Taking Stock of the Army's Base Realignment and Closure Selection Process

William M. Hix

RAND

Arroyo Center

Taking Stock of the Army's Base Realignment and Closure Selection Process

William M. Hix

MR-1337-A

Prepared for the United States Army

20010808 084

Arroyo Center

RAND

Approved for public release: distribution unlimited

The research described in this report was sponsored by the United States Army under Contract No. DASW01-96-C-0004.

Library of Congress Cataloging-in-Publication Data

Hix, William M. (William Michael), 1940–
Taking stock of the Army's base realignment and closure selection process / William Hix.
p. cm.
"MR-1337."
Includes bibliographical references.
ISBN 0-8330-2992-4
1. Military bases, American. 2. Military base closures—United States—Decision making. 3. United States. Army—Facilities. I. Title.

UA26.A2 .H578 2001
355.7'0973—dc21

2001031972

RAND is a nonprofit institution that helps improve policy and decisionmaking through research and analysis. RAND® is a registered trademark. RAND's publications do not necessarily reflect the opinions or policies of its research sponsors.

© Copyright 2001 RAND

All rights reserved. No part of this book may be reproduced in any form by any electronic or mechanical means (including photocopying, recording, or information storage and retrieval) without permission in writing from RAND.

Published 2001 by RAND
1700 Main Street, P.O. Box 2138, Santa Monica, CA 90407-2138
1200 South Hayes Street, Arlington, VA 22202-5050
201 North Craig Street, Suite 102, Pittsburgh, PA 15213
RAND URL: http://www.rand.org/
To order RAND documents or to obtain additional information, contact Distribution Services: Telephone: (310) 451-7002; Fax: (310) 451-6915; Internet: order@rand.org

PREFACE

This report, prepared as part of a broader research project on the future of Army installations, assesses the process by which the Army derived recommendations for the 1995 round of base closures and realignments. The report also recommends changes for any future rounds. A companion report, describing the legal and regulatory authority the Army has to close or realign installations outside the base realignment and closure process, is forthcoming.

The report should be of interest to anyone interested in the topic of defense base closures and realignments, particularly those of the Army.

The research was sponsored by the Assistant Vice Chief of Staff, U.S. Army, and carried out in the Military Logistics Program of RAND's Arroyo Center, a federally funded research and development center sponsored by the United States Army.

For more information on RAND Arroyo Center, contact the Director of Operations (telephone 310-393-0411, extension 6500; FAX 310-451-6952; e-mail donnab@rand.org), or visit the Arroyo Center's Web site at http://www.rand.org/organization/ard/.

CONTENTS

Preface iii

Figures ix

Tables xi

Summary xiii

Acknowledgments xxi

Abbreviations xxiii

Chapter One
INTRODUCTION 1
Background 1
The Roles of the Military Departments in the Last Four BRAC Rounds 2
Improved Methodology Recommended 3
Organization of this Report 3

Chapter Two
TEN DESIRABLE PROPERTIES FOR A BRAC SELECTION PROCESS 5
Can Be Audited and Reproduced 6
Maximizes Objectivity and Internal Consistency 6
Uses Separate and Independent Assessment Criteria 6
Considers Externalities 6
Provides a Complete Option Set 7
Considers Both Current and Future Installation Needs, Given a National Security Strategy and Force Structure 7

Hedges Against the Most Important Uncertainties in Future Stationing Needs 8
Leads to Efficient Use of Assets 8
Leads to Reduced Long-Term Costs 8
Leads to Improved Operations 9

Chapter Three
HOW THE ARMY HAS APPROACHED RECENT BRACS . . . 11
The BRAC Process 11
On the Constitution of the Commission 11
Requirements of the Secretary of Defense 12
Actions Subsequent to Defense Recommendations 12
The Army's Role in the Process 13
Development of the Army's Process 14
DoD Selection Criteria 14
The Army Process 16
Installation Assessment 18
Ranking Maneuver Installations 19
Ranking Classes of Installations Other Than Maneuver 29
Critical Evaluation of the Installation Assessment Step 32
Army Stationing Strategy, Military Value Assessment, and Recommendations 33
Maneuver Installations 37
Major Training Areas 41
Command-and-Control and Administrative Support Installations 42
Training Schools 45
Professional Schools 47
Ammunition Production 48
Ammunition Storage 48
Commodity Installations 49
Ports 50
Depots 52
Proving Grounds 52
Medical Centers 53
Industrial Facilities 55
Recommendations on Other Categories of Installations 55
Summary of the Outcome of BRAC 1995 55

Chapter Four
A CRITICAL ASSESSMENT OF THE ARMY'S PROCESS . . . 59
Summary Assessment 59
Auditability and Reproducibility 60
Objectivity and Internal Consistency 61
Separation and Independence of Criteria 62
Consideration of Externalities 62
Completeness of Option Set 62
Consideration of Current and Future Requirements 64
Consideration of Hedges 64
Efficient Use of Assets 65
Reduce Long-Term Costs 65
Improve Operations 71
Summary 71

Chapter Five
A PROPOSED PROCESS 75
Steps in the Proposed Process 76
Asset Inventory 76
Estimate of Future Requirements 77
Develop Alternative Allocations of Requirements to Assets 78
Estimate Cost of Alternatives 79
Apply Constraints 80
Assessing the Proposed Process 80

Bibliography 83

FIGURES

S.1. The Army BRAC Evaluation Process xi
3.1. The Army BRAC Evaluation Process 16
3.2. Later Steps in the Army Process 34

TABLES

S.1 Summary Assessment of Army Process xviii
3.1 Weighting of Attributes of Maneuver Installations by Class of Criteria 20
3.2 Attribute Weights for the Thirteen Principal Categories of Installations: Mission Requirements and Operational Readiness 22
3.3 Attribute Weights for the Thirteen Principal Categories of Installtions: Land and Facilities 24
3.4 Attribute Weights for the Thirteen Principal Categories of Installations: Contingency, Mobility, and Future Requirements 25
3.5 Attribute Weights for the Thirteen Principal Categories of Installations: Cost and Manpower Implications 27
3.6 Scaled Scores, Weighted Scores, and Relative Ranking of Maneuver Installations—Mission Requirements and Operational Readiness Class of Criteria 28
3.7 Scaled Scores, Weighted Scores, and Relative Ranking of Maneuver Installations—All Classes of Criteria 30
3.8 Installation Assessment Rankings by Category 31
3.9 Operational Requirements Supported by Each Category of Installation 36
3.10 Capacity of Installations to House Maneuver Brigades With and Without Construction 38
3.11 Installation Rankings and Recommendations—Maneuver Installations 40

3.12 Installation Rankings and Recommendations—Major Training Areas 42
3.13 Installation Rankings and Recommendations—Command and Control Installations 44
3.14 Installation Rankings and Recommendations—Training Schools 47
3.15 Installation Rankings and Recommendations—Ammunition Storage Facilities 50
3.16 Installation Rankings and Recommendations—Commodity Installations 51
3.17 Installation Rankings and Recommendations—Ports 51
3.18 Installation Rankings and Recommendations—Depots 52
3.19 Installation Rankings and Recommendations—Proving Grounds 54
3.20 Summary of Installations Studied and Army Recommendations 56
4.1 Summary Assessment of Desired Properties of the Process 60
4.2 Net Cost Cost and Savings Estimates for Closings and Realignments ($M) 66
4.3 Army Base Case Closure and Realignment Package 67
4.4 Army Base Case and Other Closure and Realignment Packages 69
4.5 Army Closure and Realignment Package Not Recommended 70
5.1 Comparison of the 1995 and Proposed Processes 81

SUMMARY

BACKGROUND AND PURPOSE

During the last decade, the Army, like the other military departments, has been accommodating the downsizing of the defense establishment, in part by reducing its installation structure during congressionally mandated rounds of base closures and realignments. Four rounds of closures and realignments have resulted in the closure of 97 major defense installations, including 23 belonging to the Army. Many more minor installations have been closed, and others have been realigned. Nevertheless, many believe that excess installation capacity remains. Hence, more base realignments and closures (BRACs) may occur, possibly as early as 2003.

The Army's process for selecting installations has remained fairly constant during the last three rounds, in 1991, 1993, and 1995. The process has much to commend it and, in fact, has received the most praise of the processes of any of the three military departments. Yet the process has shortcomings and can be improved for any future rounds.

This report offers ten criteria it argues should characterize an effective BRAC process and analyzes the Army's 1995 process in light of those criteria. It then goes on to suggest an improved process.

THE ARMY BRAC PROCESS

In the 1995 BRAC round, the Army followed a process of base selection refined modestly from the one it used in the previous two

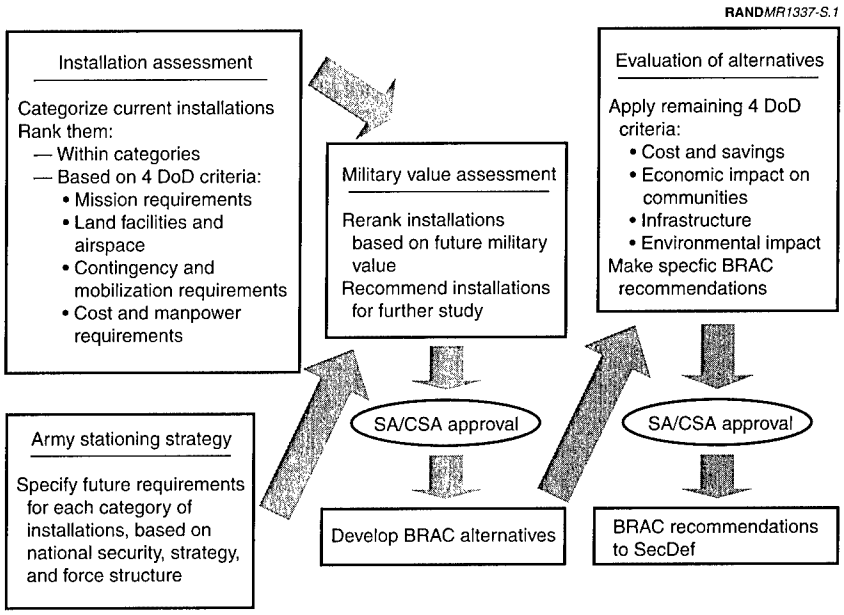

Figure S.1—The Army BRAC Evaluation Process

rounds, in 1991 and 1993. In summary form (Figure S.1), the process entails first categorizing each installation according to its current principal function (e.g., maneuver, major training area, ammunition manufacturing), then—within categories—ranking each installation according to a weighted score of about two dozen attributes, the number varying by category of installation. This ranking is synthesized with a stationing strategy for each category. Each strategy describes future requirements for installations of the particular category, based on national security requirements and programmed force structure. The third step reranks installations based on the synthesis, assigning a future military value to each installation and selecting the lower-ranking ones for further study. From this step, specific closure and realignment options are developed and assessed against four criteria: cost, economic impact on communities, infrastructure, and environmental impact.

ATTRIBUTES OF AN EFFECTIVE BRAC PROCESS

This report argues that certain criteria should characterize an effective BRAC process. It offers ten, which group into three larger categories that address essential internal characteristics, the breadth of the process, and the outcomes. Within the three categories, the ten criteria are as follows:

- **Essential Internal Properties**
  - **Can be audited and reproduced:** A process can be audited and reproduced if a qualified person who was not part of the process could take the data used in the process and independently produce the same result. This implies a process based on clearly defined quantitative measures and explicit qualitative assessments.
  - **Maximizes objectivity and internal consistency:** An ideal process would contain no hidden or explicit bias toward change or toward the status quo. Instead, it would generate and assess options according to an objectively determined set of goals. Further, its various steps would rest on assumptions used consistently in all parts of the process.
  - **Uses separate and independent assessment criteria:** Criteria should be considered singly and not be embedded in multiple criteria. For example, cost should not both be considered explicitly and be embedded in other criteria, such as condition of buildings.
- **Breadth of the Process**
  - **Considers externalities:** Externalities consist of effects on people or activities outside the Army. Solutions that ignore externalities are unlikely to survive the political process. Four classes of externalities are important: economic impact on communities, local infrastructure, environment, and politics.
  - **Provides a complete option set:** A process whose design or rules limit the range of options stands to miss creative and beneficial changes. It is easier for decisionmakers to discard options that, for whatever reason, are later considered

unattractive than to try to generate those options at the end of the process.

— **Considers current and future needs:** While satisfying today's requirements is straightforward, this criterion presents difficulties with respect to the future. First, the effects of BRAC decisions last for decades, and some are irreversible. Yet national security strategies change from administration to administration and sometimes even during an administration. Such changes drive force structure changes and resulting installation requirements. Hence, BRAC decisions need to serve not only the current national security strategy but also likely future strategies. The time horizon of the analysis is critically important. The 1990 law that authorized the last three BRAC rounds restricted the Department of Defense (DoD) to considering only the force structure programmed out to a six-year horizon. Longer-term trends and events could not be considered. For example, the trend toward faster vehicles and longer-range weapons has long-term implications for the utility of today's maneuver and training installations, but the Army was not allowed to address such considerations.

— **Hedges against important uncertainties:** Because the future is cloudy, an ideal BRAC process would produce closure and realignment options that hedge against likely changes in future demands and against less likely but potentially devastating changes. A BRAC can err in two directions. First, it can realign and close too few installations, permitting unneeded ones to persist, thereby wasting limited resources. A BRAC can also err in the other direction by permanently divesting installations not needed today but that may be needed in the future.

- **Outcomes**

— **Leads to efficient use of assets:** At one level, this is an obvious criterion. But it also has less obvious implications. For example, it implies considering all the potential uses of each installation. In particular, it implies considering the cost-effectiveness of using each installation for as many functions

as it can support so that the maximum number of small, inefficient, single-function installations can be closed.

— **Leads to lower long-term costs:** High initial costs may be required to achieve substantial long-term savings. Options that require substantial up-front construction or other transition costs should not be dismissed out of hand before considering the net present value of the long-term stream of costs and savings.

— **Leads to improved operations:** Certain realignments or closures could have synergistic effects on the activities that occupy the installations. While these operational improvements may be difficult or impossible to quantify, they may be real and potentially significant. For example, the collocation of individual training schools and maneuver units could enhance the export of doctrine to the field and better capitalize on the field experience in schools. Such considerations should be brought into the qualitative portion of the assessment.

HOW THE ARMY PROCESS FARED

Table S.1 presents our assessment of how well the Army 1995 BRAC process satisfied each of the ten criteria. As the table indicates, the 1995 process fully satisfied only one criterion: consideration of externalities. It largely satisfied three and was judged as somewhat deficient in six. In no case did the process fail completely.

When judged against the ten criteria, the Army process fell short in a number of ways. However, three were most significant: Provide a complete set of options, consider future requirements, and reduce long-term costs.

The most significant lapse of the Army's 1995 process was that it failed to develop a complete set of options. In large measure, this failure stemmed from an implicit assumption of the process: An installation must exist because the function performed on it must be performed. Because the Army's process began by categorizing installations according to their current functions, broader alternative uses were not considered. Similarly, the categorization implicitly

Table S.1

Summary Assessment of Army Process

Criteria	Assessment
Internal properties	
Can be audited and reproduced	+
Maximizes objectivity and internal consistency	+
Uses separate and independent criteria	+
Breadth of process	
Considers externalities	++
Provides complete option set	–
Considers current and future requirements	–
Hedges against important uncertainties	–
Outcomes	
Leads to efficient use of assets	–
Leads to reduced long-term cost	–
Leads to improved operations	–

NOTE: A "++" rating means a criterion was fully satisfied; a "+" means largely satisfied; and a "–" indicates somewhat deficient. A "– –" means not satisfied at all.

legitimized the existence of small, single-function installations whose functions might well be performed on larger, multipurpose installations where economies of scale are possible. The process confused the importance of functions performed today on installations with the importance of the installations themselves. Further, an early step in the Army's process, the Army stationing strategy, severely limited the range of options considered, reflecting a likely preference of the Army leadership driven by DoD groundrules that required the military departments to fund closure costs in part from existing budget and program totals.

Second, it did not explicitly hedge against important uncertainties. The effects of BRAC decisions often last for decades; divestitures, in particular, can be irreversible. National security strategy will change periodically, as will force structure, force design, and extent of forward presence. While the Army's 1995 recommendations did hedge against the return of its forward-deployed forces from Korea and Germany, there is no evidence that they did not consider other, perhaps more plausible scenarios, including major shifts in the national security strategy or major changes in force structure and capability.

Finally, two factors caused the Army to achieve smaller long-term savings than were possible. First, the military departments were required to fund up-front closure costs from a largely fixed budget earmarked for BRAC. Therefore, they had little incentive to seek bold closures that entailed large front-end costs even if the long-term savings were large. Second, a principal criterion used to select installations for closure was the number of years required to recoup the initial costs of closure. Because the Army was limited to actions that saved money during the program years, only installations that offered a quick payback were selected. A net-present-value approach would have led to a different set of selections for closure. However, the Army would have had to sustain higher up-front costs and accept longer payback periods. Hence, the Army proposed modest changes that required small front-end costs and offered quick paybacks well within the six-year program. The Army's report cited numerous options that were dismissed because of high initial costs.

AN ALTERNATIVE PROCESS

In light of the assessment described above, we recommend a revised process comprising five steps:

- **Inventory Assets.** Without regard to current use, lay out the most important natural and man-made assets, as well as intangibles, at every installation.
- **Estimate Future Requirements.** Describe the future requirements for installation assets without regard to where today's requirements are being met. Be explicit about important uncertainties that may require hedges. Consider long-term trends.
- **Develop Alternative Allocations of Requirements to Assets.** This step requires creativity in developing a range of options. It entails zero-based thinking about uses of installations and locations of activities. The practicalities of cost are dealt with in the next step.
- **Estimate Cost of Alternatives.** Entire packages, as well as individual transactions, are costed to ensure that synergies are considered. Certain synergies—those that translate directly into reduced manpower or other resource requirements—can be monetized. Others must be dealt with subjectively. Net present

value, rather than up-front cost, becomes the principal cost criterion. At this stage, high cost, low return options will drop out.

- **Apply Constraints**. This step applies consideration of externalities (political, environmental, community impacts) to each transaction and package.

These five steps will lead to a set of cost-effective, politically viable options that should be broader in scope and more far-reaching in their beneficial effects than those of earlier BRACs.

Looking beyond the Army's authority, we also recommend that, in future BRACs, DoD find incentives for the services to propose more substantial closures, in particular, those that may have large front-end costs but offer substantial long-term savings. The past practice of requiring the military departments to find trade-offs within their existing budgets and programs effectively stifled larger closures.

Initiatives to motivate closures might include the creation of either a government corporation or other body with the authority to borrow against anticipated long-term savings to fund front-end costs. Or, more simply, DoD could simply hold a closure fund for which the military departments would compete by proposing projects DoD would select on the basis of long-term net present value. Financial incentives for the services are blunted, because they do not realize the sales value of land and assets.

Further, the five-step methodology proposed here could easily be adapted to a joint, interservice analytic process that seeks to allocate all DoD functions and activities to available installation assets without regard to current use or even to the service to which each installation now belongs. Finally, it is recommended that any new BRAC legislative authority permit the military departments and DoD to include long-term trends and explicit hedges in their recommendations.

ACKNOWLEDGMENTS

The author is particularly grateful for the insight provided by Gary Dinsick and Pat Flynt of the Army's BRAC office. John Nerger, also of the Office of the Assistant Chief of Staff for Installations Management, and Charles Fletcher of the Program Analysis and Evaluation Directorate provided helpful suggestions on an earlier draft. Donald Manuel of the Office of the Assistant Secretary of the Army for Installations and Environment was also a source of historical information on the BRAC process. RAND technical reviewers Ellen Pint and Kathi Webb offered substantial suggestions that greatly improved the report. Jerry Sollinger provided excellent structural and organizational improvements. I am grateful to them as well as Sandy Hanson and Shirley Lithgow, who assisted in the preparation of the manuscript.

ABBREVIATIONS

BRAC	Base realignments and closures
DoD	Department of Defense
FY	Fiscal year
GAO	U.S. General Accounting Office
IRP	Installation Restoration Program
MRC	Major regional conflict
TABS	The Army Basing Study
TRADOC	U.S. Army Training and Doctrine Command

Chapter One

INTRODUCTION

BACKGROUND

For more than a decade now, the military services of the United States have been accommodating to the substantial reductions in strength and structure that followed the collapse of the Soviet Union and the Warsaw Pact. One such accommodation has been a series of four so-called rounds of base realignments and closures (BRACs) in the United States.

In May 1988, even before the fall of the Berlin Wall, Secretary of Defense Frank Carlucci chartered a commission, chaired by former Congressman Jack Edwards and former Senator Abraham Ribicoff, "to recommend military bases within the United States, its commonwealths, and possessions for realignment and closure." In October of that year, Congress supported the Secretary of Defense's initiative by passing legislation granting relief from certain statutes that inhibited base closures. Congress then approved the recommended closures, and the first round of BRAC occurred.

The 1988 commission served as a model for the Defense Base Closure and Realignment Act of 1990, legislation that authorized three further rounds of realignments and closures, in 1991, 1993, and 1995. The commissions for the latter three rounds were appointed by the President in consultation with congressional leadership, rather than by the Secretary of Defense.

The 1988 and 1990 legislation shared a key provision requiring the Executive Branch and Congress to dispose of all realignment and closure actions recommended by the commission as a package. The

genius of this provision, which largely neutralized the natural local political obstacles to individual base closures, broke a decade-long logjam of failed Executive Branch attempts to close military bases.[1] As a result, the four rounds of BRAC resulted in commission decisions to close 97 of 495 major defense installations in the United States and to realign many others.

Of the 97 major closures, the Army closed the fewest of the three military departments: Army, 23; Navy, 42; Air Force, 29; and Defense Logistics Agency, 3 (General Accounting Office [GAO], 1997). Because these BRAC actions were limited to installations located in the United States, they exclude the hundreds of overseas installations the Army closed during the 1990s as it reduced its overseas presence, particularly in Europe. While the other services also reduced their overseas presence during the drawdown, they did so to a lesser extent than the Army. Consequently, the other services concentrated more of their closures in the United States.

THE ROLES OF THE MILITARY DEPARTMENTS IN THE LAST FOUR BRAC ROUNDS

During all four BRAC rounds, each military department took advantage of the considerable independence each was given to develop and apply its own process or methodology for arriving at closure and realignment recommendations to the Secretary of Defense and to the commission.

Among the three military departments, the Army's methodology has received the most approbation. In evaluating the 1995 BRAC round, the GAO, which has published more than a dozen reports on various aspects of the BRAC processes, cited the Army's methodology as "generally sound and well documented" (GAO, 1995, p. 72). While the GAO termed the Navy's methodology generally sound, it did identify certain features that might preclude appropriate recommendations from surfacing. Finally, the Air Force's process was criticized for its lack of openness and transparency, making it difficult for GAO to track that service's recommendations.

---

[1]For a detailed treatment of the drawbacks of having an unelected commission exercising power that the framers of the Constitution may have intended to reside in the Congress, see Sorenson (1998), p. 231.

Fletcher (1996) offers a more critical, but still generally supportive, assessment of one key part of the Army process, the military value assessment. He accepts the structure of the Army's analyses, arguing for a better match of Army goals and objectives with those of the Office of the Secretary of Defense and other improvements within the analytic structure used in the last three BRAC rounds.

IMPROVED METHODOLOGY RECOMMENDED

While the Army has generally received high marks for its analysis and recommendations, this examination of the Army's methodology describes shortcomings that the author feels are significant enough to warrant change before the Army undertakes any future BRAC analysis. This report describes these aspects of the Army's process and offers improvements for the Army's consideration, should further BRAC rounds come to pass.

ORGANIZATION OF THIS REPORT

This study entailed four activities:

- developing a set of criteria against which any BRAC process may be assessed (Chapter Two)
- describing the Army's BRAC decision process, concentrating on the 1995 round (Chapter Three)
- critically assessing the Army's 1995 process against the proposed criteria (Chapter Four)
- developing an improved process for any future BRAC rounds (Chapter Five).

Chapter Two

TEN DESIRABLE PROPERTIES FOR A BRAC SELECTION PROCESS

This chapter proposes ten desirable properties for any improved Army process of selecting BRAC candidates. The ten serve two purposes: First, they provide a basis for assessing the strengths and weaknesses of the Army's past process, using the one the Army employed its 1995 round as the basis; then, in Chapter Four, they serve as design standards for a proposed future process.

These desirable properties were derived by the author in the course of a detailed critical assessment of the strengths and shortcomings of the Army's 1995 BRAC process. While the ten are consistent with management literature and economic theory, they were not explicitly derived from such. Instead, they evolved from a largely intuitive process informed in an attempt to make an objective assessment of the process and results of the 1995 process. The ten are considered essential to any future BRAC selection process, but they are not asserted to be an exhaustive set; other desirable characteristics may be appropriate as well.

The ten desirable characteristics described below differ qualitatively and fall roughly into three groupings. The first three—auditability, objectivity, and independent criteria—have to do with essential internal properties of the process itself. The next four have to do with the breadth of the process, ensuring that it considers externalities; future, as well as current, requirements; hedges; and a complete set of options. Finally, the last three focus on organizational outcomes of the process: efficient use of assets, reduction in long-term costs, and improved operations. The following discussion describes each in turn.

CAN BE AUDITED AND REPRODUCED

An auditable and reproducible process is one in which a qualified person who was not part of the process could, after the fact, take the data and independently produce the same result. This implies a process based on clearly defined quantitative measures and explicit qualitative assessments.

MAXIMIZES OBJECTIVITY AND INTERNAL CONSISTENCY

An ideal process would contain no hidden or even explicit bias toward change or toward the status quo. Instead, it would generate and assess options according to an objectively determined set of goals and objectives. And to the extent that subjective judgments are deemed appropriate, that subjectivity would be explicit. Further, its various steps would be based on consistent assumptions and applied uniformly in all parts of the process.

USES SEPARATE AND INDEPENDENT ASSESSMENT CRITERIA

A single evaluation criterion should not be double-counted in other criteria. For example, cost should not be estimated independently in one step of the process, then be included in other criteria, such as condition of buildings, which can be changed by incurring cost. Cost should be counted once, with all relevant costs included. Other criteria should, similarly, be explicit and separate.

CONSIDERS EXTERNALITIES

Externalities consist of effects on people or activities outside the Army. Solutions that ignore externalities are unlikely to survive the political process. Four classes of externalities are important:

- **Economic Impact on Communities**. While there is growing evidence that, in the long run, communities around closed military installations recover and, in some cases, even prosper (Dardia, et al., GAO, 1998), short-term effects are real and remain a universal concern.

- **Infrastructure**. The ability of local utilities, roads, schools, and other infrastructure to cope with increased installation population is at least a short-term and perhaps a long-term consideration.
- **Environment**. Increasingly prominent environmental issues confront every BRAC proposal and must be an integral part of any analytical process.
- **Politics**. No defense issue is inherently more political than a BRAC. While the 1990 BRAC legislation overcame partisan political constraints by requiring Congress to vote an entire package up or down, future BRAC authority may not do so. But even if future legislation contains the up-or-down feature, a BRAC package submitted under its provisions must be designed with politics in mind because the composition of the package can affect the prospects for a positive vote. Nevertheless, political considerations should be clearly delineated from other considerations in the process.

PROVIDES A COMPLETE OPTION SET

A process whose design or rules limit the range of closure and realignment options stands to miss creative and beneficial changes. It is easier for decisionmakers to discard options that, for whatever reason, are later considered unattractive than to try to generate and introduce those options at the end of the process.

CONSIDERS BOTH CURRENT AND FUTURE INSTALLATION NEEDS, GIVEN A NATIONAL SECURITY STRATEGY AND FORCE STRUCTURE

While satisfying today's requirements is straightforward, this criterion presents difficulties with respect to the future. First, some BRAC decisions are irreversible, while national security strategies change from administration to administration and sometimes even during an administration. Hence, because of this duration or even permanence, closure and realignment decisions need to serve not only the current national security strategy but likely future strategies as well. Second, selection of the time horizon of the analysis is critically important. The longer the horizon, the more useful the decisions will

be, but the future can become quite cloudy. This problem leads to the next criterion.

HEDGES AGAINST THE MOST IMPORTANT UNCERTAINTIES IN FUTURE STATIONING NEEDS

A BRAC can err in two directions. First, it can realign and close too few installations, permitting unneeded ones to persist, thereby wasting limited resources. A BRAC can also err in the other direction by permanently divesting the Army of installations not needed today but that may be needed in the future. Hence, an ideal BRAC process would produce closure and realignment options that hedge against likely changes in future demands and against less likely but potentially devastating changes.

LEADS TO EFFICIENT USE OF ASSETS

At one level, this is an obvious criterion. But it has implications that are not so obvious. For example, efficient use of assets implies considering all the potential uses of each installation. In particular, it implies considering using each installation for as many functions as it can support, so that the maximum number of small, inefficient, single-function installations can be closed. In the end, this thought process will lead to efficiencies whose benefits can be captured in reduced long-term costs.

LEADS TO REDUCED LONG-TERM COSTS

High initial costs may be required to achieve substantial long-term savings. Options that require substantial up-front construction or other transition costs should not be dismissed before considering the net present value of the long-term stream of costs and savings. Time horizon is an important issue. Initiatives with substantial long-term paybacks but net costs during the Department of Defense's (DoD's) six-year program tend not to fare well against initiatives that over the long-term are not as economically beneficial but achieve positive returns during the program. The practice of six-year programming can lead to short-sighted decisions that ignore long-run savings.

LEADS TO IMPROVED OPERATIONS

Certain realignments or closures could have synergistic effects on the activities that occupy the installations. While these operational improvements may be difficult or impossible to quantify, they may be real and potentially significant. For example, the collocation of individual training schools with maneuver units could enhance the export of doctrine to the field and better capitalize on the field experience in schools. The collocation of headquarters with each other or with their subordinate organizations could similarly yield operational benefits. Such considerations should be brought into the qualitative portion of the assessment and weighed subjectively against costs.

A process possessing these ten attributes should provide the Army a credible set of options in any future BRAC rounds. With these criteria in mind, the next section describes the process the Army used in the most recent BRAC round, 1995.

Chapter Three

HOW THE ARMY HAS APPROACHED RECENT BRACS

This chapter provides a short history of the last three BRAC rounds, then describes in detail the process the Army employed in the 1995 round. These details provide the basis for the assessment and recommendations offered in Chapters Four and Five.

THE BRAC PROCESS

The 1990 BRAC legislation (P.L. 101-510, 10 USC 2687), which authorized the last three BRAC rounds, specified a process that included the provisions outlined below. Of particular note is the short (less than one year) duration of the process from the President's nomination of commission members to congressional disposition of the commission's recommendations. The compressed timeline precluded drawn-out opposition efforts in affected communities once it became known that an installation was under consideration but before a decision to close or realign was made. This compressed process placed a premium on each service having in place both an analytical process and the necessary data to generate, evaluate, and decide on options.

Before turning to the details of the 1995 round, it is useful to describe the principal features of the 1990 legislation.

On the Constitution of the Commission

The legislation established an eight-member commission appointed by the President with the advice and consent of the Senate. The

President was required to consult with the Speaker of the House and the Senate Majority Leader on the appointment of two members each and with the House and Senate minority leaders on the appointment of one member each. That left two members to be appointed on the President's initiative.

The President was required to transmit nominations to the Senate in January of 1991, 1993, and 1995, for terms that expired at the end of the first session of Congress during which nominees were appointed. Although, technically, the legislation created a single commission, these one-year term limits had the effect of creating a new commission in each of the three years.

Requirements of the Secretary of Defense

The legislation required the Secretary of Defense to

- Submit a six-year force-structure plan with its budget submission in January 1991 (for fiscal year [FY] 92), January 1993 (for FY 94), and January 1995 (for FY 96). The plan was to be based on anticipated national security threats during the six-year period and was not to refer, either directly or indirectly, to candidate installations.
- Publish and transmit to Congress the criteria to be used in selecting bases for closure or realignment.
- Submit closure and realignment recommendations to Congress and to the commission not later than April 15, 1991; March 15, 1993; and March 1, 1995.

Actions Subsequent to Defense Recommendations

The legislation required the commission to conduct public hearings upon receipt of DoD's recommendations and then to transmit its findings, conclusions, and recommendations for closures and realignments to the President not later than July 1 of the same year. Upon receipt of the commission's recommendations, the President was required to transmit to Congress and to the commission his

approval or disapproval of the commission's recommendations no later than July 15, as little as two weeks after he received them.[1] Finally, the President was required to close and realign all bases so recommended unless Congress passed a joint resolution disapproving the commission's recommendations within 45 days of the President's transmission of his report.

In the absence of congressional disapproval, the Secretary of Defense was required to initiate closures and realignments within two years and to complete the actions within six years.

Both the 1988 and 1990 legislation have now expired. Together, the two pieces of legislation called for the creation of only four BRAC rounds: 1988, 1991, 1993, and 1995. All closure and realignment actions are to be completed by the end of 2001.

THE ARMY'S ROLE IN THE PROCESS

During all four BRAC rounds, the military departments played early in the process, providing input to the Secretary of Defense in his preparation of recommendations to the commission. But service roles grew substantially after the 1988 round. In the 1988 round, DoD developed options and recommendations centrally, based on data the military departments provided to a DoD team that conducted the analysis. In the last three rounds, the military departments conducted their own detailed analyses and provided the Secretary of Defense specific closure and realignment recommendations.

The Army chose to conduct its analysis, develop options, and make recommendations by constituting an *ad hoc* study group, the Army Basing Study (TABS) group.[2] This chapter describes that process in the light of the criteria offered in Chapter Two. In subsequent chapters, the report assesses the study process and recommends changes.

---

[1]Had the President disapproved a package, he would have been required to transmit his reasons to the commission, which would have then submitted a revised list by August 15.

[2]In the remainder of this report, *TABS* refers to the study itself. *TABS group* refers to the study group that conducted the study and prepared TABS.

Development of the Army's Process

Although the services' role changed after the 1988 round, during the last three it underwent little change. In all three of the most recent rounds, the TABS group was lodged within the Office of the Chief of Staff. Chapter Four describes the Army's process in support of the 1995 round, because that process would be the likely starting point for any future BRAC rounds. The services' roles in earlier rounds are best described by the commission reports of those rounds and the corresponding GAO reports (Defense Base Closure and Realignment Commission, 1991, 1993; GAO, 1991, 1993, 1995).

DoD Selection Criteria

Underpinning the Army's 1995 process were the DoD selection criteria, first published by the Secretary of Defense for the 1991 round and required by statute (Defense Base Closure and Realignment Commission, 1991). They remained constant throughout the three rounds. The eight criteria were grouped into three categories, as follows:

Military Value

1. the current and future mission requirements and the impact on operational readiness of the total force
2. the availability and condition of land and facilities at both the existing and potential receiving locations
3. the ability to accommodate contingency, mobilization, and future requirements at both the existing and potential receiving locations
4. the cost and manpower implications

Return on Investment

5. the extent and timing of potential cost savings, including the number of years, beginning with the date of completion of the closure or realignment, for the savings to exceed the costs (discounted to present value)

Community Impacts

6. the economic impact in communities

7. the ability of both the existing and potential receiving communities' infrastructure to support bases, missions, and personnel
8. the environmental impact.

While the subject of this report is the Army's process, two points about the eight DoD criteria are worth noting. First, criterion 2 (condition of land and facilities) and criterion 4 (cost and manpower implications) are inseparable from and somewhat redundant to criterion 5, extent and timing of potential costs and savings. In its 1995 work, the Army interpreted criterion 4 as measuring several current cost factors at current installations: cost of living, unit cost of operating family housing, geographically specific housing allowances, other local wage factors, local construction costs, and base operating costs per mission population. These factors, taken collectively, were intended to provide a picture of the relative cost of stationing troops at each installation. But this relative cost reappears redundantly in consideration of the criterion 5 (extent and timing of potential savings). As shown later, the Army's process double-counted these local cost factors, a practice that likely reduced the number of options considered.

The ten *process* criteria proposed in Chapter Two differ in character from the eight DoD *selection* criteria. The ten process criteria, as their name implies, provide a basis for assessing the worthiness of the *process* by which BRAC recommendations are derived. In contrast, the eight DoD selection criteria provide a basis for assessing the worthiness of a particular closure option.

The two sets of criteria are consistent and, in fact, complementary. For example, one process criterion requires the process to lead to reduced long-term costs; a selection criterion for a particular installation closure is "extent and timing of potential savings." All eight DoD criteria deal with outcomes of specific closure decisions. The process criteria are consistent with the DoD selection criteria in that they value processes that yield the desired outcomes, but the process criteria also value features of the process not included in the selection criteria, features that give the process credibility and breadth: auditability, objectivity, completeness of options, and hedging, for example.

THE ARMY PROCESS

This section provides an overview of the process the Army used in its analysis supporting the 1995 BRAC round. While the process has no continuing official status, discussions with Army staff members indicate a general satisfaction with it. Hence, the process is a likely starting point for any future BRAC rounds. The section highlights issues and concerns about the process and its outcomes.

Figure 3.1 diagrams the essential steps in the Army's process as described in TABS. In its 1995 BRAC analysis, the Army subjected only its most significant installations to the full assessment described here, but augmented that assessment by subjecting a number of other, minor sites to a less rigorous analysis. This section limits its scope to the full process. Hence, it deals only with the most significant installations.

As mentioned above, the process is conducted principally by the *ad hoc* staff organization, the TABS group. After selecting its significant

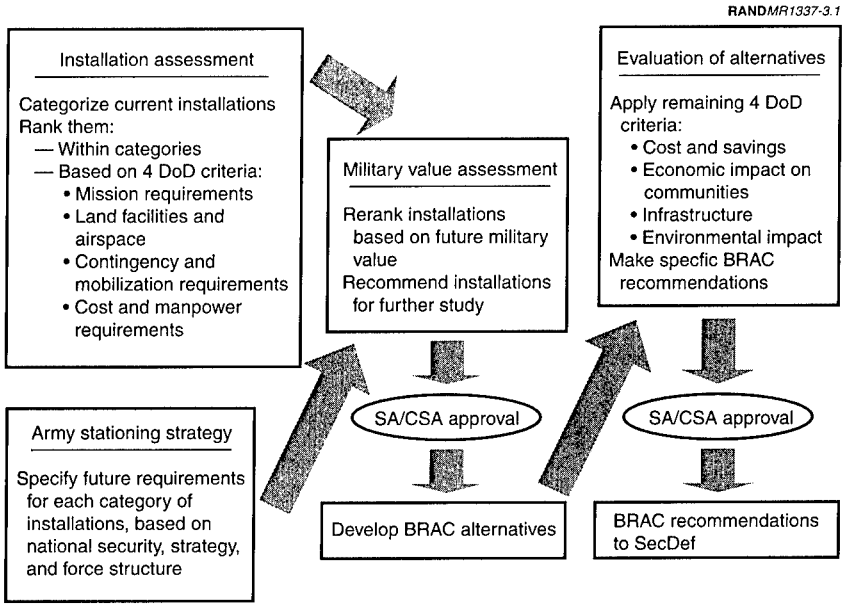

Figure 3.1—The Army BRAC Evaluation Process

installations, the TABS group first conducts its installation assessment, an assignment of installations to categories and a ranking, within each category (e.g., maneuver, command and control, training) of these installations, based on the first four of the DoD criteria (mission requirements and operational readiness; land and facilities; contingency, mobilization, and future requirements; and cost and manpower). The installation assessment makes no cross-category rankings and does not integrate the category-specific installation rankings into a single overall installation ranking.

The Army Stationing Strategy (Peay, 1994), conducted concurrently with the installation assessment, produces a description of the requirements for each category of installation within a six-year period, based on the current national security strategy and programmed force structure. Hence, the first two steps describe the installation assets available and the estimated requirements for them.

The third step, the military value assessment, entails a subjective synthesis of the installation assessment (assets) and the Army stationing strategy (requirements), resulting in a reranking within each category that reflects the assessed future military value of each installation. The military value assessment includes a recommendation to the Army leadership about which of the lower-ranked installations in each category should be considered for further study. Again, no attempt is made to rank installations across categories or consider installations for alternate uses. Neither are integrated packages of installation closures and realignment developed. The Secretary of the Army and the Chief of Staff then review the military value assessment rankings and agree on a list of installations for further study.

From this list, the TABS group develops and evaluates specific closure and realignment candidates based on the last four DoD criteria (cost and savings, economic impact, ability of communities to support, and environmental impact), resulting in specific recommendations to the Secretary of the Army and the Chief of Staff. Once approved, the list is forwarded to the Secretary of Defense.

An important step in the diagram, the development of alternatives, remains undocumented in the official TABS reports. Hence, we are able to assess it only indirectly—by the alternatives selected.

Chapter Four offers some insight into the Army's internal process of alternative development, but no detailed formal documentation exists.

The remainder of this chapter describes each of the four major steps outlined in Figure 3.1 (the installation assessment, Army stationing strategy, military value assessment, and the Army's recommendations that derived from its evaluation of alternatives). We begin with the installation assessment, the most complicated, quantitative, and explicit step of the process. One step, the evaluation of alternatives, receives little attention below, because the details of that step are treated sketchily in the Army's report. Summaries of the evaluations that preceded the Army's recommendations are included below in sections titled "Recommendations." For installations selected to remain open, the Army report provided no evaluation. More insight into the Army's decision process as it developed and evaluated alternatives may be found in a set of briefings presented to key Army leaders in the fall of 1994 and winter of 1995 (Army, 1994b, 1994c, 1994d, 1994e, 1995a, 1995b). Chapter Four highlights the range of alternatives considered during that period. The remainder of this chapter concentrates on the Army's official report.

INSTALLATION ASSESSMENT

The first step[3] in the BRAC evaluation process, the installation assessment, assigned each installation to a category and produced a relative ranking of installations in each of 13 categories: maneuver, major training areas, command and control and/or administrative support, training schools, professional schools, ammunition production, ammunition storage, commodity-oriented posts, depots, proving grounds, medical facilities, and industrial facilities.[4]

This section provides the details of how the ranking within each category was achieved. In arriving at the initial rankings, candidate

[3]Two perfunctory tasks actually preceded the installation assessment: identification of primary installations and leased sites and installation reviews. The latter entailed collection of data and qualitative characteristics for each installation, summarized in narrative form in TABS Volume I.

[4]The Army excludes two other categories of facilities from this step: leased facilities and minor sites.

installations were first selected. For the 1995 round, they included all 75 U.S. installations that met a threshold in the BRAC law: To be considered for a BRAC action, an installation had to employ 300 or more DoD civilian employees. Installations employing fewer civilians could legally be closed without a BRAC but were not excluded from BRAC consideration. Nevertheless, the Army added 21 such smaller installations to its assessment. Hence, in the 1995 BRAC round, 96 installations were assessed, of which 94 were active component. Only two were Army Reserve: Ft. Hunter Liggett and Ft. McCoy. No National Guard installations employed enough civilians to meet the criterion.

Installation assessment rankings within a category were arrived at through a transparent and auditable process laid out in detail in TABS Volume II and described below.

Once installations were selected and categorized, the merit of each was assessed by measuring several attributes, scaling the value of each attribute between 0 and 10, weighting each attribute by importance, then summing the scores for each installation.[5] Examples below illustrate these computations.

Ranking Maneuver Installations

To illustrate for the 11 installations designated as maneuver (Ft. Hood, Ft. Lewis, Ft. Bragg, Ft. Stewart, Ft. Carson, Ft. Campbell, Ft. Riley, Ft. Drum, Schofield Barracks, Ft. Wainwright, and Ft. Richardson), 23 attributes were measured and assigned the weights shown in Table 3.1.[6]

Attributes fell into four classes, corresponding to the first four of the eight DoD criteria: mission requirements and operational readiness;

[5]In all three of the most-recent BRAC rounds, the Army used a commercial software package, Decision Pad by Apian Software, to manipulate data and produce automated installation rankings. Documentation of the software is available at http://apian.com.

[6]This report divides the weights the Army used by 10, so they add to 100 rather than to 1,000 as in the Army's analysis. Hence, each attribute weight now represents the percentage contribution of that attribute to the total valuation of the installation.

Table 3.1

Weighting of Attributes of Maneuver Installations by Class of Criteria

Criteria	Weight
Mission requirements and operational readiness	
Maneuver acres	8.0
Ranges	7.0
Deployment network	6.0
Reserve training	6.0
Impact area	7.0
Mechanized maneuver acres	7.0
Special airspace	4.0
Total	45.0
Land and facilities	
Barracks space and family housing	6.0
Workspace	6.0
Percent permanent facilities	3.0
Average age of facilities	2.5
Infrastructure	2.5
Environmental capacity	2.5
Total	22.5
Contingency, mobilization, and future requirements	
Mobilization capacity	5.5
Buildable acres	3.5
Information mission area	1.0
Encroachment	2.5
Total	12.5
Cost and manpower implications	
Cost of living index	5.0
Housing cost per dwelling unit	1.5
Variable housing allowance	1.5
Locality pay	3.0
Base operations/mission population	6.0
Military construction cost	3.0
Total	20.0

land and facilities; contingency, mobilization, and future requirements; and cost and manpower.[7]

[7]TABS Volume II, Chapter 5, defines each attribute, describes the methodology for computing it, and gives its unit of measurement.

The Mission Requirements and Operational Readiness class of criteria carried the greatest weight, 45 percent of the total. Within this class, the attribute Maneuver Acres carried the greatest weight, 8 percent. Of the four classes, Contingency, Mobilization, and Future Requirements carried the least weight, 12.5 percent, with the attribute Information Mission Area carrying the least weight in that class, 1 percent. These weights appear to have been assigned subjectively and arbitrarily.

Each installation category (e.g., maneuver, major training area, command and control, training school, depot) has its own unique set of attributes and weights, as described in more detail below (see Tables 3.2–3.5). Attributes common to more than one category of installation usually carry different weights in each category. For example, the Mechanized Maneuver Acres attribute was assigned 7 percent of the potential value of a maneuver installation and 8 percent of the value of a major training area but only 2 percent of the value of a training school installation. This, of course, precludes cross-category comparisons.

To arrive at installation rankings within a class of criteria, the products of the weights and scaled scores were summed over all attributes of that class.[8] To illustrate, for the seven attributes in the Mission Requirements and Operational Readiness class of criteria, Table 3.6 shows, in the first row, the weights assigned to each attribute and the scaled scores derived for each maneuver installation.

This section omits the raw data from which the scaled scores were derived. To illustrate, however, Ft. Carson received the highest

[8]Several attributes comprise subattributes, which themselves were independently scored and scaled 0 to 10. Where the top scores among subattributes were distributed among posts, no installation achieved a full score of 10 for the attribute. For example, Ft. Bragg received the highest score among maneuver installations for the Reserve Training attribute, with an 8.8 rather than 10. The lower number obtained because the attribute is composed of two subattributes, inactive duty training and annual training. Ft. Bragg had the highest score for the inactive duty training subattribute and therefore a scaled 10, but several other installations had higher marks for the other subattribute, annual training. Hence, the weighted averages of Ft. Bragg's these training scores brought Bragg's aggregate Reserve Training score below a 10 to an 8.8, still the highest mark of any maneuver installation.

Table 3.2

Attribute Weights for the Thirteen Principal Categories of Installations: Mission Requirements and Operational Readiness

DoD Selection Criteria	Mvr	Maj Tng Area	C&C	Tng Sch	Prof Sch	Ammo Prod	Ammo Stor	Com-mod	Ports	Depots	Prov Gnds	Ind Fac	Med Fac
Weight	**45.0**	**45.0**	**45.0**	**45.0**	**45.0**	**45.0**	**45.0**	**45.0**	**45.0**	**45.0**	**45.0**	**45.0**	**45.0**
Maneuver acres	8.0	12.0		6.5									
Ranges	7.0	7.0		4.5									
Deployment network	6.0			3.5		5.0	8.0			5.0		5.0	7.5
Reserve training	6.0	7.0	5.0	3.0	5.0	3.0	4.0			3.0			7.5
Impact area	7.0	7.0		4.0									
Mech maneuver acres	7.0	8.0		2.0									
Special airspace	4.0	4.0		6.5									
Opns/admin facilities			14.0					20.0					
Info mission area			7.0	3.0	3.0								
Accessibility			5.0										
Barracks & fam housing			14.0										
General instr facil				6.0	23.5								
Applied instr facil				6.0	13.5								10.0
Available workforce						3.0	4.0	5.0		3.0		3.0	
Production flexibility						8.0						6.0	
Ammunition storage						13.0	24.0						
Production capacity						13.0						23.0	
Maintenance flex							5.0			4.0			

Table 3.2—Continued

DoD Selection Criteria	Mvr	Maj Tng Area	C&C	Tng Sch	Prof Sch	Ammo Prod	Ammo Stor	Com-mod	Ports	Depots	Prov Gnds	Ind Fac	Med Fac
R&D facilities								20.0					
Special cargo capacity									10.0				
Support facilities									7.5				
Normal throughput									10.0				
Piers & wharves									10.0				
Staging areas									7.5				
Capacity—maintenance										15.0			
Capacity—supply										15.0			
Mission diversity											20.0		
T&E ranges											10.0		
T&E facilities											15.0		
Patient care fac													15.0
Storage Capacity												8.0	
Med research fac													5.0

NOTE: The criteria in italics appear in one class for certain types of installations and in another class for other types of installations.

Table 3.3

Attribute Weights for the Thirteen Principal Categories of Installations: Land and Facilities

DoD Selection Criteria	Mvr	Maj Tng Area	C&C	Tng Sch	Prof Sch	Ammo Prod	Ammo Stor	Com-mod	Ports	Depots	Prov Gnds	Ind Fac	Med Fac
Weight	**22.5**	**22.5**	**22.5**	**22.5**	**22.5**	**22.5**	**22.5**	**22.5**	**22.5**	**22.5**	**22.5**	**22.5**	**22.5**
Barracks & fam housing	6.0	6.0[a]		6.0[b]	6.0[c]								
Workspace	6.0	6.0		6.0	6.0								
Percent permanent fac	3.0	3.0	4.0	3.0	3.0	4.5	5.0	7.5	6.5	7.5	7.5	7.5	7.5
Average age of fac	2.5	2.5	4.0	2.5	2.5	5.0	5.0	7.5	8.5	7.5	7.5	7.5	8.5
Infrastructure	2.5	2.5	4.0	2.5	2.5	3.5	2.5	5.0	5.0	5.0	5.0	5.0	4.0
Environmental cap	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Maintenance facilities			4.0										
Supply & storage			4.0			7.0							
Quantity-distance							7.5						

NOTE: The criteria in italics appear in one class for certain types of installations and in another class for other types of installations.

[a]At major training areas, family housing is omitted; only barracks are considered.

[b]At training schools, barracks (4.0) and family housing (2.0) are listed separately.

[c]At professional schools, barracks (2.0) and family housing (4.0) are listed separately.

Table 3.4

Attribute Weights for the Thirteen Principal Categories of Installations: Contingency, Mobility, and Future Requirements

DoD Selection Criteria	Mvr	Maj Tng Area	C&C	Tng Sch	Prof Sch	Ammo Prod	Ammo Stor	Com-mod	Ports	Depots	Prov Gnds	Ind Fac	Med Fac
Weight	**12.5**	**12.5**	**12.5**	**12.5**	**12.5**	**12.5**	**12.5**	**12.5**	**12.5**	**12.5**	**12.5**	**12.5**	**12.5**
Mob capability	5.5	3.0	4.0	6.5	6.5								5.0
Buildable acres	3.5	3.5	6.0	3.5	3.5	3.5	3.5	9.0	5.0	2.0	2.5	2.5	3.5
Info mission area	1.0	1.0				1.0	1.0	3.5	1.0	1.0	1.0		2.0
Encroachment	2.5	2.0	2.5	2.5	2.5	1.5	3.0			1.5	6.5	2.0	2.0
Deployment network		3.0											
Excess cap-storage						6.5	5.0			4.0		2.0	
Available workforce									2.0		2.5		
Mob throughput									4.5				
Excess cap-production												6.0	
Excess cap-maintenance										4.0			

NOTE: The criteria in italics appear in one class for certain types of installations and in another class for other types of installations.

Table 3.5

Attribute Weights for the Thirteen Principal Categories of Installations: Cost and Manpower Implications

DoD Selection Criteria	Mvr	Maj Tng Area	C&C	Tng Sch	Prof Sch	Ammo Prod	Ammo Stor	Com-mod	Ports	Depots	Prov Gnds	Ind Fac	Med Fac
Weight	**20.0**	**20.0**	**20.0**	**20.0**	**20.0**	**20.0**	**20.0**	**20.0**	**20.0**	**20.0**	**20.0**	**20.0**	**20.0**
Cost of living index	5.0	6.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	4.0
Housing cost/unit	1.5		1.5	1.5	1.5								3.0
VHA factor	1.5		1.5	1.5	1.5								
Locality pay factor	3.0	3.5	3.0	3.0	3.0								
BASOPS/mission pop	6.0	7.5	6.0	6.0	6.0	10.0	10.0	10.0	10.0		10.0	10.0	
MCA cost factor	3.0	3.0	3.0	3.0	3.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	3.0
IBOE										10.0			
Mission overhead										5.0			
Health care spt index													10.0

Table 3.6

Scaled Scores, Weighted Scores, and Relative Ranking of Maneuver Installations: Mission Requirements and Operational Readiness Class of Criteria

	Maneuver Acres	Ranges	Deployment Net	Reserve Training	Impact Areas	Mechanized Maneuver Acres	Special Airspace	Weighted Score	Relative Ranking
Weight	**8.0**	**7.0**	**6.0**	**6.0**	**7.0**	**7.0**	**4.0**		
Lewis	9.6	6.4	9.9	8.3	6.8	7.3	10.0	8.2	1
Hood	4.2	9.9	9.3	3.8	10.0	5.6	6.0	7.0	2
Carson	10.0	7.7	6.7	1.5	5.3	10.0	4.0	6.7	3
Stewart	7.3	5.9	8.5	3.0	5.2	6.2	5.4	5.9	4
Bragg	2.3	8.1	8.7	8.8	6.8	2.7	1.9	5.6	5
Schofield	1.6	6.6	9.2	5.3	9.3	1.1	1.6	5.0	6
Campbell	4.1	7.5	7.9	3.4	4.6	1.8	5.2	4.8	7
Wainwright	10.0	0.0	8.9	0.0	8.8	0.0	0.8	4.4	8
Drum	1.1	8.7	5.3	3.0	6.4	0.9	1.1	3.8	9
Riley	1.3	5.9	5.4	4.1	4.9	2.5	0.5	3.5	10
Richardson	0.0	1.5	9.8	0.1	1.0	1.6	0.0	1.8	11

scaled score for maneuver acres (10.0) and Ft. Richardson received the lowest (0.0). This resulted from a simple conversion of Carson's 330,000 maneuver acres—the most of any installation—to a 10. At 31,800 maneuver acres, Ft. Richardson had the least, which scaled its score to 0. The details of all these computations may be found in TABS, Volume II.

To derive the weighted score for the entire class (the second column from the right), weights were applied to the scaled values of each attribute, yielding the weighted scores shown in the column of that title in Table 3.6.[9] For example, the 5.6 weighted score for Ft. Bragg was obtained by multiplying each of its seven attribute scores by the appropriate weight (e.g., 2.3 scaled score for maneuver acres times the 8.0 weight in the first row), summing the seven products, then dividing the sum by 45, the total weight of the class. Hence, the Ft. Bragg weighted score of 5.6 was computed as follows:

$$[2.3(8.0)+8.1(7.0)+8.7(6.0)+8.8(6.0)+6.8(7.0)+2.7(7.0)+1.9(4.0)]/45$$

For the Mission Requirements and Operational Readiness class of criteria, shown in Table 3.6, Ft. Lewis ranked as most valuable, attaining high scores for its maneuver acres, mechanized maneuver acres, and deployment network. Ft. Richardson ranked 11th, with low scores for every attribute except deployment network. Ft. Lewis ranked first, principally because its attributes include those of the Yakima Training Center, managed as a subinstallation of Ft. Lewis, but almost 100 air miles away. Similarly, Ft. Carson's ranking was based on the sum of the attributes of the post itself and its geographically distant subinstallation, the Piñon Canyon Maneuver Site. Most of the maneuver space and mounted maneuver space attributed to Fts. Lewis and Carson are actually at Yakima and Piñon Canyon, respectively. A more comprehensive analysis would treat these subinstallations as potentially independent installations, since they need not be managed as part of Fts. Lewis and Carson. Both are potentially independent entities available to serve a range of purposes, including functions other than maneuver or training.

[9]The author's computations lead to slightly different figures for the weighted score of each installation. The differences are so small, however, as to leave the relative rankings unaffected.

The overall installation assessment ranking, shown in Table 3.7, results from the application of the methodology outlined above for the other three classes of criteria: land and facilities; contingency, mobilization and future requirements; and cost and manpower. The leftmost column, representing the Mission Requirements and Operational Readiness class of criteria, is taken from the Weighted Score column in Table 3.6. This report omits computations underlying the columns in the table that represent other classes of criteria. All are computed in the same fashion and are documented completely in TABS, Volume II.

Ranking Classes of Installations Other Than Maneuver

The assessment of classes of installations other than maneuver was accomplished through the same methodology as illustrated above for maneuver installations, differing only in the attributes and weights peculiar to the particular class. Tables 3.2–3.5 show, for the 13 principal categories of installations, the attributes used in evaluating each and the weights assigned in arriving at the installation assessment rankings shown in Table 3.8.[10]

Note that certain criteria—those in italics in Tables 3.2–3.5—appear in one class for certain types of installations and in another class for other types of installations. For example, for command-and-control installations, the Barracks and Family Housing criterion falls into the Mission Requirements and Operational Readiness class but falls into Land and Facilities for maneuver and training school installations. So long as the BRAC process does not attempt to rank installations across classes, this inconsistency does not pose a particular practical problem. In the future, if such cross-category comparisons are to be made, criteria should be treated uniformly.

Installations are ranked within categories in descending order of merit, as shown in Table 3.8. As shown later, the military value assessment reranks these installations after the Army stationing strategy is taken into account.

[10]Excluded here are the categories of leased facilities and minor sites. Details of these may be found in TABS Volume III.

Table 3.7

Scaled Scores, Weighted Scores, and Relative Ranking of Maneuver Installations: All Classes of Criteria

	Mission Requirements and Operational Readiness	Land and Facilities	Contingency, Mobilization, and Future Requirements	Cost and Manpower Implications	Weighted Score	Relative Ranking
Weight	**45.0**	**22.5**	**12.5**	**20.0**		
Hood	7.0	8.6	7.5	8.6	7.7	1
Lewis	8.1	4.3	7.5	7.4	7.0	2
Bragg	5.6	7.0	5.5	9.3	6.6	3
Stewart	5.9	4.1	8.4	9.3	6.5	4
Carson	6.7	4.0	6.3	8.8	6.5	5
Campbell	4.8	3.8	5.3	9.5	5.5	6
Riley	3.5	3.9	4.6	8.9	4.8	7
Drum	3.8	3.1	4.8	6.9	4.4	8
Schofield	5.0	2.4	0.8	3.1	3.5	9
Wainwright	4.4	2.9	3.1	1.9	3.4	10
Richardson	1.8	3.0	2.4	1.4	2.1	11

Table 3.8

Installation Assessment Rankings by Category

Maneuver	Major Training Areas	Cmd & Control	Training Schools	Ammo Production
Hood	Polk	Belvoir	Bliss	McAlester
Lewis	Irwin	Meade	Benning	Lone Star
Bragg	Dix	McPherson	Jackson	Radford
Stewart	AP Hill	Monroe	Gordon	Holston
Carson	McCoy	Gillem	Knox	Milan
Campbell	Greely	Ritchie	Sill	Lake City
Riley	Hunter Liggett	Selfridge	Leonard Wood	Pine Bluff
Drum	Pickett	Myer	McClellan	Iowa
Schofield	Indiantown Gap	Shafter	Huachuca	
Wainwright	Chaffee	Pres of San Fran	Rucker	**Commodity**
Richardson		Price Spt Center	Sam Houston	Redstone
	Medical Facilities	Buchanan	Lee	Picatinny
Professional Schools	Walter Reed	Hamilton	Eustis	Detroit Arsenal
Leavenworth	Tripler	Totten	Pres of Monterey	Rock Island
West Point	Fitzsimons	Kelly Spt Cen		Monmouth
Carlisle Bks			**Ammo Storage**	Adelphi
McNair	**Proving Grounds**	**Depots**	Hawthorne	Detrick
	White Sands	Tobyhanna	Tooele	Natick
Industrial Facilities	Aberdeen	Anniston	Seneca	Cold Regions Lab
Watervliet	Yuma	Red River	Blue Grass	
Lima Tank	Dugway	Letterkenny	Savanna	**Ports**
Stratford Engine			Pueblo	Bayonne
			Sierra	Oakland
			Umatilla	Sunny Point

Critical Evaluation of the Installation Assessment Step

Note from Tables 3.2–3.5 that a specific class of criteria contributes the same percentage of the total score regardless of the category of installation. Individual attributes, however, carry varying weights from category to category. For example, the Mission Requirements and Operational Readiness class contributes 45 percent of the total for every category of installation. Within that class, however, maneuver acreage contributes 8 percent of the potential value on a maneuver installation, 12 percent on a major training area, and 6.5 percent at a training school installation. Potential maneuver acreage at an installation categorized as a proving ground receives no credit at all, even though that acreage might be useful for maneuver.

The assignment of weights to attributes is a highly subjective aspect of this process. Weights are developed and decided through a collaborative staff process, the results of which are only partially justified in TABS. For example, the report fails to resolve the logical inconsistency that results from varying the weights of individual criteria by category of installation while holding the weights of the aggregated classes of criteria constant. For example, the process allocates 45 percent of the weight for all installations, regardless of installation category, to the Mission Requirements and Operational Readiness class. That 45 percent is suballocated to the individual criteria within that class. As Tables 3.2–3.5 show, this suballocation results in different weightings of individual criteria across installations. One could argue just as logically that individual criteria ought to be held constant across categories of installations, permitting the weight of each class of criteria to vary. Such a change is essential to making cross-category installation comparisons.

The assignment of different weights to the same attribute in different categories of installations prevents cross-category ranking of common attributes and, most importantly, prevents evaluation of installations that now serve or might potentially serve different or multiple functions. By considering Ft. Bliss, for example, as a training installation, the process weights that installation's 915,000 maneuver acres (almost three times the acreage of the largest maneuver installation) at 6.5. But if Ft. Bliss were considered as a potential maneuver installation, those 915,000 acres would make it the largest one, scaling to a 10 with a weight of 8.0.

Consider also the example of Ft. Benning, which now houses both a training school and a maneuver brigade. Because Ft. Benning is assigned to the class of training school installations, its attributes are weighted only with respect to that category.

Further, White Sands Missile Range consists of 2 million acres, yet none are valued as potential maneuver space because proving grounds are assumed at the outset not to be useful for that purpose. Similarly, White Sands might have low housing cost and locality pay, attributes that would help White Sands score high as a command-and-control installation, but those attributes are absent because they carry no weight at a proving ground. The methodology lacks utility in the generation of stationing options that might use White Sands, for example, not only as a proving ground but also to house a major headquarters, a training school or a maneuver unit.

Quite simply, the process precludes the Army from laying out all the assets of all its installations to permit a systematic assignment of functions to installations in the most efficient long-term manner. A methodology that assesses the full potential of an installation for multiple purposes is more likely than the 1995 methodology to generate broad options and achieve a substantially more efficient base structure. The methodology at hand is effective in ranking installations assigned only the mission associated with a particular category. The methodology fails, however, to demonstrate all the functions an installation might perform and, therefore, how many small, single-function installations might eventually be closed by consolidating functions at larger installations.

ARMY STATIONING STRATEGY, MILITARY VALUE ASSESSMENT, AND RECOMMENDATIONS

The preceding section dealt with the installation assessment, a ranking of the capabilities of current installations, by category of installation, using objective, quantitative measures. That step may be thought of as providing (however imperfectly) the supply side of the analysis: the assets that each installation offers.

This section describes the subsequent steps of the Army's process. The second step, the Army stationing strategy (lower left of Figure 3.2) may be thought of as laying out the demand side of the analysis:

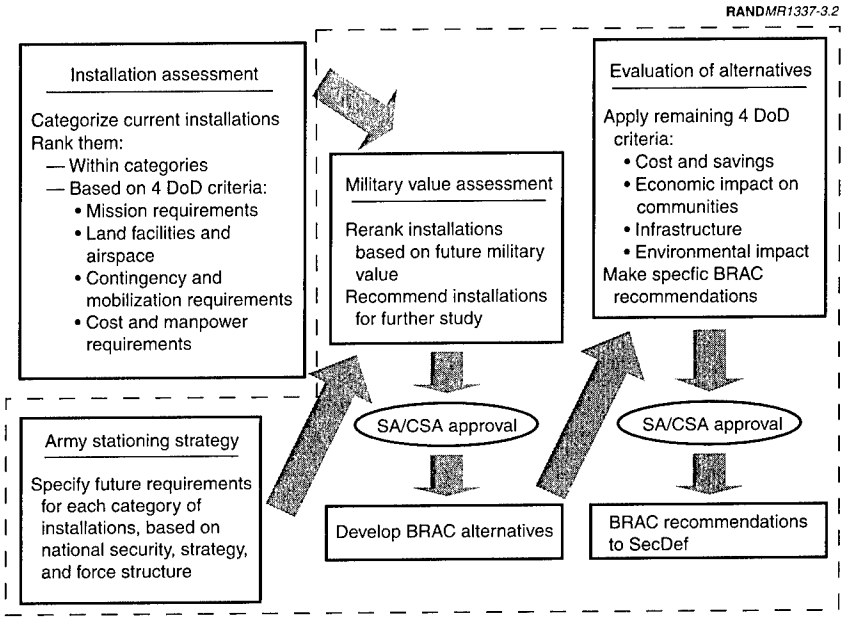

Figure 3.2—Later Steps in the Army Process

the future installation requirements of the programmed force. The third step, the military value assessment (center of Figure 3.2), consists of a subjective synthesis, or integration, of the first two steps. It results in a subjective reranking of installations within each category and a recommendation as to which installations should be further studied for closure or realignment. From the further studies come the development and evaluation of specific alternatives and, finally, specific recommendations from the Army to the Secretary of Defense. Note that the Army leadership selects the alternatives to be evaluated and approves the recommendations.

The Office of the Deputy Chief of Staff for Operations and Plans develops an Army stationing strategy (the second step of the process) for each category of installation, and TABS applies it. Each strategy has four parts:

1. a description of the functions required to be performed on installations of the particular category (e.g., provide a home for the institutional component of the Army's training system)

2. an explication of the operational requirements for such installations, described in more detail below
3. stationing requirements, which are specific constraints on each category (e.g., retain a separate school for each branch)
4. an operational blueprint, broad guidance concerning the nature of capabilities that must be retained (e.g., retain the unique facilities at Ft. Bragg).

More needs to be said about part 2, operational requirements. As described in the Army's report of its 1995 process (TABS, Vol. III), the stationing strategy began by defining the 13 operational requirements shown in Table 3.9. While TABS asserts that these 13 requirements were translated directly from the strategic requirements of the then-current Bottom-Up Review (Aspin, 1993), a reading of the Bottom-Up Review leads to the conclusion that the Army drew inferences from that document that are not entirely straightforward. Nevertheless, none of the 13 operational requirements appears particularly at odds with the Bottom-Up Review.

Each installation was evaluated subjectively against the 13 operational requirements, but not every installation is intended to serve every operational requirement. The Army Stationing Strategy (Peay, 1994), a separate document, an extract of which is included in TABS, highlights the requirements considered relevant to each category of installation (Table 3.9).

The match between categories of installations and operational requirements is sketchily justified both within TABS and within the full stationing strategy. Note that command-and-control installations were deemed to serve all 13 operational requirements, if only in a command-and-control relationship. Further, all categories of installations serve the operational requirements of fiscal responsibility, environmental stewardship, and quality of life.

Taking all four pieces of the stationing strategy into account, the TABS group then conducted a subjective synthesis of the installation assessment and the Army stationing strategy to arrive at what is called the military value assessment, whose result is a reranking of the installations in each category, with recommendations for further study on the lowest-ranking installations.

Table 3.9

Operational Requirements Supported by Each Category of Installation

Operational Requirement	Manvr	Maj Tng Ar	C&C	Tng Schools	Prof Schools	Ammo Prod	Ammo Storage	Com-modity	Ports	Depot	Prov Gnds	Indust Fac	Medical Fac
Power projection	P		C	S		P	P	P	P	S			
Versatility	P		C	P	P								
Strategic agility	P		C	S					P				
Deterrence	P		C										
Training and education	P	P	C	P									P
Leader development	S		C	P	P								
Sustainment			C	P		P	P	P		P	P	P	P
Technology development			C	S				P					
Acquisition excellence			C			P		P				P	
Force generation	P	P	C	P		P		P		P		P	
Fiscal responsibility	P	P	C	P	P	P	P	P	P	P	P	P	P
Environmental stewardship	P	P	C	P	P	P	P	P	P	P	P	P	P
Quality of life	P	P	C	P	P	P	P	P	P	P	P	P	P

NOTE: P=primary function; S=secondary function; C=command & control relationship.

The subsections that follow summarize the Army stationing strategy, military value assessment, and recommendations for each category.

Maneuver Installations

Stationing Strategy. The Army stationing strategy for maneuver installations required the capability to station, in the United States, the entire 30 Active Component maneuver brigades (ten divisions) and two armored cavalry regiments assumed in the Bottom-Up Review, including the six heavy maneuver brigades then and now stationed in Europe and Korea. By maintaining sufficient capacity to house the entire active combat structure in the United States, the Army hedged against a possible pullback of forces from Korea and Germany. This self-imposed Army requirement provides the prime example of an explicit hedging strategy in the 1995 BRAC round.

Geographically, the strategy required stationing an unspecified but credible deterrent force in Hawaii and Alaska and stationing unspecified power projection armored forces in the western United States. These provisions had the effect of taking Schofield Barracks, Ft. Richardson, and Ft. Lewis off the table.

The stationing strategy further declared five maneuver installations in the continental United States crucial to the National Military Strategy by virtue of their unique characteristics and, therefore, effectively off the table for closure consideration:

- Ft. Hood, Texas—capability to collocate large maneuver forces
- Ft. Lewis, Washington, and Ft. Stewart, Georgia—immediate access to large port facilities
- Ft. Bragg, North Carolina—airborne and special forces facilities
- Ft. Campbell, Kentucky—air assault facilities.

The stationing strategy detailed the capacity of 15 U.S. installations to house a total of 38 combat brigades (21 heavy and 17 light) with construction and 29 (15 heavy and 14 light) without construction, as shown in Table 3.10.

The 11 posts categorized as maneuver were considered able to house 13 heavy and 13 light brigades without construction and 15 heavy

and 15 light with construction. Hence, even without the additional capacity of the three training school posts (Ft. Benning, Ft. Bliss, and Ft. Knox) and the major training area (Ft. Polk), the 11 maneuver posts could without construction house all 13 light brigades in the force (see the Current Stationing column of Table 3.10) but, even with construction, could house only 15 of the 20 heavy units (18 heavy brigades, including the six stationed in Germany and Korea, and two armored cavalry regiments) in the force. But the added capacity of the three training posts provided sufficient capacity to

Table 3.10

Capacity of Installations to House Maneuver Brigades With and Without Construction

	Capacity				
	Light Brigades		Heavy Brigades		
Installation	Without Constr	With Constr	Without Constr	With Constr	Current Stationing
Maneuver					
Bragg	3	3			3 light
Campbell	3	3			3 light
Drum	2	3			2 light
Richardson	1	1			
Schofield	3	3			2 light
Wainwright	1	2			1 light
Carson			2	3	2 heavy
Hood			5	5	5 heavy
Lewis			2	3	1 heavy, 1 light
Riley			2	2	2 heavy
Stewart			2	2	2 heavy
Total	13	15	13	15	
Training Schools					
Benning			1	1	1 heavy
Bliss			1	4	
Knox			0	1	
Total			2	6	
Major Training Area					
Polk	1	2			1 light
Total	1	2			
Grand Total	14	17	15	21	

overcome the five-brigade heavy unit deficit that would occur if all six heavy brigades now stationed overseas were returned to U.S. soil.[11] The analysis omitted consideration of the major western test ranges (Yuma, Dugway, and White Sands) as potential (but unproven) maneuver sites. Even more broadly, the analysis, following DoD ground rules, ignored the possible use of installations belonging to other services.

Without the explicit hedge against return of troops from Europe, the analysis would have indicated the potential for closure of perhaps two major maneuver posts. The Army faced a policy choice: (1) retain all maneuver installations as a hedge, or (2) close one or two maneuver installations and either (a) give up part of the hedge or (b) use one or more of the western proving grounds as the hedge.

Inevitably, the decision turns on the question of whether the savings from closing installations outweigh the added risk of giving up part of the hedge or using western proving grounds as the hedge. As later sections demonstrate, the Army chose to retain all 11 maneuver installations as well as the three training school posts and Ft. Polk, maintaining the full hedge and foregoing any savings. There is no evidence the Army ever considered using the western ranges or installations of the other services as a hedge.

Military Value Assessment. Taking the two inputs, the installation assessment and the Army stationing strategy, the Army then translated the installation assessment rankings into military value assessment rankings, with recommendations that the lowest-ranking installations (the four in the box at the bottom of Table 3.11) be subject to further study.

The military value assessment process, a subjective judgment based on the requirements of the stationing strategy, resulted in only a modest reranking of the 11 maneuver installations. The top six

[11]Subsequent to the 1995 round, one heavy armored cavalry regiment was converted to light, raising the total number of light brigades to be housed from 12 to 13 and reducing the number of heavy units from 20 to 19. More recently, the Army has announced plans to convert one heavy and one light brigade at Ft. Lewis to a new kind of unit, a medium-weight brigade. The doctrinal maneuver space requirements for these new units is yet to be decided.

Table 3.11

Installation Rankings and Recommendations—Maneuver Installations

Installation Assessment	Military Value Assessment	Army Recommendation
Hood	Hood	
Lewis	Lewis	
Bragg	Bragg	
Stewart	Stewart	
Carson	Carson	
Campbell	Campbell	
Riley	Schofield	
Drum	Riley	Open
Schofield	Drum	Open
Wainwright	Wainwright	Open
Richardson	Richardson	Open

remained unchanged. Schofield Barracks moved up two places, reflecting the stationing strategy's imperative that a presence be maintained in Hawaii.

Recommendations. After further study of the four lowest-ranking installations during its evaluation of alternatives—Ft. Riley, Ft. Drum, Ft. Wainwright, and Ft. Richardson—the Army recommended keeping all 11 maneuver installations open. Forts Riley and Drum were so recommended, because of the "overall importance of maneuver installations . . . and the high costs associated with closure." Ft. Richardson and Ft. Wainwright were so recommended because of the "strategic requirements for presence in the Pacific region and the high costs associated with closure."

TABS eliminated a number of potential closures in categories other than maneuver on the basis of the high initial cost of closure rather than the extent to which long-term savings might outweigh high initial costs—the concept of net present value. This is a concern if high closure costs have the effect of eliminating closures that offer substantial long-term savings that make the closure wise. The groundrules of the 1995 BRAC required the services, including the Army, to pay closure costs out of their existing budgets and programs. A broader set of options, potentially richer in long-term savings, would come from a process that externally funded up-front clo-

sure costs or in some other way permitted the services to use long-term savings to pay for front-end costs. The failure of the 1995 process to do so represents a substantial deficiency. The solution to this problem lies outside the Army; it rests with DoD and Congress. Chapter Four amplifies this issue.

In this process, the Army developed no options for assigning maneuver units to other categories of installations. For example, Ft. Bliss, a training post of more than a million acres that has housed maneuver units in the past, is not measured against Ft. Riley, a much smaller installation, or Ft. Stewart, with very limited maneuver space, as a home for heavy maneuver units. Neither were maneuver installations considered as homes for functions now housed on other categories of installations. For example, certain larger maneuver installations could potentially house command-and-control or educational activities now housed on their own posts, offering substantial opportunities for consolidation. The process strongly favors the status quo.

Major Training Areas

Stationing Strategy. The stationing strategy for major training areas required that separate training areas, with adequate current and future training acreage and ranges for both active and reserve component needs, be maintained for heavy and light forces. Because no other installations were considered adequate for these programs, this kept Ft. Irwin and Ft. Polk off the table. Further, the strategy directed a minimization of the number of major training areas devoted primarily to reserve component training. This guidance was amplified not to mean collocation of active and reserve component training areas but rather a consolidation of reserve component installations.

Military Value Assessment. When the installation assessment was overlaid with the above stationing strategy to yield the military value assessment, the relative rankings of the major training areas remained unchanged.

Eight of the ten major training areas (those in the box at the bottom of Table 3.12), used principally by the reserve components, were recommended for further study. Only the two major active component combat training centers, Ft. Irwin and Ft. Polk, were not studied. In

Table 3.12

Installation Rankings and Recommendations—Major Training Areas

Installation Assessment	Military Value Assessment	Army Recommendation
Polk	Polk	
Irwin	Irwin	
Dix	Dix	Realign
AP Hill	AP Hill	Open
McCoy	McCoy	Open
Greely	Greely	Realign
Hunter Liggett	Hunter Liggett	Realign
Pickett	Pickett	Close
Indiantown Gap	Indiantown Gap	Close
Chaffee	Chaffee	Close

this category, decisions about which installations would undergo further study and which would not appear to have been largely subjective.

Recommendations. Two of the eight studied, Ft. Hill and Ft. McCoy, were recommended to remain open. Three—Ft. Dix, Ft. Greely, and Ft. Hunter Liggett—were recommended for realignment. The remaining three—Chaffee, Indiantown Gap, and Pickett—were recommended for closure, except for reserve component enclaves. These recommendations are generally consistent with the military value assessment rankings in that the lowest-ranked three were recommended for closure, although Ft. Dix, a highly ranked post, was realigned. Among the other categories, only Command and Control and Administrative Support was subjected to a larger number of closures and realignments. It is not clear why this category was so heavily targeted.

Command-and-Control and Administrative Support Installations

Stationing Strategy. The stationing strategy called for command-and-control installations sufficient to station one field army headquarters, two Army headquarters in the continental United States, all major command headquarters, and a U.S. Army Reserve Command headquarters. Further, the strategy called for "facilitating" Army

component command and control for the regionally oriented U.S.-based unified commands and the Special Operations Command. Finally, installations were permitted to remain open solely to provide family housing and other quality-of-life functions unless "similar quality of life can be provided through a less costly alternative."

This strategy contains two flaws. First, it proceeds from the implicit assumption that a separate category of single-function installations should house these command-and-control functions. Command-and-control functions employ relatively few personnel and require only a small amount of land. Hence, the strategy might have proceeded from a directive to collocate command-and-control functions on maneuver, training, or other installations to reduce the number of small single-function installations in favor of achieving savings by using the remaining multifunctional installations more completely and efficiently. Between now and the next BRAC, the Army would do well to estimate the potential economies of scale from such consolidations. The condensed time during which a BRAC occurs simply does not permit such analysis to be done during the process. The second flaw arises from the vagueness of the term, "a less costly alternative" to providing housing. Clearly, the appropriate analysis would include a long-term net-present-value computation taking into account the full range of avoidable housing costs.

The strategy provided more-specific direction on certain installations. For example, it precluded consideration of closing either Ft. Myer or Ft. Belvoir because of the unique functions they perform in the National Capital region, a reasonable directive. Further, the strategy directed the U.S. Army Training and Doctrine Command (TRADOC) headquarters to remain in the Tidewater region, a "joint environment," a seemingly weak requirement, perhaps reflecting an emotional attachment to the historic and picturesque Ft. Monroe. Clearly, TRADOC headquarters could perform its functions in other joint environments, even in the Tidewater area. For example, Langley Air Force Base, which houses the Air Force's Air Combat Command, offers a potential joint TRADOC home. Similarly, Eglin Air Force Base in the panhandle of Florida comprises a half-million acres, some of which are potentially suitable for an Army headquarters. But such large interservice initiatives do not emerge from the BRAC process; the services consider only their own domains. In the 1995 BRAC, the Secretary of Defense did, however, create joint cross-

servicing groups to study specific functional areas: medical, undergraduate pilot training, test and evaluation, research and development, and depot maintenance. Few recommendations emerged from this work. There are substantial opportunities for multiservice use of existing installations.

Ignoring for the moment the debatable mandate for TRADOC to remain in a joint environment, many maneuver and training installations, as well as proving grounds, also offer potential homes for TRADOC headquarters. This is also the case for other headquarters on other single-purpose installations.

Military Value Assessment. The subjective military value assessment of command-and-control installations resulted in a substantial reshuffling of priorities from the installation assessment and the recommendation that 11 of the 15 command-and-control installations be studied (Table 3.13).

The rankings of the top installation, Ft. Belvoir, and the bottom seven remained intact, but the middle seven were shuffled. Both Ft. Myer and Ft. Shafter moved up into the protected zone, reflecting the stationing strategy.

Table 3.13

Installation Rankings and Recommendations—Command and Control Installations

Installation Assessment	Military Value Assessment	Army Recommendation
Belvoir	Belvoir	
Meade	McPherson	
McPherson	Myer	
Monroe	Shafter	
Ritchie	Meade	Realign
Gillem	Monroe	Open
Myer	Ritchie	Close
Shafter	Gillem	Open
Selfridge	Selfridge	Close
Price Spt Cen	Price Spt Cen	Close
Buchanan	Buchanan	Realign
Pres. of San Fran.	Pres. of San Fran.	Study Stopped
Kelly Spt Cen	Kelly Spt Cen	Realign
Hamilton	Hamilton	Realign
Totten	Totten	Close

Recommendations. Of the 11 selected for further study—the Army discontinued one study (of the Presidio of San Francisco)—it recommended closing four (Melvin Price Support Center, Ft. Ritchie, Selfridge Support Activity, and Ft. Totten) and realigning functions away from four others (Ft. Buchanan, Ft. Hamilton, Kelly Support Center, and Ft. Meade). The four recommended closures represent the largest number from any category, but they were relatively insignificant in size and potential savings. The Army estimated that, together, the four closures would return steady-state annual savings of $86 million, $65 million of which was to have come from the Ft. Ritchie closure.[12]

Training Schools

Stationing Strategy. The stationing strategy described for training schools blended a call for consolidation with a demand for prudence. The strategy first assumed that the training function would be accomplished on training installations; it did not suggest consolidation of training functions on other categories of installations or the use of training installations to house other functions, such as command and control. Again, broad options were foregone.

The stationing requirements for training installations were clear and specific:

- retain a school for each branch
- locate branch schools to facilitate combined-arms training
- consolidate basic, advanced individual, and one-station unit training for efficiency
- provide for training, combat development, and doctrine development
- maintain logistics-over-the-shore capability
- maintain training capacity for peacetime and sustainment (active and reserve)

[12]In commenting on a draft of the report, ACSIM officials stated that the actual annual savings from the Ft. Ritche closure are $12.4 million, not the estimated $65 million.

- provide airspace and facilities for rotary-wing pilot training
- provide a single Reserve Officer Training Corps summer camp.

TABS strategy called for consolidating functionally similar branch schools on "fewer, high capacity, modernized installations," permitting closure of some installations. The strategy raised the notion of creating a Mobility/Survivability Center by consolidating the Chemical, Military Police, and Engineer centers and of creating a Logistics Center formed from the Quartermaster, Transportation, and Ordnance centers. But it cautioned against the potential expense and turmoil an "overly aggressive restructuring" might induce. The strategy warned that "the Army cannot withstand the financial and destabilizing effects of such a grand realignment." This guidance reflects the Army's concern with having to pay front-end closure costs out of its budget and program totals. Bold options that carry large initial costs were not pursued, in large measure because of budget constraints.

Military Value Assessment. The assessment reshuffled a handful of the middle-rated installations, as shown below, recommending five of the 14 for further study, as shown in Table 3.14.

Presumably, Ft. Rucker moved up in response to the strategy's concern for airspace. Ft. Huachuca also moved up, but for reasons that are not apparent. Ft. McClellan and Ft. Leonard Wood moved down as the subjects of functional consolidation, along with Ft. Lee and Ft. Eustis.

Recommendations. Three of the five—Ft. Eustis/Story, Ft. Leonard Wood, and the Presidio of Monterey—were all recommended to remain open, in each case principally because of the high cost of closing. The report excludes the specific findings of the cost analysis that led to the conclusion. Ft. Lee was recommended for downsizing of its hospital. Only Ft. McClellan was recommended for closure; its two schools, Military Police and Chemical Corps, would be moved to collocate with the Engineer School at Ft. Leonard Wood. The decision left 11 branch schools on their own installations. No consideration was apparently given to further consolidation or movement to multipurpose installations. Logical candidates include Aberdeen Proving Ground, Ft. Lee, Ft. Eustis, and Ft. Huachuca.

Table 3.14

Installation Rankings and Recommendations—Training Schools

Installation Assessment	Military Value Assessment	Army Recommendation
Bliss	Bliss	
Benning	Benning	
Jackson	Jackson	
Knox	Knox	
Sill	Sill	
Gordon	Gordon	
Leonard Wood	Rucker	
McClellan	Huachuca	
Rucker	Sam Houston	
Huachuca	Leonard Wood	Open
Sam Houston	McClellan	Close
Lee	Lee	Realign
Eustis/Story	Eustis/Story	Open
Pres. of Mont.	Pres. of Mont.	Open

Professional Schools

Stationing Strategy. The concise stationing strategy for the four Army installations that house professional schools (Carlisle Barracks, Ft. McNair, Ft. Leavenworth, and West Point) summarily precludes further consideration of any realignment or closing of them. But the arguments set forth in the stationing strategy pertain to the utility of the schools themselves, not to the installations that house them:

> This [professional military] education is the combat multiplier that separates the United States Army from all others and provides the intellectual basis upon which the future of the Army will be built. . . . The professional education received at these installations develops the competent leaders that are critical to success on the battlefield. (TABS, Volume III, p. 49.)

The strategy provides no justification for why the installations that now house professional military education are preferable to other locations.

Military Value Assessment. The order of priority resulting from the installation assessment remained unchanged in the military value

assessment (Leavenworth, West Point, Carlisle Barracks, and McNair).

Recommendations. None of the four was recommended for further study, citing their high military value and unique capabilities. There is no mention of collocating the activities at Leavenworth and Carlisle Barracks, for example, with maneuver or training installations.

Ammunition Production

Stationing Strategy. Eight ammunition production plants made up this category. As one would expect, the stationing requirements centered on ensuring a core production capacity to handle peacetime needs augmented by the capability to support wartime requirements and reconstitute depleted wartime stockpiles. Further, the Army had to be able to carry out its functions as ammunition executive agent for DoD. The strategy asserted the need for redundancy, given the possibility of catastrophic explosion, and stated that the Army had already reduced production facilities to the minimum required. This effectively removed all ammunition production installations from further consideration.

Military Value Assessment. The military value assessment for ammunition production installations failed to change the rankings the installation assessment produced. From highest to lowest ranking, they were McAlester, Lone Star, Radford, Holsten, Milan, Pine Bluff, Lake City, and Iowa. None was recommended for further study; hence, none was recommended for closure.

Ammunition Storage

Stationing Strategy. The stationing strategy for ammunition storage facilities was straightforward: maintain a core storage capability for peacetime training and readiness requirements and for wartime needs, and maintain the capability to act as ammunition executive agent for DoD.

At the time, ammunition storage requirements exceeded the design capacity of storage facilities for two reasons: the return of ammunition from Europe to the United States during the drawdown and a slowdown in demilitarization of ammunition.

The Army had created three tiers of storage facilities, characterized principally as follows:

- tier 1—normal/full-up daily activity
- tier 2—static storage of follow-on war reserves
- tier 3—storage of nonrequired stocks being eliminated.

Military Value Assessment. The military value assessment largely validated the installation assessment rankings, raising Blue Grass and lowering Seneca each one place. The five lowest-ranking installations, all tier 2 or 3, were recommended for further study as shown in Table 3.15.

Recommendations. The study recommended two of the five, Savanna and Seneca, for closure. Studies of two others, Pueblo and Umatilla, were discontinued when it was determined that, because of the time required to complete the demilitarization of the chemical weapons stored at the facilities, the installations could not be closed within the six-year deadline of the BRAC law; finally, Sierra was recommended for realignment.

Commodity Installations

Stationing Strategy. The stationing strategy for the nine commodity installations described four requirements:

1. preserve only crucial research, development, test, and evaluation capabilities that the private sector cannot or will not sustain
2. optimize the efficiency of research, development, test, and evaluation and of materiel and maintenance management
3. provide seamless materiel management across all commodity groupings
4. maintain the capability to support reconstitution of forces in transition during and after regional conflicts.

The strategy called for collocation and integration of functions and reducing overhead. Organizational integration and collocation of research and development, acquisition and sustainment of a particular commodity group were considered desirable.

Table 3.15

Installation Rankings and Recommendations—Ammunition Storage Facilities

Installation Assessment	Military Value Assessment	Army Recommendation
Hawthorne	Hawthorne	
Tooele	Tooele	
Seneca	Blue Grass	
Blue Grass	**Seneca**	**Close**
Savanna	**Savanna**	**Close**
Pueblo	**Pueblo**	**Open**
Sierra	**Sierra**	**Realign**
Umatilla	**Umatilla**	**Open**

Rock Island Arsenal and Detrick were singled out as installations of particular importance, the former as a base upon which to station sustainment elements, the latter as a unique capability that would be difficult to duplicate.

Military Value Assessment. The military value assessment caused a modest reordering of the installation rankings, resulting in recommendations that three installations, Picatinny, Cold Regions Laboratory, and Natick undergo further study. Most notable among the ranking shifts was the substantial demotion of Picatinny from second to seventh, as shown in Table 3.16. The rationale for these changes was not presented.

Recommendations. The Army recommended that all three commodity installations studied remain open, principally because of the high cost of closing. As with other categories of installations, high closure costs within a fixed Army budget may have removed a number of closures with worthwhile long-term savings from consideration.

Ports

Stationing Strategy. The stationing strategy for the four ports was straightforward, requiring principally that sufficient ports be maintained to project forces from the Atlantic (Bayonne, Sunny Point), Pacific (Oakland), and Gulf coasts and to ship unique cargo not

allowed in commercial ports. Capabilities available in commercial ports were not to be duplicated.

Military Value Assessment. The installation assessment ranking, Bayonne, Oakland, then Sunny Point, was overturned, leaving Sunny Point on top, followed by Bayonne, then Oakland as shown in Table 3.17.

Recommendations. Bayonne was recommended for closure on the grounds that commercial activities could perform its functions. While the Oakland study reached the same conclusion, the operational risk associated with relying on commercial activities on the West Coast was considered too great, so the installation was recommended to remain open. The nature and sources of the operational risk were not mentioned. As shown below, the 1995 BRAC Commission recommended closing Oakland as well, one of the few changes that body made to the Army's recommendations.

Table 3.16

Installation Rankings and Recommendations—Commodity Installations

Installation Assessment	Military Value Assessment	Army Recommendation
Redstone	Redstone	
Picatinny	Detroit	
Detroit	Rock Island	
Rock Island	Monmouth	
Monmouth	Adelphi	
Adelphi	Detrick	
Detrick	Picatinny	Open
Cold Region	Cold Region	Open
Natick	Natick	Open

Table 3.17

Installation Rankings and Recommendations—Ports

Installation Assessment	Military Value Assessment	Army Recommendation
Bayonne	Sunny Point	
Oakland	Bayonne	Close
Sunny Point	Oakland	Open

Depots

Stationing Strategy. The Army set forth a direct stationing strategy for depots. Specifically, depots were required to meet the sustainment needs of the force and to reconstitute forces in transition from one major regional conflict (MRC) to another or following a two-MRC event.

Because depot facilities are costly, the strategy urged reducing capacity to minimums, consolidating facilities where possible, and pursuing commercial alternatives. Specifically, the strategy suggested separate ground, air, and electronic-oriented maintenance depots. The depot strategy contains the first guidance among all the installation categories to seek efficiencies through joint solutions.

Military Value Assessment. The rankings of the four depots remained unchanged in the military value assessment (Table 3.18).

Recommendations. DoD's Joint Cross-Service Group for Depot Maintenance recommended closing both Red River and Letterkenny. The Army concurred on Red River but agreed only to realign Letterkenny. The BRAC Commission later decided to keep Red River open, realigning it instead of closing it.

Proving Grounds

Stationing Strategy. The four proving grounds—Aberdeen, Dugway, White Sands, and Yuma—provide the acreage, range capacity, and facilities necessary for the Army's weapon-testing program. The stationing strategy directed that the Army retain the proving grounds with the greatest capacity for expansion. Further, the strategy

Table 3.18

Installation Rankings and Recommendations—Depots

Installation Assessment	Military Value Assessment	Army Recommendation
Tobyhanna	Tobyhanna	
Anniston	Anniston	
Red River	Red River	Close
Letterkenny	Letterkenny	Realign

directed the Army to retain the ability to test over a full range of terrain and climatic conditions and to locate soldier-intensive testing at maneuver installations.

While the strategy pointed out the advantages of collocation, it recognized the high cost of relocation and pointed out that no proving ground was able to receive another testing facility without significant construction. Again, as with depots, the Army strategy suggested joint basing of test facilities to achieve economies and reduce duplication.

As it stated in its strategies for other categories of installations, the Army study cautioned against any moves with large up-front costs, regardless of the potential long-term savings, reflecting a limited willingness to trade off other near-term priorities within a fixed budget to achieve closure savings that would occur in the more distant future. The strategy precluded consideration of any major recapitalization, concentrating, instead, on achieving near-term savings.

Military Value Assessment. The rankings of the four remained intact during the military value assessment, with only Dugway recommended for further study, as shown in Table 3.19.

Recommendations. Dugway was recommended for realignment, with major activities relocated to Yuma and Aberdeen. The Army subsequently asked the BRAC Commission to reverse the recommendation because of environmental permit problems at the gaining locations.

Medical Centers

Stationing Strategy. The stationing strategy dealt only with the three Army medical centers in the United States housed on their own installations: Walter Reed, Tripler, and Fitzsimons. The other four, located on training and maneuver installations, were excluded from consideration. The strategy required the Army medical centers to maintain the capabilities to conduct graduate medical education, meet peacetime health care requirements (in conjunction with civilian providers), support two MRCs, support reconstitution of forces in avoid significant recapitalization costs for substandard facilities. A

Table 3.19

Installation Rankings and Recommendations—Proving Grounds

Installation Assessment	Military Value Assessment	Army Recommendation
White Sands	White Sands	
Aberdeen	Aberdeen	
Yuma	Yuma	
Dugway	Dugway	Realign

transition between MRCs or upon completion of two MRCs, and further requirement was "Where possible, maintain the capability to provide wartime medical support at a facility located in the theater of operations." Although not specified in the strategy, this guidance apparently was directed at Tripler, in the potential theater of operations of the Pacific.

The strategy urged reduction of excess capacity, stopping uneconomical referral practices, elimination of duplicate graduate medical education, and efficient provision of care to the active duty population. The guidance stated that "medical centers not collocated with sizable active component populations do not provide cost-effective care, nor do they contribute to quality of life for active component soldiers and their families." This comment supported the closing of Fitzsimons. At the same time, the strategy pointed out the utility of medical centers that, while they may not be collocated with large troop concentrations, do support potential theaters of operations. This comment supported the continuance of Tripler.

Military Value Assessment. The three were ranked in descending order of value: Walter Reed, Tripler, and Fitzsimons. The ranking held both in the installation assessment and after the military value assessment, with only Fitzsimons recommended for further study.

Recommendations. Supporting the recommendations of the DoD Joint Cross-Service Group, the Army recommended closing Fitzsimons, an installation geographically distant from any significant troop populations.

Industrial Facilities

Stationing Strategy. Industrial facilities manufacture end items, such as tanks, engines, and cannons. The stationing strategy required this category to retain capabilities that cannot be readily reconstituted during mobilization or duplicated by commercial manufacturers and to assist in generation of forces required for two MRCs. The strategy suggested that industrial facilities consolidate at the largest, most modern facility.

Military Value Assessment. The three industrial facilities were ranked Watervliet, Stratford Engine, then Lima Tank in the installation assessment. The military value assessment added the Detroit Army Tank Plant, part of the Detroit Arsenal complex, to the mix. Stratford, Lima, and Detroit were recommended for further study.

Recommendations. Both Stratford Army Engine Plant and Detroit Army Tank Plant were recommended for closure.

Recommendations on Other Categories of Installations

Because they are of lesser importance, recommendations for closing or realigning leased facilities and minor sites included in TABS are omitted here. The Army recommended closing 15 minor sites and three leased facilities. The details of the recommendations may be found in that report.

SUMMARY OF THE OUTCOME OF BRAC 1995

Table 3.20 summarizes the closure and realignment recommendations detailed above.[13] The second column indicates the number of installations included in each category, then lists only those the Army recommended for further study (e.g., four maneuver installations). The Army's recommendation is shown to the right of each installation listing.

[13]Not shown in the table are the 15 minor installations and three leased sites the Army also recommended closing. These determinations were made outside the full analytical process described in this report.

Table 3.20

Summary of Installations Studied and Army Recommendations

Installation Type	Total Studied	Installation Names	Recommend.
Maneuver	11	Riley	Open
		Drum	Open
		Wainwright	Open
		Richardson	Open
Major training areas	10	Dix	Realign
		AP Hill	Open
		McCoy	Open
		Greely	Realign
		Hunter Ligg	Realign
		Pickett	Close
		Indiantown Gp	Close
		Chaffee	Close
Command and control	15	Meade	Realign
		Monroe	Open
		Ritchie	Close
		Gillem	Open
		Selfridge	Close
		Price Spt Cen	Close
		Buchanan	Realign
		Kelly Spt Cen	Realign
		Hamilton	Realign
		Totten	Close
Training schools	14	Leonard Wood	Open
		McClellan	Close
		Lee	Realign
		Eustis/Story	Open
		Presidio of Monterey	Open
Professional schools	4		
Ammo production	8		
Ammo storage	8	Sierra	Realign
		Savanna	Close
		Pueblo	Open
		Seneca	Close
		Umatillo	Open
Commodity	9	Picatinny	Open
		Cold Regions	Open
		Natick	Open
Ports	3	Bayonne	Close
		Oakland	Open

Table 3.20—Continued

Installation Type	Total Studied	Installation Names	Recommend.
Depots	4	Red River	Close
		Letterkenny	Realign
Proving grounds	4	Dugway	Realign
Medical centers	3	Fitzsimons	Close
Industrial facilities	4	Stratford Eng	Close
		Lima	Open
		Detroit Tank	Close

Of the 96 installations the Army assessed initially, it further studied 43, then recommended closing 14 (plus the Detroit Tank Plant, which had not been under study as an entity) and realigning 11 others.

The 1995 BRAC Commission supported the major Army recommendations, demonstrating both the importance of the Army process and its high degree of political acceptance. The commission did, however, recommend keeping open two command-and-control installations the Army had recommended for closure, Selfridge Support Activity and the Melvin Price Support Center. Further, the commission overturned the Army's recommendation to realign Dugway Proving Ground.[14] The commission also amended the closure recommendations of a handful of other installations to maintain reserve component enclaves. Finally, the commission added one installation, Oakland Military Ocean Terminal, for closure.

The consistency of the commission's recommendations with those of the Army clearly reflects not only credibility of the Army's process and the logic behind it but also the institution's political savvy as well.

The Army's 1995 BRAC process produced worthwhile closures and realignments, but they fell almost completely outside the Army's

[14]The Army had recommended a realignment of Dugway Proving Ground, but on June 14, 1995, the Secretary of Defense asked the commission to set aside the recommendation, principally because of permit problems at the receiving sites, Aberdeen and Yuma proving grounds.

largest and most expensive installations, its proving grounds and its maneuver and training posts. None of the closed or realigned installations housed major combat units. Only one, Ft. McClellan, housed a branch school. And none of the recommendations substantially affected proving grounds. While the process probably resulted in the closing of posts of lesser value, it failed to recommend broad options for consolidating functions on fewer posts to achieve substantial long-term savings.

The Army provided a sound hedging rationale for keeping its major installations open; it did not, however, provide an equally good rationale for failing to consider closing smaller, single-function installations and consolidating the functions now housed at the small posts onto larger posts. It is possible that internal Army politics, attuned to external sensitivities, would have precluded such broader options from surfacing, but the analytical process failed to generate such alternatives for the Army leadership to consider.

The next chapter provides a detailed analytical assessment of the Army's process, measuring it against the standards of the ten criteria presented in Chapter Two.

Chapter Four

A CRITICAL ASSESSMENT OF THE ARMY'S PROCESS

This chapter assesses the extent to which the 1995 process satisfied the ten criteria set forth in Chapter 2: auditability and reproducibility, objectivity and internal consistency, separateness and independence of assessment criteria, consideration of externalities, completeness of option set, consideration of future as well as current requirements, consideration of hedges, efficient use of assets, reduction in long-term costs, and improved operations.

SUMMARY ASSESSMENT

Table 4.1 summarizes the extent to which the 1995 process reflected the ten desirable properties. The leftmost column lists the properties. The second column rates the 1995 overall process against each. A "++" means the 1995 process fully satisfies that property, a "+" means that it is largely satisfied, and a "–" means the process is considered somewhat deficient. A "– –" means that the criterion is not met at all. The process received at least a "–" rating by each criterion. In no case did the process fail completely. These are clearly subjective assessments intended only to differentiate roughly the extent to which the process met them.

As in Chapter Two, the ten were sequenced with the first three pertaining to internal features of the process, the next four pertaining to the breadth of the inquiry, and the last three pertaining to organizational outcomes. One of these organizational outcomes, reduced long-term costs, is, of course, central to any BRAC. Hence, that criterion is assessed in depth.

Table 4.1

Summary Assessment of Desired Properties of the Process

Desired Property of the Process	Assessment
Internal Properties	
Can be audited and reproduced	+
Maximizes objectivity and internal consistency	+
Uses separate and independent criteria	+
Breadth of Process	
Considers externalities	++
Provides complete option set	–
Considers current and future requirements	–
Hedges against important uncertainties	–
Outcome	
Leads to efficient use of assets	–
Leads to reduced long-term cost	–
Leads to improved operations	–

NOTE: A "++" rating means a criterion was fully satisfied; a "+" means largely satisfied; and a "–" indicates somewhat deficient. A "– –" means not satisfied at all.

The 1995 process fully satisfied only one of the ten desired characteristics: consideration of externalities. It manifested substantial shortcomings in six of the ten characteristics. The following sections assess the process against each of those characteristics.

AUDITABILITY AND REPRODUCIBILITY

Overall, the Army's process receives a passing grade by this measure. As Chapter Three demonstrated, much of the installation assessment step is auditable and reproducible, but two aspects—the selection of specific criteria and the assignment of weights—are not. Both the specific criteria and the weights attached to them evolved during the 1991 through 1995 rounds (1991, 1993, and 1995 TABS). While TABS itself does not explain how particular attributes were selected for each class of installations, a report by the U.S. Army Engineer

Strategic Studies Center provides detailed but highly subjective rationales for criteria and weights.

While the Army stationing strategy explicitly derived many of its judgments objectively from the National Security Strategy and from other rationalized imperatives, other judgments are not auditable and appear subjective and arbitrary. Principal among these is the implicit assumption that an installation serves only as one category of installation. The stationing strategy confused the importance of an activity that happens to be housed on that installation today with the importance of that installation. By definition, the military value assessment, which is explicitly described as the Army's "best judgment," lacks auditability.

OBJECTIVITY AND INTERNAL CONSISTENCY

Ironically, the installation assessment, while in some ways the most rational and explicit step of the process, had substantial unexplained assumptions built into it, bringing into question the objectivity of the step. The most pervasive subjectivity has to do with the arbitrary assignment of weights to the various outcomes, explained in detail in Chapter Three. If the 1995 process were to be used in future BRACs—and this report argues for a different process—these apparent subjective judgments should be rationalized and made explicit to enhance the credibility of the process. A lack of internal consistency derives principally from the different weights assigned to the same attribute in installations of different categories.

The Army stationing strategy succeeded in its objectivity and internal consistency. Most judgments, as mentioned above, derived from external documents and internally consistent Army-developed rationale.

The military value assessment reranked installations based on subjective judgment and did so intentionally and explicitly. To be bureaucratically and politically supportable, any process should include a subjective step, but it should be explicitly so. Hence, the objectivity criterion is not applicable here.

SEPARATION AND INDEPENDENCE OF CRITERIA

As detailed in Chapter Three, an important flaw, carried through all steps of the process, is the pervasive and redundant inclusion of cost in many of the individual criteria. For example, the way cost of change was treated has two problems: It was treated implicitly rather than explicitly, and it was included in multiple criteria rather than just one. To illustrate, the attributes of barracks space and the average age of facilities and other infrastructure relate to the cost of increasing activities at an installation. They differ from such characteristics as total acreage, geographic location, and terrain, which are relatively more permanent. Later in the process, the military value assessment again, and redundantly, considered cost. Cost, central to any BRAC decision, should nevertheless be dealt with in a single place, in the form of incremental or avoided costs in comparing alternatives. It should not be buried in other criteria. Eliminating options early on because of potentially high initial costs, without regard to later savings, leads to missed opportunities for long-term improvements in basing structure.

CONSIDERATION OF EXTERNALITIES

The Army's process paid full and appropriate attention to the important considerations of effects on the local community, environmental impact, and other external considerations. These were appropriately left to the last two steps of the process.

COMPLETENESS OF OPTION SET

In its 1995 process, the Army considered the closure and realignment of many more installations than it eventually recommended. Nevertheless, many other feasible options were never considered. A major but implicit assumption undercut the entire 1995 process: Small, single-function installations need to continue to exist simply because the functions now housed on them need to be performed.

The installation assessment—the first step in the BRAC process—limited options to a remarkable degree. This flaw actually began above the Army because DoD directed each military department to assess only its own installations rather than seek opportunities for

joint use of all installations.[1] But the Army replicated this shortcoming internally by further categorizing each installation according to its current principal function (e.g., maneuver, training school, major training area, depot) without first considering the range of activities each installation might reasonably house. Accordingly, the Army had each of its subordinate commands rank its own installations without regard to their value for the missions of other commands. This practice misses opportunities to create multifunctional installations, either joint or single-service.

The process assured this limitation by sorting each installation into a single category according to the installation's current principal function. This step preempted a necessary first question about each installation: "What range and level of activities could this installation support?" Thus, the process missed options to consolidate functions on fewer, multifunctional installations to realize the full potential of remaining installations while closing the maximum number of less-important installations. Further, it failed even to generate options that might use installations for different principal functions than they have today.

The process erroneously attributes the importance of a function that happens to be performed today on a particular installation to the installation itself. For example, TABS (Vol. III, p. 50) states that "Carlisle Barracks is home to the Army's War College. Because of its unique capability and high military value, it was not selected for further study." While "it" in the second sentence is meant to refer to Carlisle Barracks, it is the War College, rather than the post, that has high military value. That the War College could be located on a post that principally serves maneuver or other functions apparently escaped consideration. The same was true more broadly for activities housed on command-and-control, training school, and other single-function installations. It may be that the high cost of moving such activities from their current locations to other posts would render the options infeasible. But such judgments should be made on the basis of long-term costs and savings.

[1]In the 1995 round, DoD did form joint cross-service groups to assess consolidation of specific support functions, such as depot, medical, pilot training, laboratory, and test and evaluation activities. It did not, however, look into major initiatives, such as combining major functions of one service onto an installation of another service.

The 1995 BRAC process produced a limited set of closure recommendations. It is not clear, however, that any process could overcome a natural institutional resistance to change. To the extent that the Army leadership wishes, for whatever reasons, to maintain a larger-than-necessary set of installations, no formal internal process will overcome such desires. Appropriately, every process includes a subjective feature. The 1995 process, which included the significantly constraining stationing strategy, reflected a strong preference on the part of the Army leadership for limited change. Nevertheless, some processes are more likely than others to present a broad range of options to a leadership that desires them.

CONSIDERATION OF CURRENT AND FUTURE REQUIREMENTS

The 1990 BRAC law (10 USC 2687, Section 2903) required DoD to base its recommendations on a six-year force structure plan, including the number and type of active and reserve units expected to be in the force structure both overseas and in the United States. The force structure plan was to be derived from "probable threats to the national security during the six-year period. . . ." Hence, the law constrained the Army to consider the stationing requirements only of the current force and that programmed for the next six years.

Installation decisions have ramifications that often last for decades, and many are irreversible. Yet the recent BRAC rounds precluded consideration of anticipated long-term trends. For example, the history of warfare shows that engagement ranges are increasing and that combat vehicles are getting faster. Both trends imply an increased maneuver area. It may take 10 to 20 years for the practical effects of such trends to be felt. Yet the BRAC rules do not permit their consideration.

CONSIDERATION OF HEDGES

The lack of consideration of predictable long-term trends represents only one way the future threatens BRAC recommendations that are focused on the near term. The future is fraught also with great uncertainty. Important geostrategic events and the U.S. national security response to them cannot be predicted. A sound BRAC

process would seek to consider a range of plausible scenarios that might change the current national security strategy and therefore the force structure plan and the resulting basing requirements.[2] Such thinking could then lead to ways the United States could shape the future to either avoid undesirable outcomes or hedge against them by avoiding closures and realignments that would prove unwise should the outcomes obtain. The best example was the Army's hedging against the return of forces now permanently stationed in Europe or Korea. The Army could also have considered keeping its installation hedge in caretaker status. Closure decisions that take into account only the current force structure plan could severely hinder later restationings.

While the 1995 decisions were consistent with hedging against the return-of-troops scenario, they may be inconsistent with other, perhaps more plausible and troublesome, scenarios. It is not clear from TABS which, if any, future scenarios are hedged against. The fluidity and unpredictability of world events and the U.S. response to them calls for an explicit hedging strategy. Only a thorough, objective analysis can lead to the right set of hedging actions.

EFFICIENT USE OF ASSETS

As pointed out above, the process fails to search for solutions that more fully employ the land and other physical assets of certain key facilities and lead not only to a more efficient use of these resources but render other installations redundant as well. This logic applies particularly to joint use of major installations, a largely unexplored set of possibilities. Such solutions would also reduce long-run costs. The closures recommended in 1995 are reducing costs and improving use of remaining installations, but not to the extent possible.

REDUCE LONG-TERM COSTS

The sort of broad options described above would require significant investment and other transition costs to achieve long-term savings. But because the Army was required to fund its front-end closing costs from fixed budgets, it did not recommend options that might

[2]See Dewar et al. (1993) for a useful way to incorporate uncertainty into plans.

offer substantial long-term payoffs but that also might have significant initial costs. Recall from Chapter Three that many installations the Army selected for further study in the military value assessment were eliminated from closure consideration based on the initial cost. Further, a principal criterion for selection was the number of years required to pay back the initial cost rather than long-term net present value. Because the Army was limited to actions that saved money during the program years, only closures with very quick paybacks were selected. For example, the Army estimated the average payback for the 15 recommended closures at 1.4 years, with six estimated at less than a year. Only three were estimated to require more than two years to repay the initial cost. Closures with high initial costs and high long-term returns failed to make the list.

The Army conducted its 1995 process within fiscal constraints (Army, 1994c, slide 11) that restricted net closure and realignment costs to a total of $729 million during the first three years (FY 96–98) and that required savings of the same amount in each of the next three years (FY 99–01), for a net savings over the Program Objectives Memorandum (POM) years of $1.5 billion, as shown in Table 4.2.

In its analysis of options presented to the Under Secretary and Vice Chief of Staff in the fall of 1994 (Army 1994c, slide 13), the TABS group illustrated a base-case package of 15 relatively small installations whose closure or realignment the TABS group estimated would generate only a fraction of the net stream of costs and savings permitted by the above fiscal constraints (see Table 4.3). With one exception, Ft. Richardson, this package eventually became the core set of actions the Army recommended. Hence, in actuality, it proved to be more than illustrative. Cost and savings estimates of this base case also appear in Table 4.2.

Table 4.2

Net Cost Cost and Savings Estimates for Closings and Realignments ($M)

	FY 96	FY 97	FY 98	FY 99	FY 00	FY 01	Total
Army fiscally constrained	178	283	268	–729	–729	–729	–1,458
TABS base case	25	40	–88	–290	–429	–449	–1,191

Table 4.3

Army Base Case Closure and Realignment Package

Installation	Initial Cost ($M)	Steady-State Savings ($M)	Recommended Action	
			November Brief	Army Final
Richardson	66	61	Realign	Open
Red River Dep	54	127	Realign	Close
Ritchie	42	64	Close	Close
Savanna Depot	30	13	Close	Close
Sierra Depot	26	46	Close	Realign
Hunter Liggett	22	23	Close	Realign
Kelly Spt Cen	18	5	Close	Realign
Indiantown Gap	11	23	Close	Close
Chaffee	10	23	Close	Close
Seneca Depot	10	20	Close	Close
Pickett	9	21	Close	Close
Selfridge	8	13	Close	Close
Hamilton	6	18	Close	Close
Stratford Eng	2	5	Close	Close
Detroit Tank	1	2	Close	Close

While the estimated total savings of $1.19 billion over the POM years amounted to 82 percent of the guidance of $1.46 billion, the initial costs and near-term savings were substantially smaller than the guidance. In fact, the package even generated net savings of $23 million during the first three years, rather than costing the allocated $729 million during the period. This illustrates, first, the economic soundness of the package and, second, the difficulty of finding packages whose streams of costs and savings closely match arbitrarily chosen fiscal constraints.

The realignments of Ft. Richardson and Red River Depot were the only actions estimated to cost more than $50 million to execute. The Army later dropped the Ft. Richardson realignment from consideration, citing strategic requirements in the Pacific region and *high closure costs* (TABS, Vol. III, p. 26). Despite Ft. Richardson's requiring the highest initial cost ($66 million) among the 15, it stood to produce annual savings of $61 million, a sum almost equal to the

initial cost. Clearly, the realignment would have generated substantial long-term savings. The strategic considerations may well have been the dominant consideration. Nevertheless, the Ft. Richardson decision represents the class of BRAC decisions in which high initial costs at least contributed to a decision to leave installations open despite favorable long-term savings.

The above recommendations are characterized not only by relatively low closing costs but also by very quick payback periods. Twelve of the 15 were estimated to yield annual savings exceeding the initial costs.

The November briefing set forth three incremental packages, shown in Table 4.4, less desirable than base-case actions, to be considered as augmentations of the base case to bring the POM-year costs and savings up to the set-aside levels. Each of the three increments was characterized by higher initial costs relative to the base case. The lower priority of the augmentation packages reflected stringent POM-year cost constraints that made actions with excellent 20-year net present values relatively undesirable.

Three of the nine Option Package 1 actions carried estimated initial costs of more than $100 million, and two of the three Option Package 2 actions required initial costs exceeding $200 million. Finally, Option Package 3 contained only one base, Ft. Lee, with high estimated closing costs of $500 million.

Option Package 2 would have yielded more than $1 billion in 20-year net-present-value savings but would have required almost $200 million in net costs during the POM years. Further, the three closures in the package require one-time costs of more than $600 million. Net costs during the POM years, as well as high initial costs, surely contributed to the Army's decisions, first, to place these potential closures well down the list and, finally, to leave two of the three posts open, forgoing 20-year present value savings of more than $700 million.

The BRAC actions the Army selected from the above options may well have depleted the stock of closures with relatively low initial costs and quick returns. Compare the costs and savings of the selected installations from the above two tables with those in Table

Table 4.4

Army Base Case and Other Closure and Realignment Packages

Installation	Initial Cost ($M)	Steady-State Savings ($M)	POM Savings NPV ($M)	20-Year NPV ($M)	Final Action
Base Case	316	462	1,191	5,623	
Package 1	497	367	661	3,618	
Letterkenny	103	151	366	1,811	Realign
Fitzsimons	37	94	198	536	Close
Ports	108	40	55	437	Close
Price Spt Cen	3	10	43	136	Close
Greely	20	16	35	186	Realign
HQ,AMC (Lease)	23	7	2	71	Open
CAA (Lease)	3	1	2	16	Close
OPTEC (Lease)	14	4	–2	33	Open
ATCOM (Lease)	186	44	–38	392	Close
Package 2	614	144	–196	1,213	
Picatinny	234	62	–22	581	Open
Natick	159	26	–81	176	Open
McClellan	221	56	–93	456	Close
Package 3	500	27	–433	–157	
Lee	500	27	–433	–157	Open

4.5 (Army, 1994c, slide 19), which the Army considered but rejected and therefore left for reconsideration in future BRACs. The prospects from this list offer substantial 20-year savings, but several have high front-end costs that, in some cases, would not be recouped during the entire six years of the POM. While these options may be attractive in the long run, they cannot survive with such fiscal guidance as that for the 1995 round, which required POM-year savings.

The Ft. Meade option under consideration in the fall was a closure—one with high initial costs ($847 million), large net POM costs ($669 million) and a negative 20-year net present value ($36 million). Accordingly, the Army later chose a modest realignment of Ft. Meade over its closure. The November briefing (Slide 19) listed high cost as an important consideration.

Table 4.5

Army Closure and Realignment Package Not Recommended

Installation	Initial Cost ($M)	Steady-State Savings ($M)	POM Savings NPV ($M)	20-Year NPV ($M)	Final Action
Meade	847	63	–669	–36	Realign
Eustis	832	99	–506	476	Open
Riley	682	118	–324	853	Open
Leonard Wood	554	43	–478	–29	Open
Monroe	108	20	–63	134	Open
Buchanan	70	24	12	238	Realign
McCoy	33	79	248	1,004	Open
Dugway	28	17	–3	66	Realign
Dix	19	52	167	667	Realign
AP Hill	4	12	–39	155	Open
Lima Tank	2	1	0	5	Open

Both Ft. Eustis and Ft. Riley, which remained open, entailed high closure and net POM costs but offered very nice long-term returns. TABS (Vol. III, pp. 26 and 45) cited high closure costs as reasons for leaving the two posts open, again substantiating the stifling properties of short-term fiscal guidance.

Ft. Leonard Wood was dropped because of the decision to close Ft. McClellan and collocate the Military Police and Chemical Schools with the Engineer School already there.

While Ft. Monroe would yield modest returns over the long term, it cost money over the POM years. TABS cited "military judgment" as the reason for leaving historic Ft. Monroe open, emphasizing the geographic utility of having TRADOC headquarters in the Tidewater region, near similar Air Force and Navy activities.

Ft. Buchanan, Dugway Proving Ground, and Ft. Dix were all realigned with modest initial costs and, in the case of Ft. Dix, with substantial long-term savings.

Ft. McCoy is an interesting case in that huge savings were estimated with relatively small initial costs. The Army left the base open principally to meet reserve component training requirements. Ft. AP Hill remained open for the same reason.

Lima Tank Plant remained open as the Army's only operational tank plant after the closing of Detroit. Cost was insignificant.

In sum, if the next BRAC round resurfaces only the options remaining from those not taken in 1995, a multibillion dollar set-aside will be necessary over the POM years to achieve meaningful long-term savings.

IMPROVE OPERATIONS

The consolidation of the Chemical and Military Police Centers with the Engineer Center at Ft. Leonard Wood promises to enhance the effectiveness of all three through the synergy collocation yields. Most of the other 1995 actions, while anticipated to be cost-effective, are unlikely to yield similar gains in operational effectiveness. For example, the collocation of command-and-control activities, training schools, and maneuver units would reduce the turbulence associated with permanent change of station moves and would assist in integrating the collocated functions. Such consolidations are unlikely to arise in future BRACs conducted under a process similar to the 1995 one because such a process would proceed from the assumption that all categories of single-function installations are appropriate. The operational benefits of collocation are not examined.

SUMMARY

The Army's methodology had both strengths and weaknesses. Its most significant strengths are the following:

- Installation requirements derive from the more general requirements of the National Security Strategy.
- Criteria for evaluating installations derive directly from the eight DoD criteria.
- Much of the methodology is explicit and auditable.

On the other hand, the methodology has distinct shortcomings, the most significant of which are the following:

- **It produces a limited set of options.** By assuming that installations serve a single principal purpose and by assigning evaluation criteria that are specific to the principal purpose of each

installation, the process precludes the Army from considering bold consolidating functions now spread across many installations onto fewer, large, multifunctional installations. Because the methodology accepts the legitimacy of single-function installations, it never generates the broad options for consolidation that would realize these potential efficiencies. More broadly, the DoD process as a whole lacks incentives for the services to develop joint-use options for their major installations. Finally, the practice of requiring the Army and the other services to fund closure costs out of existing budgets and programs further limits the range of options that are proposed.

- **The explicit, quantitative features of the methodology overshadow a heavily subjective component that, in effect, dominates the outcomes**. In particular,
  - — The weights applied to each are highly subjective. While the rationale is apparent in some cases, it is not in others. For example, proving grounds contain most of the acreage of the Army's installations in the continental United States. Such land is potentially useful for training, maneuver, or other purposes, but the millions of acres of these installations are valued only indirectly through the criterion "mission diversity," intended to represent the ability of proving grounds to support testing of a wide variety of commodities for a broad customer base. This ability is only partially related to an installation's size. Further, the criterion counts for only 20 percent of the installation's score on the installation assessment. According to one participant in the 1995 process, the subjective judgments applied in the Army stationing strategy had far greater effect on outcomes than the subjective weightings of criteria.[3] Installation assessment rankings are reportedly robust across a fairly wide range of weightings.
  - — The stationing strategy confuses the importance of the activities on an installation with the importance of the installation itself. The case of the professional military schools is described earlier in this paper. That these schools are valu-

[3]Interview with LTC Chuck Fletcher, Program Analysis and Evaluation Directorate, Office of the Chief of Staff, U.S. Army, February 2, 2000.

able to the Army is not necessarily a justification for the installations that house them. The schools could be equally valuable if they were housed on maneuver or training installations, permitting the Army to reduce its total number of installations.

- **The assessment ignores the installations of other services as potential sites for interservice consolidation.** During the 1995 BRAC process, DoD created joint cross-service groups to consider options for merging five support functions: depot maintenance, medical, test and evaluation, undergraduate pilot training, and laboratories. None of the four BRAC rounds has considered any substantial collocation of major training or combat activities, despite substantial land availability to do so. The absence of this broader thinking is not the fault of the Army; DoD would have to set such groundrules.
- **The process is shortsighted.** This is an important limitation because installation decisions may last for decades, even centuries. Long-term trends, such as those toward weapon systems with longer ranges and faster vehicles and aircraft, dictate a longer view of installations requirements, lest one-time opportunities to accommodate these expanding demands be missed. Further, since the longer term brings with it substantial uncertainties, it is important to build hedges into BRAC proposals.

Chapter Five

A PROPOSED PROCESS

This chapter addresses the shortcomings of the 1995 methodology, (Chapter Four) by proposing an alternative that eliminates them and embraces broader, systemic closures and realignments to use available installations more efficiently. Reduction of long-term costs, historically DoD's motivating factor in BRACs, is central to the proposed process, whose primary objective is the most efficient use of installations by reducing their assets to a minimum consistent with anticipated long-term requirements and external constraints. This objective implies an end state of multifunctional installations designed to make maximum use of physical assets, subject to environmental limitations, community impacts, and long-term cost.

Unlike the past process, which assessed each installation for realignment or closure independently, the proposed process would take a top-down, integrated perspective on installations as a set of assets to which necessary activities are to be assigned in the most efficient way. The process would consider all assets at all installations to be available to serve any appropriate function. It abandons the bottom-up, predetermined single-function view of past BRACs that valued installations only according to their current uses.

The methodology described here addresses only Army installations, but the process has obvious advantages for integrated multiservice analysis. Multiservice application of the methodology, while potentially much more beneficial, lies beyond the scope of this report.[1]

[1]This report stops short of recommending specific quantitative techniques for implementing the concepts recommended here. Others (Dell et al., 1994) have developed analytical tools that could be of use.

STEPS IN THE PROPOSED PROCESS

The proposed process contains five steps, which the following subsections describe in turn. Collectively, the five steps take into account the eight DoD criteria for selecting installations for closure or realignment.

Asset Inventory

In this step, all natural and man-made physical assets relevant to any projected Army function are listed for every installation, regardless of the functions each installation now supports. The features used in the installation assessment, shown earlier in Tables 3.2–3.5, provide a good starting point, but should be rationalized and modified. As pointed out earlier in this report, many of these features are redundant surrogates for transition costs. For example, the amount of unused office space at a post is important to know because the availability of such space reduces the cost of moving units there. But such space has no inherent value out of the context of the demand for it and therefore should not at the outset be assigned an inherent weight as was done in the 1995 BRAC analysis. Unused office space in excess of need represents a net liability rather than an asset because it generates costs without benefits. The value of an asset depends on its intended use and the amount of money that can be saved by using it instead of using alternative assets to meet requirements. Certainly, all potentially useful assets should be inventoried, but judgments about their worth should be reserved for the cost analysis.

In addition to physical assets, the inventory should include intangible factors at each installation, including environmental assessment, location-specific cost factors, and proximity to important private-sector assets. This full accounting permits later analysis to consider the broadest array of options for assigning functions to installations. This first step excludes two features of the installation assessment that limited the range of options considered. First, it excludes the limiting practice of preassigning installations to single or primary functions, which restricts the range of options the process could consider. Second, it avoids assigning category-specific weights to installation assets, which precludes objective assessments of installation assets without regard to the current mission of an installation.

This first step, inventorying assets, takes into account the second of the eight DoD selection criteria, the availability and condition of land and facilities. Closing installations with large maintenance backlogs can avoid costs and make such installations more attractive candidates than similar installations in better shape.

Estimate of Future Requirements

As described earlier, the way past BRACs have dealt with future requirements has two shortcomings: It sets a time limit of six years and, because it is restricted to currently programmed force structure and extent of forward stationing, fails to provide the foundation for hedging against the inevitable uncertainty associated with the programmed force structure and stationing. Because opportunities to close or realign installations come around so infrequently, basing decisions must remain valid for decades or centuries. And because requirements are certain to vary substantially over such long periods, it is equally important to hedge against a range of outcomes. Base closure decisions are often irreversible.

The proposed process would begin with the current national security strategy and force structure, as in the 1995 BRAC, but would augment that six-year baseline with an analysis that considers the important assumptions underpinning the requirements derived therefrom and the ways in which those assumptions may be violated. For example, the current programmed force structure calls for ten divisions, of which four brigades are forward stationed in Europe and two in Korea. An analysis of assumptions and their vulnerabilities might consider the assumption of ten divisions to be vulnerable. The analysis might conclude that an increase to 12 divisions is plausible but not likely enough to warrant hedging against by maintaining installation capacity. At the same time, it might consider the return of the four brigades in Europe to be likely enough to hedge against, even though it is not programmed. In such a case, the Army would submit a BRAC plan that retains sufficient installation capacity (either in active or standby status) to accommodate the plausible but unprogrammed return. A number of other important and vulnerable assumptions are worthy of consideration, including plausible changes in force mix, increased requirements for maneuver space, and more stringent environmental restrictions.

It is not clear whether a future law would need to permit explicit consideration of longer periods or hedges against uncertain outcomes. The last BRAC law (10 USC 2687, P.L. 101-510) required DoD to submit with its budget a six-year force-structure plan, including extent of forward stationing. While the law did not explicitly preclude consideration of longer-term or uncertain events, it certainly made no provision for them. Accordingly, if the Army were to pursue this proposed process, it would be useful to begin early to convince the Office of the Secretary of Defense and the administration that this is a good idea and to urge them to work with the appropriate congressional committees to shape new legislation that would permit consideration of such contingencies.

This step accommodates the first and third of the DoD selection criteria, current and future mission requirements and ability to accommodate contingency, mobilization, and future requirements.

Develop Alternative Allocations of Requirements to Assets

This is the most complex of the three steps and differs substantially from past practice principally in that it takes a holistic, integrated approach to the business of deciding where the full set of Army activities will be accomplished. The focus of the process moves from selecting installations for closure or realignment to assigning the whole set of Army functions to the set of installations in the most efficient way. The least useful or least efficient installations fall out of the process as excess to requirements, and their functions are transferred to other installations that can carry them out more efficiently or effectively. The step assumes nothing about where activities are undertaken today or the current principal functions of installations. These considerations come in later steps that estimate costs, including one-time transition costs. In effect, the step entails a zero-based assessment of the best places to conduct each mission and how best to utilize the assets of each installation fully to permit the maximum number of closures and realignments.

The step requires the development of a detailed process for actually allocating functions to installations. The process begins by translating requirements into the organizational activities necessary to meet them, then proceeds to clustering sets of activities at each installation to achieve the greatest operational synergy.

This step involves a subtle but important conceptual shift from the past practice of individually selecting installations for closure to one of optimizing the stationing of the entire set of activities. It moves from independent analysis of individual installations to systemic consideration of the whole. Further, it begins not with what is (even though that gets full consideration later in the proposed process) but instead with consideration of what might be.

The output of this step is a set of perhaps three or four integrated Army-wide stationing options that satisfy estimated requirements, with appropriate hedges. Each option may include a number of unit moves, implying a number of realignments and perhaps closures. The development of these options can rely on very rough cost analysis developed on the basis of data from the substantial BRAC experience of the last four rounds. An important unresolved procedural issue is how to narrow the number of potential options to a manageable number. External constraints and rough cost estimates will help narrow the field.

This step entails a creative process that develops alternative solutions for assigning activities to installations. The alternatives are evaluated in the final two steps, estimating the cost of each alternative and applying external constraints. This step sets the stage for consideration of the remaining five DoD criteria, two pertaining to cost and three pertaining to external constraints.

Estimate Cost of Alternatives

This step is the most like its counterpart in earlier BRACs. The costing, however, now includes aggregating the cost of each installation decision into an overall Army-wide cost for the alternative as a whole. This feature not only offers a summary estimate of overall costs and savings but permits analysts to take into account synergistic effects associated with multiple stationing decisions. For example, the relocation of organizations from several diverse small installations to a single, larger installation may offer economies of scale that can be reflected in reductions in base operating costs beyond those implied by individual relocation decisions.

But, in this step, individual installation decisions should retain their visibility to facilitate cost reestimation of alternatives if certain pieces

of an Army-wide alternative later drop out. As in the past, cost analysis includes the following components: one-time costs and savings, recurring costs and savings, and long-term net present value. Hence, the Cost of Base Realignments and Closure model used in past BRACs can, with modest modification, continue to serve the new process.[2]

This step accommodates the fourth and fifth DoD criteria, which are logically connected: cost and manpower implications and the extent and timing of potential savings.

Apply Constraints

By taking into account external constraints (environmental considerations and community impacts), this step modifies the alternatives to enhance their political viability. Constraints must be considered for every individual action within each broad Army-wide alternative, then for the alternative as a whole. Assessing the environmental and community impacts of each action probably needs to differ little from that done in past processes.

ASSESSING THE PROPOSED PROCESS

The ten proposed desirable properties of a BRAC process provide the basis for Table 5.1, which compares the 1995 process with the proposed one.

The proposed process should improve all six properties to a fully satisfactory extent. Most deficient in the 1995 process were the narrowness of the range of options and the consideration of future requirements and hedging, efficient use of assets, reduction of long-term costs, and improving operations. Because the proposed process takes an integrated, systemic approach to the analysis, it will inherently produce a broader range of options developed explicitly with hedging, reduced long-term cost, and the improvement of operations in mind.

---

[2]This model computes, for specific closure and realignment options, one-time and recurring costs and savings by type (e.g., construction, moving, freight, salary) and summarizes the changes into net-present value estimates.

Table 5.1

Comparison of the 1995 and Proposed Processes

Desired Property of the Process	Rating: 1995 Process	Rating: Proposed Process
Internal Properties		
Can be audited and reproduced	+	++
Maximizes objectivity and internal consistency	+	++
Uses separate and independent criteria	+	++
Breadth of Process		
Considers externalities	++	++
Provides complete option set	–	++
Considers current and future requirements	–	++
Hedges against important uncertainties	–	++
Outcomes		
Leads to efficient use of assets	–	++
Leads to reduced long-term cost	–	++
Leads to improved operations	–	++

The principal benefit in terms of auditability and reproducibility comes from the elimination of the highly subjective and undocumented assignment of weights to attributes of installations. With reduction in long-term cost as its central criterion, the proposed process completely avoids the complex and detailed installation assessment which, despite its quantitative basis, relied on the subjective assignment of weights that were entirely dependent on the preassignment of an installation to a principal function. Reliance on cost as a criterion also enhances the objectivity and internal consistency of the process and eliminates the hidden inclusion of cost in the many criteria of the installation assessment. Both processes properly consider externalities.

BIBLIOGRAPHY

Army—*See* Department of the Army.

Aspin, Les, *Report on the Bottom-Up Review*, Washington, D.C.: U.S. Department of Defense, October 1993.

Dardia, Michael, Kevin F. McCarthy, Jesse Malkin, and Georges Vernez, *The Effects of Military Base Closures on Local Communities: A Short-Term Perspective*, Santa Monica, Calif.: RAND, MR-667-OSD, 1996.

Defense Base Closure and Realignment Commission, *Report to the President, 1991*, Washington, D.C., July 1991.

_____, *1993 Report to the President*, Washington, D.C., July 1993.

_____, *1995 Report to the President*, Washington, D.C., July 1995.

Dell, Robert F., Charles V. Fletcher, Samuel H. Parry, and Richard E. Rosenthal, *Modeling Army Maneuver and Training Base Realignment and Closure*, Monterey, Calif.: Naval Postgraduate School, NPS-OR-94-0012, January 1994.

Dewar, James A., Carl H. Builder, William M. Hix, and Morlie H. Levin, *Assumption-Based Planning: A Planning Tool for Very Uncertain Times*, Santa Monica, Calif.: RAND, MR-114-A, 1993.

Fletcher, Charles V., *Determining the Military Value of Army Installations During Base Realignment and Closure*, Fort Leavenworth, Kan.: U.S. Army Command and General Staff College, 1996.

GAO—*See* General Accounting Office.

Peay III, J. H. Binford, *The Army Stationing Strategy*, Memorandum, Washington, D.C.: Headquarters, U.S. Department of the Army, DAMO-FDO, July 14, 1994.

Sorenson, David S., *Shutting Down the Cold War: The Politics of Military Base Closure*, New York: St. Martin's Press, 1998.

TABS—See U.S. Department of the Army (1995).

U.S. Department of the Army, *Recommendations: Detailed Analysis*, Washington, D.C., April 1991.

_____ *A Review of the Army's BRAC Installation Assessment Methodology*, Fort Belvoir, Va.: U.S. Army Engineer Strategic Studies Center, August 1992.

_____, *The Army Basing Study: Base Closure and Realignment, 1993*, Vol III, Washington, D.C., March 1993.

_____, *Mid-Course Guidance*, briefing, Washington, D.C., October 11, 1994a.

_____, *BRAC 95: Update*, Army Basing Study briefing, Washington, D.C., November 9, 1994b.

_____, *BRAC 95: USA/VCSA Update*, briefing, Washington, D.C., November 17, 1994c.

_____, *BRAC 95: In Progress Review*, Army Basing Study briefing, Washington, D.C., December 9, 1994d.

_____, *BRAC 95: In Progress Review*, Army Basing Study briefing, Washington, D.C., December 19, 1994e.

_____, *BRAC 95: In Progress Review*, Army Basing Study briefing, Washington, D.C., January 12, 1995a.

_____, *BRAC 95: In Progress Review*, Army Basing Study briefing, Washington, D.C., January 25, 1995b.

_____, *The Army Basing Study: Base Closure and Realignment*, 1995, Washington, D.C., March 1995c, Vols. I–V.

U.S. General Accounting Office, *Military Bases: Observations on the Analysis Supporting Proposed Closures and Realignments*, NSIAD-91-224, May 1991.

_____, *Military Bases: Analysis of DoD's Recommendations and Selection Process for Closures and Realignments*, NSIAD-93-173, April 1993.

_____, *Military Bases: Analysis of DOD's 1995 Process and Recommendations for Closure and Realignment*, NSIAD-95-133, April 1995.

_____, *Military Bases: Lessons Learned From Prior Base Closure Rounds*, NSIAD-97-151, July 1997.

_____, *Military Bases: Status of Prior Base Realignment and Closure Rounds*, NSIAD-99-36, December 1998.

10 U.S.C. 2687 (P.L. 101-510), enacted November 5, 1990.