DTIC FILE COPY

AD-A183 514

MARINE AIR GROUND TASK FORCE

REAR AREA SECURITY (RAS)

STUDY

FINAL REPORT

NOVEMBER 1985

DTIC
ELECTE
AUG 1 1 1987
S D
E

This document has been approved for public release and sale; its distribution is unlimited.

87 8 11 178

SECURITY CLASSIFICATION OF THIS PAGE

REF

AD-A183 514

1a. REPORT SECURITY CLASSIFICATION
Unclassified

SECURITY CLASSIFICATION AUTHORITY

3. DISTRIBUTION/AVAILABILITY OF REPORT
Unlimited

2b. DECLASSIFICATION/DOWNGRADING SCHEDULE

4. PERFORMING ORGANIZATION REPORT NUMBER(S)
DM511042

5. MONITORING ORGANIZATION REPORT NUMBER(S)
CMC/RDS-40-87

6a. NAME OF PERFORMING ORGANIZATION
CACI, Incorporated

6b. OFFICE SYMBOL (If applicable)

7a. NAME OF MONITORING ORGANIZATION
Commandant of the Marine Corps

6c. ADDRESS (City, State, and ZIP Code)
1815 North Fort Myer Drive
Arlington, VA 22209

7b. ADDRESS (City, State, and ZIP Code)
Headquarters U. S. Marine Corps
Code RDS-40
Washington, DC 20380-0001

8a. NAME OF FUNDING/SPONSORING ORGANIZATION
DC/S Plans

8b. OFFICE SYMBOL (If applicable)
D08

9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER
M00027-84-D-0037

8c. ADDRESS (City, State, and ZIP Code)
Development Center
MCDEC
Quantico, VA 22134-5080

10. SOURCE OF FUNDING NUMBERS

PROGRAM ELEMENT NO.	PROJECT NO.	TASK NO.	WORK UNIT ACCESSION NO.
65151	C0030		DM511042

11. TITLE (Include Security Classification)
MARINE AIR GROUND TASK FORCE REAR AREA SECURITY (RAS) STUDY (U)

12. PERSONAL AUTHOR(S)
C.A.C.I. Incorporated

13a. TYPE OF REPORT	13b. TIME COVERED	14. DATE OF REPORT (Year, Month, Day)	15. PAGE COUNT
Final	FROM 1985 TO 1986	1987 June 17	341

16. SUPPLEMENTARY NOTATION

17. COSATI CODES			18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)
FIELD	GROUP	SUB-GROUP	Marine Corps, MAGTF, Security, Combat Service Support, CSS, FSSG, WSSS, Provost (MP)

19. ABSTRACT (Continue on reverse if necessary and identify by block number)

The study's objective was to determine concepts, measures, and procedures to improve Marine Air Ground Task Force (MAGTF) rear area security (RAS) without degrading overall combat capability. The MAGTF elements on which improvements focused were command, combat service support, and aviation ground support organizations normally located to the rear of combat elements. The examination of the threat was done by using three representative situations to examine RAS in a realistic context. Input to the study analysis by "expert opinion" came from Army, Navy, Air Force, FBI, and Royal Marine representatives as well as active duty Marine Corps officers. The areas of concern examined by the experts covered the spectrum of warfare.

20. DISTRIBUTION/AVAILABILITY OF ABSTRACT
☒ UNCLASSIFIED/UNLIMITED ☐ SAME AS RPT. ☐ DTIC USERS

21. ABSTRACT SECURITY CLASSIFICATION
Unclassified

22a. NAME OF RESPONSIBLE INDIVIDUAL
Major A. J. B. Livingston, USMC

22b. TELEPHONE (Include Area Code)
703-640-3321 (AV) 278

22c. OFFICE SYMBOL
D081M

DD FORM 1473, 84 MAR

83 APR edition may be used until exhausted.
All other editions are obsolete.

CONT

The most significant of the analytical results was that improvements in training represented the dominant percentage of utility (51%), with personnel and organizational improvement scoring 25% and equipment enhancements 24%. The conclusions concerning the postulated courses of actions were that the Marine Corps make marginal changes in doctrine, (to include the publishing of a single document that would collect the variety of principles and specific factors influencing effective RAS); tables of organization and equipment, and in training mission performance standards (MPS) that will improve the capability of combat service support and aviation service support elements.

DEPARTMENT OF THE NAVY
HEADQUARTERS UNITED STATES MARINE CORPS
WASHINGTON, D.C. 20380-0001

IN REPLY REFER TO
RD/PON-21D22
51-10-42
17 JUN 1987

From: Commandant of the Marine Corps
To: Distribution List

Subj: MARINE AIR-GROUND TASK FORCE REAR AREA SECURITY (RAS) STUDY (DM 511042)

Encl: (1) Marine Air-Ground Task Force Rear Area Security (RAS) Study (1985-1995)

1. The enclosed study was performed by CACI, Inc., during 1985. Its objective was to determine concepts, measures, and procedures for the improvement of MAGTF rear area security.

2. These objectives were accomplished by the study. Based upon this study and a review by HQMC and FMF agencies, implementing instructions have been prepared to direct the preparation of an Operational Handbook, training standards, and changes to T/Os and T/Es of various units.

3. The conclusions and recommendations of the study are concurred in by the Marine Corps, with the exception of VII A2a, wherein the study recommended augmenting the T/Es of four battalions of each FSSG and the four Wing Service Support Squadrons of each MAW to create defensive power equivalent to the infantry battalion. The Marine Corps has no intention of creating the defensive power equivalent to the infantry battalion in CSS battalions.

4. This letter should be maintained with the subject study.

M.A. STANKOSKY
By direction

Distribution:
CG MCDEC (2)
CG I MAF (4)
CG II MAF (4)
CG III MAF (4)
CG 1st MAB (1)
CG 4th MAB (1)
CG 5th MAB (1)
CG 6th MAB (1)
CG 7th MAB (1)
CG 9th MAB (1)

DTIC
COPY
INSPECTED
6

Accession For
NTIS GRA&I
DTIC TAB
Unannounced
Justification
By
Distribution/
Availability Codes
Dist | Avail and/or Special
A-1

TABLE OF CONTENTS

TABLE OF CONTENTS (Cont'd)

LIST OF FIGURES AND TABLES

I. EXECUTIVE SUMMARY

The study's objective was to determine concepts, measures, and procedures to improve MAGTF rear area security without degrading overall combat capability. The MAGTF elements on which improvements focused are command, combat service support, and aviation ground support organizations normally to the rear of combat elements.

The study approached the analysis of rear area security by combining six analytical methods:

- Historical research
- Threat and vulnerability analysis
- War game analysis
- Research of expert opinion
- Multiattribute utility analysis
- Cost/Benefit analysis

In a survey of military history from before World War II to Vietnam, the study identified the following recurring themes which pertain to RAS:

- "Every Marine a rifleman."
- The highest level of command has security responsibility.
- Support units provide own local security and self-defense.
- Sound intelligence and counterintelligence are critical.

The examination of the threat was done by using three representative situations to examine RAS in a realistic context.

In Situation #1, the conventional threat was from guerrilla forces, but there was a significant unconventional warfare (UW) threat. Espionage, sabotage, subversion, and terrorism could be anticipated from dissident elements and from Soviet agents in the area. In Situation #2, a

MAF encountered the full threat spectrum in an area of operation which ranged between 600 and 750 square miles. The conventional threat to the rear area was from airborne or airlanded elements. In addition there was a threat from SPETSNAZ-type forces. In Situation #3 (a MAF in Europe) the threat to the rear area from both conventional and unconventional forces was great. Soviet doctrine which calls for offensive operations to attack an enemy's positions throughout their depth, from front to rear, and SPETSNAZ forces, trained specifically to operate in an enemy's rear areas and expected to be in place at the start of a conflict, were considered.

The war game STEELTHRUST (a manual training game used at the Amphibious Warfare School) provided a conservative estimate which indicated a MAGTF rear area force with a combat capability approximating an infantry battalion in the defense should be able to defend itself against a conventional threat force of up to one airborne infantry battalion equipped with light armored fighting vehicles (or one heliborne or naval infantry battalion).

The fourth input to the study analysis was expert opinion. Sources included Army, Navy, Air Force, FBI, and Royal Marine representatives and active duty Marine Corps officers. The areas of concern expressed by the experts covered the spectrum of warfare. The following is a consensus:

- Given the Soviet threat and growing terrorism, rear area security is a problem requiring extraordinary measures.

- The problem is amenable to solution by organizing existing procedures and resources differently.

- The largest payoff will come from rear area security oriented training, development of SOPs, and adjustments in crew-served weapon allowances and other selected equipments.

The study also obtained expert opinion from a group of Marine officers by means of the special analytical technique known as multiattribute utility analysis. The technique is described in the

report. The outcomes of the multiattribute utility analysis suggested that activities prior to the receipt of an actual rear area security mission needed more corrective attention than mission performance after the start of rear area security actions. Both ground and aviation views complemented each other and agreed in substance. The most significant of the analytical results was that improvements in training represented the dominant percentage of utility (51%), with personnel/organizational improvement scoring 25% and equipment enhancements 24%.

Specific training enhancements identified as offering the greatest utility or payback to the Marine Corps were:

- Improved training in basic combat skills for specialists.
- Incorporation of rear area security planning tasks into existing training at appropriate Marine Corps schools.
- Training military police in fire control procedures.
- Including rear area security in provost marshal training.

The following personnel/organizational actions would provide payoff:

MAGTF level

- Add a Provost Marshal billet to the MAGTF staff.
- Add rear area security as an additional duty within the G-3/S-3 section.
- Increase clerical and watchstander assets in the MAGTF command element to ensure sufficient personnel for surge performance of rear area security tasks.
- Ensure that troop lists include sufficient intelligence assets to support both the forward and rear areas.

Support Unit Level

- o Include a Physical Security Officer or Provost Marshal as a fulltime staff officer.

- o Include sufficient intelligence personnel to ensure the processing of rear area security EEIs.

- o Add sufficient personnel to ensure CI capabilities.

- o Establish a fire support coordination capability to include aviation expertise.

- o Provide a staff engineer to assist in rear area security planning and supervision.

- o Task organize to ensure intelligence, CI, and engineer personnel to advise and assist.

- o Task organize to ensure personnel assets to perform planned security activities.

The nature of hardware needs was different than that of the personnel shortages. It was generally believed that sufficient equipment, except crew-served weapons, already existed within most MAGTFs, but that assets were traditionally allocated to ACE or GCE units, with few or none being assigned to CSS and AGS units for rear area security. This situation could be resolved in part by the development of rear area security-oriented SOPs to provide for the smooth transfer of support, e.g., engineer assets at such time as rear area security becomes a prime concern of the MAGTF commander.

The benefits for each enhancement as measured by utility scores were then contrasted with their associated costs. The general conclusions from cost/benefit analysis were as follows:

(1) Implementation of high cost-high benefit factors should be phased over time; implementation of low (or no) cost-high or moderate benefit factors should be near term.

(2) Consideration should be given to RAS in MAGTF task organizing; structure changes should be deferred until RAS training is enhanced and payoff from near-term measures is evaluated.

(3) Professional development and combat skills training for specialists are RAS-developing. Mission-oriented training and EST are RAS-sustaining. These roles should dictate training patterns/plans.

(4) Equipment costs are justified, but should be planned incrementally to soften the dollar impact.

(5) Implementation plans should include a near-term course of action, a mid-term course, and a longer-term course to commence after the first two. This would allow full benefits of less expensive items to be realized before higher cost items are phased in. For purposes of examining implementation, three courses of action were considered: the near-term course of action was to maintain the status quo in terms of doctrine, organization, training, and equipment; course of action two was mid-term and consisted of marginal changes to the areas listed under the first course of action; the third course of action required the creation of new organizations for security and was long-term in nature. The following advantages and disadvantages were determined by comparing each course of action against each representative threat scenario:

COA	ADVANTAGE	DISADVANTAGE
#1 (status quo; near-term)	Minimum cost, controversy, and turbulence; maximum discretion to MAF and MAGTF commanders.	Current capability against the projected threat is inadequate.

COA	ADVANTAGE	DISADVANTAGE
#2 (marginal changes; mid-term)	Institutionalizes security as a command responsibility for support units. Would require very small percentage increase over current training fund levels. Minimizes diversion of combat power from primary MAGTF mission by maximizing self-protection and defense capabilities of units in the rear area.	Distracts support unit performance of primary missions. Increased costs for equipments, skilled persons, training time, and doctrine changes.
#3 (new units; long-term)	Dedicated unit(s) can concentrate on preparation for RAS mission as their principal role. Development of doctrine, tactics, and equipment for RAS facilitated by existence of specialists.	Costs as in COA #2 would probably be even higher. Capabilities attained by this COA alone not necessarily adequate in every situation. Relegating security to specialists would reduce overall security awareness.

The two conclusions concerning the postulated courses of actions are as follows:

1. The Marine Corps should adopt Course of Action #2, i.e., make marginal changes in doctrine, tables of organization and equipment, and in training standards that will improve the capability of CSS and AGS units to protect and defend themselves. The cost of this action would be $8 million for the first two years and $14 million each year thereafter for training 24 battalion equivalents. Equipment enhancements could cost an extra $3 million per year for five years. While this seems like a significant pricetag, it should be noted that the costs for the first two years are far less than a 1% increase to total O&MMC costs; out-years are slightly more than 1% each year.

2. Consideration of the possible adoption of Course of Action #3, i.e., creation of new organizations to take care of the RAS mission for a MAGTF, should be deferred until the results of implementing COA #2 can be evaluated.

Based on the general study conclusions, the study team formed the following specific recommendations (details in Annex A):

1. Recommendations regarding COA #2

   a. Publish an OH on Rear Area Security.
   b. Make changes to other LFMs, FMFMs, and OHs.
   c. Modify cover pages of CSS and AGS unit T/Os to reflect the rear area security mission.
   d. Add rear area security instruction at CSC and AWS.
   e. Change FSSG and MAW T/Es to increase combat power.
   f. Change FSSG and MAW T/Os to provide self-defense skills.
   g. Change FSSG and MAW training and mission performance standards to reflect rear area security needs.

2. Recommendations regarding COA #3 (Assuming that COA #2 is adopted first)

   a. Evaluate impact of COA #2 through war games, field exercises, and inputs from the FMF.

   b. If security deficiencies still exist, consider at least the following three strawman structures:

      (1) Military Police Co., H&S Bn., FSSG
      (2) Rear Area Security Bn., FMF
      (3) Defense Bn., FMF

II. INTRODUCTION

A. BACKGROUND

The general perception one gets from interviews with serving Marines is that, until recently, rear area security was something that was taken pretty much for granted. This is not to say that the subject was ignored, only that it was thought of as one of the many routine tasks that had to be performed by any Marine Air Ground Task Force (MAGTF) deploying to and being employed within some area of operations overseas.

The importance of security as one of the nine principles of war has always been impressed upon Marine leaders from the outset of their professional training and development. Prevention of surprise, denial of information on friendly forces to the enemy, and preservation of freedom of action are all aspects of security that are essential to the maintenance of combat power. As it applies to the rear area -- that area behind the forward or combat area in which most of the administrative and service support personnel and facilities of a force are concentrated -- security is important to insure that the support functions performed there will continue uninterrupted.

Because security is such a fundamental consideration of a commander in the presence of an enemy, the safeguarding of classified information, the control of personnel access in the vicinity of headquarters and command posts (CP), and a number of more active measures to detect and defeat enemy efforts to penetrate our security screen have habitually been planned for and carried out concurrent with other combat-related tasks. In planning for an operation in which combat is likely, bases, locations of service support units, and the lines of communication between these locations and the combat units to be supported are selected with an eye toward security as well as the ability of the facility to perform its primary support mission from that location.

As the combat elements of a force move closer to an enemy they instinctively adopt increasingly higher levels of alert and readiness

postures, preparing themselves to react quickly and effectively to any of several possible enemy actions. This ingrained concern for security is evident even in the Continental U.S. (CONUS) during peacetime. Interior guards or other physical security procedures are routinely established to provide protection for personnel, facilities, and equipment outside of normal working hours.

This pervasive security-consciousness, that most Marines come to take for granted, has long and deep historical roots. Marines have been guarding people, places, and things throughout their 210 years of existence. From duty aboard Navy ships to guarding the U.S. mail in the 1920s, the assignment to "take charge of this post and all government property in view" has become a common experience for Marines over the years (as has assignment as Officer of the Day to supervise several such posts in the name of the commanding officer).

In the early days of World War II, before the Marine Corps could spearhead the amphibious assaults across the Pacific, its first mission was to secure and defend the Navy's advanced bases. From Iceland in the Atlantic to Pearl Harbor, Midway, Wake, and Samoa in the Pacific, Marines of the Fleet Marine Force (FMF) manned guard posts and outposts prepared to repel enemy threats ranging from espionage to major attack from sea and air. This security role continued through WW II.

When Marines were not engaged in active combat they were guarding something. It continued through the years between wars and it was performed essentially unchanged during the Korean and Vietnamese conflicts. The security role is still performed today in many locations around the world, but recently Marines have been taking casualties in the performance of this heretofore routine mission.

In the decade since Vietnam, the Marine Corps has devoted much attention to the growing Soviet threat. Our potential enemy's conventional warfare capability is no longer only a matter of superior quantity but it has increased significantly in quality as well. The Soviets now have the

capabilities to implement what they have always taught -- successful offensive operations involve attacks in depth. From deep penetration of front lines, to vertical envelopments by helicopter-borne forces, to attacks within the enemy's homeland itself by SPETSNAZ units, Soviet doctrine prescribes simultaneous and coordinated offensive operations against all elements of an opponent's war-fighting system.

In response to these capabilities, doctrinal development in the U.S. armed forces has concentrated on regaining the initiative and disrupting the Soviet's set-piece offensive scheme as soon as possible after the outbreak of hostilities. For the Marine Corps this translates into exploiting the initiative gained as a result of a successful amphibious operation by continuing the attack against deep objectives in enemy territory. The expanded scope of ground combat inherent in this concept creates new vulnerabilities among rear area support units. Similarly, the MPS concept has these vulnerabilities in common because of the probable remoteness of an objective area from a port of entry and/or airhead.

As the changing picture of conventional ground combat emerged in all its details and implications, the growing threat of unconventional warfare was dramatically thrust on the consciousness of the armed forces by recent events in the Middle East. If supposedly unsophisticated international terrorists could create so much havoc, what might be expected from Soviet SPETSNAZ forces, fully supported and acting in concert with operations in the forward areas. This combination of developments in the categories of "conventional" and "unconventional" warfare served to focus attention on tactical aspects of operations in the rear area of a MAGTF.

Coincidentally, within the past two years the Marine Corps has been reviewing its organizations and capabilities for performing combat service support (CSS) and aviation ground support (AGS) functions within the MAGTF. This combination of circumstances formed the background against which this study was initiated.

B. STUDY OBJECTIVE

The objective of this study is:

> To determine concepts, measures, and procedures for the improvement of MAGTF rear area security.

This objective evolved from that listed in the Statement of Work (SOW) to its present form as shown in the Technical Proposal submitted by CACI, Inc.-Federal. When the Technical Proposal was approved by Headquarters Marine Corps (HQMC) on 30 November 1984, it became the Study Plan for the conduct of the study.

The Scope of Work paragraph in the SOW further defined what the study was intended to accomplish. A phased research and analytical investigation was to be performed to determine doctrine, tactics, force structures, and equipment which can be employed by the MAGTF. This doctrine and these tactics, force structures, and equipment would be employed by the command, ground combat, aviation combat, and combat service support elements of the MAGTF to minimize the vulnerabilities of non-combat units and enhance rear area security (RAS) in both military operations short of war and wartime participation in naval or continental campaigns.

The period of interest of the study -- 1985-1995 -- encouraged consideration of the possible contributions that new systems to be fielded in this period could make to RAS. The orientation of the study on MAGTF RAS made it necessary to examine the problem as an integrated whole rather than as a collection of lesser included problems faced by the various elements of a MAGTF. Finally, the inclusion of the word "concepts" in the statement of the study objective allowed the study team to explore new ways of looking at the problem, unrestricted by the current conventional wisdom on the subject that prevails in the different communities of interest within the Marine Corps.

C. STUDY PLAN

The Study Plan developed to accomplish the objective of the study divides the work into three phases: research, anaysis, and documentation. The tasks to be accomplished in each of these phases were based on the best estimates of the study team before the work began. But, as explained to the Study Sponsors' representatives and the Study Advisory Committee (SAC) in the first interim report briefings, the detailed conduct of the study would depend on the findings of the research phase. This phase included both documentary research and interviews with senior Marines and other experts on various aspects of RAS.

Based on the results of this research, a number of different analytical techniques were selected to examine the variety of data collected. Wargaming a portion of the comprehensive threat against a notional rear area installation was combined with a subjective but structured evaluation of the overall problem faced by a MAGTF to yield estimates of benefits that could then be used in a cost/benefit analysis of alternative courses of action toward improvement.

D. PRECIS

This report documents the conclusions derived from the research and analysis performed and the recommendations developed to accomplish the objective of the study. Concepts, measures, and procedures to improve RAS are identified and specific changes are recommended to implement these improvements. The report describes what the study team did, how this was done in terms of research and analysis, and why certain techniques were used instead of others. The balance of the report is organized as follows:

Part III - Major factors bearing on the problem

Part IV - Assumptions used to take the place of unavailable facts

Part V - Discussion of the details of the problem, the overall approach to a solution, and the research and analysis performed

Part VI - Conclusions reached

Part VII - Recommendations for implementation

Annexes contain detailed backup material on documents researched and interviews conducted, the threat, study methodology, the results of historical research, data used in war games, multiattribute utility and cost/benefit analysis, and the details of recommended changes.

III. MAJOR FACTORS AND FACTS BEARING ON THE STUDY

A. GUIDANCE

The Marine Corps issued initial guidance for this project in its study directive. In addition, during the course of the study, amplifying guidance and direction was received from the representatives of the study sponsors and from members of the SAC. This guidance, which has been adhered to throughout the conduct of the study, is summarized below.

1. The central theme in all of the guidance received by the study team has been that whatever concepts, measures, and procedures are determined to improve RAS, their implementation must entail the minimum possible distraction from or degradation to the capabilities of the organizations involved to carry out their primary mission(s). This has become the major premise followed in the conduct of the study and the underlying criterion used in the evaluation of all possible alternatives considered.

2. The SOW contained a detailed, phased listing of tasks to be performed by the study team. This listing became the basis for a revised listing of tasks submitted as part of the Technical Proposal/Study Plan. These tasks were further revised (in terms of sequence and timing, not substance) during the research phase of the study. (The specific details pertaining to these revisions were discussed in a meeting between the Study Sponsor, SPO, M&L, ASB, and CACI representatives on 22 August 1985. The details of this discussion and resulting agreements are covered in CACI letters of 11 September 1985 and 29 October 1985 to the Contracting Officer's Technical Representative and the 8 November 1985 letter from CG, MCDEC to CACI). The plan that was finally followed is described in detail in Section V and satisfies fully all substantive guidance received from the sponsors of this study.

3. Detailed guidance for the conduct of the study contained in the SOW included a requirement for a thorough literature search and a list of

references that are germane to the topic. This research has been conducted and the Bibliography, Annex A, lists all of the sources that have been consulted during the course of the study.

4. The SOW included a paragraph of guidance under "General Instructions" that stated "operational concepts must be compatible with Marine Corps doctrine, practice and plans for logistical and combat service support of both ground and aviation units." In the judgment of the study team, this guidance has been followed, but since conceptual matters relating to RAS were a major part of the investigation, this item deserves fuller discussion which it receives in Section V.

5. That portion of the Technical Proposal/Study Plan which promised the development of tentative doctrinal literature including Readiness Evaluation Plans, was modified as a result of informal dialogue and agreement between the study team and representatives of the Director, Doctrine Center, Marine Corps Development and Education Command (MCDEC). This agreement stipulates that the Final Report of the study will include material from which doctrinal literature and readiness evaluation criteria pertaining to RAS can be developed, but that the study documentation need not include drafts of such material as part of the final deliverables.

6. During the course of research for the study, interviews with the study sponsors and other senior Marine officers indicated that to have maximum usefulness the output of this study should include a range of options by which the study objective might be accomplished. Such a range would ideally include improvements to RAS capability that could be implemented in the near term and at minimum costs as well as those that might require more time and resources to implement. This strong and consistent suggestion was taken as guidance by the study team and influenced the organization and presentation of the study's conclusions and recommendations.

B. MAJOR FACTORS IDENTIFIED BY STUDY TEAM

In the judgment of the study team, those factors which have a major bearing on the study can be discussed under three sub-headings as follows:

1. Scope of the study
2. The threat to rear area installations and units
3. The current RAS capability in the FMF

1. Scope

As stated in Section IIB above, the scope of this study includes RAS doctrine, tactics, force structures, and equipment that might be employed by all elements of a MAGTF in both miltary operations short of war and operations that are part of a maritime or continental campaign in the event of hostilities. This statment suggests that a comprehensive perspective must be adopted as to the missions and situations that MAGTFs are likely to be confronted with over the next decade. Possible missions span the spectrum from show of force, evacuation, and stabilization operations to full scale combat against Warsaw Pact forces. Geographically, every part of the globe outside of North America and reasonably close to the sea is a potential area of operations for task organizations of the FMF.

Counter-balancing this comprehensive range of missions and situations is the limited range of resources likely to be available to the Marine Corps in the foreseeable future. To respond to the all-inclusive and far-flung set of requirements stemming from its statutory mission and traditional readiness posture, the Marine Corps can nevertheless expect to be maintained at approximately the same strength that it has today - 200,000 regulars and 105,000 reserves. The mix of skills within these totals is subject to change as is the mix of male and female Marines, but the total strength figures are not likely to change significantly. This can also be said of the Marine Corps' share of the total Department of

Defense (DOD) budget. These judgments are made not as predictions or forecasts, but only as prudent estimates in the absence of any firm basis for anticipating a significantly different situation within the next ten years.

Given the diametrically opposed nature of these two dimensions of study scope, i.e., a virtually unlimited range of potential missions and situations vs. a very finite limit on projected resources available with which to respond to mission requirements, one is led naturally to a formulation of the problem in terms of constrained optimization. In a study such as this we are not attempting to discover a single optimum solution to the problem. Instead, we are seeking to maximize RAS effectiveness subject to existing limits on available resources. Stated another way, the study has attempted to identify the most efficient use of whatever level of limited resources happens to be applied to the problem of improving the RAS capability in the FMF.

2. Threat

In the range of situations comprehended in this study, threats to installations and units in the rear area of a MAGTF span the full spectrum from the threat of "special" weapons, i.e., nuclear, biological, or chemical (NBC), through the variety of threats under the heading of conventional warfare, to the threats from special forces such as Soviet SPETSNAZ units or international terrorists operating in an unconventional warfare mode. The details of this threat spectrum are described in The Threat, Annex B. In order to use this variety of information in the definition of the problem for analysis and in the evaluation of alternative courses of action, selective parts of the threat spectrum were combined with different missions, geographical areas, and types of MAGTFs to develop a set of representative situations. This sample was then analyzed to determine the most efficient courses of action by which RAS capabilities could be improved. This approach yielded an answer to the question "how do we improve RAS?" that is less definitive than one might want to hear, but one that is more realistic in view of the many variables involved.

3. Current RAS Capability

In order to determine concepts, measures, and procedures to improve RAS capability it is first necessary to determine in some fairly precise manner what is the current RAS capability in the FMF. Once this "baseline" is established various "improvements" can be evaluated in terms of how much they "cost" (general expenditures of resources, not merely dollar costs) and how much "benefit" they yield. The words in quotations suggest measurable quantities. In other contexts quantitative measurements may be possible, but in the realm of RAS such measurement is problematic at best. This measurement problem is discussed in more detail in Section V. In spite of inherent analytical problems this is the approach that was used in the study.

The current RAS capability in the FMF is described in terms of concepts, measures, and procedures. This "baseline" is then compared to the threat in the sample situations and to an "ideal" standard represented by an infantry battalion in defense (including the capabilities of such a unit after it has attained the soon-to-be-promulgated mission performance standards for countering terrorism). These comparisons indicate certain deficiences or areas in which improvement can be made. Specific changes to concepts, measures, and procedures are then developed which will yield some improvements in capabilities but will also incur some associated costs. The changes are listed in both increasing order of costs and benefits and these lists are then compared to arrive at feasible, timely, and efficient courses of action.

In this study, costs can be measured more precisely than benefits, but where quantitiative measures cannot be determined, qualitative measures (e.g., more or less; high, medium, low) based on judgment (supported by rationale) are used. The results of this approach, described in Sections VI and VII, are subject to criticism and disagreement, but the information and logic used to arrive at them is fully documented. This will enable subsequent study efforts to repeat the process using updated inputs and improved techniques and perhaps achieve more definitive results. This study is a first step.

IV. ASSUMPTIONS

A. INITIAL ASSUMPTIONS

The SOW directing this study contained six assumptions as follows:

1. The threat to all elements of the MAGTF in the area of responsibility (AOR) from both conventional and unconventional warfare, will increase.

2. The provision of a higher degree of security in the MAGTF AOR is feasible and will be a force multiplier by enhancing the capability of the MAGTF elements to carry out their primary mission.

3. MAGTF security can be improved significantly by adopting standard procedures (e.g., "stand to before dawn and sundown" or "systems of restricted access") and/or "off-the-shelf" equipment (e.g., portable barriers or personal weapons designs) which cause minimal interference with primary task accomplishment and minimal impact on force structure.

4. Women Marines may be assigned to Combat Support/Combat Service Support units for expeditionary service in the aviation component of a MAB and in all CS/CSS components of the MAF.

5. The organization and equipment changes for rear area security will be primarily influenced by MAGTF mission accomplishment requirements.

6. That major changes in USMC end-strength are improbable.

A seventh assumption was added to the Technical Proposal when it was learned that U.S. Army, Marine Corps and Air Force representatives were meeting to discuss the possibility of developing joint doctrine related to RAS. This assumption reads as follows:

7. That joint doctrine or agreements as established by the military services will prevail during the duration of this study.

B. REVISED ASSUMPTIONS

The original six assumptions, plus the one added in the technical proposal, were all based on estimates made before any research was conducted. After four months of research, however, the study team recommended some revisions. These recommended modifications were included in the First Interim Report and were subsequently concurred in and approved by the SAC (and later confirmed in writing by the Contracting Officer's Technical Representative). The rationale for revising certain assumptions and retaining others in their original form is outlined in the following paragraphs.

1. "That the potential threat to all elements of the MAGTF . . . will increase" is probably true, but, as of now, the threat to the rear area of a MAGTF is already more than can be countered effectively. As long as measures to improve RAS are seen as progressive steps that, once implemented, will have to be continually upgraded to keep pace with the threat, this assumption adds nothing to a more precise definition of study scope and parameters, nor would its validity affect the validity of the study. For these reasons it was recommended that it be deleted. This recommendation was approved.

2. "That the provision of a higher degree of security . . . is feasible and will be a force multiplier . . . ." This assumption was theoretically valid but was more like the statement of a hypothesis than an assumption. The feasibility of various RAS measures was to be examined during the analysis phase of the study. The degree that each feasible measure contributes to RAS was also to be the subject of analysis. To be useful this study assumption was restated as follows:

> "That the provision of a higher degree of RAS for units of the Command Element, the Aviation Combat Element (Ground),

and the Combat Service Support Element of a MAGTF is feasible without an unacceptable degradation of the primary mission capabilities of these elements."

This amended statement now identifies a major consideration and premise bearing on the study. If it proves to be invalid, it will affect the validity of the study's findings. This recommended change was approved.

3. "That MAGTF security can be improved significantly . . . ." This assumption listed factors (unit SOP and "off-the-shelf" equipment) which had to be examined during the analysis, therefore it was not appropriate to assume their efficacy. Accordingly, it was recommended and approved that this original assumption be deleted.

4. "That the organization and equipment changes for RAS will be primarily influenced by MAGTF mission accomplishment changes." When originally proposed, this assumption was included to ensure that the study would not ignore the effects on RAS capabilities of any changes in MAGTF mission capabilities. After four months of research, it became evident that MAGTF missions and the capabilities to perform them were central to any consideration of RAS which is a subordinate and contingent consideration within the MAGTF Commander's Estimate of the Situation. For this reason this particular assumption was superfluous. It was recommended that it be deleted and this recommendation was approved.

5. "That women Marines may be assigned . . . ." After this assumption was written, the limitations on the assignment of women Marines within a MAGTF were specified in MCBul 1300 of 17 December 1984. These specifications were incorporated into the parameters of the study as they apply to the definition of feasible and acceptable alternatives. There was, therefore, no further need for this assumption so its deletion was recommended and this recommendation was approved.

6. "That major changes in USMC end-strength are improbable . . . ." This assumption is still valid and appropriate.

7. "That joint doctrine or agreements . . . will prevail . . . " This assumption is useful as a study parameter and it identifies a premise which, if it were not to remain valid for the time period of the study, would have a major impact on the study findings.

In addition to these recommended changes to the assumptions listed in the approved Technical Proposal, the following two assumptions were added. Their inclusion allowed the exploration of a wider range of alternatives for RAS improvement than would otherwise have been possible within the scope of the study.

8. "That some amount of additional funding may be made available for the purpose of improving RAS capabilities if it can be justified within the Program Objectives Memorandum (POM) development process."

9. "That there is some flexibility in the organizational structure of the FMF to accommodate recommendations for changes in T/Os and T/Es to improve RAS capabilities."

These two assumptions are needed to allow "room" for even small incremental changes to Tables of Organization (T/Os), Tables of Equipment (T/Es), and training requirements. If they cannot be assumed then improvements to RAS capabilities will be limited to conceptual and procedural changes only, i.e., those which can be implemented by commanders in the FMF even now.

C. FINAL VERSION OF ASSUMPTIONS

In summary, the following revised list of assumptions has been used to guide the study effort subsequent to the presentation of the First Interim Report:

1. That the provision of a higher degree of RAS for units of the Command Element, the Aviation Combat Element (Ground), and the Combat

Service Support Element of a MAGTF is feasible without an unacceptable degradation of the primary mission capabilities of these elements.

2. That there is some flexibility in the organizational structure of the FMF to accommodate recommendations for changes in T/Os to improve RAS capabilities.

3. That some amount of additional funding may be made available for the purpose of improving RAS capabilities if it can be justified within the POM development process.

4. That major changes in USMC end-strength are improbable.

5. That joint doctrine or agreements as established by the military services will prevail during the duration of this Study.

V. DISCUSSION

INTRODUCTION

This part of the report contains discussion of the formulation, analysis, and comparison of possible solutions to the RAS problem. It also includes the basis for conclusions reached by the study and the rationale for the recommendations made to improve RAS capabilities in the FMF. A detailed discussion of the approaches and methods used to attack the problem is in Annex C. This section summarizes the results of the work that Annex C described, and is organized in three parts:

A. Problem Definition
B. Analysis of Alternative Courses of Action
C. Summary of Discussion

The formulation of the problem involved the study team in an exercise affecting Marines in different communities of interest in the Corps. Each of these communities, such as ground combat, aviation, and combat service support, and the smaller communities of different occupational fields (OccFlds) which they included, had its own context within which it interpreted the requirements of and the approaches to RAS. From the variety of interpretations of the language encountered, the study team worked its way to a problem definition (Section A below) that was specific enough for analysis purposes. This problem still cannot be described with mathematical precision but it does lend itself to description and analysis in terms of analogous elements and familiar relationships.

The overall approach to analysis was influenced by the diversity of material or "data" available relating to RAS and the practical considerations of the decision environment within which RAS solutions would have to be implemented. The variety of material available indicated an approach that would embrace a variety of analytical techniques. The practical considerations of implementation indicated a set of recommendations that could be approved, tried, evaluated, and then incorporated or discarded in an incremental yet systematic addressal of the problem.

Sections B and C contain the evaluation of three different courses of action using the findings and results of the research and analysis described in Annex C, and a summary of this portion of the report before moving on to conclusions and recommendations.

A. PROBLEM DEFINITION

Defining a problem for study is a dynamic activity. Early in the life cycle of a project, initial understanding of the problem is based on the Study Directive and Statement of Work. As study work commences, a better frame of reference begins to emerge that often modifies the initial understanding of the problem. Even after substantial work has taken place, still another view often evolves. As a result, the study team's perspective on the problem becomes clearer and more refined as research and analysis afford more insights. This project was no different than most in this regard. A clear perception of the RAS problem emerged only after considerable research and preliminary analysis.

1. Definition of Terms

The first step in the process of problem definition began with a critical examination of the words used in the project title -"Marine Air Ground Task Force (MAGTF) Rear Area Security (RAS) Study, 1985-1995." This examination sought to understand the full import of both the words themselves and the relative significance of this study in the context of larger Marine Corps concerns.

The general subject matter of the study was security. This word was understood in various senses. From a review of Webster's Ninth New Collegiate Dictionary, Joint Chief of Staff (JCS) Publication No. 1, and a number of Fleet Marine Force Manuals (FMFM) and Operational Handbooks (OH) where references to security are made, the following four different senses or meanings were identified:

a. Security is freedom from danger (or anxiety) or a state of inviolability from hostile acts or influences. Such a condition requires conscious effort.

b. Security may be used as a synonym for safety or protection, but is not usually done so in a military context.

c. Security is also used to refer to measures taken by someone to protect something from someone or something. Once they are determined, the concepts, measures, and procedures which are the objective of this study can be referred to collectively as security in this sense.

d. Finally, the organizations responsible for taking the measures or steps, i.e., the means to the end of establishing and maintaining that ideal state of inviolability from hostile acts, are themselves often referred to as security.

2. Qualification of Terms

Continuing this necessary exercise in semantics, we next asked a series of qualifying questions that helped to further specify the subject matter of the study.

a. We are concerned with the security of what within a MAGTF?

Initial research indicated that we needed to be concerned with the security of the full range of targets of hostile action, i.e., information, material, facilties, personnel, military units, installations, and activities.

b. From what must all these potential targets be protected?

The list is similarly comprehensive - espionage, sabotage, subversion, terrorism, loss (unauthorized disclosure), surprise, attack by any of an enemy's many weapon systems, hostile acts or influences of any kind--in a word, all acts that may impair the effectiveness of the MAGTF.

c. To what end or why must there be such a pervasive emphasis on security?

As a principle of war, security is a major consideration because without it the freedom of action of the MAGTF against an aggressive enemy

would soon be lost. The combat elements of the force would have to be diverted from their primary missions to react to enemy threats to security. In other words, the establishment and maintenance of security (in the sense of the first definition above) makes a major contribution to the accomplishment of a MAGTF's mission.

d. When is security important?

Security is important whenever the MAGTF is in the proximity of an enemy. In this era of international terrorism even CONUS bases cannot be assumed to be secure without close attention to security measures. In view of this, the answer to the "when" question must be "continuously".

e. Where is security of particular concern?

Here, at last, we found a basis for limiting the scope of this study. The qualifying words "rear area" security indicated that we may concentrate our attention on those areas and elements of the MAGTF which are behind the forward areas, i.e., the area where tactical security (which subsumes "rear area" security for the units involved) is a primary concern at all times anyway. In the same vein we further focused our investigation on those elements of the MAGTF which normally populate this rear area. This logic led to the identification of the objects of analysis in this study as being all elements (and units within elements) of the MAGTF except the ground combat element (GCE), and those portions of the aviation combat element (ACE) which are actually airborne at any given time.

f. Who must be capable of taking security measures?

It appears, from what has been deduced to this point, that all individuals and units in the object category have something to contribute to security. Some security measures, however, depend on specialized training and/or equipment, and perhaps special organizations. It was combinations of these variables that were examined and evaluated during

the study. Combinations that were found to be feasible to implement and promise the most improvement to RAS capabilities, based on the research and analysis performed, are identified to the Marine Corps as the antecedents of effective security -- those concepts, measures, and procedures which must precede that state of inviolability from hostile acts which the Corps is seeking to achieve in the rear area of a MAGTF.

3. The Problem for Analysis

From the outset of the study the presumption had been that a problem existed in the adequacy of the RAS capabilities of a MAGTF. But, in addition to defining terms, more needed to be done by way of making this problem specific enough for systematic analysis. The objective of the study implied that there was some standard or ideal against which RAS capabilities could be measured. For purposes of problem definition, we hypothesized that, in general, the ideal or standard against which the RAS capability of a MAGTF should be judged is its ability to free the combat elements of the MAGTF (GCE and ACE) from interference in the performance of their primary missions. The interference alluded to here is that caused by the development of a sudden or unexpected threat to rear area units or installations. A requirement for the GCE or ACE to react to such a development would constitute a diversion from their primary mission(s).

Similarly, if an unexpected threat develops in the rear area that distracts Combat Service Support (CSS) and Aviation Ground Support (AGS) units from the performance of their primary support missions, this also degrades, to some degree, the overall combat power of the MAGTF. Finally, any serious interruption of the functions of the command element would have a major impact on the mission performance of the MAGTF. Considering all of the factors touched on in the above discussion, the following definition of the problem was arrived at:

Rear Area Security is the protection and defense of information, material, facilities, personnel, military units, installations and activities, located behind the GCE of a Marine Amphibious Brigade (MAB) or

Marine Amphibious Force (MAF), against hostile acts by an enemy. The problem for analysis is to determine how this protection and defense can be achieved without degrading the primary mission performance capabilities of the MAGTF below some minimum acceptable level.

If the GCE or the ACE of the MAGTF must be diverted to react to threats to rear area installations or activities, performance of their primary missions is degraded. If the CSSE and the ACE (ground support) are diverted from their primary support missions to defend themselves, the overall combat capability of the MAGTF is degraded to some degree. The objective of the study then is to determine concepts, measures, and procedures that will improve the RAS capabilities of a MAGTF with minimal degradation to overall combat capability (subject to the parameters of any given operational situation).

Whatever concepts, measures, and procedures are determined, must be feasible to implement within the constraints of a Marine Corps of 200,000 (plus reserves in partial and full mobilization situations). Improvements in RAS must also be able to compete for funding within the Planning, Programming, and Budgeting System (PPBS) at HQMC, be supportable by the personnel skills currently available within the Corps (with relatively minor modifications) and exert minimum impact on the existing FMF structure (especially on infantry battalions and other maneuver elements of the Marine division).

4. Representative Situations

Even with this definition, however, more specific information is required for detailed analysis. Such information is itself a function of particular situations or scenarios. To make the results of this study as applicable as possible to a wide variety of situations, the study team has developed a set of three representative situations designed as a sample of the range of missions, threats and environments that MAGTFs are likely to face in the coming decade. This approach, rather than the use of existing Marine Corps (MARCOR) initializing scenarios for studies, was adopted

because, after review of these scenarios, it was felt that the set of situations developed by the study team better portrayed the range of factors affecting RAS than did the standard scenarios. A brief description of each of these representative situations follows:

a. Situation #1 - MAB in Low-Intensity Contingency. For this situation we have assumed that a MAB is deployed to Honduras in an operation short of war. The MAB deploys via amphibious shipping, maritime prepositioning ships (MPS), and aircraft after a period of warning. During this warning period diplomatic activities, crisis management, and decision-making by the National Command Authorities have been going on. The mission of the MAB is one of "presence" and stabilization. It is also directed to be prepared for further operations, while protecting itself against occasional hostile actions by local insurgents and guerrillas. Restrictive Rules of Engagement (ROE) are in effect. Figure V-1 depicts the locale of the Honduran situation.

b. Situation #2 - MAF in CENTCOM Contingency. In this representative situation a MAF is deployed to Iran to counter a Soviet-model surrogate force which threatens free access through the Straits of Hormuz. The MAF deploys via a combination of amphibious and MPS shipping and airlift. Its initial lodgement in the objective area is made without opposition at a number of advanced bases including port, beach, and airfield facilities. During subsequent operations ashore the MAF (with limited augmentation that could be expected to be available in a PARMOB situation) conducts offensive operations against the enemy within Iran, operates in a joint Central Command (CENTCOM) environment, and must protect itself against an indigenous irregular/terrorist threat. Figures V-2 through V-4 depict the MAF in this CENTCOM contingency locale starting with the entire AOR and narrowing down to a notional installation within the AOR.

c. Situation #3 - MAF in NATO Contingency. In this "worst case" situation a fully augmented (FULL MOB) MAF is deployed to the United Kingdom (UK) as Supreme Allied Commander, Europe (SACEUR)'s strategic reserve. After the Warsaw Pact (WP)'s initial attack against

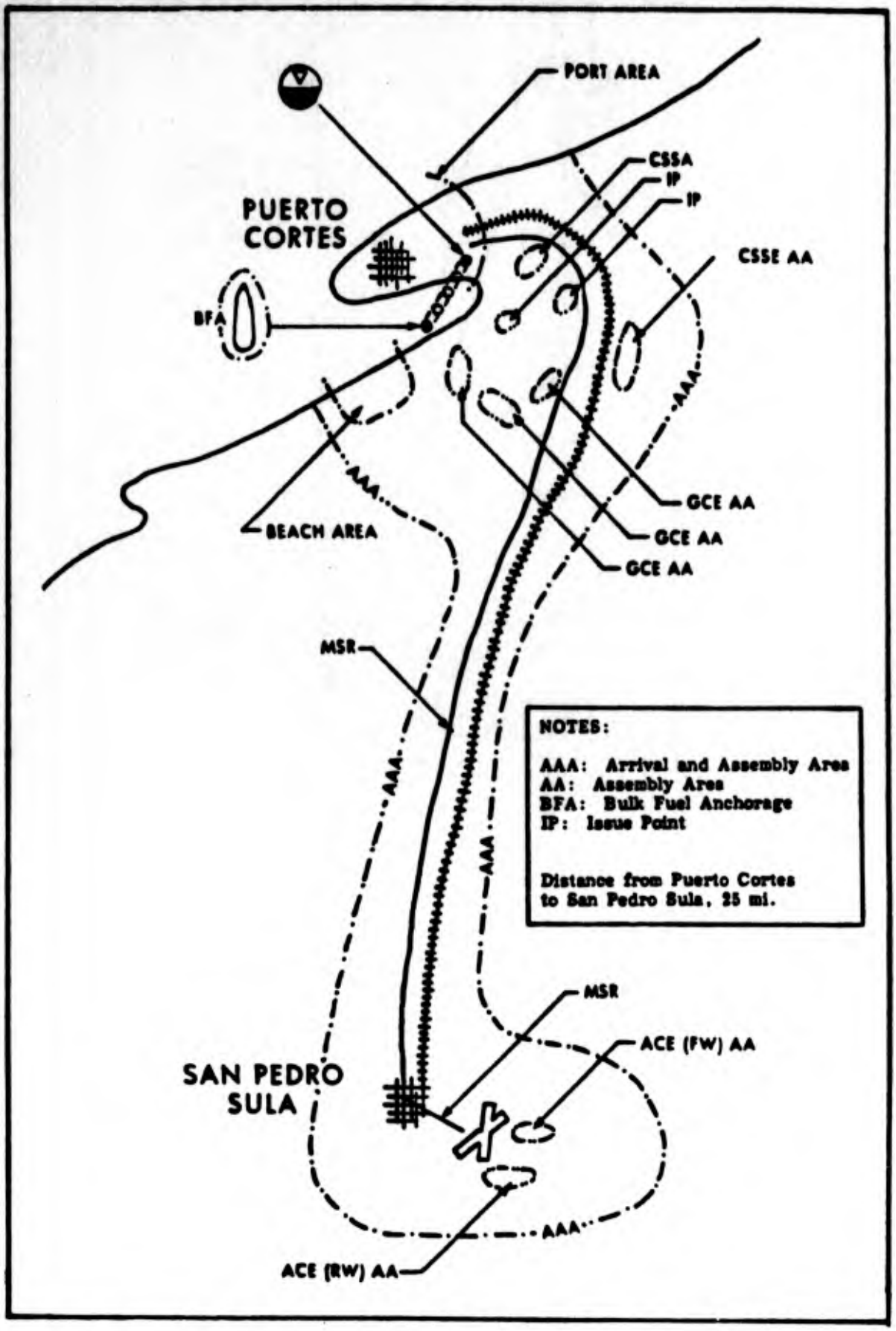


Figure V-1 Arrival and Assembly Area

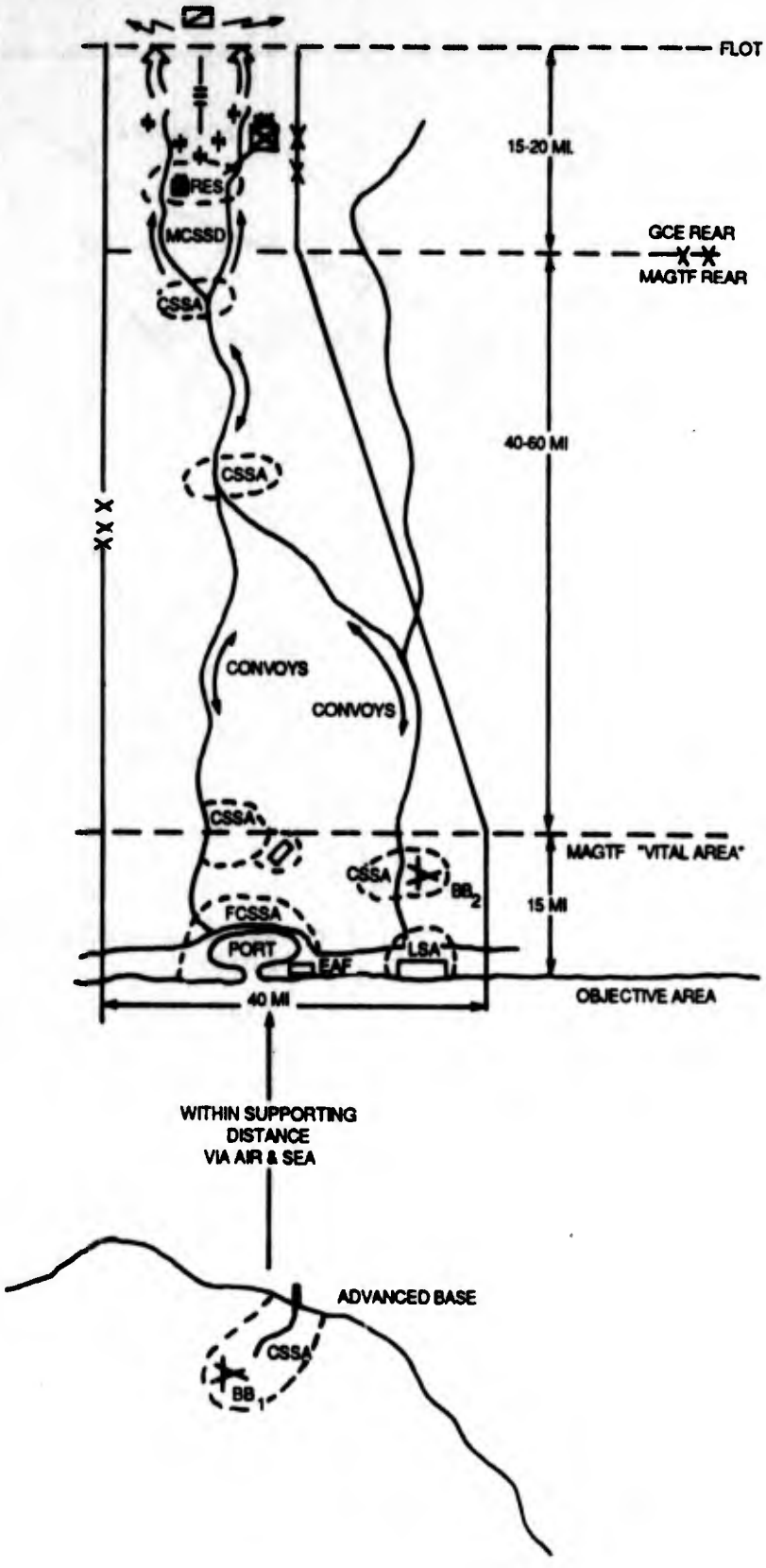


Figure V-2 Representative Situation No.2
(Approximately to Scale)

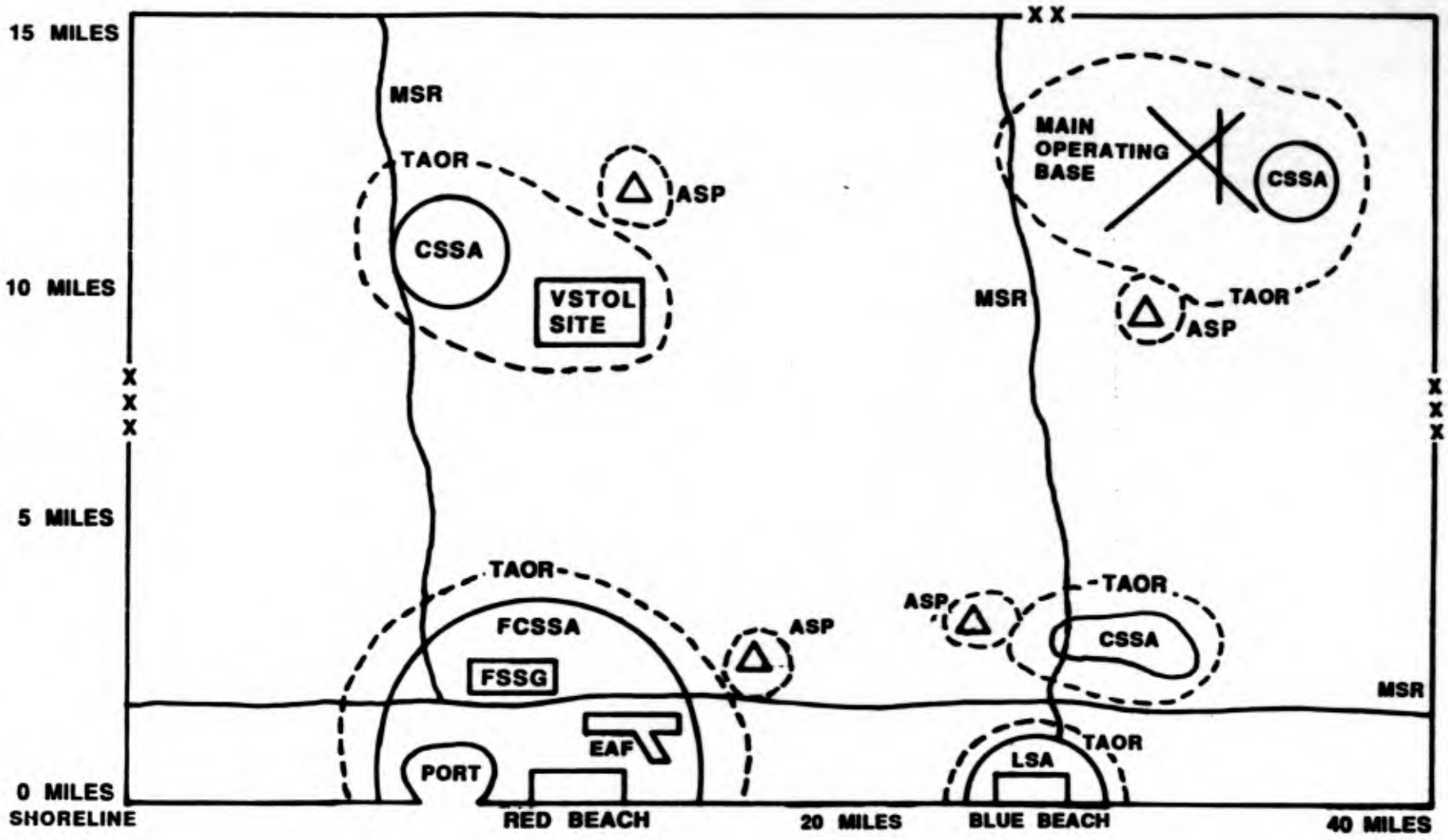


Figure V-3 MAGTF Vital Area

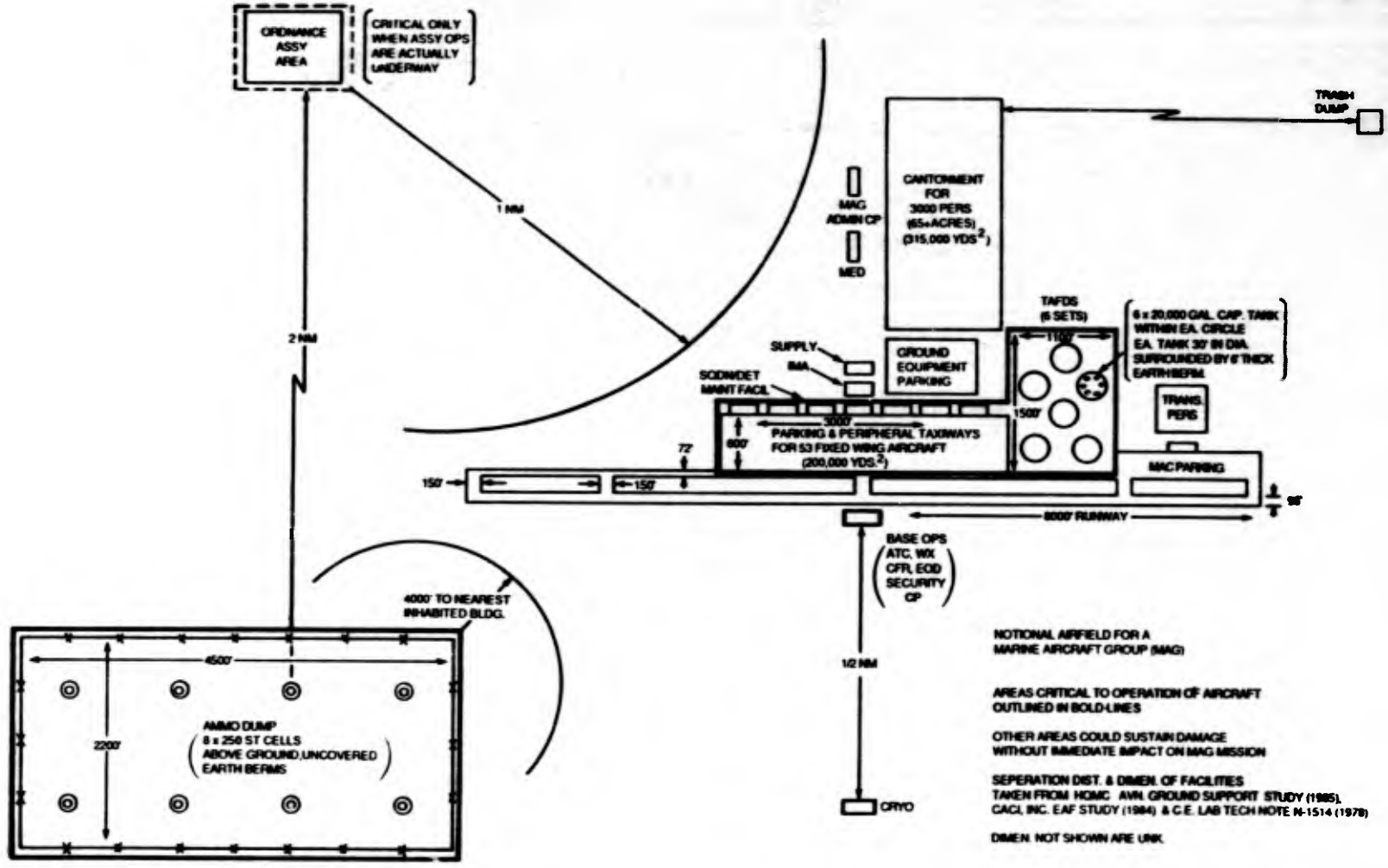


Figure V-4 Notional Airfield for a Marine Aircraft Group (MAG)

the North Atlantic Treaty Organization (NATO) is contained, the MAF is employed in an amphibious assault to gain a lodgement for follow-on forces at a strategically advantageous location in the Baltic Approaches (BALTAP) region. In subsequent operations ashore the MAF is part of a larger joint and combined force conducting a counterattack against WP forces holding allied territory. There is host nation (HN) assistance with the RAS problem but there is also the full Soviet threat to be dealt with, featuring heavy pressure on rear areas in coordination with operations at the "front."

The nature and scope of the threat faced in each of three situations is summarized in Table V-1. With these specific ingredients for a commander's estimate of the situation to work with, the study team developed alternative courses of action by which to accomplish the study objective and analyzed these alternatives to determine which were feasible, most efficient, and most effective.

Table V-1 MAGTF/THREAT RAS Study Situations

ELEMENTS	SITUATION #1	SITUATION #2	SITUATION #3
MAGTF	MAB to Honduras - Non-Mob - Amphibs & MPS	MAF to Iran - Par Mob - Amphibs & MPS	MAF to Europe - Full Mob - Amphib Assault followed by extended land campaign
Mission, friendly forces	Presence, interposition mission; Initially USMC only	Seize, occupy, defend, locate, close with, destroy; Other CENTCOM forces	Conduct offensive operations as part of larger theater counter-offensive
Threat Nature	Low level conventional threat Incipient unconventional threat	Soviet-model conventional threat Well organized unconventional threat	WP conventional threat Sophisticated Unconventional threat
Threat Description	Guerrillas Terrorists	Irregular military & paramilitary units Airborne/heliborne/waterborne company Spetsnaz-type units Terrorists	Airborne company Air Assault company Heliborne company Naval Infantry company Spetsnaz units
Major Threat Equipment	None	Mi-4 Mi-8	BMD, BTR-60 Mi-8, Mi-24, Mi-26
Areas of Operations	Under-developed country Close terrain	Ports and airfields LOCs Population centers Open terrain	Northwest Europe Mature theater Strong host nation support Urban terrain

B. ANALYSIS OF ALTERNATIVE COURSES OF ACTION

Introduction - In this section the results of the analysis of the three courses of action developed in Annex C are reported. These courses of action were developed as alternative means by which the Marine Corps could accomplish the objective of the study - the improvement of RAS capabilities in the FMF over the next decade. The three alternatives are actually different combinations of concepts (doctrine), measures (T/O, T/E and Training Standards), and procedures (SOP) arranged in sets that are progressively more difficult to implement and may be progressively more cost-effective as means of improving RAS. How well each alternative meets this test of cost-effectiveness was the subject of the evaluation reported in this section. Each course of action was analyzed in light of the circumstances of the three representative situations and the advantages and disadvantages were estimated based on evidence gleaned from the variety of research and analyses performed.

Course of Action #1 - Maintain the status quo in equipment, organization, and training. Task organize to solve the RAS problem in any given situation. Conduct necessary mission-oriented training and develop SOPs within the FMF to cope with the problem.

In Situation No. 1, the results of this course of action would probably be adequate to achieve the required level of RAS especially with the addition of a MAU to assist the MAB establish itself in the AAA in Honduras. Any additional capability required against the UW threat could be added to the MPS MAB troop list from FMFLANT assets.

In Situation No. 2, to effectively counter the light armor threat, the MAF commander would have to allocate some of the AT and LAV battalion assets of the GCE in addition to artillery and air support, at least to the forward part of the rear area. This would draw down somewhat on GCE and ACE combat power but it would not affect maneuver element strength. As long as the GCE continued to advance, this relatively small drawdown would probably be acceptable. MAF-level involvement in RAS planning

combined with strong command emphasis on EST in all support units and proper RAS mission-oriented training by all task organizations prior to deployment might suffice to ensure a built-in security capability. However, the lack of initial entry combat skills training for all enlisted personnel in OccFlds in the CSSE and the ACE makes it difficult to achieve a satisfactory level of general military skills in these elements of the MAGTF by unit training (mission-oriented and EST) alone. Finally, although not quantifiable, the requirement for specialists in OccFlds 01 (CAMG), 02, 25, 26 and 58 can probably be met, especially with the augmentation available from partial mobilization (PARMOB) of the Marine Corps Reserve (provided these skills exist in the Reserve structure).

In Situation No. 3, a "worse case" variant of situation #2, the drawdown of any GCE combat power, especially anti-armor assets, would probably not be acceptable. Against a Soviet threat featuring deep armor thrusts coordinated with heavy pressure on rear area installations, all elements of the MAGTF must be prepared to protect and defend themselves, especially if they are widely separated. Even in this FULL MOB situation, the depth and breadth of skills required against a range of sophisticated threats to the rear will not be available when needed unless RAS requirements receive more visibility and higher priority than they enjoy today.

Course of Action #2 - Make changes in doctrine, T/O, T/E and training standards that will improve the capability of CSS and AGS units to protect and defend themselves.

In situation No. 1, the changes indicated are those that would enable each CSS and AGS battalion/squadron size unit large enough to field more than 900 Marines (or CSS task organization with a strength greater than 900) to respond to rear area threats with a security/defensive capability approximately equal to that of an infantry battalion. This built-in capability would relieve the infantry battalions of the MAU and MAB from indefinitely providing security for support facilities. For security against the UW threat in this situation, the greatest need is for intelligence, counterintelligence, language, and military police skills.

In situation No. 2, if the infantry battalion equivalent security and self defense capability exists in all support installations and task organizations (total of 7 for the MAF) there will be a minimum requirement for any drawdown of GCE combat power. Intelligence, reconnaissance, and surveillance efforts in support of rear areas and some indirect fire and air support may be required against a strong conventional threat (like a BMD-equipped airborne battalion), but otherwise support units should be able to take care of themselves. In the detailed dispositions and task organizations of the support units hypothesized in this situation there are enough Marines available to support an infantry battalion equivalent in each CSSA or air base installation examined. All that is needed are sufficient personnel with the basic skills required, some additional equipment allowances, especially for weapons, and the individual unit (mission-oriented) training needed to make effective use of this equipment. (Based on this situation a goal of 8 infantry battalion equivalents was selected as a maximum feasible capability for self defense by support units. Four of these battalions could be formed from the personnel assets of the 4 proposed MWSS and their supported aircraft squadrons. The other 4 could be formed from the assets of the Supply, Maintenance, Engineer Support and Landing Support battalions of the FSSG.)

In situation No. 3, the "strong point" approach to RAS would be an even more pressing necessity. If the full Soviet threat spectrum directed against an opponent's vital rear area installations cannot effectively weaken the combat power of the MAGTF oriented on the forward area battle, the enemy is less likely to be successful in either area. As a corollary of this observation, if the enemy does concentrate sufficient force to make a deep penetration into a MAF's rear area, this threat would have to be of such size and combat power that it would constitute a significant threat to the MAGTF as a whole and therefore be a legitimate reason to employ the GCE reserve against it. It is this relationship of RAS requirements to the MAGTF level calculus of relative combat power in every situation that makes the strongest argument for significant improvement in support unit security and self defense capabilities.

Course of Action #3 - Create new T/Os, T/Es, concepts of employment, and mission performance standards to perform the RAS mission for a MAGTF.

In situation No. 1, new security units, such as an augmented MP company or even an MP battalion similar to the Vietnam era organization, would be useful within the AAA, especially after the infantry battalions of the MAU and the MAB are redeployed to perform other missions. Whether such dedicated security organizations would be sufficient to insure adequate RAS without participation by support units in their own security and self-defense is not clear.

In situation No. 2 the questions raised concerning this course of action are even more apparent. What size defense battalion would it take to adequately "cover" the extended area of operations of the MAF hypothesized in this situation? Conversely, if rear area support units with some modest level of intelligence and fire support from the MAGTF could take care of themselves (as in Course of Action #2), how much of a requirement is there for specialized, dedicated rear area security units? These questions can be answered with any degree of confidence only after further detailed analysis (e.g., war gaming) and testing (e.g., field exercise). It seems safe to speculate, however, that while support units may need some outside help to defend themselves against the variety of rear area threats, the size of the specialized unit needed to provide RAS for a MAGTF without the participation of support units would be prohibitively large.

Situation No. 3 is the most likely case in which some combination of the measures envisioned in Course of Action #2 plus the capabilities of new, dedicated security organizations may be required in the rear area. This is also the situation in which there is the most leeway to create these additional capabilities. Because FULL MOB is assumed in this situation, the MAF structure could be expanded most easily to accommodate some type of RAS battalion. But even so, what form this organization would take and how its unique capabilities might be developed and maintained in the peacetime structure are questions that call for more detailed examination if this course of action is adopted.

The following table summarizes the advantages and disadvantages of these three courses of action.

ADVANTAGES	DISADVANTAGES
COA #1 Minimum cost, controversy and turbulence; maximum discretion left to FMF and MAGTF comanders	The consensus is that, in the face of the current and prospective threat, status quo ("baseline") capabilities are not sufficient to provide adequate RAS.
COA #2 Institutionalizes security as a command responsibility for support units. Minimizes diversion of combat power from primary MAGTF mission by maximizing self-protection and defense capabilities of units in the rear area.	Distracts support units from performance of their primary missions in peacetime as well as wartime. Increased costs in terms of dollars for additional equipment, numbers of skilled personnel, time for training, and for changes to doctrine.
COA #3 Dedicated unit(s) can concentrate on preparation for RAS mission as their principal role. Development of doctrine, tactics, techniques, and equipment for RAS facilitated by existence of separate and distinct community within FMF charged with this responsibility.	Costs, as in COA #2 above, would probably be even higher. Capabilities attained by this COA not necessarily adequate in every situation. Relegation of security to a "specialty" would tend to relieve all units in every situation from requirement to exercise security awareness.

C. SUMMARY OF DISCUSSION. Part V of the report presented a discussion of the RAS problem from its initial formulation, through synopses of the various research and analyis approaches used to study it, to the development of alternative courses of actions for its solution. RAS was perceived as a problem of constrained optimization, that is, a problem in which the objective is to maximize the security of the support elements of a MAGTF subject to the constraints imposed by limited resources. Alternatively, the problem was seen as one in which the goal was to minimize cost subject to the achievement of some minimum acceptable level of security for vital rear area installations. In this latter context the costs to be minimized are thought of in terms of drawdowns on the overall combat power of the MAGTF.

Inasmuch as the problem was not a rigorously quantifiable one, the approach used to study it relied heavily on empirical data and the judgment of experts. Quantitative validation was used where possible. This approach has been referred to in social science literature as "methodological triangulation" - the use of different observers, sources of data, and techniques of analysis in the hope that results eventually converge to support the derivation of a single set of synergistic conclusions. The discrete methods used to study the RAS problem consisted of: historical examination of RAS lessons learned; analysis of the threat to a MAGTF rear area today and in the foreseeable future; war gaming of one aspect of the threat against a typical rear area installation; and the collection of expert opinion from senior Marine officers. The results of these various techniques were woven into a cohesive whole by means of the operations research method called multiattribute utility analysis. After the utility of various RAS enhancements had been estimated, representative costs of the most beneficial (i.e., highest utility scores) possibilities were researched. These two items of data were then combined to perform a cost-benefit examination to add the consideration of economic feasibility to the decision criterion.

The alternative courses of action developed for analysis were basically three different combinations of concepts, measures, and

procedures which, it was thought, would improve RAS capabilities but which were progressively more difficult to implement. These courses of actions are summarized below:

Course of Action #1. In this course of action commanders and staffs of units primarily affected by the threat to the rear area, i.e., CSSE and ACE (ground support units) would develop RAS contingency plans for each operation. Officers with ground combat arms experience serving in the CSSE and the ACE would provide the skills required for this planning, and staff assistance and coordination would be provided by the MAGTF staff. The result of this planning would be a "be prepared to ..." order/annex in the MAGTF Op Plan which would task all elements of the MAGTF with responsibilities for RAS.

Reconnaissance, surveillance, observation, and intelligence agencies of the MAGTF would be tasked to collect and disseminate information needed to adequately prepare for RAS missions. Subordinate units within the CSSE and the ACE would be located to best perform their RAS as well as their primary support missions. Each such unit would be given responsibility for an area to defend (within its capability and with reference to the threat). Counterintelligence assets of the MAGTF would be tasked to perform both active and passive CI functions related to RAS (e.g., development of contacts within indigenous populations in the vicinity of rear area installations; coordinate with CAMG activity in this regard). MAGTF engineer assets would be tasked to harden installations and create barriers in the rear as well as in forward areas.

Task organizations would be created for the active defense of rear area installations (including support units and GCE units as required). MP assets would be tasked to augment protection provided by the interior guard of each unit against the UW threat. Fire support assets of the GCE and ACE would be given "on order" missions to support the RAS plan in the event of the appearance of a conventional threat in the rear. "Economy-of-force" units like the LAV battalion and maneuver elements of the GCE reserve would be tasked to "be prepared to ..." respond to conventional threats that may materialize in rear areas of the MAGTF.

This status quo approach to RAS would be pursued by FMF commanders, without any further actions by HQMC or MCDEC.

Course of Action #2. The same steps would be taken in the FMF as in COA #1. In addition, all CSS and AGS units would be made responsible for more of their own self protection and defense (T/O mission statements and concepts of employment would be changed to that effect). In order to accomplish this, battalion and squadron commanders and their staffs would have to have the requisite professional training and experience. Doctrine including sample SOP and checklists for operation plans would be developed to guide this professional education. Some small changes in T/O line items might also be required.

Support units would have to be equipped with crew-served weapons, STA equipment, communications, data processing equipment and perhaps special barrier equipment needed to defend themselves against both conventional and UW threats.

To accomplish this secondary mission and to effectively use this additional equipment, training standards for support units would also have to be changed. MPSs related to the units' additional tactical responsibilities would have to be developed and ITS required to implement these more demanding MPSs would have to be specified in training directives.

Course of Action #3. An alternative to improving the RAS capability of existing organizations is to create new organizations with the primary mission of performing RAS tasks. This COA might take the form of consolidating existing MP assets in the FMF and re-creating MP battalions. Dedicated RAS organizations might be created within the Marine Corps Reserve establishment for employment in high threat mobilization situations. Finally, special RAS units might be created in the active FMF structure if the seriousness of the threat justifies them.

This organizational alternative might be required whether or not the RAS capabilities of existing support units are improved, but the urgency

of this alternative and the degree to which it should be pursued can only be evaluated after the potential improvements to be realized from COA #2 are evaluated. In any case, if the threat to the rear area is great enough in a particular situation, the MAGTF commander will have to divert some of his aviation and ground combat power from its primary mission to counter the threat to his vital area(s). The goal of both COA #2 and #3 is to minimize this diversion of MAGTF combat power in as wide a range of situations as possible.

Throughout the course of the research and analysis, uncertainties associated with the data available and the sensitivity of results to these uncertainties were kept constantly in mind. Because of these uncertainties and sensitivities, a study approach was pursued which provides for the systematic addressal of changes to input data or the discovery of new information. As has been said of political science, the principles of practice of an "experimental science" emerge from the practice itself. This guideline would seem to apply equally well to the practice of military science in general and the solution of the RAS problem in particular.

VI. CONCLUSIONS

INTRODUCTION

The study team has arrived at a number of conclusions concerning RAS as a result of the extensive research and analysis performed. These conclusions are listed below in two groups. The first group pertains to the study objective. The second set of conclusions relates to those courses of action developed in Section V.A, Problem Definition. Each conclusion listed below is accompanied by the Subsection and page number(s) where supporting rationale may be found.

A. CONCLUSIONS RELATIVE TO THE STUDY OBJECTIVE

With regard to the study objective -- to determine concepts, measures, and procedures to improve the RAS capability of a MAGTF, the following conclusions are presented:

1. The threat demands that more attention be given to RAS (Anx C, B.6.b(2), pg. C-73).
2. All rear area units are more vulnerable to the variety of threat capabilities (Anx C, B.6.b(4), pg. C-74).
3. All MAGTF personnel need to be able to participate in security and self-defense (Anx C, B.6.b(1) & (2), pg. C-73).
4. Basic concepts of security and defense are applicable to all Marine organizations (Anx C, B.6.b(5), pg. C-74).
5. Support units require more intelligence/counterintelligence capabilities (Anx C, B.6.b(4), pg. C-74).
6. Support units require more conventional combat power (Anx C, B.6.b(2), pg. C-73).
7. Support units require more/heavier AT weapons (Anx C, B.6.b(2), pg. C-73).
8. Support units require indirect fire support on call (Anx C, B.6.b(2), pg. C-73).
9. Support units require air support on call (Anx C, B.6.b(3), pg. C-74).

10. Support units require more engineer support available (Anx C, B.5.e(2), C-69).
11. Support units require better security vs. UW threat (Anx C, B.6.b(2), pg. C-73).
12. Support units require surveillance and barrier systems (Anx C, B.6.b(4), pg. C-74).
13. Support units require improvements in C and C system to integrate all of above elements (SOP, Trng) (Anx C, B.5.e(1), pg. C-69).
14. MAGTF command element needs to devote more attention/emphasis to RAS (Anx C.B.6.b(1), pg. C-73).
15. More attention of MAGTF intell/counterintell, reconnaissance, and surveillance effort to RAS (Anx C, B.6.b(1), pg. C-73).
16. Larger allocation of engineer support for RAS preparation within MAGTF (Anx C, B.5(d).3, pg. C-67).
17. Better RAS contingency plans at MAGTF level (Anx C, B.5.e(2), pg. C-69).
18. MAGTF allocation of indirect fire support for RAS (Anx C, B.6(b)(4), pg. C-74).
19. MAGTF allocation of air support for RAS (Anx C, B.6.b(4), pg. C-74).
20. MAGTF allocation of "economy-of-force" mobile combat power to contingent RAS mission (Anx C, B.6.b(4), pg. C-74).
21. MAGTF allocation of portion of GCE Reserve to RAS mission (Anx C, B.6.b(4), pg. C-74).
22. Dedicated RAS pers/units in MAGTF troop lists (Anx C, B.6.b(5), pg. C-74).

B. CONCLUSIONS RELATIVE TO COURSES OF ACTION

Conclusions pertinent to the three alternative Courses of Action are as follows:

1. The Marine Corps should adopt Course of Action #2, i.e., make marginal changes in doctrine, tables of organization and equipment, and in

training standards that will improve the capability of CSS and AGS units to protect and defend themselves (VII.A.1 and .2, pgs. _____-_____).

2. Consideration of the possible adoption of Course of Action #3, i.e., the creation of new organizations ... to take care of the RAS mission for a MAGTF, should be deferred until the results of implementing COA #2 can be evaluated. (Ref. VII.B.1 and .2, pgs. ____-____).

VII. RECOMMENDATIONS

INTRODUCTION

The recommendations listed below are presented as specific steps by which the conclusions in Part VI above can be implemented. The study team is qualified to make these recommendations because of the in-depth research and analysis it has conducted over the past year. The recommendations which follow are organized in two groups, (1) those associated with COA #2 and (2) those with COA #3.

A. RECOMMENDATIONS RE COA #2

1. Modifications to Doctrine:

a. Publish an OH on Rear Area Security - This document would collect in one publication the variety of principles and specific factors that must be taken into consideration to achieve effective RAS (See Annex H for examples of possible contents).

b. Make changes in other LFM, FMFM, and OH publications - In addition to an OH on RAS there is also a need to highlight unique RAS considerations in other doctrinal publications. Annex H contains a listing of these publications and the type of material that needs to be included.

c. Modify cover pages of CSS and AGS unit T/Os - The mission statements and concept of employment of support units described on T/O cover pages need to reflect the unit's responsibility for its own security and self defense. These statements can then become the basis for MCCRES evaluation as well as professional education relative to RAS. See Annex H for sample of appropriate wording.

d. Add RAS considerations to POI in CSC and AWS - The map exercises conducted at AWS and CSC should include RAS requirements. This is an opportunity for doctrinal development as well as professional education that should be exploited to encourage widespread consideration of various aspects of RAS problem.

2. Measures to Improve RAS Capabilities:

a. Changes to T/E - The T/Es of the supply, maintenance, engineer support, and landing support battalions of the FSSG, plus the four MWSS planned for the MAW, should have their T/Es modified to give each of them the combat capability of an infantry batttalion in defense. As new equipment is phased into the infantry battalions, it should also be allocated to these support units as well. See Annex H for equipment lists.

b. Changes to T/O - Each of the battalions and squadrons listed above should have its T/O modified to give it the skills required to participate in its own protection and self defense. See Annex H for details of this recommendation.

c. Changes in Training Standards - Each battalion and squadron listed above should be expected to meet certain mission performance standards (MPSs) and maintain the necessary individual training standards (ITSs) to support these MPSs. See Annex H for a detailed display of these MPSs and ITSs.

B. RECOMMENDATIONS RE COA #3

1. Evaluation of COA #2 Impact:

a. War Games - If it is decided to adopt COA #2, the possible impact of the recommendations associated with this course of action should be subjected to detailed evaluation. One way to do this is by wargaming the affects of the recommended changes using TWSEAS. This type of evaluation is likely to shed light on details that can be fixed either as modifications to COA #2 or as part of COA #3.

b. Field Exercises - After the changes associated with COA #2 are implemented the capabilities of support units to provide for their own security should be tested in carefully designed and controlled, opposed field exercises. Deficiencies that still exist in RAS capabilities can then be addressed under the heading of COA #3.

c. Other Input from FMF - Finally, reactions from the field to the RAS OH and other proposed doctrinal changes will provide additional input for evaluation of COA #2.

2. Candidate T/Os and T/Es for Specialized RAS Units - After a thorough evaluation of COA #2, the deficiencies in RAS capability that are found to still exist may have to be eliminated by investment in some new type of dedicated RAS unit. The particular T/O, T/E, concept of employment, and training required can be determined only after the above evaluation has been completed. But as an aid to focusing attention on the details of some possibilities, the following three strawman structures are described in Annex H.

a. Military Police Co., H&S Bn., FSSG

b. Rear Area Security Bn., FMF

c. Defense Bn., FMF

These suggested T/O structures are nothing more than ideas of members of the study after having been immersed in the RAS problem for a year. They are, therefore, very subjective but they can serve as aids to further discussion.

A N N E X A

Annex A

BIBLIOGRAPHY

1. THREAT

CLASSIFIED

Defense Intelligence Agency

U.S. Department of Defense, Defense Intelligence Agency/United States Marine Corps, Joint Munitions Effectiveness Manual, Air to Surface Weapons Effectiveness, Selection, and Requirements, 10 December 1980. (Confidential).

U.S. Department of Defense, Defense Intelligence Agency, Soviet Front and Army Operations, DDB-2680-161-82, 16 July 1982. (Secret NOFORN).

U.S. Department of Defense, Defense Intelligence Agency, Soviet Strategic Conventional Offensive in the Western Theater of Military Operations, DDB-2622-2-83, March 1983. (Secret).

U.S. Army

U.S. Department of Defense, Department of the Army, Foreign Science and Technology Center, Charlottesville, Virginia, The Soviet Battlefield Development Plan, Volume IV, Soviet Group Force Weapons Research, Development, and Acquisition: Process Outputs and Operational Impact, ATC-PP-2660-05-83-VOL IV, 1 November 1982. (Secret NOFORN).

U.S. Department of Defense, Department of the Army, Foreign Science and Technology Center, Charlottesville, Virginia, The Soviet Battlefield Development Plan, Volume V, 1 November 1982. (Secret).

United States Marine Corps

U.S. Department of Defense, U.S. Marine Corps, Marine Corps Long-Range Plan (MCLRP-2000) Armor, Anti-armor, Fire Support, and Combat Mobility Requirements and Programs, Volumes I & II, 1 July 1983. (Secret NOFORN).

U.S. Department of Defense, U.S. Marine Corps, Marine Corps Long-Range Plan (MCLRP) MARCORPS-2000, May 1982. (Secret NOFORN) with Appendix A (Confidential).

U.S. Department of Defense, U.S. Marine Corps, Marine Corps Mid-Range Objectives Plan, 8 November 1984. (Secret).

THREAT (cont.)
CLASSIFIED (cont.)

U.S. Department of Defense, U.S. Marine Corps, Signals Intelligence/ Electronic Warfare Operations, FMFM2-3, 18 June 1976. (Confidential).

Other

Harold Rosenbaum Associates, Inc., Marine Corps Air Defense Requirements for Mechanized Operations 1988-2000 (U), Volumes I - III, 30 June 1984. (Secret).

Stanford Research Institute, Rear Area Coordination, Security, and Defense, September 1968. (Confidential).

UNCLASSIFIED

Defense Intelligence Agency

U.S. Department of Defense, Defense Intelligence Agency, Force Structure Summary - USSR, Mongolia, and Eastern Europe, DDB-2680-170-83, October 1983.

U.S. Department of Defense, Defense Intelligence Agency, Force Structure Summary - USSR, Mongolia, and Eastern Europe, DDB-2680-170-84, May 1984.

U.S. Department of Defense, Defense Intelligence Agency, Political Control of the Soviet Armed Forces: The Committee of People's Control, DDB-2600-1279-78, April 1978.

U.S. Department of Defense, Defense Intelligence Agency, Soviet Airborne Forces, DDB-1110-2-82, April 1982.

U.S. Department of Defense, Defense Intelligence Agency, Soviet Divisional Organizational Guide, DDB-1100-333-82, July 1982.

U.S. Department of Defense, Defense Intelligence Agency, Soviet Ground Forces, Night Operations, DDI-1100-128-76, 1 March 1976.

U.S. Department of Defense, Defense Intelligence Agency, Soviet Military Operations in Built-Up Areas, DDI-1100-155-77, July 1977.

U.S. Department of Defense, Defense Intelligence Agency, Soviet Motorized Rifle Division, DDB-1110-1-79, September 1979.

U.S. Department of Defense, Defense Intelligence Agency, Soviet Naval Infantry, DDB-1200-146-80, April 1980.

THREAT (cont.)
UNCLASSIFIED (cont.)
Defense Intelligence Agency (cont.)

U.S. Department of Defense, Defense Intelligence Agency, Soviet Submarine Recognition Guide, DDB-1220-15-80, February 1980.

U.S. Department of Defense, Defense Intelligence Agency, Soviet Tactical Air Defense, DDB-1140-6-80, June 1980.

U.S. Department of Defense, Defense Intelligence Agency, Soviet Tactics: The Meeting Engagement, DDI-1100-143-76, December 1976.

U.S. Department of Defense, Defense Intelligence Agency, Soviet Tank Battalion Tactics, DDB-1120-10-80, November 1980.

U.S. Department of Defense, Defense Intelligence Agency, Soviet Tank Regiment Tactics, DDB-1120-12-79, May 1979.

U.S. Army

U.S. Department of Defense, Department of the Army, Combined Arms Combat Development Activity, Fort Leavenworth, Kansas, Organization and Equipment of the Soviet Army, CACDA HB 550-2, 15 July 1980.

U.S. Department of Defense, Department of the Army, Command and General Staff College, Fort Leavenworth, Kansas, Soviet Tactics: The Defense, Volume IV, CGSC PT 100-3, July 1981.

U.S. Department of Defense, Department of the Army, Foreign Science and Technology Center, Charlottesville, Virginia, Rear and Area Supply of the Soviet Armed Forces, FSTC-HT-81-84, February 1984.

U.S. Department of Defense, Department of the Army, Intelligence and Threat Analysis Center, Arlington, Virginia, Soviet Army Operations, IAG-13-U-78, April 1978.

U.S. Department of Defense, Department of the Army, The Soviet Army, FM 100-2, July 1984.

U.S. Marine Corps

U.S. Department of Defense, U.S. Marine Corps, Command and Staff College, Quantico, Virvinia, Principles of War, Combat Concepts Review, C(C) 3110, 1984-1985.

Other

International Institute for Strategic Studies, The Military Balance, 1984-1985.

Jenkins, B., ed., Terrorism and Beyond, Rand Corporation.

Keller, Konrad, On Terrorists and Terrorism, Rand Corporation.

U.S. Department of Defense, Soviet Military Power, 1985.

2. DOCTRINE

U.S. Department of Defense, U.S. Marine Corps, Marine Corps Doctrinal Publications Masterplan, enclosure to CG MCDEC letter 30 November 1984.

Landing Force Manuals (LFMs)

U.S. Department of Defense, Doctrine and Procedures for Airspace Control in the Combat Zone, LFM-04, 1 December 1975.

U.S. Department of Defense, Doctrine for Amphibious Operations, LFM-01, 1 July 1962.

Fleet Marine Force Manual (FMFMs)

U.S. Department of Defense, U.S. Marine Corps, Advanced Naval Base Defense, FMFM8-3, 5 December 1978.

U.S. Department of Defense, U.S. Marine Corps, Air Reconnaissance, FMFM5-6, 13 September 1979.

U.S. Department of Defense, U.S. Marine Corps, Amphibious Embarkation, FMFM4-2, 29 January 1980.

U.S. Department of Defense, U.S. Marine Corps, Amphibious Reconnaissance, FMFM2-2, 9 March 1979.

U.S. Department of Defense, U.S. Marine Corps, Amphibious Training, FMFM3-2, 9 September 1980.

U.S. Department of Defense, U.S. Marine Corps, Antiair Warfare, FMFM5-5, 14 July 1980.

U.S. Department of Defense, U.S. Marine Corps, Armed Forces Doctrine for Chemical Warfare and Biological Defense, FMFM11-6, June 1976.

U.S. Department of Defense, U.S. Marine Corps, Assault Support, FMFM5-3, 3 May 1979.

U.S. Department of Defense, U.S. Marine Corps, Combat Service Support, FMFM4-1, 21 September 1981.

U.S. Department of Defense, U.S. Marine Corps, Command and Staff Action, FMFM3-1, 21 May 1979.

U.S. Department of Defense, U.S. Marine Corps, Communications, FMFM10-1, 9 October 1980.

DOCTRINE (cont.)
Fleet Marine Force Manual (FMFMs) (cont.)

U.S. Department of Defense, U.S. Marine Corps, Counterinsurgency Operations, FMFM-28, 29 January 1980.

U.S. Department of Defense, U.S. Marine Corps, Counterintelligence, FMFM2-4, 1 December 1983.

U.S. Department of Defense, U.S. Marine Corps, Doctrinal Publications Guide, FMFM-03, 30 May 1980.

U.S. Department of Defense, U.S. Marine Corps, Employment of Forward Area Air Defense Battery, FMFM5-5c, 29 January 1980.

U.S. Department of Defense, U.S. Marine Corps, Engineer Operations, FMFM4-4, 15 March 1979.

U.S. Department of Defense, U.S. Marine Corps, Field Artillery Support, FMFM7-4, 20 February 1981.

U.S. Department of Defense, U.S. Marine Corps, Fire Support Coordination, FMFM7-1, 23 April 1981.

U.S. Department of Defense, U.S. Marine Corps, Handling of Deceased Personnel in Theaters of Operations, FMFM4-8, July 1959.

U.S. Department of Defense, U.S. Marine Corps, Helicopterborne Operations, FMFM3-3, 15 January 1975.

U.S. Department of Defense, U.S. Marine Corps, Intelligence, FMFM2-1, 30 September 1980.

U.S. Department of Defense, U.S. Marine Corps, Marine Air-Ground Task Force Doctrine, FMFM-01, 31 August 1979.

U.S. Department of Defense, U.S. Marine Corps, Marine Aviation, FMFM5-1, 24 August 1979.

U.S. Department of Defense, U.S. Marine Corps, Marine Division, FMFM6-1, 22 March 1978.

U.S. Department of Defense, U.S. Marine Corps, Marine Infantry Battalion, FMFM6-3, 16 March 1978.

U.S. Department of Defense, U.S. Marine Corps, Marine Infantry Regiment, FMFM6-2, 1 February 1978.

U.S. Department of Defense, U.S. Marine Corps, Marine Rifle Company/Platoon, FMFM6-4, 17 March 1978.

DOCTRINE (cont.)
Fleet Marine Force Manual (FMFMs) (cont.)

U.S. Department of Defense, U.S. Marine Corps, Marine Troop Leaders Guide, FMFM1-2, 5 April 1979.

U.S. Department of Defense, U.S. Marine Corps, Medical and Dental Support, FMFM4-5, 21 November 1980.

U.S. Department of Defense, U.S. Marine Corps, Movement of Units in Air Force Aircraft, FMFM4-6, September 1978.

U.S. Department of Defense, U.S. Marine Corps, Naval Gunfire Support, FMFM7-2, 23 April 1981.

U.S. Department of Defense, U.S. Marine Corps, Offensive Air Support, FMFM5-4, 13 September 1979.

U.S. Department of Defense, U.S. Marine Corps, Operational Aspects of Radiological Defense, FMFM11-5, August 1968.

U.S. Department of Defense, U.S. Marine Corps, Shore Party and Helicopter Support Team Operations, FMFM4-3, 6 July 1973.

U.S. Department of Defense, U.S. Marine Corps, Special Operations, FMFM8-1, 13 August 1974.

Operational Handbooks (OHs)

U.S. Department of Defense, U.S. Marine Corps, Author's and Reviewer's Guide to Doctrinal Publications, OHØ-3, 20 April 1983.

U.S. Department of Defense, U.S. Marine Corps, Combat Intelligence, OH2-1.1, July 1983.

U.S. Department of Defense, U.S. Marine Corps, Command and Control of USMC TACAIR, OH5-1.1, 10 December 1982.

U.S. Department of Defense, U.S. Marine Corps, Control Procedures For Tactical Exercises, OH12-0, 19 January 1983.

U.S. Department of Defense, U.S. Marine Corps, Electronic Warfare Operations Handbook, OH3-4, 5 January 1979.

U.S. Department of Defense, U.S. Marine Corps, Fire Support Coordination by a MAGTF, OH7-1, 21 June 1983.

U.S. Department of Defense, U.S. Marine Corps, Landing Support, OH4-3, 11 June 1981.

DOCTRINE (cont.)
Operational Handbooks (cont.)

U.S. Department of Defense, U.S. Marine Corps, Marine Air-Ground Intelligence Systems (MAGIS), OH2-1, 16 March 1982.

U.S. Department of Defense, U.S. Marine Corps, Marine Corps Dictionary and Glossary of Abbreviations/Acronyms, OHØ-2, 21 June 1983.

U.S. Department of Defense, U.S. Marine Corps, Marine Corps Telephone Directory, OH10-1, 30 July 1980.

U.S. Department of Defense, U.S. Marine Corps, Marine Rifle Squad, OH6-6, 9 November 1983.

U.S. Department of Defense, U.S. Marine Corps, Maritime Pre-positioned Deployment, OH4-11, 22 June 1984.

U.S. Department of Defense, U.S. Marine Corps, Mechanized Combined Arms Task Forces (MCATF), OH9-3 (Rev. A), March 1980.

U.S. Department of Defense, U.S. Marine Corps, Military Operations On Urbanized Terrain (MOUT), OH8-7, 19 November 1980.

U.S. Department of Defense, U.S. Marine Corps, NBC Defense (Nuclear, Biological, and Chemical), OH11-1, 24 May 1982.

U.S. Department of Defense, U.S. Marine Corps, Operational Functions of the G-1/S-1, OH1-1, 19 July 1982.

U.S. Department of Defense, U.S. Marine Corps, Radar Beacon Employment Operational Handbook, OH5-4.1, 27 December 1979.

U.S. Department of Defense, U.S. Marine Corps, Targeting By MAGTF's, OH7-5, 4 August 1981.

U.S. Department of Defense, U.S. Marine Corps, Tasking USMC Fixed-Wing Tactical Aviation, OH5-3, 27 July 1982.

U.S. Department of Defense, U.S. Marine Corps, Terrorism Counteraction, OH7-14, 17 December 1984.

Programs of Instruction (POI)

U.S. Department of Defense, U.S. Marine Corps, Program of Instruction, Marine Corps Amphibious Warfare School, August 1984.

U.S. Department of Defense, U.S. Marine Corps, Program of Instruction, Marine Corps Command and Staff College, August 1984.

DOCTRINE (cont.)

Other

U.S. Department of Defense, Department of the Air Force, Local Ground Defense of U.S. Air Force Bases, AF Regulation 206-2 (Draft), October 1982.

U.S. Department of Defense, Department of the Army, Joint Manual for Civil Affairs, FM41-5, November 1966.

U.S. Department of Defense, Department of the Army, Operations, FM100-5, 20 August 1962.

U.S. Department of Defense, Department of the Army, Rear Area Protection (RAP) Operations, FM90-14 (Coordinating Draft), December 1983.

U.S. Department of Defense, Department of the Army, Rear Battle, FM90-14, August 1984.

U.S. Department of Defense, Department of the Army, U.S. Army Operational Concept for Terrorism Counteraction, TRADOC PAM 525-37, 19 March 1984.

U.S. Department of Defense, Department of the Navy, Naval Construction Force Manual, NAVFAC P-315, February 1978.

U.S. Department of Defense, Department of the Navy, Seabee Combat Handbook, NAVEDTRA 10479-C, w/chg-Chap. 14, 1985.

U.S. Department of Defense, Department of the Navy, U.S. Naval Mobile Construction Battalions (NMCBs); Doctrine and Policy Governing, OPNAVINST 5450.46G, OP44, December 1984.

U.S. Department of Defense, Department of the Navy/Marine Corps, Joint Manual for Civil Affairs, NAVMC 2500, November 1966.

U.S. Department of Defense, Joint Chiefs of Staff, Dictionary of Military and Associated Terms, JCS Pub 1, 1 April 1984.

3. MEASURES

Tables of Organization (T/Os)

MarDiv	T/O
Infantry Bn	1038E
HQBN	
Div Hq	1986N
MP Co	1903M
Comm Co	1883M
Truck Co	1862N
Service Co	1985N
HQ Co	1987M
Arty Regt HQ Btry	1196M
D/S Arty Bn HQ Btry	1126M
G/S Arty Bn HQ Btry (T)	1152C
G/S Arty Bn HQ Btry (SP)	1251C
H&S Co, Recon Bn	1427M
H&S Co, Combat Engr Bn	1377N
H&S Co, LAV Bn	4681C
H&S Co, AAV Bn	4654M
H&S Co (TOW Augment), Tank Bn	4237P
Topographic Platoon	4392M
Counterintelligence Team	4722M
MAW	
HQ MAW	8610R
MWHS	8611R
MWCS	8612N
H&HS, MACG	8615R
MACS	8631R
MASS	8640R
LAAM Bn	
H&S Btry	8618M
Firing Btry	8619R
FAAD Btry	8625M

MEASURES (cont.)

Tables of Organization (T/Os) (cont.)

MAW	T/O
MWSG	
HQ Sqd	8710N
WES	8714N
WTS	8715N
MATCS	8643N
MWWU	8712M
H&MS (FW)	8813R
MABS (FW)	8820R
H&MS (RW)	8915R
H&MS (RW)	8916R
MABS (RW)	8921R
VMAQ (EA6B)	8657Q
VMAQ (EA6B)	8658M
VMA (19A4's)	8854R
VMA (AW) (10A6E)	8856S
VMA (15AV8A)	8858R
VMA (20AV8B)	8860
VMGR (18KC130)	8775R
VMFA (12F4J)	8849N
VMO (18OV10)	8968R
HMM (12CH46F)	8938N
HML (24UHIN)	8965R
HMA (24AHIJ/T)	8971R
HMH (16CH53D)	8945S
HMH (16CH53E)	8947
VMFA (F/A-18)	8851

FSSG (N-Series T/Os to Company level)

Landing Support Bn
Maintenance Bn
Supply Bn
H&S Bn
Engineer Support Bn
Motor Transport Bn
Dental Bn
Medical Bn

MEASURES (cont.)

Tables of Organization (T/Os) (cont.)

MAF HQ	T/O
HQ MAF	4918M
H&S Co MAF	4920C
Comm Bn, FMF	
Comm Support Co	4863M
Long Lines Co	4873M
Comm Co	4883M
HQ Co	4886M
Civil Affairs Group	4998M
ANGLICO	4852C

Tables of Equipment (T/Es)

MarDiv	T/E
Infantry Bn	A1161
MAW	
MWHS	N8611
MWCS	N8612
H&HS, MACG	N8615
LAAM Bn	N8618/N8619
FAAD Btry	N8625
MACS	N8632
MASS	N8672
MATCS	N8643
MWSG	
HQ Sqd	N8740
WES	N8744
WTS	N8745
H&MS (RW)	N8916
H&MS (RW)	N8915
MABS (RW)	N8921
H&MS (FW)	N8813
MABS (FW)	N8820

MEASURES (cont.)

Tables of Equipment (T/Es) (cont.)

FSSG	T/E
H&S Bn	N3210
Supply Bn	N3220
Maint Bn	N3230
Landing Support Bn	N3240
Engr Support Bn	N3250
MT Bn	N3260
Medical Bn	N3270
Dental Bn	N3280

U.S. Department of Defense, U.S. Marine Corps, Common Core Curriculum for USMC, Infantry Squad Leader.

U.S. Department of Defense, U.S. Marine Corps, DC/S (RP) Memorandum for Distribution List (Subject: POM-87 Procurement, Marine Corps (PMC) Program), 24 September 1984.

U.S. Department of Defense, U.S. Marine Corps, Essential Subjects Evaluation and Training, MCO 1500.44, 5 April 1984.

U.S. Department of Defense, U.S. Marine Corps, Individual Training Standards (ITS) System, MCO 1510.34, 25 June 1981.

U.S. Department of Defense, U.S. Marine Corps, ITS System, Volume I, Training Objectives for the Infantry Occupational Field (Occ Fld) 03, MCO 1510.35, 25 June 1981.

U.S. Department of Defense, U.S. Marine Corps, MCCRES, Volume I, Introduction, MCO 3501.2, 9 December 1977.

U.S. Department of Defense, U.S. Marine Corps, MCCRES, Volume II, Infantry Units, MCO 3501.3A, 16 February 1984.

U.S. Department of Defense, U.S. Marine Corps, MCCRES, Volume III, Rotary Wing and Observation Squadrons, MCO 3501.4, 13 December 1977.

U.S. Department of Defense, U.S. Marine Corps, MCCRES, Volume IV, Fixed Wing Squadrons, MCO 3501.5, 7 August 1978.

U.S. Department of Defense, U.S. Marine Corps, MCCRES, Volume V, Combat Support Elements, MCO 3501.6, 14 December 1977.

U.S. Department of Defense, U.S. Marine Corps, MCCRES, Volume VI, Combat Service Support Elements, MCO 3501.7, 15 December 1977.

U.S. Department of Defense, U.S. Marine Corps, MCCRES, Volume VIII, The Marine Air Command and Control System (MACCS), MCO 3501.9A, 21 February 1984.

U.S. Department of Defense, U.S. Marine Corps, MCCRES, Volume IX, Anti Counter-Terrorism, MCO 3501.10 (to be published).

U.S. Department of Defense, U.S. Marine Corps, MOS Manual, MCO P1200,7D.

U.S. Department of Defense, U.S. Marine Corps, Marine Corps Combat Readiness Evaluation System (MCCRES), MCO 3501.1, 9 December 1977.

U.S. Department of Defense, U.S. Marine Corps, Marine Corps Concepts and Issues, 23 November 1984.

U.S. Department of Defense, U.S. Marine Corps, Marine Corps Training Philosophy, Definitions, Priorities, and Training Requirements, MCO 1500.40, 13 November 1980.

U.S. Department of Defense, U.S. Marine Corps, Personnel Criteria Manual, MCO P5320.5D.

U.S. Department of Defense, U.S. Marine Corps, Program of Instruction, Basic Officer Course, The Basic School, February 1983.

U.S. Department of Defense, U.S. Marine Corps, Program of Instruction, Infantry Officer Course, The Basic School, April 1983.

U.S. Department of Defense, U.S. Marine Corps, Program of Instruction, Infantry Platoon Sergeant Course.

U.S. Department of Defense, U.S. Marine Corps, United States Marine Corps Resources and Forces Summary, 12 September 1984.

4. PROCEDURES

Publications

British Ministry of Defense, SOP: Training for Northern Ireland, March 1977.

British Ministry of Defense, SOP: Training Operations in Northern Ireland, March 1983.

U.S. Department of Defense, Department of the Army, Rear Area Combat Operations, Annex M to 3d Infantry Division TACSOP, 20 May 1984.

U.S. Department of Defense, U.S. Marine Corps, FMFLANT Mechanized Conference, 1-83, 14 September 1983.

U.S. Department of Defense, U.S. Marine Corps, Second Force Service Support Group's Standard Operating Procedures for Rear Area Combat Operations (Draft), 1985.

U.S. Department of Defense, U.S. Marine Corps, SOP for Fire Support Coordination (FSC), Jt Div Ord P8080.1, 22 May 1984.

U.S. Department of Defense, U.S. Marine Corps, SOP for the BSSG Command Post (BSSG-10), 2d FSSG (Rein), 5000 over 3, 5 October 1984.

Interviews

II Marine Amphibious Force, Camp Lejeune, North Carolina. Interview with Chief of Staff, May 1985.

1st Force Service Support Group, Camp Pendleton, California. Interview with Commanding Officer, March 1985.

1st Marine Division, Camp Pendleton, California. Interview with Commanding General, March 1985.

2d Force Service Support Group, Camp Lejeune, North Carolina. Interviews with Assistant Chief of Staff (Training), G-3, February 1985 and May 1985.

2d Marine Aircraft Wing, Cherry Point, North Carolina. Interview with Assistant Wing Commander, February 1985.

2d Marine Division, Camp Lejeune, North Carolina. Interview with Assistant Chief of Staff (Intelligence), G-2, February 1985.

2d Marine Division, Camp Lejeune, North Carolina. Interview with Commanding General, February 1985.

PROCEDURES (cont.)

Interviews (cont.)

3d Marine Aircraft Wing, El Toro, California. Interview with Commanding General, March 1985.

7th Marine Amphibious Brigade/MCAGCC, Twenty-nine Palms, California. Interview with Commanding General, March 1985.

10th Marine Regiment, Camp Lejeune, North Carolina. Interview with Commanding Officer, February 1985.

Fleet Marine Force, Atlantic, Norfolk, Virginia. Interview with Commanding General, February 1985.

A N N E X B

Annex B

The Threat

I. General

Considering the comprehensive range of missions that MAGTFs must be prepared to respond to, threats to the rear area of a MAGTF could potentially span the full spectrum from a coordinated Soviet attack in depth, using all arms and services, to a threat from a single terrorist carrying a bomb. In order to organize the great quantity and variety of threat information available and to make it as useful as possible in this study, the study team first segregated relevant information into three categories as follows:

1. Enemy nuclear, biological and chemical (NBC) capabilities
2. Conventional warfare capabilities
3. Unconventional warfare capabilities

NBC capabilities are the least likely of the three types listed above to be encountered by Marines. This is not a judgment on the probability of conflict occurring in which these types of weapons are used. But if they are used by an enemy against a MAGTF, such use will so disrupt conventional operations, at least initially, that the integrity and mission accomplishment of the entire MAGTF will be threatened. The overriding problem for the rear area would be damage control and recovery activities. Since other studies have addressed the offensive and defensive implications of the employment of NBC weapons and since their effects are so far-reaching and disruptive, they were considered to be outside the scope of this study.

Limiting the study to rear area threats from conventional and unconventional warfare capabilities, therefore, the study sought some structure within which to analyze the details of these threats against one or more specific MAGTF situations. This led to the development of the three representative situations described below. These situations provided the stage on which to play out a sample of three mission-threat-

friendly force combinations that illustrate the nature and scope of threats that MAGTFs must be prepared to cope with.

II. Specifics

A. Representative Situations

1. MAB to Honduras. This represents the lowest threat level to MAGTF rear area activities. For this situation it is assumed that a MAB is deployed to Honduras in an operation short of war. The MAB deploys via both amphibious shipping and MPS means after a period of warning during which diplomatic activities, crisis management, and decision-making by the National Command Authorities have been going on. The mission of the MAB is one of "presence," interposition between warring factions, and to be prepared for further operations, while protecting itself against occasional hostile actions by local insurgents and guerrillas. Restrictive Rules of Engagement (ROE) are in effect.

2. MAF to Iran. This represents a medium level rear area security threat involving both conventioal and unconventional Soviet style units. In this illustrative situation, a MAF is deployed to Iran to counter a Soviet-model surrogate force which threatens free access through the Straits of Hormuz. The MAF deploys via a combination of amphibious and MPS shipping and airlift. Its initial lodgement in the objective area is made without opposition at a number of port, beach, and airfield locations. During subsequent operations ashore, the MAF (with limited augmentation that could be expected to be available in a PARMOB situation) conducts offensive operations against the enemy within Iran, operates in a joint (CENTCOM) environment, and must protect itself against an indigenous irregular/terrorist threat.

3. MAF to Europe. This represents the highest threat level situation likely to be encountered. In this worst case situation, a fully augmented (FULL MOB) NATO MAF is deployed to the UK as SACEUR's strategic reserve. After the Warsaw Pact's initial advance is contained, the MAF is employed in an amphibious assault to gain a lodgement for follow-on forces

at a strategically advantageous location in the BALTAP region. In subsequent operations ashore, the MAF is part of a larger joint and combined force conducting a counterattack against WP forces holding allied territory. There is host nation assistance with the RAS problem but there is also the full Soviet threat, featuring heavy pressure on rear areas in coordination with operations at the front.

Table VIII-B-1 contains a general summary of the principal elements associated with each of the three situations.

B. Conventional Threats

1. MAB to Honduras. In this postulated situation, the principal conventional threat is likely to take the form of organized guerrilla bands armed with small arms and perhaps some rockets and mortars. In the close terrain of Central America their tactics would probably resemble those employed by the Viet Cong and North Vietnamese Army units encountered in similar terrain in Southeast Asia. While this situation does not envision active combat, the MAB must nevertheless be prepared to defend itself against hit-and-run raids by such enemy units.

2. MAF to Iran. The conventional threat in this situation is a scaled down Soviet-model threat. Indigenous forces are assumed to be organized and equipped similar to Soviet Motorized Rifle Divisions (MRD) but with older items of equipment and not as much total combat power available as would be encountered if a full Soviet Combined Arms Army (CAA) was well established in the objective area. To reflect the possibility of meeting light Soviet forces in a Southwest Asia confrontation, a Soviet airborne division in defense is taken as the principal opposing force in this situation. This is similar to what was done in the Marine Corps Education Center map exercise, AQUILA-URSA.

Once a full MAF is established ashore in a situation such as this, especially if the GCE is continuing the attack against deep objectives, the units in the MAF rear area can expect to be attacked by small motorized and mechanized raiding forces that take advantage of the widely

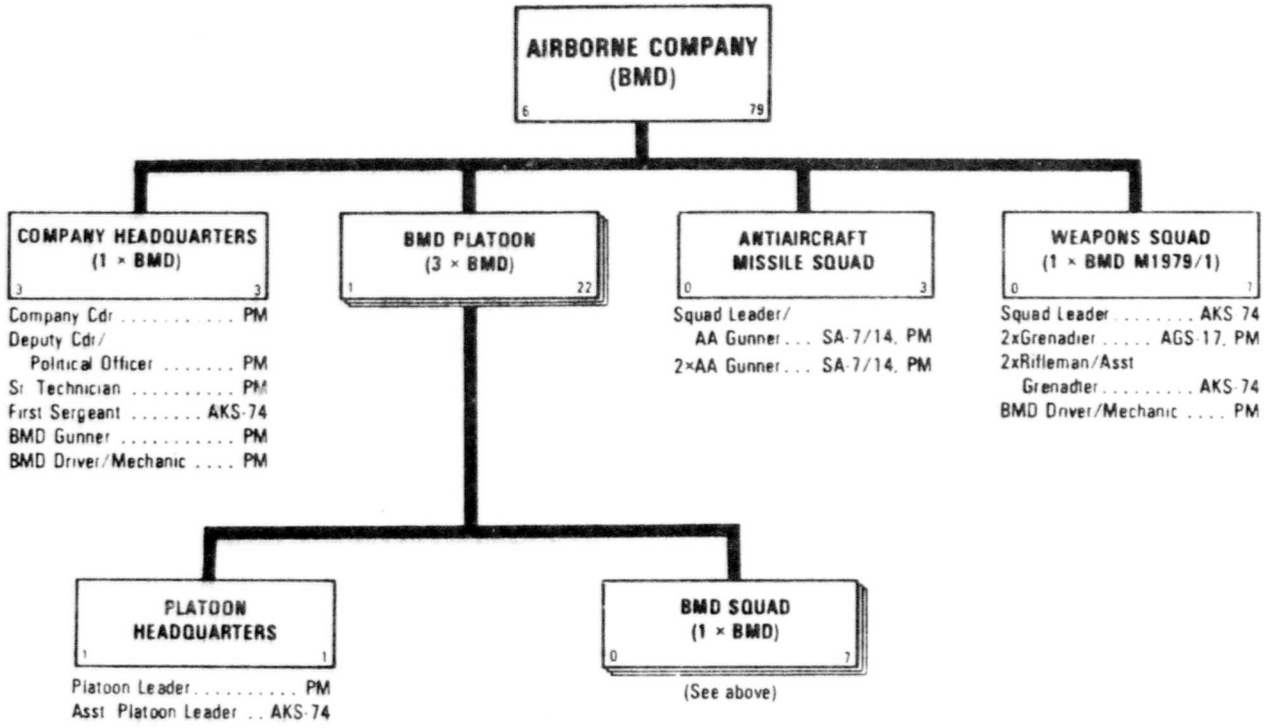
Table VIII-B-1 MAGTF/THREAT RAS STUDY SITUATIONS

ELEMENTS	SITUATION #1	SITUATION #2	SITUATION #3
MAGTF	MAB to Honduras - Non-Mob - Amphibs & MPS	MAF to Iran - Par Mob - Amphibs & MPS	MAF to Europe - Full Mob - Amphib Assault followed by extended land campaign
Mission, friendly forces	Presence, interposition mission; Initially USMC only	Seize, occupy, defend, locate, close with, destroy; Other CENTCOM forces	Conduct offensive operations as part of larger theater counter-offensive
Threat Nature	Low level conventional threat Incipient unconventional threat	Soviet-model conventional threat Well organized unconventional threat	WP conventional threat Sophisticated Unconventional threat
Threat Description	Guerrillas Terrorists	Irregular military & paramilitary units Airborne/heliborne/waterborne company Spetsnaz-type units Terrorists	Airborne company Air Assault company Heliborne company Naval Infantry company Spetsnaz units
Major Threat Equipment	None	Mi-4 Mi-8	BMD, BTR-60 Mi-8, Mi-24, Mi-26
Areas of Operations	Under-developed country Close terrain	Ports and airfields LOCs Population centers Open terrain	Northwest Europe Mature theater Strong host nation support Urban terrain

dispersed dispositions of the MAF to infiltrate through its reconnaissance and surveillance network. To represent this threat capability, a Soviet airborne company was used as a discrete threat force or "building block" for use in wargaming analysis. The airborne company has a strength of 85 men all mounted in BMDs. The company is organized in three platoons with three BMDs in each platoon plus a tenth BMD for the company headquarters and an eleventh carrying a weapons squad. See Figures VIII-B-1 and VIII-B-2 for details of this organization and the characteristics of the BMD combat vehicle.

3. MAF to Europe. The conventional threat that would be faced by a MAF-sized MAGTF in a European conflict represents the worst case. If the MAF is in a defensive posture, it can expect to receive the full range of Soviet offensive capabilities employed in a coordinated attack in depth (i.e., simultaneous attacks on all echelons of an opposing force's (from front-to-rear) defensive disposition). Moving from the most rearward locations forward, MAGTF rear area units can expect to encounter Soviet special forces (described below), airborne forces targeted against critical facilities in the Communication Zone (COMZ) and equipped as the threat force in Situation No. 2 above, Soviet naval infantry raiding forces in company and battalion strength (if the rear area is near the sea), Soviet heliborne units in company and battalion strength, inserted within range of their own artillery support ($\leq$ 15 km behind the line of contact), and mobile formations of tanks and armored personnel carriers penetrating along previously reconnoitered routes to link up rapidly with forces inserted deeper in the rear by helicopter, parachute, and amphibious landings. All of these attacking forces would be supported by strong air-ground attacks by Soviet tactical aviation, armed helicopters, surface-to-surface missiles, and artillery fire support.

To keep this study manageable, it was agreed with the SAC that a penetration of the MAF rear area by major enemy ground combat formations, such as elements of an Operational Maneuver Group (tank or motorized rifle regiment or larger), would so change the complexion of the tactical situation that it would no longer be a RAS problem. Accordingly, to estimate MAGTF RAS capabilities and requirements, a notional threat force



PRINCIPAL ITEMS OF EQUIPMENT

Equipment	Total
9-mm Pistol, PM	41
5.45-mm Assault Rifle, AKS-74	35
5.45-mm Light Machine Gun, RPKS-74	9
30-mm Automatic Grenade Launcher, AGS-17	2
Antitank Grenade Launcher, RPG-16D	9
SAM, SA-7/GRAIL or SA-14 Gripstock	3

Equipment	Total
AAICV, BMD	10
AAICV, BMD M1979/1	1
Radios:	
VHF, Portable, Very-Low-Power, R-126	4
VHF, Manpack, Low-Power, R-107	1
VHF, Vehicle Mount, Medium-Power, R-123	11

Figure VIII-B-1 Airborne Company (BMD)

Airborne Amphibious Infantry Combat Vehicle BMD

BMD-1

DESCRIPTION:

The BMD airborne amphibious infantry combat vehicle (AAICV) superficially resembles the BMP, although it is considerably smaller. It is a full-tracked amphibious vehicle with a BMP-type turret. Like the BMP, its main armament is a 73-mm smoothbore gun with a 7.62-mm coaxial machine gun mounted on the right side of the main gun and a SAGGER ATGM launcher mounted over the gun. The BMD, however, also has two additional 7.62-mm machine guns, one mounted in each of the front bow corners. The bow is much shorter than that of the BMP, and the upper part of the hull is shaped differently. It also differs from the BMP in having only five evenly spaced road wheels with four support rollers, and in having no rear exit doors. The driver's hatch and vision blocks are centered below the main gun. On either side of the driver, there is an additional hatch. The troop compartment has overhead armor cover and only one firing port on each side and one in the rear from which the mounted infantrymen can fire their personal weapons. The BMD has a hydropneumatic suspension with a variable height capability. The vehicle is powered by a rear-mounted, 240 hp, six-cylinder, water-cooled, diesel engines and is propelled in water by two waterjets in the rear.

Figure VIII-B-2. BMD Airborne Amphibious Infantry Combat Vehicle

of one battalion or less was used. Different tactical situations were considered but in each case, relative combat power available/required was judged adequate or not adequate depending on how it measured up to an opposing force of no more than one battalion equipped with light armored vehicles and infantry weapons.

C. Unconventional Threats

1. MAB to Honduras. As in all three study situations postulated, the nature of the unconventional warfare (UW) threat in Honduras is the potential for espionage, sabotage, subversion, and terrorism directed against U.S. and friendly personnel, facilities, equipment, and activities. The scope or degree of this threat depends on the availability to the enemy of the skilled personnel required to conduct successful UW operations.

Espionage is the collection of information about an enemy by all means--signals intelligence (SIGINT), imagery intelligence (IMINT), and human intelligence (HUMINT) operations. In Honduras, an opposing force with limited high technology IMINT or SIGINT means available to it would be dependent on HUMINT and perhaps some primitive SIGINT operations to conduct espionage against the MAB's rear area.

Sabotage is the destruction of facilities or equipment by covert means. Although sabotage has become closely associated with modern forms of guerrilla warfare and terrorism, in its narrow, technical sense it pertains to damage or destruction of material that is important to any enemy's military operations and which cannot be attacked directly or easily by conventional weapon systems. In Honduras, prime targets for sabotage would be the facilities used to assist the MAB's administrative landing, the storage facilities for critical supplies, and any vulnerable concentration of MAB equipment.

Subversion is the undermining of the loyalty of U.S. and friendly personnel by hostile agents. These agents seek to identify disaffected personnel, personnel expressing sympathy for the cause opposing U.S.

interests, and those generally unhappy with a U.S. presence. Individuals so identified will be recruited to perform acts of espionage or sabotage if they are local nationals, or to at least support agents of organizations hostile to the U.S. If the individuals are U.S. personnel, attempts to subvert them will concentrate on creating doubts in their minds about U.S. government policy in the area and enticing them to go AWOL or otherwise commit acts compromising our national interests in the region. Assuming a situation which would require the deployment of a MAB to Honduras, one can easily imagine many opportunities for subversion and therefore a high probability of encountering this particular form of UW in Situation No. 1.

Terrorism is a UW tactic that has gained widespread popularity among dissidents because of the high visibility given by news media to the dramatic results of terrorist activities. This is particularly true in otherwise peaceful environments. The terrorist seeks to achieve some political goal by means of the threat or actual execution of some selective act of violence against a "disabled" victim (the victim may be disabled or "unabled" by lack of weapons to defend himself or by restrictions imposed by higher authority on the use of weapons if he is armed). Considering the worldwide incidence of terrorist activities, this threat would have to be taken very seriously by members of a MAGTF deploying to Honduras in an operation short of war.

2. MAF to Iran. The espionage threat to the MAF will probably include all means of collecting information, especially if Soviet forces are directly involved. There may be some deficiencies in the enemy capability caused by Soviets and Iranians trying to work with each other. These chinks in the enemy's armor can be exploited if they can be found, but overall we must assume we will be faced by a modern, sophisticated espionage capability.

Sabotage will materialize as a major threat to the MAGTF rear area if Soviet SPETSNAZ units are employed in this situation. The acronym SPETSNAZ refers to Special Purpose Forces of the Main Intelligence Directorate (GRU). In addition to espionage and reconnaissance tasks,

these forces are trained to perform a wide variety of sabotage missions and attacks on key personnel. Soviet SPETSNAZ order of battle includes:

16 brigades (one normally attached to each Front headquarters)
4 naval brigades (one with each Fleet)
41 independent companies (for attachment to Army headquarters)

A SPETSNAZ brigade of 1,000 to 1,300 troops consists of three or four battalions of three companies each. The companies consist of 15 teams (7-8 men per team). The companies and battalions can operate as units for larger raiding missions, but their normal role is to create havoc throughout an enemy's rear area while operating as small teams. SPETSNAZ teams are inserted in their target area by parachute, by midget submarine or as swimmers (if they are from a naval brigade), by overland infiltration, or as stay-behind forces in areas occupied by Marine landing forces. These teams are targeted on nuclear weapons storage sites and delivery systems, command, control, and communications nodes, and other critical facilities plus key personnel in the enemy's political and military leadership structure. When activated they begin a simultaneous, widespread coordinated attack of sabotage and assassination throughout the rear area. In a combat situation like the one envisioned, the threat of sabotage from indigenous terrorists or guerrillas would pale by comparison to the threat represented by several SPETSNAZ teams operating within the rear area of a MAF.

In the Iranian situation, the main threat of subversion or terrorism would be to the indigenous population, especially those who might be inclined to assist or cooperate with U.S. forces. These threats would therefore be most likely to materialize in the more heavily populated areas and in those areas where we establish our more permanent bases and support areas (including any location where we hope to make use of the local population as a source of laborers or security personnel).

3. MAF to Europe. In a major conflict in Europe, even if the MAF is not already committed to a defensive mission but is being held as a strategic reserve in the theater, the threat it would face from Soviet UW capabilities is considerable. Prior to the initiation of hostilities,

SPETSNAZ teams would have been clandestinely inserted into COMZ areas within the NATO Alliance to conduct espionage and reconnaissance operations. Similar teams working for the Committee for State Security (KGB) would be introduced into the Zone of the Interior (ZI) or homelands of allied nations to collect strategic intelligence. Shortly before D-Day, reconnaissance teams from frontline divisions in contact with NATO forces would attempt to infiltrate into the area immediately behind the Forward Edge of the Battle Area (FEBA) in NATO territory. At H-Hour on D-Day a comprehensive sabotage and assassination campaign would be launched to undermine the defensive capabilities of the alliance. The priority of targets is the same as that listed above with the addition of commercial radio and TV broadcasting facilities, airfields, ports, and critical nodes in the NATO network of LOCs. In this initial phase of a Warsaw Pact offensive, airborne and heliborne forces can be expected to be employed against deep targets making use of SPETSNAZ teams as pathfinders and to create diversions designed to aid the landing of the larger units.

A significant clue to the importance of UW attacks on rear areas in the minds of Soviet military planners is the amount of resources they devote to defending against similar attacks on their own rear areas. The Ministry of Internal Affairs (MVD) and the KGB both have their own formations of security troops organized similar to Army units, in battalions, regiments, and divisions. The KGB security force is the Border Guards. This organization numbers over 400,000 and is fully equipped as a combat-capable force with all arms and services in its ground component plus aircraft and ships. The MVD security force numbers about 175,000 and is more lightly equipped. For example, it is believed not to have tanks or fixed-wing aircraft. Both of these organizations perform frontier and internal security missions in their own country in peacetime, but in wartime significant numbers of them (as much as 10% of the strength of the total force) would follow behind lead elements of the Soviet Army to perform rear area security and population control tasks along LOCs supporting advancing forces.

ANNEX C

Annex C
Approach and Methodology

A. APPROACH

1. Overview

It has been almost a quarter century now since something called systems analysis was introduced as a formal part of the decision making process within DOD. Over the intervening years, theoreticians and practitioners alike have learned much about the capabilities and limitations of the new discipline.

Initially this combination of economic theory and applied mathematics was heralded as a revolutionary method for systematizing the process of choosing between alternative (and very expensive) candidate weapon systems and for planning military force structures. As time passed, however, it came to be generally acknowledged that certain classes of problems, those which defied precise mathematical description, remained more or less intractable in spite of the powerful techniques of systems analysis. But proponents of the scientific method in government decision-making were undeterred. New techniques, combining features of the social as well as the physical sciences, were developed for coping with what, by 1980, had come to be called "squishy" problems. (This terminology, borrowed from Ralph E. Strauch of RAND Corporation, was first given wide distribution in Comptroller General of the U.S., Models, Data, and War: A Critique of The Foundation For Defense Analysis, Washington, D.C.: U.S. Government Printing Office, 1980).

By 1984 the application of the scientific method to military problems had matured to the point that an overview of the state of the art of this discipline (which included the earlier systems analysis and went beyond it) could be published by the Military Operations Research Society (MORS). That such an overview, representing a degree of consensus among the professional practitioners of the discipline, could be published at all is evidence of the scientific stature attained by MORS and its members over the previous forty years. The overview, written by Wayne P. Hughes, Jr., was the centerpiece of a monograph entitled Military Modeling, edited

by Hughes and published by MORs in 1984. Because of its currency and the wealth of collective wisdom it contains on the subject, Hughes' overview has been used as a basis for the development of the methodological approach to the RAS study.

The construction of and the analysis of a problem within the context of a model is the hallmark of the scientific method. A model is an abstraction or partial representation of reality designed for various purposes but, in the case of this study, its purpose is to assist in decisionmaking. It provides an explicit and precise framework or structure within which the factors relevant to the problem under investigation and their relationships to each other are systematically analyzed.

Analytical models are themselves based on some body of specialized knowledge and theory applicable to the branch of science in which they are used. Thus models employed by the National Aeronautics and Space Agency (NASA), for example, are based on laws governing the movement of celestial bodies and on the effects of temperature, pressure, and gravitational forces on materials and on people (e.g., the effects of weightlessness on the human body). Hughes calls these phenomenological models. Because the physical sciences are made up of an extensive body of well-developed and very orderly knowledge, these models are very accurate in their description of cause and effect relationships and they can predict outcomes of most events with mathematical certainty. Such is not the case with military models.

Military problems are usually at least as complicated as engineering problems. They are as intricate and involved as the problems dealt with by social scientists. In fact, one of the intractable aspects of military modeling is the social or human aspect of combat. This is especially apparent in so-called high resolution (small unit) simulations of combat. Models in this category can deal with the relative effectiveness of opposing weapon systems because their performance depends on engineering characteristics which are generally measurable. They cannot, however, deal as well with the characteristics of human behavior under

stress. These characteristics are as yet among the incommensurables. Finally, military problems are certainly more formidable than the typical micro and macro economic analyses to which they were earlier thought to be analogous.

If, however, this class of problems is so difficult to analyze in accordance with the guidelines of the scientific method, what is to be done? First, consider briefly what is meant by the scientific method. In general terms it involves conjecture about a process which leads to the development of a hypothesis. This hypothesis is then tested in a controlled experiment and the results of the experiment are carefully measured. Based on these measurements, the hypothesis either passes or fails the test.

The process is repeated often by many different investigators before repeated successful test results generate sufficient consensus within the scientific community to upgrade the status of the hypothesis to that of "theory" or ultimately "law." Throughout this drawn out, very deliberate and systematic procedure, the objectivity of the various investigators and the verifiability (or actually falsifiability) of results is subject to close and very critial scrutiny--the essence of science.

In view of such stringent requirements for verification of results, and the inherent obstacles to conducting controlled experiments on combat-related problems, the best that military analysts can do is to follow scientific guidelines as closely as possible. For example, in using a high resolution model of small unit combat, one, in effect, conducts an experiment with the model instead of with the phenomenon of interest. Of course if the model itself has not been accepted as a valid representation of reality (that is, it cannot predict actual outcomes of combat engagements), it and its outputs remain hypothesis until tested - and verified. But the pseudo-data generated can nevertheless be useful, at least in the diagnosis of problems under investigation.

The most famous yet simple, abstract symbolic models that are still in use for purposes such as these are Lanchester's attrition equations, formulated in 1914. Thus, the community of military modelers is encouraged to continue its professional activities, aspiring to the ideals of the scientific method.

This brief historical background and overview of the state of the art of military analysis is relevant to a discussion of the methodological approach to the RAS problem because in this study we are dealing with a squishy problem. It is a problem whose definition depends on shades of meanings of words, rather than quantifiable relationships. Whose criterion for decision cannot be precisely quantified. A problem for which measures of effectiveness are situationally dependent and yet solutions for which are required to meet the full gamut of prospective situations that might materialize up to ten years into an uncertain future. This is the nature of the problem the study team set out to model.

2. Toward a RAS Model

Referring to Hughes' taxonomy of models after much research and considerable conjecture, it was determined that the model (or models) needed for analysis in this study was:

a. A battle planning model whose aim is to improve tactics and/or force composition by examining the effect of changes to current tactics and force composition relative to RAS. It should have sufficient detail to yield insights to likely trends and at least order-of-magnitude indications of possible outcomes in RAS encounters under given sets of circumstances.

b. A model that also has some of the attributes of a force sizing (planning) model. That is, it should be able to make "if ..., then ..." statements about improvements, but it should be kept uncomplicated because it will be dealing with an hypothesis about an uncertain future.

c. A model whose scope is medial rather than macro or micro (although it should also be able to analyze the details of selected critical situations).

d. An ad hoc model because no known standing model exists that has all the attributes already enumerated.

e. A model that can be used to both describe a representative RAS situation (therefore relatively high resolution) and also prescribe a more generalized solution to the overall problem (therefore more aggregated but more comprehensive than a high resolution model).

Since it was believed that no single model could satisfy all of these requirements adequately, it was decided to make use of two formal models in conjunction with each other and with peripheral research and educated guesswork. The two models are the manual war game STEELTHRUST and a multiattribute utility model constructed for this study based on Marine Corps doctrine for standard command and staff actions and defensive combat.

The use of more than one model in a study has become an increasingly popular technique among analysts. Hughes discusses multiple model research in terms of vertical (a hierarchy of models from high to low resolution which are at least generally connected by outputs and inputs) and horizontal (the same level problem analyzed using two or more different type models) modeling techniques. This trend is a natural response to the limitations of military models and the intractability of certain problems.

It is not surprising, therefore, that it has developed in the social sciences under the label of "methodological triangulation." In an article entitled "Unconventionality, Triangulation, and Influence (Sociological Methods: A Sourcebook, Norman Denzin, ed., Chicago: Aldine Publishing Company, 1972), Eugene Webb argues that in the analysis of squishy problems, the most persuasive evidence and strongest inference

comes from a triangulation of measurement processes. The combination of multiple methods, data types, observers, and theories in the same investigation is what Webb calls multiple triangulation or methodological triangulation.

This concept of triangulation applied to analysis suggests that there is more than one way to measure phenomena under investigation. Certainly quantitative measures, i.e., numbers, are the first kind that come to mind. They are more precise than words, and the science of mathematics provides a very rigorous set of rules governing what can be done to and with numbers. For example, "more" or "less" imply gradations but "4" and "2" define very precisely what these words imply. Furthermore we know that 4 is twice as large as 2. We cannot say the same about the adjectives more and less.

In the social sciences however, numbers are not always adequate to fully describe the phenomenon under investigation. Accordingly, social scientists think of different ways of measuring or defining observations as being on a continuum between the extremes of qualitative and quantitative measures. Their measurements or operational definitions must accomplish one or more of the following three things. They must name, order, and specify interval. Obviously, if an operational definition can do all three things it conveys the most meaning about a subject. But even if it can only say that one subject is more or less (some quality) than another, it has conveyed a degree of meaning that is more precise than a nominal definition.

This simplest and least meaningful form of measurement provides only discrete category information. There is no metric or order in nominal data. Yet, it is not without usefulness. Taxonomies abound in the social sciences and in the literature of the military sciences as well. No military professional has any problem distinguishing between planning and executing an order or between attack and defense in a particular tactical situation. But then, few are likely to think of these categories of thought and activity as types of measurement either.

However, it is all of these analytical concepts that must be brought together if we are to improve our knowledge of the RAS problem and devise solutions that will improve performance in the real world.

The actual structure of an ad hoc model is determined by the study objective, the decision criterion used for choice among alternatives, the measures of effectiveness selected, the availability of data, and the scenarios being used (or avoided) in the study. All of these factors are in turn dependent on the purpose of the study, that is, how it is intended to help the client make a better decision(s) on the subject under investigation.

Figure VIII-C-1 is the structure that was first developed as a comprehensive description of the RAS problem. This structure was appealing to the study sponsors because it seemed to take into account all of the elements of the RAS problem and it showed outputs that would present a range of options for decisionmakers in terms of familiar and specific categories such as T/Os, T/Es, Training Standards, etc.

Upon review by other representatives of the c'ient (USMC), however, critical questions were raised. Individuals with special education in scientific disciplines probed for functional relationships among and within the activities indicated, questioned the appropriateness of certain pieces of the general model structure and the sequence of activities shown. In response to this technical scrutiny, the study team refined the model and modified the presentation. Figure VIII-C-2 shows the structure that has evolved from this critical dialogue and application of the scientific method.

Historical research occupied an important part of the study because much of the Corps' doctrine is based on historical experience with a surprising amount of it involving experience with RAS problems.

REAR AREA STUDY ACTIVITY FLOW CHART

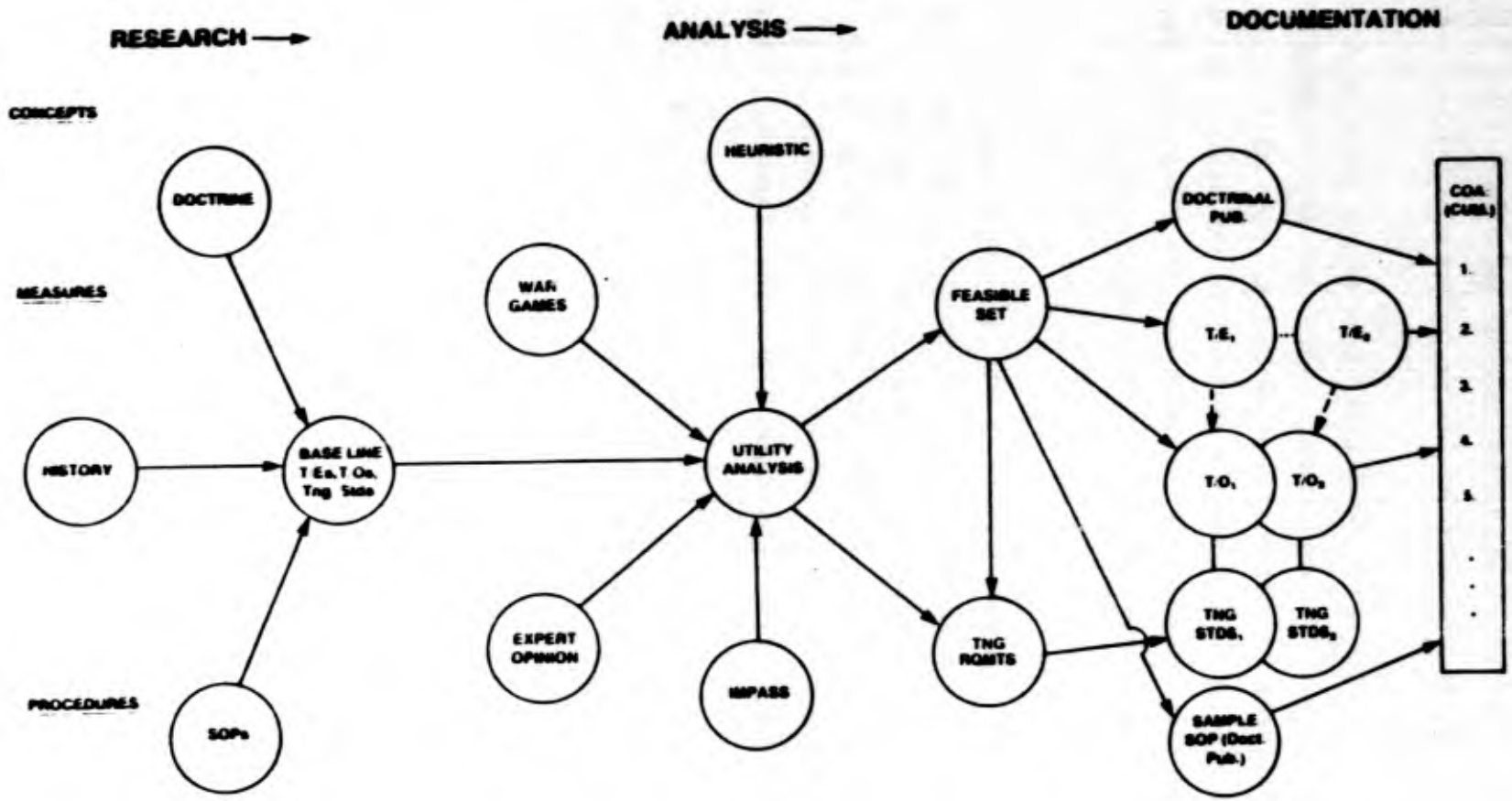


Figure VIII-C-1

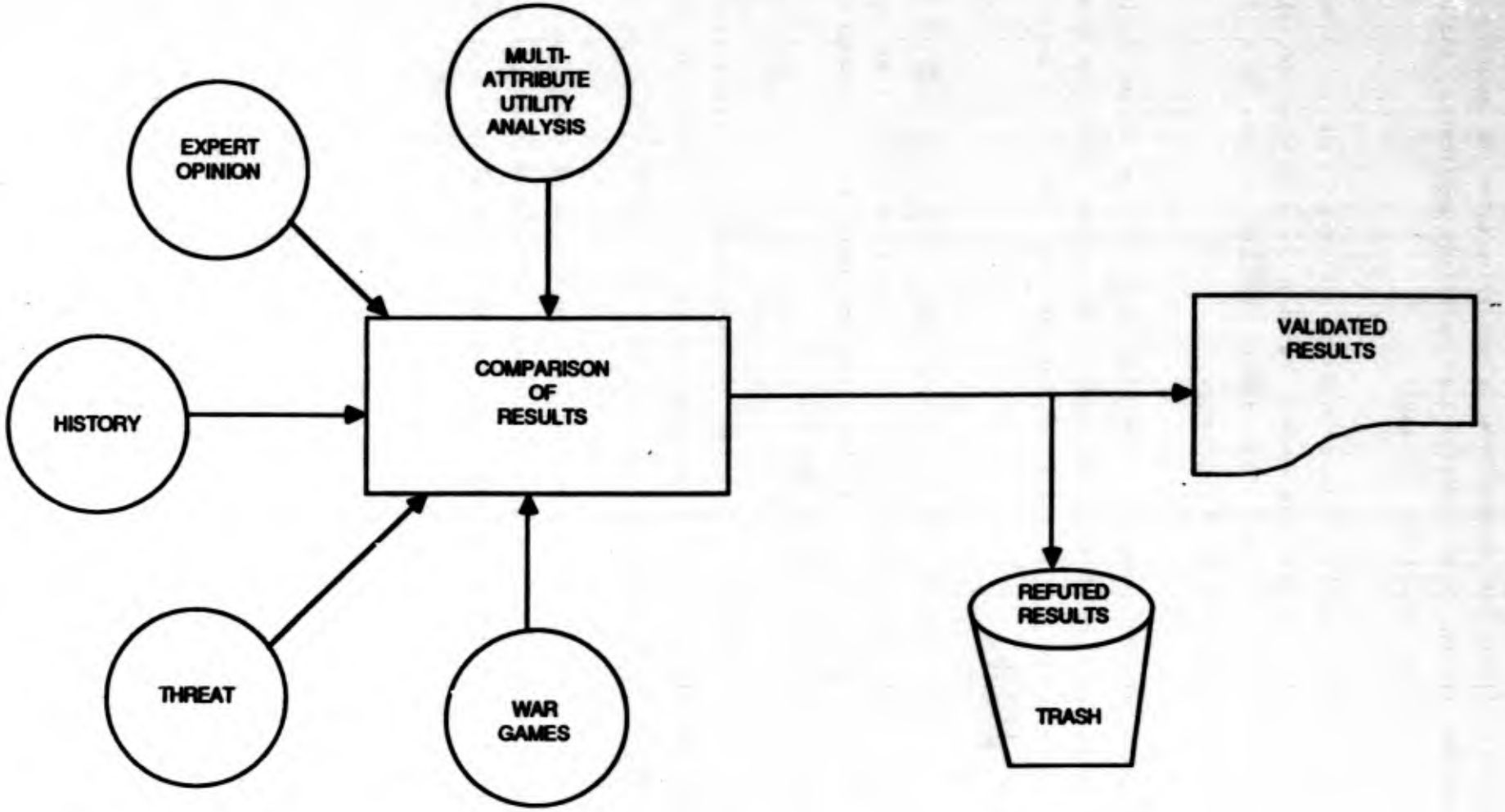


Figure VIII-C-2 Concept of Methodological Convergence

Expert opinion has always been a reliable input to studies of complex problems as long as the expertise is verified, applicable, and can be integrated into the analytical process.

This is where multiattribute utility analysis comes in. This structured approach to capturing expert opinion is based on decision theory and has become an accepted technique of analysis for just such ill-defined problems as this study is dealing with.

Research on the composition and magnitude of the threat facing rear area units in a variety of prospective situations yielded a broad range of mission-threat-environment combinations that need to be matched with RAS capabilities.

All of these combinations and permutations could not be modeled in detail but at least one critical situation -- the attack of a rear area installation by an armored force -- was examined using a high resolution (platoon and company level) manual war game.

The results of the application of these separate techniques of research and analysis were then compared against the objective of the study and the alternatives designed to accomplish this objective.

How these results were compared will be discussed next, but as Figure VIII-C-2 indicates, the attempt in this multiple method approach was to obtain results that, if they could not be validated in the strict scientific sense of the term, would at least tend to corroborate each other. How successful the study team was in this effort will be determined by another round of critical review and scrutiny -- i.e., more hypothesis testing.

3. Design of Alternatives

Before addressing directly the alternative courses of action that were developed during this study, a word of further explanation is in

order on the subject of studies in general, their objectives, the analysis they contain, and the use to which they are put. This explanation is not included to instruct the Marine Corps on the management of the Five Year Studies Program, but to describe, in terms of yet another perspective, how the study team viewed the ultimate usefulness of its work. If this perspective is valid, then the approach taken to the analysis of the RAS problem should be useful to the client.

A study is a comprehensive examination of a problem. It includes one or more analyses of aspects of the problem. These analyses are exercises of a set of inputs and assumptions in a model which yield results and conclusions. But the output of analysis often has to go through a further synthesizing step before it is useful to a decision-maker. This is typically done in the development of study recommendations. These are specific actions which are recommended to the client or sponsor of the study for decision. They relate to the objective of the study but they also relate to what the client can or cannot do by way of implementation.

Because there is usually more than one way to accomplish an objective, study recommendations involve choices among alternatives and therefore the decisionmaker must be provided with a criterion for making his decision. From this perspective the study of the RAS problem looks more like a problem faced by the Program Evaluation Group at HQMC during the POM development process than it does a problem of scientific analysis of a natural phenomenon.

In his discussion of models, Hughes recognizes this difference by distinguishing between scientific and sensible models. Sensible models are not, strictly speaking, scientific because they are beyond verification. Rather they are logical, explicit, reproducible frameworks within which a problem can be further discussed and analyzed. Once such models are tested by review and criticism and found to ring true as an abstraction of a complex problem, they become useful as a structure for subsequent debate. The models presented in this report are sensible models.

They are intended as useful tools in the continuing investigation of the RAS problem.

It was with this orientation that the study team approached the design of alternatives by which the objective of the study could be accomplished. This study objective is to determine concepts, measures, and procedures for the improvement of MAGTF RAS in the 1985-1995 time frame. Before proceeding further, more definitions of terms are needed. For purposes of the study, the words "concepts," "measures," and "procedures" were defined as follows:

"Concepts" are taken to mean "doctrine." Doctrine is that guidance and instructional material found in Landing Force Manuals (LFMs), Fleet Marine Force Manuals (FMFMs), and Operational Handbooks (OHs). These latter publications contain tentative doctrine, subject to review in the Fleet Marine Force and final approval by CG MCDEC. Marine Corps doctrine is also found in applicable Naval Warfare Publications (NWPs), in selected Army Field Manuals (FMs), and in the Programs of Instruction (POI) of the various schools and courses within the Marine Corps Education Center, MCEDC. If doctrine on a particular subject does not exist, new doctrine that might be developed on that subject should conform in scope, level of detail, and applicability to doctrinal material already in existence.

The term "measures" is used as a collective label for all those steps or means to the end of improving RAS capabilities that HQMC might take after considering the recommendations of this study. Included under the term "measures" are changes to T/Os and T/Es. Changes to Individual Training Standards (ITS) and Mission Performance Standards (MPS) would also be considered "measures" and would involve changes to the Military Occupational Specialty (MOS) Manual and to Marine Corps training directives. Finally, changes to the Marine Corps Combat Readiness Evaluation System (MCCRES) so that it can be used to evaluate the capability of rear area units to protect and defend themselves would also be included.

"Procedures" in this study refers to those established ways of doing things or standardized sequences of action developed by operational units to assist them in accomplishing their assigned missions. Procedures are concerned with ways of accomplishing the mission with the means at hand rather than justifying new requirements or additional resources. They are typically documented in the Standing Operating Procedures (SOP) of FMF units and therefore reflect particular mission orientations and operational environments. They are also appropriate, in more generalized form, for inclusion as samples in doctrinal publications.

In accomplishing the objective of this study, various combinations of concepts, measures, and procedures, as defined above, have been developed as alternatives and evaluated as to their contribution to the RAS of a MAGTF.

These alternatives were developed by first listing all of the possible changes that could be made to affect RAS capabilities in the specific categories listed above. This listing follows:

Doctrine:

1. Changes to existing doctrine are normally made by publishing an OH on a particular subject and then submitting this publication to a review process until "new" doctrine evolves suitable for incorporation into existing LFMs and FMFMs.

2. Changes relevant to RAS might also take the form of changes to existing publications covering a wide variety of functional areas.

3. Changes in doctrine can also occur through a gradual reinterpretation of current doctrine without the aid of new or additional publications

Measures:

4. T/Os can be changed by changing the grades, skills, and quantities currently shown on each line of existing T/Os.

5. Alternatively, new T/Os can be created describing squadron, battalion, and company size units that might be included within the FMF structure to improve RAS capabilities.

6. T/Os can also be changed by modifying the material found on the cover page, i.e., the unit's mission and concept of employment/organization. But changes such as these would really be doctrinal changes.

7. T/Es can be changed by changing quantities of equipment already allowed, by adding new items in specific quantities or by deleting items of equipment.

8. As in 5. above, new T/Es can be developed and would have to accompany any new T/O.

9. ITS and MPS can be modified in the same way, by additions and deletions.

10. ITS and MPS can also be changed by associating certain ITS with categories of personnel (e.g., all enlisted or all members of OccFld 58) and MPS with types of units (e.g., all CSS and AGS units).

Procedures:

11. Changes to procedures, as defined above, are within the province of FMF commanders and are therefore beyond the scope of this study (study sponsors are decisionmakers at HQMC and MCDEC).

12. However, new sample SOPs that present guidelines for RAS planning and execution (including training) could be included in new doctrinal publications that might be produced, in which case this type of change would be more properly listed under doctrine.

From the above listing, three alternatives were developed which included all the possible changes on the list and organized them in categories that were logical and progressive yet feasible and incremental from the point of view of implementation. These three courses of action are described below.

Course of Action #1. Maintain the status quo in equipment, organization and training, and solve the RAS problem as it arises by task organizing to meet the threat in any given situation, just as is done in planning for and executing any other tactical mission. SOPs and mission oriented training in the FMF should be modified as necessary to support this course of action.

Course of Action #2. Make marginal changes in doctrine, tables of organization and equipment, and in training standards that will improve the capability of CSS and AGS units to protect and defend themselves. The changes in measures envisioned would include everything except the creation of new T/Os.

Course of Action #3. Create new organizations with their own specialized T/O, T/E, concepts of employment, and mission performance standards to take care of the RAS mission for a MAGTF.

Each of these COAs has many variations within it, but all possibilities identified and considered by the study team fall into one or the other of these categories.

B. RESEARCH AND ANALYSIS

The work performed by the study team under the heading of research and analysis is described under seven subheadings as follows:

1. Historical Research
2. Threat Research and Vulnerability Analysis
3. War Game Analysis
4. Expert Opinion Research
5. Multiattribute Utility Analysis
6. Analysis of Convergence
7. Cost-benefit Analysis

Each of the above topics is discussed separately in the sections that follow.

1. Historical Research

Introduction. - One of the tasks the study team set for itself was a survey of military history from World War II to Vietnam with a particular view to isolating and identifying previous experience in coping with the problem of RAS. This survey concentrated on Marine Corps experience, but the experience of U.S. Army units during the Battle of the Bulge in the Ardennes sector of the Western Front in 1944 was also examined. Because most attention in military history is focused on the major battles and campaigns, especially as they recede further into antiquity, a survey with a selective eye such as this one often uncovers some unfamiliar and thought-provoking material. A summary of the findings of this research task is found in Annex D and it makes interesting reading.

But in order to make a contribution to the multi-disciplinary approach of the study, these historical findings need to be organized in a way that will either reinforce or raise questions about the findings of other research or the results achieved by the various analytical techniques employed. What follows is, first, a very brief synopsis of the lessons learned and documented in Annex D, and second, a reordering of these lessons based on their frequency of occurrence in the several wars, campaigns, and operations reviewed.

a. Lessons Learned

(1) Advanced Base Defense - From the 1930s onward the Navy and the Marine Corps recognized the special vulnerability of advanced bases which were critical to the support of offensive operations overseas, and took steps to remedy this vulnerability. The creation of specially organized and equipped Marine defense battalions was the result of the recognition of this special security problem. Each of these units numbered approximately 900 Marines and they were equipped with heavy antiship and antiaircraft weapons. They sacrificed mobility for firepower sufficient to be effective against the type of threats they were designed to defend against. From seven defense battalions in December 1941, this dedicated

RAS force grew to twenty battalions by 1944 - a total of some 18,000 Marines or approximately 10% of the total strength of the six divisions, aircraft wings, and force troops engaged in the Pacific Campaign.

(2) RAS Incident to Amphibious Assaults - Although defense battalions participated in the early battles of the campaign in the Southwest Pacific, as the enemy's naval and air threat was reduced their utility decreased. In the later battles of the naval campaign against Japan, RAS became a matter of protecting service support areas immediately behind the force beachhead line from occasional penetration by locally available enemy forces making last-ditch counterattacks. In these situations the concept "every Marine a rifleman" was invoked to counter the threat. Shore party, service battalion, headquarters, Seabee, and even medical personnel were expected to turn to and repel the enemy attacks. This they did with no significant or at least discernible impact on their primary support functions.

(3) RAS in Europe - Due to the scope and nature of the campaign in Western Europe after June, 1944, RAS was primarily a matter of securing the lines of communications (LOC)/main supply routes (MSR) passing through the communications zone (COMZ) against pilferage by stragglers and criminal elements in the liberated territory. There was no major threat from the enemy against these LOC or support installations until the German counterattack in December 1944. When this did occur the enemy penetration did not succeed in driving far enough into the rear areas to threaten permanent installations along the Channel coast. Front-line combat units reacted well enough to contain the attack and military police (MP) units (organized in battalion strength to police the COMZ) were adequate to counter small teams from "special" infiltrating enemy units. During this counterattack, however, headquarters and service units from combat divisions and corps did have to apply basic combat skills to protect themselves against penetrating enemy combat units just as was done in the Pacific.

(4) Occupation of North China - When the III Amphibious Corps was sent to North China to disarm the Japanese Army there after the surrender in Tokyo Bay, the mission of the entire landing force became one analogous to RAS. Because there was no active combat going on at some "front," there was no question of diverting combat units from their primary mission. But the large areas and extended LOCs to be secured turned out to be vulnerable to small bands of aggressive Chinese Communists bent on stealing arms and ammunition, harassing U.S. forces and consolidating their control of the northern provinces before the Chinese Nationalists, their enemies and our allies, could reestablish control of the area. The tactics employed by Marine units to accomplish this security and defensive mission were based on routine security practices (e.g., the establishment of an interior guard for local security) and standard defensive tactics (e.g., response to an attack on a defended post by the dispatch of a reaction force/reserve). As the gradual withdrawal of the occupation force proceeded some unique task organizations were employed to maintain security with the troops and equipment that were left.

(5) Korea-Pusan - In the brief period that the 1st Marine Brigade was engaged in the Pusan area, one incident occurred in which an infantry battalion of the Brigade had to be diverted from an attack mission to deal with a North Korean unit which had penetrated 3 km behind the front line and overran some Army artillery positions. The other item of interest concerning RAS was the response of engineers and headquarters personnel to a call for volunteers to replace casualties in the front line companies. That these Marines responded enthusiastically is not surprising. The fact that they were even considered as a source of replacements, however, is another strong indication of the consensus that existed throughout the Corps at that time that every Marine was basically a rifleman first and a specialist second.

(6) Korea-Inchon, Seoul - As the 1st MarDiv attacked from Inchon toward Seoul, its left (north) flank was exposed, especially on the Kimpo Peninsula. A mixture of HN (Korean Marine Corps), CSS (shore party

and engineer battalions), combat support (tank and amphibian tractor battalions) and maneuver units (infantry battalion from 7th Marines) were employed to protect this exposed flank and the critical support installations (Kimpo airfield in particular) it left open to attack. After the Marine division moved on, this mission was given to the U.S. Army's 187th Airborne Regimental Combat Team (RCT).

(7) Korea-Wonsan, Chosin - Operations north along the east coast of Korea from Wonsan featured a long LOC (78 miles by road from Wonsan to the port of Hamhung and 78 miles further to the Chosin Reservoir). This LOC was secured in various ways as the Oct.-Dec. 1950 campaign of X Corps unfolded. Initially the trailing division of the Corps (1st MarDiv) secured the LOC as the leading divisions raced for the Yalu. As the main body of the Marine division passed, detachments were left to secure key installations like the airfield at Yonpo. When the Marines were heavily engaged in the vicinity of the Chosin Reservoir, an Army division defended the port of Hamhung. Areas along the LOC between key installations were generally unprotected or very lightly held. Mobile supply and service detachments moved with the infantry RCTs, and other support units depended on convoys for protection on the move. As in World War II, all ground units within the Corps (including accompanying aviation units) had to be prepared to contribute to their own defense. This was illustrated dramatically within the Hagaru perimeter, around the division CP, supply dump, and airfield, on the night of 28-29 November, 1950.

(8) Korea-West Coast 1952-53 - Once the Main Line of Resistence (MLR) was established across the Korean peninsula during the truce talks and the Marine division moved to the west coast (March 1952), RAS became a matter of guarding against infiltrators and controlling the civilian population. Because of the geography of the area, Kimpo Peninsula was the most likely avenue of approach for infiltrators from the north, especially along the rivers. A task organization known as the Kimpo Provisional Regiment (KPR) was formed to secure this area in depth. It was made up of KMC, national police/security forces, Marine combat support (amphibian tractor and reconnaissance units), and CSS units under

the command of a Marine colonel. This arrangement plus tight controls imposed on the movement of local civilians behind the MLR kept the rear areas generally secure to the end of hostilities.

(9) Vietnam - 1965-66 - During the first year that Marines were in the Republic of Vietnam (RVN) in strength, just about every imaginable combination of measures was tried to solve the problem of securing the airfield and the vital area of Da Nang against sabotage and small raiding parties. In the early days, infantry battalions were given the mission. Then a provisional battalion was formed out of the "hide" of CSS units. Finally, a specially trained and equipped MP battalion arrived to take over primary responsibility for this task. In the meantime scouting and patrolling was increased in an ever widening enclave which surrounded the base area. First, this was performed by Marine infantry and reconnaissance units. Later, Combined Action Platoons (CAP), a combination of a Marine rifle squad and a Popular Force (PF) or Regional Force (RF) platoon, added their numbers and knowledge of the area to the task. The RVN government forces and police were counted on to control the civilian population and conduct most of the Counter-Intelligence (CI) operations in the area. But the problem of RAS was never completely solved in Vietnam. Security was always a problem starting at the source (the target of espionage or sabotage) and extending out through the many layers of defense in depth and along the LOCs. Modern high technology sensors augmented the traditional guard posts of every unit's interior guard, yet determined raiders, willing to pay a price, could always get through and harass (but not defeat or neutralize) the best defended installations.

(10) Guantanamo Bay, Cuba - 1962 - Although not included in the historical survey (it is still an on-going operation) the defense of this advanced naval base in the Caribbean continues the pattern of earlier base defense operations. A local security/interior guard force of Marines (Marine Barracks) was augmented by infantry battalions and artillery batteries of the FMF when the threat to the base outgrew their capabilities. This ground defense force has evolved into a permanent

commitment since neither the need for the base nor the threat to its security has gone away. While the means of meeting this commitment have changed administratively over the years, the concept of employment guiding the posture and activities of the force has not. It is still basically an interior guard augmented by a reinforced battalion in defense.

b. Recurring Themes

(1) Every Marine a rifleman - Demonstrated in World War II amphibious assaults in the Pacific (also US Army experience in Ardennes, 1944); Korea-Pusan, Inchon-Seoul, Wonsan-Chosin, Korea, West Coast; and Vietnam.

(2) Basic concepts of security and defense applicable to all Marine units - Applied in World War II, N. China Occupation, Korea, Vietnam, and Guantanamo-Bay, Cuba.

(3) If the threat to security is significant at all, the highest level of command in the area becomes involved in the details of planning and executing of security tasks - This was true of Theater/Fleet Commanders in early days of World War II; Commander, III Amphibious Corps in N. China; X Corps, 1st MarDiv (I Corps on West Coast in 1952) in Korea; and III MAF in RVN.

(4) Portions of ground combat element reserve have often been assigned RAS tasks when local security/defense capability is inadequate. True during all phases of Korean and Vietnam campaigns.

(5) Support units need to be trained and equipped to provide their own local security and a degree of their own self-defense capabilities - Demonstrated in World War II (Pacific and Europe), Korea (all phases), and Vietnam.

(6) There are a number of precedents for creating specialized and dedicated units for the performance of RAS tasks - For example, WW II

defense battalions, Da Nang Air Base defense battalion (MP), and Guantanamo base defense force.

(7) There are also precedents for assigning RAS functions to task organized, provisional organizations - N. China provisional organization, Korean KPR, Da Nang provisional air base defense battalion, and Guantanamo base defense force (early stages).

(8) Effective intelligence/counterintelligence support is critical for successful security and self-defense performance - Evidence from World War II (Europe), N. China, Korea (all phases), and Vietnam.

These recurring themes and the lessons from which they have been drawn are used to reinforce conclusions derived from other research and analysis performed. This synthesis is discussed and illustrated in Section B.6 below.

2. Threat/Vulnerability Analysis

Introduction. - This section describes the first of several techniques used to determine specific requirements for improvement in RAS capabilities. As used in this study, Threat/Vulnerability Analysis is a particular type of estimate of a situation. To yield specific results in the form of courses of action or requirements, such estimates need specific information on the circumstances that make up each particular situation. But since all possible contingencies that MAGTFs may face over the next decade cannot be described in detail, a set of representative situations (hypotheses) was used as a device to assist the study team in focusing on specifics. For the Threat/Vulnerability Analysis of these situations (the first iteration of analysis), a modified format of the Commander's Estimate of the Situation was used as a checklist of critical factors to be considered.

The familiar sequence of mission, enemy, terrain (environmental factors), and troops (resources) available, i.e., METT, was modified so that the threat posed by the enemy was examined first, followed by a description of the assumed environment and then the overall mission of the MAGTF. This left the troops or resources available for RAS to be analyzed last in relation to the requirements of the situation. This comparison (between the threat and available RAS resources) served to identify shortfalls or deficiencies that were then made the subject of later analysis.

The modified ordering of critical elements accomplished two purposes. First, it focused primary attention on the most critical element of the estimate, the postulated enemy threat. Second, it highlighted the contingent nature of RAS considerations in any situation relative to the primary missions of the elements of a MAGTF. RAS capabilities and activities are important only if a threat materializes. Until this happens they are at best a form of insurance and at worst a drawdown and a distraction from the primary mission capability of the MAGTF.

a. Situation No. 1 - MAB to Honduras - Until recently an operation short of war such as described in this situation (Section A.4 above) was the type of contingency most likely to be faced by Marines in the foreseeable future. While the risks to national security are not as high in this scenario as in some others, the risks to the MAGTF involved are considerable.

The conventional enemy threat postulated in this case is from organized bands of guerrillas armed with small arms, rockets, and mortars. It would probably most closely resemble threats faced by Marines on occupation duty in N. China (1945-49) and around base areas in RVN (1965-71). The unconventional warfare (UW) threat likely to materialize in this situation is much more significant. If one can imagine political circumstances requiring the deployment of a MAB to Honduras, it does not take much more imagination to visualize a situation within the area of operations which includes all the ingredients of a high-level and very active UW threat. Attempts at espionage, sabotage, subversion, and even terrorism could be anticipated from dissident elements within Honduras, from Sandinistas, Cuban "advisors," and even from Soviet agents in the area.

Figure V-1 shows the geographical relationships among the key locations in this situation. The port of Puerto Cortes with a population of as many as 50,000 people, is 25 miles from the city of San Pedro Sula (population perhaps twice that of Puerto Cortes). Outside of San Pedro Sula is the arrival airfield for the fly-in echelon of the MAB. These two population centers are connected by road and by a railroad running parallel to the road. It is further assumed that, upon arrival of the MAB, all of these facilities are operational and available to assist in the assembly and reorganization of the MAB's elements for combat.

Since the MAB is being deployed to stabilize a situation and not to engage in active combat (at least initially), the missions of its various elements will be mainly "be prepared to ..." missions. When the troops of the MAB begin arriving at the airfield, among their first

concerns will be the administrative details of joining up with their heavy equipment and supplies being unloaded from MPS in or near Puerto Cortes. This activity, which according to evolving doctrine will take up to 10 days, will be particularly demanding on the time and attention of the ACE and the CSSE of the MAB. Units of the GCE will be available for security and self-defense tasks sooner than other units but even they will be engaged for a time in reclaiming equipment and initial supplies and moving from assembly areas in the AAA to locations where they will be stationed while in country.

During this transition period, the benign state of the AAA's environment must be insured either by forces of the government that invited U.S. troops into the country (i.e., host nation (HN) support) or, in the event conditions ashore are unstable, by a U.S. covering force such as a Marine Amphibious Unit (MAU) from a Navy Amphibious Task Unit (ATU) off shore. Not to anticipate solutions but only to pursue this "what if ..." speculation one level of detail further, it is assumed that this reinforced infantry battalion of the MAU is deployed ashore as follows. Battalion headquarters and one reinforced rifle company at the airfield outside San Pedro Sula, a second reinforced rifle company along the road and railroad, and the third reinforced rifle company with the MAU command element in the vicinity of Puerto Cortes.

Just focusing on the LOC from the port to the airfield for a moment, the rifle company responsible for its security might be disposed in a series of outposts/patrol bases as follows: one company patrol base approximately midway along the LOC, two platoon patrol bases half way between the port and the company CP and between this CP and the airfield. If the two platoons deployed along the route (the third platoon being held in reserve at the company CP) each further deploys two of their squads in fire team-size outposts, there would be an outpost every mile and a half along the LOC.

If each fire team outpost (perhaps accompanied by HN troops and reinforced with an M60, M2 or M19 MG squad) is responsible for a 2400

meter segment of the LOC (1200m in each direction from its post) and the platoon and company bases do their share (1200 m. in each direction), all but the last 1200m. closest to each terminal can be covered by one reinforced rifle company (the companies at the terminals can cover the two remaining segments). Of course, to make this coverage effective against a conventional threat, the outposts would have to be able to maintain round-the-clock surveillance over their areas of responsibility as well as covering them by long range fire during periods of good visibility. Reaction forces would require vehicular mobility in order to be responsive, and indirect fire support from at least light mortars plus air support from helicopter gunships and OV-10 aircraft should be available on call to each outpost. Working backward from this level of combat power along the LOC, the size and composition of guerrilla bands that would be required to successfully interdict this key facility can be estimated. If the known threat is below this threshold, security can be considered adequate. If not, then the shortfalls/deficiencies can be identified for corrective action.

This same process can be applied to the other critical facilities within the AAA, e.g.: airfield (6 square miles), ammunition dumps (over 200 acres), issue points (up to 100 acres each), and fuel storage areas (30-50 acres each). These calculations give at least a rough estimate of the level of security needs against a conventional threat. Security against a UW threat is much harder to quantify.

Assuming that the troop density needed to defend against a conventional threat will also be adequate to guard against attempts to sabotage key facilities, that still leaves the threats of espionage, subversion, and terrorism to defend against. Special skills as well as adequate combat troop density are required to defeat these threats. According to the MPS MAB Troop List (MC Bul 3501 of 12 Jul 1984) the following special skills (OccFlds) are available within the MAB in the quantities indicated:

Det, Radio Bn	- 4	off, 95 enl	
ITT, HqBn MarDiv	- 3	20	
CIT	- 5	11	
Det, CA Gp (Res)	- 10	19	
Det, MP Co., HqBn, MarDiv	- 1	30	
Det, MP Co., H&S Bn, FSSG	- 1	29	
MP Det MABS, MAW	- 2	116	(1, 58 per airfield)
Totals:	26	320	

Whether or not this total of approximately 350 specialists from OccFlds, 01, 02, 26 and 58 out of a total strength of over 16,000 Marines is adequate to defend the MAB against the UW threat depends on circumstances that are beyond the scope of this study. It is not possible to estimate such variables as the local political situation, how restrictive US ROE will be, and the amount and the accuracy of intelligence on the threat that is already available when the MAB arrives. It is known, however, that when elements of the MAB are deployed in proximity to tens of thousands of indigenous personnel, ITT and Civil Affairs skills will be at a premium. Similarly, the specialized training of MPs in physical security will also be an asset much in demand. Finally, the organic intelligence (including EW) and counterintelligence capabilities of the MAB will be fully engaged in meeting the challenge of determining enemy UW capabilities and in thwarting his intentions before they are executed to the detriment of the MAB.

b. Situation No. 2 - MAF to Iran - In this representative situation the full threat spectrum described in Annex B is likely to be encountered. The operational environment is characterized as one of long distances and wide open spaces (see sketch map, Figure V-2). The dimensions shown in this figure are not figments of the imagination. They are based on research. It goes without saying, of course, that such estimates are very tentative and situation-dependent. They do, however, bear some relationship to evolving doctrine and earlier combat experience. Table VIII-C-1 (Selected Troop Densities) summarizes similar estimates

made over the years for Army and Marine Corps dispositions under different operational conditions.

Table VIII-C-1 Selected Troop Densities

Total Size of Force	Troops per Square Mile				
Sub-Areas of Concern	WWII	Mid-1960s Conventional Doct.	Nuclear Battlefield	Current Doct.	RVN Peak Strength in ICTZ
Corps (100,000 troops)	60	-	-	30	-
MAF (50,000)	-	80	20	40	-
Forward Div. Areas *	100	100	50	40	-
Rear Areas	40	75	15	20-30	20

* High density amphibious assault environment of Pacific Campaign excluded from this comparison.

Average troop density figures are at best a very rough indicator of combat power but they do give some indication of the nature of the operational environment. For instance, the high density figures associated with WW II relate to a conventional combat environment in which zones and sectors of responsibility assigned to subordinate units are actually controlled by these units. As the troop density figures decrease, the operational environment becomes one of maneuver in which units that are halted control local areas within and immediately

surrounding their "strong points," but depend on intelligence, reconnaissance, and surveillance to "cover" large intervening portions of the area of operations. This situation is not unlike the RVN experience in which all of the ICTZ could be thought of as one big rear area.

In the operations envisioned in this representative situation the mission of the MAF is to continue the attack against deep objectives and defeat the enemy force decisively. This translates into an emphasis on offensive operations and mobile warfare by the GCE of the MAF. This in turn sets the stage for RAS operations. The MAF in this case study has a strength of approximately 45,000 organized as follows:

Command Element	- 2,000
GCE (MarDiv)	- 18,000
ACE (MAW)	- 12,000
CSSE (FSSG)	- 10,000
Navy Support Element	- 3,000
	45,000

These elements are distributed over at least three different areas, each with its own peculiar requirements for RAS. Each of these areas will be examined more closely in turn.

(1) Forward Area - This area encompasses the combat area, within which the division is executing its offensive mission, and the area immediately behind it in which forward elements of the FSSG are operating to provide logistic support. The boundary between these two areas is not well defined. The UW threat is insignificant but the threat to CSSE facilities from mobile enemy armored units is high. The environment is assumed to be open, sparsely populated terrain similar to that found at MCAGCC, Twentynine Palms, California.

CSS is provided to maneuver elements of the GCE by mobile CSS detachments (MCSSD). These detachments move behind advancing regimental task forces from CSS Areas (CSSA) established further to the rear. As

shown in Figure V-2 (sketch map), it is assumed that there are two such CSSAs in operation in this situation, each with a strength of 2,000 troops. This total of 4,000 support troops is made up of approximately 1500 troops from organizational maintenance and service units of the division and 2500 troops from FSSG performing similar functions. The main RAS problem for these two CSSAs and their MCSSDs is self-defense against light armored units such as a Soviet Airborne Infantry battalion mounted in BMDs. Each of these CSSAs has sufficient personnel to organize the equivalent of an infantry battalion for its own defense. All that is needed is proper equipment, training, and command and staff skills to function effectively. How a CSS installation might defend itself against an attack by an enemy BMD battalion is examined in more detail in Section 3 below by means of a war game.

(2) Rear or "Vital" Area - The sketch map in Figure V-3 presents a magnified view of the dispositions of support units in this MAF vital area. What is represented here is a fairly mature expeditionary base area which is assumed to have developed over 30 or more days after the MAF landed and while it continued its attack inland. There is a very low probability of a conventional threat to this area but the threat from SPETSNAZ-type forces is high (e.g., one Independent Company of 15 8-man teams assigned the mission of disrupting support activities in the MAF rear). The area is assumed to be built up around the port and airfield and heavily populated since it is near the coast. The support activites being performed in this area include both MAF-level CSS and aviation support.

There is an EAF in operation near the port and within the FCSSA. One MAG(VH) is assumed to be operating from this facility. Further inland a VSTOL operating site from which another MAG(VH) operates is colocated with a second CSSA which is supporting operations in the forward areas. A local airfield has been uncovered and is in the process of being prepared for fixed wing operations. The BSA used to support the initial landing is being gradually closed down as other facilities in the base area are developed. The support units populating this vital area include 2,000

from the MAF Command Element, 7,000 MAW personnel (2 MWSS plus helicopter and AV-8B personnel), 7,000 FSSG personnel, and 3,000 personnel of the Navy Support Element (Amphib Const Bn, Cargo Handling and Port Group, and Naval Mobile Construction Bn) for a total of 19,000 MAF personnel.

For purposes of vulnerability analysis these totals were distributed among the four installations shown as follows:

Installation	Approx. Area (Sq. Mi)	Personnel
1. FCSSA (Port & EAF)	18	8,000
2. CSSA, (incl. VSTOL Site)	15	4,000
3. BSA	4	1,500
4. Bare Base (inl. CSSA)	10	2,500
(upon arr. of MAG (FW))	-	(add, 2000)

Without war-gaming the performance of these support troops against groups of SPETSNAZ ranging from 10 to over 40 men (1 to 6 teams depending on the size of the installation), it should be apparent that the RAS problem in this situation is a local security/interior guard problem rather than one of defensive combat. In any case there are sufficient personnel in each of these CSSAs to organize the equivalent of an infantry battalion for self-defense. The employment of this defensive combat power may be different but its availability is nonetheless essential.

Another way to look at the difference between these two distinct missions is to consider the normal disposition of an infantry battalion in defense (3km x 2 km or 1.88 x 1.25 miles). These figures yield an area of 2.35 square miles which equates to a troop density of over 380 troops per square mile. If this same infantry battalion is given the task of providing local security for an airfield with an 8,000 foot runway it must be deployed over an area of at least 6 square miles which results in a density of about 150 troops per square mile. These rough estimates give

some indication of the different operational requirements of these two different missions.

(3) Advanced Base at Remote Location - Figure V-4 (sketch map) depicts a notional airfield for a fixed-wing MAG. This facility was used to do a detailed vulnerability analysis of an advanced air base located in a friendly host nation within 200 miles of the FEBA in Iran. As in the MAF vital area within the force beachhead, the principal threat to this facility is a UW threat. SPETSNAZ units could be covertly introduced into the friendly host nation. In addition to the mischief a few of these teams could do themselves, the airfield must also guard against local dissidents aided and abetted by the SPETSNAZ (HN armed forces are assumed to be capable of protecting the airfield against conventional warfare threats). The physical environment might not be as neat and well-defined as the notional field depicted in Figure V-4. If the MAG is using an existing commercial airfield, for example, there may be an intermingling of military and civilian facilities and personnel. This would naturally complicate the security problem. For purposes of this analysis, however, the stylized physical layout depicted will be used.

Based on the Final Report of the USMC Working Group on Aviation Ground Support Requirements, of 19 February 1985, the airbase shown would be supporting the operation of 47 tactical aircraft (plus 6 KC-130 refueler/transports) from seven squadrons/detachments. The total population in this base would be approximately 3,000, including 800 in the H&HS and MWSS, over 1,400 in the seven squadrons and detachments, and the balance in units of the MACG and FSSG performing duties at or close to the airfield. Also included in this total is a flight line security department of 1 officer and 61 enlisted (MOS 5811). In addition to this dedicated and specialized security force there are sufficient personnel available at this base to organize the equivalent of an infantry battalion for base defense just as was suggested for the other CSS and AGS installations depicted in this situation.

It has already been said that it is difficult if not impossible to quantify the UW threat to a particular installation like an airfield. But in order to give the reader some idea of relative security achieved at different levels of investment of resources in security activities, some hypothetical security plans have been structured. The reader can then speculate in more precise terms whether or not they would be adequate against SPETSNAZ teams and local dissidents (a normally effective HN security effort outside the base perimeter is assumed in all cases). The three levels of security activity examined are:

1. Minimum security - interior guard manning critical posts 24 hrs. per day.

2. Reinforced security - critical posts are augmented, additional posts are added.

3. Infantry battalion equivalent - interior guard augmented by outposts and patrols

Minimum Security - The facilities within this airfield installation which are considered critical to the tactical aviation support function it performs are outlined by heavy lines on Figure VIII-C-3. They include the ammunition and fuel dumps, base operations and the cryogenic facility, the aircraft parking area and squadron hanger spaces, the 8,000 foot runway and the aircraft themselves. The ordnance assembly area is critical only when actual assembly operations are in progress. Other facilities on the airbase are important but not critical because damage to them would not necessarily stop flight operations (or the effect of damage could be repaired/replaced before operations would be affected).

To determine minimum security requirements, all critical facilities are surrounded by surveillance and defensive fire lanes (dotted lines on figure). These lanes are anchored by guard posts (solid triangles) located and spaced according to the following criteria:

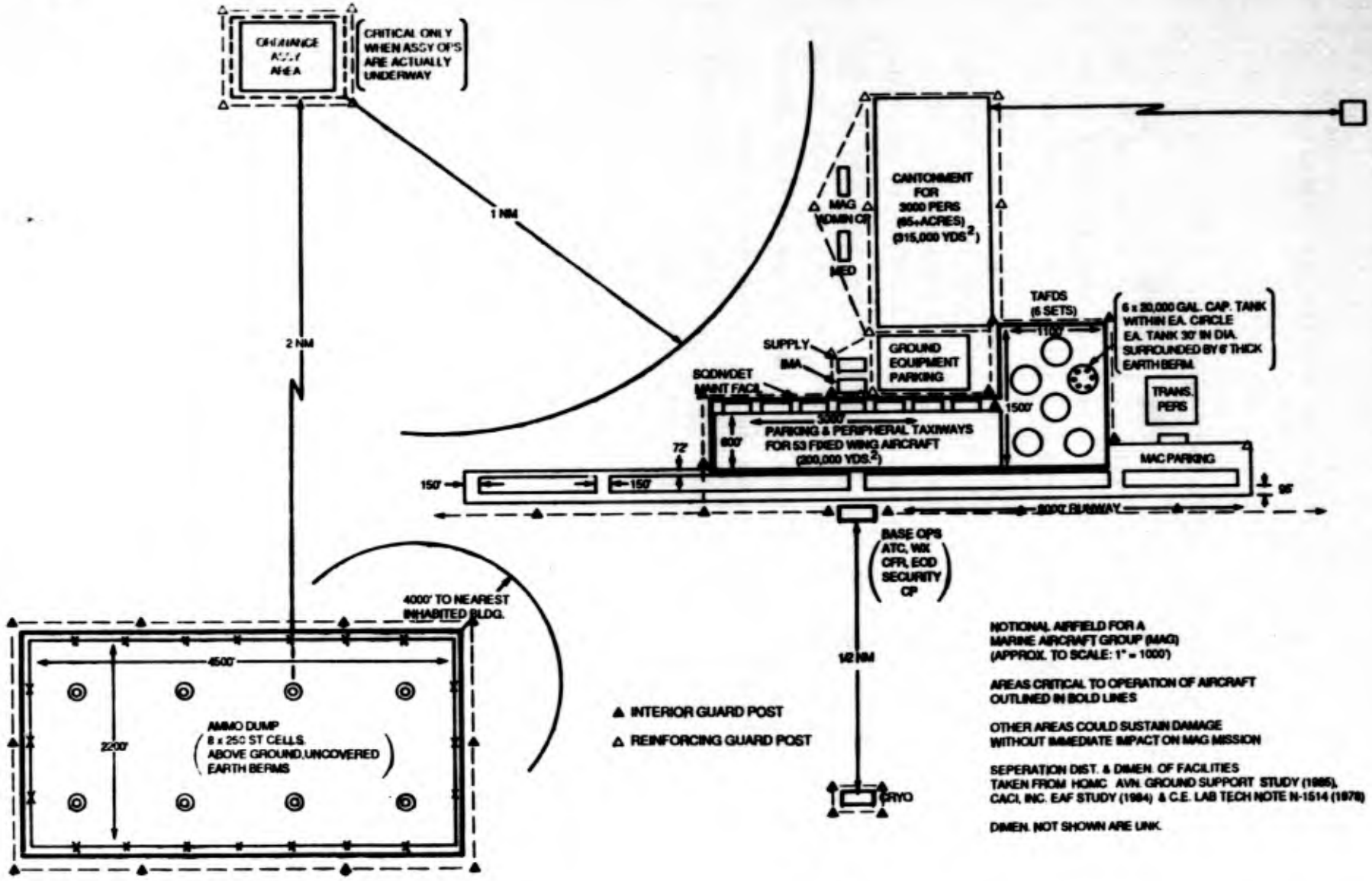


Figure VIII-C-3 Airfield Interior Guard Requirements

- each post must have a direct line of sight (LOS) to at least one other post,
- no post can be more than 500 meters from the next closest post within LOS.

If the sentry on each post can maintain surveillance up to 500 m. from his post in all conditions of visibility and can fire effectively on contacts detected within this range, the security of his post is assumed to be intact. The solid triangles indicate the locations of guard posts developed based on these criteria. There is a total of 27 of these posts.

If an interior guard is organized consisting of three reliefs (each relief stands 4 hrs on, 8 hrs off) of 27 sentries, a corporal of the guard, and a supernumerary in each relief, plus a sergeant of the guard and an officer of the day, the guard force will number 1 officer and 88 enlisted. The 58 men off duty at any given time are available as a reaction force in the event of any overt challenge to the critical areas. If it is assumed that the 3,000 Marines on the airbase work 12 hours per day in a combat environment (the other half day used for sleep and admin. time), there are 36,000 productive man hours available for use in performance of the mission of the airbase. The 89 man guard force represents an investment of 1,068 man hours in security, or 3% of the total man hours available for mission performance. It is also noteworthy that even this minimum level of commitment to security exceeds the capability of the 62 personnel in the flight line security department of the MWSS.

Reinforced Security - Because other areas of the base are important, if not critical, additional guard posts are established (using the same criteria described above) in this reinforced security example. There are 13 of these posts, shown as open triangles on the figure. To further reinforce the guard, all posts are designated 2 man posts. Finally a security detail of 1 man for every 2 aircraft is established within the squadron hanger and parking areas. The size of the interior guard resulting from these decisions is as follows:

1 OOD	1
1 Sgt.-of-the Guard	1
3 Corporals-of-the-Guard	3
3 Supernumeraries	3
40 posts x 2 men per post x 3 reliefs	240
53 acft. ÷ 2 = 26 "plane guards" x 3 reliefs	78
Total Interior Guard	325

This level of commitment to security equates to 3,900 man hours or 11% of the total daily productive time available.

Infantry Battalion equivalent - If a 900 man infantry battalion was assigned to provide security for this airbase it would represent a troop density of 150 troops per square mile. This tactical troop unit could emplace surveillance equipment and crew-served weapons around critical facilities and patrol the perimeter of the base (over 9 miles) and approaches to critical facilities within the perimeter. Actually the troops already occupying the airbase (3,000 Marines) give a troop density of 500 per square mile, well in excess of even an infantry battalion in a defensive position. If some of these Marines were trained, organized, and equipped to function as a provisional infantry battalion in defense in an emergency, approximately the same effect as having an attached infantry battalion could be achieved. This investment in security and self-defense (when it is activated, i.e., the base defense battalion actually "standing to" in defensive positions and engaged in security operations like scouting and patrolling) would amount to 900 x 12 = 10,800 man hours, or 30% of the total mission performance man hours available.

Which of these three levels of commitment to the security of a tactical airfield is necessary in any given situation can only be determined as a result of a careful estimate of the situation on the ground and at the time it occurs. But these sample calculations of three different levels of security requirements should assist in estimating the impact on primary mission performance of varying levels of threats and the vulnerability of MAG elements to them.

c. Situation No. 3 - MAF to NATO - In this situation the threats (both conventional and unconventional) would be more intense but of the same type as in Situation No. 2; effective host nation support would be available (e.g., the German Territorial Army) and the MAF would be fully augmented (FULL MOB situation). The threat/vulnerability analysis of Situation No. 3, therefore, would differ from that of Situation No. 2 in degree only. Since no new information would be generated from an analysis of a hypothetical Situation No. 3, this part of the threat/vulnerability analysis was dispensed with.

3. War Game Analysis

Introduction. - As an analytical technique, wargaming attempts to simulate combat encounters and assist in the estimation of the possible outcomes of these encounters. As a training device, war games also simulate combat encounters, but the purpose of these simulations is to train participants in certain planning and decisionmaking skills, not to estimate results. Some standing, computer-assisted war game models are designed for both analysis and training. In fact it is U.S. Army policy that battle models developed for research will be designed to double as training models. Moving in the opposite direction, the McClintock Theater Model (an Army War College training game) was recently adapted for analytical use to examine U.S. Army readiness. Even the Marine Corps' computer-assisted war game, TWSEAS (Tactical Warfare Simulation Evaluation and Analysis System), although used primarily for training, includes "analysis" in its title.

Whether or not a training war game is appropriate for analytical purposes depends on the design of the experiment in which this particular tool is used. In the RAS study there was a need to generate some pseudo data related to small unit ground combat that would enable analysts to gain deeper insights into the question of weapon quantities and mixes required for certain specific types of combat engagements. The war game STEELTHRUST satisfied this need by furnishing decisions on weapons employment in an environment closely akin to the RAS problem. Since there was a need only to characterize the kinds of weapons employment anticipated in the rear, and no requirement for rigorous analyses of ordnance expenditures, firepower ratios, or attrition existed, STEELTHRUST was an adequate medium or facilitator for the observation of weapons employed patterns and trends. It was used only for this purpose, and generated the insights needed.

a. STEELTHRUST. - The manual training war game, STEELTHRUST, was used to examine the particular small unit tactical situation in which a light armored force attacks a defending force composed of infantry

supported by direct and indirect fire weapons (both anti-personnel and anti-armor). This game is a relatively simple model that has good visibility/transparency to both the analyst and the client. It is familiar to Marines and it has a certain amount of credibility as a realistic representation of small unit combat. This property also makes the model very reproducible, an axiomatic requirement among analysts which means that another user should be able to get the same results with the same inputs. Finally, as used in this study, the model was experimentally valid. It made use of sufficiently detailed inputs, simulated their interactions in a reasonable and relevant manner, and yielded data (pseudo data) that served the purpose of the particular experiment.

A detailed description of the war game STEELTHRUST, how it was used in this study, and the results obtained from this exercise are found in Annex E. These results lead one to a conservative estimate that a rear area force with a defensive combat capability approximating that of an infantry battalion in defense should be able to defend itself against a conventional threat force of up to one airborne infantry battalion equipped with light armored fighting vehicles (or one heliborne battalion or Soviet Naval Infantry Battalion etc.). This estimate is made with confidence provided the following conditions are met:

(1) The defending force must be equipped with anti-armor weapons at least up to DRAGON in capability. They should include M19 40 mm MGs, M2 .50 cal MGs with saboted light armor penetrator (SLAP) ammunition, and close-in anti-armor weapons at least as capable as the shoulder-launched multipurpose assault weapon (SMAW).

(2) This force must be trained to be at least approximately as effective as an infantry battalion in defense.

(3) It must have a well-developed defensive plan, including provision for outside combat support, in existence before the attack materializes, detailed SOPs which spell-out the procedures for making the

transition from a working to a fighting mode, and prepared positions to fight from.

(4) Finally, such a rear area support unit must have adequate warning of an impending threat and sufficient time to make the transition from a CSS/AGS unit to a combat unit.

These specific requirements for a support unit's self defense capability against a light armor conventional threat have wider implications for the MAGTF as a whole, e.g.:

(5) In order to insure adequate warning time for rear area units facing this type of threat, the MAGTF's surveillance, reconnaissance, and intelligence system must be tasked to support this detailed requirement in addition to its other tasks.

(6) The MAGTF commander must consider making other combat support capabilities available to rear area units, such as artillery and air support (or naval gunfire if available), engineer support especially before the threat materializs, and possibly support from economy-of-force maneuver units, such as the LAV battalion, for counterattack purposes.

(7) Finally, since active combat could develop in the rear areas of a widely dispersed MAGTF like a MAF, the G-3 needs to be aware of and prepared to coordinate both operational and administrative/ logistics activities behind the GCE.

This application was but one example of how a high resolution war game model can be useful in conjunction with a more aggregated, comprehensive model of the broader aspects of a problem like RAS. That is, provided both models are used carefully, within the limits of their respective capabilities.

b. Some General Observations

(1) Concerning the use of war games at the Education Center, MCDEC: Members of the study team discussed the use of STEELTHRUST in the map exercise PINNACLE PLATE conducted at Amphibious Warfare School (AWS). In this MAB level exercise an armor threat to the rear area was defeated by MAB anti-tank units armed with the tube-launched, optically tracked, wire guided missile (TOW). Could this have been accomplished if the the TOW units were committed elsewhere? This is an analytical question that was not pursued in the academic environment.

Team members also observed the play of the Command and Staff College (CSC) map exercise AQUILA-URSA. In this MAF-level exercise, TWSEAS was used to support the accomplishment of learning objectives. In this case, the play of the problem did not continue long enough for a RAS situation to be played, therefore any plans student staffs may have developed to provide for RAS never had an opportunity to be exercised or tested.

(2) Concerning the use of war games in the FMF: Members of the study team were given an opportunity to observe that part of the joint command post exercise (CPX), SOLID SHIELD which was conducted at Camp Lejeune in May, 1985. This large exercise is a map maneuver that requires much preparation for its bi-annual execution. As part of SOLID SHIELD 85, RAS considerations were exercised within the 2d FSSG (and to a limited extent by the U.S. Army's XVIII Airborne Corps Headquarters).

In all of these opportunities for the professional development of commanders and staff officers at all levels above company, RAS considerations could be integrated in the planning process and in simulated execution of these plans without significant distraction from the larger purposes of the exercises. An outline of how this might be done is included with the detailed recommendations described in Part VII and Annex H below. All that is involved (in principle) is using the training opportunities and support facilities available with imagination.

4. Expert Opinion

Introduction. - As far back as the mid-1960s, when systems analysis was ascendant, the important role played by the judgment of experts in analytical studies was recognized by the foremost proponents and practitioners of this new scientific art form. Charles Hitch has written:

> Systems analysis should be looked upon not as the antithesis of judgment but as a framework which permits the judgment of experts in numerous subfields to be utilized to yield results which transcend any individual judgment. This is its aim and opportunity (quoted in Systems Analysis and Policy Planning: Applications in Defense, E.S. Quade and W.I. Boucher, eds., Santa Monica, Ca.: The RAND Corp., 1968, p. 325).

Or as another social scientist/systems analyst put it:

> While model-building is an extremely systematic expedient to promote the understanding and control of our environment, reliance on the use of expert judgment, though often unsystematic, is more than an expedient: it is an absolute necessity. Expert opinion must be called on whenever it becomes necessary to choose among several alternative courses of action in the absence of an accepted body of theoretical knowledge that would clearly single out one course as the preferred alternative (Olaf Helmer quoted in Quade and Boucher, p. 325).

a. Identifying Experts. - In addition to special skills in research and analysis the study team had within its own ranks individuals with considerable experience and expertise in both conventional and unconventional warfare. However, to insure that any expert judgments used in this study would be based on the most qualified expertise available, the study team researched the opinions of outside experts as well. The experts used as sources fell into three categories. They are "duty experts," respected experts, and doctrine.

(1) Duty experts are those officials in any bureaucracy (military or civilian) who occupy staff positions that are designated (by the bureaucracy) as the official source of information or interpretation on a particular subject. The individual's status as "expert" in these

positions depends on his assignment to the billet, not necessarily on his personal qualifications. The RAS study team categorized their initial points of contact (POC) in the various sections of the HQMC staff, Army, Navy and Air Force POC, our POC in the FBI, and representatives of foreign military organizations (the Royal Marines) as duty experts until further research indicated deeper qualifications.

(2) Respected experts are those members of any profession who are recognized and respected as experts in their field. If they are truly experts, this recognition and respect comes from both within and from outside their profession. It is based on years of experience, demonstrated performance, and, in the military as in other professions, on rank. Respected experts referred to during the RAS study were general officers serving at HQMC and senior FMF commanders, specifically:

DC/S (Plans and Policy and Operations)	CG, FMFLANT/II MAF and staff
DC/S (Aviation)	CG, I MAF/1st MarDiv and staff
DC/S (Installations & Logistics)	CG, 2d, MarDiv and staff
DC/S (Manpower)	CG, 3d MAW and staff
DC/S (Training)	AWC, 2d MAW and staff
DC/S (Requirements & Programs)	CG, 2d FSSG and staff
	CG, 6th MAB and staff
	CG, 7th MAB/MCAGCC and staff
	CO, 1st FSSG and staff

In the case of the FMF commanders, in addition to their personal expertise, the depth of detail provided by members of their staffs further qualified these sources. Staff members in the FMF are really extensions of their commander and they deal with detailed aspects of RAS and every other problem facing their commands on a daily basis, albeit in peacetime. This collective practical experience was a valuable source to the study team.

(3) Doctrine is not normally thought of as a source of expert opinion but considering how doctrine evolves and develops, maybe it should be. The military doctrine published in the field manuals of a service and taught in its professional school system is the nearest thing to an organized body of knowledge unique to the military profession. Returning to the analogy of the scientific method, the professional body of scientific knowledge is based on collective experience. It changes (however slowly) in response to new discoveries and new problems (threats), and when it changes, the specifics of change are the results of a series of critical reviews and the gradual development of a consensus within the profession. It seemed to the study team that this description of the evolution of scientific theory also fits military doctrine. Therefore, formal statements of military doctrine, e.g., those used to teach new generations joining the profession, should be viewed as statements of expert opinion.

During the research phase of this study, the team examined LFMs, FMFMs, NWPs, and OHs which gave some clue that their contents contained material of possible relevance to the RAS problem. Selected documentation of other U.S. Services and foreign military organizations was also examined.

b. Utilizing Experts. - For the most part, the opinions and judgments of individual experts were collected in this study by means of personal interviews (in a few cases expert judgments were obtained in the form of detailed written comments on a previously collected set of group opinions. This will be discussed more fully below). This research was conducted in accordance with the guidelines developed for survey research found in various fields of the social sciences but it did not qualify as a scientific survey.

No specific, well-defined hypothesis was developed for testing against the survey data. The objective of the research was to determine the perceptions and the attitudes of the individuals surveyed (this was especially true in the case of the category "respected experts"). The

sample of the population (all professional Marines) chosen for the survey is a non-random or non-probability sample. However, it is a purposive sample. As the description of the interviewees indicates, they are a very representative sample of the current leadership of the Marine Corps. Since our purpose was to determine current perceptions and attitudes within the Corps on the subject of the study, this sample would also qualify as a quota sample.

The actual conduct of the survey made use of open-ended questions almost entirely. This allowed respondents to answer freely. Occasionally a hypothetical question was put to an interviewee to get a response to a tentative course of action being considered by the team, and in a few cases interviewees were asked to respond in more detail to a particular set of data or "strawman" developed by other techniques. The survey conducted in the RAS study was simply a descriptive survey. It did not set out to determine causes, only to correlate the existing state of affairs. It was cross-sectional (HQMC and both FMFs), but not longitudinal. Only the state of perspectives and opinions of the interviewees during a limited time period in early 1985 was surveyed, not their views over time.

Table VIII-C-2 summarizes the considerations and areas of concern discussed and the various sources of expert opinion.

One other social science technique referred to for guidelines in the conduct of our research of expert opinion was content analysis. This research technique is described as the objective, systematic, and quantitative description of the manifest content of written or spoken communication. While we did not proceed all the way to the quantification and statistical analysis of references to "security" or "rear area security" in doctrinal publications, or on the cover pages of tables of organization, we did review over 150 of these written sources of collective expert opinion, looking for these particular units of content. (Relevant material was found in 37 out of 57 doctrinal publications, but

Table VIII-C-2 Areas of Concern and Sources of Expert Opinion

RAS Considerations

Areas of Concern / Sources of Expert Opinion	FMFLANT II MAF	IMAF 1st MarDiv	2nd MarDiv	3d MAW	2d MAW	2d FSSG	6th MAB	7th MAB	1st FSSG
MAGTF C in C									
RAS Contingency Plans/SOP	x	x			x	x	x		x
Equip/facilities (Comm)	x						x		
Intell. (RAS EEI)	x		x			x			
Sensors			x	x		x			
STA equip			x	x	x				
SIGINT			x						
CIT/IIT/CAMG		x	x			x			
Aerial recon			x	x	x	x		x	
Ground recon			x						
HUMINT			x			x			
Counterintell					x				
OPSEC					x				
Covert & Deception				x	x				
Friendly status info									x
Engr. support					x	x		x	
Camouflage									
Barriers					x				
Hardening (dispersion)				(x)					(x)
RAS task org.		x			x		x	x	x
RAS msn orient trng	x	x			x				x
Local secur. cap.		x	x	x	x				
Def combat cap.		x			x		x	x	x
Fire support (avail & coord)		x	x		x	x	x	x	x

Table VIII-C-2 Areas of Concern and Sources of Expert Opinion (cont'd)

RAS Considerations

Areas of Concern / Sources of Expert Opinion	FMFLANT II MAF	IMAF 1st MarDiv	2nd MarDiv	3d MAW	2d MAW	2d FSSG	6th MAB	7th MAB	1st FSSG
RAS react. force/reserve		x			x		x	x	x
Air defense		x	x		x			x	
Support unit C and C									
Cmd & Staff skills					x	x			x
Conting. plans/SOP		x		x	x	x		x	x
Equip/facil. (Comm ADPE)			x						x
Intell (RAS EEI)			x			x			
Sensors			x	x					
STA equip			x	x	x				
SIGINT support			x			x			
CIT/IIT/CAMG support		x	x			x			
Aerial recon support			x	x	x	x		x	
Ground recon (scout & patrol)									
Counterintell.					x				
OPSEC				x	x				
C&D				x	x				
Friendly status info.						x			x
Engr. support				x	x	x		x	
Camouglage					x				x
Barriers					x				
Hardening (dispersion)				(x)	x				(x)
RAS task org.		x	x	x	x	x		x	x
RAS msn. orient. trng.		x		x	x	x		x	x

Table VIII-C-2 Areas of Concern and Sources of Expert Opinion (cont'd)

RAS Considerations

Sources of Expert Opinion / Areas of Concern	FMFLANT II MAF	IMAF 1st MarDiv	2nd MarDiv	3d MAW	2d MAW	2d FSSG	6th MAB	7th MAB	1st FSSG
Individual combat skills trng.				x	x	x		x	x
Local secur. cap.		x		x	x				x
Def. combat cap. (firepower & mobility)		x	x	x	x	x		x	x
AT wpns			x	x	x			x	x
Fire support (avail & coord)		x	x		x	x		x	x
RAS react force/reserve		x	x	x	x	x		x	
Air defense		x			x			x	

only 20 of over 100 T/Os pertaining to CSS and AGS units contained any reference to "security" or self-defense.)

Thus far the discussion has addressed the utilization of individual experts or the collective expertise found in doctrinal and other publications. The "capturing" of expert opinion from a group was also done in this study by means of the special analytical technique known as multiattribute utility analysis. This is described in the next Section.

Before ending this part of the discussion, a further word needs to be said about Item 8 under "General Instructions" in the SOW. The statement is made there that "operational concepts [developed in the study] must be compatible with Marine Corps doctrine, practice, and plans for logistic and combat service support of both ground and aviation." The study team used a very elastic interpretation of this item of guidance. One of the reasons for the problem encountered in defining responsibility for RAS is the current state of flux of Marine Corps doctrine and practice, plans, and organizations in the area of logistics and combat service support of ground and aviation units. The conclusions and recommendations of this study will be compatible with a flexible interpretation of Marine Corps doctrine in this area. Hopefully, the study results will also help resolve the larger problem.

5. Multiattribute Utility Analysis

Introduction. - The centerpiece methodology in this project, multiattribute utility analysis, was used to pull together the results of the various other research and analytic efforts, and to capture expert opinion on the subject of RAS. Annex F describes the actual multi-attribute models which were developed and used. This section provides an overview of the method and describes results.

a. The Method. Commonly used as an aid to decision making, multiattribute utility analysis is a quantitative method for the systematic evaluation of the elements of a problem in terms of the utility each element represents to the overall system or decision. A structured breakdown of the problem (in this case, RAS) into measurable elements is followed by the evaluation of each element by analysis. The data to be analyzed may come from observation, research, or frequently from expert opinion.

The structure used to focus the analysis of the RAS problem was based on current Marine Corps operational doctrine. Figure VIII-C-4 summarizes the fundamentals of command and staff actions for all units in any situation, as found in current doctrinal publications. Figure VIII-C-5 compares and contrasts planning and execution considerations applicable to the primary mission of a MAGTF and those applicable to a contingent mission like RAS (the requirement to execute this mission is contingent on the enemy's mounting a sufficient threat in the rear of a MAGTF's area of responsibility).

Figure VIII-C-6 shows the two initial structures or models that were developed to describe the elements of the RAS problem and their interrelationships. There were two of these logic trees because the RAS problem is somewhat different when viewed from the perspective of the MAGTF commander as opposed to that of the commander of a "support" unit in the rear area (the term "support" unit as used in this study refers to battalions of the Force Service Support Group (FSSG), aviation ground

Commander senses - decises - acts ... (and he reacts to changing situation by repeating this sequence)

Staff assists by providing expertise and handling details in specialized functional area

In "sense - decision" portion of command sequence

Commander & Staff make estimates of situation ("METT" & staff estimates especially Intelligence Estimate)

Commander decides on "best" course of action from among alternatives developed (this becomes his concept of operations)

In "act(ion)" portion of command sequence

Commander (& Staff) issues (initial) order (five paragraph format, SMEAC)

_____ supervises execution

_____ exercises control ("fine tuning" execution by making small changes/modifications in order)

_____ reacts to "new" information (situation) by

____ ____ changing tasks of subordinates, e.g.,

- o shift fires ...
- o stop/start/move to ...
- o change recon/surveillance area/activity
- o execute "be prepared to ..." mission (SOP)

(Commander may change tasking of subordinate elements provided capability to execute new tasks exists prior to his decision)

____ ____ call for help from

- o adjacent units
- o higher HQ

Figure VIII-C-4 Command and Staff Actions - General

Command & Staff Actions - MAGTF Level - Primary MSN

Commander's Estimate of Situation:
M - GCE - "Seize, occupy & defend..."
"Locate, close with & destroy..."
"Defend . . . repel assault by fire & close combat...."

ACE - Support GCE
Gain Air superiority
(Perform six functions of Marine aviation . . .)

CSSE/AGS units - "Support . . ." (Perform logistic support functions)

E - Ref. intelligence estimate

T - Ref. intelligence estimate

T - All friendly assets assigned and adjacent/in support

Five Paragraph Order:

1) S - Enemy (including terrorists) & friendly

2) M - Statement guiding activity of MAGTF as a whole

3) E - Commander's Concept of Operations (Preferred COA) - i.e. his "How"
Task Organization (organization for combat)
Tasks Assigned to subordinate elements (incl. "be prepared to..." missions) specifying who, what, where, when, and why
Provision for coordination among elements

4) A - Details of primary missions of "support" elements

5) C - Control & communications arrangements (Ref to SOPs)

Command & Staff Actions - MAGTF Level - RAS MSN

E* - Full threat spectrum (lo-high, 1 man & 1 truck . . .)
(Soviet combined arms attack incl. spetsnaz)
Combination of elements in intelligence estimate different in each situation
Special EEI from analysis in each case
Because of contingent nature of mission, early warning and counterintelligence require added emph.sis

T - Terrain analysis (COCOA) of rear area
Also, manmade environment (local population and facilities)

M - Commander must estimate tradeoff required between primary and secondary or contingent (RAS) mission

T - COA/Concept...to accomplish contingent mission with available assets

* METT sequence changed to emphasize contingent nature of RAS mission

1) Task/request surveillance & recon agencies to satisfy special EEI

2) Consider "be prepared to protect/defend . . . "mission in initial disposition of MAGTF "support" elements

3) Task subordinate GCE & ACE combat elements with "be prepared to . . ." defensive/counterattack missions

4) Make control and communications arrangements to facilitate transition (from primary mission) & execution of RAS mission

Figure VIII-C-5 Command and Staff Actions - MAGTF Level

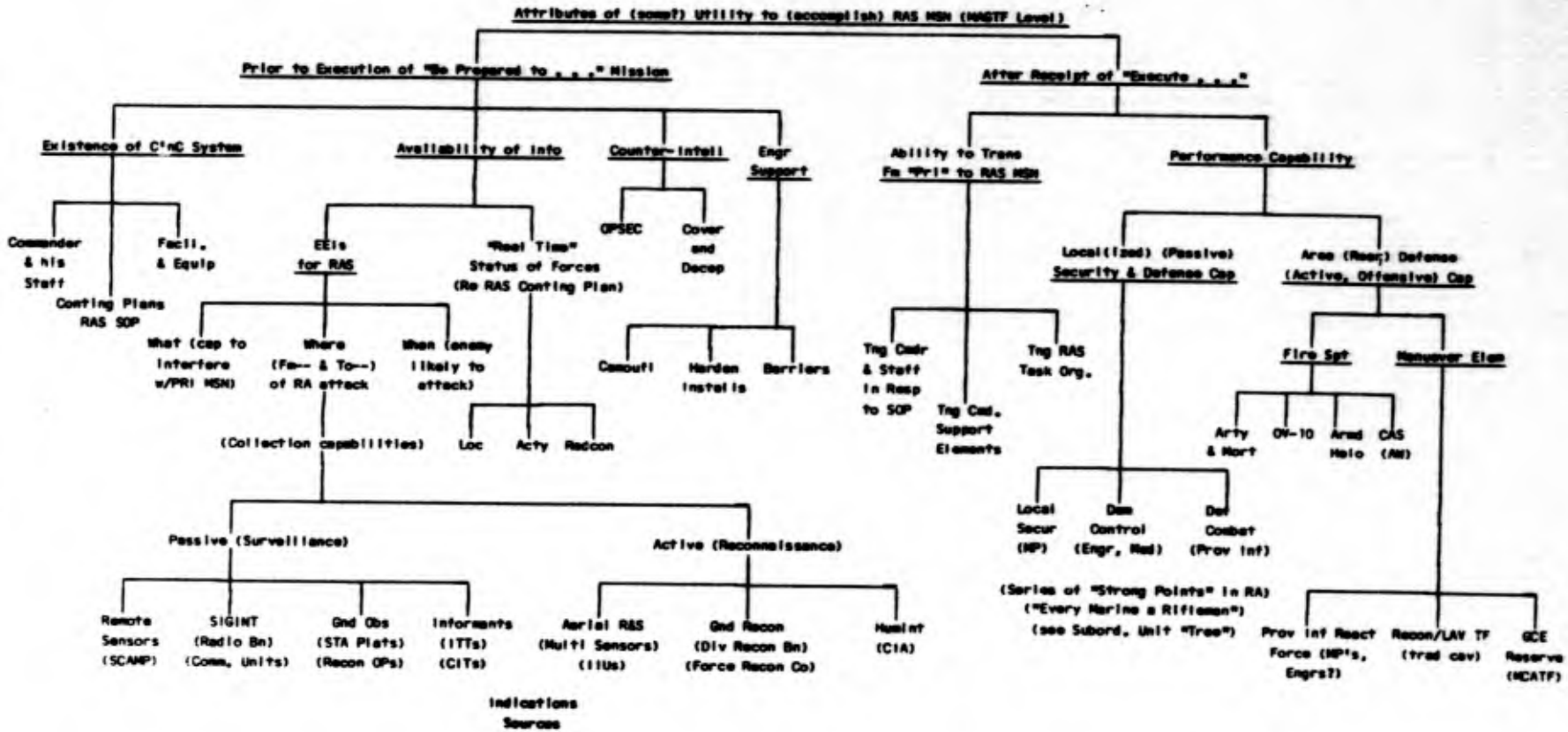


Figure VIII-C-6 Attributes Associated with Accomplishment of RAS Mission - MAGTF Level

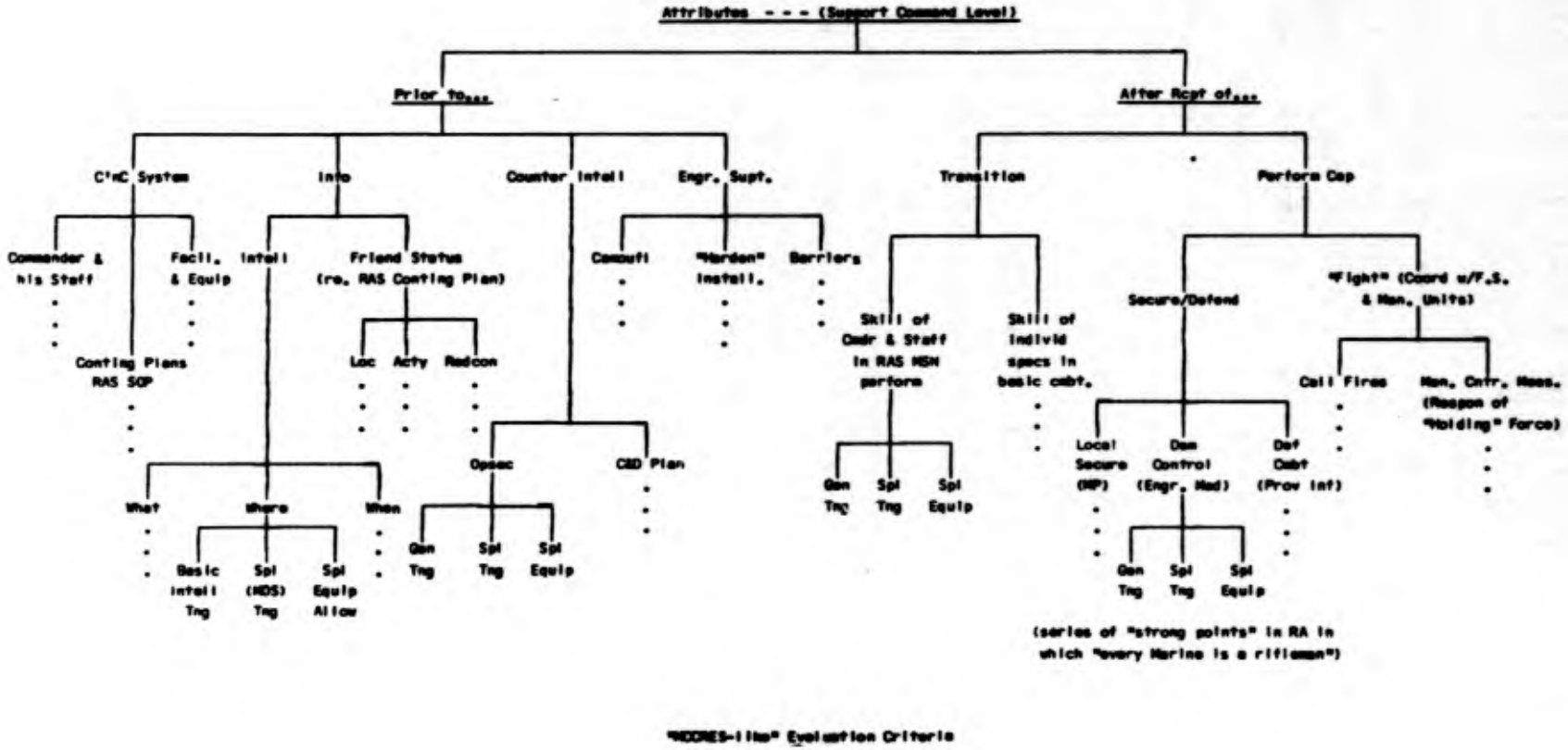


Figure VIII-C-6 Attributes Associated with Accomplishment of RAS Mission - MAGTF Level (Cont'd)

support squadrons of the Marine Aircraft Wing (MAW), and the headquarters, communications, and other specialized units that support the command element of a MAGTF.

Once these structures, or models, were developed, the next step was to conduct a thorough review of their elements and to assign a weight, or score, to each. Weights were assigned in response to the general question, "In terms of RAS improvement what is the payoff to the Marine Corps of an enhancement to this element?" Stated differently, the panel of reviewers was asked to select the elements whose improvement would be of greatest utility. With this type of approach, an element which is currently adequate (in terms of RAS contribution) was assigned a low (or zero) score to indicate little utility in improving something that is already satisfactory. Those factors whose improvement would materially enhance MAGTF RAS potential were evaluated and weighted more heavily.

As reviewers moved down through the structure, their focus became more and more detailed. Weights at bottom levels of each model, therefore, are specific indicators of the reviewers' opinions of the utility to the Marine Corps of an enhancement in the weighted attribute, e.g., more essential subjects training for enlisted maintenance personnel, or greater quantities of engineer support available to emplace barriers.

b. Application of the Method. The two structures were presented to a panel of Marine officers from HQMC and MCDEC. Working with CACI analysts over a day and a half period of detailed discussions, these officers furnished judgements and opinions based on professional education and operational experience. Since the panel of officers represented a cross-section of occupational specialties and professional experiences, the composite weights which were derived represented not only their expert opinions, but also a breadth of judgement much greater than any single authority could provide.

Once data for this pair of models was developed, the inputs were validated based on current FMF experience, and, in some cases,

adjusted. This fine tuning was done by requesting several senior officers with significant operational experience to review and comment on the original scores. Comments were converted to weights and adjustments were made, where appropriate, by factoring the new weights together with the original ones. The new values were then normalized and final scores resulted. Thus, the multiattribute models reflect the thoughts and expert opinions of Marine officers from HQMC, from MCDEC, and from the field. Input from the field was considered when formulating conclusions and a summary of all FMF input and fine tuning appears at the end of this discussion.

c. Discussion of the Model. The first noteworthy outcome common to the use of both versions of the model is that greater weight was accorded those capabilities/activities required prior to the receipt of an actual RAS mission than was given to mission performance capability after receipt of an "execute" for a contingent RAS mission. In other words, reviewers felt that more effort should be given to planning and preparation for RAS operations than is currently given. Performance of actual RAS combat missions seemed to need less improvement and, given enhanced preparation, was felt by most to be generally adequate if certain adjustments took place. Annex F contains the precise scores that were the basis for this conclusion.

Within the planning and preparation phase, four characteristic sets of capabilities/activities were considered necessary to enable a support unit to perform RAS missions. These groupings were: (1) an effective command and control system, (2) the availability of information for decisionmaking, (3) a counterintelligence capability, and (4) combat engineer support. The Marine Corps would realize greatest utility from enhancing its rear area command and control system, said the panel's scores, with more improved and readily available information being the factor with the next largest payoff.

Activities of a support unit after receipt of an RAS mission were examined under two headings: (1) those capabilities/activities necessary to effect a transition from the unit's performance of its primary support mission, and (2) those necessary to perform or participate in security or defensive combat operations. The panel felt that less

attention was needed in these areas than in the period before receipt of an RAS mission, but some shortfalls did surface.

These major subdivisions of the model formed the framework for more detailed work. As the upper level headings were expanded into their components, the new elements became more and more detailed until, at the lowest level, the items of interest were specific types of equipment, organizational and/or personnel changes, and training enhancements that might contribute to overall RAS capability.

Equipment was examined within the framework of the five commodity areas of the Marine Corps supply system, and candidate items were considered as possible changes to the T/Es of support units. The changes to organizations consisted of relatively small additions of skilled personnel to support units on either a temporary (attachment or task organization) or permanent (T/O change) basis. Training enhancement is possible in four areas: (1) essential subjects training (oriented on junior Marines or "followers"), (2) professional development training such as NCO leadership training (oriented on tactical troop leaders) and officer intermediate and high level schools, (3) specialist training (related to specific MOS requirements), and (4) mission-oriented training (training of the unit as a whole to perform the RAS mission).

d. Preliminary Results. The first examination of the completed multiattribute hierarchies consisted of summing scores to determine how much utility would apply to the enhancement of major categories of items. As Table VIII-C-3 shows, the most significant payoff overall would be realized through training enhancements (51% of the total utility, versus 25% for personnel adjustments and 24% for material enhancements). Not only did training top the list of overall enhancements, but it also led within both specific models (51% for the support units and 50% at the MAGTF level).

Although personnel enhancements were second highest in overall utility, they were not as well balanced between the support unit and MAGTF

as were the training needs. At the support unit level, personnel changes provided the second highest utility (26%), but were only third at the MAGTF level (24%). Complementing this lack of balance was a corresponding relationship in the material category: at the MAGTF level, equipment improvements were second in utility (26%), but last at the support unit level (23%).

Another perspective on overall utility was gained by contrasting the utility which would accrue from making improvements to activities that must be performed before the issuance of a RAS command of execution and the utility associated with activities during execution. Again, the clearly dominant category was that of training. Both before and after the RAS execution order, the greatest payoff to the Marine Corps in terms of RAS enhancement would be realized by training improvements. 50% of all "pre-RAS" utility was ascribed to the training catetory, and 62% of all "post-RAS" enhancement would result from improved RAS training.

In the other two major categories greater utility came from events in the preparation-for-RAS period than in the period of actual performance. Personnel represented 28% of pre-RAS utility and 22% of post-RAS benefit; equipment and facilities enhancements broke 22-16 in favor of the pre-RAS phase.

Table VIII-C-3 Utility Shares of Major Categories

Major Category of Improvement	Utility				
	Overall	Support	MAGTF	Pre-RAS	Post-RAS
Training	51%	51%	50%	50%	62%
Personnel/Organization	25%	26%	24%	28%	22%
Equipment-Facilities	24%	23%	26%	22%	16%

(1) Training. With training so strongly the leader, a close examination of that category alone was conducted to determine what specific types of training would yield the greatest benefit to RAS capability. The training categories considered were: Essential Subjects Training (EST), Professional Development, Specialized Training (MOS) and Mission-Oriented Training. The greatest overall payback was considered to be EST of specialists in RAS skills and procedures (i.e., combat and combat associated training). The professional development of officers and SNCOs, especially commanders of support units was second. Greatest benefit appeared to occur through conducting both of these types of training to prepare Marines for pre-RAS tasks.

Table VIII-C-4 depicts the training subcategory scores as percentages of the overall training category. A study of the figures in the table also supports somewhat more specific conclusions about where the greatest training payback would be achieved. Combat training for specialists in support units should focus primarily on pre-RAS activities.

Table VIII-C-4 Training Utility by Type Training

Type of Training	Overall	UTILITY			
		Pre-RAS	Post-RAS	Support Unit	MAGTF
Essential Subjects	44%	50%	35%	57%	27%
Professional Development	40%	48%	25%	37%	43%
Specialist (MOS)	6%	2%	12%	3%	10%
Mission-Oriented	10%	--	28%	3%	20%

A training progression similar to the one depicted in the Figure VIII-C-7 illustration could provide great value for a modest investment. Several RAS enhancements would be realized as a result of the addition of combat skills training for a four week period after recruit training, and also from the active conduct of EST in the supporting establishment to maintain combat skills acquired during initial combat skills training. This would permit the Force and Brigade Service Support Groups to concentrate on mission oriented training exclusively. The following specific training-related actions represent the consensus of panel members during discussions to develop the data for the multiattribute models:

o The training of specialists in basic combat skills should be improved. Although training of this type is a Marine hallmark, it was generally felt that the maintenance of basic skills is difficult and often less effective than is needed. The Marine RAS posture could be enhanced by developing and maintaining the basic combat skills of all specialists (as is suggested in the training progression in Figure VIII-C-7). In particular the combat skills of maintenance and supply personnel should be improved. In addition, particular attention is needed in the following areas (in order of value to the overall RAS environment);

o Ensure that the professional development of Marine leaders pertaining to RAS is enhanced by incorporating educational exercises in RAS planning (especially in task organizing) into existing training at appropriate Marine Corps schools. Some specific examples are:

- Addition to CSC and AWS curricula of educational material dealing with the role of commanders and various staff officers in the unique aspects of RAS planning.

- Addition to CSC and AWS curricula of training materials to train future MAGTF, G-3/S-3s in initial disposition of support units to facilitate both their primary and RAS missions.

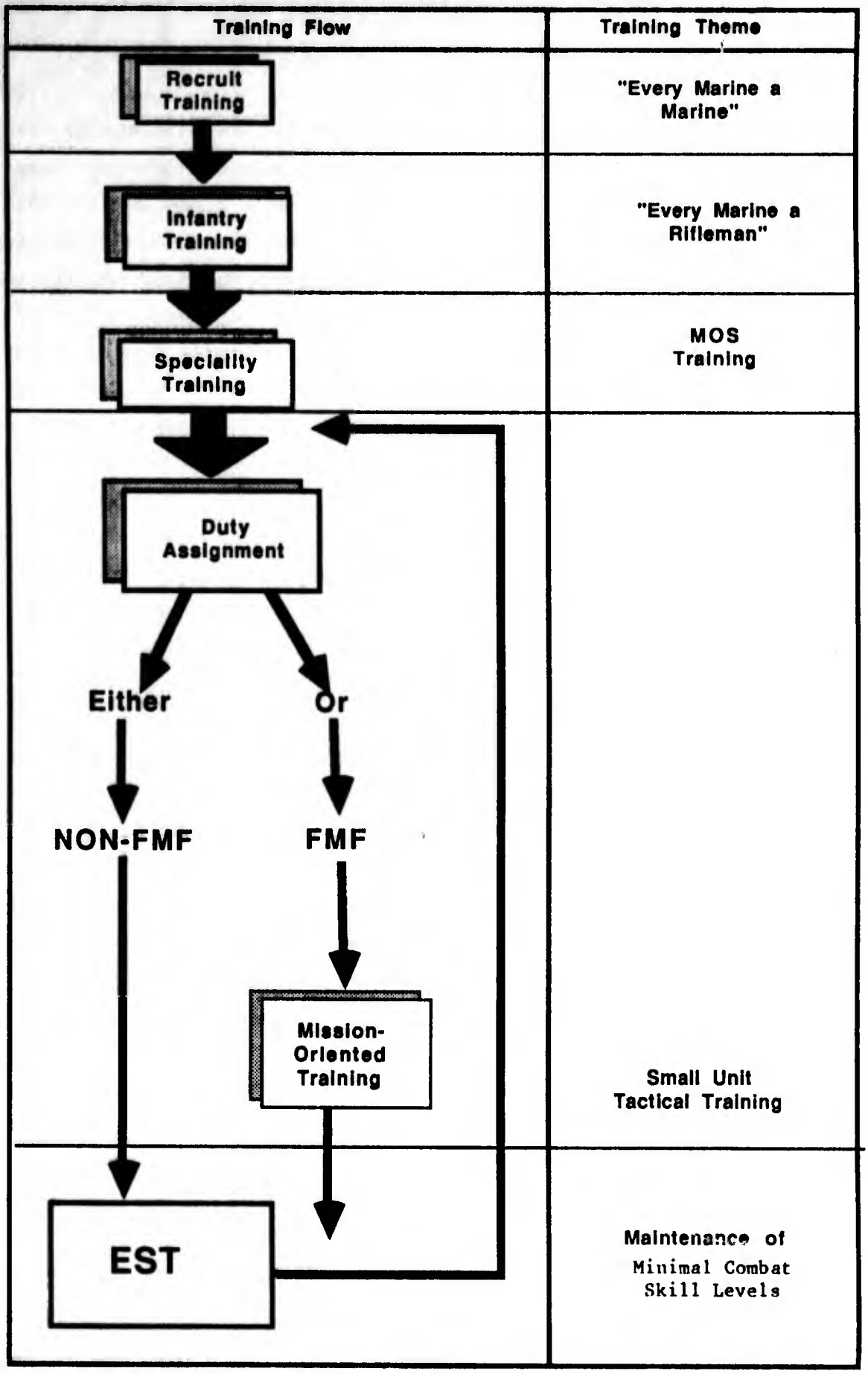


Figure VIII-C-7 Integration of Enlisted Specialists, EST, and Mission - Oriented Training

° Addition to CSC and AWS curricula of training materials to orient future support unit commanders and S-3s on overall RAS operational requirements.

o Communications-electronics personnel who operate almost exclusively on administrative and logistics nets should take part in sufficient communications exercises to ensure their familiarity and currency in seldom used tactical nets and procedures (MOS training).

o Marines in OF58 should be trained in fire control procedures and be able to call for and adjust indirect fire and air support. These Marines are traditionally available in the rear areas and are sure to become intensely involved in combat activities when the RAS environment turns into one of active combat (MOS training).

o Include RAS related problems in Provost Marshal training, to the extent such training can be influenced by the Marine Corps.

(2) Personnel and/or Organizational Changes. During discussion, this category assumed the operational definition of "needed skills." As the factors involved in RAS activities began to become clearer, it became apparent that certain personnel skills needed for RAS were not usually present in Marine CSS and AGS units. At the MAGTF level some different skills were needed or at least more emphasis was needed on the application of available skills to the RAS problem. Some of the skill shortfalls were curable through task organizing, while some others will require the assignment of permanent billets. Thus, this category was referred to as personnel (temporary, as through task organizing) and/or organizational (permanent structure modifications with appropriate T/O adjustments) requirements.

The opinion of the panel of Marine officers was that slightly more requirements should be filled by temporary than by permanent actions (54% to 46%). Of all actions taken, however, 82% affect skills needed before the receipt of an actual RAS mission, while only 18% concern skills needed

after actual RAS combat begins. Of these (82%) needs, 58% of the requirements in support units should be met by permanent (T/O) changes even though the majority of needs overall (i.e., the sum of support unit and MAGTF) could be resolved by temporary changes. Figure VIII-C-8 summarizes these relationships. Thus, the sequence in which groups of personnel and/or organizational actions would be of greatest utility to the Marine Corps is related to the share of overall personnel/organizational needs represented by each group's share as shown in Figure VIII-C-8. This sequence is as shown in Table VIII-C-5.

Table VIII-C-5 Priority of Personnel/Organizational Requirements

Priority	Score	Unit Level	Type of Action	To Enhance RAS
1	.2772	Support	Organizational	Before RAS Execution
2	.2382	Support	Personnel	Before RAS Execution
3	.2046	MAGTF	Personnel	Before RAS Execution
4	.0999	MAGTF	Organizational	Before RAS Execution
5	.0690	MAGTF	Personnel	After Command to Execute
6	.0629	MAGTF	Organizational	After Command to Execute
7	.0282	Support	Personnel	After Command to Execute
8	.0199	Support	Organizational	After Command to Execute

The utility percentages and priorities described above were developed by aggregating specific items from the multiattribute models. The most significant contributions to this process were:

o Support Units - Organizational

- Include a Physical Security Officer or Provost Marshal as a fulltime staff officer.

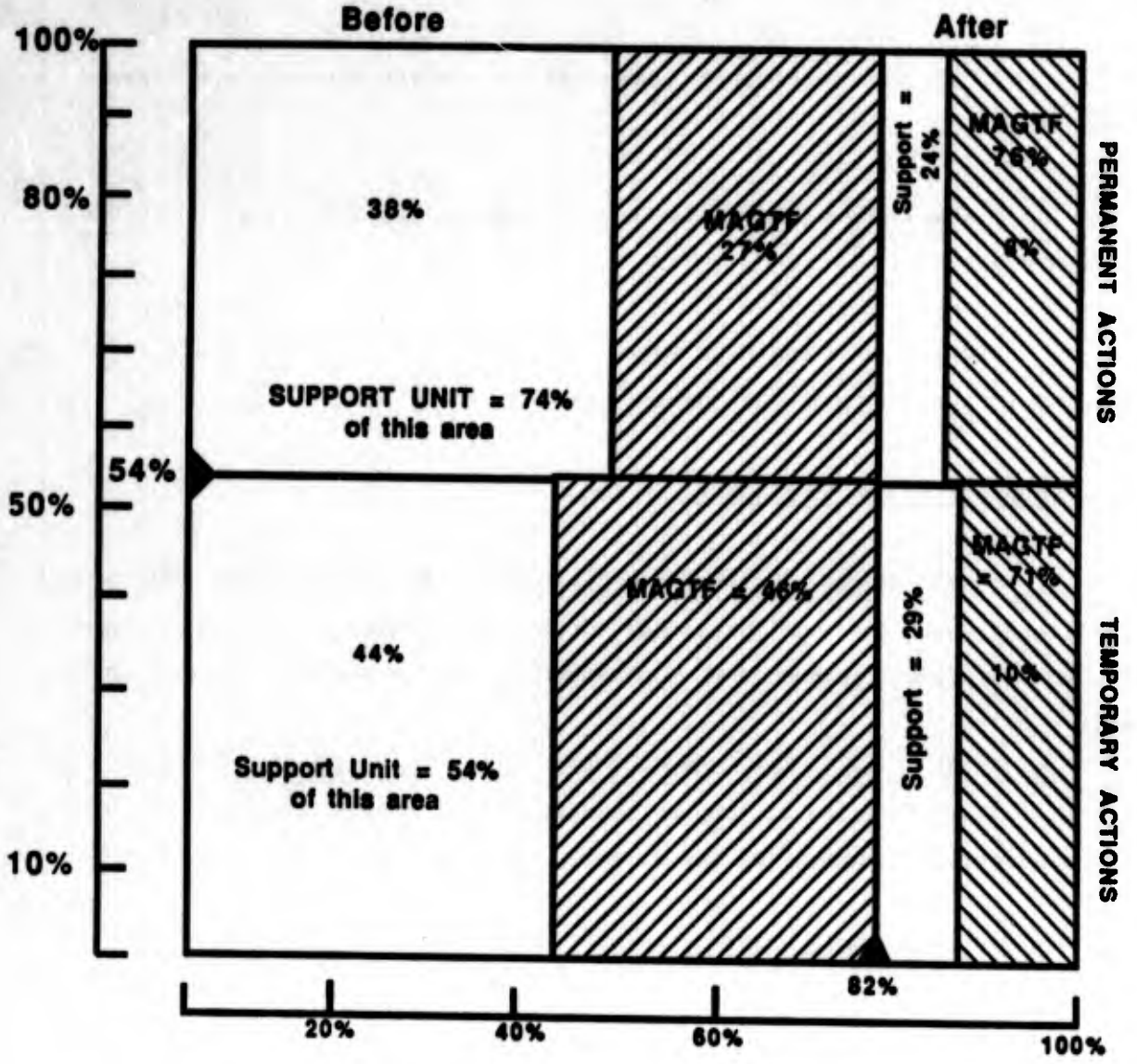


Figure VIII-C-8 Overall Personnel/Organizational Needs

° Include sufficient intelligence personnel to ensure the processing of RAS EEIs.

° Add sufficient personnel to ensure counterintelligence capabilities.

° Establish a fire support coordination capability, to include aviation expertise.

° Provide some engineer expertise at the support unit staff level to assist in RAS planning and supervision.

o Support Units - Personnel

° Task organize to ensure availability of intelligence, counter-intelligence, and engineer personnel to advise on and assist in performance of the tasks planned and supervised by the permanent support unit staff.

° Task organize to ensure that personnel assets are available to perform activities planned by the Physical Security Officer.

o MAGTF - Organizational

° Add a provost marshal billet to the MAGTF staff.

° Change tables of organization to include rear area security as an additional duty within the S-3/G-3 section.

° Enhance clerical and watchstander assets on a permanent basis to ensure sufficient personnel for surge performance of RAS-related tasks in addition to normal intelligence and operations tasks in the MAGTF command element.

o MAGTF - Personnel

- Ensure that troop lists include sufficient intelligence assets to support both the forward and rear areas.

- Since combat readiness of support units will now be a key element in the commander's information needs, provide necessary augmentation of clerical/watchstanding assets in combat operations centers (COC) needed to monitor this important item of information.

(3) Equipment - Facilities. The need for equipment and/or facilities represents about equal concern to RAS improvement as does the need for personnel skills. The nature of the hardware needs, however, is different than that of the personnel shortages. It was generally believed that sufficient equipment already existed within most MAGTFs, but that assets were traditionally allocated to ACE or GCE units, with few or none being assigned to CSS and AGS units for RAS. This situation could be resolved in part by the development of RAS-oriented SOPs which would provide for the smooth transfer of support, e.g., engineer assets, at such time as RAS becomes a prime concern of the commander.

There was also a perception that some tables of equipment should be amended to introduce more readily available combat power into the Rear Area.

Table VIII-C-6 below summarizes the types of equipment that the panel believed were needed at MAGTF and support unit levels to enhance the performance of both pre- and post-RAS tasks.

Table VIII-C-6 Equipment Requirements Summary

Priority	Type Unit	RAS Condition	Equipment	Utility %
1	Support	Before	Radios	15.9
2	Support	Before	Sensors	15.8
3	MAGTF	After	Combat Engineer Spt.	12.6
4	MAGTF	After	Motor Transport	8.3
5	Support	Before	ADPE	8.2
6	MAGTF	After	Ordnance	7.9
7	MAGTF	Before	ADPE	5.8
8	MAGTF	Before	Radios	5.6
9	MAGTF	Before	Sensors	3.8
10	MAGTF	Before	PLRS	2.1
11	Support	Before	Surveillance Cameras	2.1
12	Support	Before	Lights	2.1
13	Support	Before	Generators	2.1
14	Support	Before	Fld Fort Matls	2.1
15	Support	Before	Barriers	2.1
16	MAGTF	Before	Fld Fort Matls	1.8

e. Corroboration of Preliminary Results. The preliminary conclusions discussed in the foregoing paragraphs were drawn from a set of weighted values assigned to a generic, doctrinal structure. The weights were assigned consensually by a panel of officers from MCDEC and HQMC. Although these officers represented significant and diverse expertise, none was currently assigned to the FMF, and so they represented only a portion of the current Marine thinking on the RAS problem. To expand the applicability of the models, several officers with current or very recent FMF experience were asked to provide today's operationally oriented perspective on the problem. They reviewed the results and suggested changes to some or all of the weights. There were two distinctly different but supporting perspectives: one centered on aviation and its

support, and the other on ground operations. The results are discussed briefly below.

(1) The Ground Perspective. Comments pointed to a need for greater awareness on the part of MAGTF element commanders (especially CSS) that RAS is a potential mission. This observation tended to validate what emerged earlier as a need for professional education on RAS matters. The greatest emphasis should be on planning and preparation for the RAS mission, with emphasis on how to balance it with other, more traditional missions.

It was pointed out that a MAGTF commander will issue the RAS order, not explain how to carry it out. Thus, subordinate commanders must be prepared ahead of time. This does not reduce the necessity for performance capability, therefore the need to train support forces in combat skills is also a vital one. There is a good possibility that the units of the CSSE will be the target of a main enemy effort. They must be prepared to respond to that challenge. The need for enhanced RAS training is a clear one, and it is even greater in view of the personnel facts of life. It is doubtful that additional forces will be available for RAS. The MAGTF must make do with what is already in place, namely, the usual complement of rear area forces from the CSSE.

This ground perspective added considerable insight to the need for mission-oriented training in RAS for CSS units. This equates to greater utility scores being assigned in the category of mission-oriented training of support units and tends to lend credence to the training progression suggested earlier. Ground comments called for about an equal mix of permanent and temporary skills needed, and favored more radios and field fortification materials during the preparation phase.

(2) The Aviation Perspective. The aviation viewpoint strongly emphasized preparation enhancements over performance enhancements. Command and control concerns during the preparatory phase were the dominant concerns for both the MAGTF and support levels. At the MAGTF

level more emphasis is needed on RAS SOPs and contingency plans. Also at the MAGTF level more engineer support is required to be able to plan and construct security barriers and field fortifications in addition to current engineer requirements. In this regard the aviation viewpoint favored maximum dependence on cover and deception, stringent operational security procedures and additional camouflage rather than attempting to harden rear area installations with a massive engineer effort. Once RAS execution is ordered, the emphasis at the MAGTF level should be on transition while the support units' concern should be performance. Since forward defense within the MAGTF area cannot be relied upon, units in the rear will be required to defend themselves. To do this, support units should be ready to form task organizations that are capable of conducting infantry-type defensive operations and performing security tasks against unconventional warfare threats. To be able to do this, support units need more EST, professional development and mission-oriented training and more equipment, especially weapons.

(3) Overall. Although the ground and aviation perspectives were different in emphasis they complemented each other and agreed in substance. The needs for training of individuals in combat skills, for professional development of troop leaders, for better command and control, and for mission-oriented training of all rear area units were expressed by both groups of reviewers. In summary, the ground and aviation viewpoints obtained from the FMF tended to corroborate the preliminary conclusions of the multiattribute utility analysis.

6. Convergence of Methodology

a. General. The multiattribute utility analysis, because of its systematic consideration of so many RAS factors, was used as a framework within which "methodological trangulation" could take place. The normal course of multiattribute utility analysis produced a number of conclusions in various categories. These conclusions (or findings) were derived through examination of the weights or scores of each factor included in the analysis. In some cases, factors were aggregated to show trends and patterns. It was considered important, though, that every significant finding be confirmed by more than one kind of data or analytic technique before being forwarded to the Marine Corps as a study result. Although unconfirmed findings are not necessarily worthless merely because they might not be validated, confidence in their validity would be much greater if they were to be reinforced by the results of some independent process. This is the aim of methodological triangulation; Figure VIII-C-2 summarizes the concept.

b. Specific Convergence. The discussion of multiattribute utility analysis (above, subparagraph 5) mentioned the conclusions, trends, and patterns that resulted from the method. The other discussions in this section described the conclusions/results of each of the other methods. A comparison of the results of each of the other assessments against the results of the multiattribute utility analysis was made to confirm or refute each conclusion. Table VIII-C-7 is a synopsis of these comparisons.

A fully blackened circle under the heading of a particular research or analysis source/technique indicates that the analysis listed in the left hand column is strongly corroborated by the research or technique. A half-blackened circle represents moderate corroboration. An empty circle stands for weak corroboration. An 'X' indicates disagreement between the conclusion and the results of the research or technique at the head of the column. A dash simply means that the result of the particular technique did not apply to the conclusion listed on that line.

TABLE VIII-C-7 Synopsis of Conclusions and Convergence

CONCLUSIONS RE RAS IMPROVEMENT	Confirmation/Reinforcement ● STRONG ◒ MOD ○ WEAK X NEG — N/A					DISCUSSION ON PAGES...
	MAUA	EXOP	GAME	THREAT	HIST	
1 Threat requires more attention to RAS	●	●	●	●	—	C-73
2 All rear area units more vulnerable to variety of capabilities included in threat spectrum	●	●	—	●	—	C-74
3 All persons in MAGTF need to be able to participate in security and self-defense	●	●	—	●	●	C-73
4 Basic concepts of sercurity and defense applicable to all Marine organizations	●	●	—	—	●	C-74
5 Support units require rnore intell/counter - intell. capabilities	●	◒	◒	●	◒	C-74
6 Support units require more conventional combat power	◒	●	●	●	◒	C-73
7 " " " more/heavier AT weapons	◒	●	●	●	—	C-73
8 " " " indirect fire support on call	◒	●	◒	●	◒	C-73
9 " " " air support on call	◒	◒	◒	●	○	C-74
10 " " " more engineer support available	●	◒	—	●	◒	C-69
11 " " " better security vs UW threat	●	●	—	●	◒	C-73
12 " " " surveillance and barrier systems	●	◒	—	●	◒	C-74
13 " " " improvements in CnC system to integrate all of above elements (SOP,Trng)	●	◒	—	◒	◒	C-69
14 MAGTF command element needs to devote more attention/emphasis to RAS	●	◒	—	◒	●	C-73
15 More attention of MAGTF intell/counter - intell reconnaissance & surveillance effort to RAS	◒	◒	—	●	◒	C-73
16 Larger allocation of engineer support for RAS preparation within MAGTF	●	◒	—	●	—	C-67
17 Better RAS contingency plans at MAGTF level	●	◒	—	●	◒	C-69
18 MAGTF allocation of indirect fire support for RAS	●	●	◒	●	◒	C-74
19 MAGTF allocation of air support for RAS	◒	◒	◒	●	○	C-74
20 MAGTF allocation of "econ.-of-force" mobile combat power to contingent RAS mission	○	○	◒	●	◒	C-74
21 MAGTF allocation of portion of GCE Res. to RAS mission	X	X	—	◒	●	C-74
22 Dedicated RAS pers./units in MAGTF troop list	◒	○	—	◒	◒	C-74

(1) Multiattribute Utility Analysis (MAUA) - Strong concurrence was obtained from this technique for those conclusions pertaining to the increased magnitude and complexity of the threat, the need for prior preparation by support personnel and units to enable them to defend themselves and for better overall planning to cope with the threat to RAS within the MAGTF. Less emphasis (moderate concurrence) was placed on increasing the defensive combat power of support units and on possible MAGTF level actions to improve intelligence/counterintelligence and air support allocations for RAS. There was some tentative feeling (moderate concurrence) that some numbers of dedicated personnel (with selected skills) and perhaps even dedicated units would be necessary to enhance RAS capabilities. There was little or no enthusiasm (weak concurrence) for allocating any part of the combat power of the GCE, even an economy-of-force unit like the LAV battalion, to the task of RAS, and there was outright negative reaction to the suggestion that portions of the GCE reserve might be tasked to perform RAS functions.

(2) Expert Opinion (EXOP) - Results from the survey of expert opinion provided strong reinforcement of the conclusions pertaining to the increased threat, the need for all Marines and all units to be able to contribute something to their own security, and the perception that basic concepts of security and defense are sound. This group of sources gave strong support to those conclusions identifying a need for more conventional combat power in support units in the form of both direct fire anti-armor weapons and indirect fire support. They also placed a strong emphasis on the need for better security in all units against the UW threat. Most of the respondents in this category were less concerned about command and control, intelligence/counterintelligence, and engineer support than were the officers who participated in the MAUA. They were only mildly receiptive to the idea of using the LAV battalion for RAS tasks or to the idea that additional people who would be dedicated to RAS tasks might be needed in rear area units. They also disagreed in no uncertain terms with the suggestion that portions of the GCE reserve might be used to assist with the RAS mission.

(3) War Game (GAME) - Results from this analysis were applicable to only a limited number of conclusions. First of all, by postulating a light armored threat against units with no significant anti-armor capability, the game highlighted very strongly the deficiency of rear area support units in conventional defensive combat power, especially in the category of direct fire weapons. By implication (moderate reinforcement) the game confirmed the importance of effective intelligence, reconnaissance, and surveillance to provide early warning of impending attack and the need for indirect fire support and air support to improve the odds in favor of support units defending against armored attack. This in turn emphasized the necessity of some allocation of this type of support to RAS by the MAGTF commander. The game also implied that mobile combat power like that in the LAV battalion would be very useful in the rear area in the presence of a light armor threat.

(4) Threat - This analysis called attention to elements of both the conventional and unconventional warfare threat that have been increasing during the past decade to the point that current security and self-defense capabilities in the FMF have been called into question. In particular areas of deficiencies that need to be remedied were identified in intelligence/counterintelligence capabilities at both support unit and MAGTF levels, surveillance and barrier systems available to support units, and combat capabilities of rear area units to defend against both conventional and UW attacks. In order to fully capitalize on improvements in any of these areas, improvements in the MAGTF's operations are also needed. This conclusion can be implied (moderate reinforcement) from the more specific needs indicted by the threat analysis. Because of the magnitude of the conventional threat, there is also an implication that, in spite of the current consensus in operational thinking, the MAGTF commander may nevertheless have to allocate (or at least "put a string on") a portion of the GCE's reserve to be prepared to counter a high level threat to his vital rear area installations.

(5) Historical Research (HIST) - The results of this research strongly reinforced those conclusions which said that all MAGTF personnel

need to be able to participate in their own security and self-defense ("every Marine a rifleman") and that basic principles of security and defense are sound and applicable to all units in every situation. The historical research also lent strong reinforcement to the principle that the MAGTF commander and his staff need to be involved in the details of RAS planning; and that, if necessary, he must be prepared to use any portion of his combat power that can be brought to bear, including units of the GCE reserve, to defeat a threat to his vital and vulnerable rear area. Other conclusions were reinforced by implication (moderate reinforcement) from historical experience, viz., the need for intelligence/counterintelligence support, conventional combat power, engineer support, and local security measures for units in the rear area. If these capabilities are not otherwise available they may have to be provided by task organized units dedicated to such tasks for the duration of a campaign. Air support for RAS operations was alluded to in a few cases but at best this provided weak reinforcement for conclusions relating to the utility of aviation. Another perspective on the results of this cross-referencing exercise is shown below:

Conclusions Re Support Units	Reinforcement by Research/Analysis Results				
	STRONG	MODERATE	WEAK	NEGATIVE	N/A
According to:					
MAUA	5	4	-	-	-
EXOP	4	5	-	-	-
GAME	2	3	-	-	4
THREAT	8	1	-	-	-
HIST	-	7	1	-	1
TOTALS	19	20	1	0	5
Conclusions Re MAGTF					
According to:					
MAUA	4	3	1	1	-
EXOP	1	5	2	1	-
GAME	-	3	-	-	6
THREAT	6	3	-	-	-
HIST	2	5	1	-	1
TOTALS	13	19	4	2	7

What this display suggests is that there is significantly stronger consensus and analytical support for what needs to be done to improve the RAS capability of support units than there is relative to measures that the MAGTF commander and his staff might take to solve this problem.

However one looks at this variety of research and analysis of different aspects of the RAS problem, there is nevertheless a degree of uncertainty in all of the data and conclusions presented. But where convergence of research findings and analysis results is strong, the

conclusions can be accepted with more confidence than where such convergence is weak or lacking. Finally, all of these conclusions are sensitive to the discovery of new evidnce by either further research or more detailed analysis, testing and evaluation. But this is not a disadvantage. Rather the work that has been done to this point indicates the direction that follow-on efforts should take.

7. Cost-Benefit Examination

a. General

(1) Benefits. Multiattribute utility analysis provided the basis for assessing the relative benefits of RAS enhancements discussed in the foregoing sections. The multiattribute utility models developed during the course of this study were built around a variety of activities, procedures, and assets which impact RAS. Each one of these impacting factors was directly scored on the utility (benefit) the Marine Corps would realize from an enhancement to that factor. Thus, an assessment of benefit could be made for each improvement under consideration; in a number of cases discrete improvements were aggregated and their scores combined to obtain an aggregate score for the collection of enhancements.

(2) Costs. Costs for enhancements were taken from data contained in the current revision of the Marine Corps Cost Factors Manual (MCO P7000.14) in every case possible. For factors not included in the Manual, costs represent a best estimate on the part of cognizant Marine Corps project/staff officers who were contacted for such estimates. In cases where cost data was still not available, an estimate was based on the known cost for a factor of equal or near-equal character. For example, the cost of training specialists in basic combat skills can be approximated as roughly equivalent to the cost of initial entry MOS training for an infantryman.

(3) Costs-Benefits. The benefits for each enhancement were contrasted with the costs of each to obtain cost-to-benefit ratios. These ratios were then used to gauge the general desirability of each possible enhancement, and can be combined to estimate both desirability and feasibility of groups of enhancements. Since the benefit scores were determined separately from costs, feasibility can be readily reassessed, should costs change, by computing new cost-benefit ratios. This discussion of costs and benefits, although not specifically required by the Statement of Work for this project, is provided as a means of evaluating

potential payoffs (benefits) of proposed actions in terms of dollars and/or man months. It is intended as an aid to planning and programming for implementation of RAS enhancements.

b. Categories of Evaluation. The previous paragraphs of this section discussed several possible RAS enhancements. These fell naturally into three general categories: training, equipment, and personnel/organizational. Within each category were several potential actions, some of which were actually redirections or minor changes to ongoing activities, and could be implemented at minimal or no cost. Other actions required procurement, major training effort, or other prominent costs. These were examined from the standpoint of the marginal cost to implement each. Thus, when combinations of factors were examined, it was possible that some benefits at no added cost could be grouped with benefits representing cost differences, and this permitted the maximizing of benefits at least possible cost. Later, various enhancements were grouped into proposed courses of action, and the results of the cost evaluations played a part in such grouping. The evaluation discussed here was based on examining the three general categories of training, equipment and personnel/ organizational.

c. Training. Four types of training were considered: the training of specialists in combat related skills (actually intensive EST training), professional development training, selective MOS training, and mission oriented training. The total training benefit to the Marine Corps was described during the multiattribute analysis as follows:

Combat training for specialists	44%
Professional development training	40%
Mission-oriented training	10%
Selective MOS training	6%

The estimated annual costs associated with these training categories are as follows:

(1) Specialists - $4,891,086

Computed as follows: The direct and indirect training cost per student of initial entry MOS training for enlisted infantrymen (Infantry Training School) multiplied by the number of sergeants and below in both the MAW and FSSG T/Os, i.e., $281 per student x (10,714 in MAW + 6,672 in FSSG) = $4,891,086.

(2) Professional Development - $2,538,576

Computed as follows: Cost for professional development of officers was considered a sunk cost associated with already ongoing professional development programs. These curricula could be modified slightly at no additional cost to provide proper RAS orientation. The costs used for this category of training were the direct and indirect costs per student in the SNCO career course ($317 and $415 per student respectively). This six week course of professional training could prepare all SNCOs in the MAW (2,566) and FSSG (902) to act as troop leaders at the squad and platoon level in the event their units have to fight to defend themselves. The calculations are:

($317 + $415) x (2566 + 902) = $2,538,576

(3) Mission Oriented - $293,914 per inf. bn. equiv. per yr.

Computed as follows: If each infantry battalion equivalent in the MAW and the FSSG performs approximately one fourth of an infantry battalion's training per year it would be sufficient to maintain a fairly high level of defensive combat readiness (e.g., about the same level of readiness as a reserve infantry battalion attending ADT periods of one weekend per month). The cost of a MAF field training day was constructed as equivalent to 2/3, of an FMFPAC infantry battalion field training day (IBFTD) plus 1/3 of an FMFLANT IBFTD using 1986 costs.

- 24 days x $4056 (composite IBFTD) - $ 97,352
- Ground training ammunition (1/4 of Inf Bn) - 196,562

$293,914 per inf. bn equiv.

If eight battalion equivalents per MAF is taken as a goal (this goal is discussed in Section B, Analysis of Alternative Courses of Action) the total per MAF cost would be $2,351,312.

(4) MOS Training - considered as sunk costs; existing MOS training in selected OccFlds such as 02, 25, and 58 can be modified slightly to give increased attention to RAS considerations at no additional cost.

(5) Overall Costs - The total training cost for RAS enhancement is the sum of the above costs, i.e., $9,780,974. This total is spread throughout the four training categories as shown below. Figure VIII-C-9 graphically portrays the relationship of these figures to the relative benefits of the same categories.

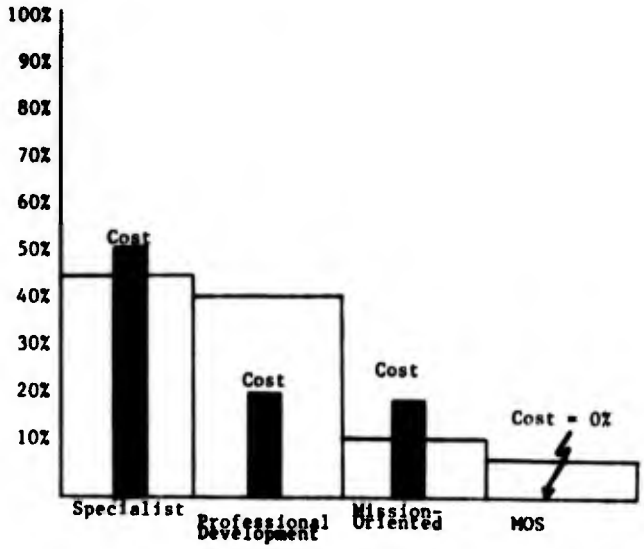


Figure VIII-C-9 Training Cost-Benefit Relationships

Specialists in combat-related skills	50%
Professional development	26%
Mission oriented	24%
Selective MOS	0.0%

An examination of Figure VIII-C-9 shows that the cost-benefit ratios for the training categories are best for MOS training (no cost) and worst for the conduct of mission-oriented training (2.4:1 for a total of eight equivalent battalions per MAF). The professional development training category has the second best cost-benefit ratio (.65:1) and combat skills training is third (1.74:1).

The fact that combat skills training of specialists represents the greatest level of benefit cannot be overlooked. Unfortunately, its cost-benefit ratio is not as favorable as others. Further examination of the category brings into focus the fact that most Marines who would receive such training are assigned to their parent support unit for a period of two to three years. The initial training of Marines in infantry skills is a four week process and is the training package best suited for support unit specialists, but it could be phased in gradually to spread the cost over a period of three years. Support personnel in all three active MAFs would have received this training three years after a specified starting date if it is instituted for all personnel assigned to MAWs and FSSGs. Then the $4.9 million per year figure would be the annual cost of sustaining this level of capability. The same logic applies to professional development training for SNCOs ($2.5 million per year). Mission-oriented training could be handled differently. The cost figures used in this analysis assume a maximum of eight infantry battalion equivalents per MAF, four in the MAW and four in the FSSG. If only one battalion equivalent per MAW and FSSG is trained during the first two years as a pilot program to be evaluated further, the total cost of mission-oriented training could be only 25% of the figure listed above per MAF.

In summary then, the added cost for training all support unit Marines using T/O strength figures would be as shown below. This range of from $8 million to $14.5 million annual training cost is high but compared to an annual O&MMC appropriation of over 1.5 billion it represents an additional incremental cost of less than 1%. The question for decision makers then becomes, "Are the anticipated benefits worth this added cost?"

Similar costs could be developed in terms of man-months (e.g., 1 additional man-month or 8% of a man-year to give a specialist combat skills, and 6 weeks or 11.5% of a man-year to develop a SNCO to be a troop leader), but the question would remain the same.

Total Training Costs

	Year 1	Year 2	Year 3	Year 4	Year 5
Specialist Training	$4,891,086	same	same	same	same
Professional Development	$2,538,576	same	same	same	same
Mission Oriented*	$ 881,742	same	$7,053,936	same	same
MOS Training	-	-	-	-	-
TOTALS:	$8,311,404*	$8,313,404	$14,483,598	$14,483,598	$14,483,598

* 6 Infantry battalion equivalents (1 per MAW and 1 per FSSG) during first two years, 24 battalion equivalents per year in out years).

Annex G contains detailed training and proficiency standards that were considered in developing cost estiamtes.

d. Personnel/Organizational. Within this category there were two distinct types of RAS enhancements: those of a temporary and those of a permanent nature. The benefits associated with either type of action were discussed in the Multiattribute Utility Analysis portion of this report and will be referred to in this section. There are no precise costs associated with the benefits to be realized through temporary actions, i.e., task organization and, therefore, these actions should be examined with the intent of adopting them. There are specific costs associated with the implementation of permanent organizational changes however, and since the total utility (benefit) of the permanent changes was less than that for temporary ones (46% to 54%) the cost-benefit ratio for permanent actions is, by necessity, less favorable. Even without performing

specific dollar computations, it can still be concluded that temporary actions should be initiated sooner than permanent ones (greater benefit at lower cost).

Once permanent actions are initiated, the actual cost will be dependent on the level of enhancement chosen. Changes range from the addition of a physical security officer to the formation of complete defense battalions, and the costs must be measured in terms of life cycle, not merely the cost versus benefit aspects of implementation expenditures. Such an analysis as this should be initiated at some point after implementing temporary enhancements and evaluating residual needs.

e. Equipment. The categories of equipment enhancements which yielded the most significant amounts of benefit were:

1.	Radios (manpack)	26%
2.	Sensors	23%
3.	ADPE	17%
4.	Engineer	15%
5.	Motor Transportation	10%
6.	Ordnance	9%

Examination of the equipment categories revealed two that were actually requirements for better allocation of already existing equipment and not actually requirements for acquisition of new or increased equipment. Both engineer and motor transport assets were considered by the panel of Marine officers who participated in the multiattribute analysis to exist in sufficient quantity within the typical MAGTF, but are traditionally allocated away from the rear area (and, therefore, would probably not be available for RAS tasks). These were considered sunk costs and excluded from cost-benefit comparisons. The remaining categories were then normalized (to a total of 100%) and the new benefit percentages were:

1.	Radio (manpack)	34%
2.	Sensors	31%
3.	ADPE	22%
4.	Ordnance	13%

In further examination, it was discovered that HQMC (C4) has already programmed for increased ADPE at all levels throughout the Marine Corps. This acquisition (for expansion and replacement of the current ADPE - FMF) will put increased ADPE assets into the MAGTF, including the CSSE and should answer the requirement. Thus, the major equipment benefits were recomputed once more and resulted in:

1.	Radio (manpack)	44%
2	Sensors	39%
3.	Ordnance	17%

The costs for these categories per infantry battalion equivalent were estimated as discussed below.

(1) Radios - for FSSG, $84,915 per inf bn equiv.
for MAW, $147,883 per inf bn equiv.

Computed as follows: To facilitate combat operations in the rear area, support units in a MAGTF should possess certain radios used by the infantry battalion. For comparison purposes, the AN/PRC-68A and the AN/PRC-77 were selected as representative. An infantry battalion's allowance of these radios is 94 PRC-68s and 58 PRC-77s. There are 49 PRC-68s and 177 PRC-77s in the FSSG T/Es and 35 PRC-68, and 33 PRC-77s in the T/Es of a MAW. Therefore, assuming existing radios could be used for RAS purposes, the cost of additional radios to give the FSSG, the equivalent of an infantry battalion capacity in PRC-68s would be 94-49 = 45 x $1,887 = $84,915. Other comparisons are shown below:

Table VIII-C-8 Costs of Infantry Radios for Support Units

	AN/PRC-68A (Unit Cost $1,887)	AN/PRC-77 (Unit Cost $1,462)
Inf Bn Qty	94	58
FSSG --"--	49	177
MAW --"--	35	33
Addl for 1 bn equiv:		
FSSG	45 ($84,915)	-
MAW	59 ($111,333)	25 ($36,550)
Totals per MAF	104 ($196,248)	25 ($36,550)
Addl for 8 bn equiv:		
FSSG (4 bn equiv)	327 ($617,049)	55 ($80,410)
MAW (4 bn equiv)	341 ($643,467)	199 ($290,938)
Totals per MAF	668 ($1,260,516)	254 ($371,348)

(2) Sensors - $37,467 (replacement cost per set) x 6 for MAW*
x 12 for FSSG*

(* for a 4 bn. equivalent capability)

Computed as follows: An infantry battalion has an allowance of 4 AN/PPS-15(V)2 radar sets (LBSR). There are 10 of these sets in the MAW exclusive of those in the MACG and 4 in the FSSG. If all of these radar sets can be employed for self defense purposes there are enough for 1 battalion equivalent in both the MAW and the FSSG. To achieve a 4 battalion equivalent the MAW requires 6 more and the FSSG 12.

(3) Ordnance - $394,730 per equivalent battalion set

Computed as follows: The crew-served weapons that give an infantry battalion its defensive combat power against armor as well as infantry attacks include the following:

Weapon	Unit Cost	Qty	Total
DRAGON (Tracker)	($12,385)	8	($99,080)
SMAW	($ 8,749)	18	($157,482)
M19 40mm MG	($ 7,028)	6	($42,168)
M2 .50 Cal MG	($73,300)	6	($79,800)
M60 7.62mm MG	($ 5,060)	29	($146,740)
81 mm Mortar	($72,000)	8	($96,000)
			($621,270)

This total cost of a weapons set for an equivalent infantry battalion in the MAW or the FSSG can be reduced by subtracting the number of these weapons that are already included in the T/Es of MAW and FSSG units, as follows:

Weapons	MAW	FSSG
DRAGON	-	-
SMAW	-	-
M2 HMG	19 (3+ equiv. bn.)	83 (13+ equiv. bn.)
M19 MG	-	-
M60 MG	56 (approx 2 equiv. bn.)	132 (4.5 equiv. bn.)
81mm Mort	-	-

Except for a few M2 and M60 MGs needed by the MAW if a full 4 battalion equivalent is desired, both the wing and the FSSG have enough .50 cal and 7.62mm MGs for self defense. The cost of the remaining weapons needed, therefore, is $394,730 per equivalent battalion set.

(3) Ordnance - $394,730 per equivalent battalion set

Computed as follows: The crew-served weapons that give an infantry battalion its defensive combat power against armor as well as infantry attacks include the following:

Weapon	Unit Cost	Qty	Total
DRAGON (Tracker)	($12,385)	8	($99,080)
SMAW	($ 8,749)	18	($157,482)
M19 40mm MG	($ 7,028)	6	($42,168)
M2 .50 Cal MG	($13,300)	6	($79,800)
M60 7.62mm MG	($ 5,060)	29	($146,740)
81 mm Mortar	($12,000)	8	($96,000)
			($621,270)

This total cost of a weapons set for an equivalent infantry battalion in the MAW or the FSSG can be reduced by subtracting the number of these weapons that are already included in the T/Es of MAW and FSSG units, as follows:

Weapons	MAW	FSSG
DRAGON	-	-
SMAW	-	-
M2 HMG	19 (3+ equiv. bn.)	83 (13+ equiv. bn.)
M19 MG	-	-
M60 MG	56 (approx 2 equiv. bn.)	132 (4.5 equiv. bn.)
81mm Mort	-	-

Except for a few M2 and M60 MGs needed by the MAW if a full 4 battalion equivalent is desired, both the wing and the FSSG have enough .50 cal and 7.62mm MGs for self defense. The cost of the remaining weapons needed, therefore, is $394,730 per equivalent battalion set.

(4) Overall Costs for a 1 battalion equivalent capability

1. Ordnance ($394,730) (.60)
2. Radios ($115,399 (avg. of MAW and FSSG costs)) (.18)
3. Sensors ($149,868) (for additional bn. sets) (.23)

(5) Cost-Benefit Comparison

Ordnance - .60/.17 = 3.53
Sensors - .23/.39 = .59
Radios - .18/.49 = .41

As Figure VIII-C-10 displays, the cost for ordnance enhancements is considerably greater than the estimated benefit. This is a situation that resembles the training analysis and should not be interpreted as an indication that ordnance investments are not worthwhile. In fact, based on the wargame results, anti-armor ordnance is essential for defense against conventional threats similar to that posited in Situation No. 2. Ordnance expenditures could be phased in over time to achieve a more favorable cost-benefit relationship especially since needed mission-oriented training would have to be instituted to take advantage of any additional crew-served weapons provided. Radio and sensor investments are reasonable candidates for implementation at once.

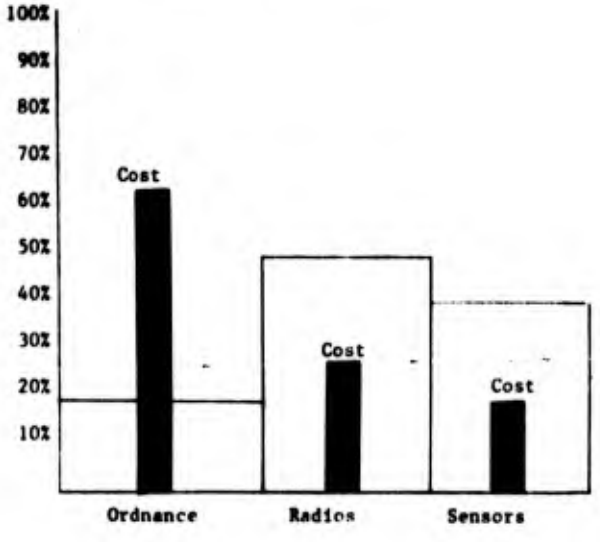


Figure VIII-C-10 Equipment Cost-Benefit Relationships

In performing the cost-benefit comparisons, the cost of currently fielded equipment was used. But the infantry battalion will be receiving new items of equipment in the near future, so to complete this analysis, a survey of this new equipment was performed to identify which items would also contribute to a RAS capability. Table VIII-C-9 below lists key items proposed for introduction to Marine infantry battalions between 1986 and 1995. The table also shows which of the new items are slated for receipt by support units, and which ones of those not scheduled for support units would be an enhancement to RAS.

Table VIII-C-9 Infantry Battalion Equipment Enhancements 1986-1995

Item Needed for RAS	Scheduled For:	
	FSSG	MAW
Category I: Weapons & Ordnance		
40mm MG, MK19	-	-
Improved 81mm Mortar	-	-
84mm AT-4 LAW	-	-
SMAW HEAA warhead	-	-
Improved DRAGON warhead	-	-
60mm Mortar	-	-
SLAP for .50 caliber MG	-	-
Category II: C^2		
PLRS	-	(MACG only)
MIFASS	-	-
TCO	-	-
SB-3865 (ULCS)	(H&S Bn only)	Yes
AN/GYC-7 (ULMS)	(---"---)	Yes
TD-1234 (Multiplexer)	(---"---)	Yes
JTIDS DTMA	-	Yes
AN/VRC-83	(Maint Bn only)	(MAG (VH) only)
PRC-113 (VHF/UHF)	Yes	Yes
SINCGARS	Yes	Yes
PSC-2 (DCT)	(H&S Bn only)	Yes
UXC-7 (Fax)	(---"---)	Yes
TA-954 (Tele)	(---"---)	Yes
Fiber Optic Cable	(---"---)	Yes
TSEC/KY-99	(LS Bn only)	Yes
KG-84A	(---"---)	-
KY-90	(---"---)	Yes
Category III: Sensors		
Sensor Monitoring AN/VSQ 66(V)(SCAMP)	-	-
Robotic Sentry	-	-

The acquisition cost of each suggested item was not available in most cases but since all of this equipment would be part of larger buys and since their IOC dates are spread out over the next decade, it was thought to be sufficient to simply identify the items for consideration as additions to the T/E of support units as they are fielded.

f. Conclusions from Cost-Benefit Analysis. Estimation of the cost per level of benefit attached to several major RAS enhancements led to the following conclusions:

(1) There are several levels of cost-benefit ratios, and implementation of high cost-high benefit factors should be phased over time; implementation of low (or no) cost-high or moderate benefit factors should be near term.

(2) More RAS consideration in MAGTF task organizing should be developed as soon as possible; structure changes are justified in some areas, but should be deferred until RAS training is enhanced and the payoff from this near-term measure is evaluated.

(3) Professional development and combat skills training for specialists are RAS-developing. Mission-oriented training and EST are RAS-sustaining. These different types of training should be implemented in a pattern related to their developing or sustaining role. Skill development costs can be pro-rated over at least three years.

(4) Equipment costs are justified, but these costs must also be examined and planned incrementally to soften the dollar impact.

(5) Because some enhancements are suited for immediate implementation, and some for deferred and/or phased application, implementation plans should be built around a near-term course of action, a mid-term course, and a longer-term course which would commence after full implementation of the first two. This approach to implementation allows full benefits of less expensive items to be realized before higher cost items are phased in.

ANNEX D

Annex D

History

I. Rear Area Security In World War II

A. Marine Corps Experience

1. Marine Defense Battalions

A significant contribution to the campaign in the Pacific theater of operations was made by Marine Corps defense battalions. These units helped secure and defend the many advanced bases across the Pacific that provided the logistic support required for the prosecution of an offensive strategy against Japan. This contribution was especially critical in the early days of the war.

The origins of the defense battalions predate the initiation of World War II. On 8 December 1933, the Fleet Marine Force (FMF) was established as an integral part of the Atlantic and Pacific Fleets. The primary responsibility of the FMF was "the seizure and temporary defense of advanced bases" in concert with fleet operations. In addition, Marines were given the mission to defend existing overseas bases. The long string of United States territories and possessions stretching out across the Pacific to Manila was vital to the Navy, and the security of these areas was perceived as a natural role of the Marine Corps.

By 1938, war plans specified the establishment of defense detachments of Marines on Midway, Wake, and Johnston Islands in sufficient strength to repel minor naval raids and raids by small landing parties. By 1939, the proposed units were known as defense battalions and were to be equipped with six 5-inch naval guns, twelve 3-inch antiaircraft (AA) guns, forty .50 cal. AA machine guns, forty-eight .30 cal. machine guns, six searchlights, and six aircraft sound locators.

Initially there was no standardized Table of Equipment (T/E) and Table of Organization (T/O) for these units. Weapons and personnel

allowances reflected the requirements of a unit's specific mission. For example, the 7th Defense Battalion on Samoa included a headquarters battery, an artillery battery armed with four 6-inch naval guns, six 3-inch AA guns, and a rifle company.

The personnel strength of each battalion was about 40 officers and 800 enlisted Marines. The battalions were essentially immobile once established ashore (except that AA units possessed some local mobility) and personnel were assigned battle stations as was the practice with Marine detachments aboard ships.

By the time of the attack on Pearl Harbor in December 1941 seven defense battalions were in existence. The first defense battalion to operate in a potentially hostile environment was deployed to Iceland in June 1941 as part of the 1st Provisional Marine Brigade. The brigade was made up of the 6th Marines, the 2d Battalion, 10th Marines, and various supporting units including the 5th Defense Battalion. It was sent to Iceland in support of British forces there to block any planned German invasion of the island. The defense battalion's .50 caliber and .30 caliber machineguns and its 3-inch AA guns were integrated into the British air defense system deployed around the airfield and harbor at Reykjavik. In March 1942, the brigade returned to the United States when relieved by U.S. Army units.

Of the remaining six defense battalions, all but one, the 2d, were deployed to bases in the Pacific at the time of the attack on Pearl Harbor. The 2d Defense Battalion joined the 2d Marine Brigade when it deployed to Samoa in January 1942.

By December 1941, a standard defense battalion organization had evolved consisting of a headquarters battery, three 5-inch coastal defense batteries, three 3-inch antiaircraft batteries, a sound locator and searchlight battery, an AA machine gun battery, and a battery of 30X.50 caliber MG, and 30X.30 caliber MG for beach defense. The total strength of these batteries was 900 Marines. Specific island requirements varied, however, and while Midway received a full complement, Johnston and Palmyra

Islands were so small in land area as to physically preclude assignment of anything more than a defense detachment. The deployment of defense battalions as of December 1941 is shown in Figure VIII-D-1.

Beginning with the attack on Pearl Harbor on 7 December 1941 Marine Corps-deployed defense battalions were engaged by Japanese forces ranging in size from single submarines to landing parties from naval task forces. The understrength detachment on Wake Island withstood air and naval bombardments from 7 December 1941 until succumbing to overwhelming forces on 23 December 1941. Reinforcements of the detachments on Palmyra, Johnston and Midway Islands from the 1st, 3d and 4th Defense Battalions stationed at Pearl Harbor enabled these bastions to withstand Japanese air and naval raids through the end of the defensive phase of the war in early June 1942.

As the Pacific campaign moved into the offensive phase, increasing numbers of Marines were funneled into defense battalions. The Corps continued to form these units until by the end of 1942 fourteen defense battalions were in existence and by early 1944, the total had grown to 20.

Defense battalions participated in the first major offensive operation of the war. The 3d Defense Battalion joined the 1st Marine Division for the landing on Guadalcanal. Battalion units were split between Guadalcanal and Tulagi. The machine guns and 90 mm AA guns (which had replaced the World War I vintage 3-inchers) went ashore immediately following the first waves. The 5-inch guns were not landed until late August. When the 5th Defense Battalion arrived on Tulagi, the 90mm battery of the 3d Defense Battalion rejoined its parent unit in the defense of Henderson Field on Guadalcanal. The battalion manned Defense Sector One straddling the Lunga River during the mid-October Japanese counter offensive. The battalion's 5-inch guns scored hits on a Japanese destroyer and grounded troop transports. The 3d and 5th Defense Battalions were joined in defense of Guadacanal and Tulagi by the 9th Defense Battalion and continued in this base defense role until only the

Defense Battalion Deployment as of December 1941

Battalion	Pearl	Midway	Wake	Johnston	Palmyra	Samoa	San Diego	Iceland
	O/E*	O/E	O/E	O/E	O/E	O/E	O/E	O/E
1st Def Bn	20/241	-	16/406	7/155	7/151	-	-	-
2d Def Bn	-	-	-	-	-	-	40/823	-
3d Def Bn	40/823	-	-	-	-	-	-	-
4th Def Bn	38/780	-	-	-	-	-	-	-
5th Def Bn	-	-	-	-	-	-	-	40/823
6th Def Bn	4/17	33/810	-	-	-	-	-	-
7th Def Bn	-	-	-	-	-	25/392	-	-

* O/E - Officer/Enlisted

Deployment of Weapons With Island Detachments

	Midway	Wake	Johnston	Palmyra
5-inch guns	6	6	2	4
3-inch guns	12	12	4	4
.50 Cal MG	30	18	8	8
.30 Cal MG	30	30	8	8

Figure VIII-D-1

3rd's 5-inch battery, redesignated the 14th Defense Battalion, remained on Tulagi by January 1943.

Defense battalions actively participated in several more amphibious operations as U.S. naval task forces attacked Japanese held islands. Units of various defense battalions were diverted to assist U.S. Army assaults against the entrenched enemy positions on New Georgia and to provide antiaircraft and beach defenses at Munda Airfield and Zavana Beach. Among the last of the major operations in which defense battalions participated was the assault on Guam in July 1944.

As the war progressed in the Pacific, it became apparent that, once an Island was secured from the enemy, attempts at its recapture were very unlikely. As a result, the defense battalions gradually lost their mission. When engaged, they were primarily concerned with an occasional marauding Japanese aircraft. Consequently, defense battalions were slowly phased out beginning in April 1944 or redesignated as antiaircraft units. By July 1944, only 5 of the 20 defense battalions remained in existence.

2. Other Marine Rear Area Actions

In the early stages of the war in the Pacific no allied position in either the South or Southwest Pacific could be considered a "safe area." As a consequence, large garrisons were immobilized at key points well away from the planned centers of conflict. Base defense remained a priority effort until Japanese air and naval force capabilities were reduced or pushed beyond the limit of their attack range by the series of island seizures that began with the assault on Bouganville.

In the war of movement that characterized Marine Corps operations in the Pacific after the Guadalcanal campaign, Marine rear areas were merely an extension of the front line assault units. At Bouganville and all subsequent amphibious assaults, Marine forces were landed, established and expanded a beachhead, and, when the fighting widened into an extended land campaign, the Army was moved in to take over. Airfield construction commenced on landing with landing strips expected to be completed in time

to help defend against any determined counterattack by the Japanese. Infantry units overran enemy defenses and seized a broad but shallow beachhead. Unloading of supplies and equipment commenced immediately after the assault waves landed, and beach and AA defenses were prepared to ensure protection from the expected enemy air attacks or any possible enemy counterlanding.

The support forces engaged in establishing and defending the beachhead varied as Marine forces gained experience in the conduct of amphibious assaults. As noted earlier, the 3rd Defense Battalion along with all other Marine combat, combat support, and combat service support units on Guadalcanal was assigned an area of responsibility to help defend Henderson Airfield from Japanese land, sea, and air attacks. At Bouganville Marine shore party, service battalion, combat engineers, naval construction battalions (Seabees), the defense battalions, as well as U.S. Army engineer and artillery units, all combined to unload supplies, and provide defensive depth to a 4 mile beachhead perimeter established by the infantry units from D-Day to D+11. Each supporting unit on the beach established a small perimeter within the beachhead. An open wire telephone watch was kept by all units and radios were set to receive messages, but no generators were started for transmissions. Marines were deployed in three-man fox holes with one man awake at all times. Japanese infiltrators were busy and several brief skirmishes occurred in the areas occupied by the rear area units.

An attack on a casualty clearing station was repulsed by gunfire from corpsmen and wounded Marines. One battalion command post, directly behind the front lines was hit by an enemy patrol. The attackers were turned back by the battalion commander, executive officer and the battalion surgeon who wielded knives to defend their fox hole.

In subsequent landings on Saipan, Guam, Tinian, Iwo Jima, Pelilu, and Okinawa, Marine assault elements rapidly expanded the beachhead and defeated organized enemy resistance in a matter of days or weeks. Once the assault moved inland, the shore party, amphibian tractor, engineer, Seabee, artillery, motor transport, service battalion, and defense

battalion units went about the business of supporting the frontline units, evacuating casualties, and performing construction tasks while maintaining their own security against infiltrators or the infrequent break through of Japanese units committed to a Banzai attack. That these rear area Marines and attached Navy and Army support units acquitted themselves well in protecting their area of responsibility was demonstrated on several occasions. During the Saipan operation on the night of 21-22 June 1944, a 2d Bn 10th Marine sentry detected and challenged a Japanese infiltrator who fired an incendiary round into a 2d Division ammunition dump setting it afire. The entire firefighting detail of the artillery battalion supply section was killed while fighting the fire in the subsequent explosion of the dump. To prevent any further Japanese infiltration of the beach area, the 18th Marine Construction Unit established a defense line to isolate the ammunition dump from any further incursions. A more severe penetration into a rear area occurred at Aslito Airfield. Over 500 Japanese soldiers of the 317th Infantry Battalion penetrated the thinly spread outposts of the 2d Bn, 105th Infantry and moved undetected to assault the airfield at 0230. The attacking force set fire to one P-47 aircraft and destroyed three others. Marine engineers and Navy Seabees assigned to repair the airfield quickly transitioned to their unexpected infantry mission, cleared the airfield of the Japanese force, and set up a hasty defense.

On Iwo Jima on the night of 26 March 1945, the day the island was declared secure, a force of over 200 Japanese conducted a Banzai attack through the left flank of the exhausted Marines of the 5th Marine Division. They attacked the bivouac area of the 5th Pioneer Battalion, the VIIth Fighter Command, elements of Division Shore Party, and Headquarters V Amphibious Corps. All units except the Shore Party Battalion were taken by surprise and suffered 33 KIA and 119 wounded before the Japanese force was all killed or captured. Proper security on the part of the Shore Party personnel prevented their being taken unawares and with elements of the 5th Pioneer Battalion these Marines accounted for 196 Japanese KIA, 18 POWs, and 40 swords. The work of the Shore Party personnel on Iwo Jima is particularly noteworthy. They not only stopped the Banzai attack of 200 enemy on the night of 26 March, but throughout

the campaign for the island they continued to unload supplies along Iwo's beaches in spite of enemy mortar, artillery, and rocket fire. They sustained casualties of over fifty percent of their original strength.

B. U.S. Army Rear Area Experience

From an initial force of 45,000 combat service support personnel that phased into the Normandy beachhead beginning in June 1944, over 113,000 service force personnel comprising quartermaster, transportation, beach and port, railroad, maintenance, and military police units were operating in the rear by December 1944. The lengthening lines of communications (LOCs) from the major ports at La Harve and Calais combined with the increasing supply requirements of the combat forces did not permit the establishment of the planned series of intermediate and advanced supply depots. The main reliance was placed on motor and rail transport to maintain the logistic flow. By December 1944, the army military rail system had logged over 16,000 scheduled departures including the transportation of personnel from combat units going on leave to the rear. Over 150 U.S. Army truck companies shuttled supplies over distances extending as much as 200 miles from rear area supply depots to division supply points. The cargoes were predominantly fuel, ammunition, rations, and critical spare parts.

Incident to securing the LOCs was the problem of preventing or at least minimizing the pilferage that supplies and material were subject to from both U.S. and indigenous personnel enroute to the front line units. In Italy, for example, the entire 794th Military Police Battalion was employed to protect railway shipments from a growing incidence of theft.

The only potentially major threat to any of the European Theater's rear areas occurred in mid-December 1944. On 16 December 1944, 30 German Panzer and infantry divisions attacked the First U.S. Army on a 60 mile front. Their objective was to drive through to the port of Anthwerp and threaten over 1 million allied combat personnel in three Army Groups, plus major logistic support facilities at Liege, Belgium.

At 0530 on 16 December 1944 two German Panzer Armies launched an attack through the Ardennes Forest. Opposing the German forces were a few front line U.S. divisions that were thinly spread in blocking positions. The unexpected German offensive penetrated the First Army area to a distance of 30 miles at the point of farthest advance. On the second day of the German offensive, which became known as the Battle of the Bulge, the commander of the Communications Zone (Services of Supply) marshaled available forces to protect critical bridges over the River Meuse to deny enemy access to major supply depots at Liege. To do the job, general support engineer units were pressed into service as infantry forces augmented by six French light infantry divisions. Also available to the COMZ commander was the separate 29th Infantry Regiment. This unit was guarding railroads in France and searching for what constituted a small corps of AWOL American troops who had organized a lucrative black market business selling food, cigarettes, and fuel.

While the heavy German tank/infantry units scored some initial successes, elements of the front line U.S. divisions held firm and upset the German timetable. Of major concern initially were two specialized German brigades that had been organized to precede the attacking Panzer Armies and seize bridges over the Meuse. These brigades were to wear American uniforms and operate in small detachments. Their mission was to cause confusion by cutting American communications and passing false orders in the guise of American military police units.

Very few of the disguised detachments caused any confusion in the rear of the front line U.S. elements. Although there was considerable cutting of telephone lines, no serious interruption of telephone service developed. U.S. Army procedures for control of LOCs and direction of the constant flow of truck convoys moving men and material to and from the front lines included the use of MPs at major road junctions throughout the rear area. The first of the German "special forces" teams to be captured was apprehended one half hour after the unit crossed the American front lines. An MP at a road junction stopped the unit's jeep. When the Germans were unable to respond with the correct password, the MP detained them and discrepancies in their uniforms and the contents of their pockets

gave them away. As late as 27 December another team managed to reach a Meuse River bridge. When the disguised Germans could not produce a valid trip ticket, demanded by an MP at a checkpoint, they were arrested and found to be wearing Nazi armbands under their field jackets. German weapons and explosives were found in the jeep.

The early realization that there were Germans roaming about in American uniforms generated increased security checks throughout the rear area. Many soldiers, including senior officers, found it insufficient to know the password. They also had to answer questions on such subjects as state capitals, the current husband of Betty Grable, "dem Bums", and the name of President Roosevelt's dog.

Concerns about vital installations in the rear were not major since General Bradley, Commander of the 12th Army Group had directed that no large depots of fuel, ammunition, or other supplies were to be established in the area to the rear of the U.S. First Army. The Ardennes was historically viewed as a potential, albeit unlikely, avenue of approach for any German counterattack. Thus, evidence suggested rear area installations be kept to a minimum in that area. The COMZ commander also appeared sanguine about the ability to stop a German penetration to the major installations at Leige. Except for the removal of 1,000,000 gallons of aviation fuel from a First Army Supply dump at Staumont, no effort was made to initiate evacuation of other stores from the area. As U.S. forces held firm along the line and at the central road junction village of Bastogne, the assessment of the potential danger to the rear proved correct. The German penetration came no closer than 30 miles to Liege before elements of the U.S. 3d Army and other reinforcements counter-attacked the German salient and drove them back behind their frontline positions.

The Battle of the Bulge did create some problems behind the front line divisions. This was inevitable considering the scale of the forces involved and the initial surprise the German offensive achieved. Over 500,000 German troops were employed. On the allied side 600,000 American and 55,000 British were involved. To the rear of the First Army division that bore the brunt of the German assault, headquarters, hospital units,

and replacement elements had to withdraw hastily. Whenever they were needed, engineers, artillery, antiaircraft, quartermaster, and ordnance units fought as infantry, protecting division mobile supply trains and establishing defensive positions in villages and key terrain when encircling German forces forced them to halt.

Only twice during the Battle of the Bulge did the Germans manage to capture any appreciable amount of supplies. The first instance occurred at the town of Billingen on 17 December when Kaupfgruppe Peiper surprised rear area support units of the U.S. 99th Division four miles behind the front lines. Included in the units stationed there were service batteries of two division artillery battalions, a civil affairs detachment, a quartermaster company, a battalion of combat engineers, and artillery observation aircraft of the 2d and 99th Divisions, plus a small depot of rations and fuel. The German force captured all but 11 personnel of the more than 200 troops in Bullingen and the vitally needed fuel for their tanks. On 20 December a 7th Armored Division Supply train was attacked at the village of Samree. The division's quartermaster had only a light tank and four halftracks mounting quad-50s to hold off the Germans while the supplies were evacuated. Eventually the American unit had to break off fighting and left 25,000 gallons of gasoline and 5,000 rations to the attacking German elements.

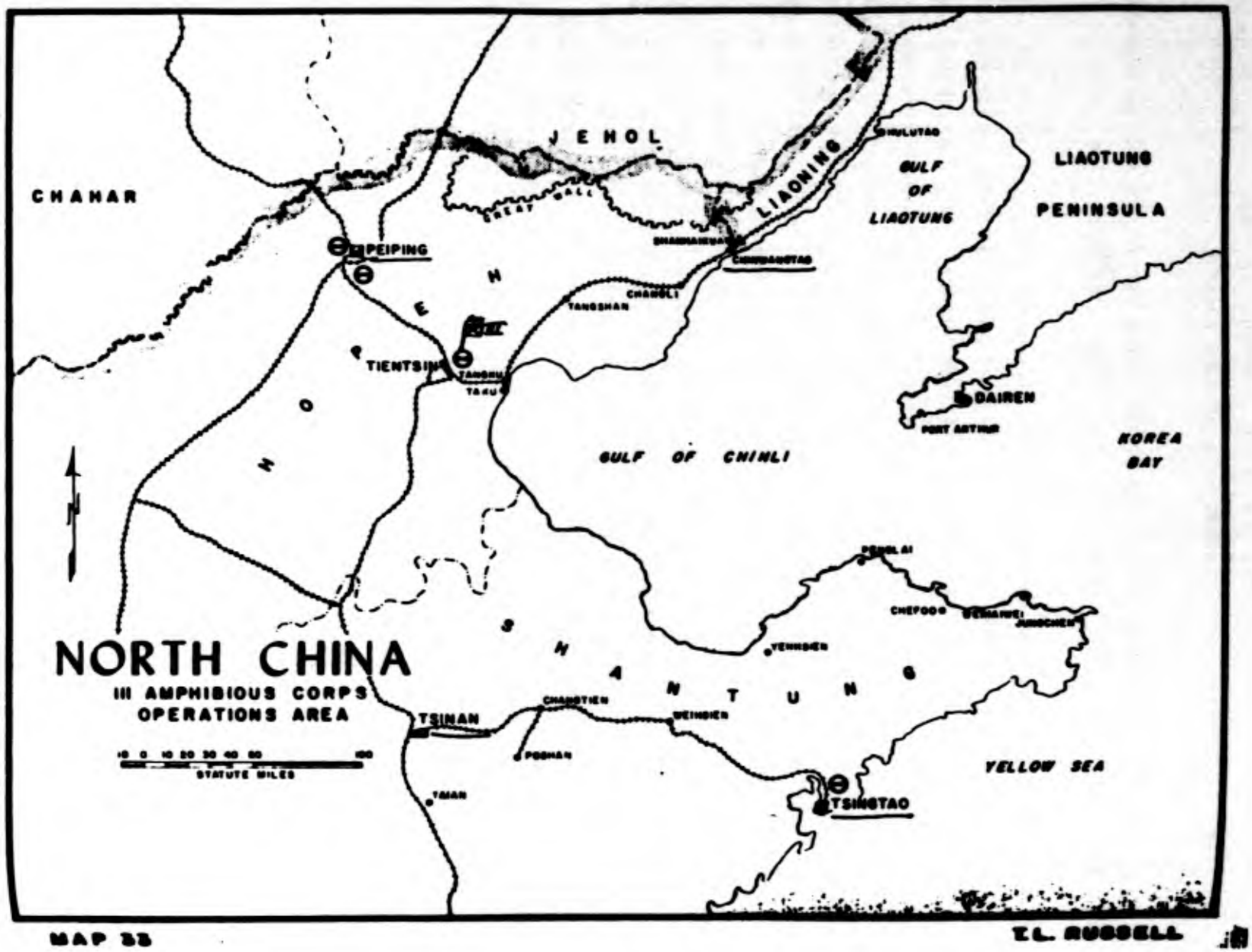
A more successful defense of more than two million gallons of gasoline occured near the village of La Glesze. The fuel was in jerry cans concealed in woods along a secondary road at a First Army fuel depot. A Belgian Fusilier unit and about one hundred U.S. soldiers of a rear echelon headquarters made up the defending force. They were armed with five halftracks and three assault guns. They were eventually reinforced with two 90mm antiaircraft guns and four more half tracks with quad-50s, but even so the small unit was no match for Kaupfgruppe Peiper's Mark IV tanks. When the Germans did move toward the depot, it was only with a flank reconnaissance patrol of a few armored vehicles with orders to fall back if it encountered resistance. When the Germans withdrew in the face of a strong defensive reaction, the Belgian Fusiliers set fire to the road and established a road block of burning gasoline the Germans could not

penetrate. Over 240,000 gallons of fuel were expended as a roadblock before the German force bypassed the small U.S./Belgian unit and moved on.

II. Post-WWII Marine Corps Occupation Duty

The III Amphibious Corps (III AC) consisting of two Marine divisions, an aircraft wing, and supporting elements numbering 65,000 personnel was assigned to occupy a stretch of Northern China extending from Chinwangtao on the north 475 miles to Tsingtao on the south and inland a distance of 100 miles to Peiping and Tsinan. See Figure (VIII-D-2). The III AC mission was twofold; first, evacuate the 116,000 Japanese army personnel in their area of responsibility, and second to protect the important urban area's rail network from Mao Tsetung's Communist forces until Chiang Kai-Shek's forces could move into the area from central China. In addition to over 14,000,000 Chinese civilians in their area of operations, the III AC also had 170,000 Communist regular forces to contend with in HOPEH and SHANTUNG Provinces. A clue to the nature of this difficult mission was the meeting between the III AC Advance Party and a delegation from "the people opposed to Chiang Kai-Shek." The Communist emissary, General Chou En-Lai, advised the Marines that Communist forces would fight to prevent them from moving into Peiping. The Communist leader was told that the Marines would move in by air and overland and that the battle hardened Marine force would drive straight through any force the Communists could muster to oppose it.

On 30 September 1945 III AC elements began landing at the Tientsin port of Tangku. The 1st Marine Division and support elements were to occupy Hopeh Province while the 6th Marine Division, landing at Tsingtao on 13 October, was to deloy in Shantung Province. The 1st MAW elements were concentrated at a military airfield near Tientsin with a Marine Aircraft Group and a VMO squadron stationed at Tsaugkou airfield near Tsingtao. The infantry regiments were dispatched to occupy the urban centers and protect the vital port areas. Combat service support units were concentrated at Tientsin and Tsingtao with detachments accompanying the regimental combat teams to their assigned operating areas.



NORTH CHINA

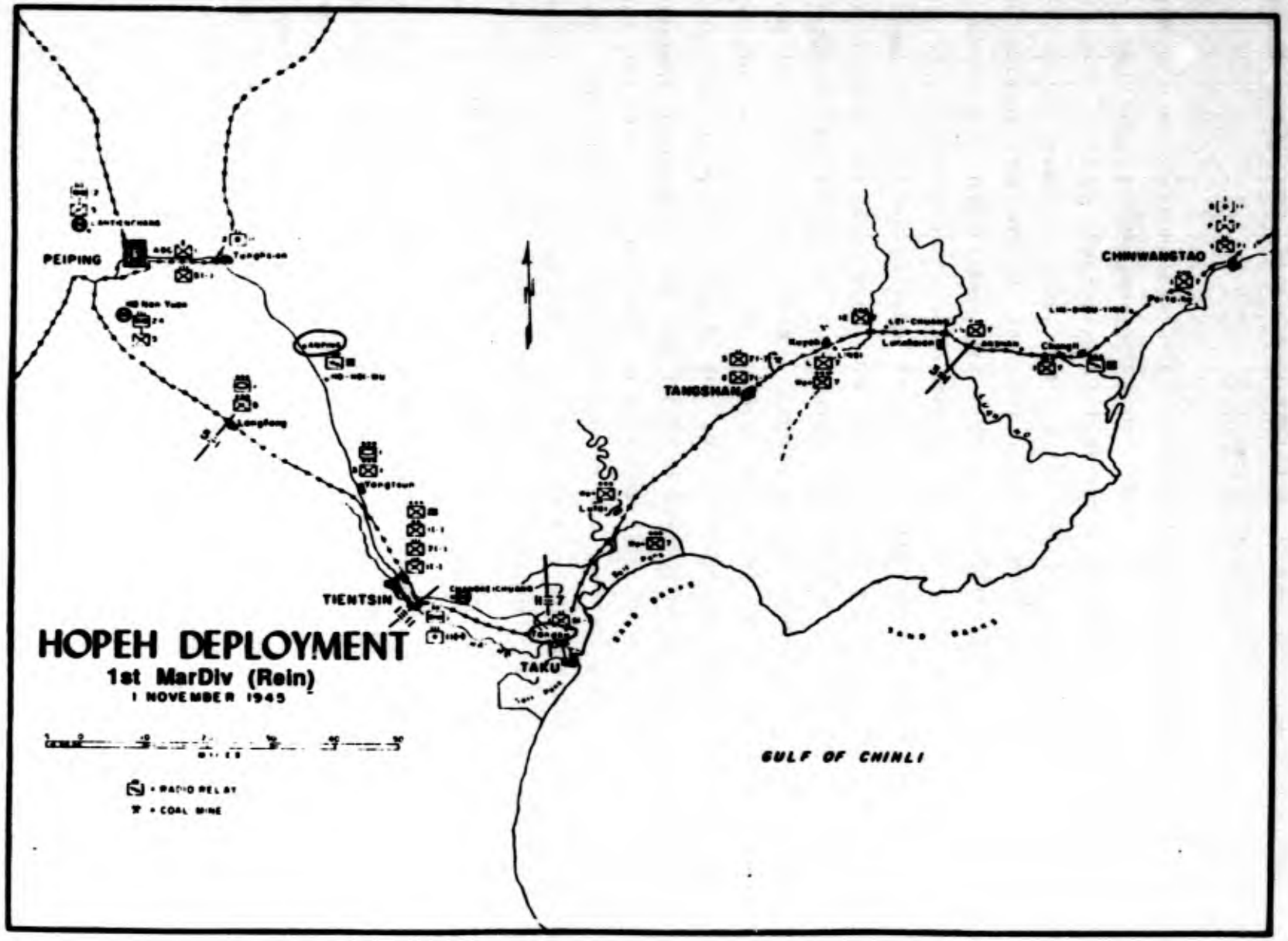
Figure VIII-D-2

In short order Marine rail and bridge guard detachments spread out along the Peiping-Tientsin-Chinwangtao rail line. The majority of headquarters, support and combat units remained in the major cities of Peiping, Tientsin, and Tsingtao as a standby reserve.

III AC experienced no problems from Japanese forces who were openly cooperative, but the Marines were continually harassed by the Communists.

A typical example of the difficulties encountered occured on 27 July 1946 at Anping, a small town about 40 miles from Tientsin on the road to Peiping (see Figure VIII-D-3). A routine Marine supply convoy with no Chinese Nationalist Army Troops accompanying it was ambushed by Communist forces. The escort consisted of a rifle platoon augmented by a 60 mm mortar section, a total of 41 Marines. The convoy was stopped by a series of stone and ox cart roadblocks. The point of the escort dismounted and was caught in a barrage of hand grenades thrown from a clump of trees 15 yards off the road. All the Marines, including the lieutenant partrol leader, were killed or wounded in the encounter. Subsequently, the entire line of vehicles was taken under well directed rifle fire. Most of the service personnel were unarmed and took cover in roadside ditches. The convoy escort returned fire with rifles while the rear guard engaged the Communist with mortar and machine gun fire. Since the convoy could not make radio contact with the nearest Marine support base, three Marines successfully ran a gauntlet of fire in a jeep to summon help. After an eight hour attempt to overrun the convoy, the 300 man Communist force disengaged and withdrew with their casualties before a 400 Marine relief column with artillery and air support arrived on the scene four hours later. The Marine casualty list included 3 killed, one died of wounds, and 10 wounded. Communist caualties amounted to 15 killed and an undetermined number wounded.

As the Communist attitude toward the American government hardened, their attacks on Marines increased even as Marine forces commenced withdrawing from China during the summer of 1946. By the end of 1946, a phased withdrawal of III AC forces began, and the mission of remaining Marines was changed to (1) protect U.S. property, installations, and



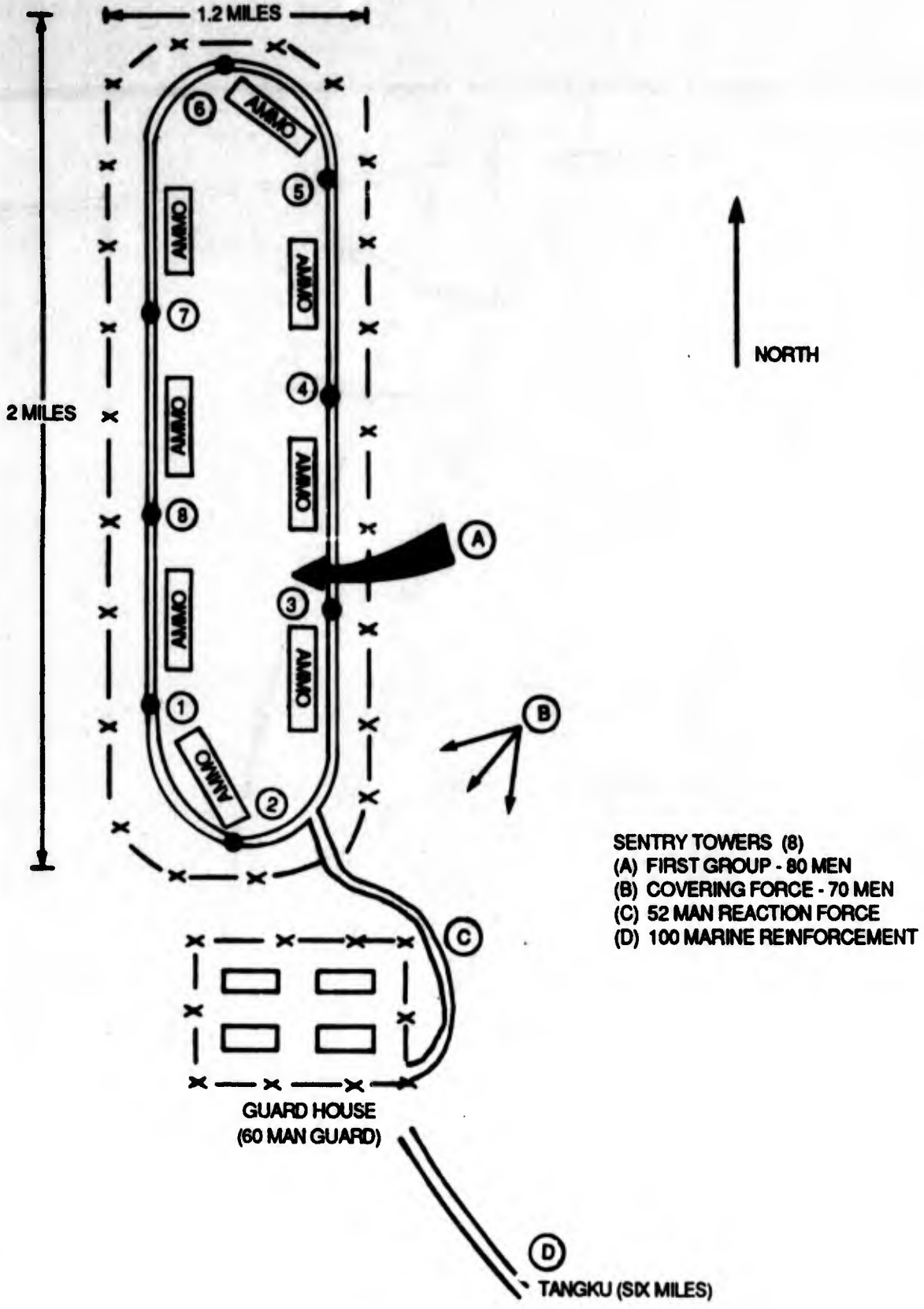
HOPEH DEPLOYMENT

Figure VIII-D-3

personnel, (2) maintain such detachments in port areas necessary for support of the forces, (3) guard only those routes and lines of communication essential to own support, and (4) assist and provide logistic support for U.S. Army activities in the area.

Two incidents involving the 1st Division's ammunition dumps at HSIN HO, six miles northwest of TANGKU illustrate the increasing boldness of Communist forces. The first occurred at 2200 on 3 October 1946. A sentry on post number 3, located one quarter mile from the guard house (See Figure VIII-D-4) discovered a large group of Chinese just outside the perimeter fence. The sentry was fired on and after exchanging a few shots ran to his sentry tower to call in the alarm. The raiding party cut through the wire, entered one of the tents covering the piles of ammunitions, and began carrying off boxes. A guard force of 52 men responded to the alarm and were engaged by a covering force of the raiders from positions in the fields adjoining the dump. Gradually the firing died away and by the time a 100 Marine reinforcing detachment from an infantry battalion at Tangku arrived at 2300, the Chinese Communists had disappeared. At dawn a search party found one dead and one wounded Communist soldier. Eleven cases of rifle ammuntion and grenades were recovered, but 32 cases of rifle, pistol, and carbine ammunition were missing. The prisoner revealed that the raiding party was a 200 man company of the Road Protection Battalion, 53rd Communist Regiment. The raiding force had come from an area about 35 miles north of Tangku in a day's hard marching.

Following the raid, measures were taken to improve security of this vital installation. The layout of the supply point was altered from a rectangle to a more triangular shape, with the long axis towards the north. (See Figure VIII-D-5). The ammunition was grouped in eight stacks along the triangle's legs, two of which were about two miles in length and the third a little over a mile long. At the northern apex, the point most distant from the guard house, was a two-man security post. Several other fixed posts were located at strategic points along the perimeter and jeep patrols checked the open stretches between. The new security measures were sufficient to discourage thefts and hold off small raiding parties until reinforcements arrived, but were not designed to withstand attacks



DIVISION AMMUNITION DUMP HSIN HO
OCTOBER 1946
Figure VIII-D-4

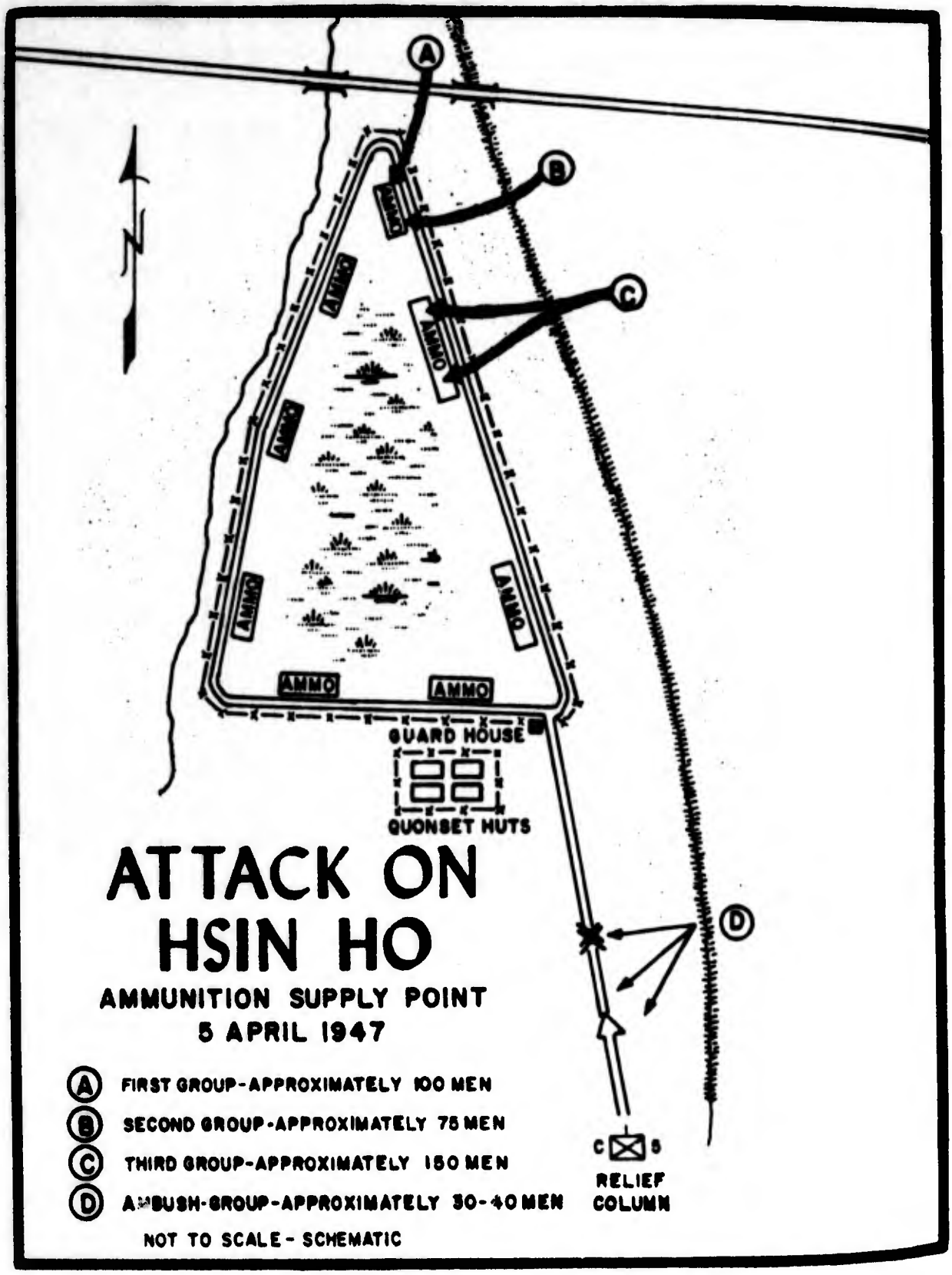


Figure VIII-D-5

by strong forces such as the 350 well armed men who attacked the dump at 0115 on 5 April 1947.

The second attack on the Hsin Ho ammunution dump began with a bugle call sounded from the fields next to the sentry post at the northern apex and a fusilade of rifle and machine gun fire at the two Marine sentries positioned there. The Marines returned fire for about 10 minutes until both were killed. Two separate groups of raiders penetrated the northern end of the dump and a third larger group penetrated further down the eastern side of the perimeter. Their target was artillery and mortar ammunition. The main Marine guard force coming to the rescue suffered three killed and eight wounded. A rifle company responding to the attack from Tangku ran into a Communist ambush at 0200. The self-propelled 105 mm howitzer leading the Marine column was disabled by a land mine at a narrow point in the road and the crowded vehicles following were taken under intense fire from an irrigation ditch 40 yards away. Under this covering fire 35-40 Communist soldiers rushed the Marines who had taken cover behind their vehicles and threw handgrenades at them. In the 15 minute fire fight before the attacking force was repelled, 9 more Marines were wounded.

By this time the raider main body was withdrawing taking an estimated 20-30 wounded with them and leaving behind six dead. Trails showed that six to eight carts and a number of pack animals carried full loads of ammunition out of the dump. An accurate count was not possible since the Communists blew up the remaining ammunition in the stacks they had stolen from. A rear guard covered the Communist force until all contact was broken at 0400.

Combat patrols from infantry units and aircraft from the 1st MAW were on the trail of the raiders by dawn, but only those who were killed in the attack on the ammunition dump were sighted. The enemy force with its booty was able to reach a ferry across the Chin Chung River eight miles north of Hsin Ho and disappear into a maze of farming villages on the other side.

The unsatisfactory conclusion to this attempt to apprehend the raiders epitomized the handicaps under which the Marines operated in their force stabilizing mission in China. The initiative rested with the Communists who attacked when and where they pleased, secure in the knowledge that once they struck and ran they were safe from effective reprisal, hidden among the hundreds of villages within a short distance of any Marine post.

By May 1947 all but 279 officiers and 3,747 enlisted men had been withdrawn from China. A residual defense force called Fleet Marine Force Western Pacific (FMF WesPac) remained. This force included a headquarters and service battalion, two infantry battalions, the 12th Service Battalion, and elements of Air FMFWesPac. No regular artillery unit was included. As a substitute, enough personnel were assigned to form two six-gun 105 mm howitzer batteries. One rifle company in each infantry battalion was augmented by 3 artillery officers and 22 enlisted men. These reinforced rifle companies were commanded by artillery majors with infantry captains as executive officers. The battalions were commanded by colonels with lieutenant colonels as executive officers.

As the situation in China deteriorated and Communist forces gained control of the countryside, FMFWesPac's mission changed to protecting U.S. lives and evacuating U.S. and other nationals. Marine units were pulled back into the major urban areas and the final withdrawal began in January 1949. On 16 May 1949 the Navy embarked the last rifle company of a Marine occupation force that had initially numbered over 60,000 men.

III. Rear Area Security During The Korean Conflict

A. Operations In The Pusan Perimeter

In August 1950 the 1st Marine Brigade (Provisional) was engaged in combat operations against North Korean Peoples Army (NKPA) forces in the Pusan perimeter of South Korea. The Marines served as the Eighth Army's "Fire Brigade" to plug up holes in the defensive perimeter wherever these

occurred. One major penetration on 12 August 1950 posed a serious threat to the Eighth Army rear area. Infiltrating NKPA elements penetrated 3000 yards to the rear of front line Army units and overran three U.S. Army artillery battalions supporting the U.S. 25th Division. Since the penetration endangered the Main Supply Route (MSR), one of the 1st Marine Brigade's infantry battalions was diverted from an attack in its sector of the perimeter to set up a defensive line to the rear of the 25th Division and mop up enemy infiltrators. The Marines stabilized the area and killed or captured all enemy infiltrators by the next day.

By 23 August the 1st Brigade casualties had reached a point where the brigade commander made an appeal for volunteers from supporting units to serve temporarily in rifle companies, with the privelege of returning to their former combat service support status after the emergency. The hearty response was a tribute to Marine morale as well as Marine basic training which made every Marine a rifleman. Engineers, shore party troops, and headquarters personnel came forward in such numbers that some could not be accepted when the initial Marine replacements arrived from the U.S.

By 5 September 1950 the North Korean forces investing the Pusan Perimeter had been defeated in the 2d Battle of the Naktong River and the 1st Provisional Marine Brigade was pulled from the lines to board amphibious shipping to take part in the Inchon landing with the 1st Marine Division.

B. Inchon - Seoul Campaign

The Landing Plan for Inchon assigned rear area support functions to the 1st Shore Party Battalion, the 1st Amphibian Tractor Battalion, and the 2d Engineer Special Brigade, U.S.A. This latter unit was designated to furnish ships platoons and augment Division Shore Party. After landing, the Army special engineer brigade was to assume operational control of Division Shore Party and resposibility for control of all port operations. Elements of the Marine Aircraft Wing (MAW) were initially positioned at Itami, Japan with individual squadrons designated to move to Kimpo airfield when that site became operational.

The landing at Inchon proceeded as planned and the beachhead was secured by D+1 with the 1st Shore Party Battalion, 1st Combat Service Group, the 7th Motor Transport Battalion, and the U.S. Army 2d Engineer Special Brigade working through the night under floodlights to unload supplies, equipment and personnel. As early as D+1 the Army Engineer Second Brigade had rounded up Korean train crews and had put the Inchon-Seoul railroad line into operation. By D+4 the first train carrying 1200 Marines was dispatched over the 5-mile distance from Inchon to Ascom City. By the afternoon of D+1 the 1st Division CP had landed and was established on the ouskirts of Inchon. A Korean Marine Corps (KMC) regiment attached to the landing force was given the task of handling the Korean civilians who had fled the pre-landing bombardment and were returning to their homes. Loyal Korean officials were installed as the local government authority and steps were taken to bury the civilian dead, to care for the orphans, to distribute food and clothing to the population, and to establish a civilian hospital and a police force to maintain law and order in the rear area. The KMC regiment detailed one of its battalions to remain in Inchon to perform police duties as the landing force attack continued towards Seoul. (See Figure VIII-D-6).

On D+4 three attack squadrons and 251 Marines of the Headquarters Squadron began landing at Kimpo airfield together with other Wing elements to begin operations. This force totaled 295 officers and 1,756 enlisted personnel.

On 21 September 1950 the X Corps CP was established at Inchon and responsibility for the rear area fell to the U.S. Army. The major vital installation for which the 1st Marine Division retained responsibility was Kimpo Airfield . The 2d Bn, 7th Marines was assigned to provide security for the airfield from hill positions one mile to the north to include a crossing site on the Han River. On 21 September intelligence reported an estimated two battalions of the NKPA were poised to attack Kimpo airfield from the north through positions occupied by the KMC regiment. All Kimpo units were alerted to the possibility of attack. The Commanding Officer, 1st Shore Party Battalion was designated as coordinator of defensive forces at the airfield consisting of his unit, and elements of the 1st

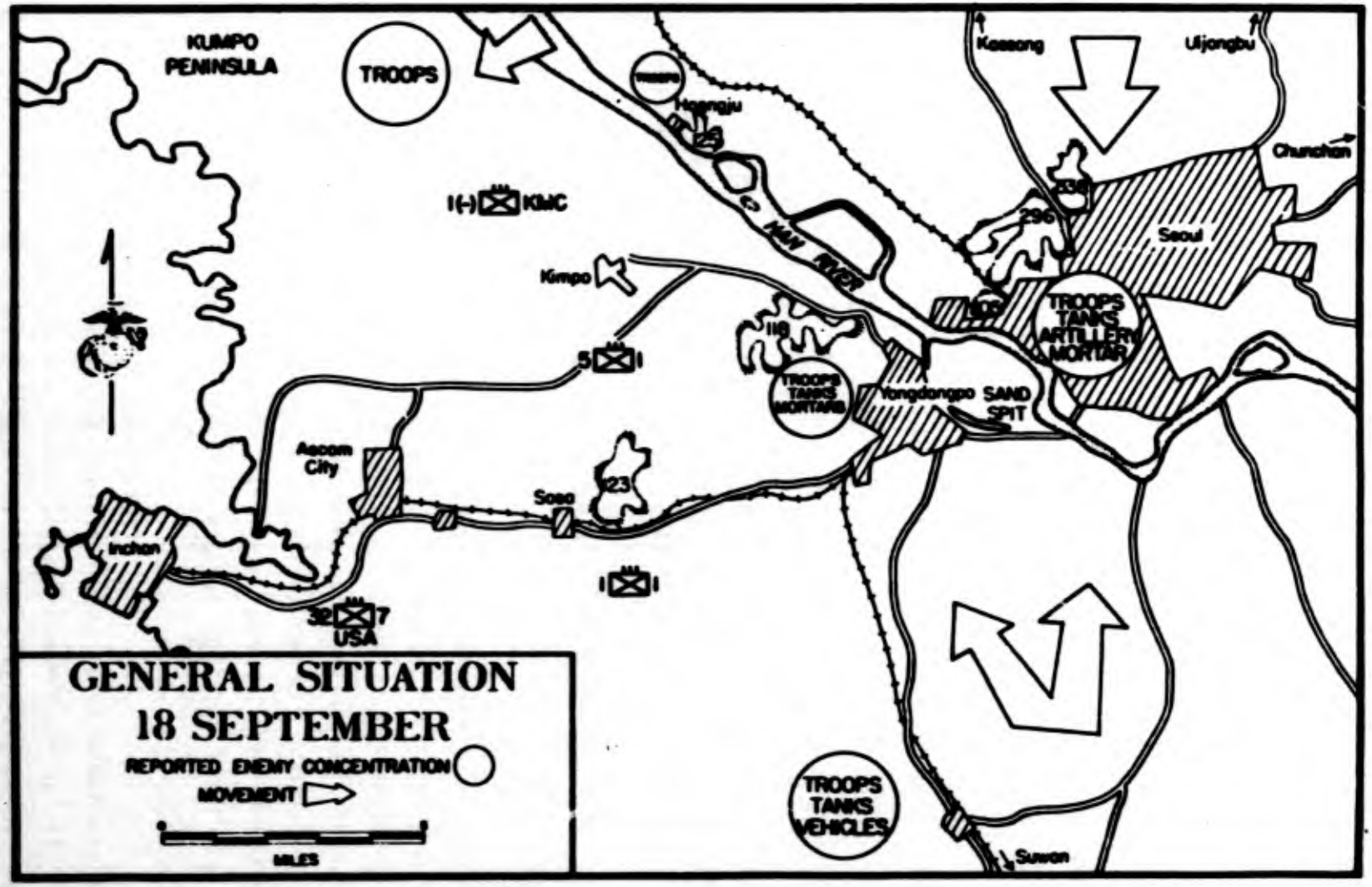


Figure VIII-D-6

GENERAL SITUATION 18 SEPTEMBER

Engineer Battalion, 1st Tank Battalion, 1st Ordnance Battalion, and 1st Amphibian Tractor Battalion. Army troops of the 56th Amhibian Tractor Battalion were also ordered to Kimpo to augment the defenses. No attack materialized in the vicinity of the airfield, however the KMC regiment did launch attacks north of the airfield to preempt enemy plans and wipe out company-sized NPA elements positioned there.

As the 1st Division continued its attempt to seize Seoul, responsibility for protecting the landing force left (north) flank and the Kimpo airfield fell to the US Army 187th Airborne Infantry. After the fall of Seoul the 1st Division relieved the Army unit of clearing up the Kimpo Peninsula and guarding approaches to the airfield with a composite force known as Task Force Kimpo. This unit consisted of the 3d KMC Battalion, Battery C, 50th AAA Battalion, U.S.A. plus a 5th Marines rifle company and a tank detachment.

C. From The Landing at Wonsan to The Withdrawal From Chosin

Tasks assigned to the 1st Marine Division as part of the X Corps operations at Wonsan included seizing and securing X Corps base of operations at Wonsan, protecting the Wonsan area and furnishing logistic support of all units ashore until relived by the X Corps.

Before the landing at Wonsan and the Division's rapid advance to the north, Division supplies and required combat service support personnel were orgainzed into mobile supply trains. Pre-loaded trucks and trailers were assigned to each Regimental Combat Team (RCT) with a plan to stay on the heels of attacking regiments in order to maintain ammunition dumps as far forward as posible in a fast moving situation. By the time the front line units of X Corps arrived at the Yalu River, the supply line from Wonsan to the Chosin Reservoir extended 160 miles. (See Figure VIII-D-7.)

On 9 November the Division's Combat Service Group was attached to X Corps at Wonsan for operational control. In this capacity it assumed responsibility for operating all port facilities, unloading all X Corps elements, transporting all equipment and supplies to inland dumps, casualty

Figure VIII-D-7

AREA OF OPERATIONS 1ST MARINE DIVISION

evacuation, maintenance of an airhead at Wonsan Airfield, traffic control in the port and its envions, providing field maintenance for all units in the Wonsan area, and providing local security.

Included in the defense of the Wonsan airfield and harbor area were the 1st Shore Party Battalion, the 1st Amphibian Tractor Battalion, and a company of the 1st Armored Amphibian Tractor Battalion. At the airfield, VMFs 214 and 323, VMF(N) 513, VMO-6, Headquarters Squadron, MAG-12, and Service Squadron (VMS)-12 were established and contributed to their own security while conducting close air support missions for X Corps to the north. As the buildup of Army and Marine units proceeded in the WONSAN sector, an entire Marine infantry battalion was assigned the mission of providing the outer perimeter security in the area.

On 28 October 1950 the 1st Marine Division left the Wonsan area and proceeded along the 78 mile Main Supply Route (MSR) to Hamhung. One tank company was assigned to establish blocking positions at three major road junctions on the MSR while a rifle company was designated to protect an Advance Supply Depot at Yonpo Airfield, five miles southwest of Hamhung. The 1st Marine Division, during this period was essentially engaged in protecting the MSR as X Corps elements maneuvered north to continue the advance to the Manchurian border.

As the Division swung northwest, its advance generated a 78 mile MSR from Hungnam to Yudamni that traversed 45 miles of rolling flatlands and 35 miles of mile high mountains until it descended through 4,000 foot Toktong Pass to the broad valley where Yudamni is situated (see Figure VIII-D-8). The 3d Infantry Division, USA, was assigned responsibility for the X Corps rear area. Combat Service Support units accompanying the Division in the advance along the MSR included the 1st Motor Transport Battalion, the 1st Medical Battalion, and attachments from the 1st Surgical Battalion, 1st Service Battalion, and Division Military Police Company.

By 28 November the 5th and 7th Marine Regiments were deployed near the Chosin Reservoir and Yudamni. The Division CP and rear area were in

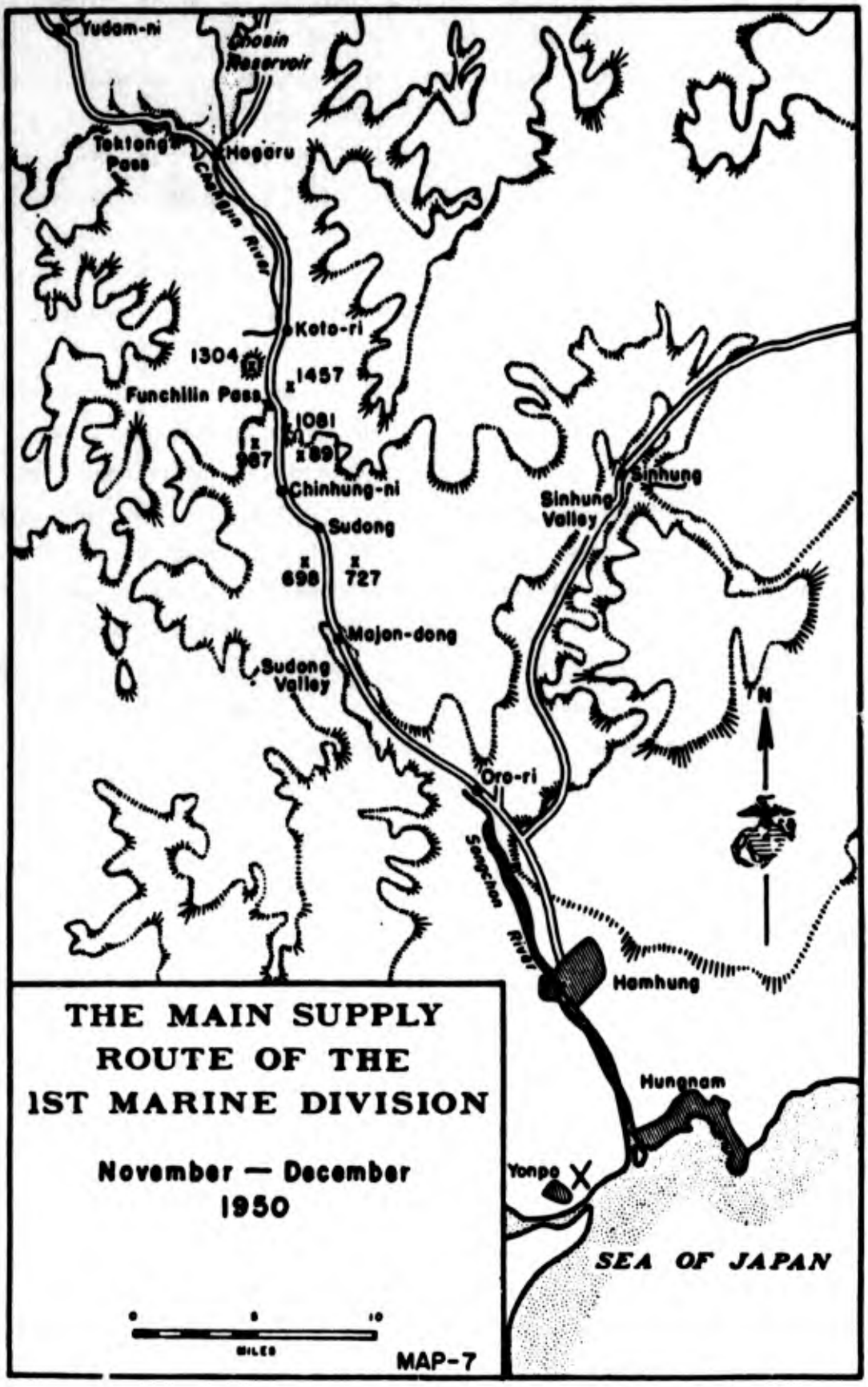


Figure VIII-D-8
THE MAIN SUPPLY ROUTE OF THE 1ST MARINE DIVISION

position at Hagaru 14 miles south of Yudamni while the 1st Marines held position at Kotori, 14 miles south of Hagaru. At Hagaru a C-47 airstrip was under construction by engineer units while the 1st Service Battalion received and stocked supplies for the Division. A reinforced infantry battalion was assigned the task of establishing the perimeter defense of Hagaru. On that same day information was received of the entry of Chinese Communist forces (CCF) into the Korean conflict and the withdrawal of the Eighth Army and ROK Army from the 1st Division's left flank. The two forward regiments were attacked on the night of 28 November by several CCF divisions and the epic battle of the Chosin Reservoir had begun.

At Hagaru the Commanding Officer, 3d Battalion(-), 1st Marines was assigned as Base Defense Commander by the Division Commander. With over 4 miles of a perimeter around Hagaru to defend, it was evident that the 3d Battalion, 1st Marines, less one rifle company that had been unable to join the battalion from Kotori, was not strong enough to man the entire perimeter. The newly assigned defense commander called a meeting of all unit commanders then operating in the Hagaru complex. No one knew what units were in Hagaru since there were numerous small elements such as detachments, advance parties, etc of which a number were X Corps and ROK units. The end result was that the S-1 and his assistants traveled the Hagaru complex acting as "town criers" to announce the critical meeting of unit commanders. In this way most major unit commanders were advised and attended the critical conference. The process of locating and identifying smaller units was, after this, a continuous process that was never completely accurate.

CO, 3/1 concentrated his battalion in the southeast sector of the perimeter, the direction from which the main CCF attack was expected. Starting at the "top" or northeast sector (see Figure VIII-D-9), the other units in the perimeter were AT Company, 7th Marines; Detachment, 1st Service Battalion; Det. Headquarters, X Corps; D Company, 10th Engineer Battalion, U.S. Army; Signal Battalion, X Corps; Weapons Company, 3/1 covering the road to Kotori; D Company, 1st Engineer Battalion, 1st MarDiv; and D Battery, 2/11. On the western side of the perimeter were H Battery, 3/11 with cannons prepared to fire anywhere on a 270° arc around

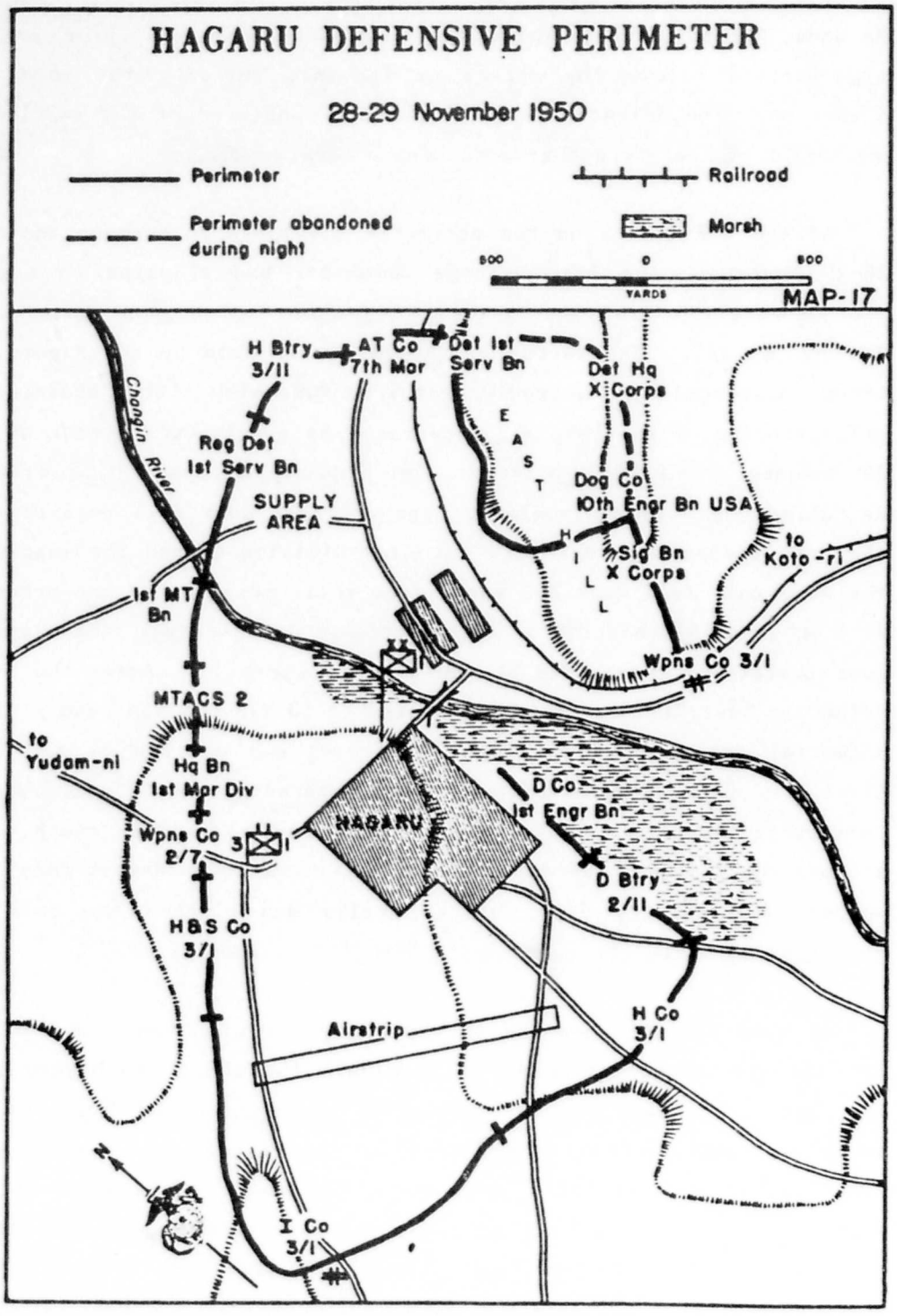


Figure VIII-D-9

HAGARU DEFENSIVE PERIMETER

the perimeter; a detachment from the 1st Service Battalion guarding the supply area; elements of the 1st MT Battalion; Marine Tactical Air Control Squadron 2 (MTACS-2); Headquarters Battalion, 1st MarDiv and Weapons Company, 2/7, which had not been able to join its parent organization before the attack on Yudamni, covering the road in that direction. The defense battalion reserve consisted of any service troops who could be hastily gathered to meet an emergency.

As the CCF attack on the perimeter developed throughout the night of 28-29 November, the Base Defense Commander had occasion to organize a platoon-strength group of X Corps signalmen and engineers to reinforce Company H, 3/1. The sector of the perimeter held by the Hagaru service troops augmented by some newly recruited ROKs with little training and no understanding of English, was penetrated by a heavy CCF attack at 0230 on 29 November. At this point in the perimeter Company D, 10th Engineer Battalion, USA was overwhelmed. The critical East Hill position lost by the unit opened a direct path into the Division CP and the supply dumps. The Army unit fell back 250 yards from their position on the crest of the hill while a thin barrier of service troops with several tanks and machine guns positioned themselves at the base of the hill. Among the Americans defending East Hill caualties ammounted to 10 KIA, 25 WIA, and 9 MIA. The potential disaster to the Hagaru defenses was averted by two factors. First, the CCF attack on East Hill was apparently only a secondary effort to support the main attack against the perimeter from the south. The CCF stopped their attack and appeared to be content to hold what they had won. Second, How Battery 3/11 shifted trails and plugged the hole in the perimeter on East Hill with direct fire from its howitzers.

At 0530 the CCF assaults on the Hagaru perimeter were halted and the Base Defense Commander moved to eliminate the threat to Hagaru from the CCF position on East Hill. A composite company-strength force of Marine, Army, and ROK service troops, some of them stragglers from the night's withdrawal from East Hill, was constituted under the command of the 3/1 executive officer. Most of the personnel were strangers to one another as well as to their officers and NCOs. The largest Marine group was the platoon led by the assistant operations officer of the 1st Engineer

Battalion. Clerks, typists, and truck drivers were included. This company was joined by Company D 1st Engineer Battalion. Together, these two companies, armed with carbines or M-1 rifles and two grenades each, counterattacked to retake the critical hill. The composite force of service troops managed to gain the military crest of the ridge and one spur against determined enemy resistance. Here the unit established a defensive line to wait for support. It was provided by HOW Battery firing volleys of point detonating and proximity bursts directly at CCF positions on top of the hill.

In the final reckoning, a bob-tailed infantry battalion, two artillery batteries, and an assortment of service troops had stood off a CCF division of three regiments reinforced with mortars and some horse drawn artillery.

Other service troops including signalmen, clerks, cooks, truck drivers and military policemen of the Division headquarters gave a good account of themselves when surrounded by CCF forces as they attempted to reinforce Hagaru from Kotori. At a position on the MSR halfway between Kotori and Hagaru, a relief column comprised of the elements shown in Table VIII-D-1 was attacked by overwhelming CCF forces and substained the losses indicated:

Table VIII-D-1 Casualties to Reinforcing Elements

Units	Estimated Strengths	KIA/MIA	WIA	Vehicles Lost
41 Ind. Commando RM	235	18	43	-
Co G 3/1	205	8	40	-
Co B 31st Infantry USA	190	100	19	22
Det, Div Hq Bn	62	25	25	18
Det, 1st Sig Bn	8	4	2	-
Det, 7th MT Bn	12	3	3	4
Det Serv Co, 1st Tank Bn	18	5	6	30
Co B(-) 1st Tank Bn	86	0	12	-
Co D(-) 1st Tank Bn	77	0	5	1
Tank Plt, AT Co, RCT 5	29	0	1	-
	922	162	159	75

Throughout the battle for Hagaru on 28-29 November, 1950, 1st Engineer Battalion personnel continued work on the airstrip even at night under floodlights. They interrupted their work only when required to pick up their rifles to help plug a gap in the perimeter or join in routing those few CCF infiltrators who managed to get through the lines.

The remainder of this phase of the Korean campaign involved the breakout of the 1st Division from Hagaru to Hamhung and the evacuation by sea. During the breakout from Hagaru to Kotori, the Division supply trains followed in trace of the 7th Marines. Service troops in this segment of the formation often saw more action than the infantry. CCF units allowed the infantry to pass then closed in behind them to attack the flanks of the supply convoy. The convoy of the Division Headquarters Company also had to fight its way south. Small arms ammunition was issued throughout the column, and light machine guns were mounted on top of truck loads. All able-bodied men, with the exception of drivers and radio operators, walked in single file on either side of the vehicles which carried the wounded. When attacked by the CCF, headquarters troops deployed in roadside ditches while machine guns manned by Division bandsmen kept the Chinese at a distance. The MP Company, just forward of the Headquarters Company, had the problem of guarding 160 Chinese prisoners. When attacked by CCF the POWs attempted to escape and 137 were killed as both Marine MPs and CCF attacking elements fired at them. These service troops suffered the highest percentage of casualties on the march from Hagaru to Kotori with 15 killed and 117 wounded. By 24 December 1950 the entire 1st Division was embarked aboard amphibious shipping heading for Pusan.

D. The Move to the West Coast

On 16 March 1952, as part of Operation MIXMASTER, the 1st Marine Division and attached KMC regiment motormarched 140 miles in increments from the east to the west coast of Korea. The Division became the left flank unit on the Main Line of Resistance (MLR) of the Eighth Army. As a temporary measure, a battalion of the Division reserve was assigned to defend the Kimpo Penninsula where an extensive support and supply area had been established. Major logistic facilities were the Division airhead at K-16 airfield just southwest of Seoul and the railhead at Munsan-Ni 25 miles northwest of the capital city and about five miles to the rear of the Division sector at its nearest point. Other vital installations on Kimpo penninsula included the key port of Inchon, the logistic complex at Ascom City and the Kimpo Airfield (K-14). All of these facilities were indispensable to the UN Command. (See Figure VIII-D-10)

To improve the security of this rear area, CG, 1st Marine Division formed the independent commands located on the Kimpo Peninsula into the Kimpo Provisional Regiment (KPR) with a Marine colonel as its commander and a small headquarters to function in a tactical capacity without major administrative duties. The forces that comprised the KPR are shown below:

1st Amphibious Tractor Bn

5th KMC Bn

13th ROK Security Bn

Reconnaissance Co (-), 1st MARDIV

Det, 181st CI Corps Unit, USA

163rd Military Intelligence Service Det, USA

Co A, 1st Armored Amphib Tractor Bn

Co B, 1st Shore Party Bn

Co D, 1st Medical Bn

Det, ANGLICO, 1st Signal Bn

Det 6th Eng Searchlignt Co., USA

In addition to maintaining security of the Division left flank, the KPR was tasked to protect supporting and communications installations in that sector against airborne or ground attack. The KPR commander divided the Kimpo Peninsula into a northern and a southern sector which were

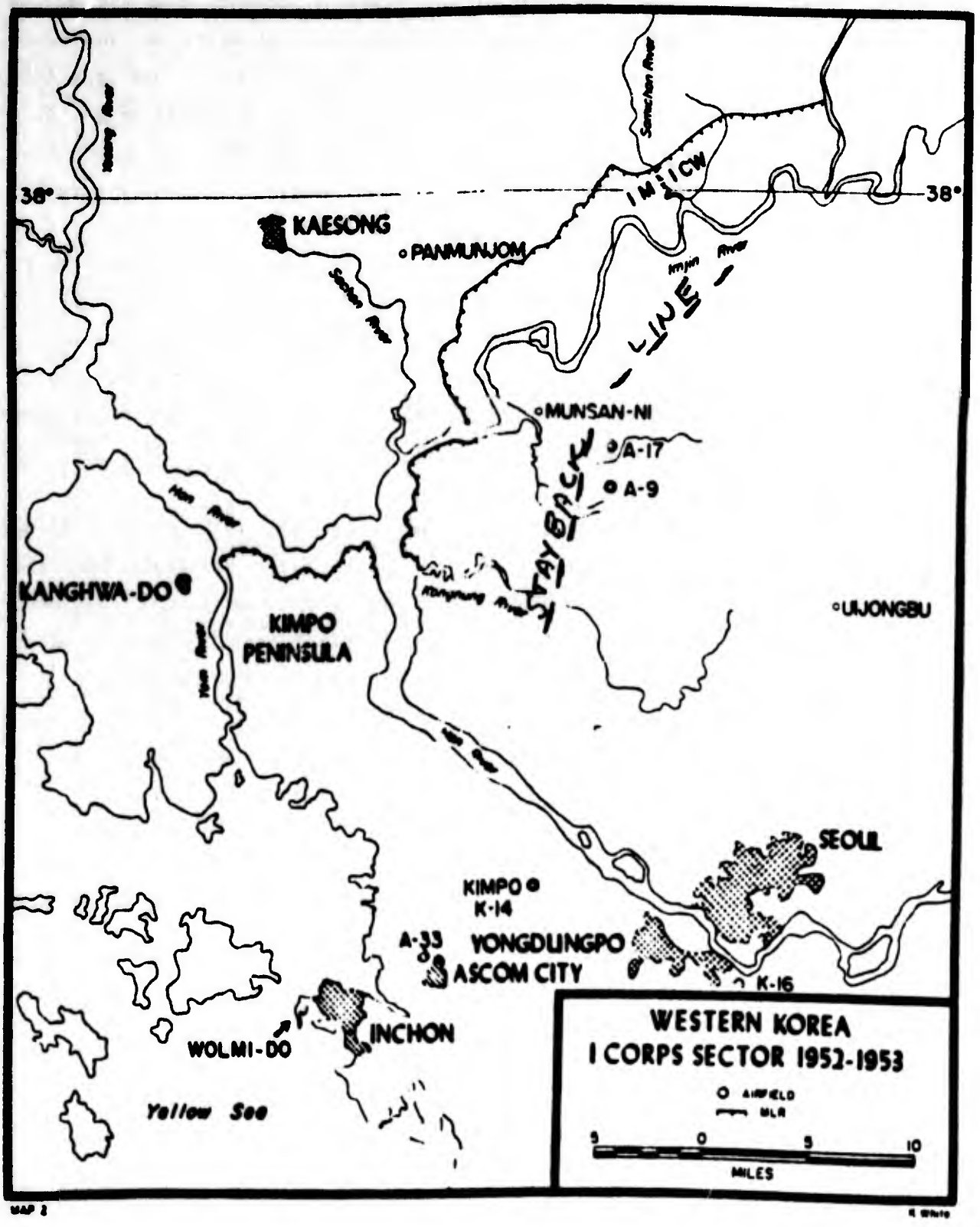


Figure VIII-D-10

WESTERN KOREA

assigned to the two ROK battalions. An amphibian tractor platoon secured traffic along the Yan River that flanked the western part of the Peninsula. The 1st Marine Division reserve battalion provided flexibility to the defense as a reaction force when needed. The ROK security battalion, assigned the southeastern part of the peninsula provided protection to Kimpo airfield while all sector commanders were charged with providing security to supply and communications installations in their areas.

Elements of the 1st MAW were located at several airfields well to the south of Seoul and at Itami airbase in Japan. Major defense forces assigned to the 1st MAW at its major base at K3 rear Pohang, South Korea included a provisional automatic weapons battery from MAW Air Control Group-2 and the 1st 90 mm AAA gun battalion based at Pusan.

Control of civilians in the Division rear areas initially proved to be a problem on the west coast. In eastern Korea all nonmilitary personnel had been evacuated from the Division rear area. This had not been done in the Division's western sector by the former occupants of the MLR, the 1st ROK Division. Prior to displacing westward the 1st Marine Division requested and was authorized to establish a line seven miles to the rear of the MLR beyond which no nonmilitary Koreans were allowed to move without special authority. This line called the Stayback Line was manned by Military Police who set up checkpoints and instituted roving patrols to enforce Division controls over civilian movement in this rear area. Civilians living in areas forward of the Stayback Line were removed to the rear and prevented from moving forwrd of the line until August 1952 when a controlled passage system was established.

The 80,000 civilians who resided on the Kimpo Peninsula placed heavy demands on KPR personnel to control the civilian population and regulate traffic, especially water travel. The KPR was aided in this effort by the Korean National Police who set local restrictions on civilian movement on land and on the river. Attempts by North Korean line-crossers to infiltrate the Kimpo Peninsula were uniformly unsuccessful as a result of

24 hour surveillance and patrols established by both the KPR elements and the National Police.

E. Stabilized Warfare

From this point to the end of the war in July 1953, the Division and its rear area units maintained a defensive position along the 38th parallel. While the infantry regiments manned the MLR, rear area support units supplied the front line battalions with material obtained from U.S. Army logistic agencies that had responsibility for operations in the Communication Zone (COMZ) established by the Eighth Army to the rear of the MLR. Except for sporadic engagements with individual line crossers and infrequent raids on supply dumps by marauding Korean bandits, the rear area was relatively secure. A concentration of military police units, Korean national police units and the interior guard force established by each major rear area installation proved sufficient to maintain facility security and control the civilian population in the rear area.

IV. Rear Area Security During the Vietnam Conflict

A. Defense of Da Nang Airfield 1965-1966

By June 1965, two strategies were being debated concerning operations in South Vietnam. One strategy, that adopted by the U.S. Army, emphasized mobile operations. U.S. troops should not only go to the rescue of beleaguered South Vietnamese (RVN) forces, but should also conduct search and destroy operations, actively and aggressively seeking out the Viet Cong (VC)/North Vietnamese Army (NVA). The other, adopted at the time by the Marine Corps and based on the ink-blot theory, held that U.S. Forces should establish coastal enclaves, such as Da Nang, and from these reach out in carefully conducted clear and hold operations. This debate on operational strategy was of more than academic interest since the first mission given to Lieutenant General Walt, CG, III Marine Amphibious Force (MAF) was to defend the Da Nang Air Base.

Through 1965 the situation in I Corps Tactical Zone (ICTZ) dictated the adoption of the latter strategy in the performance of the assigned mission. In just a few years prior to 1965, the air field at Da Nang had grown from a provincial airport to a major air base, a heterogenous collection of activities - some military, some civilian, some Vietnamese, some American - clustered around a single 10,000-foot runway, oriented just a little west of due north and south. (See Figure VIII-D-11)

On the east side of the field were Vietnamese and U.S. Air Force units, most of the hangers and shops, the terminal of Air Vietnam, and Vietnamese Armed Forces dependents' housing. This civilian housing area merged with the city of Da Nang further to the east. Off the north end of the runway there was a narrow stretch of rice paddy, then the beach and the bay. On the west side were the Marine helicopter units, headquartered and billeted in a complex of crumbling old French barracks. Mixed in with them were an RVN armored unit plus bits and pieces of other RVN units. Just beyond the wire on the west side, where Highway 1 and the railroad ran north and south, there had mushroomed what the Americans called "Dog Patch" - a collection of bars, laundries, tailors, photographers, and souvenir shops.

South of the field was about a mile of rural area, and then the Song Cau Do River which flows from southwest to norcheast. A bridge carried the tracks of the railroad and alternate Route One across this river. Except for a narrow strip along Highway One, the territory south of the river was pure VC, and aircraft approaching Da Nang had to run a gauntlet of fire from VC small arms.

The perimeter enclosing the airbase had grown since the time of the French. It consisted of a ring of dilapidated concrete blockhouses, interspersed with 14 watchtowers (approximately 1,400 meters apart), a perimeter lighting system of unreliable performance, and belts of rusting barbed wire with, here and there, triangular tin signs marking minefields left by some previous defender. Pressing close to the wire was a rabbit warren of Vietnamese dwellings, some substantial but most made of tin, thatch and cardboard. Just before the Marines arrived, it was decreed

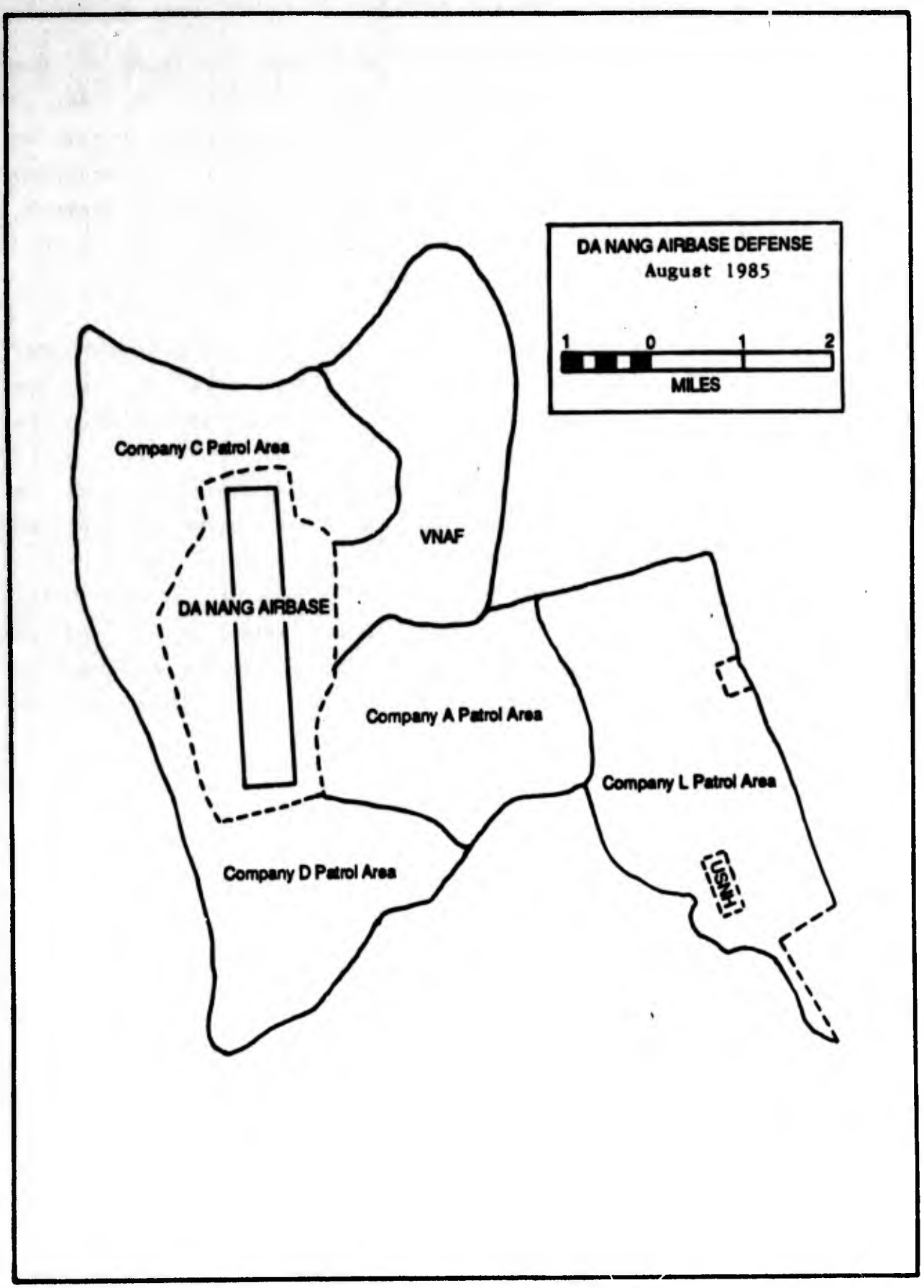


FIGURE VIII-D- DA NANG AIRBASE PATROL AREAS

Figure VIII-D-11

that this warren must be cleared out to a depth of 400 meters, so that a kind of cordon sanitaire could be established around the base, but this involved relocating some 7,000 persons and would take months to accomplish.

From this confused, congested airfield, virtually every kind of tactical and transport aircraft in the U.S. inventory was being operated. With all these tempting, soft skinned targets available to the VC, it was of concern to the Marine defenders that, just beyond the wire and well within mortar range, there lived some 250,000 Vietnamese of varying political inclinations.

On 1 July 1965, a VC mortar and ground attack on the Da Nang airfield exposed the vulnerability of the base and its surroundings to enemy hit-and-run tactics. The Communists had carefully planned and rehearsed this operation for over a month, taking advantage of the fact that the entire area south of the perimeter fence was the responsibility of RVN forces. On the night of 30 June, an 85-man enemy force, armed with automatic weapons, demolitions, grenades, one 57mm recoilless rifle, and four 81mm mortars manuevered toward the airbase from the south. The attack force, a VC special operations company and a mortar company, reinforced by an NVA sapper team, reached the southeastern perimeter of the base by midnight. At approximately 0115, 13 men of the demolition team tunneled under the outer defensive wire, crossed the open area, cut a hole in the inner perimeter fence, and poised for attack.

The 1st Battalion, 9th Marines (1/9) was responsible for airfield defense. All four companies and the battalion CP had been located on the airfield, but earlier in June, General Walt chose to use 1/9 in a more offensive role. As a result, Companies B and D, and most of Headquarters and Service Company had been moved to a base area south of the city to begin a series of sweeps further to the south. Two companies, A and C, augmented by troops of the AT Bn and MAF Logistic Support Group units provided the defense of the airfield proper. Companies A and C were responsible for the same area that the entire battalion had previously covered, resulting in positions that were spreadout. Gaps were covered by

roving sentries. This was the situation in the area penetrated by the sappers.

The night of 30 June had been quiet, with the exception of two minor probes on the extreme western portion of the Marine tactical area of operations (TAOR). About 0130 on 1 July, one of the Marine sentries near the fence heard a suspicious noise and threw an illumination grenade. At the moment the grenade burst, the enemy opened fire. Under the protection of concentrated covering fire and grenades, the sappers breached three strands of wire and ran on to the airfield. Some of the infiltrators managed to throw their satchel charges under Air Force aircraft, destroying an F-102 and two C-130s, and damaging two F-102s and one C-130. Two squads of Marines from Company C reacted to the attack to reinforce the sentries on post.

In the few minutes it took for the additional Marines to arrive, the sappers were already withdrawing in the same direction from whence they had come. As the reinforcing squads approached the southern fence, enemy small arms fire wounded two of the Marines. A 57mm shell hit the top of a concrete bunker and wounded the sentries inside (3 WIA's). During follow-up actions on 2 July, 14 suspects were detained, one of which turned out to be the intelligence officer of the sapper team who identified his parent unit as the 3d Battalion, 18th NVA Regiment.

Although the damage at the airfield was not extensive and there were few casualties suffered on either side, the spectacular nature of the VC/NVA attack caused world wide publicity and renewed command attention to the vulnerability of American bases. General Walt was forced to make significant adjustments in the disposition of his infantry units around Da Nang.

While the 3d Marines retained operational control of a battalion at Phu Bai and responsibility for the defense of the western and southwestern perimeters of the Da Nang Base, General Walt assigned the defense of the airfield and southern portion of the TAOR to the 9th Marines. 1st Battalion, 9th Marines was retained as the airbase defense battalion but

reverted to parent unit control, while 2d Battalion, 9th Marines (2/9) was given the responsibility of expanding Marine control to the south.

Shortly after the attack on the Da Nang Air Base, in order to free 1/9 from a static role on the air base itself, General Walt ordered the establishment of a provisional air base defense battalion to be formed from the personnel of the various combat service support units at Da Nang. The provisional battalion was to be organized as a conventional infantry battalion with a headquarters and service company, four rifle companies, and a total strength of 38 officers and 911 enlisted men. On 19 July this new command was activated and relief of 1/9 was completed by 1 August.

The formation of the provisional base defense battalion released infantry companies from the airfield security mission, but the organization had a debilitating effect on the support units of III MAF, from which the personnel were drawn. Too many specialists needed on their own jobs were serving as infantrymen. On 17 July, the prospective commander of the provisional battalion recommended against the activation of his command. He argued that "the overall effect of the creation of the Provisional Base Defense Battalion is uneconomical from the point of view of personnel, equipment, and airfield security." Although this recommendation was rejected, it soon became apparent that he was right. He recalled that during General Walt's 7 August morning briefing, the commanding officer of the 3d Motor Transport Battalion reported that a significant number of vehicles were deadlined for lack of drivers or for required maintenance. It seems the drivers and mechanics were TAD (temporary additional duty) for their 60 days with the ADB (airfield defense battalion). General Walt decided to deactivate the provisional battalion.

Although the order to deactivate came on 7 August, the provisional battalion remained in existence for two more weeks, sharing the airfield defense mission with two companies from 1/9 and later with the newly arrived 3d Battalion, 9th Marines (3/9). The 3d Battalion assumed the

entire mission of base defense on the formal deactivation of the provisional battalion on 22 August.

As the size of Marine and RVN forces grew in the Da Nang area, the lack of unity of command encumbered by overlapping American and Vietnamese authority, continued to be a major barrier to effective security. As a result, III MAF assumed responsibility for tactical defense for the airfield, which involved the continued assignment of an infantry battalion to man perimeter positions and to patrol outwards. Each of its four companies was assigned a defensive sector of from 2,100 to 3,400 meters. The other part of the defense was internal security and, in accordance with accepted military practice, each tenant unit was charged with its own local security provided by an interior guard. A joint defense communications center was also established to keep the tenants and tactical units in contact with each other. From August 1965 until Spring 1966, battalions of the 9th Marines were rotated to serve six-week to two-month tours as the Air Base Defense Battalion, an assignment that was less dangerous, but in many ways more tedious and exacting, than combing the rice paddies and surrounding hamlets.

During this period, several techniques were introduced to ensure the security of the airfield. These included the use of dogs and sophisticated electronic devices. The Marines learned that the dogs were most effective when employed in remote areas where few people worked or lived, such as the LAAM battery site on secluded Marble Mountain, but proved to be unsatisfactory at the ammunition supply point where Marines worked around the clock. The continuous activity only confused the dogs. Seismic intrusion devices (SIDs) were found to be useful in spite of some getting used to.

In summation, firming up Da Nang's defense force consumed about 15 months. Defense at first was assigned, depending on who was available, to the infantry battalions of III MAF and available RVN forces. To free them from this static role, a provisional battalion was formed in July 1965 of men from various logistic support units. This procedure so weakened support services that it was ended after 35 days, forcing infantry

battalions on a rotating basis to resume the defense job until June 1966. At that time, the 1st Military Police Battalion arrived from CONUS and assumed the base defense mission permanently. This unit had been expressly equipped, trained, and organized for the task.

B. Raid on Marble Mountain and Chu Lai 27-28 October 1965

Despite the Marines' extension of their TAOR the enemy still had the ability to mount well coordinated hit-and-run attacks, similar to the 1 July Da Nang raid. On the evening of 27-28 October, the VC/NVA forces struck the newly built Marble Mountain helicopter facility south of Da Nang, and the SATS field at Chu Lai. The two facilities were separated by approximately 60 miles.

Prior to the attack the Commanding Officer, MAG-16, had been designated as the Marble Mountain Coordinator for Defense. The Defense Coordination Plan (dated 10 Oct 1965) involved not only MAG-16 but also Navy Mobile Construction Battalions (NMCB) 8 and 9 and the United States Naval Hospital (USNH). The purpose of the plan was to:

- Prevent mutual interference
- Facilitate the exchange of information
- Provide mutual support by coordinating and reinforcing fields of fire and by establishing special lines of communications.

The MAG-16 defensive posture supporting this plan consisted of:

- 15 machine gun positions
- Foot patrols between machine gun positions
- 75 men assigned to perimeter security
- 25 men assigned to internal security
- 30 men assigned to damage control
- Each squadron provided a provisional company designated as a reserve force

- All units were connected by a telephone alert system.

Defensive dispositions around the Chu Lai airfield were similar, consisting of:

- Two distinct perimeters, one outer and one inner
  - Outer - One infantry battalion headquarters and two rifle companies
  - Inner - Twelve provisional companies organized from MAG-12, 2d LAAM Battalion, and NMCB-10

- 146 men assigned to flight line security and interior guard duties.
  - The aircraft parking area had three men posted for every six aircraft.

On the night of 27 October a VC raiding force (90 men) which had been well trained and was resolute in its purpose, quietly assembled in a village northwest of the helicopter facility occupied by MAG-16. This attack position was adjacent to a Seabee camp which the VC engaged with 60mm mortar fire. At least four demolition teams moved out to attack the airfield and the nearby hospital. The main service road adjacent to the airfield had been mined so as to prevent reinforcements from responding to the attack. Forty-one VC were killed, but six armed with bangolore torpedoes and bundles of grenades penetrated the MAG-16 parking area. They destroyed 18 helicopters and damaged 35, destroyed 2 vehicles and damaged 5, and destroyed 15,000 sq ft of matting. Raiders also got into the nearly completed hospital across the road and did considerable damage. During the enemy engagement four Americans were killed and 108 were wounded. The MAG-16 commander later estimated that the destruction of the helicopters at Marble Mountain resulted in a 43 percent loss of division mobility and put a crimp in division plans for several months.

The same night that the Marble Mountain facility was attacked, about 15 raiders slipped through the lines onto the Chu Lai airstrip to conduct what was thought to be a diversionary attack. Most of them were killed or

captured before they reached MAG-12's flight line. Even though they were poorly trained, two VC did get to the A-4s with satchel charges, destroying two and damaging six before they were cut down. Two support vehicles, also suffered major damage.

After the raids on 27-28 October at Marble Mountain and Chu Lai, the following measures were initiated or added at both facilities to enhance their security:

- Permanent barriers
  - Double-apron barbed wire and cyclone fences
  - Mine fields
  - Electronic intrusion detection devices
  - Counter mortar radar
  - Watch/guard towers

- Additional infantry units
- Stepped up patrol and ambush activity beyond the perimters of both facilities

It had been a bad night at Marble Mountain and Chu Lai but, when morning came, it appeared that there was something to be thankful for. A larger attack against Da Nang itself had been averted. During the night, a VC battalion was located 10 miles west of Da Nang, brought under artillery fire, and dispersed. About the same time, eight miles south of Da Nang, a VC company stumbled into a Marine squad-sized ambush, ran into a sheet of fire, and fell back leaving 15 dead on the trail. Apparently the patrol had ambushed a VC company moving to attack the Da Nang Air Base. This assessment is supported by the fact that the company was moving in the direction of the airbase, and the time and distance factors were such that if they had not been intercepted they would have been in position to attack the Da Nang Air Base about the same time that the attack on the Marble Mountain Air Facility was launched.

A N N E X E

Annex E

STEELTHRUST

I. Description of Game

STEELTHRUST is a manual war game-based training system designed to enable the Marine infantry battalion commander and his staff to make critical battlefield decisions and to experience the results of these decisions during a realistic, real-time combat situation. The game simulates threat tactics, permits the use of scenario events not represented in field exercises, and trains commanders of maneuver companies as well as the battalion commander and his staff.

While the game results are not intended to be predictive they are based on realistic estimates of weapons effects in different tactical situations. Probability tables and random number generators (dice) are used to simulate the complexities of combat at the platoon and company level so that results of encounters represent average or expected value outcomes. In its training mode the game requires a total of from 20 to 28 controllers to exercise a battalion staff. For the analysis application in this study only two people used selected parts of the game. Therefore, many modifications to game procedures were made and short cuts taken.

Of the four components of the game, only the War Game Simulation Component was used. This component, which contains the rules of the game, was further modified by dispensing with the dice and using selected probabilities directly from the combat results tables to determine outcomes of exchanges of fire. The three step process of evaluating the results of engagements - observation, fire resolution, and casualty assessment - was modified to two - fire resolution and casualty assessment. Also, only ground movement was played.

II. Analytical Application

The following description of the steps taken in the application of STEELTHRUST to the RAS problem presents a detailed account of how this

game was used to identify critical factors in the calculation of relative combat power between specific attacking and defending units in a RAS situation.

A. For purposes of analysis it was postulated that a Soviet airborne company mounted in BMDs was attacking a USMC rear area installation of some sort in open terrain (see Annex B, The Threat, for details on the organization and equipment of a Soviet airborne company). The defending friendly forces were assumed to be in prepared positions.

B. Since the movement rate for tracked vehicles in open terrain is 1500 meters per combat segment of the game (game rules), the combat strengths of both the opposing force (OPFOR) and the USMC force were examined at all ranges from 0-1500 meters in the respective Combat Strength Tables (Tables J on USMC and OPFOR Maneuver Unit displays Figures VIII-E-1 and VIII-E-2 respectively).

C. First, OPFOR strengths were calculated. Since Soviet doctrine indicates that the three BMDs of each platoon would normally operate within 250 meters of each other, each BMD platoon was treated as a single moving and firing unit (game rule). Each individual weapon in this firing unit was checked to determine how much it contributed to the strength of the unit at various ranges. Since the AT-3 (SAGGER) had no USMC vehicles or point targets to shoot at, it contributed nothing in this attack. Each of the BMDs 73 mm main guns contributed a score of 2 between 1500 meters and 500 meters, 5 inside 500 meters, and 6 inside 250 meters. The RPG-16s in each squad (vehicle) have a score of 2 from 500-250 meters and a 3 inside 250 meters. In like manner, the contribution to combat strength of each weapon in the BMD platoon was calculated (see OPFOR Table J). Figure VIII-E-3 summarizes the total combat strength of a BMD platoon at various ranges of game play.

USMC MANEUVER UNIT

DIRECT FIRE

I TARGET INFORMATION

TARGET CONDITIONS

When units are the target of enemy observation attempts or direct fire, indirect fire, or close air support attacks they are in one of the following target conditions:

UNPROTECTED — Any unit that is not receiving the benefit of any natural or man-made cover or concealment.

COVERED
- Any vehicle unit that is stationary and one or more contour levels (at least 20 meters) higher than the opposing unit is considered to be covered (in defilade).
- Any personnel unit that is stationary is assumed to be covered (prone).

HASTY*
- Any stationary vehicle unit occupying multiple firing positions (may be constructed with the aid of engineer assets).
- Any unit which has remained stationary for at least 30 minutes is assumed to have begun the preparation of fighting holes/improved craters.

PREPARED*
- Any personnel unit occupying open fighting trenches/foxholes (may be constructed with or without the aid of engineer assets).

DUG-IN*
- Any unit occupying extensively constructed positions with overhead cover.

*Target condition should be noted on the unit reference card.

VEHICLE TARGET CLASSES

	USMC	
Tank	APV	ASV
M60A1	LVTP-7	ATT other vehicles
	LVTC-7	(including helicopters)

	OPFOR	
Tank	APV	ASV
T-62	BMD	ATT other vehicles
T-64	BRP	(including helicopters)
T-72	ASU-85	
	BRDM-2	
	BTR-60	

J COMBAT STRENGTH

USMC COMBAT STRENGTH TABLE

COMBAT STRENGTH AT RANGE IN METERS EQUAL TO:

WEAPON	0-250	251-500	501-750	751-1000	1001-1500	1501-1800	1801-2000	2001-3000	3001-3750
ATGM [illegible]	-	8	8	8	-	-	-	-	-
TOW	-	-	9	9	9	9	9	8	8
MAIN GUN 105 KT (105mm)	9	9	9	9	6	6	6	3	-
MEDIUM MAIN GUN (90)	2	1	-	-	-	-	-	-	-
SMAW	6	-	-	-	-	-	-	-	-
HEDP RPPV	5	2	-	-	-	-	-	-	-
IMPROVED SMALL ARMS WEAPON (with slap rounds)	8	7	7	6	5	4	3	-	-
M119 60mm ML	9	8	8	8	8	-	-	-	-
SMALL ARMS FIRE TEAM	11	6	4	2	-	-	-	-	-
FIRE TEAM	5	3	2	1	-	-	-	-	-
.50 Cal MG	8	8	8	5	2	2	2	-	-
MAG 7.62 MG	8	6	6	6	2	-	-	-	-
60mm MORTAR(LIGHT) 81mm MORTAR	1	1	1	1	1	1	1	1	(To 3500m: 60mm)1, (To 4700m: 81mm)
HELICOPTER MOUNTED TOW CARRIER (MEDIUM MAIN GUN)	7	8	6	6	6	-	-	-	-
5" [illegible] (MEDIUM MAIN GUN)	-	-	2	2	1	-	-	-	-
TOW ATGM	-	-	9	9	9	9	9	9	8

K DIRECT FIRE COMBAT RESULTS TABLE (AT VEHICLES AND PERSONNEL)

TARGET CONDITION	TOTAL COMBAT STRENGTH																TARGET CONDITION
Dug-In	1-5	6	7-8	9-10	11-12	13-15	16-18	19-21	22-26	27-31	32-36	37-44	45-52	53-60	61-70	71+	Dug-In
Prepared	1-4	5	6	7-8	9-10	11-12	13-15	16-18	19-21	22-26	27-31	32-36	37-44	45-52	53-60	61+	Prepared
Hasty	1-3	4	5	6	7-8	9-10	11-12	13-15	16-18	19-21	22-26	27-31	32-36	37-44	45-52	53+	Hasty
Covered	1-2	3	4	5	6	7-8	9-10	11-12	13-15	16-18	19-21	22-26	27-31	32-36	37-44	45+	Covered
Unprotected	1	2	3	4	5	6	7-8	9-10	11-12	13-15	16-18	19-21	22-26	27-31	32-36	37+	Unprotected

PERSONNEL (Percentage)	VEHICLE (# of hits)	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	VEHICLE (# of hits)	PERSONNEL (Percentage)
99	99	01-00	01-90	01-80	01-70	---	---	---	---	---	---	---	---	---	---	---	---	99	99
92	98	01-70	11-00	21-90	11-60	01-30	01-20	01-10	---	---	---	---	---	---	---	---	---	98	93
82	82	71-05	61-00	51-75	41-70	31-65	21-60	11-50	01-40	01-30	01-20	---	---	---	---	---	---	82	82
10	1	86-00	81-00	75-00	71-00	66-90	61-90	51-85	41-85	31-80	21-70	01-90	01-60	01-30	---	---	---	1	10
15	2	---	---	---	---	91-00	91-00	86-00	86-00	81-00	71-00	51-90	41-80	31-60	01-50	01-40	01 30	2	15
20	3	---	---	---	---	---	---	---	---	---	---	91 00	81-00	71-00	51 90	41 80	11 70	3	20
50	6	---	---	---	---	---	---	---	---	---	---	---	---	---	91-00	81 00	71 00	6	50

TERRAIN (ALL TARGETS)
Shift one column left if target is in forest or town.

MAIN GUN and ATGM
Shift one column left if firing at Tanks.
Shift one column right if firing at APV.

MEDIUM MAIN GUN
Shift two columns left if firing at Tanks.
Shift two columns right if firing at APV.

WEAPON CLASSES vs. VEHICLES

IMPROVED SMALL ARMS
ASV: No change.
APV: Reduce number of hits by 1.
TANKS: Reduce number of hits by 3.

SMALL ARMS
ASV: Reduce number of hits by 1.
APV: Reduce number of hits by 2.
TANKS: Any number of hits equals S2 result.

Figure VIII-E-1

OPFOR MANEUVER UNIT

DIRECT FIRE

I TARGET INFORMATION

TARGET CONDITIONS

When units are the target of enemy observation attempts or direct fire, indirect fire, or close air support attacks they are in one of the following target conditions:

UNPROTECTED — Any unit that is not receiving the benefit of any natural or man-made cover or concealment.

COVERED
- Any vehicle unit that is stationary and one or more contour levels (at least 20 meters) higher than the opposing unit is considered to be covered (in defilade).
- Any personnel unit that is stationary is assumed to be covered (prone).

HASTY*
- Any stationary vehicle unit occupying multiple firing positions (may be constructed with the aid of engineer assets).
- Any unit which has remained stationary for at least 30 minutes is assumed to have begun the preparation of fighting holes/improved craters.

PREPARED*
- Any personnel unit occupying open fighting trenches/foxholes (may be constructed with or without the aid of engineer assets).

DUG-IN*
- Any unit occupying extensively constructed positions with overhead cover.

*Target condition should be noted on the unit reference card.

VEHICLE TARGET CLASSES

	NBMC	
Tank	AFV	SSV
M60A1	LVTP-7	ATT other vehicles (including helicopters)
	LVTC-7	

	OPFOR	
Tank	AFV	SSV
T-62	BMD	ATT other vehicles (including helicopters)
T-64	BMP	
T-72	ASU-85	
	BRDM-2	
	BTR-60	

J OPFOR COMBAT STRENGTH TABLE

COMBAT STRENGTH AT RANGE EQUAL TO:

WEAPON	0-250	251-500	501-1000	1001-1500	1501-2000	2001-3000	3001-4000
ATGM							
AT-3 (SAGGER C)	-	-	7	9	9	9	-
AT-4 (SPIGOT)	-	7	9	9	9	-	-
AT-5 (SPANDREL)	-	7	9	9	9	9	9
MAIN GUN							
T-64/T-72 (125 mm)	9	9	9	6	6	2	-
T-62 (115 mm)	9	9	9	6	6	2	-
MEDIUM MAIN GUN							
BMP/BMD (73 mm)	6	5	2	2	-	-	-
ASU-85 (85 mm)	5	5	3	-	-	-	-
122 mm HOWITZER	7	7	3	-	-	-	-
152mm HOWITZER	6	6	2	-	-	-	-
RPG-16	3	2	-	-	-	-	-
RPG-18 (LAW)	2	1	-	-	-	-	-
SPG-9 RR	8	6	3	1	-	-	-
IMPROVED SMALL ARMS							
ZU-23 AAA	9	9	6	-	-	-	-
ZSU 23-4 AAA	12	10	9	6	-	-	-
SMALL ARMS							
RIFLE SQUAD	5	3	-	-	-	-	-
RIFLE TEAM	2	1	-	-	-	-	-
14.5 MMG	8	3	3	3	3	-	-
7.62 MG	7	3	3	3	-	-	-
AGS-17	8	3	3	3	-	-	-

K DIRECT FIRE COMBAT RESULTS TABLE (AT VEHICLES AND PERSONNEL)

TARGET CONDITION	TOTAL COMBAT STRENGTH																TARGET CONDITION
Dug-In	1-5	6	7-8	9-10	11-12	13-15	16-18	19-21	22-26	27-31	32-36	37-44	45-52	53-60	61-70	71+	Dug-In
Prepared	1-4	5	6	7-8	9-10	11-12	13-15	16-18	19-21	22-26	27-31	32-36	37-44	45-52	53-60	61+	Prepared
Hasty	1-3	4	5	6	7-8	9-10	11-12	13-15	16-18	19-21	22-26	27-31	32-36	37-44	45-52	53+	Hasty
Covered	1-2	3	4	5	6	7-8	9-10	11-12	13-15	16-18	19-21	22-26	27-31	32-36	37-44	45+	Covered
Unprotected	1	2	3	4	5	6	7-8	9-10	11-12	13-15	16-18	19-21	22-26	27-31	32-36	37+	Unprotected
PERSONNEL (Percentage)	VEHICLE: (# of hits)	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	VEHICLE: (# of hits)	PERSONNEL (Percentage)
NE	NE	01-40	01-30	01-20	01-10	---	---	---	---	---	---	---	---	---	---	---	---	NE	NE
S2	NE	41-70	31-60	21-50	11-40	01-30	01-20	01-10	---	---	---	---	---	---	---	---	---	NE	S2
S3	S2	71-85	61-80	51-75	41-70	31-65	21-60	11-50	01-40	01-30	01-20	---	---	---	---	---	---	S2	S3
10	1	86-90	81-88	76-80	71-78	66-90	61-90	51-85	41-85	31-80	21-70	01-50	01-40	01-30				1	10
15	2					91-00	91-00	86-00	86-00	81-00	71-00	51-90	41-80	31-60	01-50	01-40	01-30	2	15
20	3											91-00	81-00	71-00	51-90	41-80	31-70	3	20
30	4														91-00	81-00	71-00	4	30

SSV: TERRAIN (ALL TARGETS)
Shift one column left if target is in forest or town.

MAIN GUN and ATGM
Shift one column left if firing at Tanks.
Shift one column right if firing at SSV.

MEDIUM MAIN GUN
Shift two columns left if firing at Tanks.
Shift two columns right if firing at SSV.

WEAPON CLASSES vs. VEHICLES

IMPROVED SMALL ARMS
SSV: No change.
AFV: Reduce number of hits by 1
TANKS: Reduce number of hits by 1

SMALL ARMS
SSV: Reduce number of hits by 1
AFV: Reduce number of hits by 2
TANKS: Any number of hits equals NE result

Figure VIII-R-2

WEAPONS (TOTAL PER PLAT)	COMBAT STRENGTH (Range in meters)			
	0 - 250	251-500	501-1000	1001-1500
3 AT-3 (SAGGER)	-	-	-	-
3 73mm Guns	18	15	6	6
3 RPG-16	9	6	-	-
3 Rifle Teams	6	3	-	-
97.62mm MG	63	27	27	27
AGS-17*	8	3	3	3
TOTALS	104	54	36	36

* 1 of the 2 AGS-17 grenade launchers in the company was assumed to be available to each firing platoon.

Figure VIII-E-3 BMD Platoon Combat Strength

D. The next step was to enter the OPFOR Direct Fire Combat Results Table (Table K, Figure VIII-E-2). In order to dispense with the use of dice, only those columns with random number spreads of 50 in the lower portion of the table were used, i.e., columns I, J, K and N. According to the description of the game, the cells which contain a spread of 50, the highest figure on the table, indicate that a given combat strength entry value from the upper portion of the table has a 50% probability of achieving the number of hits on vehicles or percentage of personnel casualties among target personnel that are associated with that cell on the right and left sides of the lower part of the table. For example, starting at the top of this table, we find that against a prepared position, a BMD platoon with a total combat strength of from 27-31 has a 50% probability of inflicting 10% casualties on defending personnel (column K). Since the BMD platoons in this simulation have a combat strength of 36 from 1500 meters in to 500 meters (Figure VIII-E-3), it is assumed that they can inflict at least 10% casualties at these ranges.

Inside 500 meters, (using the same computational logic as for the 1500 meter case and column N in the table), this casualty figure increases to 15%.

E. Next we examined USMC defensive combat power but approached it somewhat differently. We started with Table K (Figure VIII-E-1) and worked backwards. We determined that to have a 50% probability of getting at least 1 hit on an unprotected vehicle (each hit was assumed to be a kill), our defenders needed a total combat strength ranging from 11-18 (columns I, J and K). Furthermore, this strength had to be contributed from a limited class of anti-armor weapons. If improved small arms, which have some capability against lightly armored vehicles, were relied upon, the total combat strength from these weapons would have to be greater than 27 to achieve a 50% probability of killing at least 1 vehicle (column N modified by the game rule below the table).

F. With this information in hand we moved to Table J (Figure VIII-E-1) and examined USMC weapon contributions at different ranges. Beyond 1000 meters DRAGON is ineffective. TOW contributes a strength of 9 while the M2 HMG (firing SLAP rounds) has a value of 5 and the M19 40mm GL a value of 6. While both of these latter weapons can engage targets at 1500 meters the defenders would need a total strength of at least 27 in these weapons to have a 50% probability of getting at least 1 hit on a vehicle (game rule). This would mean a total of 5-6 of either of these weaons on the defensive position engaging the same enemy unit.

G. After making a number of comparisons of weapons contributions and combat results at various ranges, a defending force was constructed which consisted of a USMC rifle platoon with three 13 man squads. Each fire team within the squads is armed with a SMAW in addition to its normal complement of weapons. The platoon is reinforced with a 2 gun section of M60, 7.62 mm MG, 2 DRAGON launchers, 2 M19 GL, and 2 M2 HMG (SLAP). Indirect fire support is also available from a 2 tube section of 81 mm mortars. Assuming 3 men for each crew-served weapon (a minimum of 2 men needed to operate each weapon effectively), the total strength of the defending Marines is 1 officer and 70 enlisted.

H. Before the next step was taken, some consideration of tactics was necessary. Before launching their attack, OPFOR must make a decision (in addition to a reconnaissance of the defenders' position). The two limits of that decision are that they can either rush all three of their BMD platoons at the objective (in order to close the range rapidly and attempt to overwhelm the defenders with their heavy short range combat power) or they might stand off at 1500 meters and try to attrit the defenders by 10%-15% each time they fire (each turn of the game). But according to the rules of the game they cannot do both at the same time. Each unit can either fire or move in each turn.

A more tactically sound plan than either of the above extremes would be to rush one or two platoons and provide covering fire with the stationary platoon(s). Some experimental calculations enabled us to determine what appears to be the best tactic. OPFOR begins by rushing one platoon from 1500 to 500 meters under the cover of fire from the other two. At this opening range the total strength of the firing platoons is 72, more than enough to begin inflicting 15% casualties on the defenders. As soon as the moving platoon reaches the 500 meter line it stops moving (end of 1 turn) and commences firing, adding a strength of 54 to the base of fire (see Figure VIII-E-3 above). The second turn of the game consists of the first platoon (to move) and the third platoon (still at 1500 meters) firing with a total strength of 90 while the second platoon moves. This process is repeated in the third turn of play until all three OPFOR platoons (minus casualties) have closed to 500 meters from the defensive position.

For the next phase of the attack it is assumed that half of the remaining BMDs rush the position while the other half cover them. As they reach 250 meters (the limit of movement according to the game rules) BMDs dismount their rifle, MG, and RPG teams and continue the fire fight until one side or the other is wiped out.

As the attack progresses and the defenders take casualties it is assumed that they keep reorganizing to keep their most effective weapons at any given range in action. Crew-served weapons are eliminated when

there are less than 2 men available to man them and fire teams are eliminated when their strength falls below 3 men. Figure VIII-E-4 summarizes the results of this simulation.

III. Results of Analysis

This is, of course, a very stylized and artificial simulation in a battle to the death between 85 Soviet soldiers and 71 Marines. But to the extent that the weapon hit probabilities and effects on both sides are fairly accurate, what this simulation indicates is that if everything goes just right in terms of early warning, well-prepared positions, and heroic action on the ground, a heavily reinforced USMC rifle platoon could stand off an all-out attack by a Soviet airborne company, but at great cost (45 casualties). Extrapolating from this set of war game data, it is possible to hazard a guess that a heavily reinforced rifle company in defense could similarly hold off the attack of a full Soviet airborne infantry battalion. But an estimate doesn't have to go this far to give an indication of what is a reasonable self-defense capability for rear area installations.

A more conservative estimate, based on these rough approximations of relative combat power, would be that any installation in the rear that contains the troop density of a USMC infantry battalion can successfully defend itself against a conventional threat of up to one Soviet airborne battalion provided that the defending force is equipped with the weapons used in this simulation in sufficient quantities, is well trained in defensive tactics, has adequate warning, and has well-prepared defensive positions from which to fight. The presence of TOWs, mines, indirect fire, and air support would make the lot of the defenders easier. Surprise, air support, long range artillery, or SPETSNEZ support could give the attackers an edge at this .50-.50 threshold of relative combat power calculations.

Turn (Range)	OPFOR	USMC			
1 (1500 m.)	85 PERS 11 BMD 2 PLAT FIRING	71 PERS * 2 DRAGON 2 M19 40mm 2 M2 .50 cal	- (12) (10) (22)	2 M60 MG 3 Rifle Sqds [9 SMAW] 2 81mm	(4) - - (2) (6)
	Total Firing Str.: (72)	Total Firing Str.: (28)			
	CAS: none (not enough str. in USMC improved small arms to hit 1 veh according to game rules)	CAS: 11 PERS			
2 (<1000 m.)	85 PERS 11 BMD 2 PLAT FIRING	60 PERS 2 DRAGON 2 M19 2 M2	(16) (16) (12) (44)	2 M60 3 Squads [9 SMAW] 2 81 mm	(12) (6) - (2) (20)
	Total Firing Str.: (90)	Total Firing Str.: (64)			
	CAS: 2 BMD (16 PERS) (all 8 pers riding in a BMD that is hit are assumed to be casualties)	CAS: 9 PERS			
3 (<750 m.)	69 PERS 9 BMD 1 PLAT. + 1 BMD FIRING	51 PERS 2 DRAGON 2 M19 2 M2	(16) (16) (14) (46)	1 M60 3 Squads [9 SMAW) 1 81 mm	(6) (12) - (1) (19)
	Total Firing Str.: (71)	Total Firing Str.: (65)			
	CAS: 2 BMD (16 PERS)	CAS: 8 PERS			

Figure VIII-[illegible]-4 Computation of Combat Results

Turn (Range)	OPFOR	USMC
4 (500-250 m.)	53 PERS 7 BMD 2 PLAT FIRING	43 PERS 2 DRAGON (16) 2 M19 (16) 2 M2 (14) 3 Sqds. (18) [9 SMAW) -
	Total Firing Str.: (54)	Total Firing Str.: (64)
	CAS: 2 BMD (16 pers)	CAS: 7 PERS
5 (250 m.)	37 PERS 5 BMD 1 PLAT (+) FIRING	36 PERS 2 M19 (18) 2 M2 (16) 8 FT (40) [8 SMAW) (48)
	Total Firing Str.: (104)	Total Firing Str.: (122)
	CAS: 3 BMD (24 pers)	CAS: 5 PERS
6 (0-250 m.)	13 PERS 2 BDM FIRING	31 PERS 2 M19 (18) 8 FT (40) [8 SMAW) (48)
	Total Firing Str.: (52)	Total Firing Str.: (106)
	CAS: 2 BMD (3 pers)	CAS: 5 PERS
SURVIVORS: -0-		SURVIVORS: 26 PERS 1 M19 7 FT+(3 SQDS)
		* Casualties were assessed to each defending unit in sequence, from lowest to highest weapon value, e.g., Turn #1: 1 cas. to each of 2 mort sqds, 3 rifle sqds, 2 MG sqds, etc. until all cas. from this turn were assessed. Cas. assessment in the next turn began with the next unit in sequence, e.g., 2 DRAGON sqds in Turn #2. Reorg. was accomplished after cas. assessment but before next turn.

Figure VIII-E-4 Computation of Combat Results (Cont'd)

A N N E X F

Annex F

Multiattribute Utility Analysis

A. Attributes and Utility. Situations which respond directly to scientific rules and physical laws are usually predictable because the key attributes for these situations are clearly determined. For example, the attribute of mass can be used as a predictor of velocity by multiplying the mass by the amount of thrust being applied to it. Thus, the impact force of an automobile into a stone wall can be estimated by performing calculations which use differing auto weights and/or speeds thus avoiding the need for actual collisions. For combat, however, the key attributes of various situations are not precisely defined. Multiple attributes exist and they relate to one another differently as situations change. These attributes are recognizable, but not very easily. Since they tend to relate differently in different situations, an observer must study a number of situations before being able to isolate the factors common to each. These common factors form the substance of the topic being studied and can be analyzed to gain an understanding of its nature. Since the relationships among the factors (attributes) tend to vary, though, and analysis must be of some measurable element, it is necessary that a measurable item be identified. The item selected for measurement in many cases is utility, i.e., there is some degree of utility in every attribute and that utility is measurable.

To illustrate the manner by which utility varies, consider that there is great utility to a family having an automobile. There is slightly less utility to the second automobile, and steadily diminishing utility as the number of autos goes up. In this example, a decision maker might conclude that the purchase of a second car for $5,000 is a sound course of action, but the purchase of the same auto as a fourth car for $2,000 (even though the cost is lower, the value or utility is also substantially less) is unwise. In the use of combat analyses, a body of experienced veterans can be pooled to determine the multiple attributes of the problem being studied, and then their expert judgments as to the utility of each attribute are sought. The result is a model of an aspect of combat, based on expert judgment, informed opinion, and first hand observation. Due to

the unquantifiable nature of the rear area security problem, this approach has been used to model an aspect of RAS, and a multiattribute utility model was constructed to ensure systematic examination of all the multiple aspects of the RAS problem.

B. Basis for Modeling. The Marine Corps already has a set of principles for use in combat, and a variety of organizations and resources to carry out the principles. The present problem is one of estimating how the existing doctrine and assets are able to be applied in the RAS environment, and what would be the utility to the Marine Corps of changing any of the doctrinally-based attributes or their relationships. Because the RAS problem differs according to level of command, two sets (models) of doctrinal attributes were considered: one for the MAGTF level and one for a subordinate command level. The second model considered Combat Service Support (CSS) battalions and Aviation Ground Support (AGS) Squadrons and evaluated the utility of the doctrinal attributes to accomplishment of the RAS mission by these units. The higher level model was oriented toward the MAGTF Commander and Staff. The initial versions of the two logic trees are shown in Chapter V.C.5 of the basic report. Both trees were enlarged and adjusted based on experiential inputs. The key factors were examined in greater detail, and weights were assigned to each. Weights at bottom levels of each tree are representative of the utility to the Marine Corps of an enhancement in the weighted attribute, e.g., more training in a specific topic, etc. Thus, a factor which is currently performed adequately may be assigned a zero or low score to indicate there is no need for improving it, while improvement to a less vital attribute might be of higher utility. This approach was selected because it is a natural outgrowth of the major assumption that RAS needs to be improved. Assuming a need for improvement, the multiattribute utility assesment went to the heart of the problem by asking, "which improvement(s) would be of greatest utility to the Marine Corps?"

C. Definition of Terms. During the development of the multiattirbute utility structures, iterative sessions were conducted to build, review, and refine the models. Discussions during these sessions led to the

development of a common understanding among participants of the meanings of the various terms being used. In some cases, the words were self-explanatory, but in others, some special nuance or concept resulted in a unique meaning. The following list of specific usages is presented to serve as a foundation for understanding and reviewing the models. All terms are within the context of the RAS problem.

1. Professional Development (officers and NCOs) and Essential Subjects Training (junior enlisted) - relate to the education needed to develop a basic understanding of the RAS environment and its particular requirements. Is usually conducted for officers and NCOs in formal training such as through the Command and Staff College and Amphibious Warfare School, SNCO and NCO leadership courses, but can be found in other formats as well, e.g., briefings and professional readings. EST/Combat Skills Training is usually conducted for junior enlisted Marines during initial entry level training, and through maintenance-type training conducted within units.

2. Specialized Training - those activities conducted for the purpose of developing proficiency in particular, or related series of, skills. For example, the reorientation of CSS-unit communicators from logistics nets and procedures to tactical nets and procedures.

3. Required Assets - items of ordnance, motor transport, communications-electronics, engineer, and general supply equipment. As used in this project, required assets that were considered already sufficient for RAS use were not included in the model.

4. Added Functions/Skills - command and/or staff functions from FMFM 3-1 that are needed in addition to current structure for RAS operations; also, any new or redefined function which might be appropriate for inclusion in FMFM 3-1 because of its RAS applicability.

5. Special Personnel - Marines with particular skills whose value in RAS operations should be significant, but none (or insufficient numbers) are available without special actions (e.g., transfer, attachment, temporary duty, support, etc.).

6. Performance Capability - organizational capability to perform RAS tasks, when directed to do so and the mission-oriented training of the organization necessary to provide it with this capability.

D. Discussion of the Models. The multiattribute models are representations of the needs for accomplishment of RAS missions. These needs occur through two general time periods: first, those attributes which are related to RAS responsibilities prior to a command to execute the RAS mission and second, those which are required for RAS after the command to execute has been issued. In broad terms, the attributes characteristic of preliminary actions are of three types: (1) there must be a command and control system in place to allow for coordinated planning, (2) various elements of information (both enemy-related and own force-related) must be available, and (3) other specialized capabilities, e.g., engineer support, must be available so they can facilitate subsequent mission performance. After receipt of a command to perform RAS activities (i.e., actual operations), characteristic attributes fall into three different categories: (1) attributes needed to effect the transition from the preliminary state, (2) some security and defensive attributes, and (3) certain traits commonly associated with a "fighting" unit rather than a support unit. Through brainstorming sessions, interviews, and research into doctrinal publications, these broad categories were broken down into their elements and, eventually, sub-elements or entities until the nature of the model became more and more specific. Finally, individual entities were assigned weights by Marines to reflect the utility to the Marine Corps (in terms of RAS capability) which an enhancement to each entity would represent. Separate weights were assigned to the elements of the MAGTF model and to the elements of the support command model. Aspects of the attributes/entities and weights for each model are discussed throughout the rest of this annex.

1. The Support Command Level. This portion of the discussion relates to the initial version of the model. A significant difference was seen in the original version of the model between the activities prior to and after receipt of an RAS mission. The panel of Marines felt that

enhancement to preliminary elements was mandatory, while the actual RAS performance needed little improvement. This perspective shifted later. Of the three general categories comprising activities prior to an RAS mission, the command and control system was a prerequisite at the support command level in that few other activities could be performed without its services. Although it was considered to be in place and already effective, its enhancement was still considered vital. The need for information represented the next highest utility score, and specialist activities of counterintelligence and engineers were last. Overall, more than 75% of the total utility to the Marine Corps of pre-RAS actions at the support command level resides in the combined areas of command/control and information, and resources allocated to this highly utilitarian combination should yield significant return. During actual RAS operations, utility was evenly attached to both the transition phase and the performance phase. Training done prior to transition was seen as necessary to transform preliminary activities into actual RAS activities, e.g., calling fires. Subordinate categories will be described in the following paragraphs.

a. <u>(Prior to ...) Command and Control System</u>. This category includes the three branches of "Command and Staff" (entities in this category were billet titles from FMFM 3-1), the capacity to create "contingency plans and RAS-oriented standing operating procedures," and the adequacy of "command and control equipment/facilities." Each category was examined to estimate the utility of increasing training for each billet, the need to authorize or increase billets, and/or the need for more or special equipment. Training was defined as that which would be required to re-orient Marines in support commands from logistics and support functions to tactical functions, such as command and staff functions for defensive combat or tactical procedures on communications nets. Sufficiency of equipment was also a consideration and higher scores were assigned categories where equipment was most needed (either through acquisition or reallocation) to reflect the fact that greater utility would obtain if allowances were increased in those areas. High utility was assigned to the addition of a new personnel function: the Rear Area Security Officer. This function might be vested in an assistant operations/S-3 officer or could be a separate billet; in either case, it

was considered highly desirable. Of almost equal utility would be the enhancement of support unit fire support coordination capability through the provision of qualified personnel.

b. (Prior to ...) Information. Both intelligence relating to the enemy (what, where, and when) and the status of friendly forces (location, activity, and readiness condition) were considered. The need for enhancements in professional development and/or specialized training, and the utility of adding or reallocating personnel and equipment were the bottom line factors. As was the case with the previous category, weights were assigned in proportion to the estimated utility of an increased investment in each category. The estimated utility of spending more to improve an element that is already satisfactory was low, whereas improvement of an unsatisfactory item was of high utility. Enhancement of the RAS intelligence capability was considered to have nearly five times the utility of having better information about friendly forces.

c. (Prior to ...) Counterintelligence. In the period prior to receipt of the RAS execution order, counterintelligence measures in the areas of operational security and cover and deception planning were considered worthy of enhancement. The counterintelligence area was one of the few in the entire model for which permanent personnel increases were felt to be of utility.

d. (Prior to ...) Engineer Support. The need for engineer support before actual RAS operations was foreseen as threefold: to harden vital installations, to construct barriers (before they are required operationally), and to assist in camouflage activities. Enhanced engineer support was estimated to offer better returns than counterintelligence enhancements would provide and the most needed enhancement would be added equipment (not necessarily through acquisition, but at least through reallocation of current assets). The utility of increased training relates to the training of commanders and staffs in the need for engineers to perform RAS functions, not to training of engineers themselves.

e. (After ...) Transition. During deliberations by the panel of Marine officers who participated in the initial scoring/weighting of RAS factors there was mutual agreement on the need for certain added RAS-related personnel skills and/or training of existing staffs to enhance the capability of support units to transition from the performance of their primary mission to the performance of RAS tasks. There was some disagreement, however, on whether personnel enhancements would be most effective through task organization/attachment, or permanent assignment, i.e., changes to Tables of Organization. (Training enhancements depend, in part, on the personnel assignment schema being used, e.g., if task organization is relied upon, then the support units receive already trained persons and units). Through discussions, it evolved that some billets and MOSs were better suited for permanent assignments, and others for some form of temporary increase. Figure VIII-F-1, on the following page, summarizes the consensus of judgments derived during open discussion. The estimated value of enhanced capability in certain key occupational fields (either through training or personnel assignment) is shown according to the RAS task the enhancement would support. The right hand column suggests the value on a scale from 1 to 10 of permanently assigned persons from the occupational fields being considered. A score of 10 suggests that permanent assignment would be the preferred course of action (to enhance performance of RAS tasks), while lower scores are less indicative.

f. (After ...) Performance Capability. This category includes two major collections of attributes:

(1) Those needed to secure and defend the rear area, and

(2) Those needed to participate in a counterattack (fight) within the rear area.

g. (After ...) Secure/Defend. Based on the assessments of occupational fields done in consideration of the transition training needs, estimates of training, personnel, and equipment requirements for this category were conducted in a similar fashion. The utility of the

OCCUPATIONAL FIELD	RAS TASKS					PRIMARY DUTY?
	LOCAL SECURITY	DAMAGE CONTROL	DEFENSIVE COMBAT	CALLING FIRES	MANAGING CONTROL MEASURES	
01 (Civil Affairs)	Highest Need					2
02	High Need	Moderate Need	Highest Need			10
03 *	**	**	**			7.5
08 *	**	**	**			6
13 *	**	**	**			4
18 *	**	**	**			5
23		Highest Need				10
25	Moderate Need	Low Need	Moderate Need	Highest Need	Highest Need	5
26	Highest Need		High Need			6
57		Highest Need				7
58	Highest Need					7.5
72			Moderate Need	Highest Need	Highest Need	5
Any Combat Arm	Low Need	Low Need	Highest Need	Low to Moderate Need	Moderate Need	10

* Combat Arms which are included in bottom category.

** Moderate to High Need throughout - minor distinction from one OccFld to another.

Figure VIII-F-1 Basic Combat Skills Needed for RAS

local security factor was high enough to make it dominant within its subcategory (53%), and thus fairly high value is placed on combat and some combat support skills. Personnel were not considered to be needed fulltime in many cases, and attachment, temporary assignment, and support schemes appeared adequate for most additional personnel requirements. Training needs for RAS were consistent with those in other categories.

g. (After ...) Fight. The principal requirements in this category are the need for indirect fire support and its coordination, and the need to manage the combat measures that will be required for an active, aggressive area defense. While the need for combat arms expertise is worthy of note, there are still certain stronger needs, viz., communications personnel experienced with tactical and fire control nets (and procedures), and experienced aviation personnel. Forward Air Control (FAC) capability is a strong requirement if RAS operations become active, and can be acquired at present only by degrading the FAC assets of some other MAGTF element. Support commands are presently neither staffed for air control and FSC, nor trained and ready to task organize for such tasks.

2. The MAGTF Level. By title, the attributes which characterize the MAGTF level of RAS activity are similar to those of the support command level. At this level, however, the focus is on effective use of organizations rather than specific personnel and this caused important differences in many of the weights which were assigned. Because of the composition of the MAGTF staff, fewer personnel skills are missing, and the experience of the commander and staff is generally of such a high degree that less utility is gained from training enhancements than was the case at the support command level. The enhanced role of the PMO was a heavily weighted factor, as it was at the support level and the value of a Rear Area Security staff officer was strongly identified. The two most influential considerations in weight assignments at the MAGTF level were (1) the MAGTF Commander's need to ensure that maneuver elements and fire support are available for RAS, and (2) initial allocation of MAGTF resources must be done with an awareness of RAS needs. RAS cannot be achieved if assets for this purpose are allocated as a second thought after all other needs are satisfied. The overall availability of weapons and equipment in a MAGTF

is throught to be adequate for combat, but RAS awareness and allocation of assets need more attention. With these points in mind, a brief discussion of some of the differences between the MAGTF and support level follows.

a. Contingency Plans. Emphasis on the need for RAS contingency plans at the MAGTF level was considered to be of some utility. Granted, primary emphasis must remain on the OP PLAN for the MAGTF mission, but up to 25% of total planning efforts should focus on contingency plans for securing the rear.

b. Information. The value of intelligence and information on friendly status is about the same as at the support unit level, but the overall utility of increasing the emphasis on intelligence is not. Part of the reason for this is that intelligence resources are greater at this level, and the commander and staff officers are more experienced and aware of intelligence needs and capabilities.

c. Engineer Support. Professional development (in RAS considerations) of the MAGTF Commander is the most influential factor on this attribute. If he is convinced of the need for this capability to improve RAS, he will ensure an initial allocation of engineer assets sufficient to perform the kinds of tasks which were outlined in the support unit model. The aim at the MAGTF level should be to avoid merely traditional allocations of assets, and to ensure appropriate consideration of RAS needs. Considerable utility is attached to this initial allocation.

d. Transition. The MAGTF Commander will not be able to enhance RAS operations by attachment of specialists or units, unless the MAGTF troop list includes the proper skills. The Commander must build into the troop list the necessary skills for RAS activities. The skills need not be permanent to a rearward organization, but should be available somewhere within the MAGTF.

e. Tables VIII-F-1 and VIII-F-2 summarize the weights assigned in the two models and also show the relative score (weighting) of each bottom level factor in each model. It is these bottom line values that portray

the relative utility to the Marine Corps of increasing resources in each category.

E. Preliminary Conclusions. Since the overall weights shown beside each factor add to 1.0 (or nearly 1.0 due to rounding) it is possible to review relative utility scores to estimate the payoff to the Marine Corps of increased investment in any category or group of categories. Thus, conclusions as to where greatest emphasis should be placed become quantitative estimates instead of subjective judgments (the subjective judgments were made at the beginning of the process). Tables VIII-F-1 and VIII-F-2 show the utility of each individual factor; scanning the right column discloses the estimated relative value to the USMC of investment in each factor so far as rear area security is concerned. Of greater interest though, is the emergence of groups of items, or areas of concern, in which improvement is needed before the RAS problem can be adequately corrected.

Table VIII-F-1 Support Unit Model

MODEL ELEMENT	1	2	3	4	5	6	Final Weight
Activities Prior to Receipt of RAS mission	.91						
Command and Control System		.51					
Commander and Staff			.43				
CO/XO				.09			
Training					.67		
Specialized						.5	.0060
Professional Development						.5	.0060
Personnel					.33		
Permanent						.65	.0039
Task Organized						.35	.0021
S-2				.04			
Training					.67		
Specialized						.5	.0027
Professional Development						.5	.0027
Personnel					.33		
Permanent						.65	.0017
Task Organized						.35	.0009
S-3				.10			
Training					.67		
Specialized						.5	.0067
Professional Development						.5	.0067
Personnel					.33		
Permanent						.65	.0043
Task Organized						.35	.0023
S-5				.01			
Training					.67		
Specialized						.5	.0007
Professional Development						.5	.0007
Personnel					.33		
Permanent						.65	.0004
Task Organized						.35	.0002

Support Unit Model (Cont'd)

MODEL ELEMENT	1	2	3	4	5	6	Final Weight
CEO				.03			
Training					.67		
Specialized						.5	.0020
Professional Development						.5	.0020
Personnel					.33		
Permanent						.65	.0013
Task Organized						.35	.0007
Engineer				.10			
Training					.67		
Specialized						.5	.0067
Professional Development						.5	.0067
Personnel					.33		
Permanent						.65	.0043
Task Organized						.35	.0023
Fire Support Coordination				.17			
Training					.67		
Specialized						.5	.0114
Professional Development						.5	.0114
Personnel					.33		
Permanent						.65	.0073
Task Organized						.35	.0039
Provost Marshal				.15			
Training					.67		
Specialized						.5	.0100
Professional Development						.5	.0100
Personnel					.33		
Permanent						.65	.0064
Task Organized						.35	.0035

Support Unit Model (Cont'd)

MODEL ELEMENT	1	2	3	4	5	6	Final Weight
Aviation				.12			
Training					.67		
Specialized						.5	.0080
Professional Development						.5	.0080
Personnel					.33		
Permanent						.65	.0051
Task Organized						.35	.0028
Physical Security				.19			
Training					.67		
Specialized						.5	.0127
Professional Development						.5	.0127
Personnel					.33		
Permanent						.65	.0081
Task Organized						.35	.0044
Contingency Plans/SOPs			.54				
Mission				.12			
Training					.67		
Specialized						.5	.0101
Professional Development						.5	.0101
Personnel					.33		
Permanent						.65	.0066
Task Organized						.35	.0036
Execution				.59			
Training					.67		
Specialized						.5	.0495
Professional Development						.5	.0495
Personnel					.33		
Permanent						.65	.0317
Task Organized						.35	.0171

Support Unit Model (Cont'd)

MODEL ELEMENT	1	2	3	4	5	6	Final Weight
Command and Control				.29			
Training					.67		
Specialized						.5	.0243
Professional Development						.5	.0243
Personnel					.33		
Permanent						.65	.0156
Task Organized						.35	.0084
Equipment and Facilities			.03				
Comm-Electronics				.5			
Radios					.34		.0024
Sensors					.33		.0023
ADPE					.33		.0023
Motor Transportation				.5			.0069
Information		.27					
Intelligence			.83				
What				.28			
Training					.35		
Specialized						.8	.0159
Professional Development						.2	.0039
Personnel					.2		
Permanent						.65	.0074
Task Organized						.35	.0039
Equipment					.45		
Radios						.4	.0323
Sensors						.4	.0323
ADPE						.2	.0162
Where				.17			
Training					.35		
Specialized						.8	.0097
Professional Development						.2	.0024

Support Unit Model (Cont'd)

MODEL ELEMENT	1	2	3	4	5	6	Final Weight
Personnel					.2		
Permanent						.65	.0045
Task Organized						.35	.0024
Equipment					.45		
Radios						.4	.0062
Sensors						.4	.0062
ADPE						.2	.0031
When				.55			
Training					.35		
Specialized						.8	.0314
Professional Development						.2	.0079
Personnel					.2		
Permanent						.65	.0146
Task Organized						.35	.0079
Equipment					.45		
Radios						.4	.0202
Sensors						.4	.0202
ADPE						.2	.0101
Friendly			.17				
Location				.45			
Training					.35		
Specialized						.8	.0099
Professional Development						.2	.0025
Personnel					.2		
Permanent						.65	.0046
Task Organized						.35	.0025
Equipment					.45		
Radios						.4	.0064
Sensors						.4	.0064
ADPE						.2	.0032
Activity				.32			
Training					.35		
Specialized						.8	.0066
Professional Development						.2	.0017

Support Unit Model (Cont'd)

MODEL ELEMENT	1	2	3	4	5	6	Final Weight
Personnel					.2		
Permanent						.65	.0033
Task Organized						.35	.0018
Equipment					.45		
Radios						.4	.0045
Sensors						.4	.0045
ADPE						.2	.0023
Readiness				.23			
Training					.35		
Specialized						.8	.0051
Professional Development						.2	.0013
Personnel					.2		
Permanent						.65	.0024
Task Organized						.35	.0013
Equipment					.45		
Radios						.4	.0033
Sensors						.4	.0033
ADPE						.2	.0016
Counterintelligence		.09					
Operational Security			.71				
Training				.71			
Specialized					.5		.0206
Professional Development					.5		.0206
Personnel				.29			
Permanent					.4		.0067
Task Organized					.6		.0101

Support Unit Model (Cont'd)

MODEL ELEMENT	1	2	3	4	5	6	Final Weight
Cover and Deception			.29				
Training				.53			
Specialized					.5		.0063
Professional Development					.5		.0063
Personnel				.05			
Permanent					.4		.0005
Task Organization					.6		.0007
Equipment				.42			
Decoys					.34		.0034
Reflectors					.33		.0033
Beacons					.33		.0033
Engineer Support		.13					
Camouflage			.04				
Training				.29			
Specialized					.01		.0001
Professional Development					.99		.0014
Personnel				.12			
Permanent					.2		.0001
Task Organized					.8		.0005
Equipment				.59			
Engineer					.5		.0014
General					.5		.0014
Harden Installation			.6				
Training				.14			
Specialized					.35		.0035
Professional Development					.65		.0065
Personnel				.43			
Permanent					.2		.0061
Task Organized					.8		.0244
Equipment				.43			
Cameras					.2		.0061
Lights					.2		.0061
Generators					.2		.0061
FF Materials					.2		.0061
Security Barriers					.2		.0061

Support Unit Model (Cont'd)

MODEL ELEMENT	1	2	3	4	5	6	Final Weight
Create Barriers			.36				
Training				.18			
Specialized					.3		.0023
Professional Development					.7		.0054
Personnel				.35			
Permanent					.3		.0045
Task Organized					.7		.0104
Equipment				.47			
Cameras					.2		.0040
Lights					.2		.0040
Generators					.2		.0040
FF Materials					.2		.0040
Security Barriers					.2		.0040
Activities After Receipt of RAS Mission	.09						
Transition		.5					
Commander and Staff			.42				
Specialized Training				.06			.0011
Professional Development				.29			.0055
EST				.21			.0039
Mission Oriented Training				.44			.0083
Individual Specialists			.21				
Specialized Training				.09			.0851
Professional Development				.5			.0047
EST				.41			.0039
Provisional Teams			.37				
Specialized Training				.05			.0008
Profesional Development				.22			.0037
EST				.22			.0037
Mission Oriented Training				.51			.0085
Performance Capability		.5					
Secure and Defend			.4				
Local Security				.53			
Training					.2		
Specialized						.1	.0002
Professional Development						.1	.0002
Mission Oriented						.8	.0015

Support Unit Model (Cont'd)

MODEL ELEMENT	1	2	3	4	5	6	Final Weight
Personnel					.6		
Permanent						.4	.0023
Task Organized						.6	.0034
Equipment (Ordnance)					.2		
Direct Fire						.3	.0006
Indirect Fire						.2	.0004
Tactical Mobility						.3	.0006
Night Vision						.2	.0004
Damage Control				.16			
Training					.2		
Specialized						.1	.0001
Professional Development						.1	.0001
Mission Oriented						.8	.0005
Personnel					.6		
Permanent						.1	.0002
Task Organized						.9	.0016
Equipment					.2		
Engineer						.4	.0002
General						.1	.0001
Motor Transport						.3	.0002
Ordnance						.2	.0001
Defensive Combat				.31			
Training					.2		
Specialized						.05	.0001
Professional Development						.05	.0001
Mission Oriented						.9	.0010
Personnel					.6		
Permanent						.2	.0007
Task Organized						.8	.0027
Equipment (Ordnance)					.22		
Direct Fire						.3	.0003
Indirect Fire						.2	.0002
Tactical Mobility						.3	.0003
Night Vision						.2	.0002

Support Unit Model (Cont'd)

MODEL ELEMENT	1	2	3	4	5	6	Final Weight
Fight (Participate in Counterattack)			.6				
Call Fires				.7			
Training					.2		
Specialized						.3	.0011
Professional Development						.7	.0026
Personnel					.6		
Permanent						.2	.0023
Task Organized						.8	.0091
Equipment					.2		
Comm-Electronic						.7	.0026
Other						.3	.0011
Maneuver Control				.3			
Training					.2		
Specialized						.3	.0005
Professional Development						.7	.0011
Personnel					.6		
Permanent						.2	.0009
Task Organized						.8	.0039
Equipment					.2		
Comm-Electronic						.7	.0011
Other						.3	.0005

Table VIII-F-2 MAGTF Model

MODEL ELEMENT	1	2	3	4	5	6	Final Weight
Activities Prior to Receipt of RAS mission	.6						
Command and Control System		.3					
Commander and Staff			.5				
CG/Deputy CG				.1			
Training					.7		
Specialized						.1	.0006
Professional Development						.9	.0057
Personnel					.3		
Permanent						.1	.0003
Task Organized						.9	.0024
G-1				.04			
Training					.7		
Specialized						.5	.0013
Professional Development						.5	.0013
Personnel					.3		
Permanent						.1	.0001
Task Organized/Atch						.9	.0009
G-2				.04			
Training					.7		
Specialized						.7	.0018
Professional Development						.3	.0008
Personnel					.3		
Permanent						.8	.0009
Task Organized/Atch						.2	.0002
G-3				.10			
Training					.7		
Specialized						.2	.0013
Professional Development						.8	.005
Personnel					.3		
Permanent						.2	.0005
Task Organized/Atch						.8	.0022

MAGTF Model (Cont'd)

MODEL ELEMENT	1	2	3	4	5	6	Final Weight
G-4				.08			
Training					.7		
Specialized						.2	.001
Professional Development						.8	.004
Personnel					.3		
Permanent						.2	.0004
Task Organized/Atch						.8	.0017
G-5				.04			
Training					.7		
Specialized						.5	.0012
Professional Development						.5	.0012
Personnel					.3		
Permanent						.2	.0002
Task Organized/Atch						.8	.0009
CEO				.04			
Training					.7		
Specialized						.7	.0018
Professional Development						.3	.0008
Personnel					.3		
Permanent						.2	.0002
Task Organized/Atch						.8	.0009
Engineer				.04			
Training					.7		
Specialized						.2	.0005
Professional Development						.8	.002
Personnel					.3		
Permanent						.5	.0004
Task Organized/Atch						.5	.0004
FSC				.04			
Training					.4		
Specialized						.2	.0003
Professional Development						.8	.0012

MAGTF Model (Cont'd)

MODEL ELEMENT	1	2	3	4	5	6	Final Weight
Personnel					.6		
Permanent						.1	.0002
Task Organized/Atch						.9	.0019
PMO				.16			
Training					.5		
Specialized						.7	
Professional Development						.3	
Personnel					.5		
Permanent						.2	
Task Organized/Atch						.8	
Air Officer				.04			
Training					.4		
Specialized						.1	.0001
Professional Development						.9	.0013
Personnel					.6		
Permanent						.1	.0002
Task Organized/Atch						.9	.0019
EWO				.04			
Training					.7		
Specialized						.1	.0003
Professional Development						.9	.0023
Personnel					.3		
Permanent						.1	.0001
Task Organized/Atch						.9	.0009
NBCDO				.04			
Training					.7		
Specialized						.1	.0003
Professional Development						.9	.0023
Personnel					.3		
Permanent						.1	.0001
Task Organized/Atch						.9	.0009

MAGTF Model (Cont'd)

MODEL ELEMENT	1	2	3	4	5	6	Final Weight
PsyOpsO				.04			
Training					.7		
Specialized						.1	.0003
Professional Development						.9	.0023
Personnel					.3		
Permanent						.1	.0001
Task Organized/Atch						.9	.0009
Other (RASO)				.16			
Training					.3		
Specialized						.5	.0022
Professional Development						.5	.0022
Personnel					.7		
Permanent						.1	.001
Task Organized/Atch						.9	.0091
RAS Contingency Plans/SOPs			.25				
Situation (RAS-peculiar)				.09			
Training					.6		
Specialized						.5	.0012
Professional Development						.5	.0012
Personnel					.4		
Permanent						.6	.0009
Task Organized/Atch						.4	.0007
Mission				.18			
Training					.6		
Specialized						.5	.0024
Professional Development						.5	.0024
Personnel					.4		
Permanent						.5	.0016
Task Organized/Atch						.5	.0016

MAGTF Model (Cont'd)

MODEL ELEMENT	1	2	3	4	5	6	Final Weight
Execution				.36			
Training					.6		
Specialized						.5	.0048
Professional Development						.5	.0048
Personnel					.4		
Permanent						.6	.0036
Task Organized/Atch						.4	.0028
Administration				.32			
Training					.6		
Specialized						.5	.0043
Professional Development						.5	.0043
Personnel					.4		
Permanent						.8	.0046
Task Organized/Atch						.2	.0012
Command and Control				.05			
Training					.6		
Specialized						.5	.0007
Professional Development						.5	.0007
Personnel					.4		
Permanent						.7	.0006
Task Organized/Atch						.3	.0003
Equipment and Facilities			.25				
Comm-Elect				.5			
Radios					.3		.0068
Sensors					.35		.0079
ADPE					.35		.0079
Shelters				.2			
Tentage					.5		.0045
Hard					.5		.0045
Transportation				.3			.0135

MAGTF Model (Cont'd)

MODEL ELEMENT	1	2	3	4	5	6	Final Weight
Information		.35					
Intelligence Information			.6				
What is Nature of threat?				.3			
Training					.334		
Specialized						.2	.0025
Professional Development						.4	.0050
EST						.4	.0050
Personnel					.333		
Permanent						.6	.0076
Task Organized/Atch						.4	.0050
Equipment					.333		
Radios						.4	.0050
Sensors						.2	.0025
ADPE						.4	.0050
Where is Threat Originating?				.2			
Training					.334		
Specialized						.2	.0002
Professional Development						.4	.0003
EST						.4	.0003
Personnel					.333		
Permanent						.6	.0005
Task Orgn/Atch						.4	.0003
Equipment					.333		
Radios						.4	.0003
Sensors						.4	.0003
ADPE						.2	.0002
When Will Enemy Attack?				.5			
Training					.334		
Specialized						.2	.0004
Professional Development						.4	.0008
EST						.4	.0008
Personnel					.333		
Permanent						.6	.0013
Task Organized/Atch						.4	.0005

MAGTF Model (Cont'd)

MODEL ELEMENT	1	2	3	4	5	6	Final Weight
Equipment					.333		
Radios						.3	.0006
Sensors						.3	.0006
ADPE						.4	.0008
Friendly Information			.4				
Location of Friendly Units				.3			
Training					.2		
Specialized						.2	.0009
Professional Development						.4	.0017
EST						.4	.0017
Personnel					.2		
Permanent						.5	.0022
Task Orgn/Atch						.5	.0022
Equipment					.6		
Radios						.4	.0052
Sensors						.2	.0026
ADPE						.4	.0052
Current Activity of Friendly Units				.3			
Training					.2		
Specialized						.2	.0009
Professional Development						.4	.0017
EST						.4	.0017
Personnel					.2		
Permanent						.5	.0022
Task Organized/Atch						.5	.0022
Equipment					.6		
Radios						.4	.0052
Sensors						.2	.0026
ADPE						.4	.0052

MAGTF Model (Cont'd)

MODEL ELEMENT	1	2	3	4	5	6	Final Weight
Readiness to Respond				.4			
Training					.4		
Specialized						.2	.0023
Professional Development						.4	.0046
EST						.4	.0046
Personnel					.3		
Permanent						.4	.0034
Task Orgn/Atch						.6	.0051
Equipment					.3		
Radios						.4	.0034
Sensors						.2	.0017
ADPE						.4	.0034
Counterintelligence		.2					
Operational Security			.75				
Training				.5			
Specialized					.4		.0180
Professional Development/EST					.6		.0270
Personnel				.5			
Permanent					.3		.0135
Task Organized/Atch					.7		.0315
Cover and Deception Plan/Activity			.25				
Training				.4			
Specialized					.4		.0048
Professional Development/EST					.6		.0072
Personnel				.3			
Permanent					.3		.0027
Task Organized/Atch					.7		.0063
Equipment				.3			
Decoys					.334		.0030
Reflectors					.333		.0029
Beacons					.333		.0029

MAGTF Model (Cont'd)

MODEL ELEMENT	1	2	3	4	5	6	Final Weight
Engineer Support		.15					
Camouflage			.2				
Training				.5			
Specialized					.4		.0036
Professional Development/EST					.6		.0054
Personnel				.2			
Permanent					.3		.0011
Task Orgn/Atch					.7		.0025
Equipment				.3			
Engineer					.6		.0032
General					.4		.0022
Harden Installation			.3				
Training				.5			
Specialized					.4		.0054
Professional Development/EST					.6		.0081
Personnel				.2			
Permanent					.5		.0027
Task Organized/Atch					.5		.0027
Equipment				.3			
Cameras					.1		.0008
Lights					.1		.0008
Generators					.1		.0008
Field Fortif./Barrier Materials					.4		.0032
Eng. Construction Support					.3		.0024
Creating Barriers			.5				
Training				.5			
Specialized					.4		.0090
Professional Development/EST					.6		.0135
Personnel				.2			
Permanent					.4		.0036
Task Organized/Atch					.6		.0054

MAGTF Model (Cont'd)

MODEL ELEMENT	1	2	3	4	5	6	Final Weight
Equipment				.3			
Cameras					.1		.0014
Lights					.1		.0014
Generators					.1		.0014
Field Fortif./Barrier Materials					.4		.0054
Eng. Construction Support					.3		.0041
Activities After Receipt of RAS Mission	.4						
Transition		.4					
Commander and Staff of MAGTF			.5				
Specialized (MOS) Training				.2			.0160
Professional Development				.4			.0320
Essential Subjects Training				.2			.0160
Mission Oriented Training				.2			.0160
Command Support Elements			.3				
Specialized (MOS) Training				.2			.0096
Professional Development				.3			.0144
Essential Subjects Training				.3			.0144
Mission Oriented Training				.2			.0096
RAS Task Organizations (GCE, ACE)			.2				
Specialized (MOS) Training				.1			.0032
Professional Development				.1			.0032
Essential Subjects Training				.1			.0032
Mission Oriented Training				.7			.0224
Performance Capability		.6					
Secure/Defend			.4				
Local Security (interior guard, MP)				.3			
Training					.2		
Specialized						.2	.0012
Professional Development/FST						.3	.0017
Mission Oriented						.5	.0029

MAGTF Model (Cont'd)

MODEL ELEMENT	1	2	3	4	5	6	Final Weight
Personnel (Quantity and Quality)					.5		
Permanent						.3	.0043
Task Orgn/Attached						.7	.0101
Equipment					.3		
Engineer						.4	.0035
Ordnance						.6	.0052
Damage Control				.3			
Training					.2		
Specialized						.2	.0012
Professinal Development/EST						.3	.0017
Mission Oriented						.5	.0029
Personnel					.5		
Permanent						.1	.0014
Task Orgn/Attached						.9	.0129
Equipment					.3		
Engineer						.3	.0259
General						.2	.0173
MT						.3	.0259
Ordnance						.2	.0173
Defensive Combat				.4			
Training					.3		
Specialized						.2	.0023
Professional Development/EST						.2	.0023
Mission Oriented						.6	.0069
Personnel					.3		
Permanent						.2	.0023
Task Orgn/Attached						.8	.0092
Equipment (ordnance)					.4		
Indirect Fire Weapons						.2	.0031
Rotary Wing Aviation						.1	.0015
Fixed Wing Aviation						.1	.0015
Anti-Tank Weapons						.3	.0046
Anti-Air Weapons						.3	.0046

MAGTF Model (Cont'd)

MODEL ELEMENT	1	2	3	4	5	6	Final Weight
Fight (Counterattack)			.6				
Provide Indirect FIre Support for RAS				.5			
Training					.4		
Specialized						.3	.0086
Professinal Development/EST						.3	.0086
Mission Oriented Training						.4	.0115
Personnel					.4		
Permanent						.4	.0115
Task Orgn/Attached						.6	.0173
Equipment					.2		
Comm-Elect (e.g., PLRS)						.5	.0072
Other, if any (specify)						.5	.0072
Employ Reserve to Counterattack Rear Area Incursions				.5			
Training					.4		
Specialized						.2	.0058
Professional Development/EST						.2	.0058
Mission Oriented Training (ACE, GCE, etc)						.6	.0173
Personnel					.3		
Permanent						.3	.0006
Task Orgn/Attached						.7	.0015
Equipment					.3		
Comm-Elect						.6	.0029
Other (specify)						.4	.0008

A N N E X C

Annex G

Cost/Benefit Analysis Backup Data

The following sections of this annex contain the basic backup data used to perform the cost/benefit analysis work in this study:

I - Infantry Battalion (Note 1)
- o Organizational Structure
- o Concept of Organization
- o Concept of Employment
- o Administrative Capability
- o Logistic Capabilities
- o Major Items of Equipment

II - Marine Aircraft Wing (Note 1)
- o Organizational Structure
- o Communications Equipment
- o Weapons and Equipment

III - Force Service Support Group (Note 1)
- o Organizational Structure
- o Communicatdions Equipment
- o Weapons and Equipment

IV - Cost of Marine Corps Courses per Student (Note 2)

V - FMFLANT Battalion Field Training Factors (Note 2)

VI - FMFPAC Battalion Field Training Factors (Note 2)

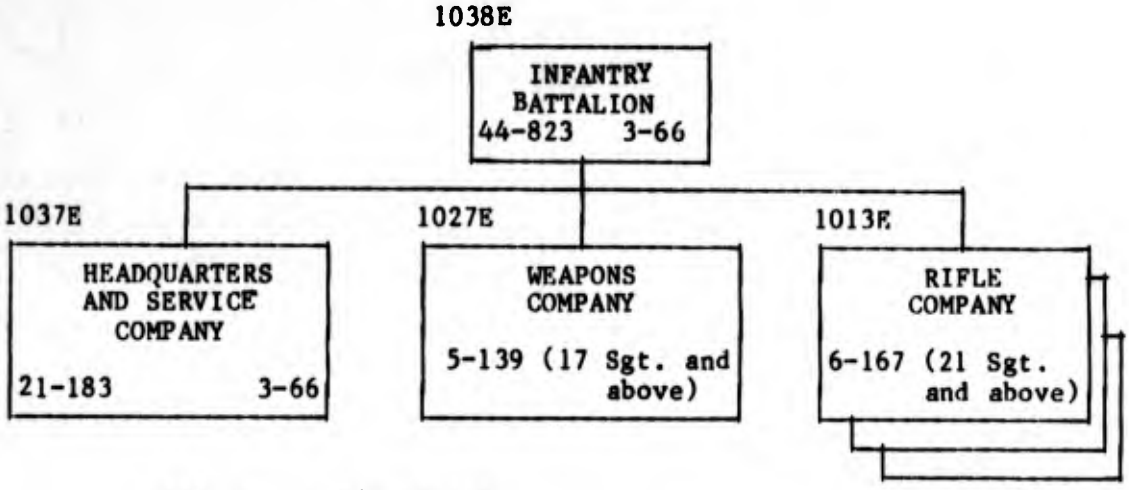
VII - Cost of Ground Training Ammunition (Note 2)

Notes:

1 - Extracted from Landing Force Organizational Systems Study, October 1985.

2. Extracted from Marine Corps Cost Factors Manual (19 June 1985).

I. Infantry Battalion (E-Series)



H&S Co. - T/O 19037E

CO	LtCol	0302	1
XO	Maj	0302	1
SgtMaj	SgtMaj	9999	1
S-2 Section			
S-2	Capt	0202	1
Intell Chief	GySgt	0231	1
Others (Sgt and below)			2
S-3 Section			
S-3	Maj	0302	1
Asst S-3	Capt	0302	1
Lsn Off	Lt	0302	2
Asst S-3/Air Off	Capt	7207	1
Asst S-3/FAC	Lt	7207	2
Inf Opns Chief	MSgt	0369	1
Inf Opns Asst	SSgt	0369	1
NBC Def Off	WO	5702	1
Others (Sgt and below)			5
Communications Platoon			
Plat Cdr/Bn Comm Off	Capt	2502	1
Comm Chief	MSgt	2591	1
Radio Tech	SSgt	2861	1
Msg Ctr Chief	SSgt	2549	1
Radio Chief	Sgt	2537	1
Others (Sgt and below)			60
Surveillance/Target Acquisition Platoon			
Plat Sgt/Radar Sa Ldr.	SSgt	0369	1
Chief Scout-Super	SSgt	8541	1
Other (Sgt and below)			19

(2) Concept of Organization

(a) Command and Control

1 Command and Staff. Command and staff functions are exercised through a compact operational command group consisting of the commander and his executive staff. The staff, utilizing the sequence of command and staff action, assists the commander in the decision making process. When divided into two groups, the staff is capable of establishing an alternate command post.

2 Communications. Communication means are provided to maintain reliable and continuous communication channels to subordinate units, attached units and higher headquarters. The primary method of communication to subordinate units is by wire and single-channel radio. Alternate methods of communication are messenger (helicopter, vehicle, foot) and visual.

3 Intelligence. Intelligence efforts are organized to provide surveillance, reconnaissance, and target acquisition commensurate with fire-and-maneuver capabilities of the battalion and responsive to the reaction time available to the commander. Information, collected by subordinate units as an integral part of their normal combat activities, is translated quickly into intelligence for use by the commander and his staff. Capable of limited intelligence processing only, the battalion forwards collected intelligence data to higher headquarters for further processing and use.

(b) Firepower. In addition to individual weapons, the organic firepower of the infantry battalion consists of light and medium mortars; light, medium and heavy machine guns; light and medium antitank weapons; shoulder-launched multipurpose assault weapons; grenade launchers; multishot flame weapons and sniper rifles.

(c) Mobility. The infantry battalion is primarily foot mobile, but, when necessary, high mobility multipurpose wheeled vehicles (HMMWV's) provide transportation for weapons, equipment and administrative and logistic functions. The battalion is transportable by helicopter, amphibious ships and craft, and tactical and strategic air transportation.

(3) Concept of Employment. The infantry battalion, the nucleus of the Battalion Landing Team, is the basic unit of tactical combat power organized to form a balanced fire-and-maneuver team. It can be employed separately, or as part of a larger force, in all types of operations. When operating separately and with augmentation, the battalion is capable of sustained operations spanning several days.

(4) Administrative Capability. The infantry battalion is capable of self-administration.

(5) Logistic Capability

(a) Maintenance. The battalion is capable of organizational maintenance (1st and 2d echelon) on all organic equipment.

(b) Medical. The battalion medical platoon provides preventive medicine, treatment for minor illnesses and injuries and emergency life saving for battle and non-battle casualties. Injured and sick persons requiring hospitalization are readied and evacuated to the rear. Normally, a battalion aid station (BAS) serves as the hub for medical support.

(c) Transportation. High mobility multipurpose wheeled vehicles (HMMWV's) provide organic transportation for the infantry.

(d) Supply. Battalion supply is capable of providing organic supply support for the battalion. Generally, unit-distribution is the preferred method of supply, although, depending on the situation, supply-point distribution may also be used.

(e) Dining. The infantry battalion is capable of operating a battalion dining facility in garrison or in the field. When required, the battalion has a limited capability to establish company dining facilities.

(6) Headquarters and Service Company

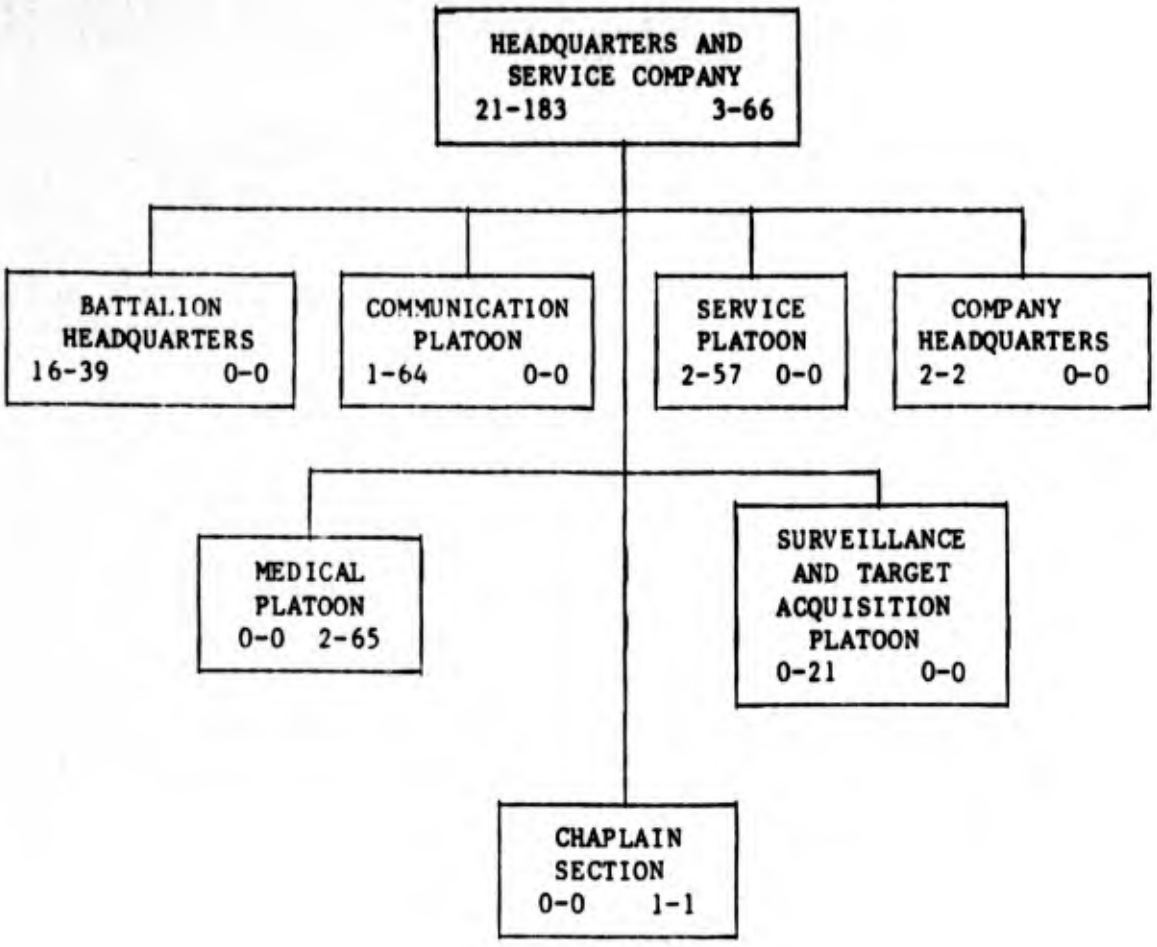
(a) Mission. To provide the battalion with the means for command, control, surveillance and target acquisition, and service support. (See Figure 2-5.)

(b) Concept of Organization

1 Command and Control

a Battalion Command and Control. The battalion headquarters directs and coordinates the entire battalion, including attached and reinforcing units.

b Command and Staff. With the assistance of a small company headquarters, the company commander analyzes the mission, develops and considers courses of action, makes decisions, issues orders, and directs and supervises the operations of the company.



Headquarters and Service Company

c Communications. Communication means are provided to maintain reliable and continuous communication channels to subordinate units, attached units and higher headquarters. The primary method of communication to subordinate units is by wire and single-channel radio. Alternate methods of communication are messenger and visual.

d Intelligence. Information gathered during combat operations is expedited to higher headquarters for processing. Processed intelligence is passed back to the company by higher headquarters on a regular basis.

2 Firepower. In addition to the individual weapons, the organic firepower of this H&S company consists of grenade launchers, medium machine guns and sniper rifles.

3 Mobility. Although the H&S Company is, to a great extent, foot mobile, high mobility multipurpose wheeled vehicles (HMMWV's) provide mobility for weapons, equipment and administrative and logistic functions. The company and its subordinate elements are also readily transported by tracked vehicles and helicopters as well as amphibious ships and craft, and tactical and strategic air transportation.

(c) Concept of Employment. The company headquarters is primarily employed to assist in coordinating combat service support, security and facilities for the company and the battalion headquarters. The STA, communications, medical, and service platoons are used in support of the entire battalion.

(d) Administative Capability. The H&S Company provides administrative support for the entire battalion.

(e) Logistic Capabilities

1 Maintenance. The H&S Company is capable of organizational maintenance (1st and 2d echelon) on all equipment organic to the battalion.

2 Medical. The Medical Platoon provides preventive medicine, treatment of minor illnesses and injuries and emergency life saving for battle and non-battle casualties. Injured and sick persons requiring hospitalization are readied and evacuated to the rear. Normally, a battalion aid station (BAS) serves as the hub for medical support.

3 Transportation. The MT Section, Service Platoon provides wheeled vehicles (HMMWV's) for organic transportation for the entire infantry battalion.

4 Supply. The Supply Section, Service Platoon is capable of providing organic supply support for the entire battalion. Generally unit-distribution is the preferred

method of supply, although, depending on the situation, supply-point distribution may also be used.

5 Dining. The Dining Facility Section, Service Platoon is capable of operating a battalion dining facility in garrison or the field. When required, the section has a limited capability to establish company dining facility.

6 The major items of equipment are shown below.

HEADQUARTERS AND SERVICE COMPANY, INFANTRY BATTALION

Decontamination Apparatus, M12A1	1
Launcher, Grenade, 40mm, M203	17
Night Vision Goggles, Individual, AN/PVS-5A	10
Radar Set (LBSR), AN/PPS-15(V)2	4
Radio Set, AN/VRC-85	1
Radio Set, Control Group, AN/GRA-39B	27
Radio Set, AN/GRC-160	11
Radio Set, AN/MRC-138	3
Radio Set, AN/PRC-68A	94
Radio Set, AN/MRC-110	2
Radio Set, AN/PRC-77	58
Radio Set, AN/PRC-75B	5
Radio Set, AN/PRC-104	5
Radio Set, AN/VRC-47	2
Receiving Set, AN/GRR-17	1
Switchboard, Telephone, Manual, SB-22A/PT	3
Switchboard, Telephone, Automatic, SB-3614(V)TT	1
Machine Gun, 7.62mm, M60	5
Night Vision Sight, Tripod Mounted, AN/TVS-4	4
Pistol, Automatic, Cal.45, M1911A1	133
Rifle (Improved), 5.56mm, M16A2	136
Rifle, Sniper, M40A1	8
Night Vision Sight, Individual Served Weapon, AN/PVS-4	10
Night Vision Sight, Crew Served, Weapon, AN/TVS-5	4
Telescope, Observation, M49	10
Revolver, Cal.38	3
Laser, Infrared Observation Set, AN/GVS-5	4
Machine Gun, Lt., Sgd Auto Wpn, M249	8
Terminal Telephone-Telegraph, TH-85A/GCC	4
Truck, Cargo, 1-1/4T, M561	3
Telephone Set, TA-838/TT	18
Teletypewriter, AN/GGC-3A	1
Trailer, Amphib. Cargo, 1/4T, M416	22
Truck, Ambulance, 1/4T, 4x4, M718A1	1
Truck, Cargo, 1-1/4T, 4x4T, M880	2
Truck, Cargo, 1-1/4T, M1008	4
Truck, Utility, 1/4T, 4x4, M151A2	28

(7) Weapons Company

(a) Mission. To provide medium mortar, antimechanized, assault and heavy machine gun support for the infantry battalion and its subordinate elements. (See Figure 2-6.)

(b) Concept of Organization

1 Command and Control

a Command and Staff. With the assistance of a small company headquarters, the company commander analyzes the mission, develops and considers courses of action, makes decisions, issues orders, and directs and supervises the operations of the company.

b Communications. Communication means are provided to maintain reliable and continuous communication channels to subordinate units, attached units and higher headqurters. The primary methods of communication to higher headquarters and subordinate units is by wire and single-channel radio. Alternative methods of communication are messenger and visual.

c Intelligence. Information gathered during combat operations is expedited to higher headquarters for processing. Processed intelligence is passed back to the company by higher headquarters on a regular basis.

2 Firepower. In addition to individual weapons, the organic firepower of the Weapons Company consists of medium mortars, light and medium antitank weapons, medium and heavy machine guns and grenade launchers.

3 Mobility. High mobility multipurpose wheeled vehicles (HMMWV's) organic to the infantry battalion, provide mobility for weapons, equipment and administrative and logistic functions. Also, the company is transportable by helicopter, amphibious ships and craft, and tactical and strategic air transportation.

(c) Concept of Employment. Generally, the company's mortar platoon, antiarmor platoon and heavy machine gun section are employed under battalion control; however, they may be attached to rifle companies.

(d) Administrative Capability. Administrative support is provided by the infantry battalion.

(e) Logistic Capabilities

1 Maintenance. The Company performs organizational maintenance (1st echelon) on all equipment organic to the company and organizational maintenance (2d echelon) on the DRAGON weapons system.

2 Medical. Medical support is provided by the infantry battalion.

3 Transportation. The Weapons Company has no organic transportation assets; however, transportation is provided by higher headquarters.

4 Supply. The Company does not stock, but it does receive and distribute supplies, generally using the unit-distribution method of supply. Supply-point distribution, although not the preferred method of supply, is also used.

5 Dining. Food service support is provided by the infantry battalion.

(f) The major items of equipment are shown below.

WEAPONS COMPANY, INFANTRY BATTALION

Circle, Aiming, M2A2	2
Launcher, Grenade, 40mm, M203	9
Laser, Infrared Observation Set, AN/GVS-5	14
Launcher, Rocket, 66mm, 4-tube, M202A1	3
Machine Gun, Lt., Sqd. Auto. Wpn., M249	6
Machine Gun, Cal.50, M2	6
Machine Gun, 40mm, MK-19, Mod-3	6
Machine Gun, 7.62mm, M60	6
Mortar, Inf. 81mm, M29A1	8
Night Vision Sight, Tracker, Infrared, AN/TAS-5	16
Night Vision Goggles, Individual, AN/PVS-5A	8
Night Vision Sight, Crew Served Weapon, AN/TVS-5	8
Pistol, Automatic, Cal .45, M1911A1	17
Rifle, (Improved), 5.56mm, M16A2	127
Tracker, Infrared, SU-36/P	8
Truck, Utility, 1/4T, 4x4, M151A2	22

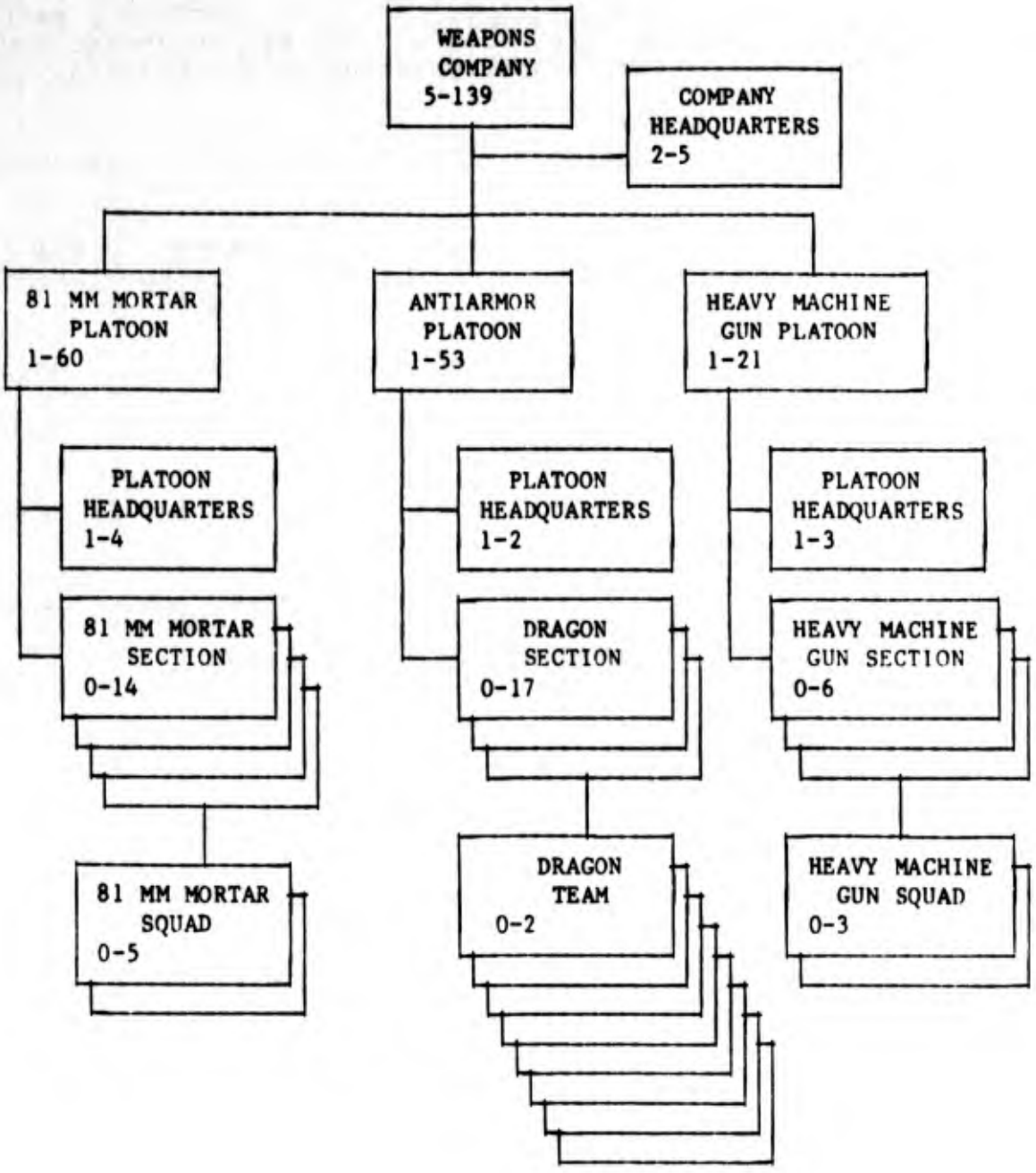
(8) Rifle Company

(a) Mission. To locate, close with and destroy the enemy by fire and maneuver, or to repel his assault by fire and close combat. (See Figure 2-7.)

(b) Concept of Organization

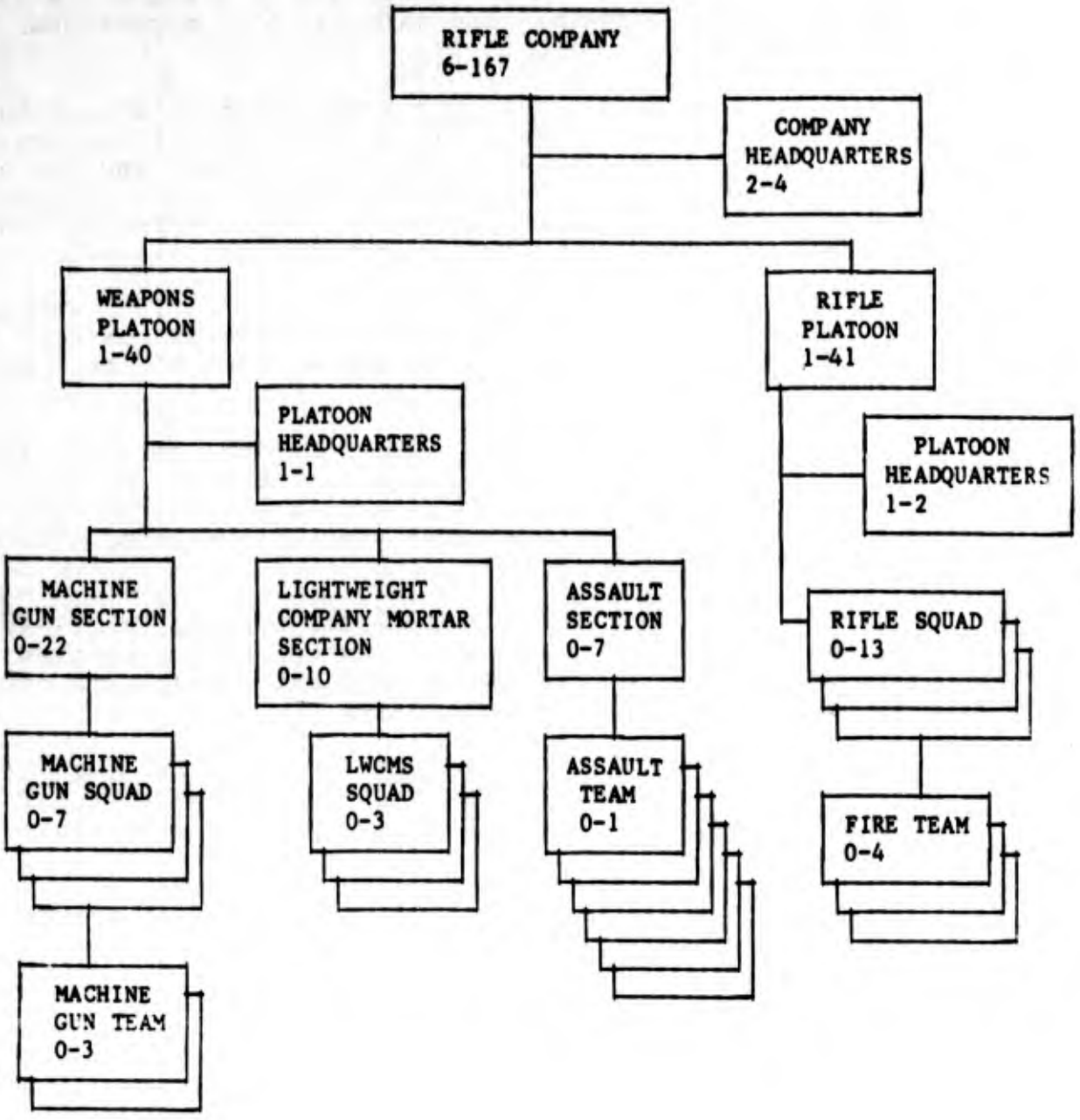
1 Command and Control

1027E



Weapons Company

1013E



Rifle Company

a Command and Staff. With the assistance of a small company headquarters, the company commander analyzes the mission, develops and considers courses of action, makes decisions, issues orders, and directs and supervises the operations of the company.

b Communications. Communication means are provided to maintain reliable and continuous communication channels to subordinate units, attached units and higher headquarters. The primary method of communication to subordinate units and higher headquarters is by wire and single-channel radio. Alternate methods of communication are messenger and visual.

c Intelligence. Information gathered during combat operations is expedited to higher headquarters for processing. Processed intelligence is passed back to the company by higher headquarters on a regular basis.

2 Firepower. In addition to individual weapons, the organic firepower of the rifle company consists of light and medium machine guns, light mortars, light antitank weapons, shoulder-launched multipurpose assault weapons, grenade launchers and multishot flame weapons.

3 Mobility. The Rifle Company is primarily foot mobile, but the company is readily transported by tracked and wheeled vehicles as well as helicopter, amphibious ships and craft, and tactical and strategic air transportation.

(c) Concept of Employment. Normally the rifle company operates as a maneuver element of the infantry battalion; but, with attachments, the company can be employed separately for short periods.

(d) Administrative Capability. Administrative support is provided by the infantry battalion.

(e) Logistic Capabilities

1 Maintenance. The Company performs organizational maintenance (1st echelon) on all equipment organic to the company.

2 Medical. Medical support is provided by the infantry battalion. Except when medical personnel are consolidated for efficiency -- as often occurs in garrison -- a medical team is assigned to each rifle company to provide first aid.

3 Transportation. The Rifle Company has no organic transportation assets; however, transportation is provided by higher headquarters.

4 Supply. The Company does not stock, but it does receive and distribute supplies, generally using the unit-distribution method of supply. Supply-point distribution, although not the preferred method of supply, is also used.

5 Dining. Food service support is provided by the infantry battalion.

(f) The major items of equipment are shown below.

RIFLE COMPANY, INFANTRY BATTALION

Launcher, Grenade, 40mm, M203	37
Laser, Infrared Observation Set, AN/GVS-5	2
Launcher, Assault, 83mm, SMAW, MK-153, Mod 0	6
Launcher, Rocket, 66mm, 4-tube, M202A1	3
Machine Gun, Lt., Sqd. Auto. Wpn., M249	27
Machine Gun, 7.62mm, M60	6
Mortar, 60mm, M224	3
Night Vision Goggles, Individual, AN/PVS-5A	14
Night Vision Sight, Individual Served Weapon, AN/PVS-4	20
Pistol, Automatic, Cal .45, M1911A1	23
Rifle, (Improved), 5.56mm, M16A2	123

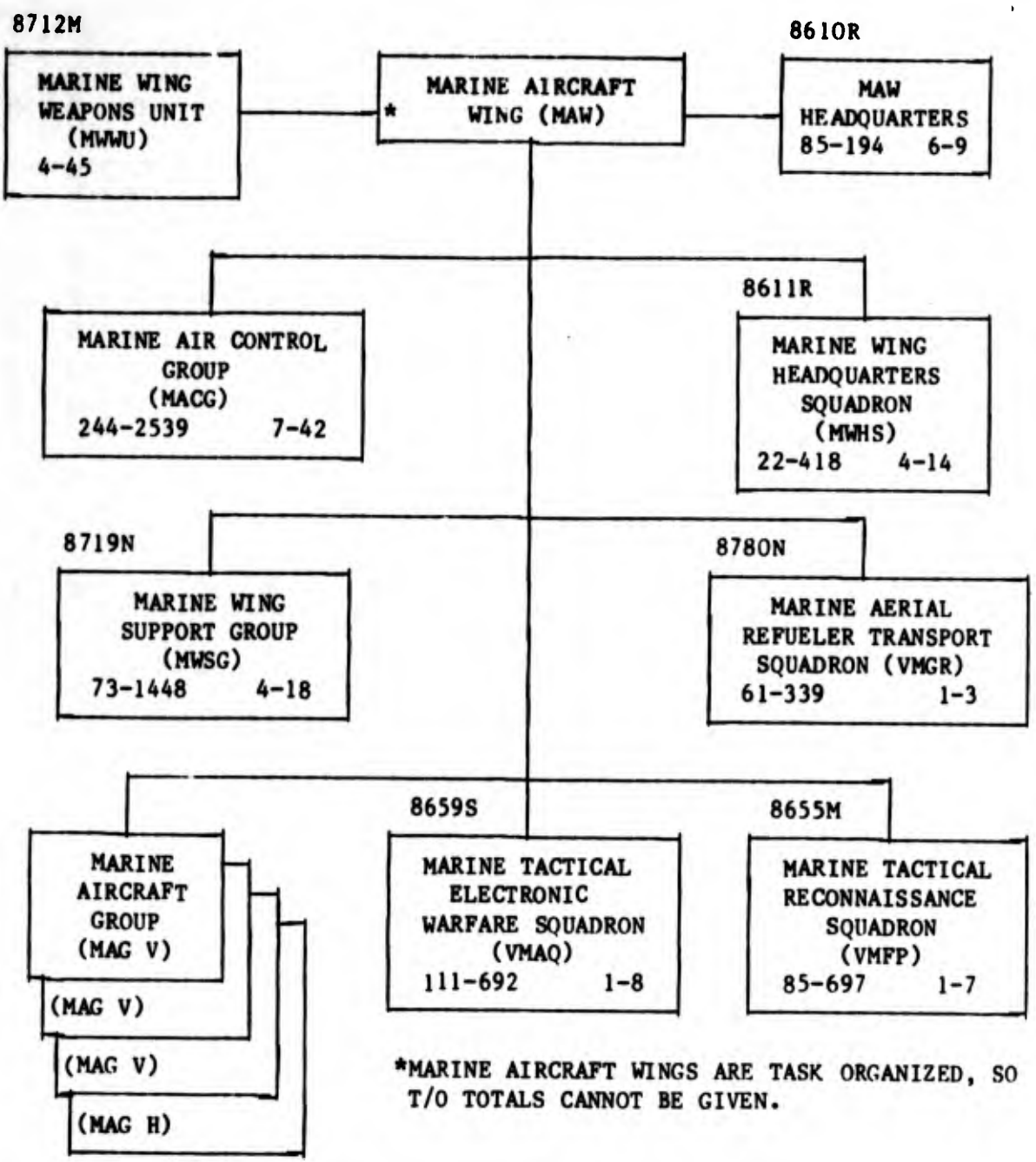
		MAR DIV	HQ BN	INF REGT	INF BN	ARTY REGT	ARTY BN	CBI ENGR BN	RECON BN	TANK BN	ASLT AMPH BN	LAV BN	[illegible]
SWITCHING EQUIPMENT	AN/TTC-42 (AUTOMATIC TELEPHONE CENTRAL (ULCS))		◆	◆		◆							[illegible]
	SB-3865 (AUTOMATIC SWITCHBOARD (ULCS))		◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	[illegible]
	AN/GYC-7 (ULMS)			◆	◆	◆	◆						[illegible]
MULTICHANNEL TRANSMISSION EQUIPMENT	AN/TSC-60 (COMMUNICATIONS CENTRAL)		◆										[illegible]
	AN/MRC-139(XN-1) (UHF DIGITAL WIDEBAND TRANS SYSTEM)		◆	◆		◆	◆						[illegible]
	AN/TRC-170 (SHF MULTIPLEX RADIO EQUIPMENT)		◆										[illegible]
	OE-534/TRC (AUX. GROUND TRANS. RADIO SHELTER)												[illegible]
	TD-1234 (MULTIPLEXER)		◆	◆	◆	◆	◆						[illegible]
	JTIDS-DTMA		◆	◆	◆	◆	◆						[illegible]
SINGLE CHANNEL TRANS EQUIPT.	AN/VRC-83 (VEHICULAR MOUNT VHF RADIO)		◆	◆	◆	◆	◆		◆	◆	◆	◆	[illegible]
	AN/PRC-113 (HANDHELD VHF/UHF RADIO)		◆	◆	◆		◆		◆			◆	[illegible]
	AN/GRC-( ) (SINCGARS RADIO FAMILY)		◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	[illegible]
TERMINAL DEVICES	AN/PSC-2 (DIGITAL COMMUNICATIONS TERMINAL)		◆	◆	◆	◆	◆		◆				[illegible]
	AN/UXC-7 (FACSIMILE)		◆	◆	◆	◆	◆					◆	[illegible]
	AN/UGC-74A (TACTICAL REPRO/DIST. FACILITY)		◆	◆		◆							[illegible]
	AN/MSC-63 A/B (COMMUNICATIONS CENTRAL/SSCC)		◆										[illegible]
	TA-954 (TELEPHONE (DNVT))		◆	◆	◆	◆	◆	◆	◆	◆	◆		[illegible]
	FIBER OPTIC CABLE SYSTEM		◆	◆	◆	◆	◆	◆	◆	◆	◆		[illegible]
	AUPE-CMP (CUMM MESSAGE PROCESSOR)		◆										[illegible]
SATCOM EQUIPMENT	AN/PSC-3 (MANPACK SATCOM RADIO)		◆	◆	◆								[illegible]
	AN/TSC-93A (SHELTER MOUNTED SATCOM RADIO)		◆										[illegible]
	SCOTT (EHF SINGLE CHANNEL TACTICAL TERMINAL)		◆										[illegible]
INTER-FACE EQUIPT													
COMSEC DEVICES	TSEC/KYV-5 (COMSEC FOR CV-3591 (ANUVT))		◆										[illegible]
	TSEC/KY-99 (COMSEC FOR ANUVT)		◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	[illegible]
	TSEC/KG-84A (DLED)		◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	[illegible]
	TSEC/KGX-93 (TRUNK ENCRYPTION DEVICE)												[illegible]
	TSEC/KY-68/78 (USVT)		◆	◆		◆	◆		◆	◆			[illegible]
	TSEC/KY-90 (SINKIU)		◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	[illegible]

COMMUNICATIONS EQUIPMENT, MARINE DIVISION (1986-1995)

	MAR DIV	HQ BN	INF REGT	INF BN	ARTY REGT	ARTY BN	CBT ENGR BN	RECON BN	TANK BN	ASLT AMPH BN	LAV BN	IOC
PLRS		●	●	●	●	●	●	●	●	●	●	87
MIFASS	●		●	●	●	●						91
TACTICAL COMBAT OPERATIONS SYSTEM	●		●	●	●	●	●	●	●	●		93
NAVSTAR GPS												89
PERSONAL DEFENSE WEAPON		●	●	●	●	●	●	●	●	●	●	8[illegible]
INDIVIDUAL SHELTER SYSTEM		●	●	●	●	●	●	●	●	●	●	89
MULTIPURPOSE HELMET		●				●			●	●	●	89
CHEMICAL AGENT MONITOR		●	●	●	●	●	●	●	●	●	●	85
NBC PROTECTIVE MASK		●	●	●	●	●	●	●	●	●	●	88
LTWT DECON SYSTEM							●					89
PORT. DECON. APPARATUS M13		●	●	●	●	●	●	●	●	●	●	87
LBSK AN/PPS-15		●										90
FORWARD PASS/TRSS		●										89
FAMILY OF SOFT SHELTERS		●	●	●	●	●	●	●	●	●	●	9[illegible]
REMOTELY PILOTED VEHICLE	●											8[illegible]
MOTORCYCLE		●	●		●			●			●	8[illegible]
MK-19 40MM MG				●								8[illegible]
IMP. 81MM MORTAR				●								87
84MM AT-4 LAW				●								87
SMAW HEAA RD.				●								89
IMP. DRAGON WARHEAD				●								87
60MM MORTAR MUNITIONS				●								87
M16A2 XM-4 CARBINE				●								87
SLAP (50/7.62 CAL)				●		●						85
MULE				●	●	●		●			●	8[illegible]
KALAK AN/TMQ-36					●							8[illegible]
PADS					●	●						8[illegible]
MDS AN/TMQ-51					●							87
TOPOGRAPHIC SURVEY SET												88
GSRS						●						9[illegible]
BATTERY COMPUTER SYSTEM						●						87
M712 COPPERHEAD						●						8[illegible]

WEAPONS AND EQUIPMENT, MARINE DIVISION, (1988-1995)

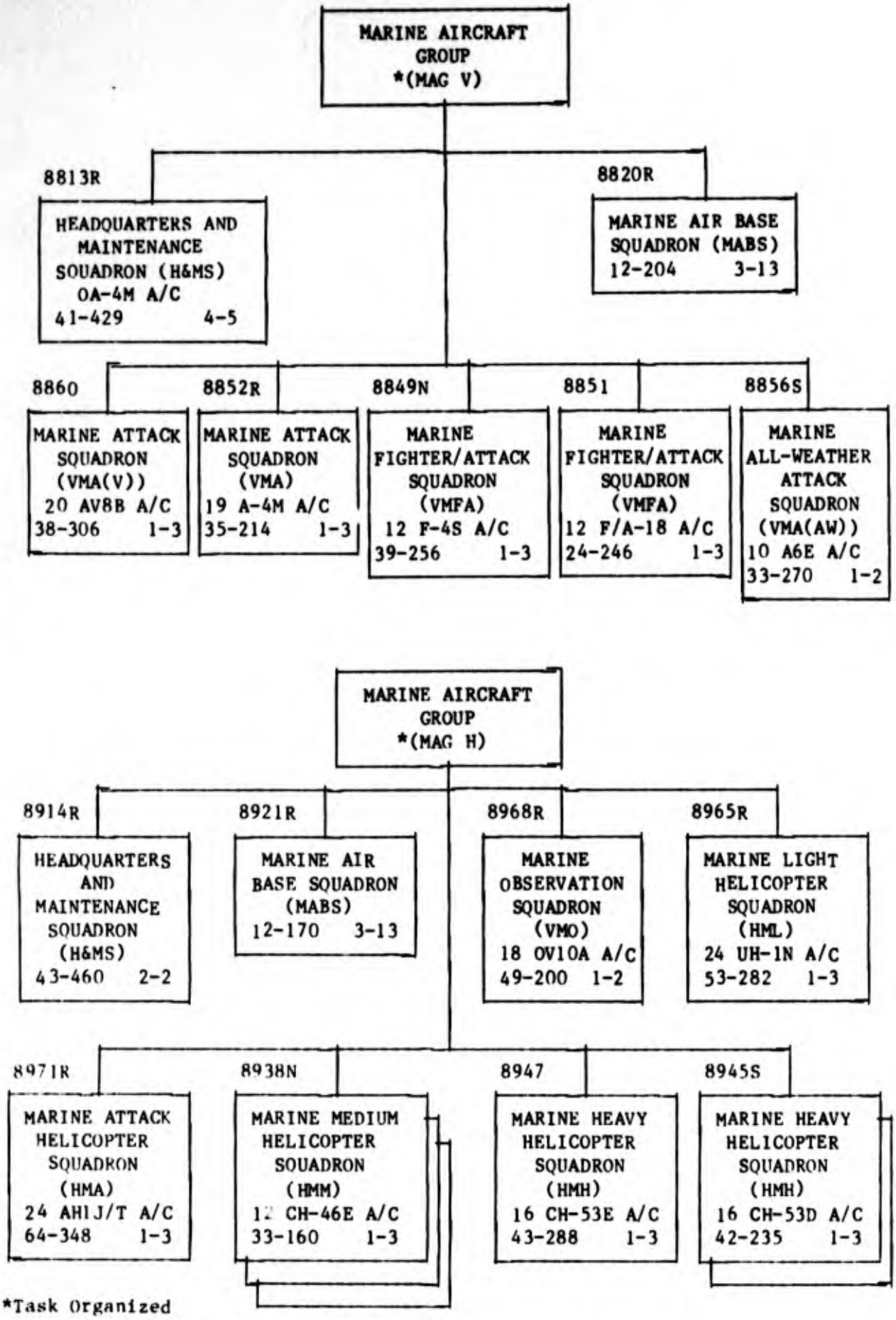
II. Marine Aircraft Wing (M Series)



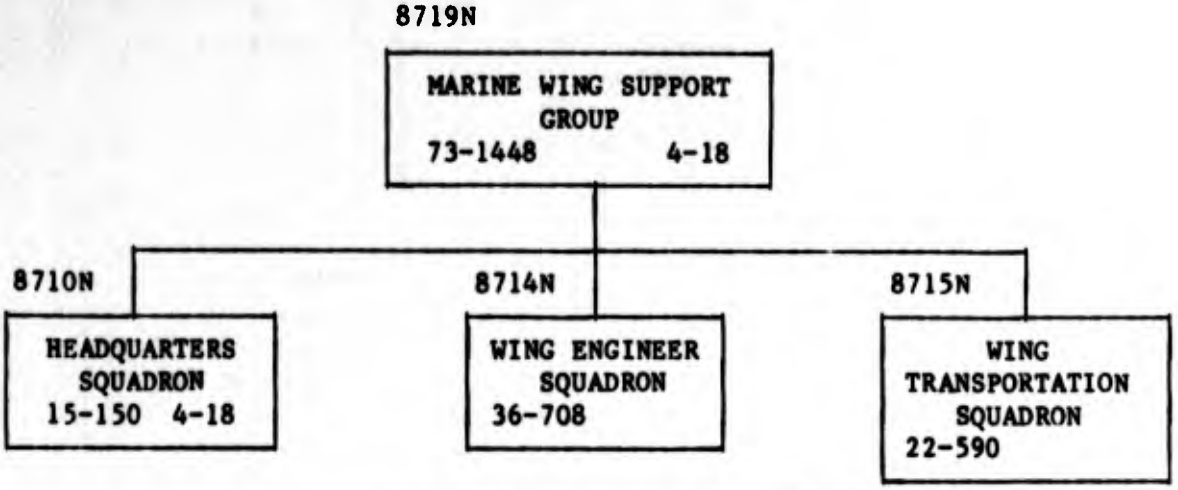
*MARINE AIRCRAFT WINGS ARE TASK ORGANIZED, SO T/O TOTALS CANNOT BE GIVEN.

MAW Strength Figures Used in This Study

Total MAW	- 14,979
Sgt and below	- 10,714
SSgt and above	- 2,566
Officers	- 1,699



Marine Aircraft Group (MAG(H)/MAG(V))



Current MAW T/O are shown above, however, the study team also referreed to baseline T/Os developed by the USMC Working Group on Aviation Ground Support Requirements. Copies of these T/Os (for MAG H&HS and MWSS) are attached.

Marine Wing Support Group

WORKING GROUP DEVELOPED BASELINE T/Os

	DESCRIPTION	GRADE	MOS	MARINE OFF	MARINE ENL
	H&HS				
1	COMMANDING OFFICER	COL	9906	1	
2	EXECUTIVE OFFICER	LTCOL	9910	1	
3	SERGEANT MAJOR	SGTMAJ	9999		1
		TOTAL		2	1
4	S-1				
5	ADJUTANT	CAPT	0180	1	
6	ADMIN/LEGAL OFF	LT	9910	1	
7	ADMIN CHIEF	MSGT	0193		1
8	ADMIN CLERK	SSGT	0151		1
10	ADMIN CLERK	SGT	0151		1
11	ADMIN CLERK	CPL	0151		2
12	CAREER PLANNER	GYSGT	8421		1
13	CHAPLAIN SECTION				
14	CHAPLIN	LT		1	
15	CHAPLIN ASSIST	HM3	0000		1
		TOTAL		2	6
16	S-3/S-2				
17	OPERATIONS OFFICER	LTCOL	9912	1	
18	ASST OPS OFF	MAJ	0402	1	
19	PLANS/INTEL OFF	MAJ	9910	1	
20	INTEL CHIEF	GYSGT	0231		1
21	INTEL CLK	SGT	0231		1
22	SPT OPS OFF	MAJ	9910	1	
23	OPERATIONS CHIEF	MSGT	0491		1
24	AVN OPERATIONS CLK	SSGT	7041		1
25	MT OPS CLK	SSGT	0537		1
26	ENG OPS CLK	SSGT	1345		1
27	COMM PLANS OFF	CAPT	2502	1	
28	COMM CHIEF	MSGT	2591		1
29	ADMIN CLERK/DRIVER	LCPL	0151		2
		TOTAL		5	12
30	S-4				
31	LOGISTICS OFF	MAJ	0402	1	
32	ASST LOG/MMO	CAPT	0402	1	
33	EMBARK OFF	CAPT	0430	1	
34	LOG CHIEF	MSGT	0491		1
35	MAINT MNGT CHIEF	MSGT	0411		1
36	MAINT MNGT CLK	SGT	0411		1
37	EMBARK CHIEF	SSGT	0431		1
38	ACCTING ANALYST	CPL	3451		2
39	SUPPLY SECTION				
40	SUPPLY OFF	CAPT	3002	1	
41	SUPPLY CHIEF	MSGT	3049		1
42	SUPPLY ADMIN MAN	LCPL	3043		2
		TOTAL		4	9
43	HEADQUARTERS SQUADRON				
44	HQ SECTION				
45	COMMANDING OFFICER	MAJ	9910	1	
46	EXECUTIVE OFFICER	CAPT	9910	1	

	DESCRIPTION	GRADE	MOS	MARINE OFF	MARINE ENL
47	FIRST SERGEANT	1STSGT	9999		1
		TOTAL		2	1
48	S-1				
49	PERSONNEL CHIEF	GYSGT	0193		1
50	ADMIN CLERK	CPL	0151		1
51	UNIT DIARY CLERK	CPL	0131		1
52	PERSONNEL CLERK	CPL	0121		1
53	PERSONNEL CLERK	LCPL	0121		1
		TOTAL			5
54	S-4/S-3 TRAINING				
55	LOG CHIEF	SSGT	0491		1
56	LOG CLERK	LCPL	0431		2
57	TRAINING/SAFETY NCO	SSGT	0369		1
58	ARMORER	CPL	2111		1
59	SUPPLY SECTION				
60	SUPPLY OFF	LT	3002	1	
61	SUPPLY CHIEF	SSGT	3043		1
62	SUPPLY ADMIN MAN	LCPL	3043		1
63	GEN WHSE MAN	LCPL	3051		2
		TOTAL		1	9
		SQDN TOTAL	MAR	16	41
		SQDN TOTAL	NAV	1	1

FIXED WING SUPPORT SQUADRON.

	DESCRIPTION	GRADE	MOS	OFF	ENL
1	SQDRN HQ				
2	COMMANDING OFFICER	LTCOL	9910	1	
3	EXECUTIVE OFFICER	MAJ	9912	1	
4	SERGEANT MAJOR	SGTMAJ	9999		1
		TOTAL		2	1
5	S-1 DEPT				
6	PERSONNEL OFF	CAPT	0170	1	
7	ADJUTANT/LEGAL OFF	LT	9911	1	
8	PERSONNEL CHIEF	GYSGT	0193		1
9	ADMIN CLERK	SSGT	0151		1
10	ADMIN CLERK	CPL	0151		1
11	UNIT DIARY CLERK	SGT	0131		1
12	UNIT DIARY CLERK	CPL	0131		1
13	UNIT DIARY CLERK	LCPL	0131		1
14	PERSONNEL CLERK	SGT	0121		1
15	PERSONNEL CLERK	CPL	0121		1
16	PERSONNEL CLERK	LCPL	0121		1
17	CAREER PLANNER	SSGT	8421		1
		TOTAL		2	10
18	FLIGHT LINE SECURITY DEPT				
19	SECURITY OFFICER	LT	9910	1	
20	SECURITY CHIEF	GYSGT	5811		1
21	SECTION LEADER	SSGT	5811		2
22	ASST SECT LDR	SGT	5811		4
23	MP	CPL	5811		8
24	MP	LCPL	5811		16
25	MP	PFC	5811		20
		TOTAL		1	51
26	S-3/S-2 DEPT				
27	OPERATIONS OFFICER	MAJ	9912	1	
28	ASST OPS/INTEL OFF	CAPT	9910	1	
29	OPERATIONS CHIEF	MSGT	0491		1
30	ADMIN CLERK	LCPL	0151		1
31	GROUND/OPS OFF	CAPT	9910	1	
32	PLANS/TRNG OFF	CAPT	9912	1	
33	PLANS/TRNG CHIEF	GYSGT	7041		1
34	AVIATION OPS MAN	SGT	7041		1
35	ADMIN MAN	LCPL	0151		1
36	NBC NCO	SGT	5711		1
37	INTEL CHIEF	SSGT	0231		1
38	INTEL CLERK	CPL	0231		1
39	WIRE SECTION				
40	WIRE CHIEF	SSGT	2519		1
41	WIREMAN/SB OPR	CPL	2512		4
42	WIREMAN/SB OPR	PFC/PVT	2512		5
		TOTAL		4	16
43	AIRFIELD OPS DIV				
44	AIRFIELD OPNS OFF	MAJ	9912	1	
45	ASST AIRFIELD OPNS OFF	CAPT	9912	1	
46	AIRFIELD OPNS CHIEF	MSGT	7041		1

47	OPNS/SAFETY NCO	SSGT	7041		1
48	OPNS MAN	CPL	7041		2
49	PHOTO BRANCH				
50	PHOTOGRAPHER	SGT	4641		1
51	PHOTOGRAPHER	LCPL	4641		2
52	AIR FREIGHT BRANCH				
53	AIR FREIGHT CHIEF	GYSGT	0491		1
54	MHE OPER	CPL	1345		1
55	MT OPER	LCPL	3531		1
56	OPER CLERK	CPL	0431		2
57	WEATHER SERVICES BRANCH				
58	WEATHER OFFICER	CAPT	6802	1	
59	WEATHER SERV CHIEF	MSGT	6842		1
60	WEATHER FORCASTER	SSGT	6842		2
61	WEATHER OBSERVER	SSGT	6821		1
62	TECH	SSGT	5938		1
63	RAWIN CHIEF	GYSGT	6842		1
64	RAWIN OPERATOR	SGT	6822		1
65	WEATHER OBSERVER	SGT	6821		2
66	WEATHER OBSERVER	CPL	6821		2
67	WEATHER OBSERVER	LCPL	6821		2
68	RAWIN OPERATOR	CPL	6822		2
69	RAWIN OPERATOR	LCPL	6822		2
70	TECH	CPL	5938		1
71	EAF SERVICES BRANCH				
72	EAF SERVICES OFFICER	CWO	7002	1	
73	EAF SERVICES CHIEF	MGYSGT	7011		1
74	MAINT/MAT CONTROL SECTION				
75	M/M CHIEF	MSGT	7011		1
76	TECH PUB MAN	LCPL	6046		1
77	LOGS/RECORDS/ANAL MAN	CPL	6046		1
78	QA/ANALYSIS CHIEF	GYSGT	7011		1
79	QA REP	SSGT	7011		2
80	MATERIAL CONTROL CHIEF	SGT	3072		1
81	AVIATION SUPPLY NCO	CPL	3072		1
82	TOOL CONTROL/CAL NCO	CPL	7011		1
83	PRODUCTION CONTROL SECTION				
84	PRODUCTION CONTROL CHIEF	GYSGT	7011		1
85	M-21 MAINT SPEC	SSGT	7011		1
86	M-21 MAINT SPEC	SGT	7011		2
87	M-21 MAINT SPEC	CPL	7011		2
88	M-21 MAINT SPEC	LCPL	7011		2
89	VLA MAINT SPEC	SGT	7011		1
90	VLA MAINT SPEC	CPL	7011		1
91	VLA MAINT SPEC	LCPL	7011		2
92	AIRCRAFT RECOVERY SECTION				
93	AIRCRAFT RECOVERY TEAM (X2)				
94	AIRCRAFT RECOVERY CHIEF	GYSGT	7011		1
95	RECOVERY CREW LDR	SSGT	7011		1
96	CREWMAN	SGT	7011		1
97	CREWMAN	LCPL	7011		2
98	CREWMAN	PFC	7011		2
99	FLOS OPTR	CPL	7011		2
100	STRUCT & C/F/R BRANCH				
101	C/F/R OFF	CWO	7002	1	
102	C/F/R CHIEF	MSGT	7051		1

103	FIRE INSP	GYSGT	7051		2
104	TRAINING CHIEF	GYSGT	7051		1
105	TRUCKMASTER	SSGT	7051		1
106	CFR MECH	CPL	3521		1
107	MATERIAL CHIEF	SSGT	7051		1
108	SUPPLY NCO	CPL	7051		1
109	DISPATCHER	SGT	7051		2
110	ADMIN CLERK	CPL	7051		1
111	STRUCT FIRE TEAM (X2)				
112	CREW LEADER	SGT	7051		2
113	C/F/R MAN	CPL	7051		2
114	C/F/R MAN	LCPL	7051		2
115	C/F/R MAN	PFC	7051		4
116	C/F/R TEAM (X2)				
117	SECTION LEADER	SSGT	7051		1
118	CREW LEADER	SGT	7051		4
119	C/F/R MAN	CPL	7051		4
120	C/F/R MAN	LCPL	7051		4
121	C/F/R MAN	PFC	7051		4
123	AUX CFR VEH OPR	CPL	7051		1
124	RESCUE/EQUIP OPR	LCPL	7051		1
		TOTAL		5	139
125	MOTOR TRANSPORT DIV				
126	MTO	CAPT	3502	1	
127	MT CHIEF	MSGT	3537		1
128	CHIEF DISPATCHER	SSGT	3537		1
129	ASST DISPATCHER	SGT	3531		1
130	LICENSING NCO	SGT	3531		1
131	TRUCK MASTER	GYSGT	3537		1
132	ROAD MASTER	SSGT	3537		2
133	EMBARK NCO	SGT	3531		1
134	CLERK/DRIVER	LCPL	3531		1
135	LIGHT/MEDIUM MV BRANCH				
136	OIC	LT	3502	1	
137	BRANCH CHIEF	GYSGT	3537		1
138	SECTION LEADER	SSGT	3531		2
139	MV OPERATOR	SGT	3531		4
140	MV OPERATOR	CPL	3531		8
141	MV OPERATOR	LCPL	3531		20
142	MV OPERATOR	PFC	3531		37
143	LINE MECH	LCPL	3521		2
144	HEAVY MV BRANCH				
145	DIV CHIEF	SSGT	3537		1
146	TRAC TRL OPR	CPL	3533		2
147	TRAC TRL OPR	LCPL	3533		2
148	TRAC TRL OPR	PFC	3533		4
149	REFUELER BRANCH				
150	OIC	LT	3502	1	
151	NCOIC	GYSGT	3537		1
152	DISPATCHER	CPL	3534		2
153	SECT LEADER	SSGT	3537		2
154	REFUELER OPR	SGT	3534		4
155	REFUELER OPR	CPL	3534		8
156	REFUELER OPR	LCPL	3534		16
157	LINE MECH	LCPL	3521		2

		TOTAL		3	127
158	ENGINEER DIV				
159	OIC	CAPT	1302	1	
160	ASST OIC	LT	1302	1	
161	ENGINEER OPS CHF	MSGT	1379		1
162	DISP/RECORDS NCOIC	SSGT	1345		1
163	ASST DISP/EXAM NCO	SGT	1345		1
164	EMBARK NCO	SGT	0431		1
165	DRAFTING/SURVEY BRANCH				
166	NCOIC	SSGT	1411		1
167	DRAFTER	CPL	1411		1
168	SURVEYOR	SGT	1441		4
169	HEAVY EQPT/MHE BRANCH				
170	OIC	LT	1310	1	
171	NCOIC	GYSGT	1349		1
172	SECTION LEADER	SSGT	1345		2
173	ENGR EQUIP OPER	SGT	1345		4
174	ENGR EQUIP OPER	CPL	1345		8
175	ENGR EQUIP OPER	LCPL	1345		10
176	ENGR EQUIP OPER	PFC	1345		16
177	UTILITIES BRANCH				
178	UTILITIES OFF	WO	1120	1	
179	NCOIC	GYSGT	1169		1
180	ASST NCOIC/REC	SSGT	1169		1
181	UTIL ADMIN	CPL	1161		1
182	ELECTRICAL SECTION				
183	NCOIC	SSGT	1141		1
184	ELECTRICIAN	SGT	1141		2
185	ELECTRICIAN	CPL	1141		2
186	ELECTRICIAN	LCPL	1141		4
187	REFRIGERATION SECTION				
188	NCOIC	SGT	1161		1
189	REFRIG MECH	CPL	1161		1
190	REFRIG MECH	LCPL	1161		2
191	WATER SUPPLY/HYGENE SECTION				
192	NCOIC	GYSGT	1169		1
193	ASST NCOIC	SSGT	1171		1
194	HYGENE EQUIP OPER	SGT	1171		2
195	HYGENE EQUIP OPER	CPL	1171		4
196	HYGENE EQUIP OPER	LCPL	1171		6
197	HYGENE EQUIP OPER	PFC	1171		10
198	TAFDS BRANCH				
199	TAFDS OFF	WO	1390	1	
200	TAFDS CHIEF	GYSGT	1391		1
201	ASST NCOIC	SSGT	1391		1
202	BULK FUEL MAN	SSGT	1391		2
203	BULK FUEL MAN	SGT	1391		2
204	BULK FUEL MAN	CPL	1391		4
205	BULK FUEL MAN	LCPL	1391		8
206	BULK FUEL MAN	PFC	1391		12
207	CONSTRUCTION BRANCH (X2)				
208	SECTION LEADER	LT	1302	1	
209	NCOIC	GYSGT	1371		1
210	CONST FOREMAN	SSGT	1371		1
211	COMBAT ENGR	SGT	1371		3

212	COMBAT ENGR	CPL	1371		6
213	COMBAT ENGR	LCPL	1371		10
214	COMBAT ENGR	PFC	1371		16
		TOTAL		7	195
215	FOOD SERVICES DIVISION				
216	DINING FAC MGR	MGYSGT	9381		1
217	ASST DNG FAC MGR	MSGT	9381		1
218	CHIEF COOK	GYSGT	9381		2
219	ASST CHIEF COOK	SSGT	9381		2
220	CHIEF FOOD SVC ADT	SSGT	9381		2
221	ASST CHIEF FOOD SVC ADT	CPL	9381		2
222	FOOD SVC SPEC	SSGT	9381		2
223	FOOD SVC SPEC	SGT	9381		4
224	FOOD SVC SPEC	CPL	9381		4
225	FOOD SVC SPEC	LCPL	9381		6
226	FOOD SVC SPEC	PFC	9381		12
227	BAKER	GYSGT	9311		1
228	BAKER	SSGT	9311		2
229	BAKER	CPL	9311		2
230	BAKER	LCPL	9311		2
231	BAKER	PFC	9311		2
232	SUBS SUP CLK	SGT	9061		2
233	CLERK TYPIST	LCPL	0151		1
		TOTAL			50
234	MEDICAL DIV				
235	FLIGHT SURGEON	LT	2101	2	
236	MED ADMIN TECH	HMCS	0000		1
237	PREV MED TECH	HMC	8402		2
238	AVN MED TECH	HM1	8404		1
239	X-RAY TECH	HM1	8452		1
240	PHARMACY TECH	HM1	8482		1
241	LAB TECH	HMI	8506		1
242	MED FIELD TECH	HM3	8404		9
		TOTAL		2	16
243	S-4/LOGISTICS DEPT				
244	LOGISTICS OFF	MAJ	0402	1	
245	ASST LOG OFF	LT	0402	1	
246	LOG CHIEF	MSGT	0491		1
247	EMBARK CHIEF	SSGT	0431		1
248	LOG/EMBARK MAN	SGT	0431		1
249	LOG/EMBARK MAN	CPL	0411		2
250	LOG MAN/DRIVER	LCPL	0411		1
251	MAINT/MNGT DIV				
252	MMO	WO	0410	1	
253	MM CHIEF	GYSGT	0411		1
254	MIMMS CLERK	CPL	0411		2
255	PUBS/CAL CLERK	LCPL	0411		1
256	ARMORY BRANCH				
257	ARMORER	SGT	2111		1
258	ARMORER	LCPL	2111		2
		TOTAL		3	13
259	EQPT MAINT DIV				

260	OIC	CAPT	9510	1	
261	ASST OIC	LT	1310	1	
262	MAINT CHIEF	MSGT	9529		1
263	PUBS/LAYETTE MT	LCPL	9521		2
264	PUBS/LAYETTE ENG.	LCPL	1341		2
265	MIMMS/ADMIN CLERK	CPL	0411		1
266	ADPL/RECORDS CLERK	CPL	1041		1
267	SUPPLY/ADMIN CLERK	CPL	3043		1
268	TOOL RM/CAL.MAN	PFC	1341		2
269	TOOL RM/CAL MAN	PFC	1142		1
270	MT MAINT BRANCH				
271	NCOIC	GYSGT	9529		1
272	ASST NCOIC	SSGT	9529		1
273	MT MECH	SGT	9521		4
274	MT MECH	CPL	9521		8
275	MT MECH	LCPL	9521		10
276	RECOVERY VEH OPR	CPL	9523		3
277	ENGR MAINT BRANCH				
278	NCOIC	GYSGT	1349		1
279	ASST NCOIC	SSGT	1169		1
280	ENGR MECH	SGT	1341		1
281	ENGR MECH	CPL	1341		2
282	ENGR MECH	LCPL	1341		4
283	ELECT EQPT MECH	SGT	1142		1
284	ELECT EQPT MECH	CPL	1142		4
285	ELECT EQPT MECH	LCPL	1142		6
286	REFRIG MECH	LCPL	1161		2
287	BODY RPR/WELDING BRANCH				
288	NCOIC	SSGT	1316		1
289	WELDER	CPL	1316		2
290	BODY REPAIR MECH	LCPL	9513		2
		TOTAL		2	65
291	SUPPLY/FISCAL DIV				
292	SUPPLY OFF	CAPT	3002	1	
293	SUPPLY CHIEF	MSGT	3043		1
294	SUPPLY CLK	SSGT	3043		1
295	SUPPLY CLK	SGT	3043		1
296	SUPPLY CLK	CPL	3043		2
297	SUPPLY CLK	LCPL	3043		4
298	AVN SUPPLY CLK	SGT	3072		1
299	AVN SUPPLY CLK	CPL	3072		1
300	ACCOUNTING TECH	SSGT	3451		1
301	ACCOUNTING TECH	SGT	3451		2
302	WAREHOUSE BRANCH				
303	CHIEF	GYSGT	3051		1
304	GEN WAREHOUSE MAN	LCPL	3051		3
		TOTAL		1	18
		SQUADRON TOTAL MAR		30	695
		SQUADRON TOTAL NAV		2	16

ROTARY WING SUPPORT SQUADRON

	DESCRIPTION	GRADE	MOS	OFF	ENL
1	SQDRN HQ				
2	COMMANDING OFFICER	LTCOL	9910	1	
3	EXECUTIVE OFFICER	MAJ	9912	1	
4	SERGEANT MAJOR	SGTMAJ	9999		1
		TOTAL		2	1
5	S-1 DEPT				
6	PERSONNEL OFF	CAPT	0170	1	
7	ADJUTANT/LEGAL OFF	LT	9911	1	
8	PERSONNEL CHIEF	GYSGT	0193		1
9	ADMIN CLERK	SSGT	0151		1
10	ADMIN CLERK	CPL	0151		1
11	UNIT DIARY CLERK	SGT	0131		1
12	UNIT DIARY CLERK	CPL	0131		1
13	UNIT DIARY CLERK	LCPL	0131		1
14	PERSONNEL CLERK	SGT	0121		1
15	PERSONNEL CLERK	CPL	0121		1
16	PERSONNEL CLERK	LCPL	0121		1
17	CAREER PLANNER	SSGT	8421		1
		TOTAL		2	10
18	FLIGHT LINE SECURITY DEPT				
19	SECURITY OFFICER	LT	9910	1	
20	SECURITY CHIEF	GYSGT	5811		1
21	SECTION LEADER	SSGT	5811		2
22	ASST SECT LDR	SGT	5811		4
23	MP	CPL	5811		6
24	MP	LCPL	5811		16
25	MP	PFC	5811		30
		TOTAL		1	61
26	S-3/S-2 DEPT				
27	OPERATIONS OFFICER	MAJ	9912	1	
28	ASST OPS/INTEL OFF	CAPT	9910	1	
29	OPERATIONS CHIEF	MSGT	0491		1
30	ADMIN CLERK	LCPL	0151		1
31	GROUND OPS OFF	CAPT	9910	1	
32	PLANS/TRNG OFF	CAPT	9912	1	
33	PLANS/TRNG CHIEF	GYSGT	7041		1
34	AVIATION OPS MAN	SGT	7041		1
35	ADMIN MAN	LCPL	0151		1
36	NBC NCO	SGT	5711		1
37	INTEL CHIEF	SSGT	0231		1
38	INTEL CLERK	CPL	0231		1
39	WIRE SECTION				
40	WIRE CHIEF	SSGT	2519		1
41	WIREMAN/SB OPR	CPL	2512		2
42	WIREMAN/SB OPR	PFC/PVT	2512		5
		TOTAL		4	16
43	AIRFIELD OPS DIV				
44	AIRFIELD OPNS OFF	MAJ	9912	1	
45	ASST AIRFIELD OPNS OFF	CAPT	9912	1	
46	AIRFIELD OPNS CHIEF	MSGT	7041		1

47	OPNS/SAFETY NCO	SSGT	7041		1
48	OPNS MAN	CPL	7041		2
49	PHOTO BRANCH				
50	PHOTOGRAPHER	SGT	4641		1
51	PHOTOGRAPHER	LCPL	4641		2
52	WEATHER SERVICES BRANCH				
53	WEATHER OFFICER	CAPT	6802	1	
54	WEATHER SERV CHIEF	MSGT	6842		1
55	WEATHER FORCASTER	SSGT	6842		2
56	WEATHER OBSERVER	SSGT	6821		1
57	TECH	SSGT	5938		1
58	WEATHER OBSERVER	SGT	6821		2
59	WEATHER OBSERVER	CPL	6821		2
60	WEATHER OBSERVER	LCPL	6821		2
61	TECH	CPL	5938		1
62	EAF SERVICES BRANCH				
63	EAF SERVICES OFFICER	CWO	7002	1	
64	EAF SERVICES CHIEF	MSGT	7011		1
65	MAINT/MAT CONTROL SECTION				
66	M/M CHIEF	GYSGT	7011		1
67	TECH PUB MAN	LCPL	6046		1
68	LOGS/RECORDS/ANAL MAN	CPL	6046		1
69	QA/ANALYSIS CHIEF	SSGT	7011		1
70	QA REP	SGT	7011		2
71	MATERIAL CONTROL CHIEF	SGT	3072		1
72	AVIATION SUPPLY NCO	CPL	3072		1
73	TOOL CONTROL/CAL NCO	LCPL	7011		1
74	PRODUCTION CONTROL SECTION				
75	PRODUCTION CONTROL CHIEF	SSGT	7011		1
76	VLA MAINT SPEC	CPL	7011		1
77	VLA MAINT SPEC	LCPL	7011		1
78	FLOS OPTR	CPL	7011		2
79	STRUCT & C/F/R BRANCH				
80	C/F/R OFF	CWO	7002	1	
81	C/F/R CHIEF	MSGT	7051		1
82	FIRE INSP	GYSGT	7051		2
83	TRAINING CHIEF	GYSGT	7051		1
84	TRUCKMASTER	SSGT	7051		1
85	CFR MECH	CPL	3521		1
86	MATERIAL CHIEF	SSGT	7051		1
87	SUPPLY NCO	CPL	7051		1
88	DISPATCHER	SGT	7051		2
89	ADMIN CLERK	CPL	7051		1
90	STRUCT FIRE TEAM (X2)				
91	CREW LEADER	SGT	7051		2
92	C/F/R MAN	CPL	7051		2
93	C/F/R MAN	LCPL	7051		2
94	C/F/R MAN	PFC	7051		4
95	C/F/R TEAM (X2)				
96	SECTION LEADER	SSGT	7051		1
97	CREW LEADER	SGT	7051		4
98	C/F/R MAN	CPL	7051		4
99	C/F/R MAN	LCPL	7051		4
100	C/F/R MAN	PFC	7051		4
101	AUX CFR VEH OPR	CPL	7051		1
102	RESCUE/EQUIP OPR	LCPL	7051		1

		TOTAL		5	104
103	MOTOR TRANSPORT DIV				
104	MTO	CAPT	3502	1	
105	MT CHIEF	MSGT	3537		1
106	CHIEF DISPATCHER	SSGT	3537		1
107	ASST DISPATCHER	SGT	3531		1
108	LICENSING NCO	SGT	3531		1
109	TRUCK MASTER	GYSGT	3537		1
110	ROAD MASTER	SSGT	3537		2
112	EMBARK NCO	SGT	3531		1
113	CLERK/DRIVER	LCPL	3531		1
114	LIGHT/MEDIUM MV BRANCH				
115	OIC	LT	3502	1	
116	DIV CHIEF	GYSGT	3537		1
117	SECTION LEADER	SSGT	3531		2
118	MV OPERATOR	SGT	3531		4
119	MV OPERATOR	CPL	3531		8
120	MV OPERATOR	LCPL	3531		16
121	MV OPERATOR	PFC	3531		36
122	LINE MECH	LCPL	3521		2
123	HEAVY MV BRANCH				
124	DIV CHIEF	SSGT	3537		1
125	TRAC TRL OPR	CPL	3533		2
126	TRAC TRL OPR	LCPL	3533		2
127	TRAC TRL OPR	PFC	3533		4
128	REFUELER BRANCH				
129	OIC	LT	3502	1	
130	NCOIC	GYSGT	3537		1
131	DISPATCHER	CPL	3534		2
132	SECT LEADER	SSGT	3537		1
133	REFUELER OPR	SGT	3534		4
134	REFUELER OPR	CPL	3534		8
135	REFUELER OPR	LCPL	3534		16
136	LINE MECH	LCPL	3521		2
		TOTAL		3	122
137	ENGINEER DIV				
138	OIC	CAPT	1302	1	
139	ASST OIC	LT	1302	1	
140	ENGINEER OPS CHF	MSGT	1379		1
141	DISP/RECORDS NCOIC	SSGT	1345		1
142	ASST DISP/EXAM NCO	SGT	1345		1
143	EMBARK NCO	SGT	0431		1
144	DRAFTING/SURVEY BRANCH				
145	NCOIC	SSGT	1411		1
146	DRAFTER	CPL	1411		1
147	SURVEYOR	SGT	1441		4
148	HEAVY EQPT/MTE BRANCH				
149	OIC	LT	1310	1	
150	NCOIC	GYSGT	1349		1
151	SECTION LEADER	SSGT	1345		2
152	ENGR EQUIP OPER	SGT	1345		4
153	ENGR EQUIP OPER	CPL	1345		8
154	ENGR EQUIP OPER	LCPL	1345		10
155	ENGR EQUIP OPER	PFC	1345		15

156	UTILITIES BRANCH				
157	UTILITIES OFF	WO	1120	1	
158	NCOIC	GYSGT	1169		1
159	ASST NCOIC/REC	SSGT	1169		1
160	UTIL ADMIN	CPL	1161		1
161	ELECTRICAL SECTION				
162	NCOIC	SSGT	1141		1
163	ELECTRICIAN	SGT	1141		2
164	ELECTRICIAN	CPL	1141		2
165	ELECTRICIAN	LCPL	1141		4
166	REFRIGERATION SECTION				
167	NCOIC	SGT	1161		1
168	REFRIG MECH	CPL	1161		1
169	REFRIG MECH	LCPL	1161		2
170	WATER SUPPLY/HYGENE SECTION				
171	NCOIC	GYSGT	1169		1
172	ASST NCOIC	SSGT	1171		1
173	HYGENE EQUIP OPER	SGT	1171		2
174	HYGENE EQUIP OPER	CPL	1171		4
175	HYGENE EQUIP OPER	LCPL	1171		8
176	HYGENE EQUIP OPER	PFC	1171		12
177	TAFDS BRANCH				
178	TAFDS OFF	WO	1390	1	
179	TAFDS CHIEF	GYSGT	1391		1
180	ASST NCOIC	SSGT	1391		1
181	BULK FUEL MAN	SSGT	1391		2
182	BULK FUEL MAN	SGT	1391		2
183	BULK FUEL MAN	CPL	1391		4
184	BULK FUEL MAN	LCPL	1391		8
185	BULK FUEL MEN	PFC	1391		7
186	CONSTRUCTION BRANCH (X2)				
187	SECTION LEADER	LT	1302	1	
188	NCOIC	GYSGT	1371		1
189	CONST FORMAN	SSGT	1371		1
190	COMBAT ENGR	SGT	1371		3
191	COMBAT ENGR	CPL	1371		5
192	COMBAT ENGR	LCPL	1371		8
193	COMBAT ENGR	PFC	1371		12
		TOTAL		7	186
194	FOOD SERVICES DIVISION				
195	DINING FAC MGR	MGYSGT	3381		1
196	ASST DNG FAC MGR	MSGT	3381		1
197	CHIEF COOK	GYSGT	3381		2
198	ASST CHIEF COOK	SSGT	3381		2
199	CHIEF FOOD SVC ADT	SSGT	3381		2
200	ASST CHIEF FOOD SVC ADT	CPL	3381		2
201	FOOD SVC SPEC	SSGT	3381		2
202	FOOD SVC SPEC	SGT	3381		2
203	FOOD SVC SPEC	CPL	3381		4
204	FOOD SVC SPEC	LCPL	3381		4
205	FOOD SVC SPEC	PFC	3381		10
206	BAKER	SSGT	3311		1
207	BAKER	CPL	3311		1
208	BAKER	LCPL	3311		2
209	BAKER	PFC	3311		2

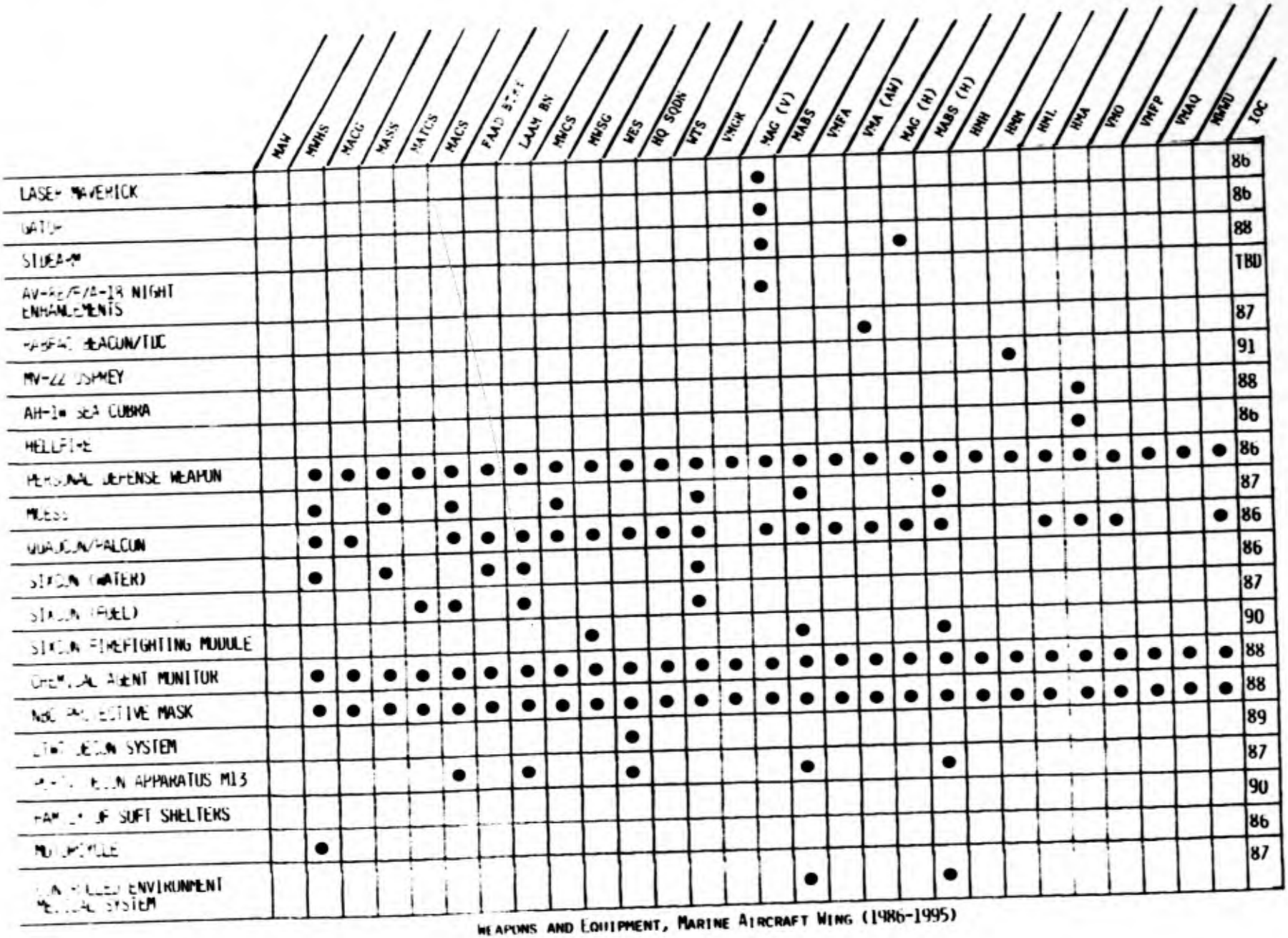
210	SUBS SUP CLK	SGT	3061		2
211	CLERK TYPIST	LCPL	0151		1
		TOTAL			41
212	MEDICAL DIV				
213	FLIGHT SURGEON	LT	2101	2	
214	MED ADMIN TECH	HMCS	0000		1
215	PREV MED TECH	HMC	8432		2
216	AVN MED TECH	HM1	8406		1
217	X-RAY TECH	HM1	8452		1
218	PHARMACY TECH	HM1	8482		1
219	LAB TECH	HM1	8506		1
220	MED FIELD TECH	HM3	8404		9
		TOTAL		2	16
221	S-4/LOGISTICS DEPT				
222	LOGISTICS OFF	MAJ	0402	1	
223	ASST LOG OFF	LT	0402	1	
224	LOG CHIEF	MSGT	0491		1
225	EMBARK CHIEF	SSGT	0431		1
226	LOG/EMBARK MAN	SGT	0431		1
227	LOG/EMBARK MAN	CPL	0431		2
228	LOG MAN/DRIVER	LCPL	0431		1
229	MAINT/MNGT DIV				
230	MMO	WO	0410	1	
231	MM CHIEF	GYSGT	0411		1
232	MIMMS CLERK	CPL	0411		2
233	PUBS/CAL CLERK	LCPL	0411		1
234	ARMORY				
235	ARMORER	SGT	2111		1
236	ARMORER	LCPL	2131		2
		TOTAL		2	10
237	EQPT MAINT DIV				
238	OIC	CAPT	3510	1	
239	ASST OIC	LT	1310	1	
240	MAINT CHIEF	MSGT	3529		1
241	PUBS/LAYETTE MT	LCPL	3521		2
242	PUBS/LAYETTE ENG	LCPL	1341		2
243	MIMMS/ADMIN CLERK	CPL	0411		1
244	ADPE/RECORDS CLERK	CPL	1341		1
245	SUPPLY/ADMIN CLERK	CPL	3043		1
246	TOOL RM/CAL MAN	PFC	1341		2
247	TOOL RM/CAL MAN	PFC	1142		1
248	MT MAINT BRANCH				
249	NCOIC	GYSGT	3529		1
250	ASST NCOIC	SSGT	3529		1
251	MT MECH	SGT	3521		1
252	MT MECH	CPL	3521		8
253	MT MECH	LCPL	3521		8
254	RECOVERY VEH OPR	CPL	3523		3
255	ENGR MAINT BRANCH				
256	NCOIC	GYSGT	1349		1
257	ASST NCOIC	SSGT	1341		1
258	ENGR MECH	SGT	1341		1
259	ENGR MECH	CPL	1341		2

260	ENGR MECH	LCPL	1341		4
261	ELECT EQPT MECH	SGT	1142		1
262	ELECT EQPT MECH	CPL	1142		2
263	ELECT EQPT MECH	LCPL	1142		4
264	REFRIG MECH	LCPL	1161		2
265	BODY RPR/WELDING BRANCH				
266	NCOIC	SSGT	1316		1
267	WELDER	CPL	1316		2
268	BODY REPAIR MECH	LCPL	3512		1
		TOTAL		2	11
269	SUPPLY/FISCAL DIV				
270	SUPPLY OFF	CAPT	3002	1	
271	SUPPLY CHIEF	MSGT	3043		1
272	SUPPLY CLK	SSGT	3043		1
273	SUPPLY CLK	SGT	3043		1
274	SUPPLY CLK	CPL	3043		2
275	SUPPLY CLK	LCPL	3043		4
276	AVN SUPPLY CLK	SGT	3072		1
277	AVN SUPPLY CLK	CPL	3072		1
278	ACCOUNTING TECH	SSGT	3451		1
279	ACCOUNTING TECH	SGT	3451		2
280	WAREHOUSE BRANCH				
281	CHIEF	GYSGT	3051		1
282	GEN WAREHOUSE MAN	LCPL	3051		3
		TOTAL		1	18
		SQUADRON TOTAL MAR		30	450
		SQUADRON TOTAL NAV		2	16

		MAW	MWCS	MACS	MASS	MATCS	LAAM BN	FAAD BTRY	MWSG	MAG (V)	MAG (H)	IOC
SWITCHING EQUIPMENT	AN/TTC-42 (AUTOMATIC TELEPHONE CENTRAL (ULCS))		◆									90
	SB-3865 (AUTOMATIC SWITCHBOARD (ULCS))		◆	◆						◆	◆	90
	AN/GYC-7 (ULMS)		◆	◆						◆	◆	90
MULTICHANNEL TRANSMISSION EQUIPMENT	AN/TSC-60 (COMMUNICATIONS CENTRAL)		◆									8-
	AN/MRC-139(XN-1) (UHF DIGITAL WIDEBAND TRANS SYSTEM)		◆	◆	◆		◆					91
	AN/TRC-170 (SHF MULTIPLEX RADIO EQUIPMENT)		◆	◆	◆					◆	◆	91
	OE-554/TRC (AUX. GROUND TRANS. RADIO SHELTER)		◆		◆							91
	TH-1234 (MULTIPLEXER)		◆	◆	◆				◆		◆	9-
	JTIDS-DTMA		◆	◆						◆	◆	91
SINGLE CHANNEL TRANS EQUIPT.	AN/VRC-83 (VEHICULAR MOUNT VHF RADIO)			◆	◆						◆	87
	AN/PRC-115 (HANDHELD VHF/UHF RADIO)		◆	◆	◆		◆			◆	◆	87
	AN/GRC-171A (GROUND-AIR UHF RADIO)		◆	◆	◆					◆	◆	8-
	AN/GRC-( ) (SINCGARS RADIO FAMILY)		◆	◆	◆	◆	◆	◆	◆	◆	◆	-0
TERMINAL DEVICES	AN/PSC-/ (DIGITAL COMMUNICATIONS TERMINAL)		◆	◆	◆		◆			◆	◆	9-
	AN/UXC-/ (FACSIMILE)		◆	◆	◆				◆	◆	◆	87
	AN/UGC-/UA (TACTICAL REPRO/DIST. FACILITY)		◆	◆	◆				◆	◆	◆	87
	AN/MSC-63 A/B (COMMUNICATIONS CENTRAL/SSGC)		◆									9-
	TA-954 (TELEPHONE (DNVT))		◆	◆	◆		◆		◆	◆	◆	88
	FIBER OPTIC CABLE SYSTEM		◆	◆	◆		◆		◆		◆	9-
	AUPE-CMP (COMM MESSAGE PROCESSOR)		◆									90
SATCOM EQUIPT	AN/TSC-93A (SHELTER MOUNTED SATCOM RADIO)		◆									9-
	SCOTT (DNVT SINGLE CHANNEL TACTICAL TERMINAL)		◆									91
INTER-FACE EQUIPT												
COMSEC DEVICES	TSEC/KYV-5 (COMSEC FOR CV-5591 (ANDVT))		◆	◆	◆		◆		◆			9-
	TSEC/KY-99 (COMSEC FOR ANDVT)		◆	◆	◆		◆		◆	◆	◆	9-
	TSEC/KG-84A (DLED)			◆	◆							9-
	TSEC/KGX-93 (TRUNK ENCRYPTION DEVICE)		◆	◆	◆				◆	◆	◆	88
	TSEC/KY-68//8 (USVI)		◆	◆	◆		◆		◆	◆	◆	90
	TSEC/KY-58 (SINKIU)		◆	◆	◆		◆	◆	◆	◆	◆	88

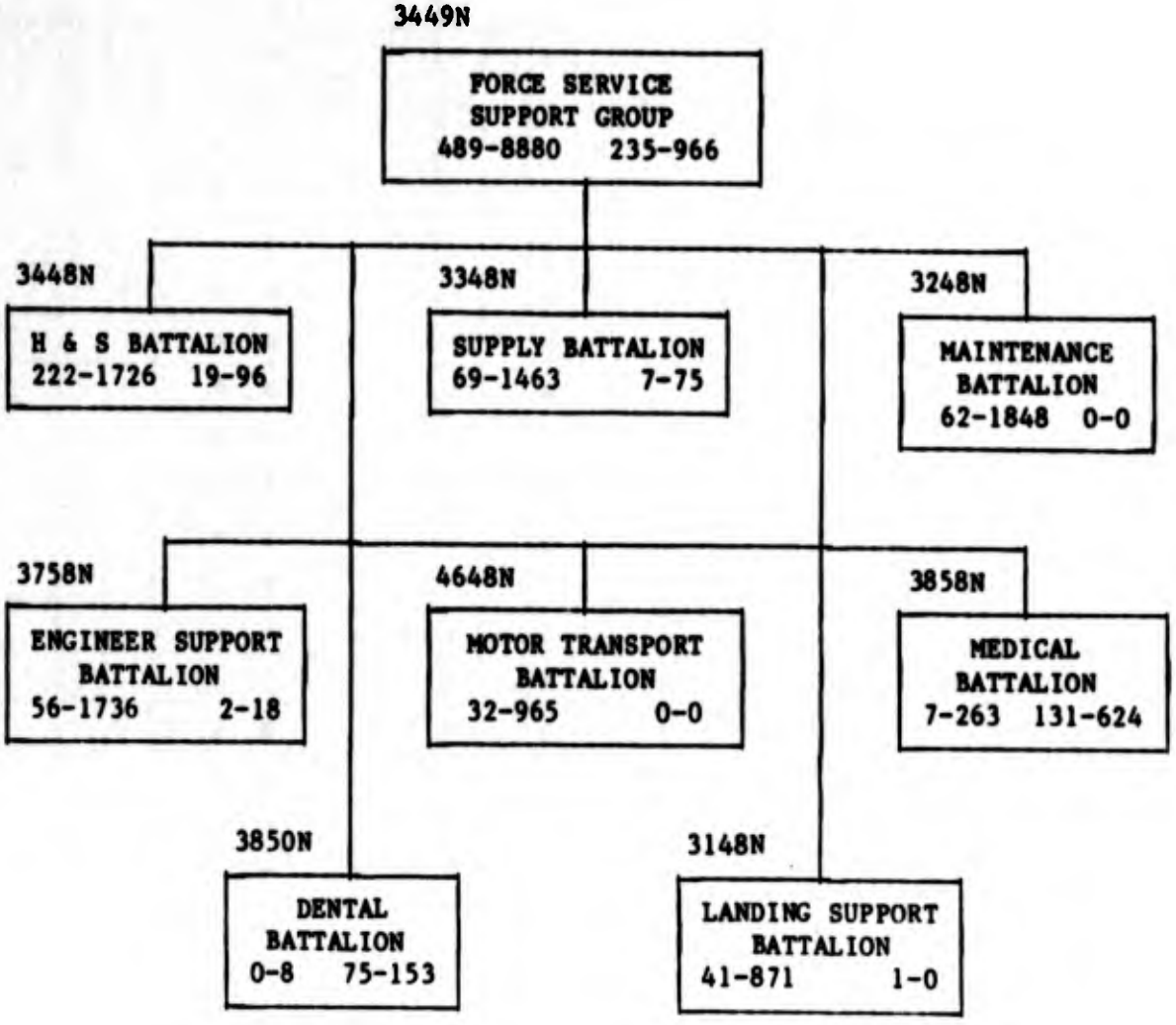
	MAW	MWHS	MACG	MASS	MATCS	MACS	FAAD BTRY	LAAM BN	MWCS	MWSG	WES	HQ SQDN	WTS	VMGR	MAG (V)	MABS	VMFA	VMA (AW)	MAG (H)	MABS (H)	HMH	HMM	HSL	HMA	VMO	VMFP	VMAQ	MWHO	LOC
MIFASS				●																									91
TACTICAL COMBAT OPERATIONS SYSTEM	●									●					●				●										93
PLRS			●																										87
NAVSTAR GPS					●			●							●														89
ATACC	●																												91
IMPROVED DASC				●																									86
TAOM						●																							90
TERPES PRODUCT IMPROVEMENT																											●		88
EA-6B JTIDS TERMINAL																											●		91
RADAR SET AN/TPS-32						●																							86
RADAR SET AN/TPS-59						●																							86
RADAR SET AN/TPS-36						●																							86
MATCALS					●																								86
MRAALS					●																								88
STINGER POST							●																						88
ELECTRONIC MAINTENANCE COMPLEX		●		●		●		●	●																				87
IMPROVED HAWK								●																					89
ELECTRONIC CALIBRATION FACILITY									●																				87
EBFL											●																		90
ROUGH TERRAIN CRANE											●																		89
TRAM											●																		89
1200 GPH ROWPU											●																		90

WEAPONS AND EQUIPMENT, MARINE AIRCRAFT WING (1986-1995)



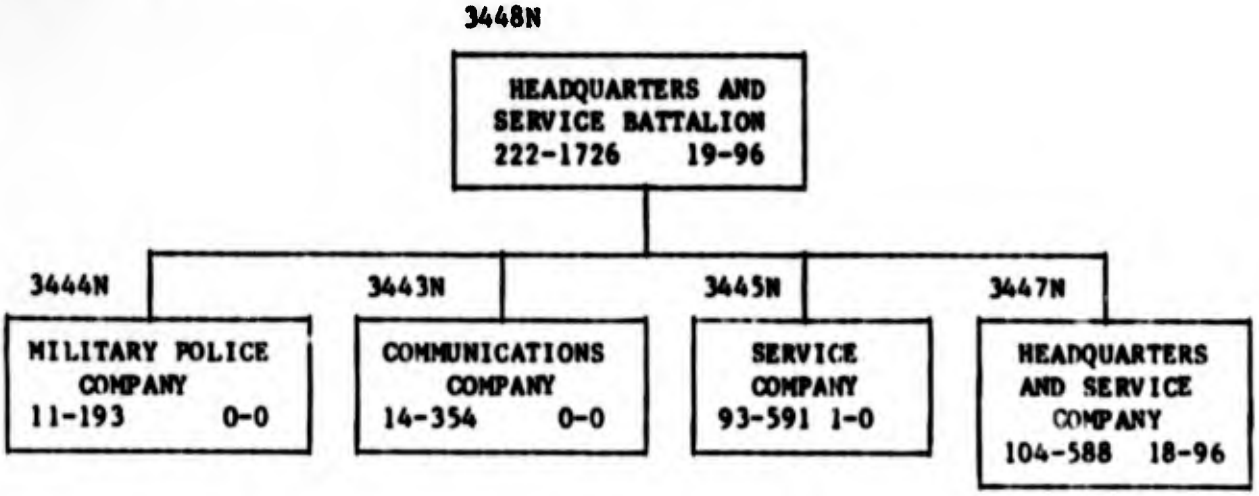
WEAPONS AND EQUIPMENT, MARINE AIRCRAFT WING (1986-1995)

III. Force Service Support Group (N Series)



FSSG Authorized Strength (May 1985)

FSSG Total	-	8,068
Sgt and below	-	6,692
SSgt and above	-	902
Officers	-	474



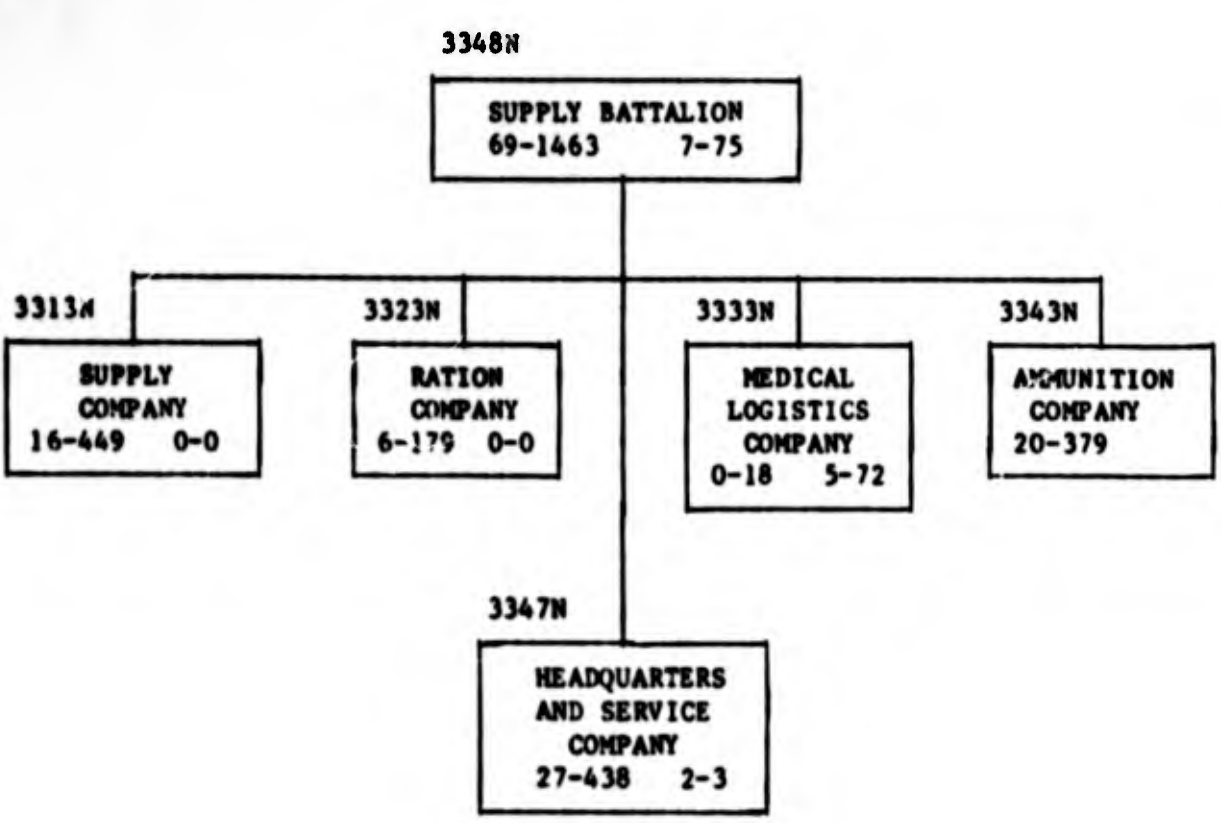
FSSG Headquarters

Grp Cmdr - BGen
C/S - Col, 9910
G-1 - Col, 9906
G-2/G-3 - Col, 9906
Asst G-3 - LtCol, 0402
Asst G-2 - Maj, 0202
G-3 Chief - MGySgt, 0491
Ops Off - Maj, 9910
Trng Off - Capt, 9911
NBC Def Off - WO, 5702
Ops Chief/Trng NCO - GySgt, 0369
NBC Spec - GySgt, 5711
Intell Chief - SSgt, 0231
NBC Detection/DECON TM - 6 Enlx3
G-4 Off - Col, 9906
Asst G-4 - Ltcol, 0402
G-4 Ops Off - Maj, 0402
G-4 Plans Off - Maj, 0402
Service Off - LtCol, 0402
CSS Off - Col, 9910
Asst CSS Off - LtCol, 3002
Plans Off - Maj, 0402
Deploy Off - LtCol, 0402

Battalion Staff

CO - LtCol, 9911
XO - Maj, 9911
S-1 - Capt, 0180
Pers O - WO, 0170
S-3/Log Ops Off - Capt, 0402
Ops Chief - SSgt, 0431
NBC Spec - SSgt, 5711
S-4 Off - Capt, 0402

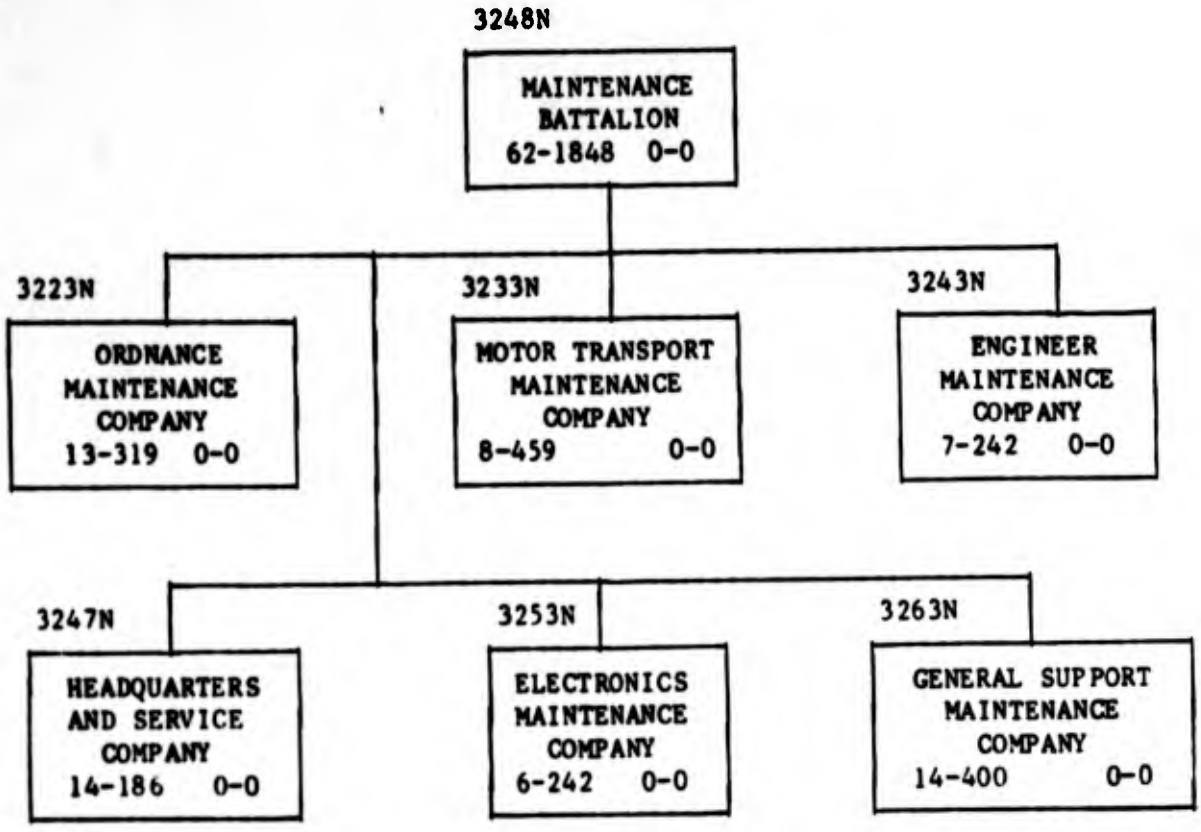
Headquarters and Service Battalion



Battalion Headquarters

CO - Col, 9906
XO - Maj, 3002
S-1 - Capt, 0180
PersO - WO, 0170
S-3/NBC Off - Maj, 9911
Asst S-3/Trng Off - Lt 0402
NBC Spec - Sgt, 5711
S-4 Off - Capt, 0402

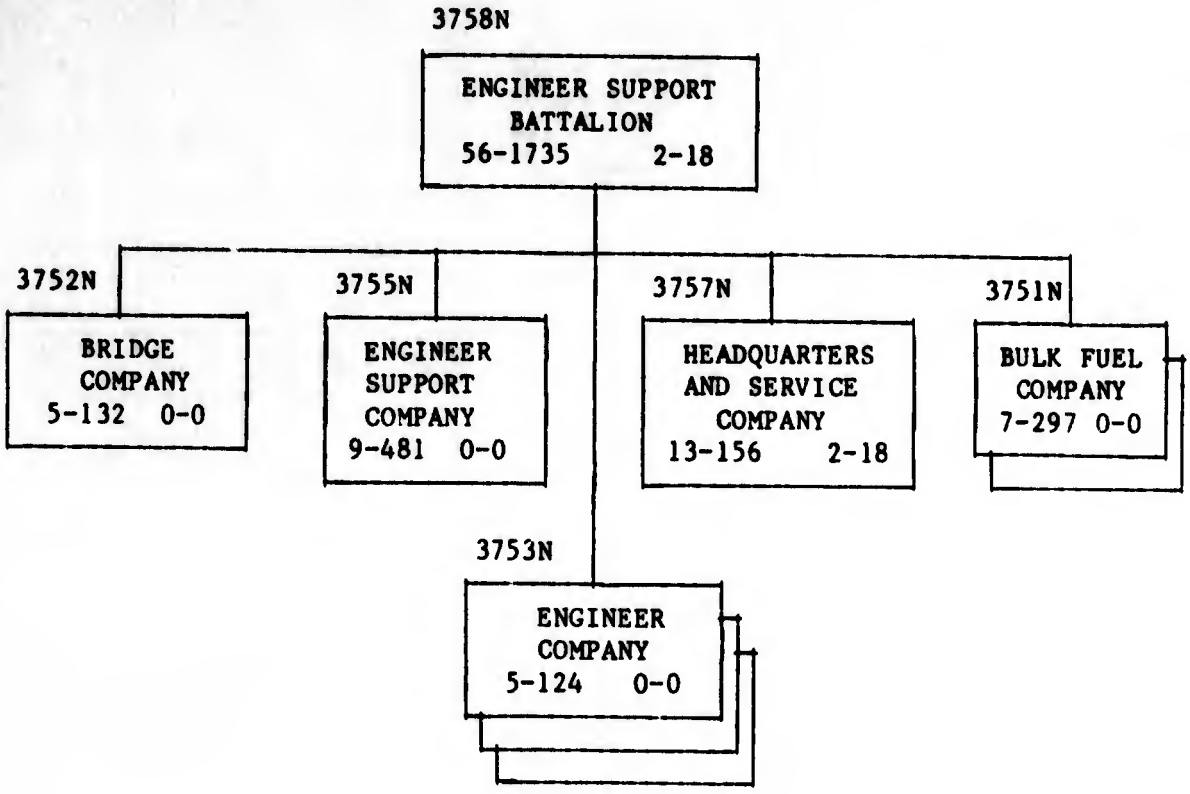
Supply Battalion



Battalion Headquarters

CO - LtCol, 3002
XO - Maj, 2102
S-1 - Capt, 0180
PersO - WO, 0170
S-2/S-3 Off - Maj, 0402
Asst S-2/S-3 Off - Lt, 2102
Bn Ops NCO - MSgt, 2181
NBC/Spec Trng NCO - SSgt, 5711
S-4 Off - Capt, 0402

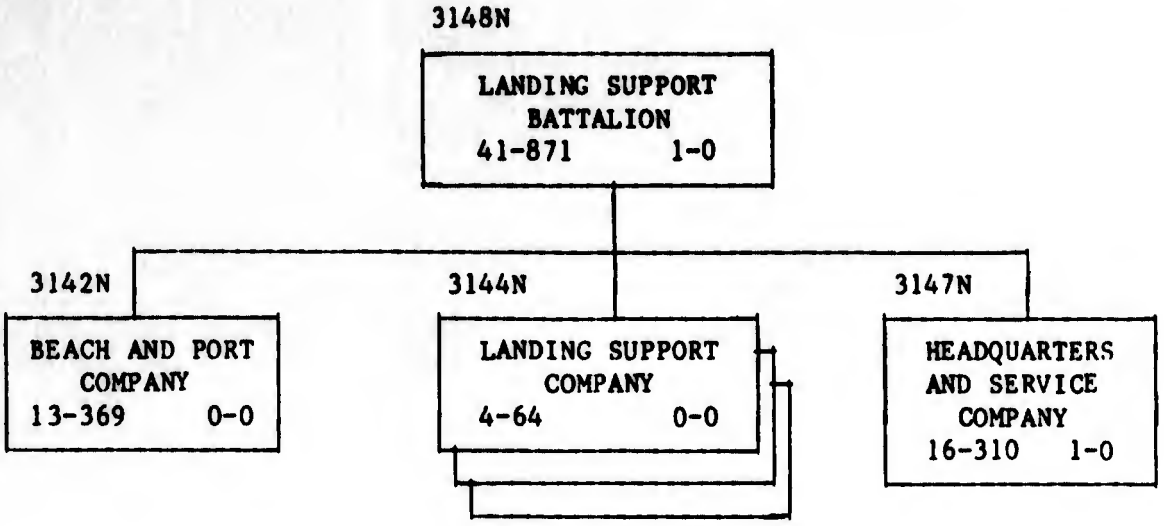
Maintenance Battalion



Battalion Headquarters

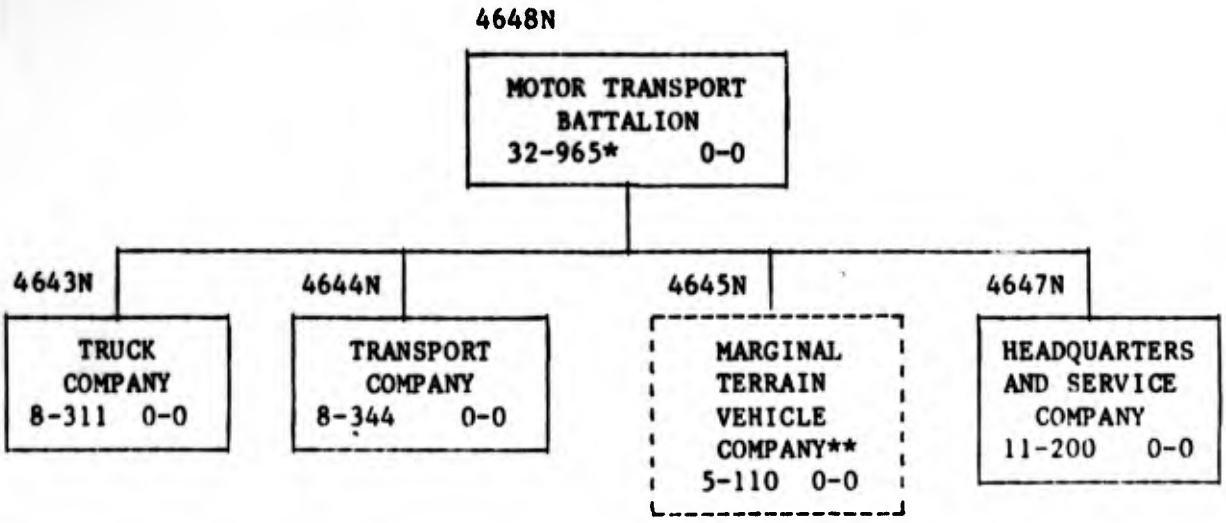
CO - LtCol, 1302
XO - Maj 1302
S-1 - Capt, 0180
PersO - Lt, 0170
S-2/S-3 Off - Maj, 1302
Asst S-2 - Capt, 1302
Asst S-3 - Capt, 1302
Asst S-3 - WO, 1360
Ops Chief - MGySgt, 1371
Intell Chief - SSgt, 0231
NBC Spec - Sgt, 5711
Intell Asst - LCpl, 0231
S-4 Off - Maj, 1302

Engineer Support Battalion



Battalion Headquarters

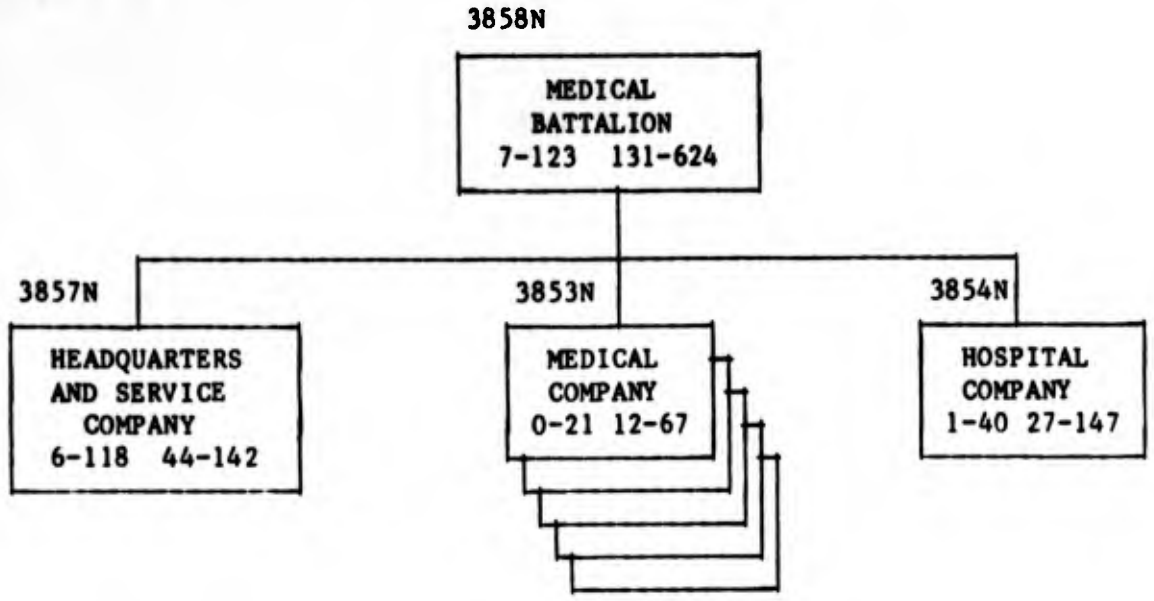
CO - LtCol, 0402
XO - Maj, 0402
S-1 - WO, 0170
S-2/S-3 - Maj, 0402
Asst S-3/Trng Off - Capt 9910
Asst S-2/NBC Off - Lt, 0202
Ops Chief - MGySgt 0491
Intell Spec - SSgt, 0231
Intell Asst/NBC NCO - Sgt, 0231
S-4 - Maj, 0402



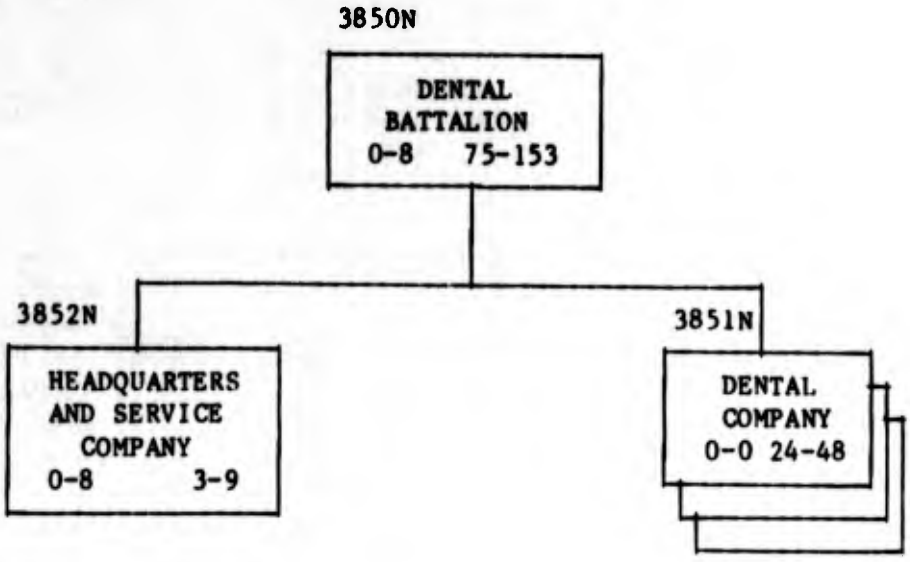
*TOTALS INCLUDE CADRED UNIT
**CADRE

Battalion Headquarters

CO - LtCol, 3502
XO - Maj, 3502
S-1 - Lt, 0180
PersO - WO, 0170
S-2/S-3 Off - Maj, 3502
Asst S-2/S-3 Off - Capt, 3502
Ops Chief - MGySgt, 3537
Tech Trng/NBC Def Spec - SSt, 3529
S-4 Off - Capt, 3510



Medical Battalion



Dental Battalion

		FSSG	H&S BN	SUPPLY BN	MAINT BN	LOG SPT BN	ENGR SPT BN	MT BN	MED BN	DENT BN	IOC
SWITCHING EQUIPMENT	AN/TTC-42 (AUTOMATIC TELEPHONE CENTRAL (ULCS))		◆								90
	SB-3865 (AUTOMATIC SWITCHBOARD (ULCS))		◆			◆					90
	AN/GYC-7 (ULMS)		◆								90
MULTICHANNEL TRANSMISSION EQUIPMENT	AN/TSC-60 (COMMUNICATIONS CENTRAL)		◆								89
	AN/MRC-139(XN-1) (UHF DIGITAL WIDEBAND TRANS SYSTEM)		◆								91
	AN/TRC-170 (SHF MULTIPLEX RADIO EQUIPMENT)										91
	TD-1234 (MULTIPLEXER)		◆								89
SINGLE CHANNEL TRANS EQUIPT.	AN/VRC-83 (VEHICULAR MOUNT VHF RADIO)				◆						87
	AN/PRC-113 (HANDHELD VHF/UHF RADIO)		◆		◆	◆	◆				87
	AN/GRC-( ) (SINCGARS RADIO FAMILY)		◆	◆	◆	◆	◆	◆	◆	◆	90
TERMINAL DEVICES	AN/PSC-2 (DIGITAL COMMUNICATIONS TERMINAL)		◆								86
	AN/UXC-7 (FACSIMILE)		◆								87
	AN/UGC-74A (TACTICAL REPRO/DIST. FACILITY)		◆								87
	AN/MSC-63A (COMMUNICATIONS CENTRAL)		◆								89
	TA-954 (TELEPHONE (DNVT))		◆								88
	FIBER OPTIC CABLE SYSTEM		◆			◆					88
	AUPE-CMP (COMM MESSAGE PROCESSOR)		◆								86
SATCOM EQUIPMENT	AN/PSC-3 (MANPACK SATCOM RADIO)										86
	AN/TSC-93A (SHELTER MOUNTED SATCOM RADIO)		◆								86
	SCOTT (EHF SINGLE CHANNEL TACTICAL TERMINAL)		◆								91
INTER-FACE EQUIPT											
COMSEC DEVICES	TSEC/KYV-5 (COMSEC FOR CV-3591 (ANUVT))		◆		◆	◆	◆	◆	◆		86
	TSEC/KY-99 (COMSEC FOR ANUVT)					◆					89
	TSEC/KG-84A (DLED)		◆			◆					87
	TSEC/KGX-95 (TRUNK ENCRYPTION DEVICE)		◆			◆					88
	TSEC/KY-68/78 (USVT)		◆								90
	TSEC/KY-90 (SINCRIU)		◆	◆	◆	◆	◆	◆	◆	◆	88

COMMUNICATIONS EQUIPMENT, FORCE SERVICE SUPPORT GROUP (1986-1995)

	FSSG	H&S BN	SUPPLY BN	MAINT BN	LDG SPT BN	ENGR SPT BN	MT BN	MED BN	DENT BN	IOC
EBFL		●			●	●				90
IKAM		●		●	●	●				89
ELECTRONIC MAINTENANCE COMPLEX		●		●						87
ELECTRONICS CALIBRATION FACILITY				●						87
WET GAP BRIDGING SYSTEM						●				89
TOWED ASSAULT BRIDGE						●				89
CMLS						●				88
COLD WEATHER CLOTHING AND EQUIPMENT			●							88-89
1200 GPH ROWPU						●				90
WELL DRILLING RIG						●				90
ROUGH TERRAIN CRANE					●	●				89
10-TON CRANE						●				90
MOBILE CONTAINER HANDLER		●			●	●				95
CONTROLLED ENVIRONMENT MEDICAL SYSTEM								●	●	87
PERSONAL DEFENSE WEAPON		●	●	●	●	●	●	●	●	86
POMINS						●				90
CHEMICAL AGENT MONITOR		●	●	●	●	●	●	●	●	88
NBC PROTECTIVE MASK		●	●	●	●	●	●	●	●	88
LTWT DECON. SYSTEM						●				89
PORT. DECON. APPARATUS M13		●	●	●	●	●	●	●	●	87
FAMILY OF SOFT SHELTERS		●	●	●	●	●	●	●	●	90
MOTORCYCLE		●								86
MCESS		●		●						87
QUADCON/PALCON		●	●	●	●	●	●	●	●	86
SIXCON (WATER)		●	●	●		●	●	●		86
SIXCON (FUEL)		●		●		●	●			87
SIXCON FIREFIGHTING MODULE		●				●				90

WEAPONS AND EQUIPMENT, FORCE SERVICE SUPPORT GROUP, (1986-1995)

IV. Cost of Marine Corps Courses Per Student (as of February 1985)

Course 1/	FY85 Cost Per Student: Direct 2/ 3/	Indirect 4/	Student Pay 5/	Total 6/
Officer Acquisition Training				
Woman Officer Candidate	184	2876	4824	7884
Officer Candidate	158	2563	4824	7545
Platoon Leaders Class-Jr.	117	1597	3024	4738
Platoon Leaders Class-Sr.	136	1719	3024	4879
Platoon Leaders Class-Combined	186	2287	5040	7513
NROTC	293	3578	1000	4871
Basic Military Training				
Recruit Training	110	582	3157	3849
Commissioned Officer Basic	1072	10833	15480	27385
Warrant Officer Basic	575	5920	9078	15573
Professional Military Education				
SNCO Career	317	425	3444	4186
SNCO Advanced	556	886	8640	10082
SNCO Reserve	106	145	1008	1259
SNCO Senior	50	93	8640	8783
Amphibious Warfare	3123	5526	40770	49419
Res. Amphibious Warfare	336	678	1812	2826
Command and Staff	2560	6287	25604	34451
Res Cmd and Staff	242	584	2076	2902
OccFld 01 Training				
Admin Officer	37	86	5456	5579
Basic Typing and Pers Admin	17	40	644	701
Advanced Pers Admin	110	261	4896	5267
Senior Clerk	103	244	5040	5387
Ind Duty Admin	72	168	1080	1320
Administrative Clerk	134	158	2950	3242
Personnel Clerk	97	218	2950	3265
Unit Diary Clerk	79	115	2950	3144
Reserve Administration	27	65	864	956
Adjutant	68	161	5208	5437
SNCO Admin Refresher	85	205	1176	1466
OccFld 03 Training				
Infantry Officer	323	3443	5940	9706
Infantry Enlisted	113	168	2350	2631
OccFld 11 Training				
Basic Electrician	329	811	2116	3256
Basic Hygiene Eqt Operator	336	820	3680	4836
Journey Hygiene Eqt Operator	1184	2823	6840	10847

V. FMFLANT Battalion Field Training Factors (as of January 1985)

TYPE ORGANIZATION	NUMBER	AVERAGE NUMBER OF BFTD's PER UNIT 1/	COST PER BFTD (FY86) 2/	COST PER BFTD (FY85) 2/	COST PER BFTD (FY84) 3/
Infantry Bn.	9	95	$3,657	$3,674	$4,668
Artillery Bn.	5	104	$6,316	$6,296	$6,734
Tank Bn.	1	110	$13,950	$13,845	$15,083
Amphibious Assault Bn.	1	90	$21,136	$21,189	$19,470
Recon Bn.	1	63	$6,667	$6,683	$6,224
Combat Engineer Bn.	1	57	$10,832	$10,825	$13,091
Light Assualt Vehicle Bn.	1	50	$28,671	$28,680	-0-

1/ Projected data for FY-85.
2/ Projected cost for FY-85 and FY-86 in budget dollars.
3/ Actual cost for FY-84.

OPR: CHC (TPB-22), Phone (202) 694-2431/AUTOVON 224-2431

VI. FMFPAC Battalion Field Training Factors (as of January 1985)

TYPE ORGANIZATION	NUMBER	AVERAGE NUMBER OF BFTD's PER UNIT 1/	COST PER BFTD (FY86) 2/	COST PER BFTD (FY85) 2/	COST PER BFTD (FY84) 3/
Infantry Bn.	18	126	$4,256	$4,073	$4,261
Artillery Bn.	7	129	$5,742	$5,424	$5,096
Tank Bn.	2	108	$9,395	$9,231	$8,921
Amphibious Assualt Bn.	2	87	$12,218	$14,480	$14,890
Recon Bn.	2	98	$3,898	$3,960	$3,770
Combat Engineer Bn.	2	73	$8,599	$8,021	$5,573
Light Assault Vehicle Bn.	1	20	$12,688	$9,200	-0-

1/ Projected data for FY-85.
2/ Projected cost for FY-85 and FY-86 in budget dollars.
3/ Actual cost for FY-84.

OPR: CMC (TPB-22), Phone (202) 694-2431/AUTOVON 224-2431

VII. Cost of Ground Training Ammunition by Type Organization (as of January 1985).

TYPE ORGANIZATION	AMMUNITION				
	DODIC	NOMENCLATURE	UNIT COST ($)	NUMBER PER YEAR	COST PER YEAR ($)
Rifle Co 1/	A071	5.56mm Ball	.18	28,310	5,096
	A080	5.56mm Blank	.1450	59,600	8,642
	A111	7.62mm Blank, Linked	.2593	32,000	8,298
	A131	7.62 Linked, 4:1	.3145	38,400	12,077
	B535	40mm WSP	15.63	336	5,251
	B546	40mm HE DP	7.21	400	2,884
	B627	60mm Illum	31.77	160	5,083
	B630	60mm Smoke, WP	71.84	72	5,172
	B643	60mm HE	64.49	1,200	77,388
	H557	66mm Rocket, HEAT	207.09	60	12,425
Infantry Bn 2/	A071	5.56mm Ball	.18	108,110	19,460
	A080	5.56mm Blank	.1450	227,600	33,002
	A111	7.62 Blank, Linked	.2593	140,000	36,302
	A131	7.62 Linked, 4:1	.3145	168,000	52,836
	B546	40mm HE DP	7.21	5,500	39,655
	B627	60mm Illum	31.77	480	15,250
	B630	60mm Smoke, WP	71.84	216	15,517
	B643	60mm HE	64.49	3,600	232,164

1/ Only ammo with annual cost of $1,000 or more is included.
2/ Only ammo with annual cost of $5,000 or more is included.

ANNEX II

Annex H

Backup Data for Recommendations

I. GENERAL. As explained in Section V of the main report, the recommendation for Course of Action #1 required no backup data since it was essentially a status quo position. However, the other two sets of recommended actions do require supporting data and it is contained in the following sections.

II. COURSE OF ACTION #2. The supporting data for this recommendation are grouped into two categories, concepts (or doctrine) and measures, and are presented below.

A. Concepts (Doctrine). There are several ways of improving RAS through changes in currently published concepts. These are (1) to publish an OH on RAS, (2) make changes in LFMs, FMFMs, and other OHs, (3) modify the cover pages of battalion and squadron T/Os of the FSSG and MAWs, and (4) introduce RAS play into TWSEAS-supported map exercies at the Command and Staff College and the Amphibious Warfare School. Some specifics of each of these means of improving RAS capabilities are presented in the sections which follow.

1. Publish an OH on RAS. The OH would be an all-inclusive rear area security document that would be specific about the major elements of RAS, but would still be general enough to apply to all units likely to find themselves in a rear area situation. Due to the importance of a RAS SOP that is tailored to a specific type of unit, the OH would contain a sample SOP which could be used by any unit to develop their own SOP. The OH would also include a sample RAS plan which a unit could use to prepare its own security plan, or order, as part of the overall operation plan or order.

Following the guidance contained in OH 0-3, Author's & Reviewer's Guide to Doctrinal Publications, a Rear Area Security OH could be organized as follows:

a. Introduction: A statement of the handbook's purpose, a brief reference to the history of the problem, and a general description of the current state-of-the-art approaches to solving the problem.

b. The Threat: As the major factor in setting any operational scene, the threat should be identified in detail. However, since such details are situationally dependent, a threat spectrum must be developed so that users of the OH will be able to develop the threat further as seen from their own mission perspective. As a minimum, the OH threat discussion should focus on threat organizational and employment principles and on the impacts of those principles on Marine Corps organizations in general.

c. RAS Concepts and Techniques: Although there is nothing unique about the performance of RAS missions, there are certain conceptual approaches and techniques which units whose primary mission is not combat should consider employing in order to maximize their effectiveness in the security role while minimizing the degradation to the execution of their primary mission.

d. Organizational Considerations: Capabilities and limitations inherent in generic USMC organizations that are likely to be operating in a rear area.

e. Operational Considerations: Relationships between primary mission responsibilities and requirements for successfully executing RAS functions.

f. RAS Organizational Requirements: Generic statements about basic RAS responsibilities and means for satisfying them.

g. Command and Control Operations: Describes the nature of the RAS C&C problem and means for solving it.

h. Planning Requirements: Describes how to minimize impact of RAS responsibilities on execution of primary mission by developing flexible plans to provide the necessary security.

i. Equipment Requirements: Discusses importance, to the RAS mission, of various types of equipments in the differing circumstances.

j. Training Requirements: Discusses the importance of specific types of training, including exercises, which are required as minimal requirements to meet the various threat conditions.

k. Sample RAS SOP: Since one of the goals of the MCDPS Masterplan is to develop sample SOPs for those activities that are common to all or most FMF units, no attempt is made here to define a procedural baseline. Instead, the possible contents of a sample RAS SOP are outlined in Appendix 1.

l. Sample RAS Plan: A suggested sample RAS Plan is contained in Appendix 2. Whereas the RAS Plan for a tactical unit such as a division is normally published as an annex to the operation plan or order, the RAS Plan for a rear area unit such as a CSS unit would be more effective if it was part of that unit's operations annex and thus be issued as an appendix to it, ensuring that the CSS unit's primary mission and RAS mission were coordinated.

2. Make Changes to Existing and Planned LFMs, FMFMs, and OHs. In addition to the RAS-peculiar doctrinal material that would be collected in a single OH on RAS, the following listing, Table VIII-H-1, indicates possibilities for disseminating RAS considerations throughout a wide range of doctrinal publications.

Table VIII-H-1 Possibilities for New RAS Doctrine

LMF 02, Doctrine for Landing Forces -- In view of the major adverse impact that a failure in RAS can have on the Landing Force as a whole and the effect that basic decisions by the Landing Force (MAGTF) Commander prior to commitment of the force can have on the ability to achieve effective RAS, this manual may be the appropriate place to introduce general RAS considerations for the first time in the general-to-particular doctrinal hierarchy.

LFM 05, Supporting Arms in Amphibious Operations -- This would be an appropriate place to familiarize the Navy with the idea that they may be called upon to deliver air and naval gunfire support into areas ashore which they normally think of as "friendly." Suggesting this possibility in this NAVMC document may assist in motivating the Navy to take whatever technical steps are required to be able to provide such "surgical" support effectively.

FMFM 1-2, Fleet Marine Force JOPS/JDS/JOPES Guide -- RAS considerations that impact on coordination between a MAGTF and outside (higher or adjacent) agencies in a joint or combined operational environment should probably be noted in this manual.

FMFM 2, Marine Air-Ground Task Forces -- This manual should at least contain a mention of the responsibility of the MAGTF Commander for overall RAS of the force.

FMFM 2-1, MAGTF Operations -- As already indicated in the Masterplan, this is where the conceptual relationships between RAS, the deep effort, and the main combat effort will be described.

FMFM 2-3, The MAGTF Command Element -- This seems like an appropriate place for the identification of those special skills and command support capabilities that are required for effective RAS of the

MAGTF as a whole, or of subordinate elements that do not possess the necessary capabilities as they are currently task organized.

FMFM 3-2A, Signal Intelligence -- This manual and others noted below would appear to address matters of technical details that do not pertain to RAS directly. However, it is precisely because the unique requirements of RAS may impact on the technical details of certain functions that these functions should be reviewed from this perspective and exceptions to normal operational guidelines noted.

FMFM 5-1, Aviation Command Element Operations. - To the extent that control and coordination measures apply to the air space over rear areas, RAS considerations should be reflected in this manual.

FMFM 5-2, Aviation Operational Basing and Combat Service Support -- This manual appears to be a logical place for a discussion of the details of air base security and defense.

FMFM 5-4, Offensive Air Support and FMFM 5-4A, Close Air Support --Both of these manuals should have something to say about the special problems and techniques of providing fixed-wing and helicopter gunship support to friendly installations or convoys under ground attack in the rear area. Presumably this would include the use of RABFAC beacons by these CSS and AGS units.

FMFM 6-3, Marine Infantry; FMFM 6-3B Marine Infantry Tactics; FMFM 6-3D Employment of Crew-Served Weapons; FMFM 6-3E Machine Gunnery; and FMFM 6-3F Field and & Battle Skills for the Individual Marine -- This series of manuals would not necessarily need to be modified to reflect RAS considerations. Instead, these manuals should be referenced as required reading for all commanders, staff officers, and troop leaders in CSS and AGS units who may sometime have the responsibility of forming, training, and leading provisional units organized for self-defense of a CSS or AGS facility.

Table VIII-H-1 Possibilities for New RAS Doctrine (cont'd)

FMFM 6-5, Marine Tank Employment; FMFM 6-6, Light Armor Employment; and FMFM 6-7 Marine Assault Amphibious Vehicle Employment -- These manuals are relevant to RAS planning and training because the tactics and techniques they include need to be understood by the RAS commander whose "holding force" defending a CSS installation or air base may have to coordinate with the maneuver element of a mechanized counterattack force coming to his assistance.

FMFM 6-9, Marine Ground Reconnaissance and Surveillance and FMFM 6-10 Field Fortification -- These manuals cover subjects that should be of interest to those responsible for RAS, whether the functions are performed by units from the GCE, by MP units which are part of the ACE or CSSE, or by provisional units organized for self-defense.

FMFM 6-11, Leader's Guides - This proposed set of short, pocket-size guides would be an ideal vehicle for providing officers and NCOs in non-combatant occupational fields with those important checklists they will need when they transition to their contingent billets as commanders (leaders) or staff officers in provisional RAS organizations.

FMFM 7-12, Electronic Warfare; and FMFM 7-13, Deception -- These two manuals should include descriptions of the applications of their respective disciplines to the unique aspects of RAS.

3. Make Changes to the Cover Pages of FSSG/MAW Battalion and Squadron T/Os. As a general pattern, the T/Os for the FSSG and MAW units which are normally located in rear areas, do not contain any statement about the necessity to possess security and defense capabilities. As a minimum, each battalion/squadron T/O should include a statement about the unit's responsibilities for its own security and self-defense. A proposed statement is presented below:

Mission and Tasks - ... Provide security for the installation, facilities, and equipment of the (battalion/squadron) or of the task organized (CSS or AGS) support unit for which it constitutes the command element.

Concept of Employment - ... The (Supply, Maintenance, Engineer Support, or Landing Support battalion or the Marine Wing Support Squadron) is organized to provide a nucleus for security and self-defense around which other attached CSS detachments or aircraft squadrons can be grouped in task organizations capable of defending themselves as well as performing their primary support missions. The nucleus element in each of these task organizations provides command, control, and heavy weapons support equivalent to the headquarters and service and weapons companies of an infantry battalion. Other detachments provide rifle company and platoon strength to the equivalent battalion as required, within the limits of total personnel and numbers of troop leaders on hand.

4. Introduce RAS Considerations into Education Center Map Exercises. In addition to designing problems at CSC and AWS so that RAS considerations can be taken into account (e.g., by allowing problem play to run long enough with breaks if necessary), in those map exercises that are supported by TWSEAS, support units can be "loaded" in the data base and exercised as if they are infantry battalions in defense. This approach would require student staffs to consider in detail the problem of self-defense of support installations as well as the problem of providing continuous support to combat elements of the MAGTF.

B. Measures

1. T/E Changes - The following items of equipment with IOC dates between 1986 and 1995 should be considered for inclusion in the T/Es of support units to give them the self-protection and defense capabilities of an infantry battalion.

SB-3865 (automatic switchboard)
AN/GYC-7 (ULMS)
TD-1234 (multiplexer)
JTIDS-DTMA
AN/VRC-83 (vehicular VHF radio)
AN/PRC-113 (portable VHF/UHF radio)
AN/GRC-( ) (SINCGARS family)
AN/PSC-2 (digital comm. terminal)
AN/UXC-7 (facsimile)
TA-954 (telephone, DNVT)
Fiber optic cable system
AN/PSC-3 (portable SATCOM radio)
TSEC/KY-99 (COMSEC for ANDVT)
TSEC/KG-84A (DLED)
TSEC/KY-90 (SDNRIU)
PLRS
MIFASS
TCO
Robotic sentry
M-19 40mm MG
Imp. 81mm Mortar
AT-4 84mm LAW
HEAA rd for SMAW
Imp DRAGON warhead
SLAP (.50 cal/7.62mm)
MULE

2. T/O Changes - Table VIII-H-2 summarizes shortfalls in command and staff skills in current support unit T/Os. These shortfalls would have to be corrected if these units are to have an effective self-defense capability. In addition, for each crew-served weapon or sensor (radar set, robotic sentry, etc.) allocated to a support unit there should be one sgt. or cpl. with the appropriate MOS (0331, 0341, 0351, etc.) assigned to supervise PM on the weapon or equipment, train other personnel in its employment, and act as squad leader for the weapon in action.

3. Training Standards - The attached matrix (Figure VIII-H-1) of mission performance standards (MPS) and individual training standards (ITS) was developed to relate the MPS appropriate for support units facing either a conventional or unconventional warfare threat to those ITS that must be satisfied if the MPS are to be achieved.

The MPS listed were taken from the MCCRES criteria for all units in any situation and for infantry battalions in defense. MPS for support units vs. a UW threat were derived from the conventional defensive standards as modified by the peculiarities of the UW threat and the close-in security/interior guard situation that is envisioned if UW is the principal threat.

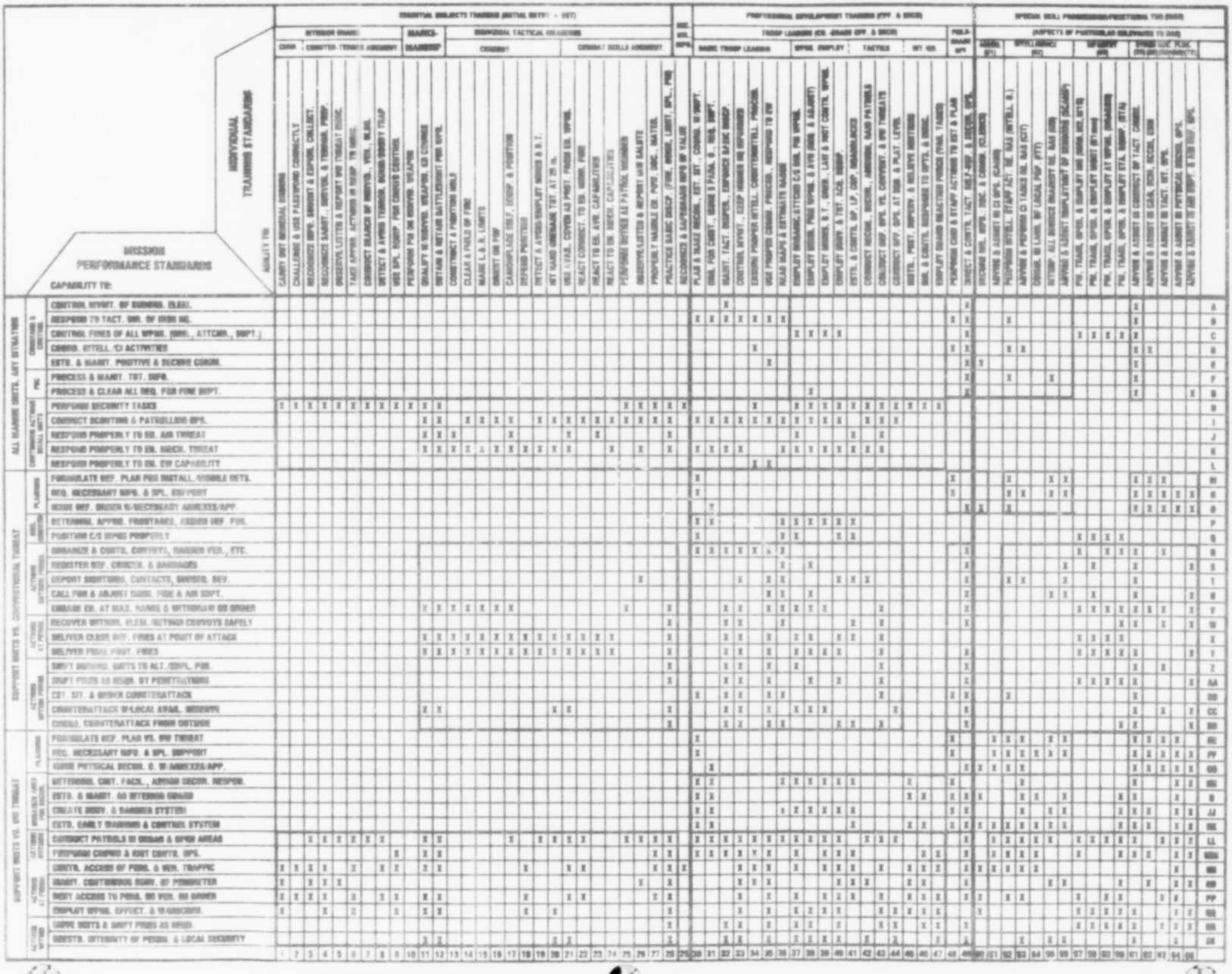
The ITS listed are a combination of the ITS associated with EST (including anticipated anti-terrorism augmentation), those associated with the professional development of company grade officer and SNCO troop leaders (e.g., TBS and Platoon Sergeant's Course), the planning and executing skills expected of a battalion commander, and those staff skills (by OccFld) needed to support a battalion commander in the accomplishment of a RAS mission.

The pattern of x's (indicating a relationship between a particular MPS and the corresponding ITS) was developed by first blocking out the relationships between major categories along both axes. For example, under MPS, command and control was thought to be a matter primarily concerning troop leaders, battalion commanders, and staff officers.

Table VIII-H-2 Shortfalls in Current Support Unit T/Os

Infantry Battalion Command and Staff Skills				Supply Bn Has/Needs		Maint Bn Has/Needs		Engr Spt. Bn Has/Needs		LS Bn Has/Needs		MWSS Has/Needs	
CO	LtCol	0302	1	1/		1/		1/		1/		1/	
XO	Maj	0302	1	1/		1/		1/		1/		1/	
SgtMaj		9999	1	1/		1/		1/		1/		1/	
S-2	Capt	0202	1		x	1/		1/		1/		1/	
Intell Chief	GySgt	0231	1		x		x	1/		1/		1/	
S-3	Maj	0302	1	1/		1/		1/		1/		1/	
Asst S-3	Capt	0302	1		x		x	1/		1/		1/	
Ln Off	Lt	0302	2	1/			x		x		x	1/	
Air Off	Capt	7207	1		x		x		x		x	1/	
FAC	Lt	7207	2		x		x		x		x	1/	
Ops Chief	MSgt	0369	1	1/		1/		1/		1/		1/	
Ops Asst	SSgt	0369	1		x		x	1/		1/		1/	
NBCD Off	WO	5702	1		x		x	1/			x		x
Comm Off	Capt	2502	1		x		x		x		x		x
Comm Chief	MSgt	2591	1		x		x		x		x		x
Radio Tech	SSgt	2861	1		x		x		x		x		x
Msg Ctr Chief	Sgt	2549	1		x		x		x		x		x
Radar Chief	Sgt	2537	1		x		x		x		x		x
Radio Sqd Ldr	SSgt	0369	1		x		x		x		x		x
Chief Scout Super	SSgt	8541	1		x		x		x		x		x

1/ Indicates that unit has billet and that it is filled by an individual of appropriate grade. However, MOS associated with billet is not the same as in infantry battalion. To develop an adequate self-defense capability this discrepancy would have to be resolved (e.g., by assignment of officers from combat arms OccFlds or by developing similar skills in OccFld 04).


MISSION PERFORMANCE STANDARDS
CAPABILITY TO:
INDIVIDUAL TRAINING STANDARDS
ABILITY TO:
ESSENTIAL SUBJECTS TAUGHT (INITIAL ENTRY - CET)
INTERIOR RAIDS
COMBAT
INDIVIDUAL TACTICAL SKILLS
COMBAT SKILLS ADVISORY
PROFESSIONAL DEVELOPMENT TAUGHT (CPT. & SNCO)
TROOP LEADERS (CO. GRADE) OFF. & SNCO
BASIC TROOP LEADER
TACTICS
SPECIAL SKILL PROFICIENCIES/PECULIARITIES TAU (SNCO)
(ASPECTS OF PARTICULAR DELIVERIES TO SNCO)
ALL MARINE UNITS, ART SITUATIONS
SUPPORT UNITS VS. CONVENTIONAL THREAT
SUPPORT UNITS VS. IRT THREAT
H-12

Continuing actions by small units, on the other hand, depended on the skills of individual Marines and their immediate troop leaders (platoon and company). Similarly, "actions outside, at, and within the perimeter" depended on skillful performance by individual Marines as well as effective troop leading and command and staff action. Planning and organizing the ground (or security area), on the other hand, was thought to be mostly a matter for commanders, their subordinate troop leaders, and the battalion/squadron staff.

Once the major areas of intersection were determined, each line under MPS was examined to determine what ITS it depended upon. This is where a certain amount of subjective judgment was introduced, but the object was to develop a comprehensive set of training relationships that could be used to focus the attention of mission-oriented training in a support unit and coordinate the individual training required to attain the MPS identified.

III. Course of Action #3. The supporting data for the recommendations under this course of action consists of a series of postulated T/Os presented as strawmen for further consideration and analysis. They are not intended as recommendations to be implemented at this time. Figures VIII-H-2, VIII-H-3, and VIII-H-4 describe the following structures:

(1) A new Military Police Co., FSSG
(2) A Rear Area Security Bn, FMF
(3) A Defense Bn, FMF (including the type of doctrinal material found in IP 1-4, Fleet Marine Force, an Education Center publication).

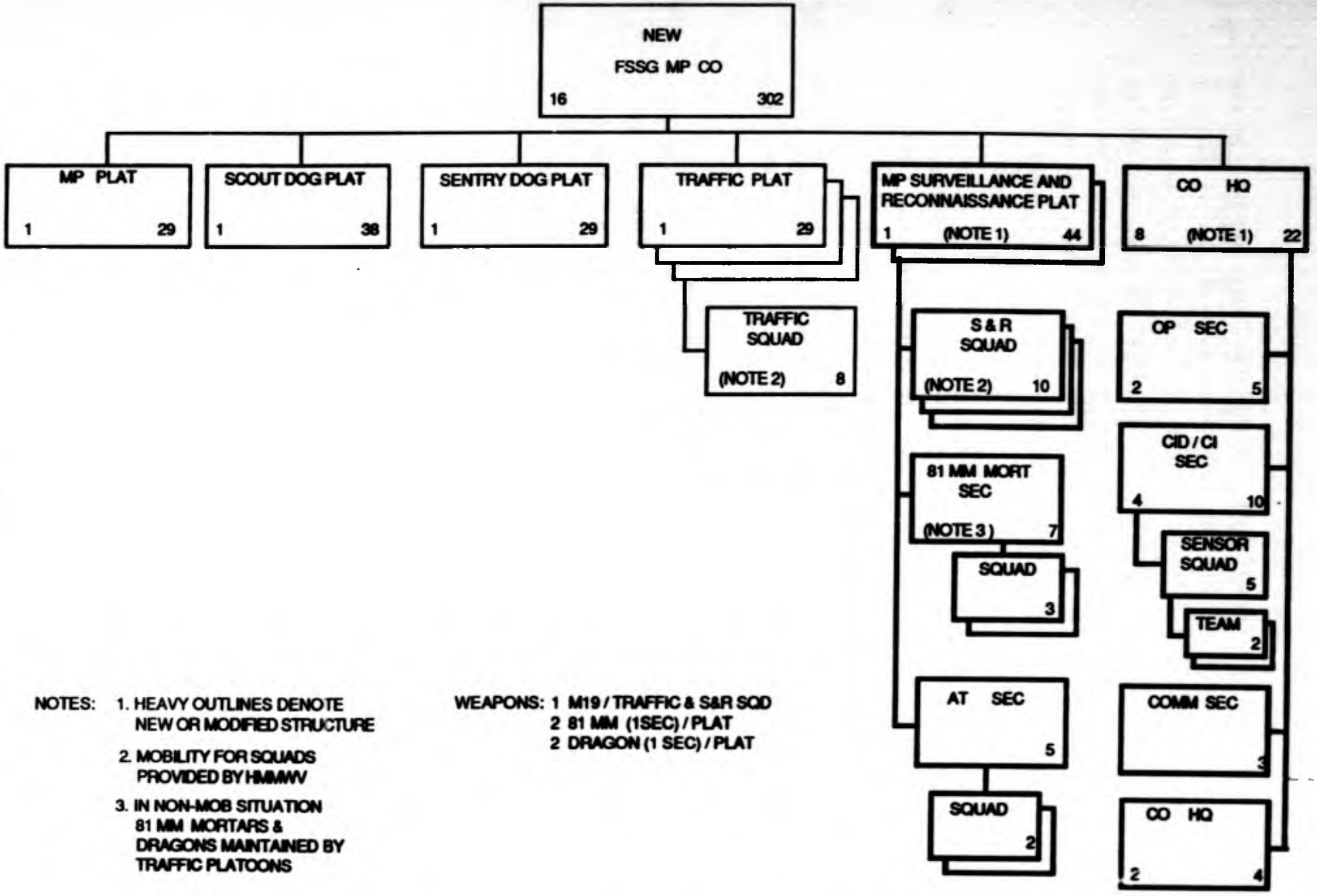


Figure VIII-H-2 EXAMPLE OF A NEW FSSG MP COMPANY

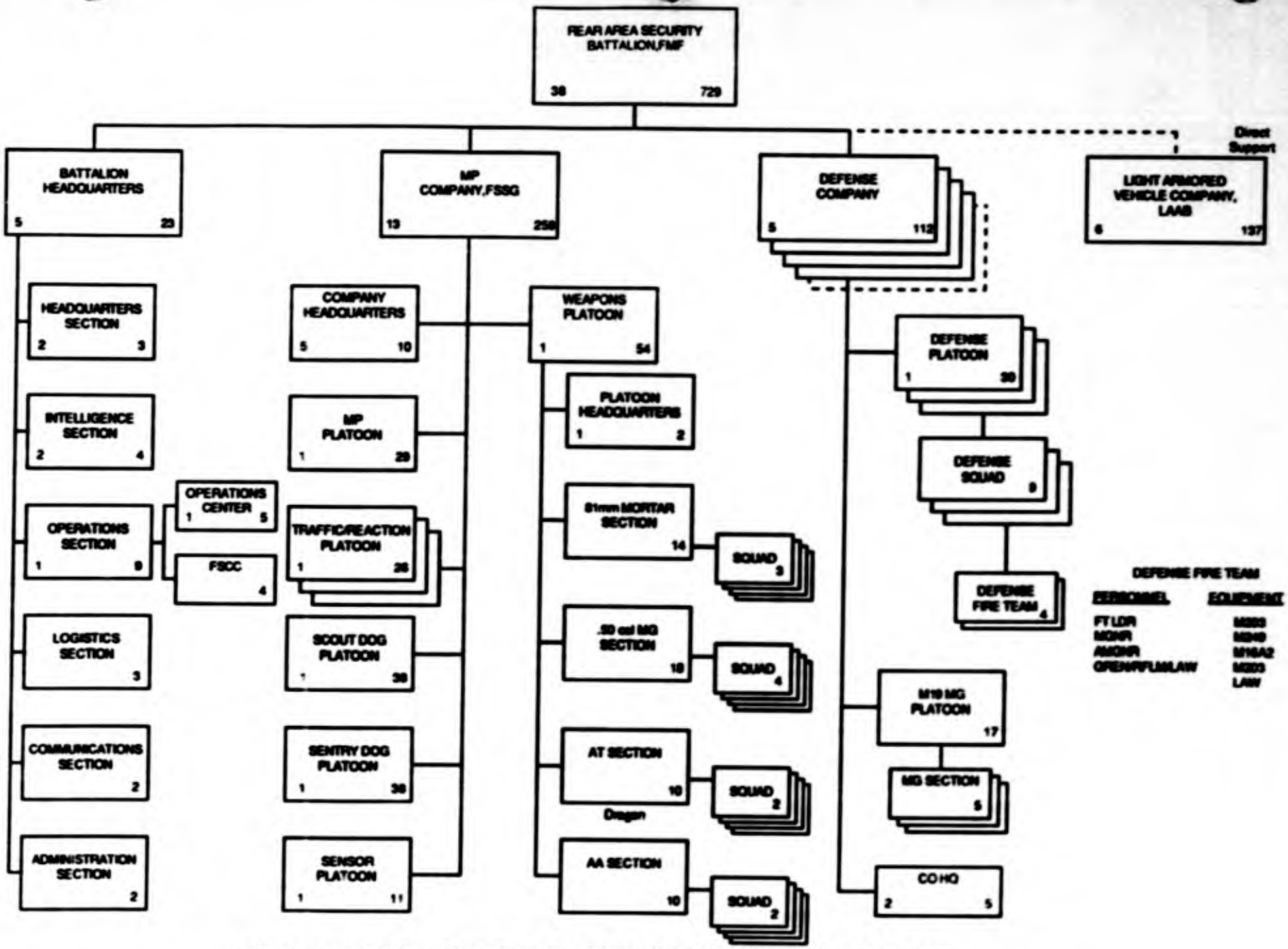


Figure VIII-H-3 EXAMPLE OF A REAR AREA SECURITY BATTALION, FMF

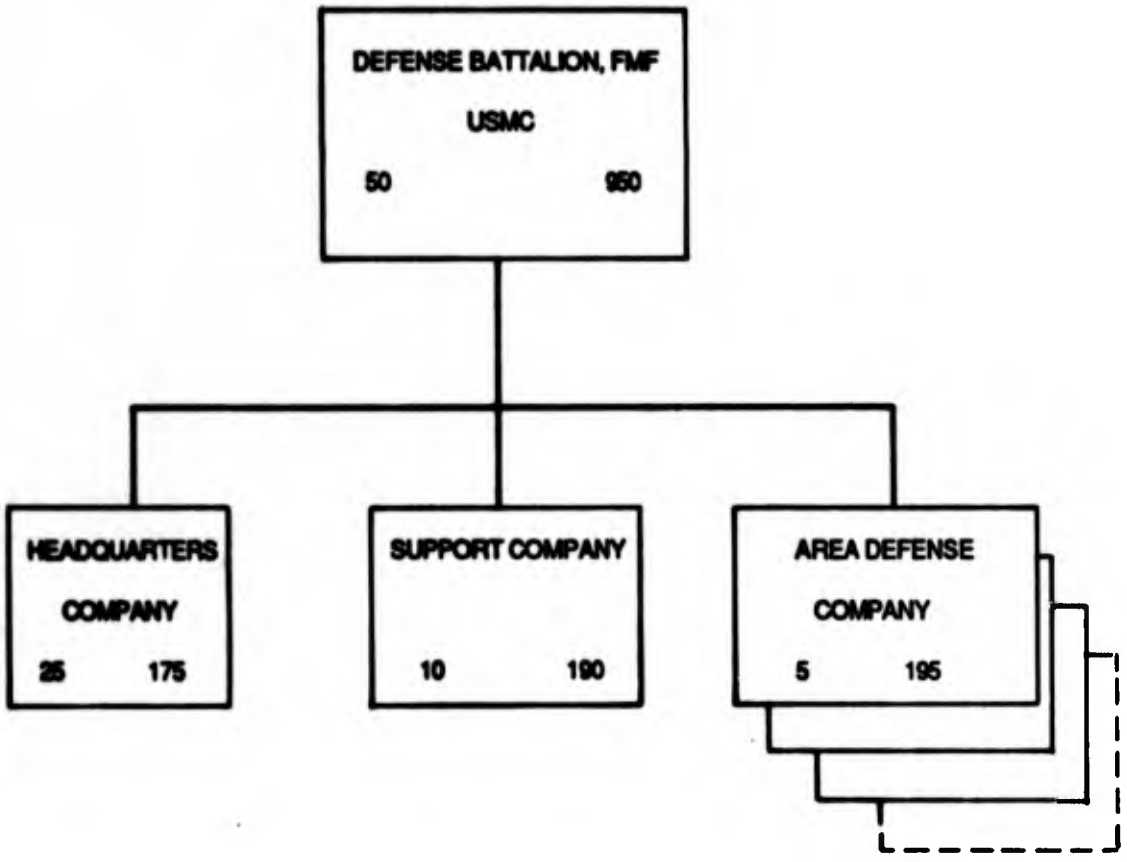


Figure VIII-H-4 EXAMPLE OF A DEFENSE BATTALION, FMF

a. Mission and Tasks

(1) Mission - To locate and eliminate or neutralixe enemy threats to installations and activities in the rear portion of the MAGTF's area(s) or responsibility.

(2) Tasks:

(a) To provide command support to the MAGTF headquarters for contingency planning and preparation to perform the full range of RAS tasks on order.

(b) To establish surveillance over and conduct reconnaissance in assigned areas of responsibility.

(c) To reinforce internal and local security of MAGTF facilities or areas assigned.

(d) To provide task-organized DS elements of the battalion to reinforce the internal and local security capabilities of subordinate elements of the MAGTF.

b. Concept of Organization. The defense battalion is organized into a headquarters company, a support company and three area defense companies (four upon mobilization and augmentation). The headquarters company contains the battalion headquarters, administration and most of the organic CSS capabilities of the battalion. It also has the capability, in the form of skilled personnel and teams, to provide command support ao the headquarters of supported units for RAS planning and execution. The support company contains the special sensors, communications, engineer equipment and material, general supply items (e.g., NBC Defense equipment and supplies), motor transport, and ordnance equipment and suplies, along with the operators and maintanners (organizational maintenance) of this equipment needed to reinforce the area defense companies of the battalion or supported CSS and AGS units. The area defense "letter" companies of the battalion are organized as mobile security units designed to establish surveillance over an assigned area, coordiante with CSS and AGS units that may be deployed in their area

of responsibility, reinforce the internal and local security of these units, coordinate with and obtain support when required from other MAGTF elements such as command support, fire support, and ground maneuver elements if necessary, and to seek out and destroy any of a variety of enemy threats to rear area installations and activities.

(1) Command and Control - Command functions are discharged through a headquarters consisting of a C.O., X.O., and executive staff which provides the full range of specialized command support required for the performance of the RAS mission.

(2) Firepower - Organic firepower of the battalion includes individual weapons, medium and heavy machine guns, medium mortars, medium and heavy AT missiles, and light surface-to-air missiles. Command-detonated mines are also included in the ordnance allowance of the battalion.

(3) Communications - The battalion has the capability to support all intra-battalion operations with secure voice communications. It can also augment supported units with the special communications capabilities required for effective RAS command and control.

(4) Mobility - The battalion is fully mobile in organic vehicles. The letter companies move via their organic HMMWVs and LAVs. The equipment and supplies of the headquarters and support companies are carried in organic 5T trucks.

c. Concept of Employment. The defense battalion is employed in a general support role when all elements of a MAG-size MAGTF are operating within a contiguous area. Its subordinate elements are task organized and disposed as the MAF Commander directs, depending on the MAGTF mission, the enemy threat to the rear area, the terrain and other situational factors affecting the MAGTF Commander's concept of operations. The defense battalion can provide task-organized DS elements to provide RAS support for MAF elements at separated locations or to MAGTFs of smaller than MAF-size.

d. CSS Capabilities

(1) Administration - capable of self-administration
(2) Supply - organic supply functions
(3) Maintenance - 1st and 2d echelon of all organic equipment
(4) Transportation - all battalion elements transported in organic vehicles
(5) Medical - emergency treatment and preparatioan for evacuation
(6) Dining - capable of operating battalion and company messes

e. Selected Items of Equipment

SB-3865 (automatic switchboard)
AN/GYC-7 (ULMS)
TD-1234 (multiplexer)
JTIDS-DTMA
AN/VRC-83 (vehicular VHF radio)
AN/PRC-113 (portable VHF/UHF radio
AN/GRC-( ) (SINCGARS family)
AN/PSC-2 (Digital Comm. terminal)
AN/UXC-7 (facsimile)
TA-954 (telephone, DNVT)
Fiberoptic cable system
AN/PSC-3 (portable SATCOM radio)
TSEC/KY-99 (COMSEC for ANDVT)
TSEC/KG-84A (DLED)
TSEC/KY-90 (SDNRIU)
PLRS
MIFASS
TCO
Robotic sentry
M-19 40mm MG
Imp. 81mm Mortar
AT-4 84mm LAW
HEAA RD for SMAW

Imp DRAGON Warhead

SLAP

MULE

TOW

STINGER

LAV-25/TOW/Mort/AA variants

DRAFT OUTLINE
REAR AREA SECURITY (RAS) SOP

1. Situation

a. General: States the purpose, scope, and basis for the rear area security standing operating procedure; identifies basic rear area security responsibilities and the overall organizational structure for security.

b. Enemy Forces: Identifies and describes the various types of threats and threat tactics that may be encountered; refers the reader to the most readily available local source of current threat information.

c. Friendly Forces: Identifies higher, adjacent, and supporting forces that may be involved, with particular attention given to command support and fire support available.

d. Attachments/Detachments: Identifies the force elements that may or may not be involved under direct control of the initiating headquarters.

e. Assumptions: Lists those statements which are likely to have a bearing on RAS requirements but which are not completely supported by facts at the time of writing the SOP.

2. Mission: Discusses the general nature, scope, and levels of protection which the command may be expected to provide for itself in a wide range of situations (what, where, when, and why).

3. Execution

a. Concept of Operations: Describes how RAS operations are to be conducted across the spectrum of threat levels; describes the intended manner in which units would transition from executing their primary support missions to performing their RAS mission; describes the functions and organization of three key RAS elements - the RAS Combat Operations

Center, the command's Interior Guard (local security) and the RAS Reaction Force/Ground Defense Force; describes special security measures such as convoy and mobile contact team security and security against low-intensity combat threats; discusses overall surveillance and reconnaissance requirements stressing in particular, the importance of surveillance and early warning throughout the rear area; discusses the conditions under which the GCE will take over the RAS mission (when dictated by the enemy situation) and the corresponding response of the initiating command under these conditions.

b. Tasks: Specifically identifies and describes the RAS-oriented security responsibilities for each of the command's subordinate units, staff sections, and specialized teams; assigns responsibilities for the operation of the RAS COC (including the FSCC functions); identifies the spectrum of tasks which the Interior Guard and Reaction Force/Ground Defense Force must be prepared to execute; assigns responsibilities for the security of convoys and mobile contact teams; describes damage contro requirement and assigns general damage control responsibilities; describes local and internal security requirements and assigns responsibility for the performance of these tasks; damage control requirements; assigns general damage control responsibilities; prescribes RAS-related engineer tasks to be performed; describes the types of deception measures that may enhance rear area security and specifies required levels of individual and small unit training that are to be maintained by subordinate elements to enable them to effectively accomplish the above tasks.

c. Reserve: Identifies the planned source of personnel resources and describes the procedures for forming and employing the RAS Reaction Force/Ground Defense Force at various levels of threat or stages of alert.

d. Coordinating Instructions: Defines the various levels of defense conditions; prescribes the extent of unit participation across a range of operational situations; describes how routine interior guard functions

will be coordinated with RAS activities and references applicable guard orders; lists instructions applicable to two or more units.

4. Administration and Logistics: Prescribes the asignment of RAS-related additional duties to individual members of the command and the control of rosters reflecting these assignments; prescribes individual and unit levels for RAS-related equipment and supplies such as weapons, sensors, etc.; identifies mobility, engineer or other support that may have to be made available.

5. Command and Signal

a. Command Relationships: Identifies and places particular emphasis on the responsibility of the C.O. for RAS; describes the composition and authority of various command support elements (especially those that would be task-oriented) that would commence functioning only in a higher-than-normal threat condition.

b. Signal: Describes the warning system to be used in different threat conditions; focuses on the provisions for providing communications for RAS and non-routine intelligence information processing and operations; prescribes those changes to normal operating instructions that will be required in the event various threat situations develop (or refers to appropriate SOIs).

c. Command Posts: Includes guidance on planning and executing the stablishment and displacement of the CP/COC in various threat situations with emphasis on providing uninterrupted communications.

Appendixes

1. Task Organization: Presents an example of a basic RAS organization for combat including an integrated interior guard, ground defense force and reaction force; describes organizational modifications that might be dictated by various threat considerations.

2. Intelligence: Describes the wide range of intelligence and counterintelligence activities that are associated with rear area security; identifies agencies and resources that may be available to conduct these activities and satisfy the comprehensive intelligence requirements for RAS.

3. Operations: Displays a sample map overlay depicting installation/facility functional areas (targets) and the disposition of security forces; describes the organization, functions, and operation of a RAS Combat Operations Center and defines the responsibilities of personnel assigned thereto.

4. Deception Planning: Discusses the employment of deception measures with regard to enhancing rear area security by deceiving the enemy about unit locations and planned activities.

5. Logistics: Discusses special supporting requirements for the execution of RAS missions.

6. Personnel: Discusses the requirements for and the assignment of various skilled personnel to RAS operations; addresses use of replacements in a security role.

7. Civil Affairs: Major interest is focused on the potential security problems and collection opportunities generated by contact with an indigenous population.

)D 0. Command Relationships: Defines relationships in various threat situations; includes relationships with indigenous security forces; defines on-order execution of RAS tasks.

9. Communications-Electronics: Lists equipment and describes procedures peculiar to RAS mission requirements.

10. Operations Security: Describes measures peculiar to the RAS mission.

11. Air Operations: Identifies nature of air support that may be available for RAS.

12. Fire Support: Identifies the type of fire support that may be required by RAS operations; describes the organization, functions, and operation of the RAS FSCC and defines the responsibilities of personnel assigned thereto.

13. Damage Control: Defines measures to be taken to reduce the probability of different levels of damage and to minimize effects; identifies resources that may be available to support damage control efforts; identifies individual and unit damage control training requirements; provides checklist for development of a damage control plan.

14. Convoy Security Operations: Presents procedures covering vehicle escorting; includes a sample convoy operation order; provides general instructions for protection of mobile support elements.

15. Surveillance and Patrolling: Discusses general requirements for rear area surveillance, patrolling and timely reporting, and highlights their great importance to rear area security.

16. Reaction Force: Provides instructions on composition, equipment, initial (standby) location, and employment.

mb- tGgineer Support: Describes the nature of combat support that may be required and available from both organic and supporting engineering units (including NMCBs).

18. Execution Checklists: Focuses on peculiarities of rear area security planning and transition requirements.

19. Reports: Identifies formats and submission requirements.

20. Distribution:

DRAFT OUTLINE
REAR AREA SECURITY (RAS) PLAN

APPENDIX __ (REAR AREA SECURITY PLAN) TO ANNEX C (OPERATIONS) TO OP PLAN ____

Ref: (Issuing headquarters) RAS SOP

Task Organization: Tab A (for RAS, effective on order)

1. Situation

   a. General: Environment and general situation which would establish probable pre-conditions for execution of plan.

   b. Enemy Forces: Specific threats to the rear area.

   c. Friendly Forces: Higher, adjacent, and supporting forces, with particular attention to command support and fire support agencies.

   d. Attachments/Detachments: Elements under control (or not) of issuing command for participation in RAS mission.

   e. Assumptions: Those on which plan is based (in absence of facts).

2. Mission: What RAS protection/defense requirements are to be accomplished by the command as a whole (what, where, when, and why).

3. Execution

   a. Concept of Operations: How RAS operations are to be conducted across the spectrum of threat levels anticipated in the particular situation; what organic and outside support capabilities are to

be employed in the protection/defense role; reference is made to existing RAS SOP.

b. Tasks: Specific security missions for each subordinate element in the task organization; when appropriate, specific deception tasks will be assigned.

c. Reserve: For RAS operations, the reserve will normally be a designated Reaction Force and the RAS Op Plan will specify tasks which the Reaction Force must be prepared to execute.

d. Coordinating Instructions: Instructions applicable to two or more units; control details for the command as a whole; time and conditions under which plan is to be executed.

4. Administration and Logistics: Those personnel administration and CSS details that are peculiar to the conduct of RAS operations (e.g., individual contingency-assignment and special equipment and supplies for provisional units).

5. Command and Signal

a. Command Relationships: Includes identity of and instructions concerning the authority and responsibilities of those command support elements activated to assist the C.O. exercise his RAS command responsibilities.

b. Signal: References the COI and the RAS SOP.

c. Command Posts: Locations; references the RAS SOP guidance on Rear Area CP displacement.

Tabs

A. Task Organization

B. Intelligence: Specially oriented on RAS situations; also addresses counterintelligence requirements and measures.

C. Operations: Usual map overlay information; describes organization and operation of the RAS Combat Operations Center and elements of the security-force; references the RAS SOP.

D. Deception Plan: Assigns specific tasks designed to deceive and confuse the enemy regarding the location of specific activities.

E. Logistics: Special supporting requirements for the execution of RAS missions.

F. Personnel: Primarily addresses assignment of RAS additional duties and the use of available replacements.

G. Civil Affairs: Major interest is focused on the potential security problems and collection opportunities generated by contact with an indigenous population; references RAS SOP.

H. Command Relationships: Includes indigenous security forces; defines on-order execution of RAS tasks.

I. Communications-Electronics: Equipment and procedures peculiar to RAS mission requirements; references the RAS SOP.

J. Operations Security: Describes measures peculiar to the RAS mission; references the RAS SOP.

K. Air Operations: Identifies the nature and extent of air support that may be available for RAS; references the RAS SOP.

L. Fire Support: Identifies the requirements for and describes the operation of the Rear Area Fire Support Coordination Center; references RAS the SOP.

M. Damage Control: Defines responsibilities; references RAS the SOP.

N. Convoy and Mobile Support Team Security Operations: Specific instructions relating to vehicle escorting; references the RAS SOP; provides instructions for executing the protection of mobile support elements; references the RAS SOP.

O. Surveillance and Patrolling: Highlights the importance of surveillance, patrolling, and early warning in a rear area situation; references the RAS SOP.

P. Reaction Force: Gives specific instructions for the initial location and employment of the Reaction Force; references RAS SOP.

Q. Engineer Support: Describes the requirements for combat engineering assistance; references RAS SOP.

R. Execution Checklists: Focuses on peculiarities of rear area security situation (transition of personnel to additional duties, formation and employment of provisional teams and units).

S. Reports: Identifies formats and submission requirements; references the RAS SOP.

T. Distribution: