東アジア多国間安全保障枠組創出のための研究―米軍プレゼンスの態様―

資料

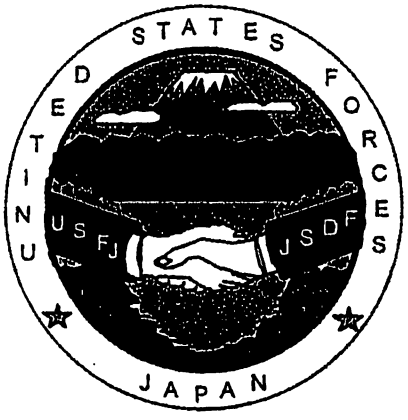
3) SACO Process, July 1996 :

Technical Assessment of the Feasibility Relocating the Operational Capability of Marine Corps Air Station (MCAS) Futenma to Kadena Air Base Proper

(26 July 1996)

blank

Technical Assessment of the Feasibility of Relocating the Operational Capability of Marine Corps Air Station (MCAS) Futenma to Kadena Air Base Proper



26 July 1996

Prepared by
Director of Operations (J3)
United States Forces, Japan

INTRODUCTION

In April 1996 the Governments of the United States and Japan agreed to the return of Marine Corps Air Station (MCAS) Futenma, located on the island of Okinawa, to the Government of Japan (GOJ) within 5-7 years. It was also agreed that the return of MCAS Futenma is contingent upon the completion of adequate replacement facilities which maintain the airfield's critical military functions.

The purpose of this study is to provide a technical assessment of the operational feasibility of collocating current MCAS Futenma military helicopter flying operations with current fixed wing flying operations at Kadena Air Base (AB). The study addresses both peacetime and contingency operations and analyzes multiple factors associated with safety, operations, and facilities. Additionally, the study considers alternate site options that could allow consolidation of MCAS Futenma flying operations on Okinawa. This is an objective study incorporating extensive data provided by both the First Marine Air Wing (1st MAW) at Camp Butler, Okinawa and the 18th Wing at Kadena AB. The study is specifically tailored to provide senior civilian and military decision makers with the information required to assess the impact and closure of the MCAS Futenma airfield within the next 5-7 years, while sustaining US forces readiness.

A key assumption made in this assessment is that all assets currently in place at Kadena AB (both Air Force and Navy) will remain and that the requirements to support peacetime and regional contingency operations will not be degraded.

Study group members were from the staff of Headquarters, US Forces, Japan and brought extensive experience in helicopter and fixed wing flying and airfield operations. A number of assumptions were considered necessary to cover the broad range of factors affecting a military airfield closure. Additional examination of some study areas may be necessary based on different assumptions. The study brings together a great deal of expertise and data focusing on the major safety, operational, and facility issues which derive from collocation of these two major military flying operations.

BRUCE A. WRIGHT, Colonel, USAF
Director of Operations (J3)
US Forces, Japan

Executive Summary

The US Government (USG) and the Government of Japan (GOJ) established the Special Action Committee on Okinawa (SACO) in November 1995 to reduce the burden on the people of Okinawa and thereby strengthen the US-Japan alliance. The overriding consideration in this process is any actions taken must be consistent with the obligations under the Treaty of Mutual Cooperation and Security and other related agreements. The measures implemented by the SACO are specifically defined to reduce the impact of the activities of US Forces on communities in Okinawa, while fully maintaining the capabilities and readiness of US Forces in Japan.

Through the SACO process, the US Government agreed to return the land occupied by MCAS Futenma to the people of Okinawa. The agreement for the return of MCAS Futenma specifically states, "return Futenma Air Station within the next five to seven years, after adequate replacement facilities are completed. The airfield's critical military functions will be maintained though relocation of facilities. This will require construction of a heliport on other US facilities and areas in Okinawa." The USG and GOJ agreed to these conditions.

An option currently being reviewed by the USG and the GOJ is to consolidate MCAS Futenma rotary wing flying operations with Kadena AB flying operations.

Four Areas considered for the "quick-look" assessment are as follows:

1. Safety
2. Operations
3. Facilities
4. Readiness

General Assumptions

1. Assets currently in place at Kadena remain. There are no force laydown changes in peacetime or in contingency support.

2. Readiness of tenant units and planned regional contingency capability of Kadena and Futenma will be retained.

3. Funding for relocation is not a limiting factor.

4. Consistent with existing policies, noise and safety issues are addressed.

Additional Considerations

Congestion caused by collocation at Kadena may increase risk. 1st MAW can operate and train at Kadena if adequate facilities are constructed. Without adequate facilities due to conflicts over siting, political ramifications regarding noise abatement, or insufficient ramp space to accommodate strategic lift requirements, consolidation is not feasible.

Although our first assumption states no force laydown changes, if an offset is considered in movement of equipment and personnel from Kadena, relocation of Futenma to Kadena may be feasible during contingency operations. The contingency commitments of the F-15s, RC-135Rs and the E-3Bs require them to stay in the current locations. Possible consolidation of P-3 operations at a Japan Maritime Self Defense Force (JMSDF) location in southern Kyushu and relocation of MC-130 operations may offset ramp congestion and thus reduce the political footprint at Kadena. These examples serve only to demonstrate the types of offset moves that could take place to allow movement of 1st MAW assets to Kadena within the intent of the SACO agreement. Prior to a force laydown decision a detailed operational analysis of impacts must be accomplished. These types of offsets are required to make the Kadena option feasible in a contingency.

USFJ Recommendations

1. Do not relocate MCAS Futenma capability to Kadena AB proper.

Physically locating rotary wing operations from MCAS Futenma to Kadena AB is feasible in peacetime provided adequate facilities are constructed, safety risk management assessment is accomplished, and operational training is not compromised. During contingencies, operations are problematic. Although problematic, possible solutions include expanding the ramp Maximum on Ground (MOG) to accommodate OPLAN contingency throughput; possible use of Naha Int'l to support integrating operations; movement of forces presently located at Kadena to different laydown sites; adjusting Timed Phase Force Deployment Data (TPFDD) flow to accommodate loading. Petroleum, Oil, and Lubricants (POL) capacity and distribution systems will remain a major concern independent of collocation issues.

The primary inhibitors of collocation are:

- Political footprint on increased number of forces at Kadena

- Reduction in US Force readiness during contingency operations in terms of employment and deployment

2. If relocation is pursued further at Kadena AB proper, a more detailed technical analysis must be accomplished by an outside independent agency focusing on operational impacts, safety considerations, facilities, and additional considerations such as noise and the political impact associated with an increased US footprint in the Kadena AB area. Prior to collocation associated risk and how to minimize these risks must be understood. Given an offset in force movement out of Kadena to support collocation, contingency support and readiness conflicts may be solved.

USFJ Assessment Summary

Safety:

Combining the Kadena AB and MCAS Futenma flying operations, due to collocation poses an increase in safety risk. This increase in risk can be offset by risk management assessment to some degree. This finding is applicable to both peacetime and contingency operations. Pending further analysis, we find the increased risk manageable and acceptable.

Operations:

The collocation of MCAS Futenma and Kadena AB flying operations during peacetime is considered feasible. Implementation details must be studied in four areas: 1) ramp space for 1st MAW operations including consideration for noise abatement and an additional heliport, 2) flying hour window (extended airfield operating hours), 3) Air Traffic Control (ATC) architecture (sequencing and congestion) to deal with airspace congestion caused as a result of the collocation and, 4) ramp loading during contingencies. Without adequate ramp construction for helicopter operations and helicopter support facilities, a major impact on operational capability exists. Items 1-3 apply to peacetime, and items 3-4 apply to contingency operations

If collocation occurs, new and expanded ATC capabilities may include: development of helicopter approach and departure procedures from Kadena, and practice instrument capabilities at an airfield other than Kadena (i.e. Ie Shima or an alternate location).

Facilities:

Based solely on acreage, the relocation of current rotary wing functions from MCAS Futenma is possible. However the execution of this move due to environmental, political, and noise issues, as well as keeping reconstruction of existing Air Force facilities on Kadena, may not be feasible. Further study is needed and a decision on environmental, political, and noise issues must be made by the GOJ. The base has historical, cultural, and archeological sites making the relocation effort sensitive. Noise contours resulting from both the Navy ramp and Futenma relocation negatively effect Kadena residents and neighboring communities. Lack of open land for construction

sites on Kadena make the relocation of displaced Air Force assets on the installation difficult. Offsets may need to be identified as a possible solution.

Currently, two options are under consideration: 1) locate rotary wing operations to the north side of the airfield to include north loop and the Navy ramp, or 2) relocate to the southwest area of the airfield near the golf course.

Option 1 may not be considered a viable alternative as the Navy P-3 ramp relocation is already a SACO issue and the political impact of relocating rotary wing operations to this location is assessed as problematic. Additionally, this area does not meet Marine Corps desires of billeting and messing in proximity to their operating area, although these functions may be relocated elsewhere on Kadena AB property (i.e. Yamanaka).

Option 2 is possible based solely on acreage; however, as mentioned above, environmental, political, noise, and facility relocation issues make this option problematic.
Historical and burial sites known to exist on this acreage may reduce available space for construction.

Readiness Assessment:

During a regional contingency the collocation of Futenma and Kadena will have a negative impact on US Force readiness unless the TPFDD is modified, forces are realigned, additional ramp area, or Naha Int'l is authorized. Of real concern is contingency loading for the operational forces located at Kadena. Given CINCPAC's role as the supporting or supported commander, the strategic loading at Kadena in Western Pacific (WESTPAC) contingency operations is critical. Under current conditions, before adding Marine capabilities, Kadena exhausted its strategic maximum on ground (MOG) capability early in contingency operations. Therefore, any additional airlift requirements added to this already maximum effort would result in readiness shortfalls. These shortfalls could result in helicopters, fighters or expeditionary equipment being delayed beyond acceptable limits.

Commander Marine Forces, Japan Position

Marine Forces Japan considers the relocation of 1ST MAW units at MCAS Futenma to Kadena AB proper feasible. Offsets to current Kadena force laydown, adjustments to TPFDD flow, use of Naha Int'l, or constructing additional ramp area are possible solutions to current impacts on contingency operations.

18 Wing Commander Position

The United States Air Force does not concur with moving MCAS Futenma helicopter operations to Kadena AB. The inability to carry out contingency tasking and

the impact on facilities/infrastructure resulting from the significant number of personnel and equipment would severely degrade Kadena's ability to accomplish its mission.

TABLE OF CONTENTS

Part 1

Part 2

Part 3

Part 1

USFJ

Technical Assessment of the Feasibility of Relocating the Operational Capability of Marine Corps Air Station (MCAS) Futenma to Kadena Air Base Proper

TECHNICAL ASSESSMENT TEAM MEMBERSHIP

Lieutenant Colonel Michael L. McGary
21 Years, United States Army, Senior Aviator
1500 flying hours (UH-1, AH-1, OH-6, OH-58)

Lieutenant Colonel Steven A. Corbett
19 Years, United States Air Force, Weapon System Officer
2000 flying hours (F-4D, F-4E)

Lieutenant Colonel John A. Hultman
18.5 Years, United States Army, Engineer
Registered Professional Engineer, Military and Civilian Engineering

Lieutenant Colonel Ralph W. Brown
18.5 Years, United States Air Force, Command Pilot
2,270 flight hours (T-37, T-38, F-15)

Major Thomas D. Ellis
16 Years, United States Marine Corps, Helicopter Pilot
3270 flying hours (AH-1, UH-1, OH-58)

Major John Hambel
13 Years, United States Air Force, Senior Navigator, Instructor Navigator
2,300 flight hours (KC-135, EC-135, C-18, Private Aircraft)

Lieutenant Robert Jelescheff
9 Years, United States Navy, Naval Aviator, Bombardier/Navigator
1000+ flight hours (A-6E)

Captain Elizabeth Eidal
6 Years, United States Air Force, Command and Control
Emergency Action Officer, KC-135 Executive Officer

Mr. Jeremy G. Morris (CAPT USNR Ret)
28 Years, United States Navy, Naval Aviator, Radar Intercept Officer
1500 flight hours (F-4 Phantom)

Master Sergeant, John A. Mumford
22 Years, United States Army Infantry, Calvary Scout, USA Pathfinder
Over 150 helicopter flight hours (AH-1, OH-58, OH-6, CH-47, UH-60)

FIGURES

TABLES

EXHIBITS

DATA

1. Flight activity data, relative to this study, is presented here and will be referenced throughout this report. Definitions and summary data are shown below. Data supporting this summary is contained in the exhibits.

DEFINITIONS

a. Instrument Flight Rules (IFR) Operation: An instrument approach to an airfield, departure from an airfield, or in-flight assistance provided by a radar Air Traffic Controller to ensure aircraft separation. An IFR operation may be conducted in instrument meteorological conditions (IMC) or visual meteorological conditions (VMC) conditions. For purposes of this study, IFR operations are those controlled by Kadena AB Radar Approach Control (RAPCON) or MCAS Futenma Arrival Control.

b. Visual Flight Rules (VFR) Operation: An aircraft takeoff or landing (including low approaches / touch-and-goes) requiring the pilot to maintain aircraft separation. Pilots under VFR follow different--but comparable with IFR--rules that are less restrictive (in terms of aircraft separation) and allow for increased aircraft activity within a given area. For the purposes of this report, VFR operations are those conducted within the Kadena, Futenma, or Naha Airport Traffic Areas.

c. As an example, an aircraft conducting multiple IFR/VFR approaches would be contributing multiple aircraft operations. For instance, an aircraft entering the radar pattern, flying an approach to a touch-and-go, and returning to the radar pattern, would contribute two aircraft operations (an IFR approach and an IFR departure).

SUMMARY DATA

a. Kadena currently controls an average of about 6,470 aircraft operations per month, based on a flying window of 0600 - 2200 hours, Monday through Friday (although some Saturday/Sunday flying does occur, it is minimal and not considered to be a factor for purposes of this study). Figure 1 shows the distribution of aircraft operations within the flying window. Table 1 contains this information in tabular form.

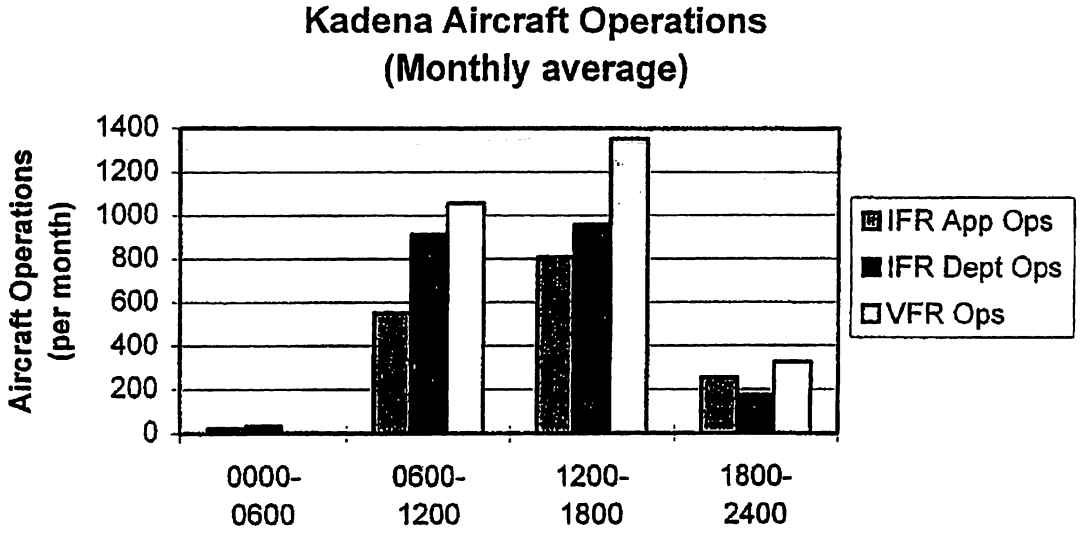


Figure 1

Kadena AB Aircraft Operations

	0000-0600	0600-1200	1200-1800	1800-2400
IFR Approach Operations	24	553	810	255
IFR Departure Operations	35	917	960	176
VFR Operations	3	1,058	1,354	325
Totals	62	2,528	3,124	756
Grand Total	6,470			

Table 1

b. Figure 2 shows 1st MAW minimum operations required to achieve training requirements for rotary wing and Operational Support Aircraft (OSA) aircrews projected to move to Kadena. Table 2 contains this information in tabular form. These numbers represent an average monthly requirement, to be flown from Kadena, taking into consideration the current deployment tempo. As with Kadena operations, this level of operations would provide adequate training opportunity to maintain mission qualification status for 1st MAW aircrews.

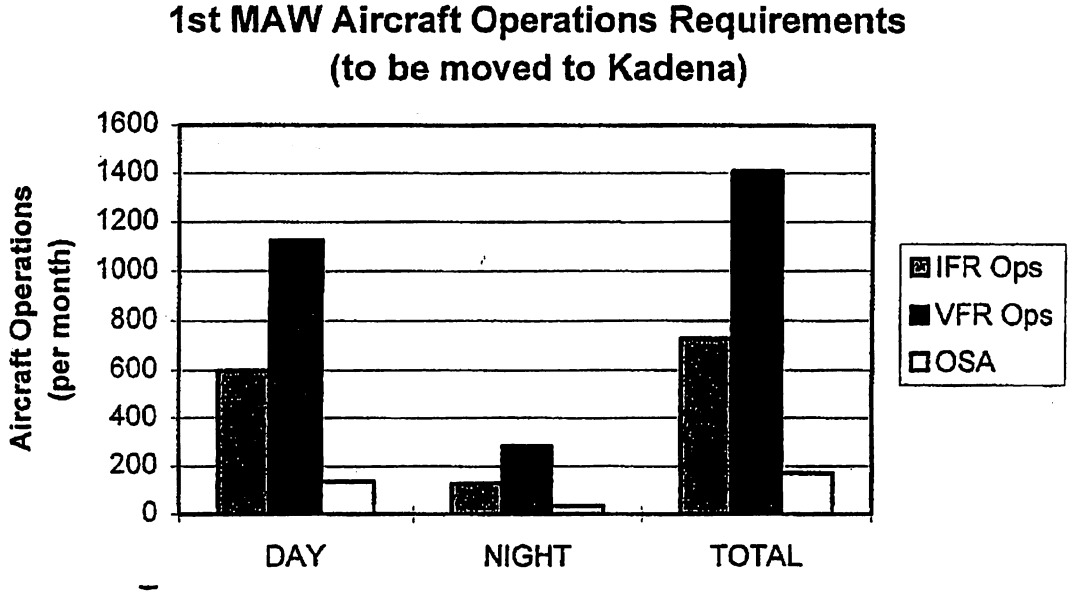


Figure 2

1st MAW Aircraft Operations (Monthly)

	Day	Night	Total
IFR Operations	600	130	730
VFR Operations	1,127	285	1,412
OSA	136	36	172
Totals	1,863	451	
Grand Total		2,314	

Table 2

d. Figure 3 shows the combined monthly aircraft operations that would be required to collocate MCAS Futenma at Kadena AB. Table 3 contains this information in tabular form.

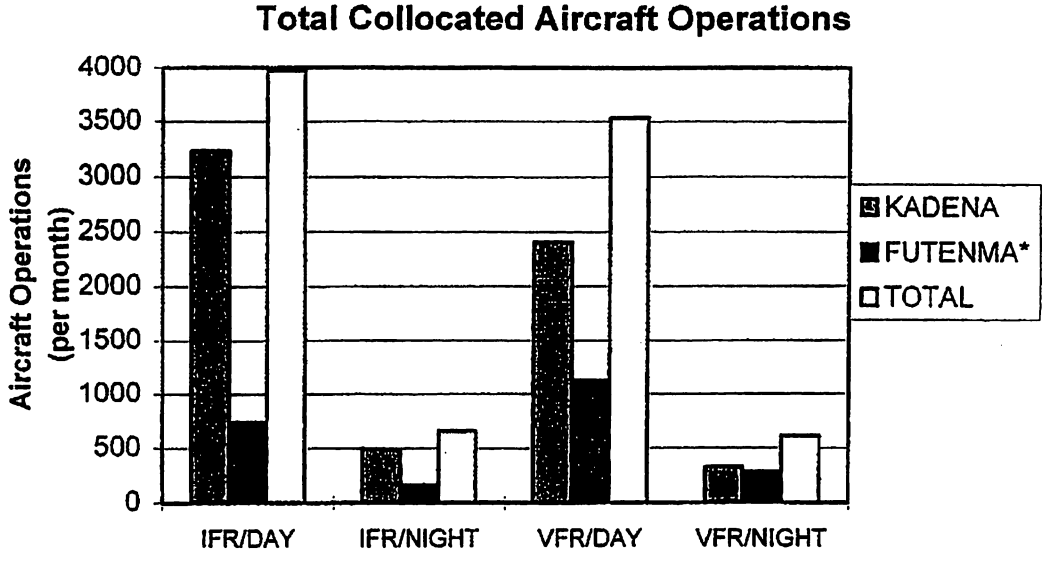


Figure 3

Monthly Total Collocated Aircraft Operations
(categorized by IFR/VFR and Day/Night)

	IFR (day)	IFR (night)	VFR (day)	VFR (night)
Kadena	3,240	491	2,412	328
Futenma	736	166	1,127	285
Totals	3,976	657	3,539	613
Grand Total	8,784			

Table 3

e. Figure 4 shows the same information as Figure 3 summarized into day and night operations. Table 4 contains this information in tabular form.

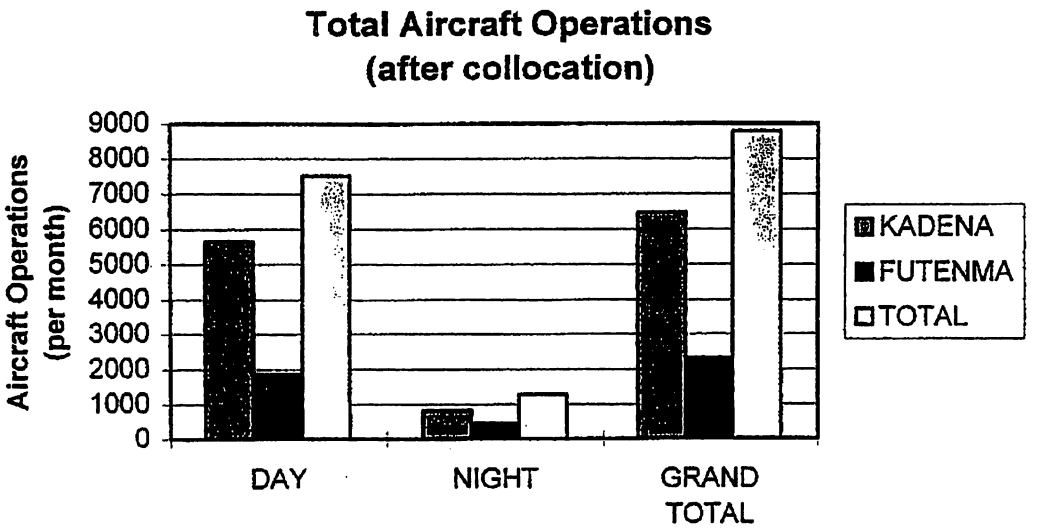


Figure 4

Total Collocated Aircraft Operations
(categorized by Day/Night)

	Day	Night	Total
Kadena	5,652	818	6,470
Futenma	1,863	451	2,314
Totals	7,515	1,269	8,784
Grand Total		8,784	

Table 4

f. Table 5 shows the percentage increases by categories as indicated. (Note, these figures equate day to 0600-1800 hours, and night to 1800-0600 hours.)

Percentage Increase Due to Collocation

	Kadena Today	Futenma Addition	Percentage (%) Increase
IFR Operations	3,371	730	19.6
VFR Operations	2,740	1412	51.5
Day Operations	5,652	1,863	33.0
Night Operations	818	451	55.1
Totals	6,470	2,314	35.8

Table 5

g. Figures 5 and 6 show Naha and Kadena comparison data. Table 6 and 7 shows the same information in tabular format. (Naha data for 1995 is approximated.) Aircraft operations increased an average of 3.7% per year at Naha from 1990 to 1995. Kadena averaged a 9.5% decrease annually in aircraft operations from 1990 to 1995.

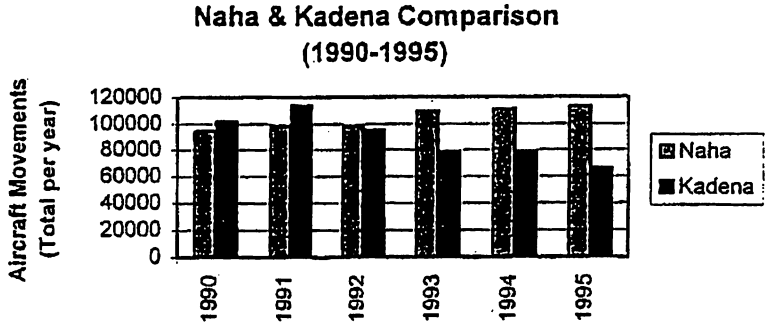


Figure 5

Naha & Kadena Comparison
(1990-1995)

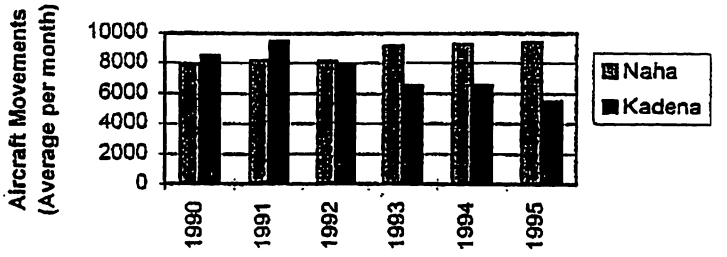


Figure 6

Naha & Kadena Comparison
(Total for year & monthly average)

	1990	1991	1992	1993	1994	1995
Totals						
Naha	95,044	98,316	97,916	109,853	111,354	113,000
Kadena	102,168	114,033	95,484	78,060	78,732	66,252
Monthly averages						
Naha	7,920	8,193	8,160	9,154	9,280	9,417
Kadena	8,514	9,503	7,957	6,505	6,561	5,521

Table 6

Naha & Kadena Comparison
(Percentage change from previous year)

	1990	1991	1992	1993	1994	1995	Average
Naha (% change from previous year)	n/a	3.4	-0.4	12.2	1.4	1.5	3.7
Kadena (% change from previous year)	n/a	11.6	-16.3	-18.2	0.9	-15.9	-9.5

Table 7

SAFETY

1. FUTENMA CAPABILITIES. MCAS Futenma is the site of the current airfield operations and facilities of the 1st MAW. MCAS Futenma also provides a unique strategic capability within the theater to support strategic transport heavy airlift aircraft including the C-17, C-5, and C-141 (Figure 7). The flexibility for heavy airlift aircraft to use and have access to a US military operated facility like MCAS Futenma offers an enhanced level of operational capability within the theater.

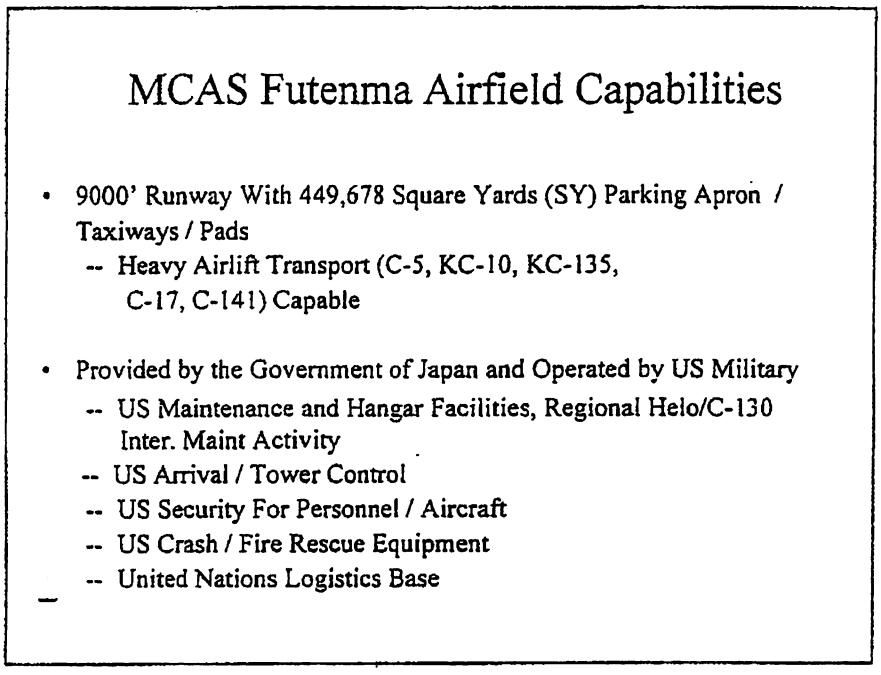


Figure 7

2. SAFETY ASSESSMENT. Using an assessment matrix (Figure 8), this study assessed the safety impact associated with collocating MCAS Futenma operations with current Kadena AB flying operations. Four separate operational areas are assessed:.

- Integration of fixed wing and helicopter flying operations at Kadena
- Integration with Naha Int'l civilian airline approaches and departures
- Ramp loading
- Heavy aircraft operations

Available Military Divert Airfields. With the closure of MCAS Futenma and the loss of its 9000' runway, the nearest US military emergency divert base is MCAS Iwakuni approximately 400 miles away. Naha Int'l has a 9800' runway, and with the addition of minimum support facilities and emergency equipment is capable of accommodating US aircraft emergency diverts. In the past 12 months commercial aircraft have diverted to Kadena AB 12 times. During contingency operations with the extremely high volume of operations at Kadena, the lack of Futenma's 9,000' runway could lead to both Kadena's and Naha's airfields being overloaded resulting in increased risk to both military and commercial aircraft during the divert situations. With Futenma closure, it will be essential to establish firm Government of Japan commitment to full US forces access to Naha INT'L. for peacetime divert situations, peacetime training for contingency operations, and actual contingency operations.

The matrix below will be used to provide an individual and overall subjective assessment of decreased, similar, or increased safety risk.

Kadena AB Colocated Flying Operations (Peacetime and Contingency)

	Risk		
	Decreased	Similar	Increased
Integration of Fixed Wing and Helicopter Local Flying Operations			
Integration with Naha International Civilian Airliner Approaches and Departures			
Ramp Loading			
Heavy Aircraft Operations			

Figure 8

a. Integration of fixed wing and helicopter local flying operations. The difference in arrival and departure airspeeds for fixed wing jet aircraft and helicopters and the increase in numbers of projected IFR arrivals pose the primary coordination and flying operational challenge for sequencing Futenma and Kadena operations to runway 5 (Figure 9). Fixed wing aircraft arrive and depart Kadena Air Base at speeds as high as

three times greater than helicopters. Combining Futenma's projected 730 IFR operations per month with approximately 3,500 monthly fixed wing IFR departures and arrivals flown at Kadena, will create a more challenging operating environment for aircrews and air traffic controllers. The combined instrument and visual flying operations of both MCAS Futenma and Kadena AB would average 8,600 departures and arrivals per month (Exhibit 2). This compares with an April 1996 monthly instrument and visual departures and arrivals counts at Nellis AFB, Nevada of 7,000 (Exhibit 3); up to 9,500 total operations at MCAS Yuma in Arizona including 1,000 civilian aircraft departures and arrivals (Exhibit 4); and 5,984 at Pope AFB, North Carolina (Exhibit 5). Although this type of operation is feasible, increased coordination requirements and traffic density could be problematic. It will be essential to incorporate a number of risk management procedures to sustain current levels of safety. Moreover, to support current helicopter and fixed wing training requirements, the integration and deconfliction of fixed wing and helicopter operations may require longer airport operating hours than the current noise abatement 0600-2200 flying window. The 0600 - 2200 flying window is based on recently established noise abatement agreements for Kadena AB and MCAS Futenma coordinated with the Government of Japan (Exhibit 6).

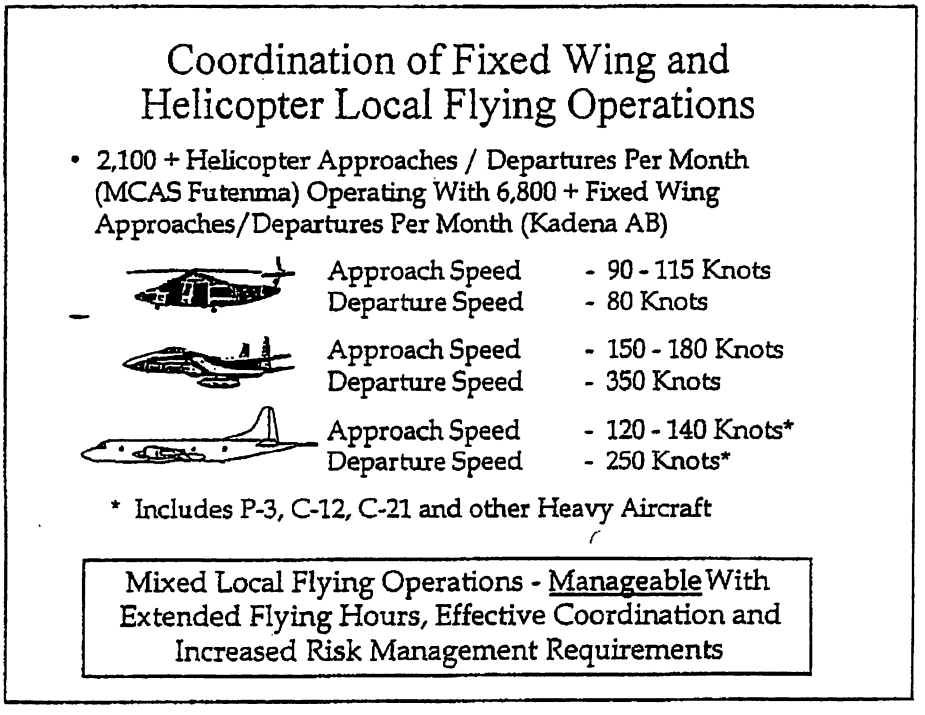


Figure 9

b. Kadena AB and Naha Int'l Arrivals and Departures. Figure 10 depicts the current Naha Int'l arrival and departure corridors and the primary airspace area of concern for ensuring safe air traffic separation between Naha civilian airliners and Kadena military aircraft. Kadena AB military controllers provide radar air traffic control for both airports. Approximately 90 commercial aircraft depart Naha daily, or one aircraft every 7-10 minutes in a 12 hour period, 7 days/week. Kadena arrivals and departures occur every 6-8 minutes, 5 days/week, in the same twelve hour period. Consequently, current peacetime mid-air collision potential between military and civilian aircraft requires close coordination by air traffic controllers. Civilian airliners are held at a hard altitude of 1000 feet for 15 miles and inbound traffic to Kadena AB is held at or above 2000 feet until 3 mile separation exists between aircraft. Based on the prevailing winds, Kadena AB uses runway 05 and Naha uses runway 36, (65% of the time). If collocated an additional 250 flights per month will cross the Naha departure course.

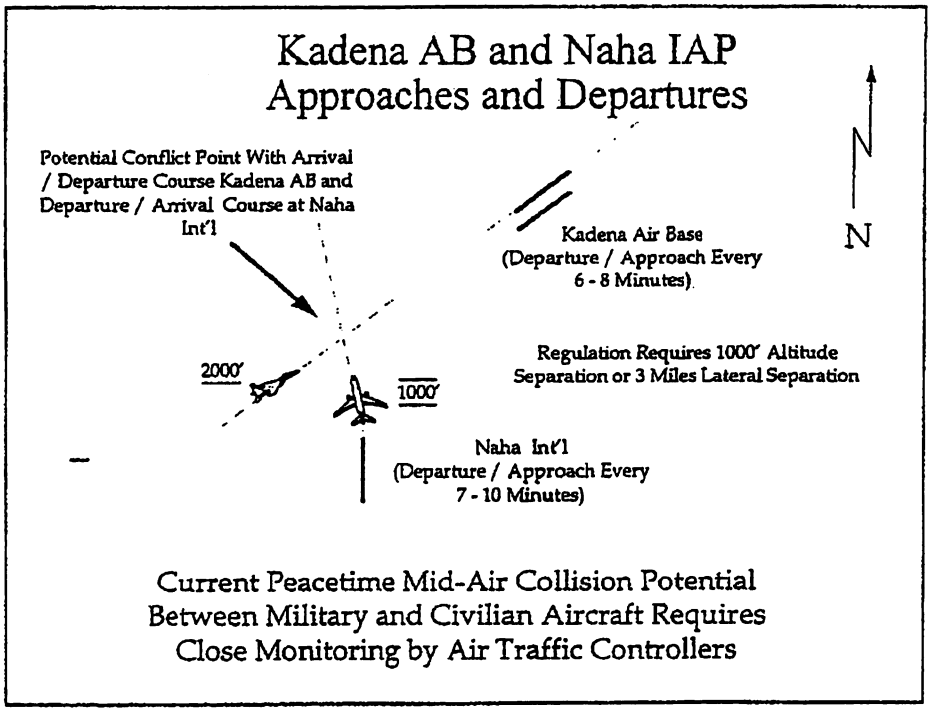


Figure 10

1) MCAS Futenma Instrument Arrivals/Departures. Figure 11 shows the current Futenma instrument arrival and departure corridors as well as the local practice instrument arrival pattern used to maintain proficiency. An instrument arrival at MCAS Futenma happens about every 15-20 minutes in a twelve hour period, 5-7 days/week, including the local practice pattern.

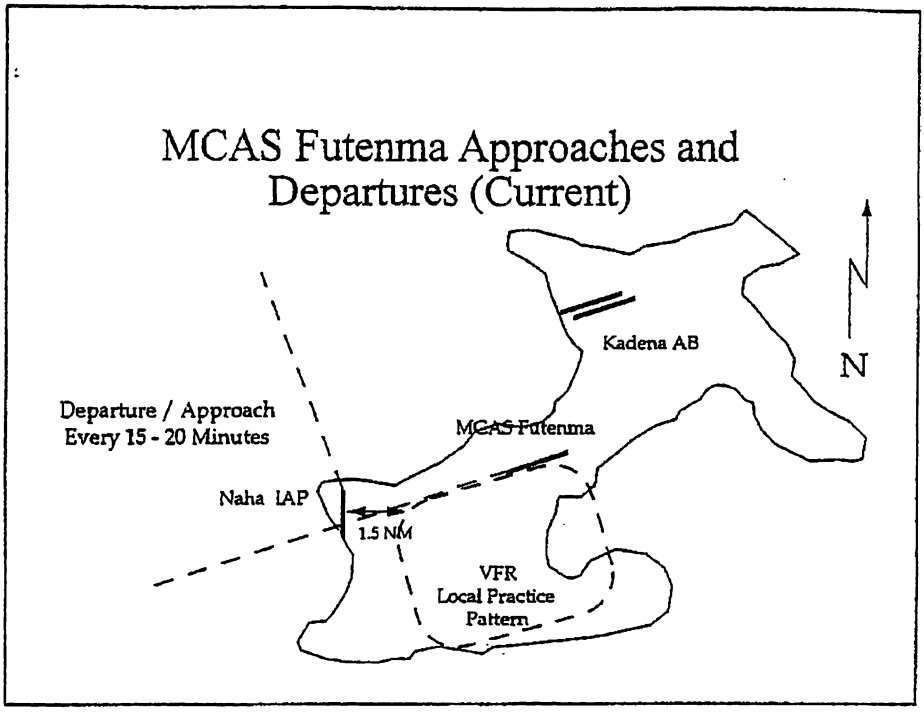


Figure 11

2) Collocated MCAS Futenma and Kadena AB Instrument Flying Operations. During peacetime, collocating current Futenma and Kadena arrival/departure flying operations will require the addition of the approximate 450 practice instrument approaches flown monthly at Futenma, 250 of which will be flown to runway 5L/R, to be sequenced into the existing instrument arrival pattern at Kadena (Figure 12). Local air traffic controllers will be required to monitor and control a fixed wing or helicopter arrival/departure with as few as 3-5 minutes of separation and keep those operations clear of civilian air traffic. Moreover, Kadena AB tower-controlled visual flight rule (VFR) operations will increase by up to 100 take-offs and landings per day, or an extra take-off and landing every 10 minutes, or 6 per hour.

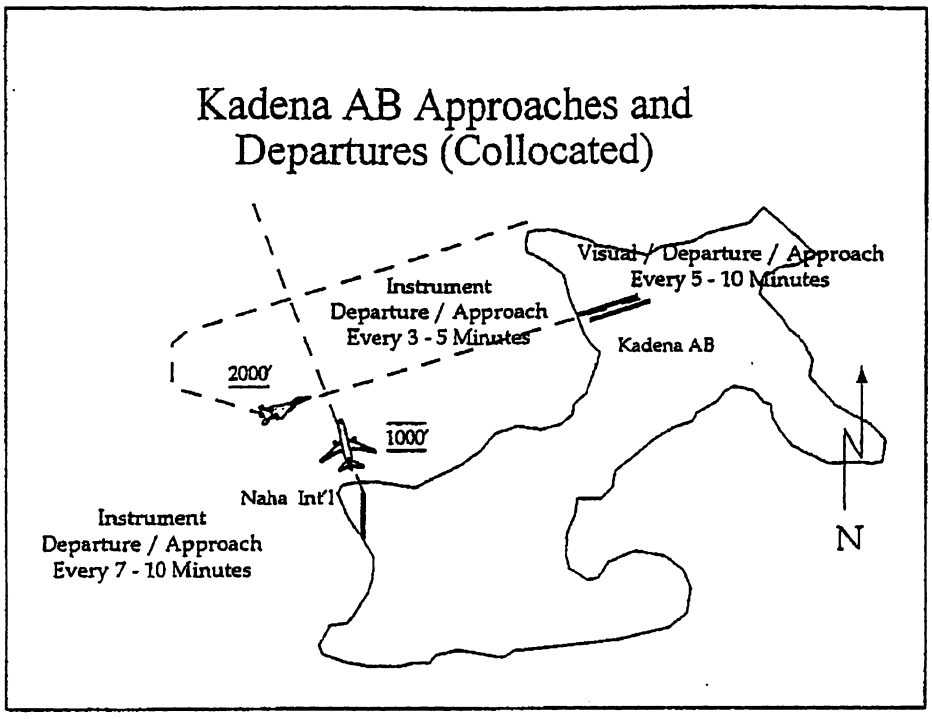


Figure 12

3) Collocating MCAS and Kadena AB flying operations will increase peacetime integration with Naha Int'l civilian air traffic. Most Marine helicopters flight activity is conducted outside the airport traffic area. Local helicopter operations are also reduced several times throughout the year due to off-island deployments. In addition, the 31st MEU deploys with 23 helos three months of the year away from homefield. During a contingency, local helicopter operations will be reduced even more. Although there will be some increase in heavy airlift transport during contingency operations to support possible follow-on deployment of helicopters, this increase is considered manageable from an air traffic control coordination standpoint.

4. A safety consideration associated with collocated flying operations at Kadena is the increased military-military and civilian-military mid-air collision potential associated with long term collocated peacetime operations. The potential for increased commercial air traffic operations from Naha International should be considered. For comparison purposes, figures 5 and 6 show aircraft operations (total and monthly average, respectively) at Naha Int'l from 1990 to 1995. Note the steady increase in air traffic; a 18.9% increase over the five year period or 3.7% per year. Naha is expected to continue expanding its air traffic in the coming years.

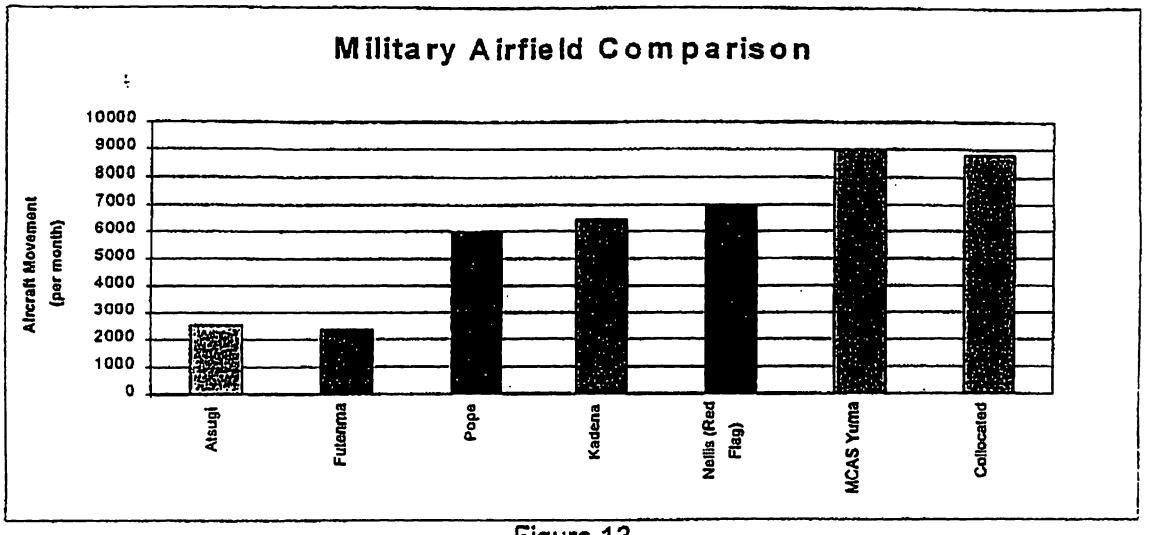


Figure 13

Figure 13 is a comparison of military airfields throughout the world. The graph depicts total monthly departure and approach numbers at the various military installations around the world. Note that if Kadena AB and MCAS Futenma flying operations are collocated the total is approximately 9,000 approaches and departures monthly. If Futenma and Kadena are collocated, flying operations activity will be similar to that of Kadena in 1989.

c. MCAS Futenma Peacetime and Contingency Ramp Congestion.

1) Under peacetime current conditions, approximately 50% of MCAS Futenma ramp space (449,678 square yards) is used for helicopter and fixed wing support.

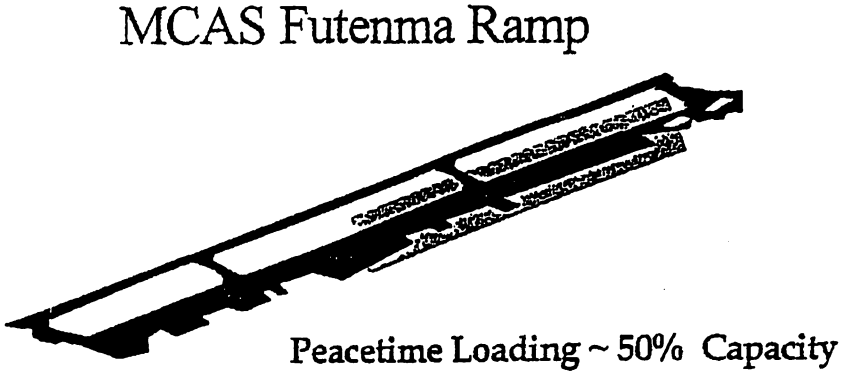


Figure 14

2) However, in a regional contingency, up to 100% of the existing ramp space may be used to support heavy airlift deployment and follow-on assembly of helicopters moving into the region from the United States (Figures 14/15).

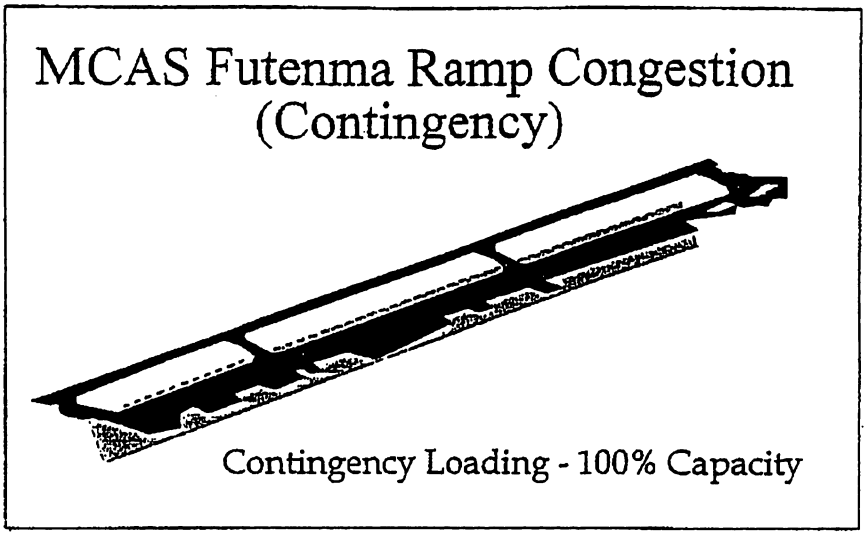


Figure 15

1) Approximately 66% of the Kadena ramp is used during peacetime to support F-15, E-3A, KC-135, C-130, P-3 training, and higher headquarters tasked operations (Figure 16).

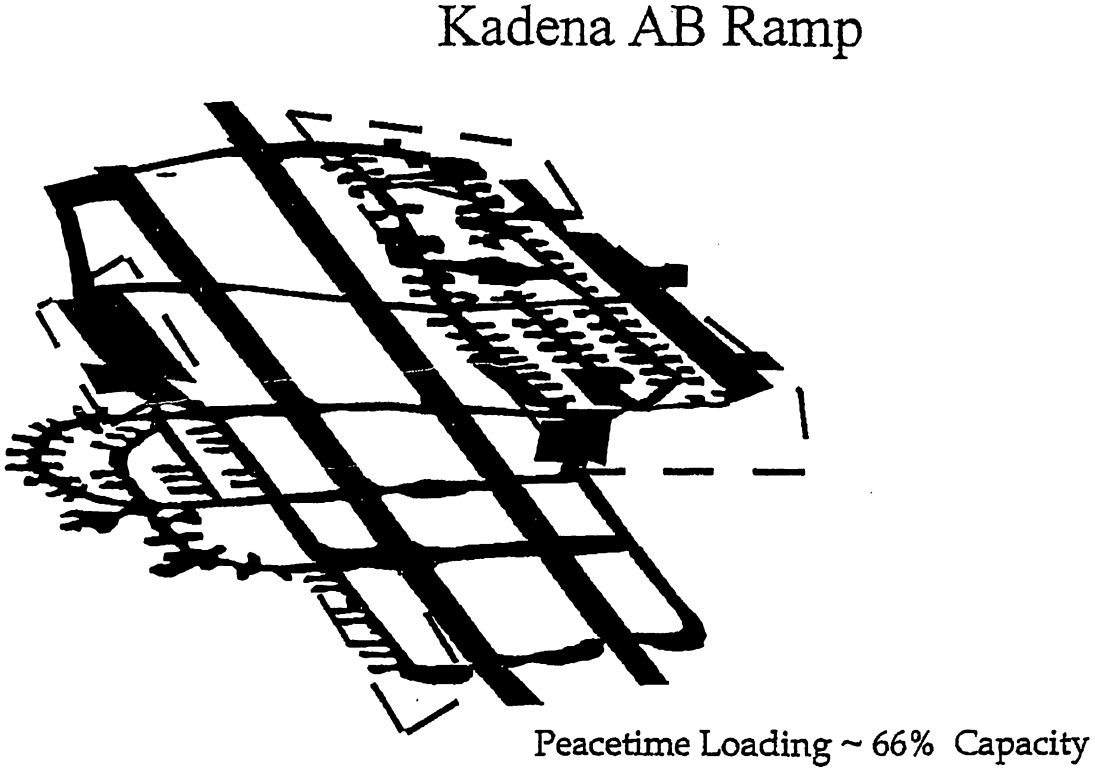


Figure 16

2) During a regional contingency, over 95% of the ramp space and parking locations will be used primarily for heavy aircraft (C-5, C-141, C-17, and KC-135 operations) (Figure 17). As in the case at MCAS Futenma, contingency operations ramp usage at Kadena AB will result in increased risk due to crowded ramp conditions.

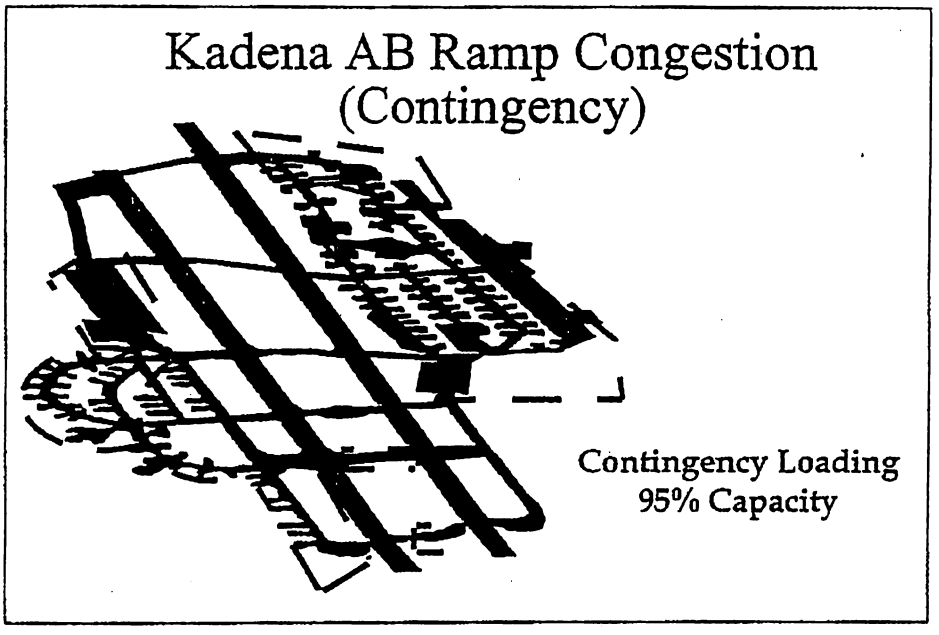


Figure 17

3) Because of already fully-loaded ramps at both Futenma and Kadena during contingency operations, collocation is not feasible with existing ramp space. Construction of additional ramp space at Kadena AB is possible but the relative level of congestion compared to current separated airfield operations will result in increased risk. Adding additional aircraft to currently planned contingency ramp loading at Kadena will also result in increased risk (Figure 18).

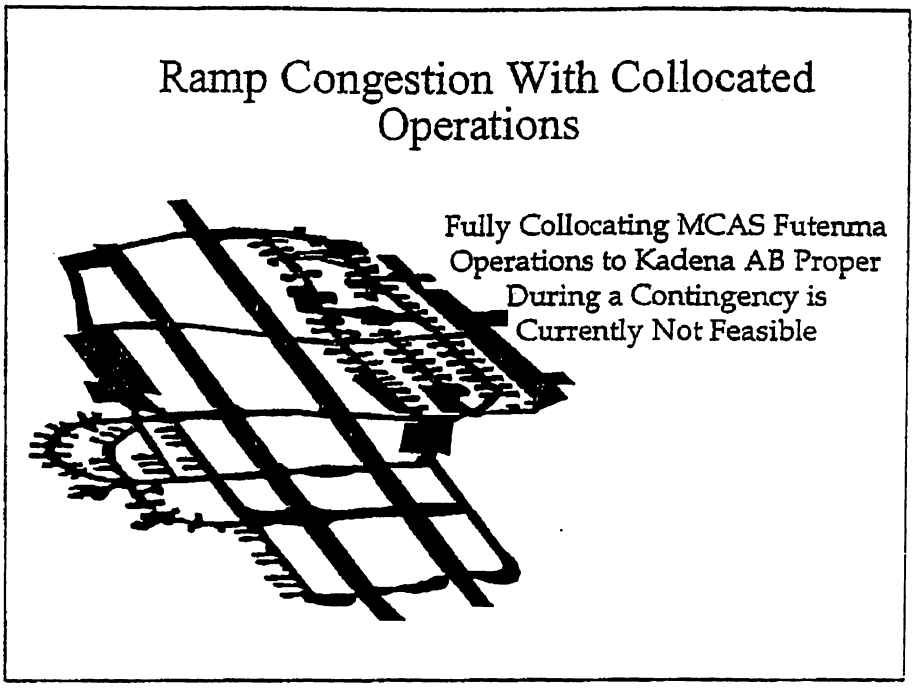


Figure 18

d. Heavy Aircraft Operations. During contingency operations, up to 6000 takeoffs and landings per month, or a take-off and landing every 2-3 minutes could occur at Kadena. Additionally, over 95% of available parking space at Kadena AB will be required to support heavy aircraft contingency operations. As shown in Figure 17, available space for accommodating additional contingency heavy aircraft or helicopter deployments from the US will be very limited. Consequently, any additional aviation operations into Kadena during a contingency are either not feasible, or will require additional heavy ramp space construction, or an additional airfield.

3. SAFETY ASSESSMENT SUMMARY (PEACETIME). Figure 19 is a subjective summary of summarizes the conclusions analysis of the four safety assessment areas addressed in the study. Because of the proximity of Naha Int'l., the addition of approximately 225 instrument arrivals and departures each month, will increase IFR integration with civilian and military aircraft. This operating environment may increase risk. Redesign of instrument arrival geometry and air controller procedures may reduce the residual risk. This risk is assessed as acceptable and manageable.

Kadena AB Collocated Flying Operations (Peacetime)

	Safety Risk		
	Decreased	Similar	Increased
Integration of Fixed Wing and Helicopter Local Flying Operations			✓
Integration with Naha International Civilian Airliner Approaches and Departures			✓
Ramp Loading			✓
Heavy Aircraft Operations			✓

Figure 19

4. SAFETY ASSESSMENT RESULTS (CONTINGENCY). Figure 20 is a subjective assessment of risk factors for contingency operations. The addition of any portion of currently planned heavy transport and helicopter unloading/loading/assembly, or flight check operations will result in increased risk. Without newly constructed ramp space at Kadena, any additional ramp congestion will result in increased risk because of the already high intensity of air operations associated with contingency operations. Additionally, the lack of MCAS Futenma operated available emergency divert field, can lead to increased risk associated with the high air traffic volume during contingency operations.

Kadena AB Collocated Flying Operations (Contingency)

	Safety Risk		
	Decreased	Similar	Increased
Integration of Fixed Wing and Helicopter Local Flying Operations			✓
Integration with Naha International Civilian Airliner Approaches and Departures			✓
*Ramp Loading			✓
Heavy Aircraft Operations			✓

* P-3/New ramp construction ongoing at Kadena

Figure 20

OPERATIONS

This section will be limited to a discussion of operational factors. For purposes of this report, operational factors will be defined as the capability and capacity to generate and conduct flying activities (launch and recover aircraft). The feasibility assessment for operations is discussed in terms of Kadena's ability to support the combined flying operations of Kadena AB and MCAS Futenma without reducing the total combined capacity (less fixed wing operations at Futenma). Training airspace outside the immediate Kadena area was not considered since the use and availability of this airspace would not change based on the relocation of Futenma operations.

1. AIRCRAFT AND MISSIONS. Before discussing operational impact, it is important to review the aircraft and missions being affected by the collocation of MCAS Futenma operations at Kadena AB. Table 8 shows aircraft types, number of aircraft, mission, and basic capabilities of aircraft at Kadena AB and MCAS Futenma.

Aircraft	#	Mission	Capabilities
Kadena AB			
F-15	54	Air-to-Air	Long-range interception/destruction of airborne threats
KC-135	15	Aerial Refueling	Strategic flight refueling tanker and cargo/passenger transport
E-3	2	Airborne Warning and Control	High capacity radar station and command, control and communication center
RC-135	1	Reconnaissance	Long-range strategic reconnaissance
MC-130	11	Special Operations	Day/night infiltration and exfiltration, resupply of Special Forces, and aerial reconnaissance
HH-60	9	Transport	Infantry squad transport helicopter
P-3	4-11	Anti-submarine warfare (ASW)	Land- based maritime patrol and ASW aircraft
C-12	2	Transport	Passenger/light cargo
MCAS Futenma			
AH-1W	12	Attack Helicopter	Close Air Support (CAS)
UH-1 N	6	Utility	Command and Control/VIP/Rotary Wing CAS
CH-53E	12	Transport	Cargo/Passenger Transport
CH-53D	8	Transport	Cargo/Passenger Transport
CH-46E	24	Transport	Infantry Squad Transport
T-39	1	Transport	Passenger or cargo light transport
C-12	2	Transport	Passenger/light cargo

Table 8

1. ASSUMPTIONS.

a. This assessment is based on continued USAF (Okinawa Approach Control) control of the Kadena Terminal Control Area (TCA). Should control of the TCA be turned over to the Naha Area Control Center, the findings of this study would be invalid.

b. The current training operations tempo at Kadena fulfills requirements for 18 WG aircrews.

c. Only MCAS Futenma rotary wing operations will be relocated to Kadena. On-Station Aircraft (OSA), T-39 and C-12s, are addressed but have minimal impact on the assessment.

d. Although safety considerations are an essential part of successful operations, safety issues are addressed in more detail in the safety section of this study.

3. KADENA'S CAPABILITY TO CONTROL ADDITIONAL AIRCRAFT OPERATIONS.

a. Kadena currently controls an average of 6,470 aircraft operations per month, based on a flying window of 0600 - 2200 hours, Monday through Friday (although some Saturday/Sunday flying does occur, it is minimal and not considered significant for purposes of this study). This level of aircraft operations provides adequate training for Kadena based aircrews.

b. Based on the data presented in figures 5 and 6, and tables 6 and 7, it is apparent that Kadena has the capacity for additional aircraft operations. In fact, Kadena's current operations tempo is 2,030 aircraft movements (9,500 - 6,470) which is below the peak year of 1991.

c. Figure 2 and table 2 show 1st MAW aircraft operations required to achieve training requirements for the rotary wing aircrews that would move to Kadena. 1st MAW would add 2,342 aircraft movements to Kadena. These numbers represent an average monthly requirement and take into consideration the current deployment tempo.

d. Figure 4 shows the combined monthly aircraft operations that will result from the collocation of MCAS Futenma rotary wing flight operations to Kadena AB. Table 5 shows the percentage increases in each category of operations. (Note, these figures equate day to 0600-1800 hours, and night to 1800-0600 hours.)

e. Given the 1991 level of aircraft operations, it would appear that collocating 1st MAW operations at Kadena would be feasible. However, four bear in the assessment. These four areas are: 1) ramp space for 1st MAW operations including consideration for noise abatement and an additional heliport, 2) flying hour window (extended airfield operating

hours), 3) Air Traffic Control (ATC) architecture (sequencing and congestion) to deal with airspace congestion caused as a result of the collocation and, 4) ramp loading during contingencies (note, items 1-3 apply to peacetime, and items 3-4 apply to contingency operations). Without adequate ramp construction for helicopter operations and helicopter support facilities, a major impact on operational capability exists.

f. Without more sophisticated analysis, such as thorough computer simulation, it is not possible to quantify the effect these additional aircraft operations would have on the Kadena ATC capacity and whether or not the workload would be within manageable capabilities. However, the study group (including Kadena and Futenma ATC experts) agreed that this level of operation was feasible at Kadena with the following impacts or caveats:

1) Combining fixed wing and rotary wing operations within the radar pattern will necessitate increased aircraft-to-aircraft spacing requirements due to differences in fixed wing and rotary wing pattern and arrival speeds. During peak flying operations, training opportunities may be lost due to pattern congestion. However, the study group felt that adverse impacts on training opportunities could be minimized through effective coordination and scheduling. Additionally, most helicopter operations will be conducted away from the airfield.

2) Flying hour windows may require expansion, both before 0600 hours and after 2200 hours, to meet training requirements.

3) No additional runways would be required; however, the construction of an additional helipad would be required to facilitate simultaneous IFR approaches and VFR approaches for helicopters.

4) Developing a helicopter unique instrument arrival for Kadena would improve training opportunities for 1st MAW aircrews and might reduce congestion.

5) Installation of an instrument arrival capability at Ie Shima would reduce congestion problems at Kadena and provide additional training opportunities for III Marine Expeditionary Force (MEF) ATC personnel.

6) Increased IFR arrivals/departures at Kadena may cause additional delays for commercial aircraft operating out of Naha International. Naha aircraft must remain at or below 1,000 feet until 15 miles or clear of Kadena aircraft in the radar pattern. This situation will occur more frequently with an increased use of the Kadena radar pattern.

7) US Marine Corps (USMC) personnel are already trained to work in USAF ATC facilities at Kadena. Adding additional USMC ATC personnel will not pose a problem. Specific manning requirements will need to be established and must consider deployment commitments for both 1st MAW and 18th WG ATC personnel. Proficiency requirements for USAF and USMC ATC personnel would have to be carefully monitored.

8) The additional 225 Marine IFR approaches from the vicinity of Naha equates to 10-11 additional approaches a day. The impact is assessed as minimal.

4. NIGHT OPERATIONS. Currently, aviation units at Kadena fly night operations about six weeks out of every quarter and 1st MAW flies about 34% of its operations at night. In addition, the recent addition of night vision goggle capability for F-15 pilots will expand their requirement for night flying. With the flying hour window limitation currently imposed by the US-GOJ noise abatement agreement, completing all night training requirements may not be possible. Again, expanding the flying window may be required; well coordinated scheduling will be mandatory.

5. RAMP OPERATIONS.

a. Peacetime. Peacetime ramp operations are assessed as feasible if additional ramp space is provided. There are two possible location sites for 1st MAW operations. One possibility is to locate 1st MAW in the current Navy P-3 location. The other possibility is to add a ramp/apron where the Kadena golf course is currently located.

1) Navy P-3 Ramp site. This location requires the least amount of new construction and, if collocated with a helipad, minimizes the impact to fixed wing operations. However, this location will perpetuate noise concerns that are currently being alleviated by the planned move of P-3s to the opposite side of the Kadena ramp.

2) Kadena Golf Course site. This location requires significant new construction and relocation of the golf course. Noise affecting Japanese populace is not a factor. Rotary wing operations departing to the north will likely experience delays due to the requirement to cross two active runways.

b. Contingency. Ramp space for contingency operations is inadequate without additional construction. Kadena is already operating at 95% capacity. The addition of cargo aircraft delivering rotary wing assets could not be accommodated at Kadena during a contingency. The use of another airfield, such as Naha, is required.

6. KADENA AB COLLOCATED FLYING OPERATIONS "WORK AROUNDS" (PEACETIME). As stated previously, MCAS Futenma to Kadena AB collocated flying operations creates increased risk due to additional flight activity. Using this increased level of risk as a baseline, four different "work arounds" are addressed to achieve the current level of peacetime flying and training requirements. A subjective assessment of all four "work arounds" resulted in similar risk as compared to current operations (Figure 21). Additionally, all four "work arounds" will cause some decreased level of training effectiveness.

Kadena AB Collocated Flying Operations (Peacetime)

"WORKAROUNDS"	Risk	
	Decreased	Similar
Use separate time blocks for helicopter and fixed wing operations		✓
Extend duration of daily flying operations		✓
Use Ie Shima island for helicopter instrument approach practice		✓
Conduct simultaneous helicopter instrument training on runway 05R/23L		✓

Figure 21

7. KADENA AB COLLOCATED FLYING OPERATION "WORK AROUNDS" (CONTINGENCY). Again, using the baseline increased level of risk that results from collocated flying operations, five additional "work arounds" are also addressed for contingency operations. A subjective assessment of all five "work arounds" resulted in similar risk (Figure 22). Reducing ramp loading by either deploying fewer forces in the event of a contingency or slowing down the flow of heavy transport aircraft from the United States will make ramp operations at Kadena AB less congested in a contingency. However, both these options retard a rapid response to a contingency situation and reduce combat capability.

Kadena AB Collocated Flying Operations (Contingency)

"WORKAROUNDS"	Risk	
	Decreased	Similar
Reduce ramp loading		✓
Slow down contingency deployment timelines		✓
Use Naha International		✓
Build additional ramp space at Kadena AB		✓
Close one Kadena AB runway for parking, loading, unloading (runways 1350' apart)		✓

Figure 22

a. Building additional ramp space at Kadena is also an option to reduce ramp congestion. The additional heavy airlift support and ramp space required for unloading, assembling and flight checking helicopters deploying from the United States may complicate ongoing operations at Kadena, and may result in a less safe operation than is currently planned for separate MCAS Futenma and Kadena AB operations.

b. Closing one runway at Kadena and using that runway for additional parking space was also considered, however, the lateral distance between the runways combined with the nonavailability of one runway during high-volume air traffic contingency operations, would exacerbate the dangerous situation already created by closure of Futenma as a contingency operations emergency divert field.

8. OPERATIONS SUMMARY. Collocated operations at Kadena AB proper are considered feasible with a number of major modifications to current operations. Addition of cargo aircraft delivering rotary wing assets could not be accommodated at Kadena during a contingency. The use of another airfield, such as Naha International, is required.

FACILITIES

1. ASSUMPTIONS.

a. MCAS Futenma fixed wing operations and its associated facility requirements are totally relocated to another facility (e.g., Iwakuni Air Station).

b. Location of the rotary wing operations at Kadena requires replication of "rotary wing" facilities. Further study of adequacy of common use facilities such as the MWR, Clubs, and Base Support (e.g., Commissary, BX, Child Development Centers, Fire Fighting, Search and Rescue, etc.) needs to be accomplished.

c. Kadena AB will require facility construction to replicate rotary wing functions.

d. The ability to receive wide body strategic lift, off load rotary wing assets, build aircraft, fuel and fly to the rotary wing apron space will be satisfied by the existing ramp and hanger space currently located on the north side of the runways and supporting P-3 operations. The P-3 function is proposed under SACO to be moved to the south side of the base.

e. The total helicopter relocation requirement is for 62 aircraft. However, for the purposes of planning, the assumption is made that only 75 percent of the aircraft (48 helicopters) will be present at any one time. The remainder will be deployed or undergoing exercises, thereby negating the need for beddown on Kadena.

2. FACILITY CONSIDERATIONS. The facility space identified below is based upon standard DoD planning criteria. The "EXISTING" column reflects space currently on Futenma.

a. Aprons/Taxiways/Pads. [Requirement = 338,320 square yards (SY)/69.5 acres] (Table 9). These facilities are rotary wing aircraft specific. To provide simultaneous fixed-wing and rotary-wing operations, these areas must be at least 1000' from the centerline of the main runway. Kadena has two parallel runways. Depending on operational safety constraints, no additional runway construction is required.

DESCRIPTION	QM	REQUIRED	EXISTING	ACRES
Heli Pad	SY	4,400	2,144	
Taxiway	SY	56,000	115,417	
A/C Parking Apron	SY	248,000	282,710	
A/C ACC Apron	SY	12,800	30,132	
A/C Wash Rack Pavement	SY	1,600	4,045	
A/C Rinse Facility	SY	2,620	2,431	
Compass Cal Pad	SY	1,600	0	
Tactical Supt Van Pad	SY	11,300	12,799	
Total Pavements	**SY**	**338,320**	**449,678**	**69.90**

Table 9

b. Fuel System.

1) Aviation Fuel System. [Requirement = 2,000,000 Gallons. 868,000 Gallons of bulk storage and the associated fuel distribution system would be quid pro quo from the Futenma closure] (Table 10) Existing JP5 fuel storage is located at POL Tank Farm No. 1, east of Camp Lester (Kuwae) and south of Kadena Air Base. To provide JP5 fuel to Kadena will require rerouting of the existing pipeline and pumping station systems that currently supply Futenma Air Station. Refueling infrastructure will include, but not be limited to: hot refueling capability, defueling capability, and associated supply distribution system. The complete system is necessary to move fuel to the rotary wing aprons. Air Force aircraft typically use JP8 while Marine Corps aircraft use JP5. Marine Corps aircraft could use JP8; however, this precludes afloat operations. Additionally, due to fueling differences (fueling system interoperability) between AF aircraft and USMC aircraft, system modifications are required.

2) Other fuels. Futenma's current capability (minus fixed wing requirement) to supply Diesel Fuel Marine (F-76) and Medium Grade Unleaded Gasoline (MUM) will require relocation to Kadena. POL Tank Farm #1 contains all of the MUM on Okinawa, therefore piping modifications to provide more MUM to Kadena will be required.

DESCRIPTION	QM	REQUIRED	EXISTING
A/C Dir Fuel Station	GPM	1,200	1,200
A/C Truck Fuel Facility	GPM	500	500
Filling Station	OL	8	6
Filling Station Building	SF	108	54
A/C Ready Fuel Storage	GA	818,000	798,000
Vehicle Ready Fuel Storage	GA	50,000	50,000
Total Fuel Requirement	**GA**	**868,000**	**848,000**

Table 10

c. Aircraft Operations Facilities. [Requirement = 93,172 square feet (SF)/1.1 acres - assumes 2 story facilities] (Table 11) Additional operations support facilities are also required to be near the aircraft parking aprons. These facilities include a small armory, and directly support operational and training functions for the relocated rotary wing operations.

DESCRIPTION	QM	REQUIRED	EXISTING	ACRES
A/C Operations Building	SF	12,600	9,543	
MATCU Operations Building	SF	9,130	6,096	
Armory	SF	10,350	12,504	
POL Operations Building	SF	1,600	605	
Rdy Haz/Flam Storage	SF	5,200	5,655	
ACD/Gen Instruction Building	SF	18,667	1,800	
Applied Instruction Building	SF	8,825	0	
Operations Trainer Building	SF	26,800	1,692	
Total A/C Operations Facilities	**SF**	**93,172**	**37,895**	**1.07**

Table 11

d. Hangars. [Requirement = 319,390 SF/7.3 acres] Table 12 provides requirements for general aircraft maintenance facilities and corrosion control facilities. These facilities are required to be near aircraft parking aprons.

DESCRIPTION	QM	REQUIRED	EXISTING	ACRES
Corrosion Control Hanger	SF	20,000	28,000	
Maintenance Hangar - OH	SF	156,960	135,790	
Maintenance Hangar - 01-Shop	SF	67,550	57,409	
Maintenance Hangar - 02-Admin	SF	74,880	52,758	
Total Hangar Space	**SF**	**319,390**	**273,957**	**7.33**

Table 12

e. Aviation Support Facilities. [Requirement = 224,057 SF/ 2.6 acres - assumes 2 story facilities] (Table 13) Required to be near the aircraft parking aprons. Includes all aviation maintenance functional shops. Includes a small arms/pyro magazine that must be sited in the 18th Munitions Storage (MUNS) Area).

DESCRIPTION	QM	REQUIRED	EXISTING	ACRES
Airframes Shop	SF	13,800	11,408	
Engine Maintenance Shop	SF	34,500	21,184	
Avionics Shop	SF	6,500	0	
Aviation Armament	SF	8,300	3,439	
Parachute/Surv Eq Shop	SF	4,200	5,074	
Engine Test Cell	SF	14,517	23,517	
Central Tool Shop	SF	1,200	1,200	
Auto Vehicle Shop	SF	24,420	30,159	
Refuel Vehicle Shop	SF	1,800	9,470	
Vehicle Holding Shed	SF	6,720	2,475	
Elec Comm Maintenance Shop	SF	55,690	17,560	
Fld Maintenance Shop, E/C	SF	2,000	2,000	

Elec Supply/Misc Storage	SF	400	400	
Construc/Whe Shop	SF	10,800	2,450	
Instrument Calibration Shop	SF	9,250	5,492	
Battery Shop	SF	1,110	80	
Battery Recharge Shop	SF	176	176	
GSE Shop	SF	13,700	17,489	
GSE Hold Shed	SF	14,600	19,404	
Small Arms/Pyro Magazine	SF	374	374	
Total Aviation Support Facilities	**SF**	**224,057**	**173,351**	**2.57**

Table 13

f. Storage/Warehouse Facilities.

1) Covered Storage. [Requirement = 354,090 SF/8.1 acres] Table 14 includes basic storage facilities as well as one humidity controlled facility. These facilities would have to be sited on Kadena, but not necessarily adjacent to the apron.

DESCRIPTION	QM	REQUIRED	EXISTING	ACRES
Gen Warehouse/Bulk	SF	13,700	22,400	
Organic Unit Storage	SF	314,760	212,928	
Controlled Humidity Warehouse	SF	9,900	5,864	
Haz/Flam Storage Warehouse	SF	15,400	1,470	
General Storage Shed	SF	330	220	
Total Storage/Warehouse Facilities	**SF**	**354,090**	**242,882**	**8.13**

Table 14

2) Open Storage. [Requirement = 41,180 SY/8.5 acres] Table 15 requirements could be located in the 18th munitions storage area.

DESCRIPTION	QM	REQUIRED	EXISTING	ACRES
Open Storage Area	SY	41,180	41,124	
Total Open Storage Area	**SY**	**41,180**	**41,124**	**8.51**

Table 15

g. Headquarters Facilities. [Requirement = 165,820 SF/1.3 acres - assumes 3 story facilities] (Table 16) These facilities are for headquarters elements from Group(s) to Squadron(s) level. Assumes that the current 1st Marine Air Wing headquarters, located on Camp Foster (51,000 SF), is not considered a significant distance from the aircraft function and therefore no relocation would be required.

DESCRIPTION	QM	REQUIRED	EXISTING	ACRES
Regiment/Group Headquarters	SF	46,120	20,483	
Battalion/Squadron Headquarters	SF	60,300	70,041	
Company/Battery Headquarters	SF	8,400	6,675	
Total Headquarters Facilities	**SF**	**114,820**	**97,199**	**1.00**

Table 16

h. Housing.

1) Family Housing. Not Applicable. There is no family housing on Futenma Air Station, so no family housing units will be relocated to Kadena Air Base. All housing on Okinawa is centrally controlled by the Air Force and personnel are assigned housing based upon a geographical system. Marine service members assigned to Kadena Air base will compete for Kadena housing under the current assignment policy.

2) Unaccompanied Enlisted Housing. [Requirement = 1,285,9583 SF/7.4 acres - assumes 4 story facilities] (Table 17) This requirement is based upon existing category sizing criteria. Normal siting of living quarters is based upon noise contours oriented from the centerline of the runway/taxiway/apron areas, coupled with the requirement to site living quarters in proximity to the work area, messing, and MWR facilities. To satisfy these broad requirements, relocation construction or new construction must be addressed.

DESCRIPTION	QM	REQUIRED	EXISTING	ACRES
UEPH - E1-4	SF	812,184	471,809	
UEPH - E5	SF	270,728	270,728	
BEQ - E6-9	SF	203,046	203,046	
Total Unaccompanied Enlisted Facilities	**SF**	**1,285,958**	**945,583**	**7.38**

Table 17

3) Unaccompanied Officer Housing (UOPH). [Requirement = 185,075 SF/1.1 acres - assumes 4 story facilities] (Table 18) Siting considerations noted above.

DESCRIPTION	QM	REQUIRED	EXISTING	ACRES
UOPH - W1-O2	SF	74,030	74,030	
UOPH - O3 and above	SF	111,045	111,045	
Total Unaccompanied Officer Facilities	**SF**	**185,075**	**185,075**	**1.06**

Table 18

i. Medical.

1) Outpatient. Beginning in JFY 96, Kadena Air Base is planned to receive an extensive facility upgrade to the existing outpatient clinic (based upon a design population of 22,302 active duty, DoD civilians, and DoD family members). For active

duty Marine personnel, the 1st MAW has organic medical personnel who will conduct medical prescreening/basic treatment prior to referral to the Naval Hospital. For Marine family members, the capability of this facility to handle the increased outpatient population would need to be examined.

2) Inpatient. The current DoD medical center on Okinawa is the Naval Hospital located on Camp Lester (Kuwae). This facility will be moved elsewhere on the island, possibly either to Camp Foster (Zukeran) or Kadena Air Base. Relocation of the rotary wing function onto Kadena will not adversely affect the current level of inpatient care provided to DoD personnel on Okinawa.

j. Messing. Kadena Air Base currently has three operating dining facilities. The added requirement of the personnel from Futenma will require an additional 32,000 SF dining facility plus a 3,000 SF cold-storage building.

k. Infrastructure. This construction is necessary to either expand or improve existing structures, or construct new facilities associated with the rotary wing function. Additionally, the footprint required for all associated facilities including support and unaccompanied housing, requires additional acreage to allow for roadways, parking and to provide sufficient spacing between facilities.

l. Savings due to consolidation. The major savings in this consolidation will be the lack of maintenance and upkeep of 1,198 acres and associated facilities/infrastructure on Futenma Air Station.

m. Facilities Improvement Program (FIP). If relocation construction under quid pro quo rules does not fully satisfy a service's requirements, FIP funding may be used to satisfy any identified deficit, provided there are no political or technical constraints.

n. Quality of Life. To ensure that Kadena's current level of quality of life (QOL) remains unchanged, close coordination, analysis and command focus is required. The analysis requires that each facet of the QOL program be evaluated and, if necessary, appropriately modified. Additionally, some type of combined plan must be coordinated in order to develop a consistent QOL for all personnel assigned to Kadena. This plan may be incorporated into the Inter-Service Support Agreement (ISSA) or into a separate Memorandum of Understanding/Agreement (MOU/A).

3. CONCLUSIONS.

a. Based upon relocation of existing functions, the movement of current rotary wing functions from MCAS Futenma (along with future acquisition of the V-22) is possible, but the execution of this move due to environmental, political, and noise issues, as well as retaining of existing Air Force facilities on Kadena, may not be feasible. Figure 23 provides a nominal parking apron plan to handle the 48 helicopter beddown requirement.

b. The placement of the rotary-wing function onto Kadena AB will impact the existing 18-hole golf course. Relocation of this facility to another location (e.g., ASP I [Figure 24]) will require further study.

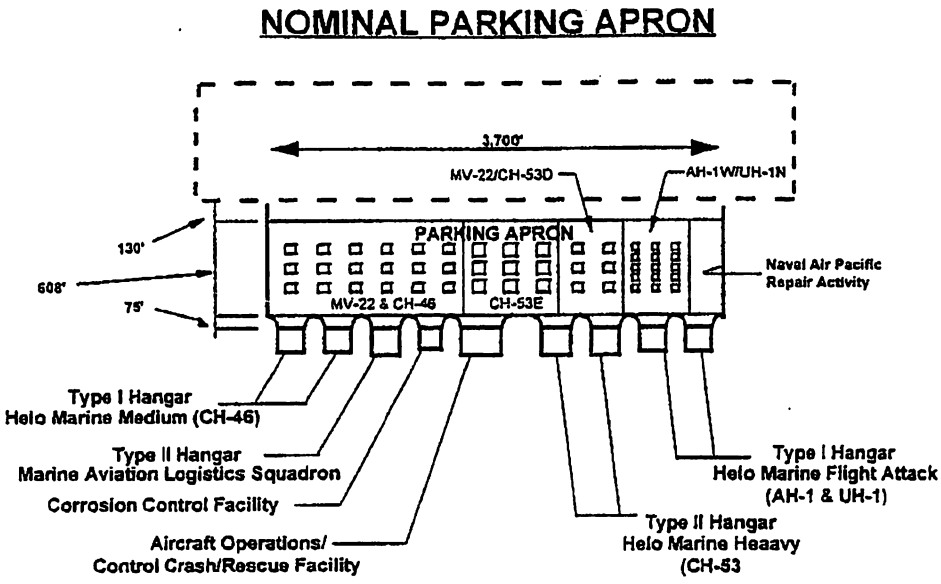


Figure 23

Proposed Rotary Wing Apron Location

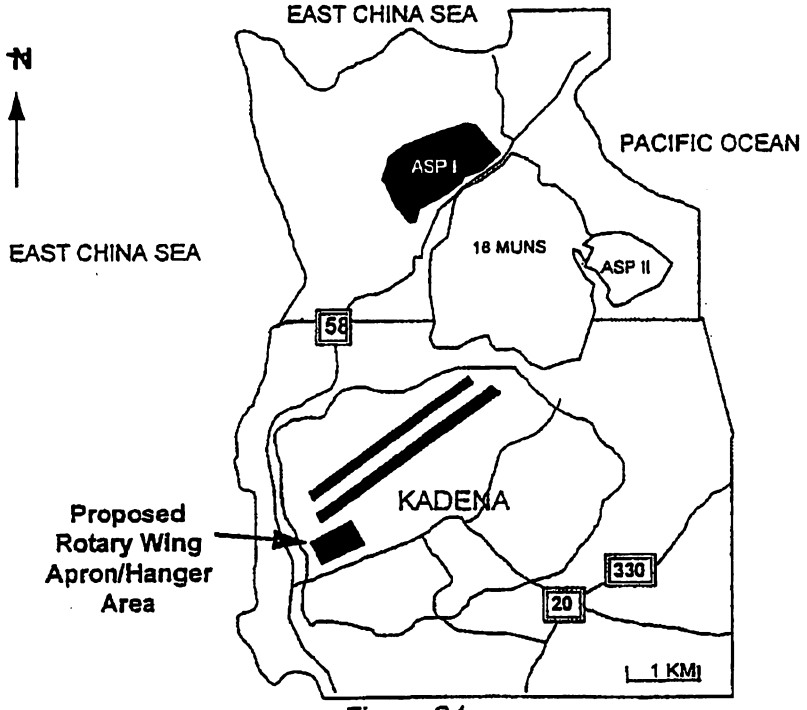


Figure 24

Readiness Assessment

1. SAFETY.

a. In assessing the effect of increased safety risk the following criteria are considered: Loss of MCAS Futenma as a divert airfield, deconfliction of Naha Int'l, Kadena AB aircraft approaches and departures, deconfliction of fixed wing and rotary wing aircraft operations, increased ramp operations at Kadena AB, and heavy lift aircraft operations. (Figure 25)

b. The following matrix summarizes the results of the subjective assessment of the safety criteria:

Safety Assessment

CRITERIA	US Forces Readiness		
	Reduced	No Effect	Enhanced
Available Divert Fields	✓		
Deconfliction of Naha/Kadena Approaches & Departures	✓		
Deconfliction of Fixed/Rotary Wing Operations	✓		
Kadena AB Ramp Operations	✓		
Heavy Lift Aircraft Operations	✓		

Figure 25

2. OPERATIONS.

a. To assess the effect that increased demands on Kadena AB operations functions will have on readiness the following criteria are considered: Air Traffic Control (ATC) operations and capability to achieve training requirements, ramp operations, and night operations. (Figure 26)

b. The following matrix summarizes the results of the subjective assessment of the operations criteria:

Operations Assessment

CRITERIA	US Forces Readiness		
	Reduced	No Effect	Enhanced
ATC Capability to Achieve Training Requiremens		✓	
Ramp Operations	✓		
Night Operations	✓		

Figure 26

3. FACILITIES.

a. In assessing the effect on readiness resulting from the relocation of facilities from Futenma to Kadena, the following criteria were considered: Pavements, fuels, aircraft operations, hangar space, aviation support, warehouses, open storage, unaccompanied enlisted facilities, and unaccompanied officers facilities. (Figure 27)

b. The following matrix summarizes the results of the subjective assessment of the facilities criteria:

Facilities Assessment

CRITERIA	US Forces Readiness		
	Reduced	No Effect	Enhanced
Pavements	✓		
Fuels	✓		
Aircraft Operations		✓	
Hangar Space	✓		
Aviation Support		✓	
Warehouses	✓		
Open Storage		✓	
Unaccompanied Enlisted Facilities	✓		
Unaccompanied Officer Facilities	✓		

Figure 27

4. OVERALL READINESS ASSESSMENT.

a. Based on the conclusions reached within the three general categories that were analyzed, our overall subjectiveassessment of readiness is that the MCAS Futenma to Kadena relocation will result in a reduction of US forces readiness. (Figure 28)

Overall Readiness Assessment

Categories	US Forces Readiness		
	Reduced	No Effect	Enhanced
Safety	✓		
Operations	✓		
Facilities	✓		

Figure 28

b. The dimensions of US Forces "geographic footprint" on Okinawa would be reduced as the result of a Futenma-to-Kadena relocation. However, our assessment is that the reduced size of the footprint will inhibit US Forces ability to maintain existing readiness and carry out assigned missions during contingencies. Additionally, in terms of the increased noise complaints and safety concerns, the size of the "political footprint" will be larger than before collocation.

ADDITIONAL CONSIDERATIONS

1. CONTINGENCY THREAT. The potential for an increased threat from cruise and theater ballistic missiles, as well as possible terrorist actions against US facilities on Okinawa during a contingency, cannot be ruled out. Increasing the density of operations at Kadena AB by collocating currently planned Futenma contingency operations will increase the vulnerability of personnel and assets on Kadena AB to terrorist and missile attack.

2. NOISE ABATEMENT IMPACT. Collocating Futnema and Kadena flying operations will increase flights and noise near Kadena AB by approximately 2,100 plus helicopter and fixed wing departures and arrivals per month beyond the current 6,400 departures and arrivals per month. Also, aircraft noise on the Kadena ramp during peacetime operations has been an historical irritant for local Okinawa citizens as well as a major political issue in Okinawan Prefectural Government (OPG) elections. Figure 29 shows the civilian population areas in proximity to Kadena AB.

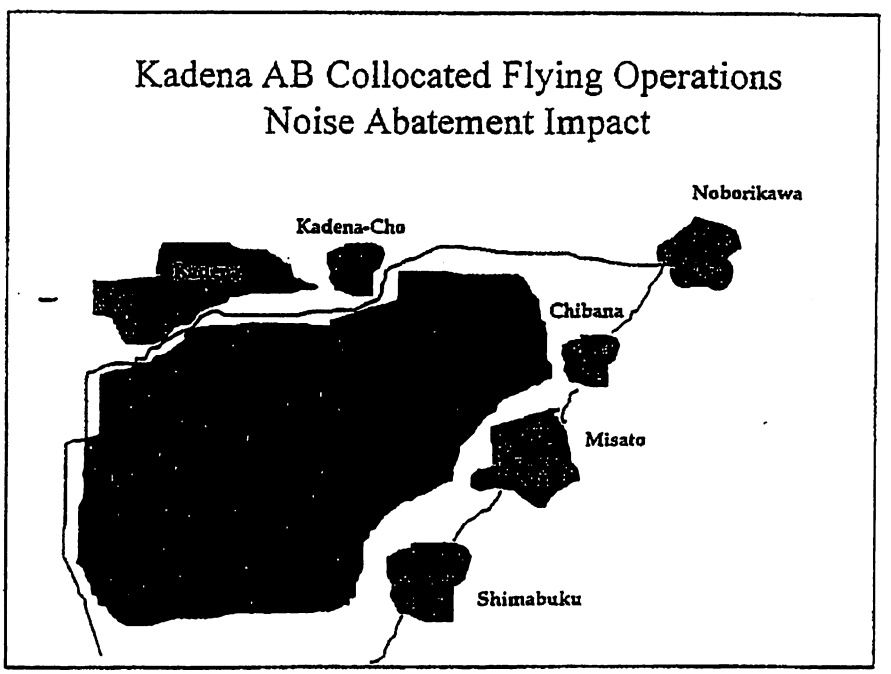


Figure 29

The OPG has made annual formal protests to US Forces, Japan since 1972 requesting "reinforcement of safety control and establishment of prevention measures" for military flying operations on Okinawa. Although only one of 14 rotary and fixed wing aircraft accidents has been outside a base and over land since 1972, local aircraft safety has been a long-term concern of the OPG. Since 1989, the OPG has also made

32 formal complaints to the Government of Japan Defense Facilities Administration Agency (DFAA) about aircraft noise in the vicinity of MCAS Futenma and Kadena AB.

Collocating current MCAS Futenma and Kadena AB flying and ramp operations will result in continued OPG public complaints and local media reporting concerning the impact of increased risk and increased aircraft noise near Kadena AB.

3. REDUCTION IN KADENA AB FLYING OPERATIONS DURING PAST 5-7 YEARS. For a number of reasons flying operations at Kadena AB have been reduced by an estimated 2000 departures and arrivals per month below 1991 monthly levels. Some reduction in force structure has led to this reduction as well as local commander commitment to reduce local community noise impact by conducting more off-island training. The majority of the reduction in departures and arrivals is a result of decreased fixed wing traffic. Collocated operations will exceed the 1991 departure and arrival counts and include the challenge of coordinating mixed fixed wing and rotary wing operations.

4. DIFFERING VIEWPOINTS. The 18th Wing and the 1st MAW have clearly expressed differing viewpoints on integrating current fixed wing and rotary wing operations at Kadena AB. The 1st MAW position is that collocated helicopter operations are manageable and risk management actions will ensure continued safe flying operations. The 18th Wing position emphasizes major safety concerns with collocating the current operations. Concerns center on the large volume of mixed VFR/IFR fixed wing/rotary wing operations and the potentially dangerous risk factors associated with these operations. The Air Force and the Marines also have a different in the required parking apron for the beddown of 48 helicopters. Air Force planning criteria requires approximately 170,000 (SY) additional ramp area to accommodate aircraft tow lanes.

Additional Options

1. ADDITIONAL OPTIONS FOR RELOCATING MCAS FUTENMA EQUIVALENT CAPABILITY. Four additional options for relocating MCAS Futenma capabilities were analyzed (Table 19). One option, or a combination of options, may offer alternatives for sustaining current MCAS Futenma combat capability and readiness subsequent to the closure of Futenma.

Additional Options for Relocating MCAS Futenma Equivalent Capability

Option # 1	New runway and facilities in the vicinity of ammunition storage point (ASP 1)
Option # 2	New civilian / military joint use airfield near Camp Schwab
Option # 3	Relocate some MCAS Futenma operations to Ie Shima
Option # 4	Use mainland Japan bases for contingency deployment of USMC helicopters

Table 19

2. BASELINE FUTENMA CAPABILITY. Five major baseline capability areas associated with the current MCAS Futenma configuration, location, and facilities were identified. These five baseline capabilities shown in figure 20 are then used to analyze the four options that are presented for as alternative site options.

MCAS Futenma Current/Required Capability

Current Capability		Required Capability
CAP # 1	9,000' Runway	* 5,200' Runway
CAP # 2	449,678 Square Yards (SY) parking, loading, unloading ramp space	336,120 SY
CAP # 3	Hangar and maintenance facilities	same
CAP # 4	US security and crash / fire rescue equipment	same
CAP # 5	Instrument approach capability with safe separation from civilian passenger aircraft and other military aircraft	same

* Will not support some heavy and fighter/attack aircraft divert requirements nor will it support current contingency requirements.

Figure 20

a. OPTION 1 - New Runway and Facilities in Vicinity of ASP-1 (Figure 30). Building a new heliport and runway approximately 5200' long on acreage currently occupied by an ammunition storage point (ASP-1) was the first option considered. ASP-1's location and proximity to Kadena are shown on this diagram.

Option 1 - New Runway and Facilities in Vicinity of ASP - 1

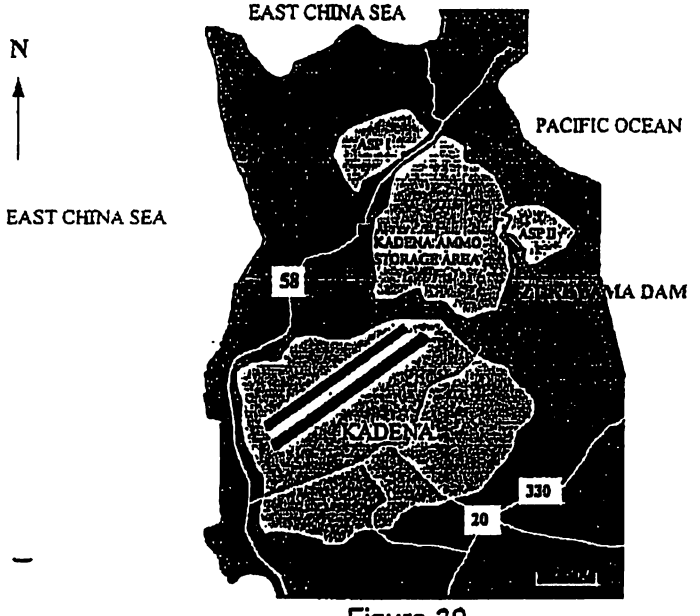


Figure 30

1) The primary capability limitation of ASP-1 is available acreage. Although it is possible to construct a 5,200' heliport and runway to support MCAS Futenma helicopter flying operations, there is not enough room to replicate the current 338,320 square yards of ramp and parking space currently needed for both peacetime and contingency operations. It is possible to use a road between ASP-1 and Kadena AB to share current Kadena facilities and ramp space, but without additional ramp construction on Kadena, this particular solution would not adequately support contingency operations.

For both peacetime and contingency operations, the geographic proximity of ASP-1 and Kadena AB would also pose challenges for safely deconflicting instrument and visual flying operations with ongoing, simultaneous, Kadena AB flight activity.

2) A subjective assessment of the five required capabilities indicates that Option 1 will not provide equivalent MCAS Futenma capability, and therefore is not recommended. (Table 21)

Option 1 - New Runway and Facilities in Vicinity of ASP 1

		YES	NO
CAP # 1	Acreage and separation distance to support 5,200' runway/heliport length	✓*	
CAP # 2	Acreage to support 449,678 Square Yards (SY) parking, loading, unloading ramp space		✓
CAP # 3	Acreage to support hangar and maintenance facilities		✓
CAP # 4	Acreage to support US security and crash / fire rescue equipment		✓
CAP # 5	Acreage to support instrument approach capability with safe separation from civilian passenger aircraft and other military aircraft		✓

* Will not support some heavy and fighter/attack aircraft divert requirements

Table 21

b. OPTION 2 - New Joint Use Airfield Near Camp Schwab (Figure 31). Option 2 proposes building a new civilian and military joint use airport near Camp Schwab. A newly constructed landfill along a beach area near Camp Schwab would support the construction of a 5200' - 9,000' runway with adjacent Central Training Area (CTA) acreage adequate for the development of support facilities similar to those existing at MCAS Futenma. The location of a new airport, with full civilian commercial access, in the central part of Okinawa, has potential for domestic economic benefit to the local community.

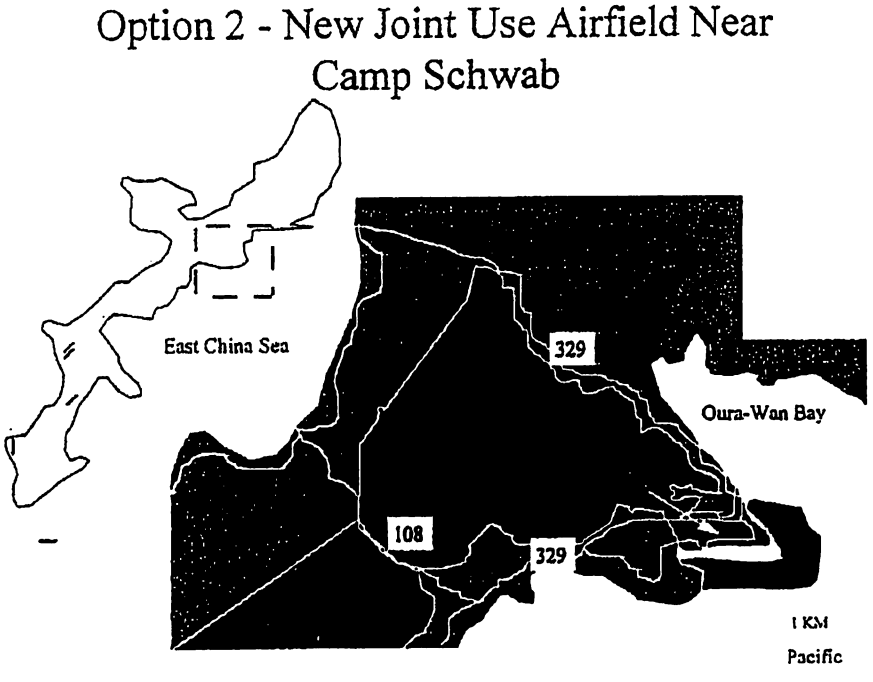


Figure 31

1) A subjective assessment of the five required capabilities indicates that they can be met with the construction of a new runway and facilities near Camp Schwab. (Table 22)

Option 2 - New Joint Use Airfield Near Camp Schwab

		YES	NO
CAP # 1	With land fill, acreage and separation distance could support 5,200' runway	✓*	
CAP # 2	Local acreage plus land fill could support 449,678 square yards of parking, loading, unloading ramp space	✓	
CAP # 3	Acreage available to support hangar and maintenance facilities	✓	
CAP # 4	Acreage to support adequate security and fire rescue equipment	✓	
CAP # 5	Geographic location that allows safe, deconflicted instrument approach capability	✓	

* Will not support some heavy and fighter/attack aircraft divert requirements

Table 22

2) Although a runway shorter than 9000' may be less expensive to build, it would not fully replicate the capability of MCAS Futenma. Moreover, a shorter runway may not offer the domestic economic benefits of an airport that could support larger passenger aircraft. Another important consideration for building a new airport further away from the more densely populated southern part of Okinawa is the effect that it would have in reducing the overall noise impact in densely populated areas of Okinawa.

c. OPTION 3 - Rebuild Runway on Ie Shima Island (Figure 32). Ie Shima island is currently used for parachute and paradrop training and includes a 5,000' unimproved runway. A helicopter and AV-8 Harrier pad also exist on the island.

Option 3 - Rebuild Runway on Ie Shima

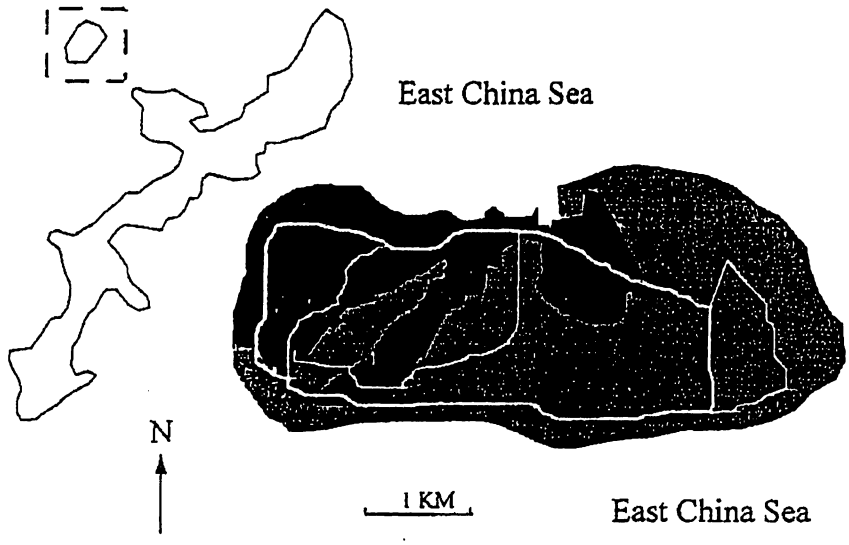


Figure 32

1) The potential of Ie Shima Island to accept some of the current MCAS Futenma helicopter training was assessed. There is no existing instrument arrival capability on the island. However, mobile systems may be available, and moving helicopter instrument training to Ie Shima could reduce traffic conflicts with Naha Intl. Additionally, C-130 night vision goggle (NVG) training, currently conducted at MCAS Futenma, could be accomplished at Ie Shima if the runway is repaved.

A subjective assessment of the five required capabilities indicates limited acreage for adequate support facilities, including permanent living facilities, and ferry-only access to the island, reduce the acceptability of Ie Shima as an option for full replication of MCAS Futenma capability. (Table 23)

Option 3 - New Runway and Facilities in Vicinity of ASP 1

		YES	NO
CAP # 1	Acreage and separation distance to support 5,200' runway/heliport length	✓*	
CAP # 2	Acreage to support 449,678 Square Yards (SY) parking, loading, unloading ramp space		✓
CAP # 3	Acreage to support hangar and maintenance facilities		✓
CAP # 4	Acreage to support US security and crash / fire rescue equipment	✓	
CAP # 5	Geographic location that allows safe, deconflicted instrument approach capability	✓	

* Will not support some heavy and fighter/attack aircraft divert requirements

Table 23

d. OPTION 4 - Use a Mainland Japan Self-Defense Force (JSDF) Base for contingency deployment of USMC Helicopters to the Region. Current planned use of MCAS Futenma for throughput and flight check of USMC helicopters during a contingency could be replaced with cooperative use of a JSDF base on the Japanese mainland.

1) A subjective assessment of the five required capabilities indicates that a number of JSDF bases on the Japanese mainland have the capability to support the deployment and assembly of USMC helicopters currently projected for MCAS Futenma during a contingency. (Table 24)

Option 4 - Use Mainland Japan Self Defense Force (JSDF) Military Base for Contingency Deployment of USMC Helicopters

		YES	NO
CAP # 1	Acreage and separation distance to support 5,200' runway/heliport length	✓	
CAP # 2	Local acreage could support parking, loading, unloading ramp space	✓	
CAP # 3	Acreage available to support hangar and maintenance facilities	✓	
CAP # 4	Acreage to support US security and crash / fire rescue equipment	✓	
CAP # 5	Geographic location that allows safe, deconflicted instrument approach capability	✓	

Table 24

2) Currently no agreement exists for this type of operational use and access to a JSDF base may be contingent upon Government of Japan assessment of their respective responsibilities with regard to the specific contingency. Additionally, many JSDF bases have inadequate ramp load bearing capacity for heavy airlift aircraft. For peacetime operations, it is also essential that current MCAS Futenma operations

remain collocated with III Marine Expeditionary Force (MEF) ground force training on Okinawa.

Part 2

JSO

INVESTIGATION OF OPERATIONAL ISSUES CONCERNING CONSOLIDATION OF FUTENMA AND KADENA AIR BASE

Investigation of Operational Issues Concerning Consolidation of Futenma and Kadena Air Base

I PREPOSITION OF INVESTIGATION

1. PURPOSE

This investigation is for the evaluation of various factors from mainly an operational perspective concerning relocation of Marine Corps Air Station (MCAS) Futenma functions to Kadena Air Base (AB).

2. MAIN ISSUE

This investigation focuses on analysis and evaluation concerning safety, operations, and facilities in both peacetime and contingency situations.

3. BACKGROUND

a. In November, 1995, the Special Action Committee Okinawa (SACO) was established by the governments of both the US and Japan to alleviate burdens on Okinawa and also strengthen bilateral ties between the US and Japan. this investigation is underway to assess measures to consolidate and reduce the facilities and areas of US Forces in Japan without diminishing existing capabilities.

b. In April 1996, both governments reached agreements on the return of MCAS Futenma under the condition that an alternative heliport would be constructed within the area under control of USFJ in Okinawa, while maintaining the important military functions of the airfield.

4. SUPPOSITION

a. Only rotary wing aircraft units are relocated from MCAS Futenma to Kadena AB. Fixed wing units are relocated to MCAS Iwakuni or other air bases.

b. The facilities to be relocated are exclusively for rotary wing aircraft use. The facilities of Kadena AB are used jointly for welfare and housing purposes.

c. Current runway at Kadena AB will be used for rotary wing aircraft.

II INVESTIGATION IN DETAIL

1. VERIFICATION OF FACTS

a. Number of aircraft

(1) Number of stationed aircraft

(a) Kadena AB: 108-113 (Number of P-3 aircraft is variable)
(b) MCAS Futenma: 71 (including 12 x KC-130)
(c) Total: 179-184 (Number will be 167-172 after KC-130s move to MCAS Iwakuni

(2) Number of aircraft deployed in contingency

(a) Kadena: 160 (includes aircraft stationed at Kadena AB in peacetime).

(b) Futenma: 230 (concurrent with contingency situation, original 71 aircraft will be deployed. After that 230 aircraft will temporarily use MCAS Futenma in consecutive order as transit airport).

(c) Total: Maximum 390 (maximum number of aircraft will not park simultaneously as the possibility to deploy all 230 aircraft concurrently is very slim).

(3) Number of parking spots at Kadena AB: 171 (considering newly built 91 spots at the time of relocation, the number will be 262)

b. Facilities (DFAA matters) See Attachment 1.

c. Flight Training

(1) Training at Kadena AB

(a) Departures and landings

(b) Auto rotation

(c) Instrument Flight Rules (IFR) arrivals

(2) Frequency of training (still under study)

d. Air traffic Control (ATC) within area

(1) Status of ATC within area

(a) Futenma: about 3700 helicopter arrivals/departures per month (maximum of 100 per day)

(b) Kadena: about 6800 fixed wing arrivals/departures per month (maximum 156 per day)

(2) ATC capability within Kadena under IFR

(a) Fixed wing only: 34 per hour

(b) Fixed wing and rotary wing aircraft alternately: 23 per hour

(c) Rotary wing only: 25 per hour

(3) Required number of ATC operations within Kadena

(a) Before collocation: Approximately 6400 per month

(b) After collocation: Approximately 8,800 per month

e. Logistic support

(1) Maintenance

(a) Futenma. Futenma plays an important role as the sole engine repair facility for the US Navy and USMC in the Western Pacific region.

(b) Kadena. The maintenance unit at Kadena renders services for six squadrons of the 18th Wing and for incoming aircraft of other units.

(2) Supply

(a) Each base is under each services command system.

(b) JP8 aviation fuel is supplied at Futenma and JP5 aviation fuel is supplied at Kadena.

2. ANALYSIS AND INVESTIGATION

a. Land for deployment. It is possible to secure necessary land within Kadena for collocation. However, for the construction of facilities, it is required to construct some of the facilities on the base including the golf course. Specifically, to secure smooth flight operations under instrument conditions more than 4300 feet distance from the runway currently in use is required. Circumstances vary depending on the location, but large scale construction work is needed in case of deployment on the southern side of the runway.'

b. Air traffic control.

(1) With the relocation of the heliport on Kadena, the number of aircraft under ATC at Kadena will be increased by approximately three times to 8,800 per month

(maximum 320 per day). A high level of ATC services are required, as different kinds of aircraft with different performance and operational patterns, such as jets, large carriers and helicopters, operate at the same time.

(2) In case of different types of aircraft under ATC concurrently, larger ATC separation is required. The maximum number of departing aircraft per hour is reduced 67%, compared with the case of single kind of aircraft under ATC.

(3) Additionally, with the increase in the number of aircraft stationed at Kadena, departure and arrival routes of Kadena, which crosses that of Naha International Airport (Int'l), will be used more frequently. Departure and arrival under IFR at least 800 per month at Futenma and will also be done at Kadena, adding to deconfliction requirements.

c. Logistic support. Each component provides support services under each respective service chain. Based on the assumption that necessary facilities are constructed, few obstacles may occur.

d. Alternative airport

(1) After the return of Futenma, it will be impossible for aircraft stationed at Naha to use Futenma as an alternate for weather or emergency. For this reason, the use of Shimochishima located nearby may be considered. However, it cannot be used in an emergency considering the distance from the training area (about 200 miles flight is required). It is inevitable to select an airport closer than Kyushu District more than 400 miles away.

(2) The use of Naha Int'l near Kadena may also be considered. Some influence on commercial airlines services is unavoidable, and logistic support measures are also required.

e. Noise countermeasures

(1) With the relocation of Futenma to Kadena, the number of stationed aircraft increases and more noise problems will occur.

(2) Noise of rotary wing aircraft is derived from lower frequency band compared with that of jet engines. Rotary wing aircraft fly lower altitudes at slower speeds. It is necessary for them to take new countermeasures (covering wider areas along flight route) which are different from those for jet aircraft.

(3) Even though the selection of flight route is done with due consideration, it seems to be difficult to contain the noise around the base under the level before consolidation.

3. PROBLEMS

a. Operational issues.

(1) Restriction of flight training hours

(a) With the increase in the number of aircraft stationed at Kadena, the restriction of the number of departing aircraft per hour for each component occurs, caused by ATC capability differential per hour of each ATC unit. This indicates the necessity of expanding training hours to attain training objective required. However, if it is impossible to expand normal training hours of 0600 to 2200, problems occur on enhancement of their skills.

(b) On the other hand, extension of training hours may incite protests against noise by local residents and may cause other problems concerning the base.

(2) Obstacles to efficient training.

(a) As described above, each component reduces the number of departing aircraft per hour, and increases airborne time for concentration of friendly aircraft in enforcing training items including synchronized operation by several aircraft. In the occasion of joint exercises with army units, delay in departure time makes reunion on time impossible, and hampers the scheduled training. Moreover, at the training site within the airport, such as serial departure and landing training, effective training will be reduced because of time lost to other taxiing or airborne aircraft. This situation occurs because of safety purposes with regard to the other departing and landing aircraft.

(b) In enforcing training items peculiar to helicopters such as auto rotation training, restrictions in time and space will happen for flight safety because of deconfliction with other kinds of aircraft, and inefficient training may be forced. In case of jets, prolongation in standby for departure may cause late of aborted takeoffs and less fuel available for training.

b. Readiness maintenance issues

(1) Proficiency degradation

(a) As described above, because of consolidation, efficient training will be restricted. It is inevitable that training objectives will be lowered because of limited flight hours.

(b) For the organization whose objective is to contribute to peace and stability in Northeast Asia and the Pacific region, degradation of readiness for contingency may decrease the deterrence credibility of the organization.

c. Issues on safety.

(1) Danger caused by different kinds of aircraft under simultaneous control.

(a) The relocation of Futenma to Kadena requires simultaneous ATC for different kinds of aircraft such as jet fighters, large carriers and helicopters. Each kind of aircraft operates in different speed ranges. Jet fighters are 3 times faster than helicopters. The proper actions and speedy judgment of air traffic controllers are indispensable.

(b) Considering the speed differentials, a high level of ATC technique is required, such as setting proper ATC separation, to secure safe and stable ATC services. Air traffic controllers will have to try hard to enhance their skills and long hours of concentration will also be required. However, there is a limit on their endeavors and human concentration. In the case of inclement weather or emergency aircraft in flight, and if such cases override human ability, it is difficult to avoid an accident. We must avoid such unsafe circumstances by all means.

(2) Danger caused by air traffic congestion

(a) With consolidation of Futenma and Kadena, air traffic flow around Kadena will increase and naturally cause congestion. On one hand about the issue described above, and on the other hand around airspace where departure and arrival routes of Naha Int'l and that of Kadena intersects, aircraft of each airport will close each other more often.

(b) Such cases happen more often under which the US aircraft under the control of Kadena ATC controller who is busy with many aircraft, is flying near the air route of some other commercial aircraft. If you imagine the worst case, the US aircraft may cause near collision with the large jetliner with many passengers on board by the fault of controllers or pilots.

(3) Functional defects in alternate airport availability

(a) Currently, both Futenma and Kadena function as alternate airports. After the return of Futenma, such functions cannot be maintained. Specifically, in case of concurrent homing of many aircraft under inclement weather, or runway closure owing to damage of airport function caused by incidents or attacks by enemies at Kadena, the function of an alternate airport is indispensable for safety reasons.

(b) If Naha Int'l is expected to function as an alternate airport, various kinds of US aircraft may use facilities for a certain period. The impact on commercial aircraft and logistic support for incoming US aircraft must be anticipated.

(c) If the alternate airport function is requested for an airport other than Naha Int'l, we find one only in the Kyushu District and is about 400 miles away, which is not

proper from the safety point of view. (In case Shimochishima is selected as an alternate airport, the function significance is quite slim, considering the distance from training airspace and logistic support.).

III. OPERATION MEASURES FOLLOWING CONSOLIDATION.

1. The following items are considered as necessary for operational measures. Even under total fulfillment of these items, there is no guarantee for operational attainment at the same level before consolidation and several limitations remain.

- To prepare alternate airport facility at the currently operating airport in Okinawa, for the safety in case of emergency conditions or inclement weather.

- to obtain training area for helicopters outside of Kadena AB for the purpose of avoiding conflicts between different kinds of aircraft within Kadena.

- to reduce noise problems to the minimum, construct runway for helicopters only at some suitable spot at the time of relocation of facilities with Kadena AB.

CONSENSUS BETWEEN USFJ AND JSO
CONCERNING "RETURN OF FUTENMA AND RELOCATION TO KADENA"
(OPERATIONAL ASPECTS)

1. Based on available acreage and ramp space requirements only, relocation of MCAS Futenma facilities to Kadena is feasible

2. Controversial issues are as follows:

- Alternative airport in place of MCAS Futenma is indispensable

  -- This is especially important on the point of safety.

  -- As a countermeasure, prepare an alternative airport (for example Naha)

- Collision hazard will increase in number between commercial aircraft at Naha and military aircraft especially helicopters stationed at Kadena.

  -- As a countermeasure, avoid Naha arrivals/departures by instrument arrival training away from Kadena and Naha.

- With the increase in air traffic flow at Kadena, difficulties increase in terms of airspace availability and different kinds of aircraft under simultaneous control.

- Training will be restricted with collocated operations

-- As a countermeasure, prepare training area in other place (for example, at Ie Shima)

- Noise problems will increase at Kadena.

3. Concerning the controversial issues above, limitations remain compared with the present situation even if some of the countermeasures are taken.

Part 3

US/Japan (USFJ/JSO) Bilateral Findings Concerning Consolidation of MCAS Futenma and Kadena AB

US/Japan (USFJ/JSO) Bilateral Findings Concerning Consolidation of MCAS Futenma and Kadena AB

1. Collocation of MCAS Futenma Air Operations with existing Kadena AB peacetime and contingency operations will reduce US peacetime readiness and ability to adequately respond to Regional Article V and Article VI responsibilities under the "Treaty of Mutual Cooperation and Security". For this reason, it's necessary to take required measures and try to maintain readiness.

(Relocation of the facilities within Kadena, adjustment of departure and arrival route, construction of training facilities for helicopters, etc.)

2. Collocation of MCAS Futenma Air Operations with Kadena AB will increase the mid-air collision potential between US military aircraft and civilian aircraft arriving and departing Naha International Airport. Special countermeasures are required to cope with this problem.

(Establishment of safer departure and arrival routes than currently exist, improvement of navigational aids, adjustments of Air Traffic Control (ATC) procedures and location of units, etc.)

3. An appropriate alternate airport for Kadena is required for peacetime and contingency flying operations safety margins on Okinawa, regardless of the location of an alternate heliport for Futenma. (e.g. Naha Int'l)

TOSHIKATSU YAMAGUCHI
Major General, JASDF
Director, J3 (Operations)
Joint Staff Office

BRUCE A. WRIGHT
Colonel, USAF
Director, J3 (Operations)
US Forces, Japan

YOSHIHIRO YAMAGUCHI
Major General, JGSDF
Director, J5 (Plans and Policy)
Joint Staff Office

MICHAEL R. MATHENY
Colonel, USA
Director, J5 (Plans and Policy)
US Forces, Japan

The SACO Interim Report
April 15,1996
by
Minister for Foreign Affairs Ikeda
Minister of State for Defense Usui
Secretary of Defense Perry
Ambassador to Japan Mondale

The Special Action Committee on Okinawa (SACO) was established in November, 1995 by the Governments of Japan and the United States. The two Governments launched the SACO process to reduce the burden on the people of Okinawa and thereby strengthen the US-Japan alliance.

The mandate and guidelines for the SACO process were agreed upon by the Government of Japan and the US Government at the outset of the joint endeavor. Both sides agreed that the SACO would develop recommendations for the Security Consultative Committee (SCC) on ways to consolidate, realign and reduce US facilities and areas, and adjust operational procedures of US forces in Okinawa consistent with their respective obligations under the Treaty of Mutual Cooperation and Security and other related agreements. The work of the SACO is scheduled to conclude after one year.

The SACO, working with the Joint Committee, has conducted a series of intensive and thorough discussions. As a result of these discussions, the SACO and the Joint Committee earlier announced a number of concrete steps to address Status of Forces Agreement (SOFA) related issues such as noise reduction initiatives and adjustments to operational procedures.

Today, at the SCC, Minister Ikeda, Minister Usui, Secretary Perry and Ambassador Mondale agreed to several significant initiatives on the basis of the discussions conducted thus far at the SACO. These measures, when implemented, will reduce the impact of the activities of US forces on communities in Okinawa, while fully maintaining the capabilities and readiness of US forces in Japan. The total acreage of US facilities and areas in Okinawa is estimated to decrease by approximately 20 percent.

The SCC has emphasized the importance of implementing these measures in a timely manner without delay, and has instructed the SACO to complete and recommend plans with concrete implementation schedules by November 1996. In order to minimize the impact of the activities of US forces on Okinawa, the Governments of Japan and the United States will cooperate to implement the following:

Return Land:

- Return Futenma Air Station. Return Futenma Air Station within the next five to seven years, after adequate replacement facilities are completed. The airfield's critical military functions and capabilities will be maintained through relocations of facilities. This will require construction of a heliport on other US facilities and areas in Okinawa; development of additional facilities at Kadena Air Base; transfer of KC-130 aircraft to Iwakuni Air Base (see Implementation of Noise Reduction Initiatives); and a joint US-Japan study on emergency use of facilities in the event of a crisis.

- Return Major Portion of Northern Training Area while ensuring access to the ocean.

- Release US joint use of Aha Training Area (land).

- Return Gimbaru Training Area. Relocate facilities to other US facilities and areas in Okinawa.

- Return Sobe Communications Site. Return Sobe Communications Site once a new site is constructed in Camp Hansen (Central Training Area) in the next five years.

- Return Yomitan Auxiliary Airfield. Relocate parachute drop training.

- Return Most of Camp Kuwae. Relocate the Naval Hospital and other facilities there to other US facilities and areas in Okinawa.

- Return Senaha Communications Station. Relocate the Senaha Communications Station and associated facilities to Torii Station and other US facilities and areas in Okinawa, allowing the release of land.

- Return Portions of Makiminato Service Area. Return land adjacent to Route 58.

- Return land as a result of housing consolidation. Develop a joint plan to consolidate US housing areas in Okinawa which will allow for the return of a significant portion of land in older housing areas including Camp Kuwae (Lester) and Camp Zukeran (Foster).

- Accelerate return of Naha Port. Build a new port at Urasoe to allow for the return of Naha Port.

Adjust Training and Operational Procedures:

- Terminate artillery live-firing training over Highway 104, with the exception of artillery firing required in the event of a crisis. Relocate 155mm artillery live-fire training to the mainland of Japan.

- Relocate parachute drop training to Iejima.

- Terminate conditioning hikes on public roads in Okinawa.

Implement Noise Reduction Initiatives:

- Implement agreements on aircraft noise abatement countermeasures at Kadena Air Base and Futenma Air Station announced by the Joint Committee.

- Transfer KC-130 Hercules aircraft, relocate their supporting facilities, and transfer AV-8 Harrier aircraft. Transfer KC-130 aircraft currently based at Futenma Air Station and relocate their supporting facilities to Iwakuni Air Base in conjunction with the transfer of a similar number of Harrier aircraft to the United States.

- Relocate Navy P-3 operations and supporting facilities at Kadena Air Base from the Navy ramp to the other side of the major runways, and move MC-130 operations from the Navy ramp.

- Build new noise reduction baffles at Kadena Air Base.

- Limit night flight training operations at Futenma Air Station.

Improve Status of Forces Agreement Procedures:

- Establish new procedures to provide timely information on US military aircraft accidents.

- Seek greater public exposure of Joint Committee agreements.

- Review and publicize guidelines for access to US facilities and areas.

- Implement agreement on measures concerning markings on US forces official vehicles.

- Expand education programs for voluntary automobile insurance.

- Review and publicize quarantine procedures.

- Publicize guidelines on removing expended munitions at Camp Hansen.

The two sides agreed to continue to study additional issues, including US recreational facilities.

KADENA AB
A[illegible] Operations

KADENA AB AIR TRAFFIC CONTROL DATA					
		JUL -SEP 95	OCT-DEC 95	JAN - MAR 96	APR - JUN 96
TOWER:	IFR ARRIVALS =	4513	4696	5175	5325
	IFR DEPARTURES =	5836	6290	6366	6559
	VFR ITEN =	1194	1169	685	981
	VFR LOCAL =	6959	7185	7032	7663
	TOTAL =	18502	19349	19258	20535
	AVERAGE PER QUARTER = 19714				
	TOTAL PER YEAR = 77,644				
		JUL - SEP 95	OCT - DEC 95	JAN - MAR 96	APR - JUN 96
RAPCON:	IFR ARRIVALS =	14871	16517	15390	15231
	IFR DEPATURES =	14576	14218	14937	14617
	VFR =	3066	1698	2504	2101
	TOTAL =	32523	32455	32831	31949
	AVERAGE PER QUARTER = 32412				
	TOTAL PER YEAR = 129,758				

What is RAPCON?

EXHIBIT #2

F

369

E-2-1

UNITED STATES MARINE CORPS
MARINE CORPS AIR STATION
FUTENMA, OKINAWA
UNIT 35201
FPO AP 96372-5201

IN REPLY REFER TO:
3710
3/ATC
1 Jul 96

From: Commanding Officer, Marine Corps Air Station Futenma
To: Commander, U. S. Forces Japan (J-3), FPO AP 96328-5000

Subj: RCS USFJ-60-1, AIR TRAFFIC OPERATIONS

Ref: (a) COMNAVFORJAPANINST 3710.1E

1. Per the reference the subject report is submitted:

a. Base Name: MCAS Futenma, Okinawa Japan

b. Calendar Quarter: 2nd Qtr 1996 (1 Apr - 30 Jun)

c. Average Monthly Traffic:

	Departures	Arrivals	T&G/LA	Total
1. 0001-0559	0	0	0	0
2. 0600-1759	546	529	2,198	3,273
3. 1800-2400	90	154	409	653
4. Total	636	683	2,607	3,926

2. The point of contact is the undersigned, DSN 636-3064/3066, or Fax 636-3242.

B. P. STINSON
By direction

Copy to:
Adj, MCAS
Afld Opns
ATC

EXHIBIT #2-2

E-2-2

MCAS Futenma Air Traffic Control Facility
Monthly Air Activity
June 1996

Tower Operations

	VV/VM	OM	AC	GA	Total
IFR	701	97	0	0	798
VFR	2,592	384	0	55	3,031
Total	3,293	481	0	55	3,829

Radar Operations

	VV/VM	OM	AC	GA	Total
Rdr App	238	28	0	0	266

EXHIBIT #2-3

E-2-3

UNIT TRAFFIC COUNT

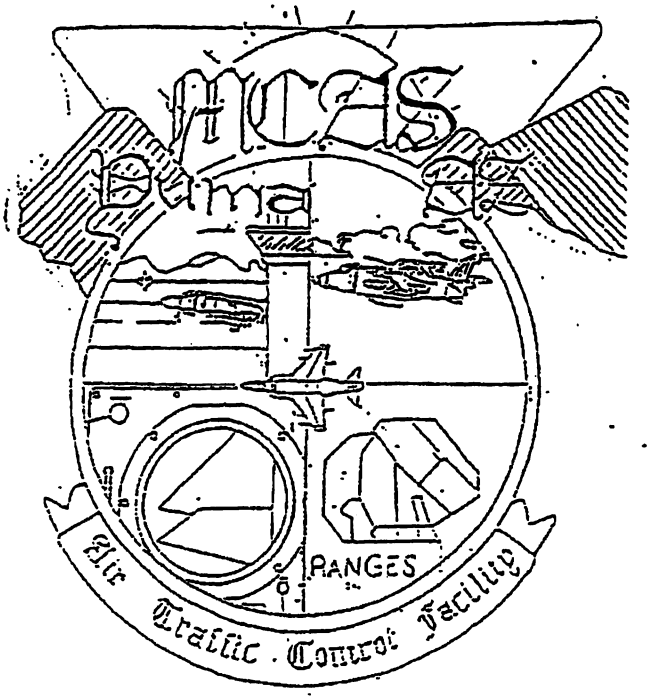
NELLIS AFB	FACILITY: TOWER	I.D.: LSV

PERIOD: APR	YEAR: 1996

CATEGORY	0000-0600	0600-1200	1200-1800	1800-2400	TOTAL
MILITARY	2	2364	2743	1027	6136
GEN AVIATION	21	419	336	102	878
AIR CAR/TAXI	2	18	10	1	31
TOTAL	25	2801	3089	1130	7045

TYPE OPS	0000-0600	0600-1200	1200-1800	1800-2400	TOTAL
IFR ARRIVALS	0	78	137	366	581
IFR DEPARTS	5	1335	1274	461	3065
SPECIAL USE	0	0	0	0	0
VFR OVHD	20	386	288	94	788
VFR LOCAL	0	1012	1390	209	2611
TOTAL	25	2801	3089	1130	7045

OTHER	0000-0600	0600-1200	1200-1800	1800-2400	TOTAL
OTHER	0	0	0	0	0
				TOTAL	0



FAX TRANSMITTAL SHEET

DATE: 17 JULY 96 TIME: 1815 (AZ-MST)

FROM: MSGT SCHMITT ATC FACILITY, MCAS YUMA AZ AUTOVON: 951-5564 COMMERCIAL: 520-341-5564 FAX: 951-2964	TO: LTCOL CORBETT DEP DIR U.S. FORCES JAPAN AUTOVON: COMMERCIAL: FAX: 315-225-8378

PAGES SENT: THIS PAGE + 1

SUBJ: AIR TRAFFIC DATA — 1 JUL 95 TO 30 JUN 96

SPECIAL INSTRUCTIONS: SIR,
E-MAIL OF MORE DATA TO FOLLOW.

Air Traffic Control Facility Traffic Report July 1, 1995 to June 30, 1996

totals		NAVY/ MARINE	OTHER MILITARY	AIR CARRIER	GENERAL AVIATION	TOTAL
CONTROL	TOWER	79383	6638	21243	26736	134000
APPCH	VFR	13688	1071	6114	20278	41151
APPCH	IFR	14639	2435	18536	5718	41328
RANGE		29771	2656	41	314	32782
ENROUTE		12527	1572	1088	3163	18350
LGF IFR		40	378	4	37	459
FACILITY	TOTAL	150048	14750	47026	56246	268070
IFR	TOTAL	56977	7041	19669	9232	92919

To LTCOL CORBETT :

Sir, Please note that the information provided includes both FW/RW assets. We can obtain a better breakdown of the info that you require, However it will require some additional time. If you have any questions Please call.

Respectfully Submitted

L. A. MIRANDA

PERIOD:	JUN	YEAR:	1996

CATEGORY	0000-0600	0600-1200	1200-1800	1800-2400	TOTAL
MILITARY	281	1513	2319	1768	5881
GEN AVIATION	0	8	4	0	12
AIR CAR/TAXI	2	25	41	21	91
TOTAL	283	1546	2364	1789	5984

TYPE OPS	0000-0600	0600-1200	1200-1800	1800-2400	TOTAL
IFR ARRIVALS	56	228	302	335	921
[illegible]RES	55	459	408	318	1240
SPECIAL USE	2	4	20	15	41
VFR TRAN	5	21	14	1	41
VFR LOCAL	157	834	1620	1120	3731
TOTAL	283	1546	2364	1789	5984

OTHER	0000-0600	0600-1200	1200-1800	1800-2400	TOTAL
OTHER	48	196	266	154	664
				TOTAL	664

EXHIBIT #5

PRIVILEGED MATERIALS REMOVED