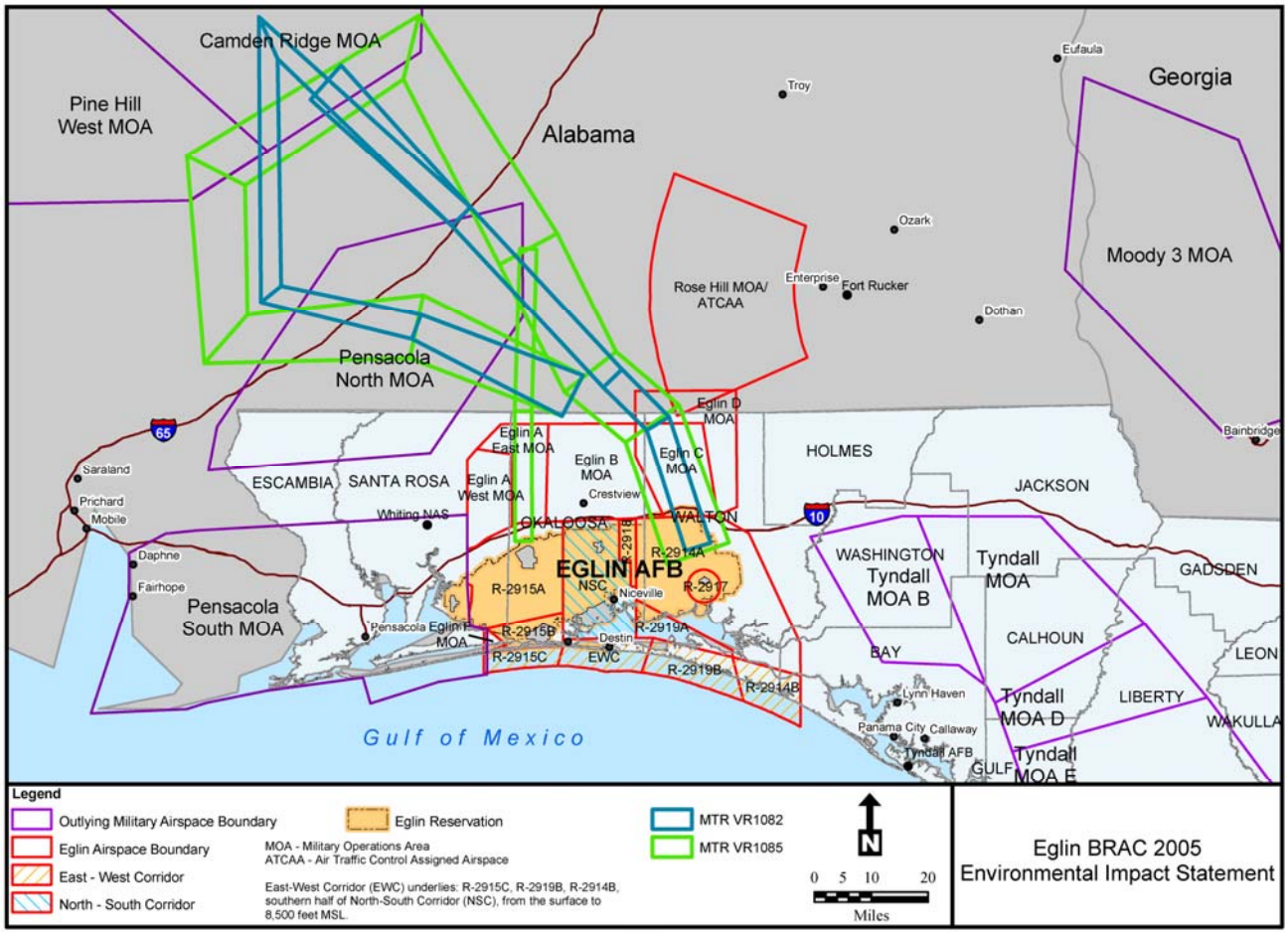


Figure ES-4. Restricted Airspace, MOAs, and MTRs Used by Eglin Aircraft

This Proposed Action and alternatives summary describes the four BRAC requirements.

3.1 7SFG(A) CANTONMENT

The 7SFG(A) cantonment and 7SFG(A) training activity would be located within Eglin AFB Range boundaries. There are five proposed alternative locations on Eglin for the 7SFG(A) cantonment area and five proposed locations for 7SFG(A) training. Cantonment locations are described first, followed by training alternatives.

To implement the relocation of the 7SFG(A) to Eglin AFB, the 7SFG(A) identified cantonment requirements that include establishing a Special Operations Forces (SOF) Compound with facilities for three Special Forces Battalions, one Motorized Special Forces Battalion, one Group Support Battalion, and the Group Headquarters (HQ). Current facilities identified to support the 7SFG(A) are presented in Table ES-1. These facilities would be constructed over the calendar years (CY) 2008-2011. Table ES-2 projects annual construction expenditures.

Table ES-1. 7SFG(A) – Proposed Cantonment/Support Facility Requirements for 7SFG(A)

Facility	Total Square Footage Required
Special Forces Group Operations Building	68,800
Special Forces Battalion Operations Complex	119,900
Special Forces Battalion Operations Complex	119,900
Special Forces Battalion Operations Complex	119,900
Special Forces Battalion Operations Complex (Expanded)	120,000
Support Battalion Complex	71,000
Vehicle Maintenance Complex	100,000
Privately Owned Vehicle (POV) Parking	700,000
Organizational Vehicle Parking	800,000
Logistics Complex	47,400
Petroleum, Oil, and Lubricant Storage	2,300
Enlisted Unaccompanied Housing	35,100
Enlisted Unaccompanied Housing	35,100
Enlisted Unaccompanied Housing	35,100
Dining Facility	23,000
Access Control Facility	3,400
Tactical Communications Center (with 10-acre antenna farm)	3,800
Wash Platform	2,340
Ammunition Storage Magazine	10,300
Ammunition Surveillance/Inspection	5,000
Segregated Ammunition Storage	3,000
Indoor Baffle Range	23,000
Deployment Readiness Center	50,000
Combat Readiness Training Facility	44,400
Maritime Operations Facility	18,500
Hazardous Materials Storage	6,700
Deployment Equipment Storage	36,600
UAV Hangar	9,200
Sidewalks	285,800
Roads	1,771,200
Concrete Aprons	600,000
MWD Kennel	10,000
Fire Station	8,500
Medical Clinic	23,000
Chapel	10,000
AAFES Shoppette	10,000
Total	5,332,240

Table ES-2. Estimated 7SFG(A) Annual Budget Allocations

Year	Millions of FY08 Dollars
FY 08	10.7
FY 09	220.0
FY 10	38.5
FY 11	115.4

Approximately 2,200 officers, non-commissioned officers (NCOs), and soldiers associated with the 7SFG(A) are projected to arrive in mid to late 2011. Table ES-3 summarizes the number of persons associated with the 7SFG(A) realignment to Eglin AFB (Vavrin, 2007).

Table ES-3. 7SFG(A) – Estimated Personnel at Eglin AFB

Personnel	Number
Total Daily 7SFG(A) Personnel	**2,200**
Spouses	*1,452*
Children	*2,415*
Total	**6,067**

Vavrin, 2007

The 7SFG(A) utilizes wheeled but not tracked (e.g., tank) vehicles and unmanned aerial vehicles (UAVs) during training exercises. The 7SFG(A) has no aircraft and conducts air operations training with various Army and Air Force fixed-wing and rotary-wing aircraft. Five locations were identified as alternatives for the 7SFG(A) cantonment area. These are presented on Figure ES-5. The 7SFG(A) preferred location is Alternative 3 in the north central portion of Eglin AFB. Figure ES-5 presents the five alternative 7SFG(A) cantonment areas and the five alternative 7SFG(A) training areas on Eglin AFB. The range training is described below.

Cantonment alternatives would require highway improvements, such as a signal at the Duke Field intersection for 7SFG(A) Alternatives 2 or 3.

3.2 7SFG(A) RANGE TRAINING

The 7SFG(A) proposed range training locations on Figure ES-5 would involve the activities described in Table ES-4.

Firing Ranges

The 7SFG(A) requires range land with facilities, utilities, roads, trails, and other assets necessary to fulfill weapons training certifications for individuals and team training.

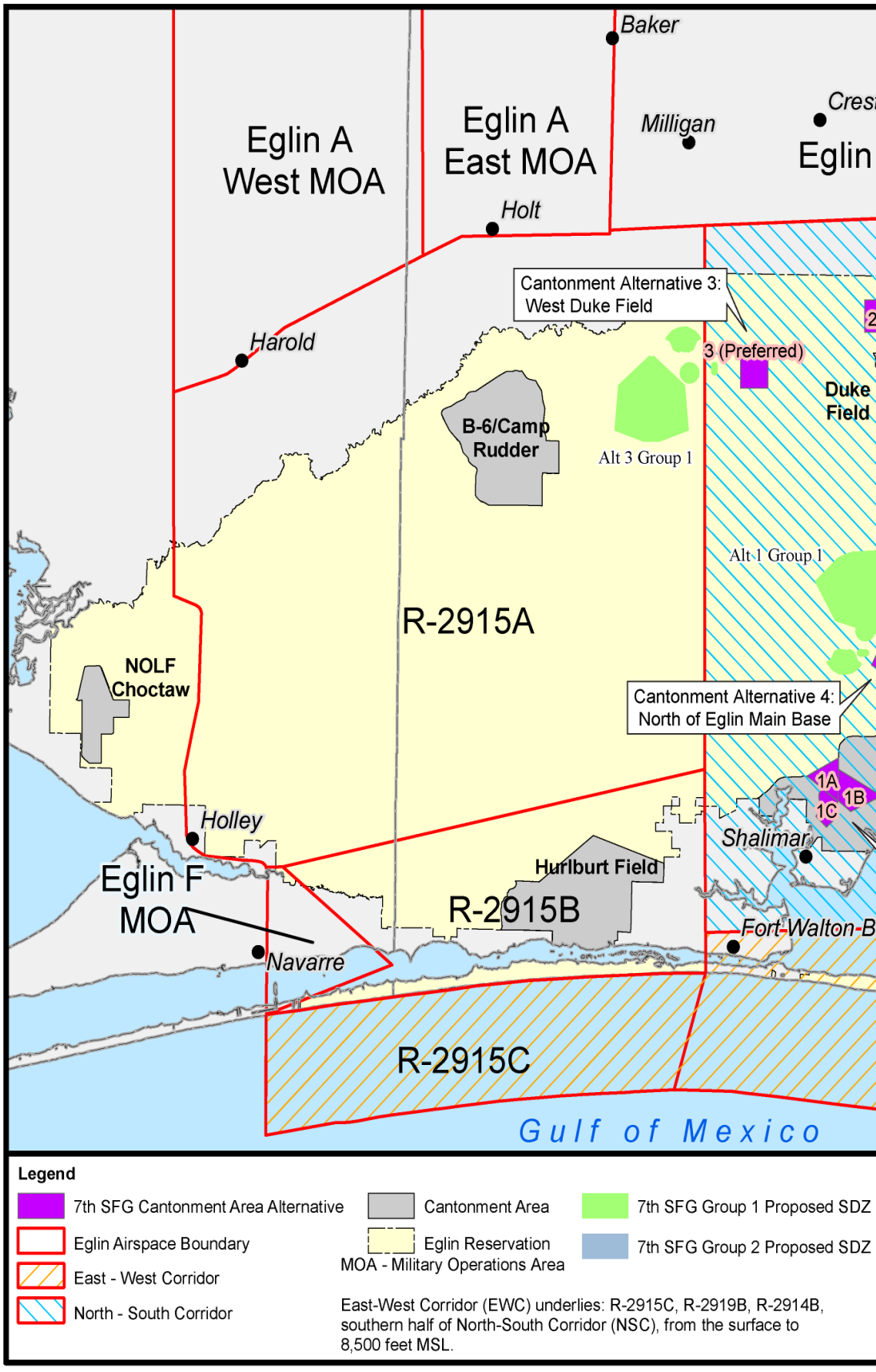
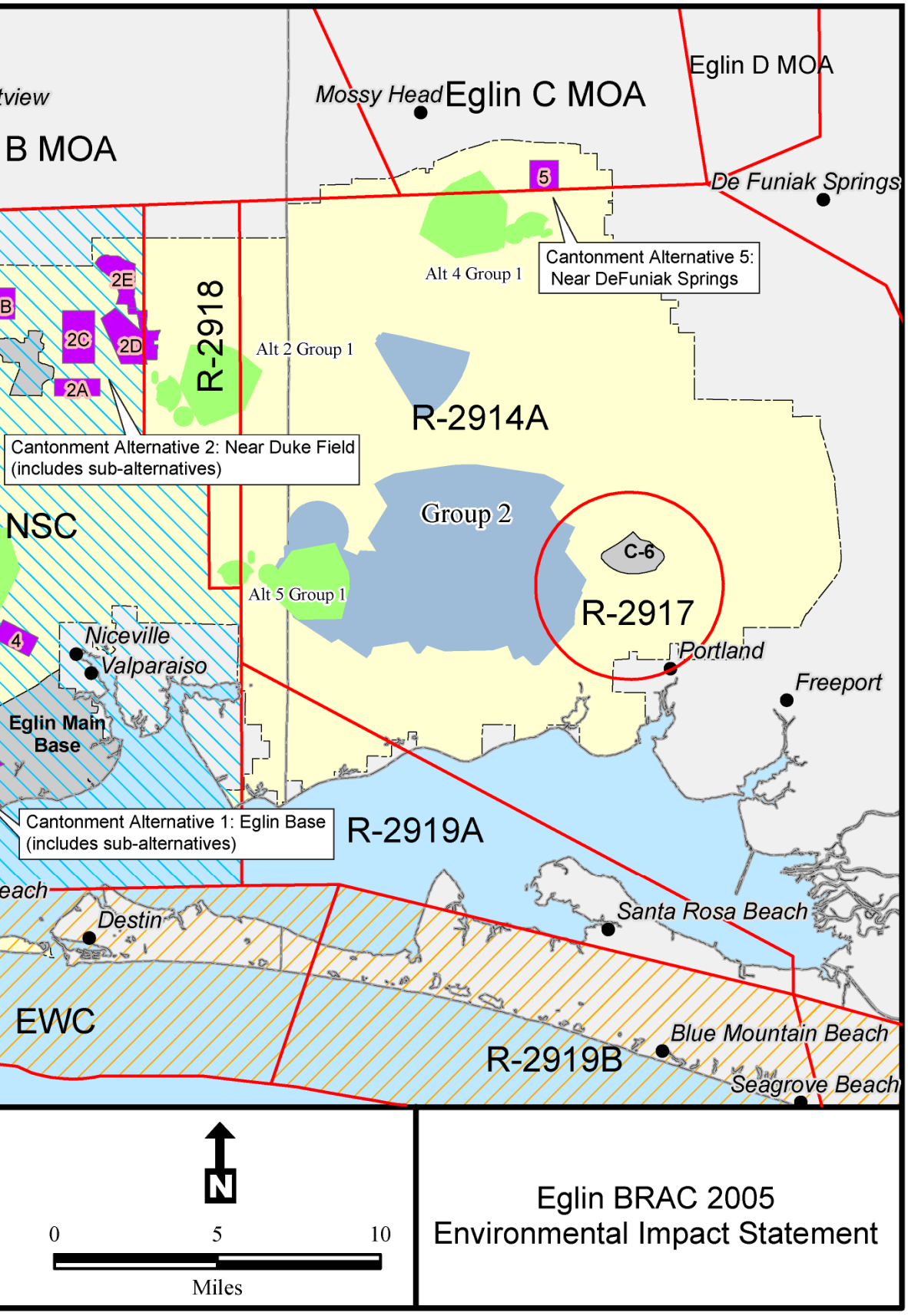


Figure ES-5. 7SFG(A) Cantonment Area and Training



Area Alternative Locations

Table ES-4. Training Activities Associated With the 7SFG(A)

Activity	Training
Firing Operations – Firing Ranges	Individual weapon
	Crew served weapon
	Team training
	Indirect fire system
	Explosives
Aircraft Operations – Fixed-Wing and Rotary	Infiltration/Exfiltration
	Insertion/Extraction Systems
	Container Delivery
	Close Air Support
	Airborne Operations
	Air Assault
Water Operations and Ground Maneuvers	Water Infiltration/Extraction
	Ground Infiltration/Extraction
	Ground Mobility
	Reconnaissance/Surveillance
	Medical Evacuation
	Stalking
	Convoy
	Visibility

Table ES-5 identifies the training facilities and acreages for any 7SFG(A) range alternative required for weapons training and certification. Group 1 ranges would be dedicated ranges which could have any combination of 7SFG(A) personnel conducting operations on all available training days. The Group 2 ranges would be within the 30-minute travel time from any 7SFG(A) cantonment and could be used by 7SFG(A) or other qualified range user groups. The five proposed alternatives for Group 1 ranges and the overall proposed Group 2 range location are depicted on Figure ES-5. Alternative 3 is the preferred alternative for the 7SFG(A) ranges. The Surface Danger Zone (SDZ) is the ground and airspace designated within the training complex for vertical and lateral containment of projectiles, fragments, debris, and components resulting from the firing, launching, or detonation of weapon systems to include ammunition, explosives, and demolition explosives.

Table ES-6 lists the current and annual estimated ammunition use for all 13 training ranges for 2,200 troops.

Table ES-5. Required Weapons Training Ranges for the 7SFG(A)

Facility Description	Group	Size (acres)	SDZ (acres)	Total (acres)
SOF Shoot House (SOF 1)	1	0.72	2,682.48	2,682.48
SOF Sniper Range Suite (SOF 2)	2	182.88	6,413.88	6,413.95
SOF Breach Facility (SOF 3)	1	4.00	193.09	197.10
SOF Shotgun Range (SOF 4)	1	13.96	3,049.55	3,052.31
MK19/M203 Grenade Launcher Range (SOF 5)	2	180.88	1,034.17	1,034.18
Mortar Weapons System Range (SOF 6)	2	2,965.25	3,164.37	3,502.20
Hand Grenade Qualification Course (SOF 7)	1	10.01	45.99	45.99
Urban Assault Course (SOF 8)	2	17.60	2,737.64	2,738.59
SOF Battle Area Complex (SOF 9)	2	2,372.20	18,886.83	18,886.83
Anti-Armor Tracking and Live Fire (SOF 10)	2	741.31	2,759.52	2,759.52
Qualification Training Range (SOF 11)	2	218.18	4,945.49	4,945.73
SOF Light Demolition Range (SOF 12)	2	26.93	2,583.20	2,583.20
SOF 25 Meter Zero Range (SOF 13)	2	2.72	4,669.42	4,669.42
Total		***6,736.64***	***53,165.63***	***53,511.5***

Table ES-6. Estimated 7SFG(A) Ammunition Expenditure Per Range

Munition	Group 1 Ranges	Group 2 Ranges	Total
Small caliber (5.56mm - .50 cal)	1,326,000	7,351,000	8,677,000
Large caliber (40mm – 84mm)	NA	42,000	42,000
Other Explosives	300,000	700,000	1,000,000

Water Operations and Ground Maneuvers

Water operations and associated ground maneuver provide training for a wide variety of activities such as reconnaissance, surveillance, visibility training, convoy training, and so on. The water operations and ground maneuver requirements do not include any live fire activity outside Firing Ranges. Figure ES-6 identifies areas which could be used for water training and ground maneuvers.

A 125 square kilometer (km^2) (48.26 square miles [mi^2]) area (not defined in any particular shape) is the Army guideline for one ground training mission (U.S. Army, 2004a). The infiltration/exfiltration training activities may involve any combination of ground operations, water operations, and air operations. Ground training includes a number of activities and troop movements are typically stealthy as units transit from one objective to another. Troops use a number of different bivouac scenarios that vary from tents on concrete pads to primitive camping.

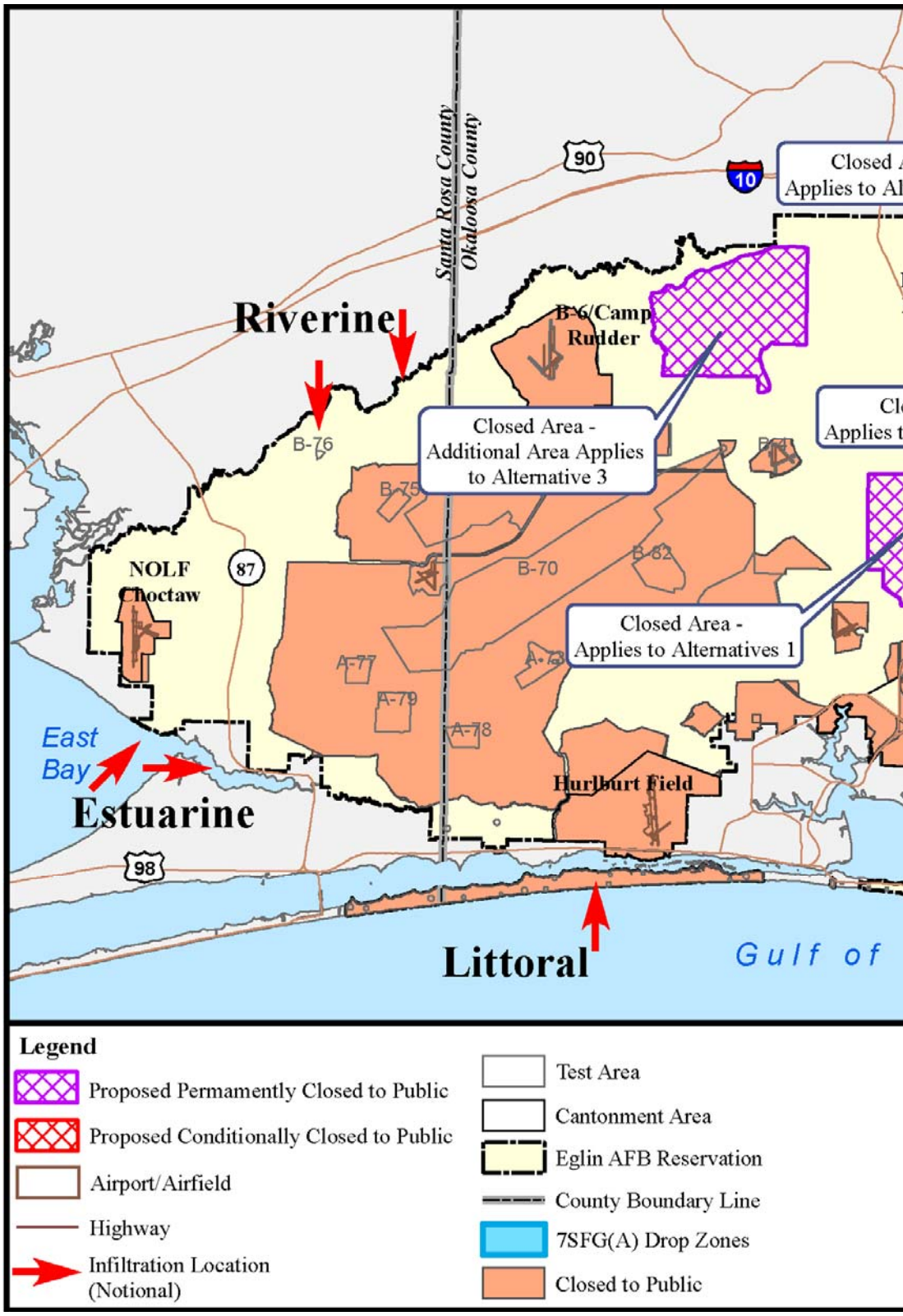
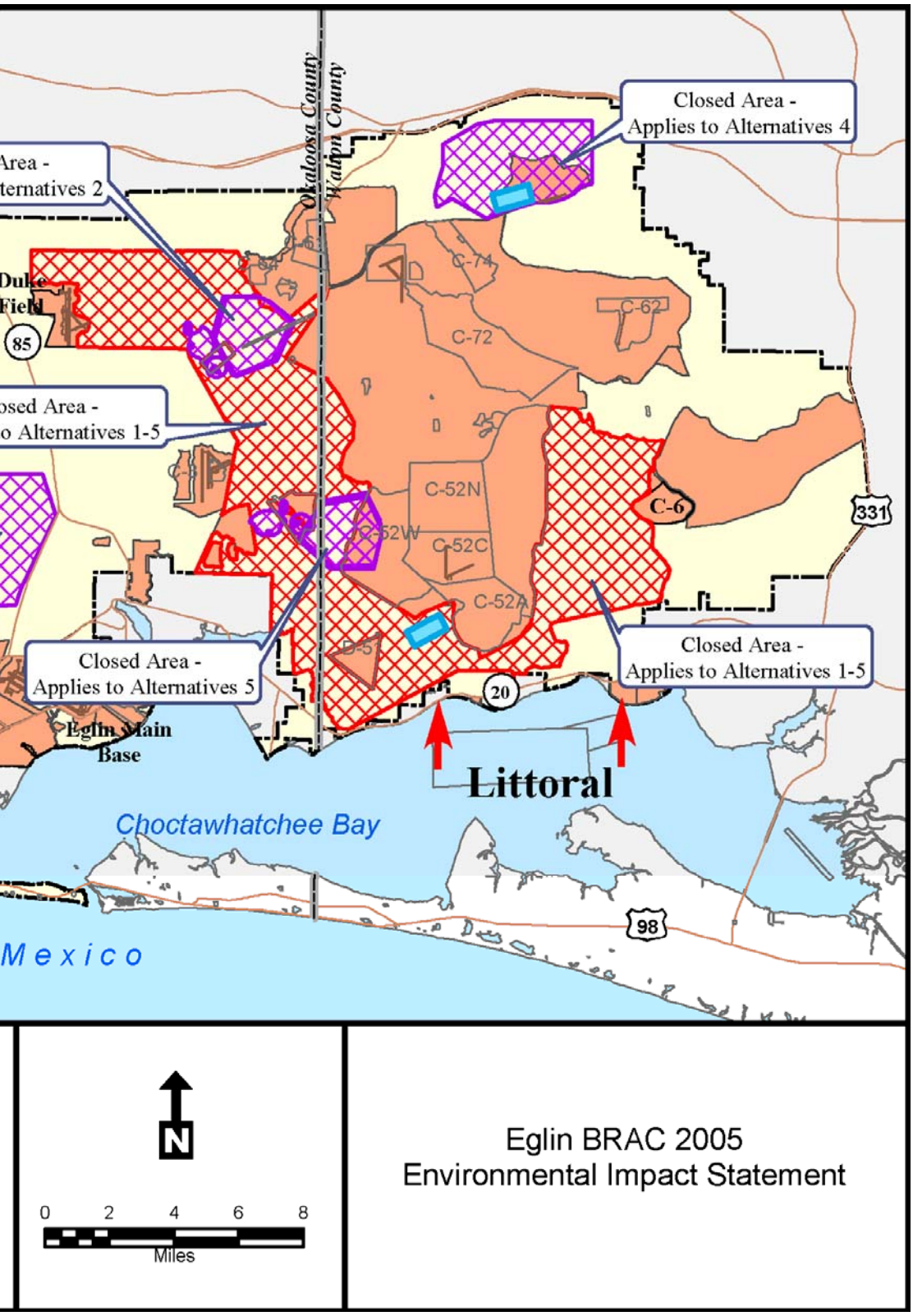


Figure ES-6. Proposed 7SFG(A) Drop Zones, Closed



Maneuver Areas, and Infiltration Locations

Water training for 7SFG(A) includes infiltration and exfiltration to and from Eglin AFB through water-to-land transitions via zodiac-type boat operations and through air-to-water transitions from paratroops or paradrops. These activities would occur within the waters and adjacent shoreline of the Choctawhatchee Bay, Santa Rosa Sound and Island, the Yellow River, East Bay, and East Bay River.

The 7SFG(A) would perform ground maneuver activities on land areas within the Eglin Reservation at one of the five proposed alternative locations depicted on Figure ES-5. Some alternative ground maneuver areas have been historically open to public recreation during selected times and these would be conditionally closed the first year of the 7SFG(A)'s training. The conditionally closed areas would be evaluated for recreational use following review of training requirements the first year. Figure ES-6 presents the conditionally closed areas.

Table ES-7 includes the conditionally closed acreage common to all alternatives and the alternative-specific acreages.

Table ES-7. Proposed Conditionally Closed Areas for Each 7SFG(A) Range Alternative

Alternative	Conditionally Closed Areas (acres)		
	Common to all Alternatives	Alternative-specific	Total
1	53,590	5,620	59,210
2	53,590	0	53,590
3	53,590	8,630	62,220
4	53,590	7,582	61,172
5	53,590	0	53,590

Aircraft, UAVs, and ground support vehicles are occasionally integrated into the training to deliver and retrieve the participating troops, provide situational awareness, or provide support and logistics. Ground vehicle movement is normally on the existing road and trail network and can include offroad use of all-terrain vehicles (ATVs) or High Mobility Multipurpose Wheeled Vehicles (HMMWVs). Within the land area of the Eglin Reservation there are some operating constraints, including those based on current agreements with the U.S. Fish and Wildlife Service (USFWS) to protect threatened or endangered species.

7SFG(A) training can include the use of all-terrain vehicles or HMMWVs, such as the one pictured here using the existing trail network on Eglin AFB.

Table ES-8 describes the equipment that would be utilized by the 7SFG(A) for water operations and ground maneuvering.

Table ES-8. Estimated 7SFG(A) Equipment Requirements for Water Operations and Ground Maneuvering

Equipment Type	Operation	Missions/Year	Hours/Year
Ground Vehicles – Wheeled			
HMMWV (1¼-ton)	Mobility Training	288	576
	Live Fire Platform	144	432
	Zone Recce	144	432
HMMWV (Heavy)	Convoy Training	40	80
	SPT Live Fire	20	60
HMMWV (Expanded)	Communication Exercises	20	60
	Range Support	3,665	29,323
	DZ Support	816	3,264
2½-ton Cargo Truck LMTV	DZ Support	816	3,264
	Boat Transport	140	280
	Convoy Training	40	120
	Live Fire Platform	20	60
5-Ton Cargo LMTV	Exercise Support	20	80
	Ammo Transport	200	200
	Live Fire Platform	20	60
ATV/Motorcycle	Mobility Training	288	576
Watercraft			
Combat Rubber Raiding Craft (Zodiac Boats)	UWO Training (12 Scuba Teams)	120	480
	Water DZ Support	20	60

ATV = All Terrain Vehicle; CAS = Close Air Support; DZ = Drop Zone; HMMWV = High Mobility Multipurpose Wheeled Vehicle; LMTV = Light Medium Tactical Vehicle; SDZ = Surface Danger Zone; SOF = Special Operations Forces; SPT = Support; UWO = Underwater Ordnance

Air Force or Army rotary or fixed-wing aircraft are used for the insertion, extraction, movement, or supplying of ground troops. The 7SFG(A) would use existing helicopter landing zones (HLZs) and add two parachute Drop Zones (DZs) to the existing DZs.

Group 2 Firing Ranges

Group 2 Ranges have relatively large SDZs and are proposed to be located on existing Eglin Test Areas (TAs) which have and are being used for live-fire training on the eastern side of the Range. This would minimize the creation of any new dudded or unexploded ordnance (UXO)-contaminated areas.

Aircraft Operations to Support 7SFG(A) Training

The 7SFG(A) range training at Eglin would use fixed-wing, rotary-wing operations, and UAV aircraft. Table ES-9 describes the types of air operations, altitude required, annual estimated number of missions and hours, and capabilities required for the type of air operation listed. The 7SFG(A) would access airspace within the Eglin Range (over land and coastal areas) to conduct air operations.

Table ES-9. Estimated Annual Requirements for 7SFG(A) Aircraft Operations

Type of Air Operation		Altitude	# of Missions	# of Hours	Capabilities Required
Rotary-Wing	Airborne Operations	1,500 feet maximum	68	272	DZ
	Helocast		9	96	Water DZ
	FRIES		111	666	HLZ
	Sling Load		20	340	HLZ
	Air Assault		79	948	HLZ
	TOTAL		**287**	**2,322**	
Fixed-Wing	Static Line Airborne Operations	1,500 feet maximum	157	628	DZ
	Military Free Fall Airborne Operations	22,000–35,000 feet	55	220	DZ
	RAPIDS		21	168	Landing Strip for C-130
	Container Delivery System Operations		17	68	
	Close Air Support		36	144	Targets
	TOTAL		**286**	**1,228**	
Air Operations Totals			***573***	***3,550***	

Sources: U.S. Army, 2005; Dill, 2006b
DZ = Drop Zone; Helocast operations involve soldiers jumping from low flying helicopters into the water, usually no more than 40-foot-high jumps at 40 knots speed; FRIES = Fast Rope Insertion/Extraction System; HLZ = Helicopter Landing Zone; RAPIDS = Rapid Infiltration/Exfiltration

7SFG(A) would use existing HLZs, existing DZs, and two new DZs in Figure ES-6. The proposed DZs would be rectangles of approximately 1,500 meters by 700 meters (4,921 feet by 2,297 feet). The DZ size is dictated by the number of parachutists, the altitude, and the speed of the drop. This size would allow for 32 total parachutists released from a C-130 aircraft at 1,000 feet above ground level (AGL). This size would be able to accommodate a variety of airborne tasks including parachute drops, container delivery systems, and vehicles.

Air Force C-130 aircraft are used to support 7SFG(A) training.

7SFG(A) training would include the use of vehicle transported and launched UAVs to provide observation support to ground troops. The UAV flights would be scheduled and remain within Eglin restricted airspace.

3.3 SUMMARY OF 7SFG(A) REQUIREMENTS

To beddown and train the 7SFG(A) at Eglin AFB, would require construction, personnel relocation, and on-going training. Five proposed alternative cantonment locations have been identified with sublocations for Alternatives 1 and 2. Approximately 5.1 million square feet of buildings and hard surfaces would be constructed from 2008 through 2011. An estimated 2,200 officers, NCOs, and soldiers would arrive and begin training in 2011. An estimated 3,867 dependents would also arrive in 2011.

Training would consist of ground maneuvers on foot or with light (HMMWV-type) vehicles. Range training would require maneuvers with bivouac locations. Such maneuvers would not be compatible with other users and public access would not be permitted. Air transport and zodiac-type boat infiltrations would be included in mission training. Five proposed alternatives are considered for Group 1 dedicated ranges. The proposed Group 2 firing ranges would be located in areas on Eglin where live-fire currently occurs.

3.4 JSF IJTS CANTONMENT

To implement the JSF IJTS, the Air Force, Navy, and Marines identified the need for a cantonment area, sufficient airspace, and ground targets. The JSF IJTS purpose is to train F-35 pilots, aviators, and maintenance support personnel for the life of the program. The F-35 is a single-seat, single-engine, supersonic aircraft capable of performing and surviving lethal strike warfare missions. The three F-35 variations are a conventional take-off and landing (CTOL or F-35A), a short take-off and vertical landing (STOVL or F-35B), and a carrier variant (CV or F-35C). The dimensions of the F-35 are similar to those of the F-15. Figure ES-7 describes the visual difference between the F-15 which has been at Eglin since 1978 and the F-35 projected to arrive in 2010. Table ES-10 presents the proposed number and types of F-35s that would be phased in between 2010 and 2016. The 107 aircraft represent Primary Assigned Aircraft (PAA). Each aircraft squadron typically also has one or two Backup Aircraft Inventory (BAI), so the actual number of aircraft may exceed the 107 PAA aircraft.

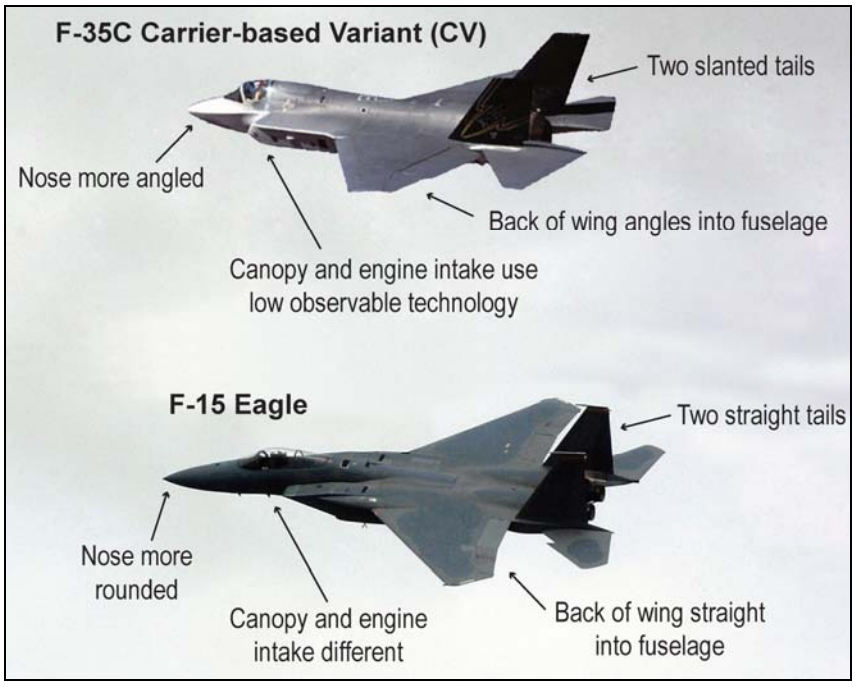


Figure ES-7. F-35 and F-15 Aircraft Characteristics Comparison

Table ES-10. Proposed Delivery Schedule for F-35 Aircraft at Eglin AFB

Year	Aircraft Variant (Quantity)			Total
	CTOL	STOVL	CV	
2010	6	0	0	6
2011	9	9	0	24
2012	3	2	2	31
2013	3	4	4	42
2014	31	5	9	87
2015	20	0	0	107
2016	0	0	0	107
Total	***72***	***20***	***15***	***107***

CTOL = Conventional Take-Off and Landing; STOVL = Short Take-Off Vertical Landing; CV = Carrier Variant

*This information was provided by the JSF Program Office in June 2008 (Gigon, 2008) and only includes Primary Assigned Aircraft. Aircraft numbers beyond CY 2012 are subject to change as they are outside of the current Five-Year Defense Plan. Yearly numbers may vary as aircraft move to support other locations and operations.

The JSF IJTS cantonment area would accommodate personnel, support flight operations, and maintenance students. Table ES-11 lists the estimated total personnel associated with the JSF IJTS after CY 2016. Building renovation, demolition, and/or construction would be required at both proposed cantonment alternatives. The JSF IJTS facilities would house academic classrooms, virtual trainers, flying training squadrons, pilot maintenance trainers, and hardware trainers. The JSF IJTS has a training requirement for munitions storage and live ordnance loading areas located near the flight line.

Pilots, maintainer instructors, government civilians, and contractor support personnel would be required to execute the proposed academic training courses. Approximately 200 instructors would include 134 pilot instructors (both military and contractor) and 66 maintainer instructors. The estimated number of students attending the JSF IJTS at any one time would be approximately 545 (109 pilot and 436 maintainer students).

Table ES-11. JSF IJTS – Estimated Personnel at Eglin AFB

Personnel	Number
Pilot Instructors	134
Maintainer Instructors	66
Pilot Students	109
Maintainer Students	436
Government Civilians	30
Contractors	150
Aircraft Maintainers	1,076
Aircraft Maintenance Squadron	325
Total Daily JSF Personnel	**2,326**
*Spouses**	1,163
*Children**	1,396
Total People New to Area	**4,885**

*Due to lack of demographic data for the JSF IJTS program, it is assumed there is a 50 percent distribution of married personnel and a 30 percent distribution of personnel with no more than two children.

Two locations on Eglin Main Base are proposed as operationally reasonable alternatives for the JSF IJTS cantonment (Figure ES-8):

- JSF IJTS Alternative 1: 33rd Fighter Wing (33 FW) Area
- JSF IJTS Alternative 2: 46th Test Wing (46 TW) Area (East Side of Eglin Main Runway)

The munitions storage area would be the same for either alternative and would require expansion of the existing munitions storage area.

Alternative 1 would construct approximately 23 new facilities or buildings, taxiways, and runways for a total construction of near 3.4 million square feet (ft^2) (Table ES-12). Road construction would add an additional 0.5 million ft^2. JSF IJTS Alternative 1 would also renovate and/or demolish nearly 0.6 million ft^2 of existing facilities and renovate 1.4 million ft^2 of the West Apron and 1.0 million ft^2 of roads and pavements. Alternative 1 is the preferred alternative for the JSF IJTS.

Alternative 2 would construct approximately 21 new facilities/buildings and additional facilities for a total construction of approximately 2.9 million ft^2 plus 0.5 million ft^2 of new roads (Table ES-13). JSF IJTS Alternative 2 would renovate and/or demolish approximately 3 million ft^2 of existing facilities plus 1 million ft^2 of roads and pavements.

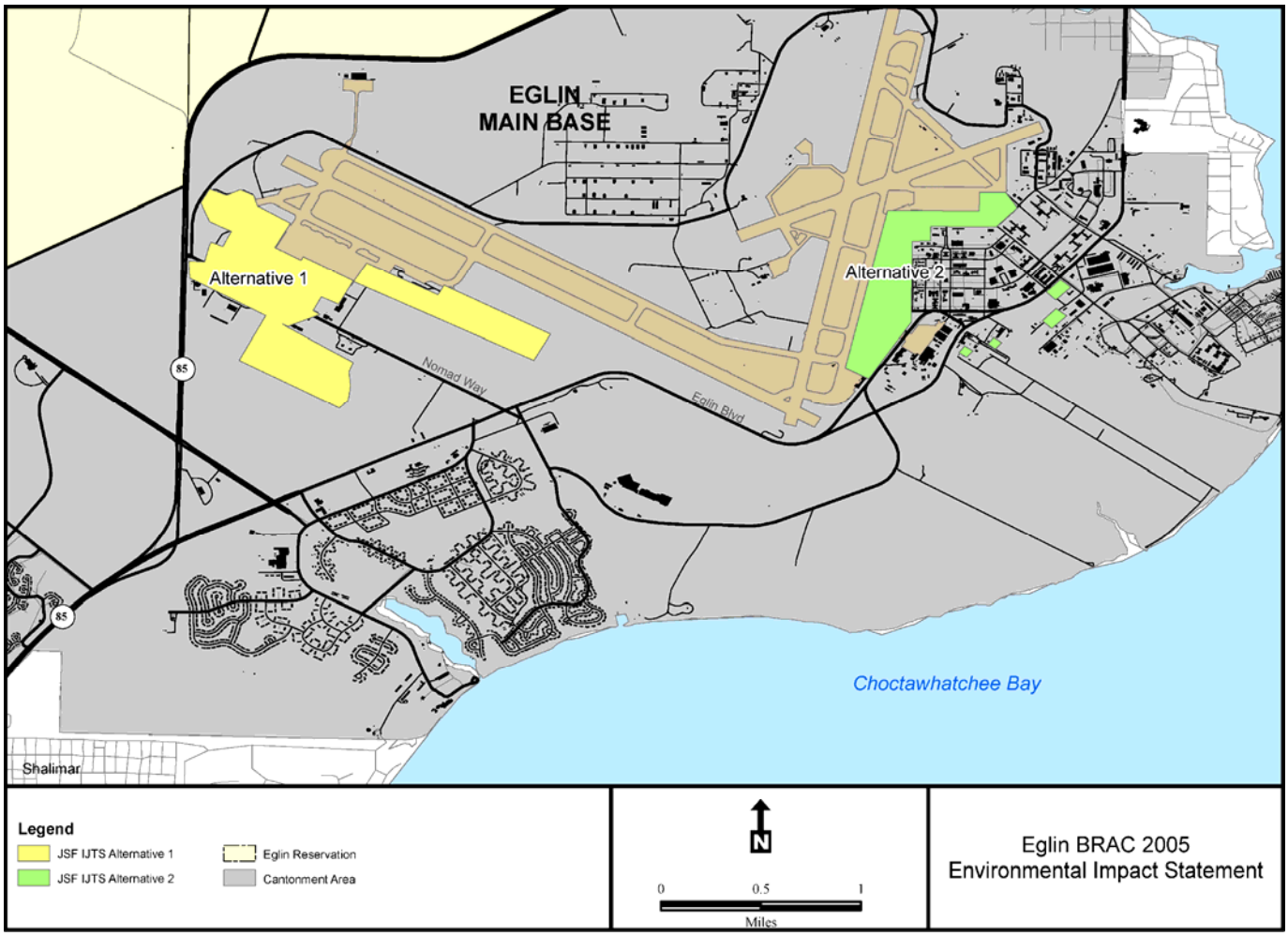


Figure ES-8. JSF IJTS Complex Alternative 1 and Alternative 2 Proposed Location

Table ES-12. Proposed Facilities Associated With JSF IJTS Alternative 1

MILCON Project	Disposition			Square Footage
	Demo	Ren	New	
Sqd Ops/AMU (AF-1)			X	77,644
Integrated Training Center (ITC)			X	200,000
Munitions Maintenance			X	39,468
Dorm (100 Room)			X	40,479
Dorm (100 Room)			X	40,479
Dining Facility			X	14,010
Duke Tower			X	1,041
POL Hydrant Pits			X	8 Each
POL West Side Tank Headers			X	4 Each
POL West Side Ops Facility			X	5,000
POL Fillstands Flightline			X	2 Each
POL Bulk Storage Tanks			X	100 MBBL
Sqd Ops/AMU (Marines)			X	49,830
Sqd Ops/AMU (Navy)			X	49,830
Sqd Ops/AMU (AF-2)			X	74,147
Sqd Ops/AMU (AF-3)			X	74,147
Rinse Facility "Bird Bath" N			X	3,000
Rinse Facility "Bird Bath" S			X	3,000
New Apron			X	864,000
Taxiway Extension			X	879,300
Live Ordnance Loading Area			X	850,500
TAMS			X	22,500
Flare			X	2,000
AME Maintenance			X	5,000
Wash Rack			X	11,000
Wing/Group HQs			X	20,000
Satellite Medical Facility			X	
Utilities			X	1 LS
Roads			X	506,000
STOVL Pad (Eglin)			X	30,000
STOVL Tower (Eglin)			X	1 Each
STOVL Pad (Duke)			X	30,000
STOVL Tower (Duke)			X	1 Each
West Apron		X		1,410,658
Renovate 1318 (Phase 1)		X		22,963
Renovate 1404—Storage		X		48,001
Renovate 1309—SimBay		X		17,595
Renovate 1318 (Phase 2)		X		34,445
Renovate 1344—WLT		X		27,321
Renovate 1326—Groups HQ		X		19,764
Renovate 1312—AF/DON Ops		X		17,740
Renovate 1321—OSS		X		34,868
Renovate 1315—Wing HQ		X		21,317
Renovate 1343—AME		X		36,998
Comm Support Flight		X		8,870
Munitions Maintenance Facility(ies)		X		5,219

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Table ES-12. Proposed Facilities Associated With JSF IJTS Alternative 1, Cont'd

MILCON Project	Disposition			Square Footage
	Demo	Ren	New	
Munitions Maintenance Facility(ies)		X		4,624
Munitions Maintenance Facility(ies)		X		7,360
Renovate 1363—FTD		X		23,462
Tech Training Det/Sqd CC Staff		X		8,870
Add/Alter Calibration Lab		X		14,654
MXS 1328		X		27,609
Pavement Improvements		X		500,000
Roads		X		506,000
Duke Tower		X		1,041
Demo Jet Engine Shop	X			7,400
Demo Fuel Shop	X			18,807
Demo Storage Facility	X			100
Demo 58th AMU Hangar	X			33,998
Demo 60th AMU Hangar	X			36,968
Demo Pump Station	X			1 Each
Demo Chaplain	X			439
Demo LOX Storage	X			3,395
Demo Engine Shop	X			62,481
Demo AGE	X			15,783
Demo Weapon Release Shop	X			9,680
Demo Aircraft Shop	X			1,440
Demo LOX Plant	X			672
Demo Jet Engine Shop	X			3,200
Demo Pavilion	X			1 Each
Petroleum Ops	X			567
Weapon Systems Management	X			630
Munitions Control	X			800
Munitions Accountability/Ops	X			800
Building 1278	X			1,789
Gazebo "J"	X			(negligible)

Sources: Roxstrom, 2006; AF/DoN = Air Force/Department of the Navy
AGE = Aerospace Ground Equipment; AME = Alternate Mission Equipment; AMU = Aircraft Maintenance Unit; CC = Commander; Demo = Demolish; Det = Detachment; FTD = Field Training Detachment; HQ = Headquarters; LOX = Liquid Oxygen; MBBL = Thousand Barrels; MILCON = Military Construction; MXS = Maintenance Squadron; Ops = Operations; OSS = Operational Support Squadron; POL = Petroleum, Oil, or Lubricant; Ren = Renovate; Sqd = Squadron; STOVL = Short Take-Off and Vertical Landing; TAMS = Tactical Aircraft Maintenance Specialist; WLT = Weapons Load Trainer

Table ES-13. Proposed Facilities Associated With JSF IJTS Alternative 2

MILCON Project	Disposition			Square Footage
	Demo	Ren	New	
Squad Ops/AMU (AF#1) (end-state)			X	77,644
JSF ITC			X	260,000
JSF Student Dormitory (steady state)			X	121,437
Dining Facility			X	14,010
POL Hydrant Pits			X	8 Each
POL Fillstands Flightline			X	2 Each
POL Bulk Storage Tanks			X	100 MBBL
Squad Ops/AMU (Navy) (end-state)			X	49,830
Squad Ops/AMU (Marines) (end-state)			X	49,830
Squad Ops/AMU (AF#2) (end-state)			X	74,147
Squad Ops/AMU (AF#3) (end-state)			X	74,147
Freshwater Rinse Area North (Bird Bath)			X	4,000
Freshwater Rinse Area South (Bird Bath)			X	4,000
Taxiway to TW "F"			X	875,000
Live Ordnance Loading Area			X	1,200,000
Aircraft Wash Rack			X	11,050
JSF Wing HQ Building (end-state)			X	20,000
Modular Storage Magazine			X	4,164
Modular Storage Magazine (small)			X	1,926
Conventional Munitions Mx Fac			X	9,921
Aircraft Munitions Training Facility			X	23,457
Munitions Supervisory Facility (Approx)			X	7,000
Utilities			X	1 LS
Roads			X	506,000
STOVL Pad (Eglin)			X	30,000
STOVL Tower (Eglin)			X	1 Each
STOVL Pad (Duke)			X	30,000
STOVL Tower (Duke)			X	1 Each
Munitions Arming Area		X		100,000
Hot Gun/De-arming Area		X		200,000
AME Maintenance		X		16,068
AME Maintenance		X		8,000
East Parking Apron Repairs		X		2,133,423
Backshop (Wheel/Tire/Batteries/AGE)		X		63,796
Storage		X		40,000
Renovate 1309—SimBay		X		17,595
Weapons Load Training		X		15,666
Operations Support Group		X		32,459
JSF Wing HQ Building		X		31,979
Munitions Maintenance Facility(ies)		X		5,219
Munitions Maintenance Facility(ies)		X		4,624
Munitions Maintenance Facility(ies)		X		7,360

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Table ES-13. Proposed Facilities Associated With JSF IJTS Alternative 2, Cont'd

MILCON Project	Disposition			Square Footage
	Demo	Ren	New	
Add/Alter Calibration Lab		X		14,654
Pavement Improvements		X		500,000
Roads		X		506,000
Corrosion Control Utility Storage		X		500
Duke Tower		X		1,041
Squad Ops/AMU (Navy/Marines)		X		129,766
Squad Ops (2 Squadrons) (initial)		X		38,000
AMU (AF#1) (initial)		X		38,440
AMU (AF#2) (initial)		X		38,340
Corrosion Control		X		31,832
HQ Center	X			4,518
Law Center	X			4,518
Education Center	X			28,764
Communication Facility	X			13,082
Communication Facility	X			12,602
Munitions Control	X			800
Munitions Accountability/Ops	X			800
Munitions Entry Control Facility	X			1,789
Gazebo "J"	X			(negligible)

Source: Roxstrom, 2006

AF = Air Force; AGE = Aerospace Ground Equipment; AME = Alternate Mission Equipment; AMU = Aircraft Maintenance Unit; Demo = Demolish; HQ = Headquarters; MILCON = Military Construction; Mx Fac = Maintenance Facility; MBBL = Thousand Barrels; Ops = Operations; POL = Petroleum, Lubricant, or Oil; Ren = Renovate; STOVL = Short Take-Off Vertical Landing; TW = Taxiway

Alternative 2 siting in the 46 TW area would require the 46 TW personnel and functions to be relocated to the 33 FW area. Facilities to accommodate this move are listed in Table ES-14. This move would add approximately 0.4 million ft² of new construction, and 0.2 million ft² renovation and/or demolition to Alternative 2.

The 33 FW area has supported F-15 operations by Air Combat Command. Under Alternative 1, the 33 FW area would be rebuilt to support the F-35 and under Alternative 2 the area would be rebuilt to support the relocated 46 TW.

Table ES-14. Facilities that Would Need to be Constructed, Renovated, or Demolished Due to JSF IJTS Siting in Existing 46 TW Area

Project	Disposition			Square Footage
	Demo	Ren	New	
New Hangar			X	129,766
Taxiway to new hangar			X	90,000
New Hangar			X	38,440
New Hangar			X	38,340
New Squadron Operations			X	38,000
New Administration			X	60,000
Renovate 1315—Wing Headquarters		X		21,317
Renovate 1312—Squadron Operations		X		17,740
Renovate 1339—Fuel Barn		X		18,807
Renovate 1321—Warehouse Supply		X		34,868
Renovate 1404—Storage For 600		X		48,001
Backshop (Wheel/Tire/Batteries/AGE)		X		57,408
Demolish (Demo) Jet Engine Shop	X			7,400
Demo Pump Station	X			1 Each
Demo Chaplain	X			439
Demo Liquid Oxygen (LOX) Storage	X			3,395
Demo LOX Plant	X			672
Demo Jet Engine Shop	X			3,200

Source: Roxstrom, 2006
AGE = Aerospace Ground Equipment

3.5 JSF FLIGHT TRAINING

The Air Force, Navy, and Marines F-35 aircraft has had only limited operational activity to date. The F-35 is a new weapon system and operational details of training with this system are on-going and continue to mature. As with any new aircraft, the Air Force anticipates a continued large learning curve in terms of system capabilities and training requirements. The Air Force would manage evolution in the JSF training program at Eglin by incorporating the adaptive management approach described in the beginning of this Executive Summary and in the Final EIS to the on-going basing of the F-35 aircraft.

The F-35 is a new weapon system, which will evolve with time. Adaptive management will permit modification of management practices to achieve project objectives and environmental protection.

The planning process to fulfill BRAC direction for F-35 IJTS activities at Eglin AFB, has addressed various uncertainties about system operations. Eglin AFB and the area around the base are dynamic locations. It is likely that there will be unanticipated changes in baseline conditions, better understanding of the weapon system, or new information on the effectiveness of mitigation measures. The variables analyzed in this

EIS and their relationship to biological, physical, and social systems are complex. The Air Force has done its best to accurately analyze and predict potential impacts and anticipate future conditions using the best available information and tools at the time of this analysis.

Adaptive Management is an approach recognized by the President's Council on Environmental Quality (CEQ) to facilitate meeting NEPA Section 101 goals. This approach is the continuous modification of management practices to achieve both project objectives and environmental protection. Such approach shifts thinking away from the old project paradigm of "predict, mitigate, and implement" to "predict, mitigate, implement, monitor, and adapt." "Adaptive management recognizes the limits of knowledge and experience and moves iteratively toward goals in the face of uncertainty" (CEQ, 1997).

The adaptive management approach allows for an examination and testing of various hypotheses regarding the F-35 presence, while allowing meaningful data to be gathered, evaluated, and used for sound program management decisions. This long-term process is built around a continuous cycle of experimentation, evaluation, learning, and improvement over time. Adaptive management will improve understanding of the various assets that are part of a complex interrelated F-35 system.

JSF Flight Training Alternatives

Two proposed JSF alternatives have been developed to bracket the projected JSF flight training requirements at the different airfields on Eglin AFB (Figure ES-9). As the F-35 program evolves and matures at Eglin AFB, elements of the IJTS program may change. Consequently, the F-35 IJTS would adaptively manage program issues over time throughout the delivery, basing, and training of the weapon system through approximately CY 2020.

The two proposed alternatives used in this EIS to bracket projected JSF training focus on the use of Eglin Main Base and two auxiliary airfields. The two alternatives present a projected low and high operations at each airfield. The elements in common among the alternatives include the amount of flight training, the use of airspace, and ordnance training.

The proposed flight training would be conducted on average 246 days per year, or approximately 20.5 days per month. Training operations would occur five days per week with approximately 88 percent of the flights between 7:00 a.m. and 10:00 p.m. in compliance with operating procedures that govern flight rules.

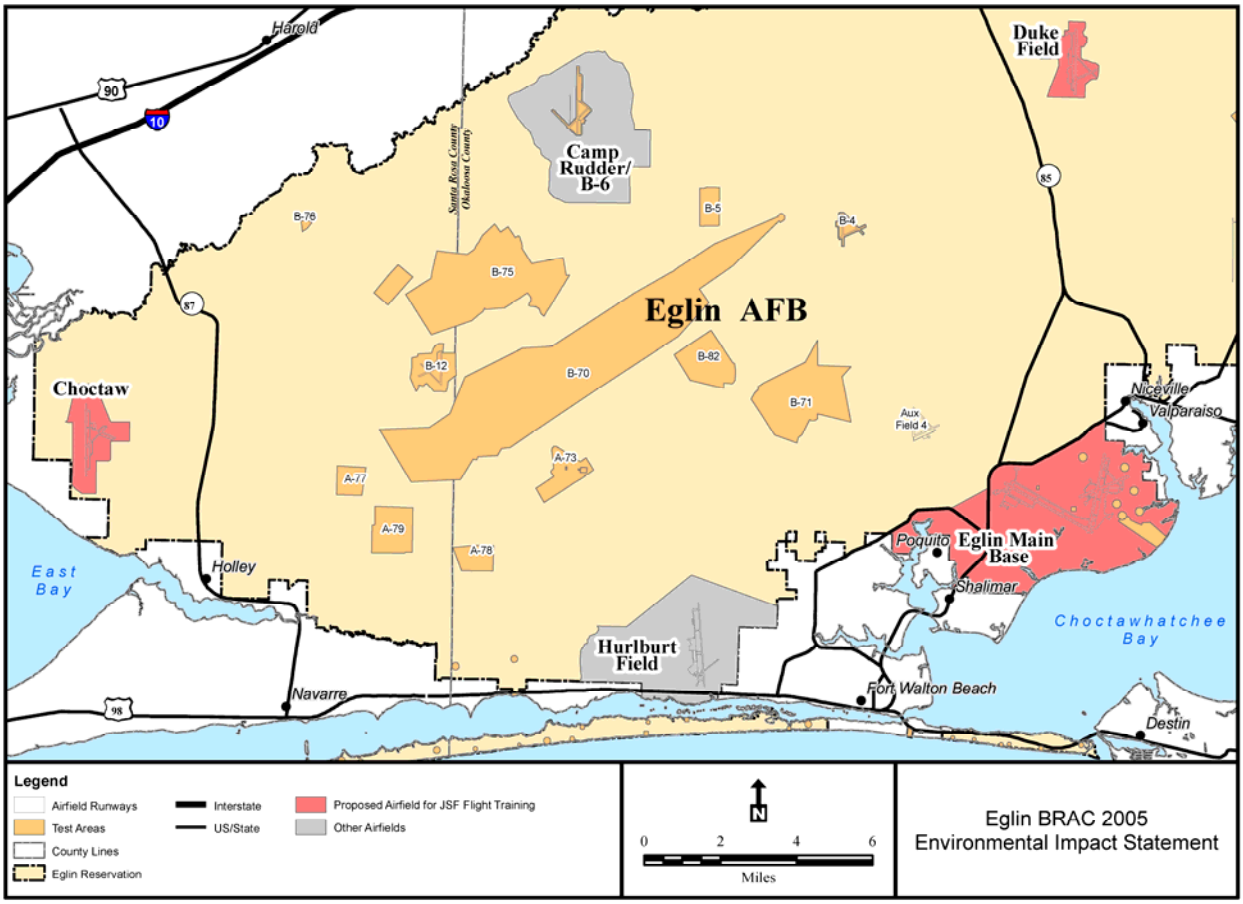


Figure ES-9. Proposed Airfields for JSF Flight Training

A ***training sortie*** refers to the flight of a single aircraft from takeoff through landing, including performance of a mission or training event. JSF students would require approximately 122 sorties per day to complete the flight training syllabus. The F-15 sorties, currently performed by the 33 FW, would no longer occur. The change in sorties would result in a net increase of approximately 80 sorties per day and 20,000 sorties per year.

Table ES-15 provides the estimated training sorties based on the preliminary syllabus for the Air Force (CTOL), Marines (STOVL), and Navy (CV).

Table ES-15. Proposed Number of Sorties by Aircraft Variant for JSF Training

Sorties	CTOL	STOVL	CV
Daily	74	24	24
Annual	14,235	4,617	4,617
With 8% Re-fly	15,473	5,018	5,018
With 15% CT/COB	18,204	5,904	5,904
UTE rate (Average Number of Sorties per Month per Aircraft)	21	25	33

Source: JSF Program Office, 2007
JSF = Joint Strike Fighter; CT/COB = Continuation Training/Cost of Business; CTOL = Conventional Take-Off and Landing; CV = Carrier Variant; STOVL = Short Take-Off Vertical Landing; UTE = utilization

Each sortie produces at least two operations. Some sorties can result in more than two operations, such as if an aircraft performs a touch-and-go during a sortie. The number of operations for the two flight training alternatives and the 2005 flight operations are presented in Table ES-16. The number of operations is the number of times one aircraft crosses the end of one runway and is used as input for environmental analysis. The F-35 training could approximately double the airfield operations on Eglin AFB. The total operations allocated to each airfield would be between the range of the alternatives presented in Table ES-16. That range permits the Air Force to implement adaptive management techniques to training operations as additional information becomes available regarding F-35 training requirements.

Table ES-16. Annual Airfield Operations for JSF Alternatives

Alternative	Aircraft Type	Airfield			Total
		Eglin	Duke	Choctaw	
Baseline (2005)	F-15 (33 FW)	29,206	0	0	29,206
	Other	76,582	24,643	76,467	177,692
	Total	105,788	24,643	76,467	206,898
Alternative 1	F-35	121,286	84,956	33,633	239,875
	Other	74,253	24,643	76,467	175,363
	Total	**195,539**	**109,599**	**110,100**	**415,238**
Alternative 2	F-35	175,013	35,762	23,997	234,772
	Other	74,253	24,643	76,467	175,363
	Total	**249,266**	**60,405**	**100,464**	**410,135**

Eglin is the Main Operating Base common to all alternatives. Eglin Main departure and termination flights account for approximately 60,000 annual operations or about 25 percent of the total proposed operations for the JSF at Eglin AFB.

The JSF would utilize a variety of special use airspace (SUA) on a routine basis to perform flight training identified in the syllabus. Figure ES-3 presented the types of airspace used in training. The distribution of the proposed sorties in SUA would be dictated by the utilization, scheduling priorities, and training requirements. Table ES-17 is a notional estimate of the distribution of sorties in each airspace.

Table ES-17. Estimated Annual Sorties in Airspace Proposed for F-35 Training

Airspace Element	Estimated CY 2016	
	F-35	Other Aircraft
R-2914A	3,278	6,772
R-2914B	3,278	302
R-2915A	3,278	24,439
R-2915B	3,278	1,929
R-2915C	3,278	1,135
R-2919A	3,278	704
R-2919B	3,278	428
Eglin MOA - A	3,278	629
Eglin MOA - C	3,278	264
Tyndall MOA C/D/E/F	546	4,094
W-151A	24,046	3,543
W-151B	24,046	3,265
W-151C	24,046	3,653
W-151D	12,023	3,225
W-151E	12,023	2,528
W-151F	12,023	2,447
VR-1082	295	173
VR-1085	295	73

JSF flight training would use ordnance, such as laser- and Global Positioning System (GPS)-guided bomb units (GBUs), 25-millimeter (mm) ammunition for strafing, and defensive flares. The JSF Program Office estimates that both the students and instructor pilots would carry and/or release the ordnance identified in Table ES-18.

Table ES-18. Annual Ordnance Requirements for JSF Training

Type of Ordnance	Annual Quantity
GBU-12 (live)	635
GBU-12 (inert)	219
25-mm (TP)	208,518
Flares (MJU-8/27)	1,363

GBU = Guided Bomb Units; TP = Target Practice

The Air Force proposes that the live and inert ordnance be used on existing targets on the eastern and western sides of the Eglin Range. For strafing, the JSF flight training would use TA C-62 on the east and TA B-75 on the west. For both inert and live ordnance, TAs C-52E on the east and B-82 on the western side would be used (Figure ES-9). All munitions fired over the Gulf of Mexico into warning areas would be inert.

The Eglin-based JSF pilots are not planning to train with defensive chaff in Eglin scheduled airspace. Defensive flares deployed during training would be used according to established Eglin procedures over warning areas and the Eglin Reservation. Over the Eglin Reservation, the minimum altitude for flare release is 500 feet AGL except over test areas where the minimum altitude is 200 feet. Release altitudes are adjusted for periods of high or above fire danger. Pilots would avoid expending flares over populated areas, structures, or personnel.

The F-35 would train with live and inert ordnance on existing Eglin AFB targets. The F-35 would use flares during training, but would not use defensive chaff.

3.6 SUMMARY OF JSF REQUIREMENTS

Beddown and training of the JSF IJTS at Eglin AFB would require demolition, renovation, construction, personnel relocation, and ongoing flight training. Two alternative cantonment locations have been identified, both in close proximity to the Eglin Main Base airfield. Approximately 6.9 million square feet of buildings and hard surfaces would be renovated or constructed from 2008 to 2013 for Alternative 1. The comparable number for Alternative 2 is 7.4 million square feet. These facilities would support 107 F-35 PAA comprised of Air Force, Marine, and Navy variants. An estimated 200 instructors, 545 students, 30 civilians, 150 contractors, and an aircraft maintenance support with 1,401 personnel would arrive between 2010 and 2016 to support flight and mechanic training. An estimated 2,559 dependents would accompany the personnel.

Flight training would consist of operations from Eglin Main Base, Duke Field, and Choctaw Field, munitions use on approved Eglin Ranges, defensive flare use in authorized airspace, flight training to include supersonic flight in overwater warning areas, and training in on- and off-base airspace, including low-level training on MTRs in Florida and Alabama. Two alternative levels of flight operations are considered for each of the three Eglin AFB fields used in training. These operation levels bracket the estimated flight activity with a low and high number of operations at each field. The decision maker could select one of these two alternatives or any of a number flight operation combinations for each location as long as the level of operations were between the range of flight operations addressed at each field and the operations accomplished mission requirements.

3.7 NO ACTION ALTERNATIVE

The CEQ regulations (40 CFR Section 1502.14(d)) require the alternatives analysis in the EIS to "include the alternative of no action." "No action" is the baseline condition with

no 7SFG(A) or JSF IJTS BRAC beddown or training taking place. No action does include the F-15 aircraft leaving and other scheduled Eglin changes not related to BRAC. The regulations require the analysis of the No Action alternative even if the Air Force must, by law, implement the BRAC decision. The No Action analysis provides a benchmark and enables decision makers to identify the environmental context and intensity of BRAC alternatives. The Air Force is the military department exercising real property accountability for Eglin AFB. Consequently, the EIS has been developed in compliance with the promulgated Air Force NEPA-implementing regulations (32 CFR 989), as directed by 32 CFR 174.17, *Revitalizing Base Closure Communities and Addressing Impacts of Realignment*.

4. ENVIRONMENTAL CONSEQUENCES

The public and agency scoping process focused the analysis associated with the 2005 BRAC implementation at Eglin AFB on the following environmental resources: Airspace Management, Socioeconomics (including impacts to children and Environmental Justice), Noise, Land Use (including changes to range access), Transportation, Utilities, Air Quality, Safety, Solid Waste, Hazardous Materials (including Hazardous Waste), Physical Resources (including water resources), Biological Resources, and Cultural Resources (including historic structures). The Final EIS presents consequences to each resource for each component of the Proposed Action. The Final EIS results are summarized below. The reader of this Executive Summary is encouraged to review the entire Final EIS for a comprehensive environmental analysis of each environmental resource.

4.1 AIRSPACE MANAGEMENT

Airspace management is defined as the direction, control, and handling of flight operations in the "navigable airspace" that overlies the geopolitical borders of the United States and its territories. Eglin SUA identified for military and other governmental activities is charted and published by the National Aeronautical Charting Office in accordance with Federal Aviation Administration (FAA) Order 7400.2 and other applicable regulations and orders. Figure ES-2 displays the airspace managed and/or used by Eglin-based aircraft.

There is substantial demand by both military and civilian users of the airspace in this region. The existing airspace use will be complicated by expanding population along the Gulf Coast and proposed expansions of regional civil air operations at exactly the time the F-35 will be expanding military training operations.

Competing future needs for regional airspace have the potential to impact future users. A regional airspace planning effort is needed to assess and successfully manage the

direction, control, and handling of the combined future civil and military regional flight operations.

There would nearly be an estimated annual doubling of airfield operations for all of the alternatives. This would increase the workload of air traffic controllers. Both alternatives would increase traffic aircraft at Duke Field, Eglin Main Base, and Choctaw Field to varying degrees.

Increased flights in the MOAs and MTRs would increase the need for vigilance on the part of all civil and military aviation traversing the airspace at altitudes where aircraft could be encountered. All pilots are responsible for applying see-and-avoid principles during flight.

The Okaloosa Regional Airport is joint use with Eglin AFB. JSF flight training will substantially increase activity and a regional assessment of airspace use would benefit civilian and military airspace users.

4.2 NOISE

Noise is defined as any unwanted sound. Defining characteristics of noise include sound level (amplitude), frequency (pitch), and duration. Each of these characteristics plays a role in determining the intrusiveness and level of impact of the noise on a noise receptor. The term "noise receptor" means any person, animal, or object that hears or is affected by noise.

Annoyance, speech interference, sleep interference, human health consequences, structural effects, and wildlife impacts have all been associated with noise. The EIS noise section (Section 7.3) addresses general noise impacts on humans and structures. Other EIS sections, including the following, discuss the impacts of noise on land use (EIS Section 7.4), environmental justice (EIS Section 7.5), biological resources (EIS Sections 4.12, 5.11, and 7.12), and cultural resources (EIS Section 7.13). The EIS Appendix E, *Noise*, provides additional detail regarding noise metrics, analysis methodology, and impacts.

A generalized categorization of noise-induced annoyance can be found in Table ES-19. Day-Night Average Sound Level (DNL) (A-weighted sound) is used to assess noise for which audible sound is the concern (subsonic aircraft noise, small-arms fire). CDNL (C-weighted Decibel Day-Night Average Sound Level) is used to assess noise in which vibration and low-frequency components are a concern (sonic booms, high-explosive munitions noise).

Table ES-19. Relationship Between Noise Level and Percent of Population Highly Annoyed

Criteria	Noise Level		
A-weighted Average Noise Levels (Continuous Noise)	< 65 dB	65-75 dB	> 75 dB
C-Weighted Average Noise Levels (Impulsive Noise)	< 62 dBC	62-70 dBC	> 70 dBC
Unweighted Peak Noise Levels (Small Arms Noise)	≤ 87 dBP	87-104 dBP	> 104 dBP
Percent of Population Highly Annoyed	< 15%	15%-39%	> 39%

The Federal Interagency Committee on Urban Noise (FICUN) developed recommendations on compatibility of land uses with noise (FICUN, 1980). These recommendations have been adopted, with minor modifications, by the Department of Defense (DoD) (Department of Defense Instruction [DoDI] 4165.57). The EIS addresses construction and operation noise associated with the BRAC actions.

7SFG(A) Cantonment. Construction noise associated with any of the alternatives would be temporary and localized to the area immediately surrounding the construction site. Activities at 7SFG(A) Cantonment Alternatives would not be expected to result in annoyance to off-base residents.

7SFG(A) Range Training. Noise impacts from any of the 7SFG(A) range alternatives would be similar. Weapons training would result in increases in munitions noise near range locations. Munitions noise from 7SFG(A) Range Alternatives 1 through 4 would result in 43 acres of off-range property being affected by noise at greater than 62 dB CDNL whereas 201 off-range acres would be similarly affected by 7SFG(A) Range Alternative 5. Even in areas where impulse noise would not be in excess of 62 dB CDNL, the change in the noise environment could be noticeable to off-base residents near the ranges. Impulse noise would have the characteristics of distant thunder and this change could be seen as undesirable by individuals. Range construction noise would be limited to relatively undeveloped areas with no known sensitive receptors. Training with vehicles would be similar in nature to existing range noise sources and would be dispersed over very large areas. Vehicular noise would not occur at a frequency and intensity expected to cause impacts.

JSF Cantonment. Implementation of either alternative would result in temporary increases in noise levels in the vicinity of the project area during construction, demolition, and renovation. The alternative construction areas are near the runway and frequently subjected to high levels of aircraft noise. Construction noise would last only for the duration of the projects and is expected to be limited to normal working hours (7:00 AM to 5:00 PM). Overall, construction noise would not be expected to affect off-base residents.

JSF Flight Training. The Final EIS estimates the noise levels and describes the impacted areas (see Final EIS Section 7.3). The estimated off-base population near Eglin Main Base and Duke Field exposed to aircraft noise would increase from flight

operations and an estimated 200 annual engine runups. Aircraft operations and engine runups were used to calculate projected noise conditions on and off base. Figure ES-10 is a two-page spread with calculated noise contours under Alternative 1. Figure ES-11 presents the noise contours under Alternative 2.

Several public commenters expressed concerns about increased noise from new aircraft, increased number of training flights, increased number of night flights, engine testing, and the potential impact on the community. Please see EIS Sections 7.3, 7.4, and 7.5

Persons off base near Eglin Main and Duke Field subject to noise levels of 65 dB DNL or greater are estimated to increase from the baseline of 2,113 persons to 6,757 persons for JSF Flight Training Alternative 1 and 11,156 for Alternative 2. The estimated population affected by greater than 75 dB DNL would increase from the baseline of 142 to 2,174 persons for JSF Flight Training Alternative 1, and 2,721 for Alternative 2. The DoD Instruction 4165.57 noted that above 65 dB DNL is the exterior noise level generally not recommended for residential use. Hospitals and schools within the Valparaiso and Niceville areas under JSF Flight Training Alternatives 1 or 2, would experience noise levels greater than 65 dB DNL. No hospitals are impacted at this noise level under baseline conditions. A close-up of the projected noise contours over the off-base Valparaiso and Niceville areas are presented for Alternative 1 in Figure ES-12 and Alternative 2 in Figure ES-13.

Public commenters expressed concerns with potential hearing loss as a result of increased noise and potential effects to Valparaiso schools and churches. Please see EIS Sections 4.13, 7.3, 7.4, 7.5, 7.12, and 7.13.

Under baseline conditions, no off-base residents near Choctaw Field are within the 65 dB DNL noise contours. There would be an estimated 114 off-base residents near Choctaw Field under noise contours greater than 65 dB DNL for Alternative 1 and 6 off-base residents for Alternative 2. Sensitive receptors near Choctaw Field are not projected to be affected by noise greater than 65 dB DNL under baseline conditions or for any of the alternatives.

Average noise levels under military training routes (MTRs) and SUA proposed to be used by the JSF would increase over baseline levels. For MTRs, the lowest altitude of 500 feet AGL was used to calculate noise levels. The actual altitude flown for the 295 annual sorties would depend on mission and training requirements. The areas in which the affected MTRs and SUA are located are primarily rural/agricultural or open water. Several small towns and rural residents would be affected by increased noise as a result of training on the MTRs. The average of two F-35 overflights at 500 feet AGL five days a week would create enough noise energy to change the noise conditions under the MTRs from below 45 dB DNL to approximately 75 dB DNL. The sudden overflight and noise would be expected to annoy rural residents. Change in noise level under SUA proposed to be used by the JSF would range from a decrease of 1 dB DNL to an increase of 19 dB DNL.

Sonic booms experienced beneath W-151 would increase in frequency from 0.15 to 0.25 per day. Boom overpressure would remain similar to those experienced with the F-15s under baseline conditions. Sonic boom overpressure generated during F-35 training would be below the pressure at the surface created by F-15 training. The pressure of the surface would be well below the impulse-noise thresholds for harassment of marine mammals and indicate the lack of impact on marine mammals of all types. JSF munitions use would increase average noise levels near targets. Noise levels from JSF munitions training are not projected to affect off-range areas with noise levels greater than 62 dB CDNL.

4.2.1 Approximation of Alternatives 1 and 2 at 2013

As indicated in Section 1.1 of the EIS, there are uncertainties associated with the JSF activities until the flight operations can be fully implemented and tested over time. Therefore, the Air Force will accommodate these unknowns by implementing an adaptive management approach.

To help illustrate the noise environment over time, a "snapshot" was developed that represents of Eglin AFB aircraft operations and expected related noise anticipated during 2013, at a specific point in time in the JSF delivery schedule is presented. The snapshot represents the total number of operations (approximately 302,800 annually) and the distribution among the three airfields projected for 2013 based on low-rate initial production. This is based on the number of all aircraft, including but not limited to the F-35, anticipated to be present at Eglin AFB by 2013, which is prior to the decisions on initial operational capability and full-rate production of the F-35 aircraft. (The full-rate production decision involves review of the JSF training program to determine whether it is sufficiently mature to begin full-scale production of the aircraft.)

The number of people exposed to noise at greater than 65 dB DNL is anticipated to be 3,870 during the 2013 approximation as compared to the 2016 end-state of 6,871 people in Alternative 1 and 11,162 in Alternative 2. In the early years of implementation, the local community will experience reduced noise as compared to the 2006 Air Installation Compatible Use Zone (AICUZ) because of the drawdown of 33 FW. However, as the JSF arrives in 2010 there will be increased levels of noise but that increase will not be accelerated until the 2013 time frame.

4.3 LAND USE

Land use generally refers to the management and use of land by people. The region of influence (ROI) for land use includes land areas proposed for 7SFG(A) and JSF IJTS use as well as adjacent properties and land areas. This includes the majority of Eglin AFB (Eglin Main Base and the Eglin Range) and off-base areas in Okaloosa, Santa Rosa, and Walton Counties.

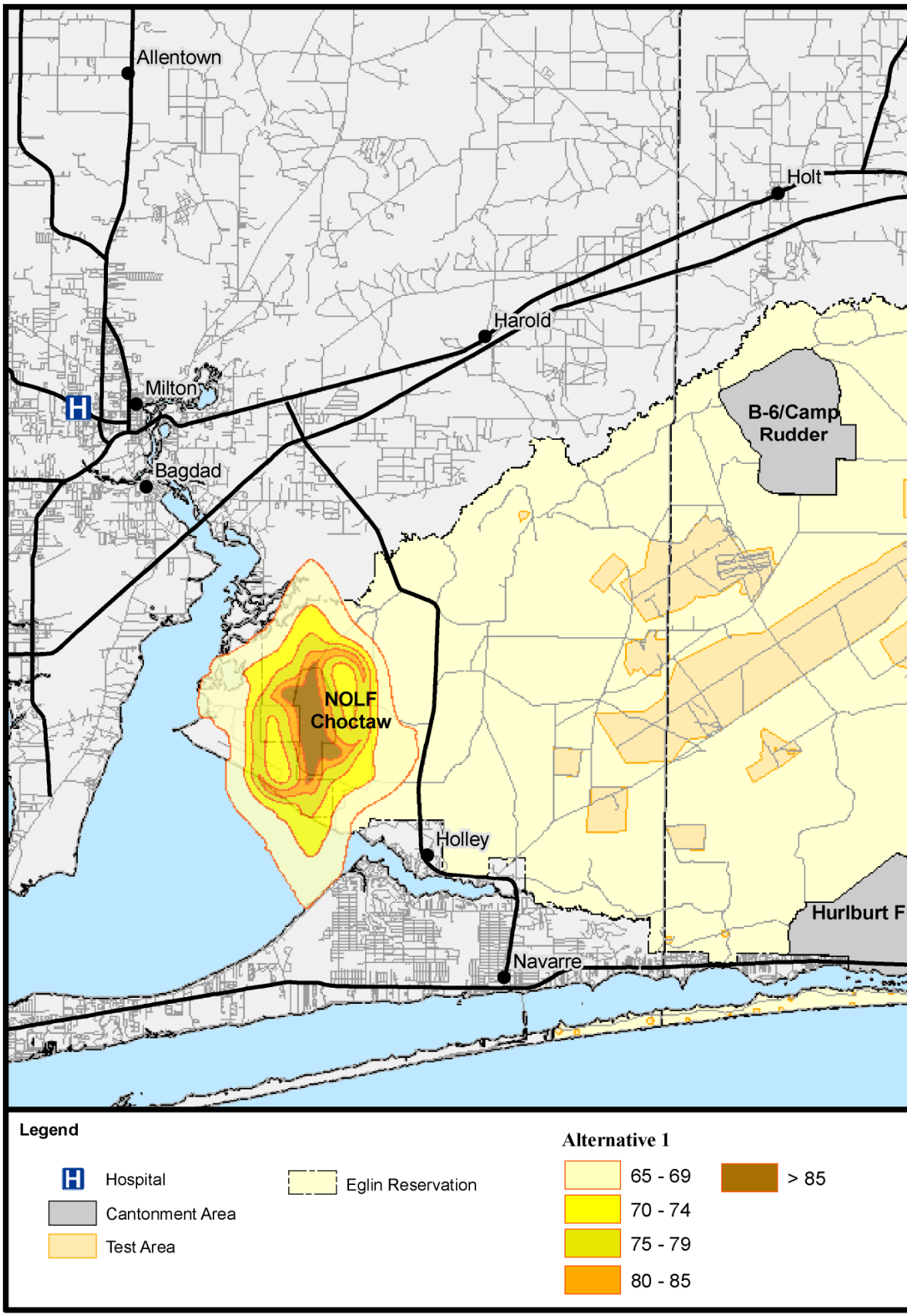
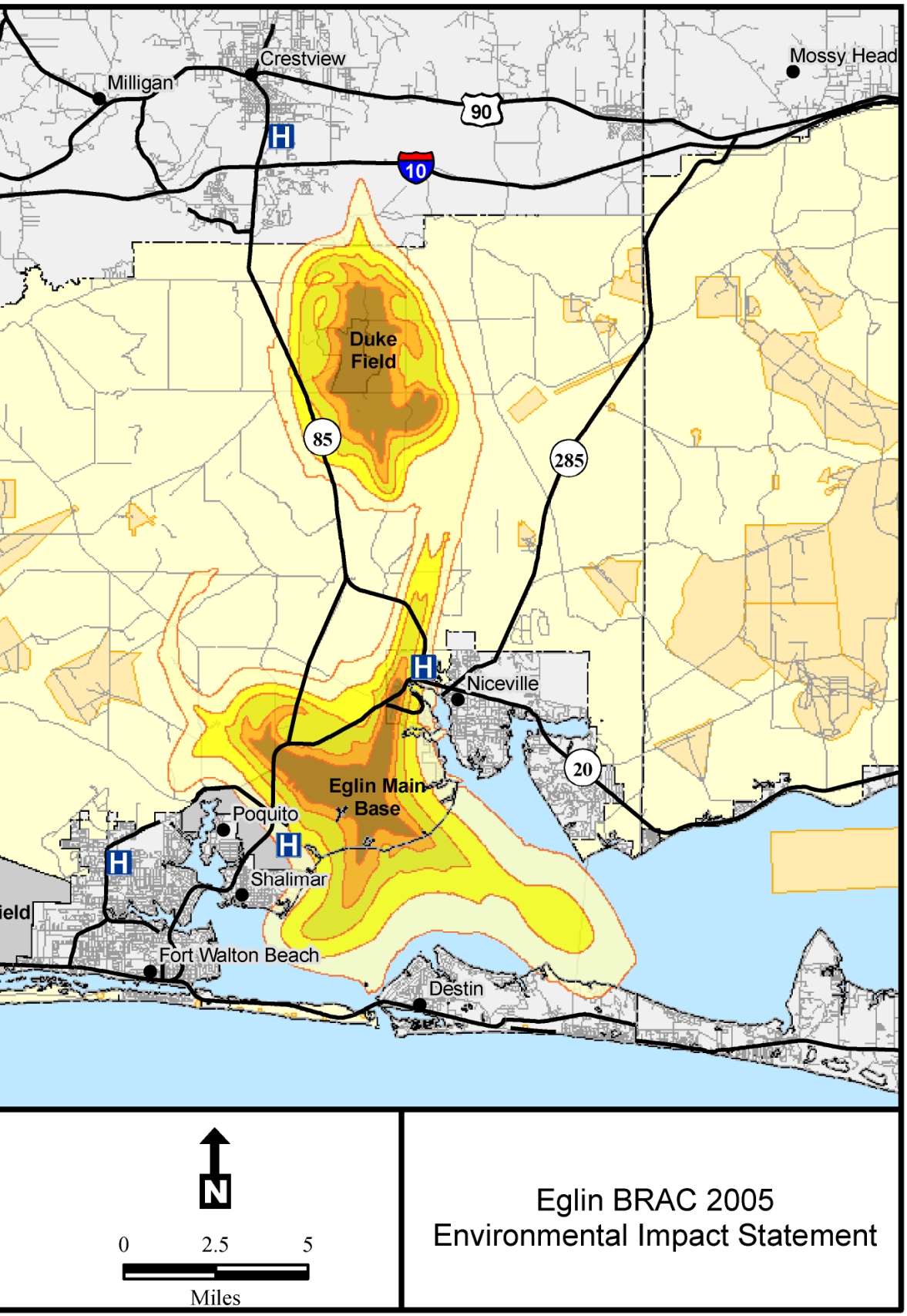


Figure ES-10. JSF



Alternative 1 Profile

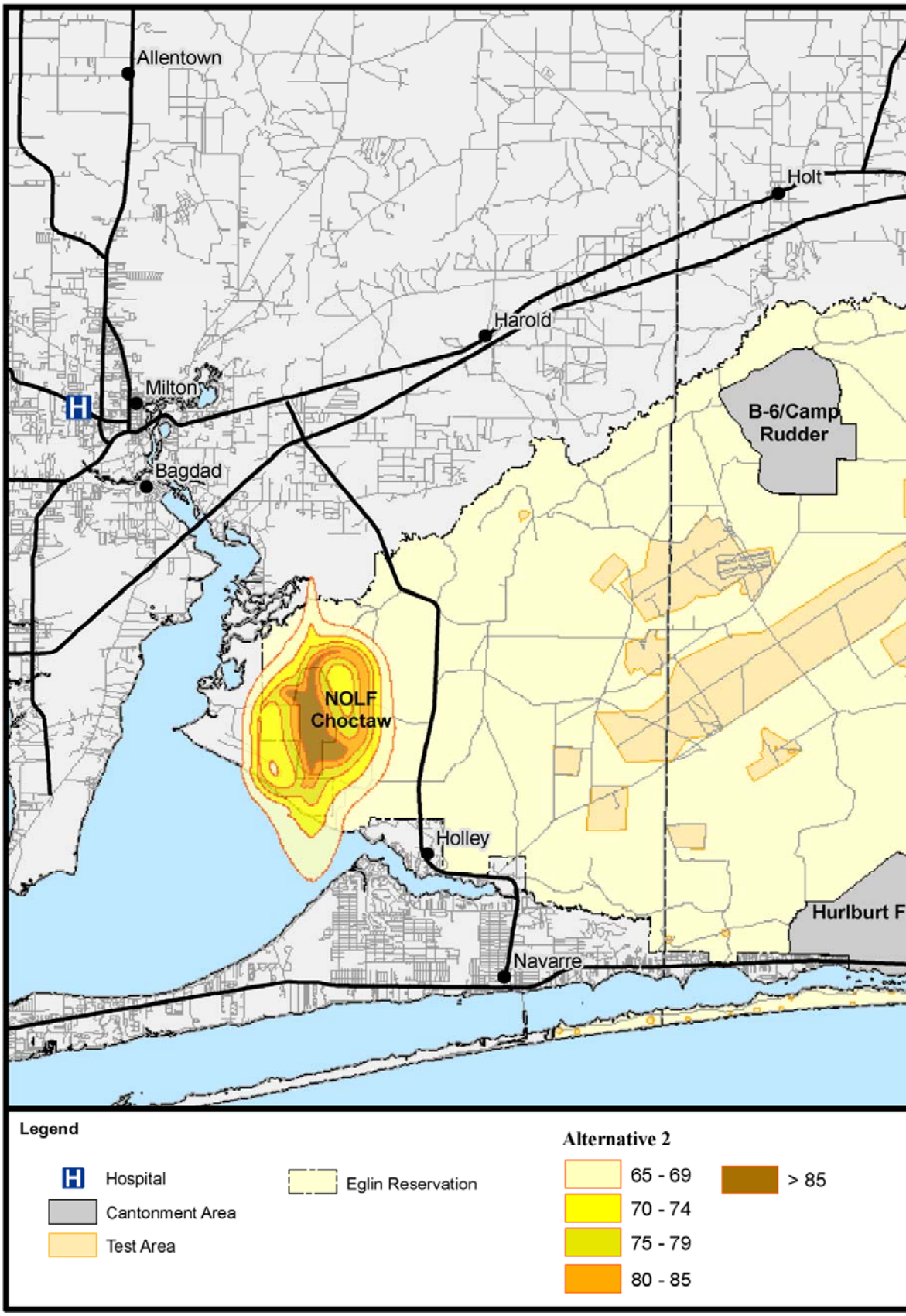
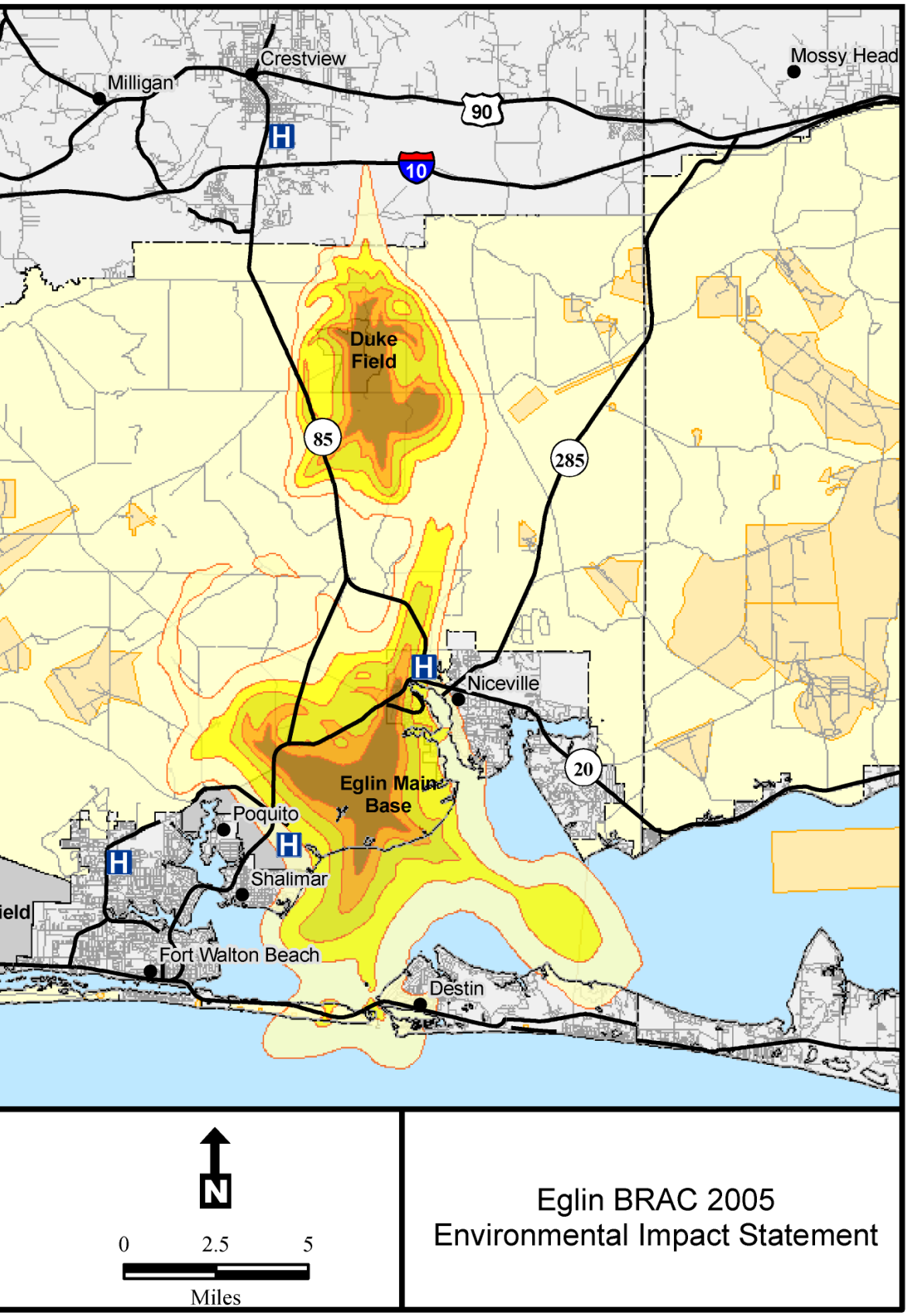


Figure ES-11. JSF



Alternative 2 Profile