DCN 159

CLOSE HOLD

Material contained herein is sensitive. Deputy Secretary of Defense guidance restricts the release of data or analysis pertaining to evaluation of military bases for closure or realignment until the Secretary of Defense forwards recommendations to the Base Closure Commission on March 1, 1995. All individuals handling this information should take steps to protect the material herein from disclosure.

BRAC 95
Steering Group

Office of the Deputy Assistant Secretary of Defense
(Economic Reinvestment and Base Realignment and Closure)

Base Closure and Utilization
Room 3D814
(703) 697-8048/8050

CLOSE HOLD

BRAC 95
STEERING GROUP

BRAC 95
Steering Group

Name	Organization	Phone	Fax
Chair			
Mr. Robert Bayer	OSD ER&BRAC	697-1771	
Members/Alternates			
Mr. Mike Owen	Army	695-9508	614-4571
MG Theodore Stroup	Army Alternate	695-4617	
Mr. Charles Nemfakos	Navy	681-0450	824-2009
CAPT Brian Buzzell	Navy Alternate	681-0475	824-2009
Mr. John Turnquist	Navy Alternate	681-0468	824-2009
Mr. Jim Boatright	Air Force	695-3592	693-7568
BG Charles Heflebower	Air Force Alternate	697-2405	
Mr. Roy Willis	Study Team Leader, Depots	697-7968	695-1993
Mr. Craig Dorman	Study Team Leader, Laboratories	697-9215	693-7042
Mr. Nicholas Toomer	Co-Study Team Leader, Test & Evaluation	695-1565	
Mr. John Bolino	Co-Study Team Leader, Test & Evaluation	697-4819	
RADM Harold Koenig	Study Team Leader, Hospitals	697-8973	614-3537
Mr. Lou Finch	Study Team Leader, UPT	614-3970	
Mr. Mike Berger	Study Team Leader, Economic Impact	693-7267	
Dr. David McNichol	PA&E	695-0721	
BG Anthony Tolin	Joint Staff		
CAPT Gumbert	Joint Staff Alternate		
Col Mike Donnelly	OSD General Counsel	614-4862	693-6367
Mr. John Rosamond	OSD Reserve Affairs	695-1677	693-5371
Mr. Joseph Smith	OSD Comptroller	697-9198	693-6392
Mr. Joseph Sikes	OSD Environmental Security	614-5356	695-1493

BRAC 95

Steering Group Meeting

January 11, 1994

Minutes

The DASD (ER&BRAC) chaired the first Steering Group meeting acting for the ASD(ES). The meeting began at 14:00, the agenda and a list of the principal attendees are attached. After announcing that the Under Secretary of Defense (Acquisition and Technology) had signed a memorandum forming the joint cross-service groups and that the Deputy Secretary of Defense had signed the BRAC 95 "Kick-Off" memorandum (both attached), the chair stated the requirement for minutes (but not transcripts) of each meeting. The Chair then asked if there were any objections to designating the Director, Base Closure and Utilization, Mr. Doug Hansen, as the Steering Group's Executive Secretary (none were received). The chair, stating that Military Department BRAC leaders, Mr. Paul Johnson, Mr. Charlie Nemfakos and Mr. Jack Rittenhouse were in attendance, asked for the other members of the steering group to introduce themselves. RADM Koenig introduced himself as the Health Affairs representative sitting in for Acting Assistant Secretary Martin who will chair the Military Treatment Facilities Joint Cross-Service Group. RADM Koenig will be the study team leader for this group. Mr. Roy Willis stated that he would be the study team leader and Mr. Klugh, the DUSD(L), would chair the Depot Maintenance Joint Cross-Service Group. Mr. Craig Dorman then introduced himself as the Laboratories team leader which would be chaired by Ms. Anita Jones, the Director, Defense Research and Engineering. John Bolino stated that he was the study team leader for the Test and Evaluation Group which would be co-chaired by Mr. Adolph. Mr. Lee Frame, stated that he would be the other co-chair of the Test and Evaluation group and Mr. Nicholas Toomer would be his study team leader. Mr. Lou Finch then introduced himself as the chair of the Undergraduate Pilot Training group with Mr. Mike Parmentier as his study team leader. Mr. Robert Bayer then introduced himself as the chair of the Economic Impact Group with Mr. Mike Berger as his study team leader. The DLA representative, Ms. Marge McManamay, then introduced herself as present at the meeting. Some discussion ensued regarding whether there should be a Comptroller representative on each group. It was stated that while the Deputy Secretary's Kick-Off memorandum designated who must be on each group it also allowed each group chairperson to include representatives from any organization they considered appropriate.

A discussion of the Deputy Secretary's guidance concerning a minimum reduction in infrastructure of a further 15% of plant replacement value then took place. Discussion keyed on how issues such as privatization and the statutory requirement of a 60-40 public-private depot maintenance split would factor into

the capacity analyses. This led to a discussion on when guidance on these issues could realistically be expected. This, in turn, led to a discussion on what (and when) the Services will require from the joint cross service-groups since this information would factor into data calls, capacity analyses and formulation of alternative reduction targets (attached). Discussion in this regard concluded with statements concerning the Steering Group's ability to emphasize the importance of and check on the timely completion of policy issuance and joint cross-service group progress. In this regard it was decided that February 28th would be the deadline for identification to the Review Group of those policy issues which would complicate the BRAC 95 process if not resolved.

A representative from the Logistics Management Institute (LMI), Mr. Bill Moore, then made a short presentation (attached) concerning support LMI could provide to the joint cross-service groups.

The possibility of changing the Base Closure Selection Criteria was then discussed (attached). The group discussed recommendations from a variety of sources to improve the criteria and/or to reflect the fact that BRAC 95 will be conducted differently from previous rounds. Discussion ensued concerning whether the criteria should be changed (a difficult and time consuming process) or whether implementing policy guidance could instead be issued. It was decided that a working group would be formed to evaluate the need to change the criteria. This working group's first meeting was scheduled for the next day with a Steering Group meeting to be scheduled shortly to evaluate the working group's results before making a final recommendation to the Review Group.

A discussion on the force structure plan was then conducted. It was pointed out that the level of detail contained in the Bottom-Up Review (which would be the source for the interim force structure plan now in coordination) varied between the Services. However, it was also pointed out that the Future Years Defense Plan (FYDP) contained all the detail that would be required and, therefore, the current format (previous examples attached) offered an excellent summary that should not be changed.

The meeting then concluded at 15:30.

Approved: Robert E. Bayer
Acting Chairman

BASE CLOSURE SELECTION CRITERIA

In selecting military installations for closure or realignment, the Department of Defense, giving priority consideration to military value (the first four criteria below), will consider:

Military Value

1. The current and future mission requirements and the impact on operational readiness of the Department of Defense's total force.

2. The availability and condition of land, facilities and associated airspace at both the existing and potential receiving locations.

3. The ability to accommodate contingency, mobilization, and future total force 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 costs and savings, including the number of years, beginning with the date of completion of the closure or realignment, for the savings to exceed the costs.

Impacts

6. The economic impact on communities.

7. The ability of both the existing and potential receiving communities' infrastructure to support forces, missions and personnel.

8. The environmental impact.

LIST OF POSSIBLE CHANGES TO BASE CLOSURE SELECTION CRITERIA

- Change selection criteria to include the direct costs of closures and realignments to other Federal departments and agencies and, to the extent possible, to state and local governments (Source: FY 94 DoD Authorization Act)

- Change selection criteria to explicitly exclude environmental costs (including unexploded ordinance cleanup costs) as a cost of closure (Source: Commission)

- Change selection criteria to place greater emphasis on the costs of doing business especially for business-like functions such as depot maintenance (Source: GAO)

- During BRAC 95, place more emphasis on the shortage of funds to maintain infrastructure to encourage maximum closures and realignments (Source: Bottom-Up Review)

- Change selection criteria on economic impact to include cumulative economic impact (Source: Congress)

- Change selection criteria to place more emphasis on cumulative impact over military value and cost savings (Source: Congress)

- Change selection criteria to factor impacts of the Clean Air and Clean Water Acts on relocating units (Source: Internal DoD)

- Change selection criteria to place more emphasis on the cost effectiveness of recommendations (military value compared to the cost and savings) (Source: Internal DoD)

BASE CLOSURE STEERING GROUP MEETING

January 11, 1994 2:00 P.M. Rm 3D-1019

AGENDA

- **Joint Cross-Service Group Action Plans**
  - **Products and Milestones (handout)**
  - **LMI Help (handout)**
- **Selection Criteria**
  - **Should We Change Them?**
  - **If So, How? (handout)**
- **Force Structure Plan (handout)**
  - **How Specific?**
- **Other Business**

BRAC 95

Steering Group Meeting

January 11, 1994

Key Attendees

Mr. Robert Bayer, OSD (Economic Reinvestment and BRAC)
Mr. Doug Hansen, OSD (Base Closure and Utilization)
Mr. Paul Johnson, Army
Mr. Charles Nemfakos, Navy
Mr. Jack Rittenhouse, Air Force
Mr. Lou Finch, OSD (Personnel and Readiness)
Ms. Marge McManamay, DLA
Mr. Bill Moore, LMI
Mr. Lee Frame, OSD (OT&E)
Mr. John Bolino, OSD (T&E)
Mr. Craig Dorman, OSD (DR&E)
Mr. Roy Willis, OSD (Logistics)
RADM Harold Koenig, OSD (Health Affairs)
Col Mike Donnelly, OGC
COL Jim Kurtz, Joint Staff
Mr. John Rosamond, OSD (Reserve Affairs)
Mr. Joseph Smith, OSD Comptroller
Mr. John Morgan, OSD (PA&E)
Mr. Joseph Sikes, OSD (Environmental Security)

THE UNDER SECRETARY OF DEFENSE

3010 DEFENSE PENTAGON
WASHINGTON, DC 20301-3010

ACQUISITION AND
TECHNOLOGY

JAN 03 1994

MEMORANDUM FOR SECRETARIES OF THE MILITARY DEPARTMENTS
CHAIRMAN OF THE JOINT CHIEFS OF STAFF
UNDER SECRETARIES OF DEFENSE
DIRECTOR, DEFENSE RESEARCH AND ENGINEERING
ASSISTANT SECRETARIES OF DEFENSE
COMPTROLLER
GENERAL COUNSEL
INSPECTOR GENERAL
DIRECTOR, OPERATIONAL TEST AND EVALUATION
ASSISTANTS TO THE SECRETARY OF DEFENSE
DIRECTOR, ADMINISTRATION AND MANAGEMENT
DIRECTORS OF THE DEFENSE AGENCIES

SUBJECT: 1995 Base Realignments and Closures (BRAC 95)

As part of the BRAC 95 process we will establish a BRAC 95 Review Group, a BRAC 95 Steering Group and six BRAC 95 Joint Cross-Service Groups to oversee the process and examine areas with significant potential for cross-service impacts. Since these groups are a critical part of the BRAC 95 process I'd like you to form the groups now and begin work.

DoD Components designated by the attachment to serve as members of the Review Group and the Steering Group should provide their nominations of individuals to serve on each group to the Assistant Secretary of Defense (Economic Security) by January 12, 1994. DoD Components designated by the attachment to serve as members on the six joint cross service groups shall provide their nominations of individuals to serve on each group to the group chairperson(s). Please provide your nominations to the chairpersons by January 12, 1994, with a copy to the Assistant Secretary of Defense (Economic Security).

Finally, I would appreciate receiving action plans and milestones from each of the six cross-service groups by January 21, 1994. I anticipate scheduling a BRAC 95 Review Group meeting during the week of January 24-28 to evaluate these plans and milestones. The schedule is tight because the BRAC 95 Joint Cross-Service Groups must issue their BRAC 95 analysis guidance no later than March 31, 1994. These tasks are critical to providing a solid analytical foundation in these essential cross-service functional areas.

John M. Deutch

Attachment

BRAC 95 Process Joint Groups

The BRAC 95 process must enhance opportunities for consideration of cross-service tradecffs and multi-service use of the remaining infrastructure. Since BRAC 95 is the last round of closures authorized under Public Law 101-510, these efforts are critical to balancing the DoD base and force structures and to preserving readiness through the elimination of unnecessary infrastructure. Sharing authority among the Military Departments, Defense Agencies and the Office of the Secretary of Defense is essential to sound decision making and taking advantage of available cross-service asset sharing opportunities. The following BRAC 95 joint groups are hereby established:

BRAC 95 Review Group

The Under Secretary of Defense for Acquisition and Technology (USD(A&T)) will chair a senior level BRAC 95 Review Group to oversee the entire BRAC 95 process. The members of the BRAC 95 Review Group will be: a senior level representative from each Military Department; the chairperson of the BRAC 95 Steering Group; the chairperson(s) of each BRAC 95 Joint Cross-Service Group; senior representatives from the Joint Staff, DoD Comptroller (COMP), Program Analysis and Evaluation (PA&E), Reserve Affairs (RA), General Counsel (GC), Environmental Security and the Defense Logistics Agency (DLA); and such other members as the USD(A&T) considers appropriate. The BRAC 95 Review Group authorities include, but are not limited to: reviewing BRAC 95 analysis policies and procedures; reviewing excess capacity analyses; establishing closure or realignment alternatives and numerical excess capacity reduction targets for consideration by the DoD Components; reviewing BRAC 95 work products of the DoD Components and BRAC 95 Joint Cross-Service Groups; and making recommendations to the Secretary of Defense, including cross-service tradeoff recommendations and recommendations on submission of below-threshold actions to the 1995 Commission.

BRAC 95 Steering Group

The Assistant Secretary of Defense for Economic Security (ASD(ES)) will chair a BRAC 95 Steering Group of study team leaders from: the Military Departments; DLA; each Joint Cross-Service Group; representatives from the Joint Staff, COMP, PA&E, RA, GC and Environmental Security; and such other members as the ASD(ES) considers appropriate. The purpose of the BRAC 95 Steering Group is to assist the BRAC 95 Review Group in exercising its authorities and to review DoD Component supplementary BRAC 95 guidance.

BRAC 95 Joint Cross-Service Groups

The purpose of the five functional area joint cross-service groups is: to determine the common support functions and bases to be addressed by each cross-service group; to establish the guidelines, standards, assumptions, measures of merit, data elements and milestone schedules for DoD Component conduct of cross-service analyses of common support functions; to oversee DoD Component cross-service analyses of these common support functions; to identify necessary outsourcing policies and make recommendations regarding those policies; to review excess capacity analyses; to develop closure or realignment alternatives and numerical excess capacity reduction targets for consideration in such analyses; and to analyze cross-service tradeoffs.

The purpose of the economic impact joint cross-service group is: to establish the guidelines for measuring economic impact and, if practicable, cumulative economic impact; to analyze DoD Component recommendations under those guidelines; and to develop a process for analyzing alternative closures or realignments necessitated by cumulative economic impact considerations, if necessary.

The six BRAC 95 Joint Cross-Service Groups are:

o Depot Maintenance: The group will be chaired by the Deputy Under Secretary Defense for Logistics (DUSD(L)) with members from each Military Department, the Joint Staff and DLA, and other offices as considered appropriate by the DUSD(L). The DASD(ER&BRAC) and the Deputy Assistant Secretary of Defense for Production Resources will also serve as members.

o Test and Evaluation: The group will be jointly chaired by the Director, Test and Evaluation (D,T&E) and the Director, Operational Test and Evaluation (D,OT&E) with members from each Military Department, Defense Research and Engineering (DR&E), and other offices as considered appropriate by the chairpersons. The DASD(ER&BRAC) will also serve as a member.

o Laboratories: The group will be chaired by the Director, Defense Research and Engineering (D,DR&E) with members from each Military Department, T&E, OT&E and other offices as considered appropriate by the D,DR&E. The DASD(ER&BRAC) will also serve as a member.

o Military Treatment Facilities including Graduate Medical Education: The group will be chaired by the Assistant Secretary of Defense for Health Affairs (ASD(HA)) with members from each Military Department and other offices as considered appropriate by ASD(HA). The DASD(ER&BRAC) will also serve as a member.

o Undergraduate Pilot Training: The group will be chaired by the Assistant Secretary of Defense for Personnel and Readiness (ASD(P&R)) with members from each Military Department and others as considered appropriate by the ASD(P&R). The DASD(ER&BRAC) will also serve as a member.

o Economic Impact: The group will be chaired by Deputy Assistant Secretary of Defense for Economic Reinvestment and BRAC (DASD(ER&BRAC)) with members from each Military Department, the Office of Economic Adjustment (OEA) and other offices as considered appropriate by the DASD(ER&BRAC).

THE DEPUTY SECRETARY OF DEFENSE

WASHINGTON, D.C. 20301

7 JAN 1994

MEMORANDUM FOR SECRETARIES OF THE MILITARY DEPARTMENTS
CHAIRMAN OF THE JOINT CHIEFS OF STAFF
UNDER SECRETARIES OF DEFENSE
DIRECTOR, DEFENSE RESEARCH AND ENGINEERING
ASSISTANT SECRETARIES OF DEFENSE
COMPTROLLER
GENERAL COUNSEL
INSPECTOR GENERAL
DIRECTOR, OPERATIONAL TEST AND EVALUATION
ASSISTANTS TO THE SECRETARY OF DEFENSE
DIRECTOR, ADMINISTRATION AND MANAGEMENT
DIRECTORS OF THE DEFENSE AGENCIES

SUBJECT: 1995 Base Realignments and Closures (BRAC 95)

Reducing the Department's unneeded infrastructure through base closures and realignments is a top Defense priority. We have made good progress so far, but there are more reductions we can and must accomplish. The 1995 round of base realignments and closures (BRAC 95) is the last round of closures authorized under Public Law 101-510. Hence, our efforts to balance the DoD base and force structures, and preserve readiness through the elimination of unnecessary infrastructure, are critical. Consequently, we must begin the BRAC 95 process now.

I look to you, individually and collectively, to recommend further infrastructure reductions consistent with the Defense Guidance and DoD's planned force reductions. The Defense Guidance BRAC 95 goal of an overall 15% reduction in plant replacement value should be considered a minimum DoD-wide goal.

Significant reductions in infrastructure and overhead costs can only be achieved after careful studies address not only structural changes to the base structure, but also operational and organizational changes, with a strong emphasis on cross-service utilization of common support assets.

The attached guidance establishes policy, procedures, authorities and responsibilities for selecting bases for realignment or closure under Public Law 101-510, as amended by Public Law 102-190 and Public Law 103-160. This guidance supersedes Deputy Secretary of Defense memoranda of May 5, 1992, and all other Office of the Secretary of Defense guidance issued regarding making recommendations for the 1993 round of base realignments and closures.

William J. Perry

Attachment

00178

1995 Base Realignments and Closures (BRAC 95)
Policy, Procedures, Authorities and Responsibilities

Purpose

Part A, Title XXIX of Public Law 101-510, as amended by Public Law 102-190 and Public Law 103-160, establishes the exclusive procedures under which the Secretary of Defense may pursue realignment or closure of military installations inside the United States, with certain exceptions. The law established independent Defense Base Closure and Realignment Commissions to review the Secretary of Defense's recommendations in calendar years 1991, 1993 and 1995.

The guidance herein establishes the policy, procedures, authorities and responsibilities for selecting bases for realignment or closure for submission to the 1995 Defense Base Closure and Realignment Commission (the 1995 Commission).

This guidance supersedes Deputy Secretary of Defense memoranda of May 5, 1992, and all other Office of the Secretary of Defense Guidance for the 1993 round of closures.

Goals

DoD Components must reduce their base structure capacity commensurate with approved roles and missions, planned force drawdowns and programmed workload reductions over the FYDP. For BRAC 95, the goal is to further reduce the overall DoD domestic base structure by a minimum of 15 percent of DoD-wide plant replacement value. Preserving readiness through the elimination of unnecessary infrastructure is critical to our national security.

It is DoD policy to make maximum use of common support assets. DoD Components should, throughout the BRAC 95 analysis process, look for cross-service or intra-service opportunities to share assets and look for opportunities to rely on a single Military Department for support.

Applicability

This guidance applies to those base realignment and closure recommendations which must, by law, be submitted to the 1995 Defense Base Closure and Realignment Commission (the 1995 Commission) for review. This guidance also applies to recommendations which are forwarded to the 1995 Commission for review, though not required to be forwarded under the law.

This guidance does not apply to implementing approved closures and realignments resulting from the recommendations of the 1991 and 1993 Defense Base Closure and Realignment Commissions.

Public Law 101-510, Numerical Thresholds

Public Law 101-510 stipulates that no action be taken to close or realign an installation that exceeds the civilian personnel numerical thresholds set forth in the law, until those actions have obtained final approval pursuant to the law. The numerical thresholds established in the law require its application for the closure of installations with at least 300 authorized civilian personnel. For realignments, the law applies to actions at installations with at least 300 authorized civilian personnel which reduce and relocate 1000 civilians or 50% or more of the civilians authorized.

DoD Components must use a common date to determine whether Public Law 101-510 numerical thresholds will be met. For BRAC 95, the common date will be September 30, 1994. Nonappropriated fund employees are not direct hire, permanent civilian employees of the Department of Defense, as defined by Public Law 101-510, and therefore should not be considered in determining whether the numerical thresholds of the law will be met.

Exceptions

Public Law 101-510, as amended, does not apply to actions which:

o Implement realignments or closures under Public Law 100-526, relating to the recommendations of the 1988 Defense Secretary's Commission on Base Realignment and Closure (the 1988 Commission);

o Study or implement realignments or closures to which Section 2687 of Title 10, United States Code, is not applicable;

o Reduce force structure. Reductions in force structure may be made under this exception even if the units involved were designated to relocate to a receiving base by the 1988, 1991, or 1993 Commission; or

o Impact any facilities used primarily for civil works, rivers and harbor projects, flood control, or other projects not under the primary jurisdiction or control of the Department of Defense.

Activities in Leased Space

DoD Component activities located in leased space are subject to Public Law 101-510, as amended. Additional guidance on how to apply this requirement will be issued by the Under Secretary of Defense for Acquisition and Technology.

Policy Guidance

Basis for Recommendations

Base realignment, closure or consolidation studies that could result in a recommendation to the 1995 Commission of a base closure or realignment must meet the following requirements:

o The studies must have as their basis the Force Structure Plan required by Section 2903 of Public Law 101-510;

o The studies must be based on the final criteria for selecting bases for closure and realignment required by Section 2903; and

o The studies must be based on analyses of the base structure by like categories of bases using: objective measures for the selection criteria, where possible; the force structure plan; programmed workload over the FYDP; and military judgement in selecting bases for closure and realignment.

o The studies must consider all military installations inside the United States (as defined in the law) on an equal footing, including bases recommended for partial closure, realignment, or designated to receive units or functions by the 1988, 1991 or 1993 Commissions.

Cross-Service Opportunities

DoD Components and BRAC 95 Joint Cross-Service Groups should, where operationally and cost effective, strive to: retain in only one Service militarily unique capabilities used by two or more Services; consolidate workload across the Services to reduce capacity; and assign operational units from more than one Service to a single base.

Changes to Previous Recommendations

DoD components may propose changes to previously approved designated receiving base recommendations of the 1988, 1991 and 1993 Commissions provided such changes are necessitated by revisions to force structure, mission or organization, or significant revisions to cost effectiveness that have occurred

since the relevant commission recommendation was made. Documentation for such changes must involve clear military value or significant savings, and be based on the final criteria, the force structure plan and the policy guidance for the BRAC 95 process.

Authorities

The BRAC 95 process must enhance opportunities for consideration of cross-service tradeoffs and multi-service use of the remaining infrastructure. Since BRAC 95 is the last round of closures authorized under Public Law 101-510, these efforts are critical to balancing the DoD base and force structures and to preserving readiness through the elimination of unnecessary infrastructure. Sharing authority among the Military Departments, Defense Agencies and the Office of the Secretary of Defense is essential to sound decision making and taking advantage of available cross-service asset sharing opportunities. The authorities of the DoD Components and the joint groups established by this policy guidance follow and are depicted in Appendix A.

BRAC 95 Review Group

The Under Secretary of Defense for Acquisition and Technology (USD(A&T)) will chair a senior level BRAC 95 Review Group to oversee the entire BRAC 95 process. The members of the BRAC 95 Review Group will be: a senior level representative from each Military Department; the chairperson of the BRAC 95 Steering Group; the chairperson(s) of each BRAC 95 Joint Cross-Service Group; senior representatives from the Joint Staff, DoD Comptroller (COMP), Program Analysis and Evaluation (PA&E), Reserve Affairs (RA), General Counsel (GC), Environmental Security and the Defense Logistics Agency (DLA); and such other members as the USD(A&T) considers appropriate. The BRAC 95 Review Group authorities include, but are not limited to: reviewing BRAC 95 analysis policies and procedures; reviewing excess capacity analyses; establishing closure or realignment alternatives and numerical excess capacity reduction targets for consideration by the DoD Components; reviewing BRAC 95 work products of the DoD Components and BRAC 95 Joint Cross-Service Groups; and making recommendations to the Secretary of Defense, including cross-service tradeoff recommendations and recommendations on submission of below-threshold actions to the 1995 Commission.

BRAC 95 Steering Group

The Assistant Secretary of Defense for Economic Security (ASD(ES)) will chair a BRAC 95 Steering Group of study team leaders from: the Military Departments; DLA; each Joint Cross-Service Group; representatives from the Joint Staff, COMP, PA&E, RA, GC and Environmental Security; and such other members as the ASD(ES) considers appropriate. The purpose of the BRAC 95 Steering Group is to assist the BRAC 95 Review Group in exercising its authorities and to review DoD Component supplementary BRAC 95 guidance.

BRAC 95 Joint Cross-Service Groups

BRAC 95 Joint Cross-Service Groups are hereby established in six areas with significant potential for cross-service impacts in BRAC 95.

The purpose of the five functional area joint cross-service groups is: to determine the common support functions and bases to be addressed by each cross-service group; to establish the guidelines, standards, assumptions, measures of merit, data elements and milestone schedules for DoD Component conduct of cross-service analyses of common support functions; to oversee DoD Component cross-service analyses of these common support functions; to identify necessary outsourcing policies and make recommendations regarding those policies; to review excess capacity analyses; to develop closure or realignment alternatives and numerical excess capacity reduction targets for consideration in such analyses; and to analyze cross-service tradeoffs.

The purpose of the economic impact joint cross-service group is: to establish the guidelines for measuring economic impact and, if practicable, cumulative economic impact; to analyze DoD Component recommendations under those guidelines; and to develop a process for analyzing alternative closures or realignments necessitated by cumulative economic impact considerations, if necessary.

BRAC 95 Joint Cross-Service Groups shall complete the analytical design tasks above and issue guidance to the DoD Components, after review by the BRAC 95 Review Group, no later than March 31, 1994. The six BRAC 95 Joint Cross-Service Groups are:

o Depot Maintenance: The group will be chaired by the Deputy Under Secretary Defense for Logistics (DUSD(L)) with members from each Military Department, the Joint Staff and DLA, and other offices as considered appropriate by the DUSD(L). The DASD(ER&BRAC) and the Deputy Assistant Secretary of Defense for Production Resources will also serve as members.

o Test and Evaluation: The group will be jointly chaired by the Director, Test and Evaluation (D,T&E) and the Director, Operational Test and Evaluation (D,OT&E) with members from each Military Department, Defense Research and Engineering (DR&E), and other offices as considered appropriate by the chairpersons. The DASD(ER&BRAC) will also serve as a member.

o Laboratories: The group will be chaired by the Director, Defense Research and Engineering (D,DR&E) with members from each Military Department, T&E, OT&E and other offices as considered appropriate by the D,DR&E. The DASD(ER&BRAC) will also serve as a member.

o Military Treatment Facilities including Graduate Medical Education: The group will be chaired by the Assistant Secretary of Defense for Health Affairs (ASD(HA)) with members from each Military Department and other offices as considered appropriate by ASD(HA). The DASD(ER&BRAC) will also serve as a member.

o Undergraduate Pilot Training: The group will be chaired by the Assistant Secretary of Defense for Personnel and Readiness (ASD(P&R)) with members from each Military Department and others as considered appropriate by the ASD(P&R). The DASD(ER&BRAC) will also serve as a member.

o Economic Impact: The group will be chaired by Deputy Assistant Secretary of Defense for Economic Reinvestment and BRAC (DASD(ER&BRAC)) with members from each Military Department, the Office of Economic Adjustment (OEA) and other offices as considered appropriate by the DASD(ER&BRAC).

DoD Components

The Secretaries of the Military Departments, the Directors of the Defense Agencies, and the Heads of other DoD Components shall (without delegation) submit their recommendations for base realignments or closures under Public Law 101-510, as amended, to the Secretary of Defense. Recommendations and supporting documentation shall be delivered to the Assistant Secretary of Defense for Economic Security for appropriate processing and forwarding to the Secretary of Defense.

Heads of DoD Components will designate the individuals to serve on the joint groups as described above.

Coordination

The joint groups and DoD Components, in pursuing their BRAC 95 work, should coordinate with each other and should take into account other analyses or studies external to the BRAC process which may impact their deliberations. For example, the Test and Evaluation joint group should consider input from the Test and Evaluation Executive Agent Board of Directors.

USD(A&T) -- Additional Guidance

The Under Secretary of Defense for Acquisition and Technology (USD(A&T)) may issue such instructions as may be necessary: to implement these policies, procedures, authorities and responsibilities; to ensure timely submission of work products to the BRAC 95 Review Group and Joint Cross-Service Groups, the Secretary of Defense and the 1995 Commission; and, to ensure consistency in application of selection criteria, methodology and reports to the Secretary of Defense, the 1995 Commission and the Congress. The authority and duty of the Secretary of Defense to issue regulations under Title XXIX of Public Law 101-510, as amended, is hereby delegated to the USD(A&T). The USD(A&T) should exercise this authority in coordination with other DoD officials as appropriate.

Responsibilities

Selection Criteria

The BRAC 95 Review Group, chaired by the USD(A&T), will make a recommendation to the Secretary of Defense on whether an amendment to the selection criteria is appropriate no later than January 31, 1994. If the recommendation is to amend the criteria, the recommendation will include the proposed amendment.

If the Secretary of Defense approves amending the criteria, USD(A&T) will publish the proposed amendment in the Federal Register by February 15, 1994, for a 30 day public comment period. The BRAC 95 Review Group will review the public comments received, incorporate appropriate comments and make a recommendation to the Secretary of Defense on the final criteria no later than March 31, 1994.

Force Structure Plan

The Chairman of the Joint Chiefs of Staff, in coordination with the Under Secretary of Defense for Policy (USD(P)), the Under Secretary of Defense for Acquisition and Technology (USD(A&T)), the Assistant Secretary of Defense for Reserve Affairs, General Counsel, DoD Comptroller, Director Program

Analysis and Evaluation, and such other officials as may be appropriate, shall develop the force structure plan in accordance with Public Law 101-510, as amended, and submit it to the Secretary of Defense for approval. Pending issuance of the final force structure plan by the Secretary of Defense, DoD Components shall use an interim force structure plan to be developed and issued in accordance with the above coordination procedures by the Chairman of the Joint Chiefs of Staff. The interim force structure guidance shall be issued no later than January 31, 1994. Additional force structure guidance shall be issued as soon as practicable after the FY96-FY01 Program Review is completed in the Summer of 1994. The final force structure plan shall be issued as soon as possible after final force decisions are made during the preparation of the FY96 budget, but no later than December 15, 1994. The interim and final force structure plans must include guidance on overseas deployed forces.

Nominations

Public Law 101-510, as amended, requires that commissioners be nominated by the President no later than January 3, 1995, or the 1995 base closure process will be terminated. The Counselor to the Secretary of Defense and Deputy Secretary of Defense will coordinate all matters relating to the Secretary's recommendations to the President for appointments to the 1995 Commission. All inquires from individuals interested in serving on the Commission should be referred to the Counselor.

Commission Support

The Under Secretary of Defense for Acquisition and Technology (USD(A&T)), assisted by the Director of Administration and Management (D,A&M), will provide the Department's support to the 1995 Commission.

Primary Point of Contact

The USD(A&T) shall be the primary point of contact for the Department of Defense with the 1995 Commission and the General Accounting Office (GAO). Each DoD component shall designate to USD(A&T) one or more points of contact with the 1995 Commission and the GAO. The USD(A&T) shall establish procedures for interaction with the 1995 Commission and the GAO.

Internal Controls

The DoD Inspector General shall be available to assist the DoD Components in developing, implementing and evaluating internal control plans.

Depot Maintenance Outsourcing and Industrial Base Considerations

USD(A&T) is currently analyzing depot maintenance outsourcing considerations and is assessing public and private industrial base capabilities. Key policy decisions resulting from this review should be promulgated, if practicable, by March 1, 1994, in order to maximize possible efficiencies in maintenance depot infrastructure.

Procedures

Record Keeping

DoD Components and joint groups empowered by this memorandum to participate in the BRAC 95 analysis process shall, from the date of receipt of this memorandum, develop and keep:

- Descriptions of how base realignment and closure policies, analyses and recommendations were made, including minutes of all deliberative meetings;

- All policy, data, information and analyses considered in making base realignment and closure recommendations;

- Descriptions of how DoD Component recommendations met the final selection criteria and were based on the final force structure plan; and

- Documentation for each recommendation to the Secretary of Defense to realign or close a military installation under the law.

Internal Controls

DoD Components and joint groups empowered by this memorandum to participate in the BRAC 95 analysis process must develop and implement an internal control plan for base realignment, closure or consolidation studies to ensure the accuracy of data collection and analyses.

At a minimum, these internal control plans should include:

- Uniform guidance defining data requirements and sources;

- Systems for verifying the accuracy of data at all levels of command;

o Documentation justifying changes made to data received from subordinate commands;

o Procedures to check the accuracy of the analyses made from the data; and

o An assessment by auditors of the adequacy of each internal control plan.

Data Certification

Public Law 101-510, as amended, requires specified DoD personnel to certify to the best of their knowledge and belief that information provided to the Secretary of Defense or the 1995 Commission concerning the closure or realignment of a military installation is accurate and complete.

DoD components shall establish procedures and designate appropriate personnel to certify that data and information collected for use in BRAC 95 analyses are accurate and complete to the best of that person's knowledge and belief. DoD Components' certification procedures should be incorporated with the required internal control plan. Both are subject to audit by the General Accounting Office.

Finally, Secretaries of the Military Departments, Directors of Defense Agencies, and heads of other DoD Components must certify to the Secretary of Defense that data and information used in making BRAC 95 recommendations to the Secretary are accurate and complete to the best of their knowledge and belief.

Criteria Measures/Factors

DoD Components and BRAC 95 Joint Cross-Service Groups must develop one or more measures/factors for applying each of the final criteria to base structure analyses. While objective measures/factors are desirable, they will not always be possible to develop. Measures/factors may also vary for different categories of bases. DoD Components and BRAC 95 Joint Cross-Service groups must document the measures/factors used for each of the final criteria.

Categories of Bases

One of the first steps in evaluating the base structure for potential closures or realignments must involve grouping installations with like missions, capabilities, or attributes into categories, and when appropriate, subcategories. Categorizing bases is the necessary link between the forces described in the Force Structure Plan, programmed workload, and the base structure. Determining categories of bases is a DoD

Component and BRAC 95 Joint Cross-Service Group responsibility. DoD Components and BRAC 95 Joint Cross-Service Groups should avoid over-categorization in order to maximize opportunities for cross-service or intra-service tradeoffs.

Reserve Component Impacts

Considerable overall DoD savings can be realized through maximizing the use of Reserve component enclaves and through joint use of facilities by the Reserve components. However, these overall DoD savings may not be identified during the BRAC 95 process. Consequently, DoD Components should look for opportunities to consolidate or relocate Reserve components onto active bases to be retained in the base structure and onto closing or realigning bases.

DoD Components must complete Reserve component recruiting demographic studies required by DoD Directive 1225.7 to ensure that the impact on the Reserve components of specific closures and realignments are considered.

Cost of Base Realignment Actions (COBRA) Cost Model

DoD Components must use the COBRA cost model to calculate the costs, savings and return on investment of proposed closures and realignments. The Army is executive agent for COBRA and model improvements are underway.

Community Preference

DoD Components must document the receipt of valid requests received from communities expressing a preference for the closure of a military installation under Section 2924 of Public Law 101-510. DoD components will also document the steps taken to give these requests special consideration. Such documentation is subject to review by the General Accounting Office, the Commission and the Congress.

Release of Information

Data and analyses used by the DoD Components to evaluate military installations for closure and realignment will not be released until the Secretary's recommendations have been forwarded to the 1995 Commission on March 1, 1995, unless specifically required by law. The 1995 Commission is required to hold public hearings on the recommendations.

The General Accounting Office (GAO), however, has a special role in assisting the Commission in its review and analysis of the Secretary's recommendations and must also prepare a report detailing the Department of Defense's selection process. As

such, the GAO will be provided, upon request, with as much information as possible without compromising the deliberative process. The DoD Components must keep records of all data provided to the GAO.

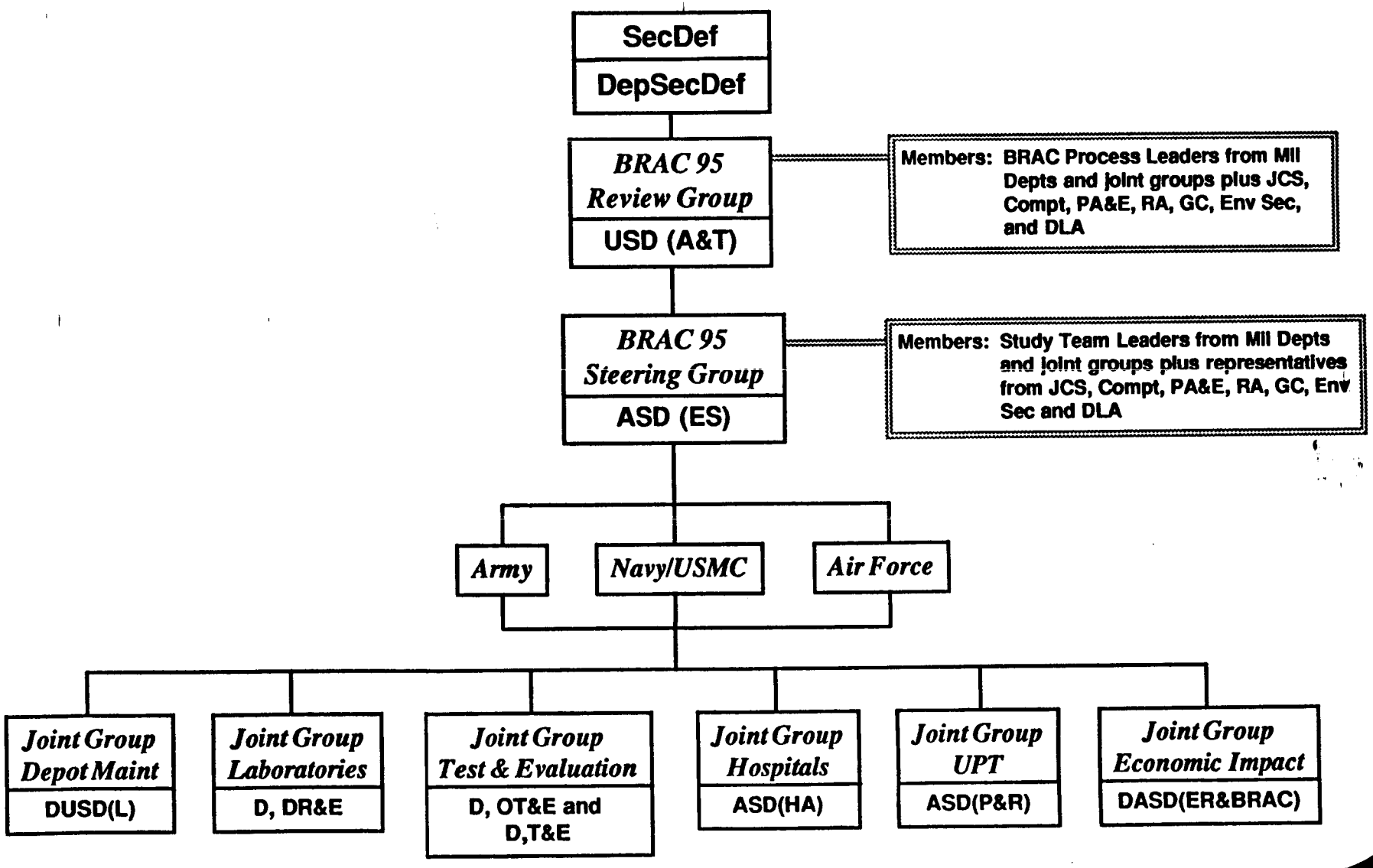
Dissemination of Guidance

DoD Components shall disseminate this guidance and subsequent policy memoranda as widely as possible throughout their organizations. The BRAC 95 Steering Group will review DoD Component supplementary guidance.

Timelines

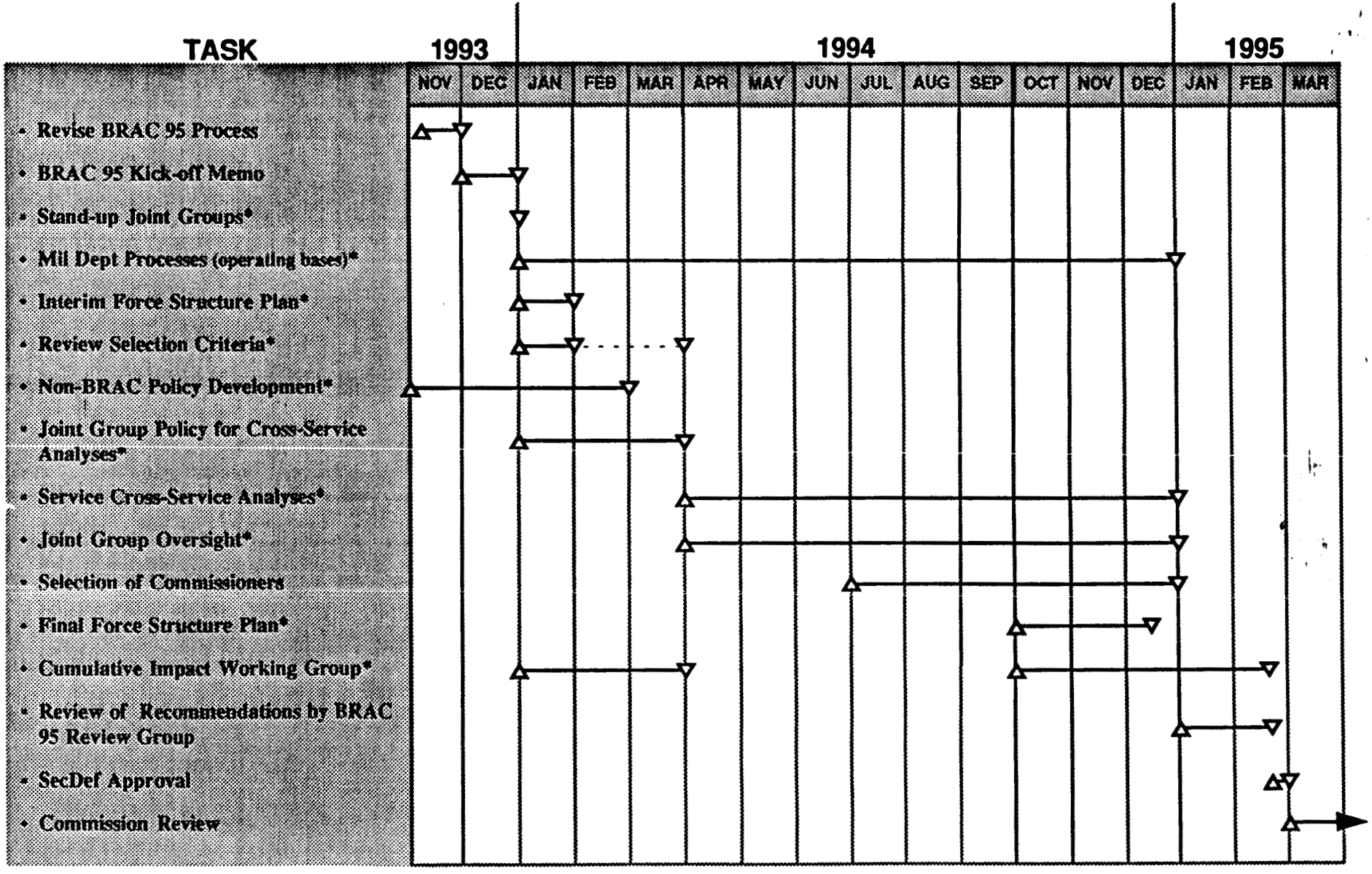
The timelines described in this memorandum are depicted at Appendix B.

BRAC 95 Organization for Analysis



Appendix A

BRAC 95 Timeline



* Work products reviewed by BRAC 95 Review Group

BRAC 95 Joint Cross-Service Groups

	Excess Capacity	Measures of Merit/ Discriminators
Cross-Service Groups	Define the Universe (Jan 31) (What Bases/Functions)	--------
	How to Measure (Feb 28)	How to Measure (Mar 31)
	Data Elements (Feb 28)	Data Elements (Mar 31)
	Non-BRAC Policy Development (Feb 28)	--------
Military Depts	Data Calls (Mar/Apr)	Data Calls (Apr/?)
	Analysis (Mar/Apr)	Joint Analysis (Apr/?)
Cross-Service Groups	Targets/Alternatives (?)	Alternatives (TBD)
Military Depts	------	Recommendations (1995)

Note: Both Cross-Service Groups and Military Departments must develop and implement an internal control plan to ensure that information and data used in BRAC 95 analyses is accurate and complete

BRAC 95 Process for Cross-Service Groups

Presentation to the Steering Group

LMI

January 11, 1994

Cross-Service Groups...

Dealing with a Tough Task

The Objective: To promote effective analyses of cross-service functions in BRAC '95

The Challenges: To develop by March 31st the rules for guiding and structuring the analyses; action plans due by January 21st

Needed: a quick start and effective follow-through

Cross-Service Groups...

Key Issues

- Analytical frameworks -- Creating consistent, analytical frameworks for analyzing and studying cross-service matters

- Information management -- Supporting information management needs of the policy development process

- Internal controls -- Conducting quality assurance and quality control

Cross-Service Groups...

First Steps

- Think through the analytical process
  - Review historic Service processes
- Establish guidelines and analysis rules
- Conceptualize a quality assurance approach

Helpful Tips...
Some Do's and Don'ts

- Keep an open mind -- No preconceived ideas
- Address all activities equally
- Be clear on the objectives before structuring the analytical framework
- Structure the framework clearly before data gathering and analysis begins
- Before changing methodologies, consider the impacts
- Use quantifiable measures and criteria, whenever possible, and try to limit measures to 7 or 8 per criterion
- Determine early the weighting method for measures and criteria: color coding, numerical, and structured expert opinion (military judgment)
- Structure the analytical framework so that results are reproducible (using the same data and methodology)

Helpful Tips...
Some More Do's and Don'ts

- Get it right the first time. Do not change (refine) your methodology after March 31st
- Identify and challenge all assumptions; reject those that aren't supportable
- Elevate seemingly irreconcilable assumptions to the Review Group
- Validate and certify the data you use, or use Service-certified data
- Keep good records: summarize meetings, describe recommendations, and record decisions -- Document, but remember: everything is discoverable
- Maintain quality control to ensure accuracy of data collection and analyses

Available LMI Services...

Advice & Assistance

- Provide a briefing on the overall BRAC analysis process
- Help develop analytical frameworks
  - analysis guidelines and standards
  - definitions of units of measure
  - mechanisms for discussions with Services
  - cross-service integration
  - intergroup coordination
- Develop information management tools
- Help perform quality control/assurance

1993 BASE CLOSURE INTERIM FORCE STRUCTURE PLAN 1/

	1994	1995	1996	1997	1998	1999
ARMY						
AC						
Light						
Heavy						
RC						
Light						
Heavy (Cadre)						
NAVY						
Strategic Forces						
SSBN						
Strategic Support						
Battle Forces						
Carrier/Training						
Carrier Airwings AC/RC						
Surface Combatants						
SSN						
Patrol Combatants						
Amphibious Warfare						
Combat Logistics						
Mine Warfare						
Support Forces						
Mobile Logistics						
Support Ships						
Mobilization Forces CAT A						
Surface Combatants						
Mobilization Forces CAT B						
Surface Combatants						
Mine Warfare Ships						
Support Ships						
USMC						
Divisions AC/RC						
Aircraft Wings AC/RC						
FSSG AC/RC						
USAF 2/						
Strategic Bombers						
Conventional Bombers						
ICBMs						
Interceptors RC						
TFWE AC 3/						
TFWE RC 3/						
Comd/Cont/Surv AC/RC						
SOF AC/RC						
Rescue AC/RC						
Tankers AC/RC						
Strat Lift AC/RC						
Tact Lift AC/RC						

1993 INTERIM

Notes:

1/

2/

3/

SECTION III: 1993 BASE CLOSURE FORCE STRUCTURE PLAN [1/]

	1994	1995	1996	1997	1998	1999
ARMY						
AC						
Light						
Heavy						
RC						
Light						
Heavy (Cadre)						
NAVY						
Strategic Forces						
SSBN						
Strategic Support						
Battle Forces						
Carrier/Training						
Carrier Airwings AC/RC						
Surface Combatants						
SSN						
Patrol Combatants						
Amphibious Warfare						
Combat Logistics						
Mine Warfare						
Support Forces						
Mobile Logistics						
Support Ships						
Mobilization Forces CAT A						
Surface Combatants						
Mobilization Forces CAT B						
Surface Combatants						
Mine Warfare Ships						
Support Ships						
USMC						
Divisions AC/RC						
Aircraft Wings AC/RC						
FSSG AC/RC						
USAF [2/]						
Strategic Bombers AC/RC						
Conventional Bombers						
ICBMs						
Interceptors RC						
Fighters AC [3/]						
Fighters RC [3/]						
Fighter Trainers AC/RC						
Comd/Cont/Surv AC/RC						
SOF AC/RC						
Rescue AC/RC						
Tankers AC/RC						
Strat Lift AC/RC						
Tact Lift AC/RC						

1993 FINAL

NOTES:

1/

2/

3/ Anticipated levels of funding are those set forth in the President's budget.

Classified by Director, J-8
Declassify on OADR

SECRET

1995 BASE CLOSURE INTERIM FORCE STRUCTURE PLAN 1/

	1994	1995	1996	1997	1998	1999
ARMY						
AC						
RC 2/						
NAVY 3/						
Strategic Forces						
SSBN 4/						
Strategic Support						
Battle Forces						
Aircraft Carriers						
Carrier Airwings AC						
Carrier Airwings RC						
Surface Combatants						
SSN						
Patrol Combatants						
Amphiblous Warfare						
Combat Logistics						
Mine Warfare						
Support Forces						
Mobile Logistics						
Support Ships						
Mobilization Forces CAT A						
Aircraft Carriers						
Surface Combatants						
Mine Warfare						
Mobilization Forces CAT B						
Surface Combatants						
Mine Warfare Ships						
Support Ships						
USMC						
MEF						
Active Endstrength						
Reserve Endstrength						
Aircraft Wings AC/RC						
FSSG AC/RC						
USAF						
Strategic Bombers 4/						
Conventional Bombers						
ICBMs 4/						
Interceptors RC						
TFWE AC						
TFWE RC						
Cmd/Cont/Surv AC/RC						
SOF AC/RC						
Rescue AC/RC						
Tankers AC/RC						
Strat Lift AC/RC						
Tact Lift AC/RC						

Notes:

1/

2/

3/

4/

5/

1995 DRAFT INTERIM

A

Classified by DJ-6
Declassify on OADR

BRAC 95

Steering Group Meeting

January 21, 1994

Minutes

The DASD (ER&BRAC) chaired this second Steering Group meeting acting for the ASD(ES). The meeting began at 13:00, the agenda and a list of the principal attendees are attached.

The Chair began the meeting by stating that there were two main topics for discussion: potential changes to the selection criteria and an update on joint group progress. The Chair then announced that the Steering Group's Executive Secretary would be responsible for preparing minutes for the Chair's approval. The Chair further announced that minutes would normally not be coordinated with attendees as they are to be treated and stamped "Close Hold". However, steering group members who had made significant contributions would be contacted to ensure their comments were characterized correctly.

The Chair stated that he would brief Dr. Perry sometime after the January 28 BRAC 95 Review Group meeting. Changing the selection criteria was a likely candidate for discussion at this briefing. The Chair then turned the floor over to the BRAC 95 Steering Group Executive Secretary, Mr. Hansen, who led the working group that evaluated potential changes to the selection criteria. Mr. Hansen stated that the goal of his working group was to collect as many suggested changes to the criteria as possible. Mr. Hansen stated that the group considered the record of past closure rounds as well as suggestions from the GAO, Congress and internal DOD staff in this effort. He also stated that the issues identified by the working group had been raised during the public comment period in 1991. Each had been addressed at that time so an official process has already been conducted in this regard. Mr. Hansen then briefly described the issue papers developed and outlined the pros and cons of changes to the criteria (attached).

Regarding pros and cons, it was stated that changing the criteria would provide a clear "call to arms" statement that things are different this round. On the other hand, changing the criteria could cast previous closures as unfair and require BRAC 95 closures in this round to be analyzed differently then previous rounds. It was also stated that, overall, the criteria we now have are valid and have not been challenged except in ways that would only result in marginal differences in emphasis. Changing them now would open up our process to a potential last minute rejection by Congress which would be fatal to the BRAC 95 process. General discussion on the issue papers ensued. Comments were made concerning the fact that the considerations regarding saving money were already incorporated in the criteria.

Additional discussion centered on the fact that the criteria should support a process that is auditable, replicable and treats all bases fairly, rather than changing the current criteria to be quantitative. Further, military judgement is important in this process and must be documented. In regard to saving money, this round may require more suboptimal decision making than previous rounds in order to maximize savings by maximizing aggregate military value, as the Navy did in BRAC 93. It was suggested that the pros paper be beefed up by adding the arguments for change presented by the Congress, GAO and the Commission.

Discussion on the individual issue papers then ensued. In regard to the issue paper dealing with changing the criteria to include the costs of closure to all federal agencies and state and local governments (as a sense of Congress resolution would provide for), it was stated that while, in theory, this could easily be dealt with through policy, these costs can not be predicted as economic activity could not be predicted and would be a wash anyway, adding nothing to the decision process.

The next discussion centered on the cumulative economic impact issue. It was the group's consensus that emphasizing cumulative impact to an extreme would outweigh military value. While economic impact can effectively be dealt with in policy, that policy should emphasize that economic impact should affect the decision making process only when a choice of roughly equal military value alternatives are available.

The next issue paper discussed concerned placing more emphasis on cost effectiveness. Discussion centered on the fact that this is already an important factor since cost is extremely important, given alternatives of roughly equal military value. Additionally, the Title 10 responsibilities of the Service Secretaries require military value to be a primary consideration. Within that consideration, cost effectiveness and cost of operation are extremely important considerations.

The next discussion centered on changing the criteria to reflect the cost of doing business, especially for business-like functions like depots. It was the group's consensus that the cost of doing business was reflected in the cost of operations, the cost per output and overhead rates which were all dealt with in evaluating the military value criteria last round.

Changing the criteria to include incremental environmental restoration costs in the return on investment calculations was the next discussion item. There was consensus that the obligation to clean up all of its properties and the Department's commitment to this obligation requires no change to the current policy.

The last issue paper discussed concerned the placement of more emphasis on the shortage of funds to maintain infrastructure to encourage the maximum number of closures and realignments.

After a brief discussion, the group agreed that this was not a criteria issue but was one of capacity reduction targets which each service and each joint group would be evaluating. Therefore no change to the criteria was warranted.

The next topic discussed was the issue of nominations to the various groups (see attached). The Navy announced its remaining joint cross-service group nomination, Mr. John Trick and CDR Tim Evans, to the laboratories group. The Army stated that their nomination memorandum would be forthcoming. There was some discussion on the prerogative of the Military Departments to nominate their representatives vice a mandate from the chairs of the joint cross-service groups for individual representatives.

The final topic was an announcement that the calendar of meetings (attached) would be provided daily to the Steering Group Chair. Additionally, advance copies of the joint cross-service group action plans were requested in order to prepare for the next Steering Group meeting, scheduled for January 26, at 15:30, in room 3D-1019.

The meeting then concluded at 14:45.

Approved: Robert E. Bayer
Acting Chairman

BRAC 95

Steering Group Meeting

January 21, 1994

Key Attendees

Mr. Robert Bayer, OSD (Economic Reinvestment and BRAC)
Mr. Mark Wagner, OSD (Economic Security)
Mr. Doug Hansen, OSD (Base Closure and Utilization)
Mr. Michael Owen, Army
Mr. Charles Nemfakos, Navy
Mr. Jim Boatright, Air Force
Mr. Al Conte, OSD (Personnel and Readiness)
Mr. Lou Finch, OSD (Personnel and Readiness)
Ms. Marge McManamay, DLA
Mr. Nick Toomer, OSD (OT&E)
Mr. Irv Boyles, OSD (T&E)
MAJ Robert Pope, OSD (DR&E)
Mr. Bob Mason, OSD (Logistics)
Ms. Patricia Watson, OSD (Health Affairs)
Col Mike Donnelly, OGC
CAPT Gumbert, Joint Staff
LTC Potts, OSD (Reserve Affairs)
Mr. Bill Paseur, OSD Comptroller
Mr. John Morgan, OSD (PA&E)
Mr. Joseph Sikes, OSD (Environmental Security)

BASE CLOSURE STEERING GROUP MEETING

January 21, 1994 1:00 P.M. Rm 2E-385

AGENDA

- **Previous Meeting's Minutes**
- **Changing Selection Criteria**
  - **Should We Change Them ?**
    Pros and Cons (handout)
  - **Possible Changes to Criteria (handout)**
- **Joint Group Progress**
  - **Nomination of Members (handout)**
  - **Meeting Calendar (handout)**
  - **Action Plan Review**
- **Next Meeting -- January 26th, 15:30, Rm 3D-1019**
- **Agenda for Review Group Meeting -- January 28th, 11:00, Rm 3E-869**
- **Other Business**

BASE CLOSURE SELECTION CRITERIA

In selecting military installations for closure or realignment, the Department of Defense, giving priority consideration to military value (the first four criteria below), will consider:

Military Value

1. The current and future mission requirements and the impact on operational readiness of the Department of Defense's total force.

2. The availability and condition of land, facilities and associated airspace at both the existing and potential receiving locations.

3. The ability to accommodate contingency, mobilization, and future total force 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 costs and savings, including the number of years, beginning with the date of completion of the closure or realignment, for the savings to exceed the costs.

Impacts

6. The economic impact on communities.

7. The ability of both the existing and potential receiving communities' infrastructure to support forces, missions and personnel.

8. The environmental impact.

SELECTION CRITERIA WORKING GROUP
PROS AND CONS TO CHANGING THE BASE CLOSURE SELECTION CRITERIA

PROS

- Changing criteria would be clear public policy statement by the new Administration that BRAC 95 is different from prior rounds.
- Changing criteria would show Administration takes base closures seriously and, for the last round, wants to maximize closures.
- Since Act explicitly allows amendment of selection criteria, Congress clearly envisioned changes.
- Opening selection criteria to public comment ensures all concerns are fully considered in open forum.

CONS

- Changing criteria would call into question fairness and adequacy of prior rounds of base closure; DoD open to attacks:
  - "Not fair" to change the rules for this last round of base closures.
  - Bases closed or realigned during 1995 round would not be selected on the same basis as those chosen during prior rou,nds and vice versa.
  - Change may be viewed as an attempt to target specific installations for closure or retention.
- Would require DoD to continually justify any changes and resultant recommendations -- distract from central rationale for selection.
- DoD and its components know how to work with and defend the existing criteria; their processes are based upon these criteria.
- Neither the Commission nor GAO have recommended substantive changes to the existing criteria during prior base closure rounds.
- Present selection criteria are broadly defined, which permits adjustment to changing circumstances, both in general policy development and in application of criteria to differing types of activities.
- Congressional approval/disapproval timetable (up until February 15, 1995) could disrupt the process within DoD as SecDef recommendations are due March 1, 1995.

Attachment

CHANGING THE BASE CLOSURE SELECTION CRITERIA

Background

The selection criteria used for the 1991 and 1993 rounds of the base closure process were established under the procedures set forth in the Defense Base Closure and Realignment Act of 1990 (the Act), Section 2903(b). The Secretary of Defense published in the Federal Register of December 31, 1990, the criteria proposed to be used by DoD in making recommendations for the closure or realignment of military installations inside the United States and transmitted those proposed criteria to the Congressional defense committees. The proposed criteria were similar to those used during the Secretary of Defense's 1988 base closure process and consisted of eight criteria relating to military value, costs and savings, and economic, environmental and community impacts, with priority consideration given to military value. After the 30-day public comment period, the Secretary published the final criteria in the Federal Register of February 15, 1991, and transmitted them to the Congressional defense committees. That publication and transmittal discussed the comments received, their validity as they related to the process, and any actions taken to incorporate the comments into the criteria and/or the DoD process through policy guidance.

For the 1993 base closure process, OSD reviewed the criteria that had been used during the 1991 round, as well as comments relating to those criteria made by the Defense Base Closure and Realignment Commission, the General Accounting Office (GAO), and the public. Upon determination that no significant changes were warranted in the criteria, the Secretary of Defense published a notification in the Federal Register of December 15, 1992, and transmitted a notification to the Congressional defense committees, that DoD would use the same selection criteria used during the 1991 base closure round.

Section 2903(b)(2)(B) of the Act sets forth the procedures for amending the selection criteria. That section provides that

> The Secretary may amend such [selection] criteria, but such amendments may not become effective until they have been published in the Federal Register, opened to public comment for at least 30 days, and then transmitted to the congressional defense committees in final form by not later than January 15 [1995]. Such amended criteria shall be the final criteria to be used, along with the force-structure plan [submitted with the 1996 budget justification documents], in making such recommendations unless disapproved by a joint resolution of Congress enacted on or before February 15 [1995].

The Deputy Secretary of Defense has tasked the BRAC 95 Review Group with making a recommendation to the Secretary of Defense no later than January 31, 1994 on whether an amendment to the selection criteria is appropriate. The BRAC 95 Steering Group established a Selection Criteria Working Group on January 11, 1994, made up of DoD components and OSD representatives, to accomplish this task.

Discussion

The primary argument for amending the selection criteria is that the change in criteria would act as a clear public policy statement by the new Administration that the focus of this round of base closure is different from prior rounds. In a radically changed post-Cold War world, military missions and modes of operation are different. Accordingly, the reasons for having domestic bases and the operations which they must support may have changed, and the selection criteria should reflect that change. Amendment of the selection criteria would be a clear indication that DoD and the new Administration are taking base closure seriously and, recognizing that this is the last round provided under the Act, are anxious to maximize closures. Since the Act explicitly provides procedures for amending criteria, Congress clearly envisioned changes. Opening the selection criteria to public comment would ensure that concerns raised are fully considered. This opportunity for public input could lead to a perception that the criteria are more relevant and effective because the review was not confined solely within DoD.

The strongest counter-argument is that change of the selection criteria would call into question the fairness and adequacy of prior rounds of base closure, as well as require DoD to continually justify any changes and the resultant recommendations. DoD would be open to attacks that it is "not fair" to change the rules for this last round of base closures, and that any bases closed or realigned during the 1995 round were not selected on the same basis as those chosen during the prior rounds. Challengers could argue, among other things, that a change to the criteria was an attempt to target specific installations for closure or retention. Alternatively, Congressional or public comments could attempt to protect bases through criteria changes.

Not only could criteria changes complicate the defense of the new recommendations, but they could call into question decisions of prior base closure rounds. DoD would have to deal with Congressional and media comparisons between the allegations that particular bases closed in 1991 and 1993 would not have closed if the amended criteria had been used or, alternatively, that bases selected in the 1995 round would not have been affected if the 1991/1993 selection criteria had been used. DoD and its components know how to work with and defend the existing criteria, and their base closure processes have developed based upon these criteria.

It is significant that neither the Base Closure Commission nor GAO have recommended substantive changes to the existing criteria during prior base closure rounds. Their tacit endorsement of the selection criteria is an indication that these are, in fact, the most relevant and appropriate criteria upon which to base closure and realignment decisions. While it is true that military missions are changing, the roles and responsibilities of DoD and the Military Departments defined in Title 10 of the U.S. Code have not changed. The present selection criteria are broadly defined, which permits adjustment to changing circumstances, both in general policy development and in application of policies to differing types of activities. Concerns which are raised

by Congress or the public are able to be addressed in DoD base closure policy guidance.

Finally, not only do the procedures set forth in the Act for such amendment shift the ultimate approval/disapproval decision to Congress, the timetable could operate to disrupt the process within DoD. Under the Act, Congress has until February 15, 1995, to disapprove the amended criteria by joint resolution. The Act was amended by the Fiscal Year 1994 Authorization Act to require SecDef recommendations be forwarded to the Base Closure Commission not later than March 1, 1995. Hence, if Congress disapproved the amended criteria, it could be too late in the process to revert to the old selection criteria and issue recommendations. This effectively could halt this last round of base closure in its entirety. Additionally, having to wait until February 15, 1995, for a clear determination of whether the selection criteria have been approved or not would lend a substantial element of uncertainty to the entire DoD process.

Conclusion/Recommendation

Although we can expect legal challenges if the criteria are changed, clearly the issue relating to amendment of the selection criteria is not a legal issue. The Act explicitly provides a procedure for changes. The issue is more properly framed as a political one -- how DoD and the new Administration can be responsive to its own and other concerns about the adequacy and relevance of the criteria. In view of the risk posed by any changes, the critical delays that amendment could cause, and the potential for significant modification to DoD component processes, changing the selection criteria is not recommended. To the extent that relevant suggestions for additional evaluation factors have been received in prior base closure rounds from the Base Closure Commission, GAO, and the public, all could be accomplished through OSD policy issuance. Such policy formation would allow a clear statement of OSD goals and objectives and could clearly reflect public policy concerns, without the risks attendant to amending the criteria.

SELECTION CRITERIA WORKING GROUP
SUMMARY OF POSSIBLE CHANGES TO CRITERIA

Subject: Possible Changes to the Base Closure Selection Criteria

Background: The BRAC 95 Steering Group established a Selection Criteria Working Group to review the record over the past two rounds of base closures of proposed changes to the selection criteria. Suggested changes from Congress, the GAO, the Defense Base Closure and Realignment Commission, communities and from within DoD were reviewed by the working group.

Discussion: The Selection Criteria Working Group identified the following possible changes to the selection criteria:

- Include the direct costs of closures and realignments to other Federal Departments and State and local governments.
- Include cumulative economic impact and give it greater emphasis.
- Place more emphasis on the cost effectiveness of recommendations.
- Place greater emphasis on the cost of doing business for industrial-type activities.
- Include incremental environmental restoration costs.
- Place more emphasis on the shortage of funds to maintain infrastructure.

The following six pages describe each issue, identify the source of the possible change, and provide background information, comments and the working group's recommendations on each.

Conclusion: The Working Group concluded that no changes to the selection criteria are necessary; that each of the issues can be dealt with in official policy guidance to the DoD Components.

Attachments

POSSIBLE CHANGE TO
BASE CLOSURE SELECTION CRITERIA

Possible Change: Change selection criteria to include the direct costs of closures and realignments to other Federal Departments and agencies and, to the extent possible, to state and local governments (Source: FY 94 DoD Authorization Act and GAO)

Background: Some potential non-DoD costs include: Medicare, losses incurred by GSA because of leased properties being vacated by DoD, the cost of economic assistance to affected communities, unemployment costs, and the cost to replace services formerly provided by DoD (e.g., air traffic control for the FAA). DoD has tried to respond to past GAO recommendations to compute Government-wide costs (i.e., include non-DoD costs) by calculating in 1991 and 1993 the impact closures have on CHAMPUS (DoD Health) costs, DoD unemployment contribution increases attributable to closures and realignments, and DoD Homeowners Assistance Program costs. DoD has not agreed with GAO's recommendation to include Medicare costs, or other non-DoD costs.

The FY 94 DoD Authorization Act includes a "Sense of Congress" that asks DoD to consider the inclusion of costs to other Federal Departments and agencies and, to the extent possible, to state and local governments.

The Department's position has been we are unable to quantify non-DoD costs with any degree of certainty or accuracy in advance. The Department has no way of knowing, at the time closure decisions are made, who will eventually take over the installation in question, what reuse will occur, what external forces will impact economic vitality, and therefore no way of predicting economic recovery. Hence we have no way of determining special costs to other Federal and State agencies, such as unemployment costs beyond those estimated to be incurred by DoD through employer contributions to unemployment funds. Finally, in all three past rounds of base closures, we have not attempted to measure "absolutely" every possible cost. Rather, we have measured all costs which could be expected to change as scenarios change. Cost elements which would be roughly the same for any scenario, or marginal in value, were left uncalculated (i.e.,community planning grants, Medicare, etc.) as they would not add to the decision making process.

Comments: All potential non-DoD costs we could attempt to measure would be applied under the Return on Investment criteria where we calculate the cost and savings implications of closures and realignments. In previous rounds we have issued detailed guidance on how to estimate various cost elements and on whether to include some elements in the cost and savings calculations or to leave them uncalculated as they are deemed to be the same regardless of scenario.

Recommendation: Do not change the selection criteria.

Policy memoranda can be used to include non-DoD costs, if appropriate, in the cost and savings calculations. Each possible non-DoD cost element will be examined and a determination made by the BRAC 95 Review Group on whether to include it as a cost element or not. We must also draft a letter to Congress on the outcome of these determinations.

POSSIBLE CHANGE TO
BASE CLOSURE SELECTION CRITERIA

Possible Change: Change selection criteria on economic impact to specifically include cumulative economic impact and to give cumulative impact more emphasis. (Source: Congress and Communities)

Background: During hearings before the Senate Armed Services Committee (SASC), Defense Base Closure and Realignment Commissioners and Secretary Aspin committed to consider cumulative economic impact on base closure communities during the 1993 base closure process. DoD had also considered cumulative economic impact during the 1991 base closure process.

The selection criteria directs the Military Departments to consider economic impact and does not exclude cumulative economic impact. The Department did, in fact, calculate cumulative economic impact during the 1991 and 1993 base closure rounds. The Secretary removed McClellan AFB from the list of 1993 recommendations based on cumulative economic impact.

The selection criteria give priority consideration to military value criteria (the first four of the eight criteria). This has been a critical part of the success of past base closure rounds as the courts, communities and even the Congress have difficulty challenging DoD's military judgement. DoD's business is to provide for the national security and the base closure process' contribution to that is giving priority consideration to military value (i.e., keeping our most valuable bases).

Comments: Increasing the emphasis on cumulative economic impact to the extent that military value is no longer to be given priority consideration would require a change to the selection criteria. However, such a change could seriously undermine our national security by changing the rules to stress job impact as the predominate reason for closing or not closing bases.

We can issue policy that cumulative economic impact be part of economic impact considerations and have established a cross-service group to develop a process and guidelines for the calculation and application of economic impact including cumulative impact.

Recommendations: Do not change the selection criteria. No change is required either to expressly include cumulative economic impact or to increase the emphasis on cumulative economic impact, short of making cumulative impact the priority consideration vice military value.

Guidance on cumulative economic impact can be issued by policy. However, we should refrain from making policy changes until after the economic impact working group has submitted its recommendations on March 31, 1994, including its recommendations on the appropriate emphasis on cumulative economic impact.

POSSIBLE CHANGE TO
BASE CLOSURE SELECTION CRITERIA

Possible Change: Change selection criteria to place more emphasis on the cost effectiveness of recommendations (military value compared to the cost and savings) (Source: Internal DoD)

Background: The Bottom-up Review tells us that we must close many more bases to realize the savings and therefore free up resources for readiness.

Comment: This change, and the change that would place more emphasis on cumulative economic impact vis-a-vis military value are potentially not complementary and could be in direct conflict if the emphasis changed enough to obviate the current selection criteria's priority consideration of military value. Changing the criteria to reduce the primacy of military value in favor of other considerations is ill-advised. Priority consideration of military value among the selection criteria has been endorsed by the Commission and GAO during all three rounds. Also, "changing the rules" after three rounds of closures could have significant political implications and could open up past closure decisions. However, if military value considerations are roughly equal more emphasis could be placed on cost effectiveness without changing the criteria.

Recommendation: Do not change the selection criteria.

Retain the primacy of military value among the selection criteria. Draft policy to place appropriate emphasis on cost effectiveness. The BRAC Review Group will review this and other issues requiring policy guidance over the next few months.

POSSIBLE CHANGE TO
BASE CLOSURE SELECTION CRITERIA

Possible Change: Change selection criteria to place greater emphasis on the costs of doing business especially for business-like functions such as depot maintenance (Source: GAO)

Background: The GAO has suggested that in considering industrial activities for closure or realignment, cost and savings criteria should be given more emphasis. The Department has in the past agreed that cost of doing business considerations may be more important for industrial type activities than for operational bases, but has not issued specific policy on the issue.

Comments: Decisions to close or realign industrial activities must be based on the ability of the activity to contribute to the Defense mission and readiness capabilities. However, the military value criteria include one on "cost and manpower implications". Hence, additional policy guidance on the importance of the "cost of doing business" for industrial activities as a factor in military value calculations would clarify the issue without requiring a change to selection criteria. The distinction must be maintained between the "cost of doing business", which must be defined, vs the "cost of closure" which is measured in the Return on Investment criteria. The cost of doing business could be defined as mission costs, work product output costs, etc.

Recommendation: No change to the criteria is required.

Clarifying that the cost of doing business is an important part of military value for industrial activities can be implemented through policy memoranda. The BRAC 95 Review Group will review this and other issues requiring policy guidance over the next few months. The joint cross-Service groups established to look at depot maintenance, laboratories and test and evaluation would implement this policy by defining the cost elements to be measured.

POSSIBLE CHANGE TO
BASE CLOSURE SELECTION CRITERIA

Possible Change: Change the selection criteria to include in the Return on Investment calculations "incremental environmental restoration costs" i.e, those costs that would not be incurred if the installation remained open (i.e., unexploded ordnance on ranges) or accelerated environmental restoration costs. (Source: 1993 Base Closure Commission Report)

Background: Environmental restoration costs at closing bases have not, in the past, been considered a cost of closure since the Department has a legal obligation for environmental restoration regardless of whether a base is closed or not.

Comments: Including the cost of accelerated or unique environmental restoration at closing bases appears reasonable since they would only occur if the base is closing. Estimates of these costs should be available during the evaluation process and could readily be included in the Return on Investment cost and savings calculations.

Recommendation: The criteria do not need to be changed.

The guidance can be affected through a policy memorandum. Draft policy follows: "Environmental restoration costs at closing or realigning bases will not be considered in cost of closure calculations. DoD has a legal obligation for environmental restoration regardless of whether a base is closed or realigned. Where closing or realigning installations have unique contamination problems requiring environmental restoration, these will be considered as a potential limitation on near-term community reuse of the installation. However, environmental restoration costs that would not normally be incurred if the base remained open will be considered in the cost of closure calculations. Examples of these costs are the reasonable removal of unexploded ordnance on ranges, the removal of underground storage tanks, and accelerated environmental restoration costs at closing and realigning bases."

The BRAC 95 Review Group will review this and other issues requiring policy guidance over the next few months.

POSSIBLE CHANGE TO
BASE CLOSURE SELECTION CRITERIA

Possible Change: During BRAC 95, place more emphasis on the shortage of funds to maintain infrastructure to encourage maximum closures and realignments (Source: Bottom-Up Review)

Background: In recent years, the Military Departments have not had sufficient funds to maintain their infrastructure at acceptable levels. Reducing infrastructure (closing bases) is an alternative to increased funding levels. The Bottom-Up Review's reduced force structure scenarios will facilitate infrastructure reductions.

Comments: Reduced force structure is the "why" and "how many" portion of base closures. With force structure coming down, we cannot afford to keep unnecessary bases open.

The selection criteria, however, help us determine "which bases" to close after we have determined "how many" during the earlier part of the closure analysis. Hence, this is clearly not a selection criteria issue. The DepSecDef BRAC 95 "Kickoff" memorandum incorporates the conclusion of the Bottom-Up Review. It provides the DoD Components with an infrastructure reduction goal of at least 15 percent and establishes a methodology for determining excess capacity reduction targets by category of base.

Recommendation: No change to the selection criteria is warranted.

Additional guidance on how to calculate excess capacity in 5 key cross-Service ares will be promulgated by March 31, 1994. Finally, the BRAC 95 Review Group will review all excess capacity calculations both operational and cross-Service and will determine appropriate reduction targets this summer.

Joint Group Nominations

BRAC 95 Review Group

Chair:	USD(A&T)
Army:	TBD
Navy:	Under Secretary Danzig
	Mr. Nemfakos
Air Force:	Secretary Widnall
	GEN Carns
Joint Staff:	MG Admire
	BG Tolin
PA&E:	Mr. Lynn
Reserve Affairs:	Assistant Secretary Lee
DoD Comptroller:	TBD
General Counsel:	TBD
Env. Security:	TBD

BRAC 95 Joint Cross-Service Group Chairs

BRAC 95 Steering Group

Chair:	Assistant Secretary (Economic Security)
Army:	TBD
Navy:	Mr. Nemfakos
	CAPT Buzzell
	Mr. Turnquist
Air Force:	Mr. Boatright
	BG Heflebower
Joint Staff:	BG Tolin
	CAPT Gumbert
PA&E:	Dr. McNicol
Reserve Affairs:	Mr. Rosamond

BRAC 95 Joint Cross-Service Group Study Team Leaders

Depot Maintenance Joint Cross-Service Group

Chair:	Mr. Klugh
Team Leader:	Mr. Willis
DASD (PR)	Mr. Brad Bergmann
Army:	TBD
Navy:	CAPT Moeller
	LTCOL (sel) Bush
Air Force:	Mr. Orr
	Mr. Delvecchio
PA&E:	Dr. McDonald
Joint Staff:	COL Edgar
	COL Fellers
DASD (ER&BRAC):	Mr. Bayer
	Mr. Potochney
DLA	TBD

Test And Evaluation Joint Cross-Service Group

Co-Chairs:	Mr. Bolino
	Mr. Frame
Team Leader:	Mr. Toomer
	Mr. Bolino
Army:	TBD
Navy:	Mr. Schiefer
	CAPT Rose
Air Force:	LTG(ret) Howard Leaf
	Mr. Jones
PA&E:	Frank Lewis
DR&E:	TBD
DASD (ER&BRAC)	Mr. Bayer
	Mr. McAndrew

Laboratories Joint Cross-Service Group

Chair:	Dr. Anita Jones
Team Leader:	Dr. Dorman
Army:	TBD
Navy:	TBD
Air Force:	Mr. Mattice
	Mr. Campbell
T&E:	TBD
OT&E:	TBD
PA&E:	Mr. Bliss
DASD (ER&BRAC)	Mr. Bayer
	Mr. McAndrew

Military Treatment Facilities Joint Cross-Service Group

Chair:	Dr. Martin
Team Leader:	RADM Koenig
Army:	LTG Lanoue
	BG Zajtchwk
Navy:	CAPT Golembieski
	CDR Dilorenzo
AF:	MG Buethe
	BG Hoffman
PA&E:	Mr. Dickens
JCS:	COL Moore
	COL Kim
COMPT:	Ms Danko
	Mr Smith
PA&E:	Mr Dickens
	Mr. College
DASD (ER&BRAC):	Mr. Bayer
	Mr. Miglionico
DoDIG:	Wayne Million

Undergraduate Pilot Training Joint Cross-Service Group

Chair:	Mr. Finch
Team Leader:	Mr. Parmentier
Army:	TBD
Navy:	CAPT Buzzell
	COL Stockwell
Air Force:	MG Profitt
	MG Tonoso
PA&E:	Mr. Angelo
DASD (ER&BRAC):	Mr. Bayer
	COL Thompson

Economic Impact Joint Cross-Service Group

Chair:	Mr. Bayer
Team Leader:	Mr. Berger
	COL Thompson
Army:	TBD
Navy:	David Wennergen
	CAPT Ferguson
Air Force:	Mr. Reinertson
	Mr. Van Gasbeck
PA&E:	Dr. Bryan Jack
OEA:	TBD

January 1994

BRAC 95 Joint Group Meetings

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1 
2	3	4	5	6	7	8
9	10	11 1400 - Steering Group 1600 - Economic Impact	12 0930 - Laboratories 1400 - Selection Criteria	13 1500 - Selection Criteria 1600 - Economic Impact	14 1500 - Selection Criteria	15
16	17 	18 0900 - Test & Evaluation 1300 - Laboratories	19 1100 - Selection Criteria	20	21 1000 - Undergrad Pilot Trng 1300 - Steering Group	22
23	24	25 1515 - Mil Treatment Facilities	26 1530 - Steering Group	27	28 1100 - Review Group	29
30	31 1300 - Laboratories					

December 93

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

February 94

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28					

As of: January 21, 11:50:36 AM

BRAC 95

Steering Group Meeting

January 26, 1994

Minutes

The DASD(ER&BRAC) chaired this third Steering Group meeting acting for the ASD(ES). The meeting began at 15:30, the agenda and a list of the principal attendees are attached.

The Chair began the meeting by stating that he had approved the previous meeting's minutes. The Chair also reiterated the guidance he had provided at the last Steering Group meeting by stating that as these documents were "Close Hold", the minutes would not be distributed or coordinated. However, the minutes were available for review after the meeting

The Chair then announced that there were two major items for discussion: joint cross-service group action plans and changing the selection criteria. Discussion ensued regarding alternative methodologies for briefing the cross-service group action plans to the BRAC 95 Review Group. It was decided that the DASD(ER&BRAC) would brief each group's chart and the Chairs of each group would highlight important issues.

The Depot Maintenance Cross Service Group Chairman then began his presentation stating that the membership of his group had been established and that the other initiatives ongoing in this area had to be kept in sync. The Depot Maintenance Chairman then stated that the quantification of core maintenance policy is due by 20 February. (Charts for this and the following presentations are attached.)

The Test and Evaluation co-study team leader then began his presentation by stating that some capabilities in the T&E area are driven by the Ballistic Missile Defense Organization. Further, all DoD facilities supporting T&E would be considered in their review. He then announced that this group had decided against including IG and Comptroller representatives. The presentation continued with discussions concerning the use of available studies such as Project Reliance providing a source of ideas as well as information on functional and mission areas within T&E.

Further discussion continued in regard to the overlap between the Maintenance Depot, Laboratories and T&E groups and how these groups will use common data elements where appropriate. Discussion then ensued regarding the T&E Board of Directors (composed of the Service Vice Chiefs) who already have an organization and ideas that will be considered by the T&E group.

The T&E presentation then outlined it's milestones and concluded with discussions touching on the requirement for outsourcing policies, the need for an internal control plan for the cross-service groups (which would cover data networks), the use of contractors or Federally Funded Research and Development Centers and the fact that the T&E group holds meetings every Tuesday morning.

The Laboratories Group presented next, beginning with a discussion on their intent to define who and what will be considered by relying on the "taxonomy" provided in Project Reliance and other studies. A discussion on a determination of core capabilities and outsourcing followed. Discussion ensued regarding electronic data management impacts on certification and internal control plan issues.

The Military Treatment Facilities group briefed next. Discussion centered on the fact that the group, having it's first meeting the day before, had just begun to get started and, as such, refinements were required to their action plan in order to ensure success in meeting their milestones.

The Undergraduate Pilot Training group then briefed. The presentation began with a discussion on the fact that a general consensus within the group had already been arrived at. Initial indications, however, are that the ability to share data may need further refinement.

The Economic Impact group presented last. Discussion ensued on the group's goal of arriving at guidelines for economic impact and cumulative economic impact, if practicable. It was stated that the group reviewed how economic impact had factored into BRAC 93 and how the group was reviewing whether that would be feasible and would contribute to the process. Discussion continued in regard to whether the cost would justify the benefit of analyzing the costs to other federal agencies of closures.

The next agenda item discussed concerned changing the selection criteria. The BRAC 95 Steering Group Executive Secretary, who chaired the Steering Group's Selection Criteria Working Group, presented an analysis of proposed changes to the selection criteria as well as the pros and cons of changing the criteria (see attached). After some discussion concerning the level of detail necessary to be briefed to the January 28 Review Group meeting, given the use of detailed read-ahead packages, the Steering Group closed the issue with a strong affirmation that no changes to the criteria were necessary.

The next item concerned the requirement for Internal Control Plans covering the joint cross-service groups. It was decided to utilize the Services's experience in this regard in conjunction with the IG and arrive at a standardized plan for use by the

joint cross-service groups. A group of Service representatives would work on developing a draft standardized plan for approval by the Steering Group.

The meeting ended with a short discussion regarding the joint cross-service group presentations to the Review Group. Topics to be briefed to the Review Group would be action plans and changing the selection criteria and issues would include the relationship among the groups, data sharing and use of contractors.

The meeting then concluded at 17:15.

Approved: Robert E. Bayer
Acting Chairman

BASE CLOSURE STEERING GROUP MEETING

January 26, 1994 3:30 P.M. Rm 3D-1019

AGENDA

- Previous Meeting's Minutes

- Joint Cross-Service Group Presentations -- Action Plans and Milestones -- 5 to 10 Minutes Each
  - Depot Maintenance
  - Test and Evaluation
  - Laboratories
  - Military Treatment Facilities
  - Undergraduate Pilot Training
  - Economic Impact

- Changing Selection Criteria
  - Presentation of Draft Briefing to BRAC 95 Review Group
  - Revised Issue Papers (handout)

- Joint Cross-Service Group Internal Control Plans
  - Requirement
  - Establish Working Group?

- Agenda for Review Group Meeting -- January 28th, 11:00, Rm 3E-869

- Other Business

BRAC 95

Steering Group Meeting

January 26, 1994

Key Attendees

Mr. Robert Bayer, OSD (Economic Reinvestment and BRAC)
Mr. Mark Wagner, OSD (Economic Security)
Mr. Doug Hansen, OSD (Base Closure and Utilization)
Mr. Michael Owen, Army
Mr. Charles Nemfakos, Navy
Mr. Jim Boatright, Air Force
Mr. James Klugh, DUSD (Logistics)
Ms. Jeanne Fites, OSD (Personnel and Readiness)
Ms. Cathy Kelleher, DLA
Mr. Nick Toomer, OSD (OT&E)
Mr. Irv Boyles, OSD (T&E)
MAJ Robin Pope, OSD (DR&E)
Mr. Bob Mason, OSD (Logistics)
Ms. Patricia Watson, OSD (Health Affairs)
Col Mike Donnelly, OGC
BG Tolin, Joint Staff
Mr. John Rosamond, OSD (Reserve Affairs)
Mr. Bill Paseur, OSD Comptroller
Mr. John Morgan, OSD (PA&E)
Mr. Joseph Sikes, OSD (Environmental Security)

Depot Maintenance and BRAC 95

Membership

- Depot Steering Group
  - Army - Deputy Assistant Secretary of Army for Logistics
  - Navy - Assistant Secretary of Navy (RD&A)
    - » Deputy Chief of Naval Operations (Logistics)
  - Air Force - Deputy Chief of Staff Logistics
  - Marines - Deputy Chief of Staff for Installations and Logistics
  - Director, Defense Logistics Agency
  - Joint Staff, Director for Logistics
- Technical and Support Group
  - DASD (ER&BRAC)
  - DASD (PR)
  - ADUSD (MP)
  - ADUSD (M&RMP)
  - ADUSD (TP)
  - ADUSD(LBS&TD)
  - Military Departments
  - Joint Staff
  - DLA
  - DNA
  - PA&E

Functions

- *Establish* Guidelines, Assumptions, Measures of Merit, Data Elements, and Milestones
- *Identify* necessary policies and make related recommendations.
- *Oversee* cross-service analysis of common functions
- *Review* excess capacity analyses
- *Develop* closure and realignment alternatives and targets
- *Analyze* cross-service trade offs
- *Validate* Service analysis as required

Other Initiatives

- **Depot Maintenance Task Force**
- **Industrial Base Assessment**
  - **Public /Private Infrastructure Balance**
- **DDMC**

Milestones

1994

January 3 - USD(A&T) Establishes Cross-Service Groups

January 7 - DEPSECDEF Kickoff Memorandum

January 12 - Component Membership Nominations Due to Cross Service Group Chairmen

January 21 - Cross-Service Group POA&M's Due to USD(A&T)

January 24 -28 - BRAC Review Group Meets to Evaluate POA&Ms

January 31 - Joint Staff Issues Interim Force Structure Guidance

January 31 - BRAC Review Group Recommends Amendments to Selection Criteria to SECDEF

February 15 - Proposed Amendments to Selection Criteria Published in Federal Register, if Required

March 1 - Key Outsourcing and Industrial Base Policy Decisions Due From USD(A&T)

March 31 - BRAC Review Group Recommends Final Selection Criteria to SECDEF

March 31 - Cross-Service Groups Issue Analysis Guidance

December 15 - Joint Staff Issues Final Force Structure Guidance Based on FY 1996 Budget

December 30 - Services Forward Recommendations to SECDEF and ASD(ES)

1995

January 3 - President Nominates Commissioners, or Process is Ended

March 1 - SECDEF Forwards Recommendations to Commission.

Draft Milestones for the Joint Cross-Service Group for Depot Maintenance

February 1 - Start Developing Draft Standard Data Element Definitions and Common Baselines for Service Depot BRAC Analysis

February 28 - Publish Standard Data Element Definitions and Common Baselines for Service Depot BRAC Analysis

March 1 - Start Review of Service CORE Quantification

March 31 - Issue Analysis Guidance

April 4 - Assess Results of Depot Maintenance Task Force

April 15 - Begin Review of Unique Capabilities of Depots

April 30 - Complete Review of Unique Capabilities of Depots

Continued

Draft Milestones for the Joint Cross-Service Group for Depot Maintenance (continued)

May 30 - Receipt of Certified Data from Services

June 24 - Propose Tentative Closure and Realignment Targets and Complete Review of Military Component Excess Capacity Analysis

July 29 - Assessment of Alternatives and Targets on Supply Activities

August 5 - Begin Monthly In Process Military Components and Defense Agency Reviews and Analysis of Cross-Service Tradeoffs

December 15 - Evaluate Impact of Final Force Structure Guidance

January 4 , 95- Begin Validation of Military Components and Defense Agency Recommendations

February 15 - Complete Validation of BRAC Recommendations

TEST AND EVALUATION

JOINT CROSS-SERVICE GROUP

January 26, 1994

1. **Action Plan**

2. **Milestones**

MEMBERS OF GROUP

Representatives of:

- **Army**
- **Navy**
- **Air Force**

- **BMDO**
- **DNA**
- **Joint Interoperability and Engineering Organization**

- **Director, Defense Research and Engineering**
- **DASD (Economic Reinvestment and BRAC)**
- **Director, PA&E**

SUMMARY OF ACTIONS

ACTION 1 Define bases and functions to be addressed

- Consider all DoD facilities that support T&E (Includes DNA, DISA, labs, depots, MRTFB)
- Use T&E Project Reliance structure where applicable

ACTION 2 Establish guidelines, standards, assumptions, measures of merit, data elements, and milestone schedules

- Seek common data elements with Lab and Depots
- Workload driven by budget, technology, and threat

SUMMARY OF ACTIONS (cont.)

ACTION 3 Oversee DoD Components' cross-Service analyses

- Analyses under auspices of T&E Executive Agent Board of Directors
- Periodic progress reviews by T&E Group

ACTION 4 Identify outsourcing policies and make recommendations regarding these policies

- Address government vs contractor development/ ownership
- Address conversion of GOGO to GOCO

SUMMARY OF ACTIONS (cont.)

ACTION 5 Review excess capacity analyses

- Use Range Utilization Measurement System (RUMS) definitions
- Component analyses to be certified to T&E Executive Agent Board of Directors

ACTION 6 Develop closure or realignment alternatives and determine excess capacity

- T&E Group to propose alternatives
- Assess capabilities, capacity, and workload

SUMMARY OF ACTIONS (cont.)

ACTION 7 **Analyze Cross-Service tradeoffs**

- **Review the results of DoD Component's analyses**
- **Resolve conflicts**

OTHER REQUIRED ACTIVITIES

- **COORDINATION** - Coordinate with Laboratory Group, Depot Group, T&E Executive Agent Board of Directors

- **RECORD KEEPING** - BRAC Office representative to keep minutes per record keeping requirements

  - Secretariat to maintain documentation

- **INTERNAL CONTROLS** - Develop internal control plan to ensure management and accuracy of data during collection and analysis

  Computer networking

MILESTONE SCHEDULE

DUE DATE	MILESTONE
12 Jan √	Group membership established.
18 Jan √	Formation Meeting.
24 Jan √	Develop Action Plan and Milestones.
25 Jan	Group Approval of Action Plan.
26 Jan	Report on Action Plan and Milestones to BRAC 95 Steering Group.
28 Jan	Action Plan to BRAC 95 Review Group.
1 Feb	Initial draft of functions and bases to be addressed by T&E Cross-Service Group. Provide to T&E Board of Directors and Laboratory and Depot Groups.
4 Feb	Draft Component recommendations for measure of merit, guidelines, and assumptions available for review.

MILESTONE SCHEDULE

DUE DATE	MILESTONE
8 Feb	Group review of draft internal control plan, RUMS, outsourcing policy, measures of merit, guidelines, and assumptions. Provide consensus to T&E Board of Directors.
11 Feb	T&E Board of Directors and Laboratory and Depot Groups comment on functions and bases
15 Feb	Final approval of functions and bases. Identify potential data elements and data management procedures.
18 Feb	Comments on outsourcing policy, measures of merit, guidelines, and assumptions due from T&E Board of Directors
22 Feb	Final approval of measures of merit, guidelines, and assumptions.
1 Mar	Complete internal management control plan. Consensus on required data elements and data management procedures.
8 Mar	Complete action on outsourcing policy.

MILESTONE SCHEDULE

DUE DATE	MILESTONE
15 Mar	Finalize all documentation for BRAC 95 Steering Group Review.
15 Mar	Identify necessary outsourcing policies and make recommendations regarding those policies.
25 Mar	Finalize per Steering Group inputs.
31 Mar	Issue to DoD Components.

Laboratory Joint Cross-Service Group

BRAC '95 Action Plan

Laboratory Joint Cross-Service Group

VISION

- **WORLD CLASS DoD LABORATORIES**
  - **personnel**
  - **facilities**
  - **products**

Laboratory Joint Cross-Service Group

GOAL
A MAINTAINABLE INFRASTRUCTURE

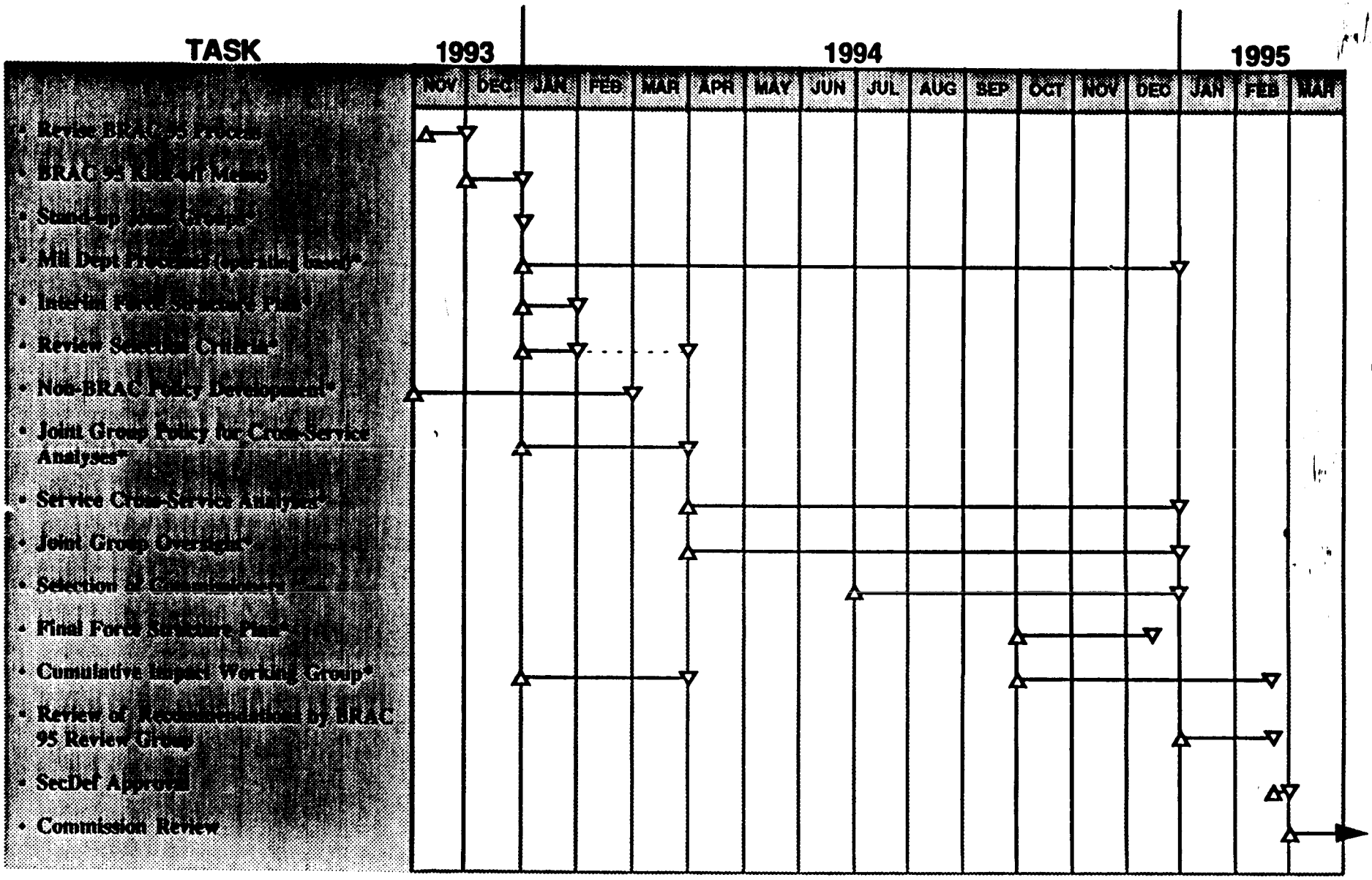
- Keep in-house only those functions and elements of work in which DoD is expected to provide world leadership.
- Rely on partnerships with industry, other government agencies and academe.
- Look for opportunities to share assets among the Services.

Laboratory Joint Cross-Service Group

PHASES

1. JOINT GROUP POLICY FOR CROSS-SERVICE ANALYSES
2. JOINT GROUP OVERSIGHT OF SERVICE CROSS-SERVICE ANALYSES

BRAC 95 Timeline



* Work products reviewed by BRAC 95 Review Group

Appendix B

Laboratory Joint Cross-Service Group

PHASE 1

- **JOINT GROUP POLICY FOR CROSS-SERVICE ANALYSES**
  - **COMMON SUPPORT FUNCTIONS**
  - **GUIDELINES, MEASURES, DATA ELEMENTS**
  - **OUTSOURCING POLICY**
  - **INTERNAL CONTROLS**

Laboratory Joint Cross-Service Group

PHASE 2

- **JOINT GROUP OVERSIGHT OF SERVICE CROSS-SERVICE ANALYSES**
  - **OVERSEE COMPONENT CROSS-SERVICE ANALYSES**
  - **REVIEW EXCESS CAPACITY ANALYSES**
  - **DEVELOP ALTERNATIVES, EXCESS CAPACITY REDUCTION TARGETS**
  - **ANALYZE TRADEOFFS**

BRAC 95 Steering Group

Minutes of Meeting of August 25, 1994

The ASD(ES) chaired this meeting. The agenda and a list of participants is attached. The chair announced that the previous meeting's minutes were available for review.

COBRA Model

The DASD(ER&BRAC) asked when the latest version of the COBRA Model would be completed. The Army, as executive agent for the model, stated that version 5.0 was due from the contractor on September 1st. Discussion ensued in regard to the advisability of using an abbreviated form of the COBRA Model for joint cross-service group use. The Air Force stated they had already done some work in this area and would present this to the group in the near future. Discussion centered on whether it would be useful for the joint cross-service groups to winnow their alternatives through consideration of the costs and savings of various alternatives. It was the groups's consensus that the Services would have to help the joint cross-service groups with COBRA runs as they are doing with the optimization model runs. The DASD(ER&BRAC) stated that the Economic Impact tool was almost finished and the Air Force would complete a dry run of the tool this week.

Joint Cross-Service Group Presentation

Depot Maintenance briefed the attached slides. A discussion item concerned the group's preference for receiving site value from the Services on a 0-100 scale. However, since this was impossible for the Air Force, receiving a 1-2-3 banding would be sufficient. Additionally, there was agreement that an exchange of site and functional value would be accomplished on 15 September. Another discussion item concerned the fact that since enhancements to the model might still be necessary to accommodate the Depot Group's unique requirements, it would be necessary to brief the BRAC 95 Steering Group Chairman of any significant changes. The Depot Maintenance Group received approval of their analytical framework and was authorized to receive certified data.

Excess Capacity Reduction Targets

Discussion concerned the pros and cons of capacity reduction targets and whether targets should be either quantifiable or be issued as statements that would require, for instance, eliminating the maximum excess capacity possible. The Chair asked the Services and cross-service groups to provide a written description of their capacity reduction guidelines.

Other

There was consensus that the strawman schedule was workable. Comments were requested on the draft policy memorandum and the Joint Cross-Service Analysis Tool User's guide (attached).

Approved: for Joshua Gotbaum
Chairman

BRAC 95 STEERING GROUP MEETING

August 25, 1994 Time: 14:30 Room: 5D-1033

AGENDA

- **Previous Meeting's Minutes**
- **Depot Maintenance Joint Cross-Service Group Briefing**
- **Excess Capacity Reduction Targets**
- **Tri-Department COBRA Team**
- **Joint Cross-Service Analyses Policy Memorandum**
- **Strawman Schedule**
- **Other Business**

BRAC 95

Steering Group Meeting

August 25, 1994

Key Attendees

Mr. Joshua Gotbaum, Chairman, ASD (Economic Security)
Mr. Robert Bayer, OSD (Economic Reinvestment and BRAC)
Mr. Paul Johnson, Army
Mr. Charlie Nemfakos, Navy
Mr. Jim Boatright, Air Force
MGEN Jay Blume, Air Force
MS. Marge McManamay, DLA
Mr. Jim Klugh, DUSD Logistics
Mr. Lou Finch, OSD (P&R)
Mr. John Burt, OSD (T&E)
Mr. Nick Toomer, OSD (OT&E)
Mr. John Bolino, OSD (T&E)
Mr. Craig Dorman, OSD (DR&E)
MGEN Kenneth Anderson, OSD (Health Affairs)
Mr. George Ostrom, C3I
Mr. Vance Kauzlarich, DISA
LTC Jim Van Ness, OGC
COL Fellers, Joint Staff
Mr. John Rosamond, OSD (Reserve Affairs)
Mr. John Morgan, OSD (PA&E)
Mr. Pat Meehan, OSD (Environmental Security)
Mr. Wayne Million, DoDIG
Mr. Bill Paseur, OSD Compt

Joint Cross Service Group Depot Maintenance Briefing to BRAC Steering Group August 25, 1994

Purpose

- Present JCSG-DM methodology for determining
  - Excess capacity
  - Functional values
- Analytical methodology
- Approval to receive data to begin the analysis process

Agenda

- Background
- Excess Capacity
- Functional Values
- Analytical methodology
  - Organization
  - Joint analysis process
  - Optimization formulations
  - Policy imperatives
  - Data Base Security and Management
- Plan of Action and Milestones

Background

- Data call issued April 4, 1994
- July 29, 1994 meeting of JCSG-DM approved
  - DPADS
  - Optimization model
  - General functional value methodology
  - Alternative development process
  - Requested site Military values be provided simultaneously with functional values in a standard broad range scale
- August 24, 1994 meeting of JCSG-DM approved
  - Specific functional value weights
  - Functional Cobra
  - Site Military value range of 0-100
  - Over-all analytic methodology

Excess Capacity and Target Reduction Methodology

- Size to CORE, but recognize special requirements
- Upper and lower limits
  - Current capacity - CORE workloads
  - Current capacity - Programmed workload
- Plant replacement value will be used as a score keeping device

Capacity

- Determined in accordance with Defense Depot Maintenance Council Study of December 1990 to update DoD 4151.15H
  - Number of Work Positions x 1615 x .95 = capacity
  - One shift, 40 hour week, 52 weeks per year
  - Recognized and accepted by BRAC Commission staff
- Current capacity - in direct labor hours by commodity
- Maximum potential capacity
  - Workload mix remains as funded/programmed
  - Optimal configuration and employment levels
  - No significant unprogrammed capital improvements
  - No unprogrammed MILCON

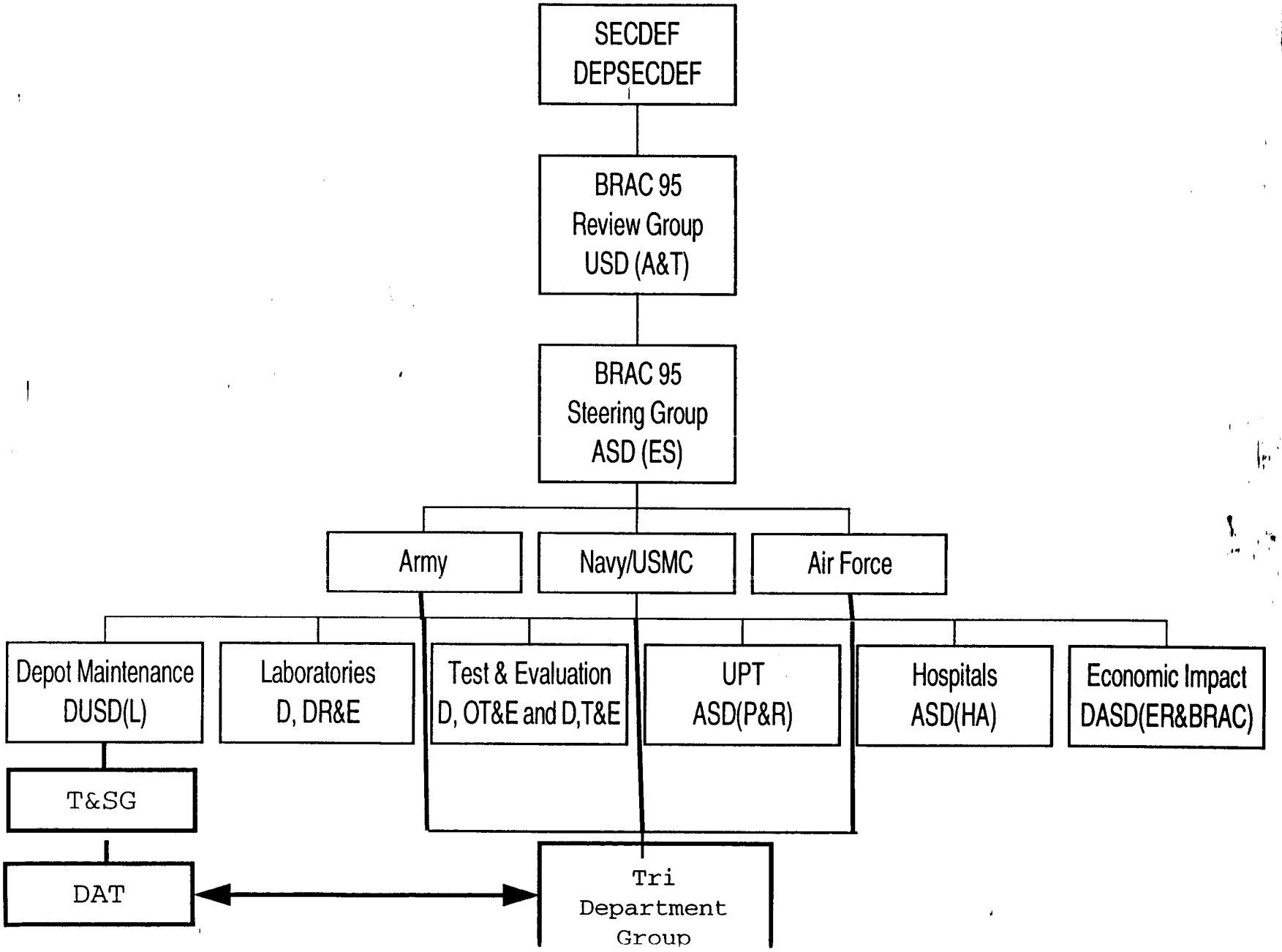
Functional Value

- Measures of Merit applicable to all commodity groups
  - CORE workloads/CORE capabilities - 30 points
  - Unique /peculiar CORE workload, capabilities and capacity - 15 points
  - Unique/peculiar CORE workload test facilities - 15 points
  - Other workloads - 30 points
  - Environmental issues/questions - 10 points
- Specific questions and weighting provided
- Applied to each commodity at each maintenance activity through Decision Pad Analysis Software (DPADS)
- Scale used 0 - 100

Analysis Methodology

- Joint analysis methodology
  - Organization
  - Joint analysis process
  - Optimization formulations
  - Database security and management
    - » Data Analysis Team

BRAC 95 Organization for Analysis



Joint Analysis Process

- Sequential building block process. Results validated and approved at the end of each step by JCSG-DM
- Analytical baseline established by data call and approved by JCSG-DM
- Optimization Model/with enhancements
  - To optimize each of the criteria in turn as part of a multiple criteria decision making process
  - To identify losers and gainers of workload realignments to enable the identification of costs of moving workload from one activity to another

Optimization Formulations

- **Functions**
  - Minimize excess capacity
  - Minimize number of depots remaining open
  - Maximize military value
  - Maximize functional values
- **Use of Matrix approach**
  - Uses outputs of enhanced Optimization model
  - Bounds the alternatives
  - Identifies trade-offs of competing criteria
  - Allows for the selection of preferred solutions

Policy Imperatives

- Each Service will have at least one depot to perform essential maintenance
- Additional policy imperatives are expected relating to maintenance of fixed wing aircraft

Data Analysis Team

- Sub group of the Technical and Support Group and is limited to a primary and alternate from each Military Service, plus OSD, LMI and appropriate administrative support.
  - Establish and maintain data base
  - Calculate functional values
  - Conduct data analyses
  - Provide guidance to the Tri-Department BRAC Group
- Construction of the data base management systems and procedures under way by LMI

Data Base

- Established from the certified responses to the data call
- Used to compute
  - Functional value for each commodity at each activity
  - Total DoD capacity
  - DoD CORE requirements
- Input for the Optimization model
- Store results of Optimization model runs

Plan of Action and Milestones

Data call responses received by JCSG-DM	Sep 1, 1994
JCSG-DM approval of master data base	Sep 15, 1994
Site Military Values received from MILDEPS	Sep 15, 1994
Initial optimization results	Sep 17, 1994
Excess capacity targets calculated	Sep 20, 1994
JCSG-DM approval of functional values	Sep 23, 1994
Approval of normalized site military values	Sep 23, 1994
Approval of reduction targets	Sep 23, 1994
Additional optimization results	Oct 10, 1994
Approval of initial alternatives	Oct 20, 1994
Iterative refinements of alternatives	Oct/Nov 1994
Final recommendations from MILDEPS	Jan 3, 1995

Appendix A

AMPL Model Input File

```
# JCSG Model Example

# Ronald H. Nickel, Ph.D.
# LTC Roy Rice, USAF

# 8-3-94

set X_sites;        # The set of Department X sites.
set Y_sites;        # The set of Department Y sites.
set Z_sites;        # The set of Department Z sites.

set SITE := X_sites union {Y_sites union Z_sites};
            # The set of all labs and T&E sites.

set EXCLD1 within SITE default {};  # A solution to be excluded.

set EXCLD2 within SITE default {};  # A solution to be excluded.

set EXCLD_INTER := if card(EXCLD2) > 0 then (EXCLD1 inter EXCLD2)
                        else EXCLD1;

set EXCLD_1DIFF2 := EXCLD1 diff EXCLD2;   # Sites in EXCLD1 but not
                                          # in EXCLD2.

set EXCLD_2DIFF1 := EXCLD2 diff EXCLD1;   # Sites in EXCLD2 but not
                                          # in EXCLD1.

set EXCLD_COMPLEMENT := SITE diff (EXCLD1 union EXCLD2);
            # The set of sites not in EXCLD1 or EXCLD2.

param excld_num := max(0,card(EXCLD_INTER)-1);

set FUNC;       # The set of functions.

set SITE_CAP within {SITE, FUNC} ;  # The set of site/function
                        # combinations that are
                        # meaningful.

param CAPAC {SITE_CAP}; # The functional capacity at each site for each
                # meaningful site/function combination.

param no_func := card(FUNC);    # The number of function types.

# Define the set performing missile functions.

set MISSLE_FUNC within {FUNC};

param missile_sites >= 0, default 15;
            # Number of sites allowed to perform the
            # missile function.  Used in the policy
            # imperative example (missile_sites = 3).

param max_sites >= 0, default card(SITE);
            # Number of open sites allowed in the
            # solution.

param REQ {FUNC};   # The DoD requirement for each function.
```

```
param MV {SITE};     # Military value for each site.

param NMV {s in SITE} := 4 - MV[s]; # Negative MV scoring.

param FV {SITE_CAP} >= 0.0; # Functional value by site and function.

param min_assign default 0.001; # Cannot assign less than
                                # min_assign * CAPAC[s,f] of
                                # function f to site s.

#
# Calculate upper bounds for the objective function components.
#

param MINNMV_UB := sum {s in SITE} NMV[s];

param MINSITES_UB := card(SITE);

param MINXCAP_UB := sum {(s,f) in SITE_CAP} CAPAC[s,f]/REQ[f];

param MAXSFV_UB := sum {(s,f) in SITE_CAP} FV[s,f];

param MAXFV_UB := sum {f in FUNC} max {(s,f) in SITE_CAP} FV[s,f];

#
# Use WGT_PCT to weight the functional value and non-functional value
# components of the objective functions.
#

param WGT_PCT >= 0, <= 100, default 99; # Percent of weight to put on
        # non-functional-value portion of the objective function.

param WGT1 := WGT_PCT;  # Weight for non-FV portion of the objective
                # functions.

param WGT2 := 100-WGT1; # Weight for FV portion of the objective functions.

#
# Decision variables
#

var OPEN {SITE} binary >= 0;     # Open or closed decision variable for
                # each site.

var SITE_LOAD {(s,f) in SITE_CAP} >= 0.0, <= CAPAC[s,f];
            # Amount of the requirement for function f to
            # be assigned to site s . Amount assigned
            # is limited by capacity of site s to perform
            # function f.

var SITE_FUNC {(s,f) in SITE_CAP} binary;
            # 1 if any assignment of workload for function
            # f is made to site s; 0 otherwise.

# The following variables, ALPHA, BETA,and GAMMA, are used to find
# alternative solutions.
```

```
var ALPHA binary; # At least one site from the intersection is excluded
                  # from the solution.

var BETA binary;  # At least one site from the complement of the union
                  # is included is included in the solution.

var GAMMA binary; # At least one site from
                  #   EXCLD1 - (EXCLD1 intersect EXCLD2)
                  # and at least one site from
                  #   EXCLD2 - (EXCLD1 intersect EXCLD2)
                  # are included in the solution.

#
# Objective Functions.
#

# Minimize total open site negative military value and
# maximize the normalized FV-weighted assignment of functional workload
# to sites.

minimize MINNMV:
    (WGT1/MINNMV_UB) * sum {s in SITE} OPEN[s]*NMV[s]
    - (WGT2/MAXFV_UB) * sum {(t,g) in SITE_CAP} FV[t,g]
    * (SITE_LOAD[t,g]/REQ[g]);

# Minimize the number of open sites and maximize the normalized
# FV-weighted assignment of functional workload to sites.

minimize MINSITES:
    (WGT1/MINSITES_UB) * sum {s in SITE} OPEN[s]
    - (WGT2/MAXFV_UB) * sum {(t,g) in SITE_CAP} FV[t,g]
    * (SITE_LOAD[t,g]/REQ[g]);

# Minimize total capacity and maximize the normalized FV-weighted
# assignment of functional workload to sites.

minimize MINXCAP:
    (WGT1/MINXCAP_UB) * sum {s in SITE}  OPEN[s] *
        (sum {(s,f) in SITE_CAP} CAPAC[s,f]/REQ[f])
    - (WGT2/MAXFV_UB) * sum {(t,g) in SITE_CAP} FV[t,g]
    * (SITE_LOAD[t,g]/REQ[g]);

# Maximize functional value without workload assignment weightings
# and maximize the normalized FV-weighted assignment of functional
# workload to sites.

maximize MAXSFV:
    (WGT1/MAXSFV_UB) * sum {(s,f) in SITE_CAP} FV[s,f]
    - (WGT2/MAXFV_UB) * sum {(t,g) in SITE_CAP} FV[t,g]
    * (SITE_LOAD[t,g]/REQ[g]);

#
# Constraints
#

# The requirement for each function has to be met.
```

```
subject to func_assgn {f in FUNC}:
    sum {(s,f) in SITE_CAP} SITE_LOAD[s,f] = REQ[f];

# Cannot assign functional workload to a site unless
# the site is open for assignment of that function.

subject to func_open {(s,f) in SITE_CAP}:
    SITE_LOAD[s,f] <= SITE_FUNC[s,f]*CAPAC[s,f];

# Sites with no functional requirement assigned
# are closed.

subject to site_closed {s in SITE}:
    OPEN[s] <= sum {(s,f) in SITE_CAP} SITE_FUNC[s,f];

# Allocation of functional requirements cannot be made
# to sites that are not open.

subject to site_open {s in SITE}:
    sum {(s,f) in SITE_CAP} SITE_FUNC[s,f] <= OPEN[s] * no_func;

# SITE_FUNC variables are set to 0 if little or no functional
# workload is assigned to a site.

subject to site_func_0 {(s,f) in SITE_CAP}:
    SITE_FUNC[s,f] <= SITE_LOAD[s,f]/(min_assign * CAPAC[s,f]);

# This constraint is an example of a policy imperative.
# Constrain the number of sites doing munitions work.
# This constraint only constrains the model if
#
#   missile_sites < card(SITE).

subject to missile_2 {f in MISSLE_FUNC}:
    sum {(s,f) in SITE_CAP} SITE_FUNC[s,f] <= missile_sites;

# This constraint is used to constrain the number of
# open sites in a solution.  max_sites has a default
# value equal to card(SITE), i.e., it does not constrain
# the solution unless max_sites is set to a lower value.

subject to no_sites:
    sum {s in SITE} OPEN[s] <= max_sites;

#
# Exclude solutions defined by the sets EXCLD1 and EXCLD2.
#

subject to alt_opt_cond_1:
    sum {s in EXCLD_INTER} OPEN[s] <= excld_num + 1 - ALPHA;

subject to alt_opt_cond_2:
   sum {s in EXCLD_COMPLEMENT} OPEN[s] >= BETA;

subject to alt_opt_cond_3a:
   sum {s in EXCLD_1DIFF2} OPEN[s] >= GAMMA;
```

```
subject to alt_opt_cond_3b:
   sum {s in EXCLD_2DIFF1} OPEN[s] >= GAMMA;

subject to alt_opt_cond_123:
   ALPHA + BETA + GAMMA >= 1;
```

Appendix B

AMPL Data Input File

```
# Data file for JCSG optimization examples.

# Ron NIckel
# 7-6-94

set X_sites :=
    X_A
    X_B
    X_C
    X_D
    X_E;

set Y_sites :=
    Y_A
    Y_B
    Y_C
    Y_D
    Y_E;

set Z_sites :=
    Z_A
    Z_B
    Z_C
    Z_D
    Z_E;

set EXCLD1 := X_A X_C X_D Z_A Z_B Z_D;

set EXCLD2 := X_C X_D Y_C Z_A Z_B Z_D;

set FUNC :=
    Air_Veh
    Mun
    E_Cmbt
    Avion
    Mis
    Sat;

set SITE_CAP :  Air_Veh Mun   E_Cmbt  Avion   Mis     Sat :=
        X_A             +             +       +               -       -
        X_B             +             +       -               -       -
        X_C             +             +       -               +       +
        X_D             -             -       -               +       -
        X_E             -             -       -               -       +
        Y_A             +             +       +               -       -
        Y_B             +             -       -               -       -
        Y_C             -             +       -               +       +
        Y_D             -             -       -               +       +
        Y_E             -             -       -               -       +
        Z_A             +             +       +               +       +
        Z_B             +             -       -               +       +
        Z_C             -             +       -               -       +
        Z_D             +             -       +               +       +
        Z_E             -             -       +               +       +

# Used to model the policy imperative.
```

```
set MISSLE_FUNC := Mis;

param CAPAC:    Air_Veh Mun     E_Cmbt  Avion  Mis     Sat :=
        X_A     450             850     3000            .       .       .
        X_B     7000            200     .               .       .       .
        X_C     2500            4500    .               250     200     300
        X_D     .               .       .               3500    .       4000
        X_E     .               .       .               .       3000    .
        Y_A     5000            300     1000            .       .       .
        Y_B     500             .       .               .       .       .
        Y_C     .               2000    .               400     200     500
        Y_D     .               .       .               3500    100     .
        Y_E     .               .       .               .       2000    .
        Z_A     3000            1000    2000            1000    3000    250
        Z_B     1200            .       .               4000    700     50
        Z_C     .               1000    .               .       200     .
        Z_D     2857            .       1543            2000    300     300
        Z_E     .               .       20              500     200     2200;

param FV:       Air_Veh Mun     E_Cmbt  Avion   Mis     Sat :=
    X_A     50              88      67              .       .       .
    X_B     70              71      .               .       .       .
    X_C     68              58      .               92      62      71
    X_D     .               .       .               94      .       58
    X_E     .               .       .               .       89      .
    Y_A     57              54      91              .       .       .
    Y_B     72              .       .               .       .       .
    Y_C     .               88      .               78      59      64
    Y_D     .               .       .               69      93      .
    Y_E     .               .       .               .       92      .
    Z_A     81              72      52              72      56      85
    Z_B     92              .       .               93      59      61
    Z_C     .               75      .               .       50      .
    Z_D     86              .       78              66      65      73
    Z_E     .               .       77              71      91      93;

param REQ :=
    Air_Veh 9463
    Mun             5503
    E_Cmbt  3234
    Avion           3775
    Mis             3743
    Sat             2480;

# Banded military values for each site.
# 3 is good, 1 is bad.

param MV :=
    X_A     3
    X_B     3
    X_C     3
    X_D     2
    X_E     1
    Y_A     2
    Y_B     1
    Y_C     3
    Y_D     2
```

```
Y_E     1
Z_A     3
Z_B     3
Z_C     2
Z_D     3
Z_E     1;
```

MEMORANDUM FOR SECRETARIES OF THE MILITARY DEPARTMENTS
CHAIRMAN OF THE JOINT CHIEFS OF STAFF
UNDER SECRETARIES OF DEFENSE
ASSISTANT SECRETARIES OF DEFENSE
COMPTROLLER
GENERAL COUNSEL
INSPECTOR GENERAL
DIRECTOR, OPERATIONAL TEST AND EVALUATION
ASSISTANTS TO THE SECRETARY OF DEFENSE
DIRECTOR, ADMINISTRATION AND MANAGEMENT
DIRECTORS OF THE DEFENSE AGENCIES

SUBJECT: BRAC 95 -- Joint Cross-Service Group Functional Analysis Process

This memorandum summarizes the process for integrating the evaluation processes of the Joint Cross-Service Groups (JCSGs) into the individual Military Department BRAC 95 evaluation processes. It also documents the overall process needed for credible and defensible recommendations involving installations where common support functions (labs, depots, test and evaluation, undergraduate pilot training, and medical facilities) are located.

JCSGs will determine a functional value for each of the common support functions within their jurisdiction. These functional values should be independent of the military value of any particular installation. The assessments of functional value and assessments of functional capacity and requirements, using certified data, will then be incorporated into analyses of possible closure or realignment alternatives. The Joint Cross-Service Groups (which include representatives from the Military Departments) will use their own functional expertise and judgment to develop alternatives for consideration in the Military Department BRAC 95 processes.

To assist them as an analytic tool in this process, the JCSGs will use a linear programming optimization model (documentation attached). The model provides a basis for further JCSG analysis and application of judgement in developing alternatives. While the model has value in assessing alternatives for relocations and consolidations of common support functions, it cannot by itself make recommendations regarding closures or realignments of installations. Those can be made only by the Military Departments or the BRAC 95 Review Group, reflecting judgment by the Review Group, the Military Departments and the JCSG's concerning the functional value of activities and the military value of installations, based on the final criteria.

Each JCSG will be supported in their evaluation by a Joint Cross-Service Working Group (JCSWG), variously referred to as sub-groups, study teams or technical and support groups. These groups are currently in existence and providing support to the JCSGs. JCSWGs will adapt the linear programming model to assist each JCSG in its analysis and aid in developing alternatives. All JCSWGs

will be supported by a single Tri-Department BRAC Group consisting of representatives from each Military Department which will execute runs of the linear programming (optimization) according to the objective functions and policy imperatives provided by the JCSGs and the certified data. JCSG alternatives can be derived from any number of combinations of objective functions and policy imperatives.

The Military Departments will conduct their individual BRAC processes in parallel with the JCSG analyses, to determine their BRAC 95 recommendations. JCSG products may be used where and as appropriate to assist in determining installation military value in the individual Military Department BRAC processes. The product of each Military Department's analysis will be a banding of installations which will reflect the relative military value of installations within the Military Department. Military Departments will provide these judgments to the JCSG's by October 3, 1994. These products will then be used to produce a second set of linear programming (optimization) outputs incorporating installation military values.

The JCSGs will then review the above two families of outputs. They will apply their functional expert judgment to compare feasible alternatives and work with the Military Departments to facilitate cross-service actions that will maximize infrastructure (overhead) reductions at minimal functional cost. The JCSGs, with the help of the Military Departments, will then analyze these alternatives to determine the cost and return on investment consequences of each alternative using the COBRA model. This combination of operational and financial screening is intended to help eliminate possible recommendations that while apparently attractive, are unexecutable. This cooperative work by the JCSGs and the Military Departments should be advanced and completed by the end of October, to provide time for the BRAC 95 Review Group to consider any issues that may be appropriate and for Military Departments to formulate their recommendations. The JCSGs and Military Departments must continue to interact during November as the Military Departments integrate JCSG alternatives into their respective BRAC analytical processes.

At the completion of their individual BRAC processes, the Military Departments will present their recommendations for closure and realignment to the Secretary of Defense no later than January 3, 1995. The Office of the Assistant Secretary of Defense for Economic Security will staff the Military Departments recommendations within the Office of the Secretary of Defense. The JCSGs have no defined role during this review period. However, the BRAC 95 Review Group or OSD principals may solicit the opinion of or task the JCSG's during this period if and as appropriate.

The process described above will produce the best interaction between JCSG and Military Department analyses. It permits consideration of possible joint functional solutions to be incorporated with the existing BRAC process of the Military Departments. If you have questions concerning the process, please contact Mr. Robert Bayer, Deputy Assistant Secretary of Defense for Economic Reinvestment and BRAC, 703-697-1771.

Attachment

BRAC 95 Strawman Schedule

AUG	Steering Group approval of JCSG methodologies
SEP	JCSG unconstrained analyses
SEP (end)	Review Group meeting re targets and results of JCSG unconstrained analyses
OCT	JCSG constrained analyses using military value
OCT (end)	Review Group meeting to approve JCSG alternatives for Military Department consideration
NOV	Military Department BRAC 95 analyses and continued interaction with JCSGs
NOV (end)	Review Group meeting to resolve problems
DEC	Military Department final decision making
JAN	OSD review of Military Department recommendations

Joint Cross-Service Analysis Tool User's Guide

Executive Summary

Background

The Deputy Secretary of Defense established policy for the Department of Defense 1995 base realignment and closure (BRAC 95) process with strong emphasis on cross-service opportunities. This document describes operations and capabilities of the common analytical tool to assist Joint Cross-Service Groups (users) in the development of cross-service alternatives as part of the BRAC process.

Analytical Tool

A standard tool often used to develop optimal solutions to complex allocation problems is the mixed-integer, linear program (MILP). The cross-service analysis of allocations of common support functional requirements to Military Department sites and activities is a complex allocation problem.

The MILP formulation described in this document can be used to develop cross-service functional alternatives. The data elements required for this tool are derived from the certified data available to the user. Policy imperatives and other constraints and considerations can be incorporated into the model to allow the tailoring of formulations to accommodate functional attributes and perspectives.

The tool provides the capability to vary the objective function for a formulation in order to obtain families of solutions. A solution defines a set of functional allocations and identification of sites or activities where cross-service functional workload could be assigned. An objective function that combines military value of sites and activities with functional values is discussed in this document. This particular objective function will tend to consolidate common support functions into high military value sites or activities. At the same time, this objective function will assign common support functions to sites having high functional values. The weighting between these two goals can be parameterized to obtain families of solutions for further consideration.

Second and third best alternatives for a given formulation can be obtained using methods described in this document. These alternatives may be considered as additions to the set for further review.

Other objective functions that the user may wish to consider in addition to the one mentioned above, include minimizing excess functional capacity, minimizing the total number of sites performing cross-service functions, and maximizing the sum of functional values. This tool will also allow the user to explore the sensitivity of the optimal solution for a given formulation to particular model inputs.

The MILP formulation described provides the basic analytical tool to generate cross-service functional alternatives.

Contents

User's Guide Organization

This user's guide provides an overview of the analytical methodology in the next section. That section describes the products of the methodology and discusses terminology relating to what a *site or activity* is relative to a *function*.

Section 2 describes the basic data elements that are used in the methodology. Section 2 also discusses data elements in terms of what these elements are meant to represent.

The different optimization problem formulations that the user may choose to use to explore alternatives are discussed in section 3. These include finding a small set of high military value sites or activities that can perform the functional requirement, minimizing excess capacity, and minimizing the number of sites. All of these formulations are parameterized in such a way that the user can explore trade-offs between different factors, such as military value or excess capacity, and assignments of functional requirement based upon functional value. This section also discusses the incorporation of policy imperatives in the optimization problem formulations.

Section 4 demonstrates the application of each of these formulations to a notional set of data. Section 5 describes the methodology for obtaining the second and third best solutions to a given formulation. Finally, section 6 identifies the commercial software product that was used to solve the optimization example problems. Input files for this solver are included in the appendices.

1. Analytical Methodology Overview

The optimization formulations described in this document require a set of data elements as inputs. All of the formulations require a functional value and functional capacity for each site capable of performing that specific cross-service function. The DoD requirement for each cross-service function is needed. Some of the formulations will also require the military values for each site.

A preliminary formulation that allocates cross-service functional requirements based upon functional capacities and functional value will be conducted. The objective function of this formulation will assign the DoD requirement for each cross-service function to sites or activities having the highest functional value for each function. These assignments will only be constrained by the functional capacities at each site. This analysis will not require the military values for the sites.

The primary formulations optimize the assignment of cross-service functions based upon military values of sites, functional values, and capacities. These formulations are very flexible in that multiple objective functions and policy imperatives modeled as constraints may be used to explore different solutions.

A standard resource allocation tool comprises the core of this analytical approach. A standard tool used to find optimal solutions to complex allocation problems is the mixed-integer, linear program (MILP). Allocation of common support functional requirements to military department sites and activities subject to constraints is a complex allocation problem.

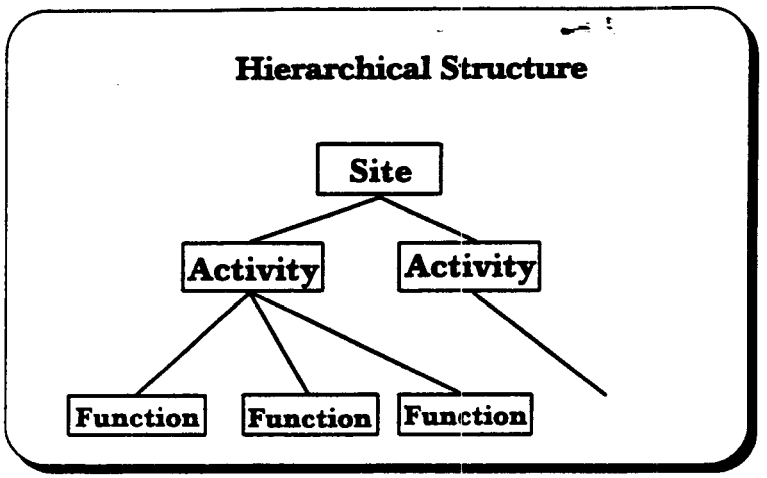
Process Products

The following table lists the various products of the analytical approach defined in this document.

Process products	Description
Capacity analyses	Develop methodology to measure the capacity of a site or activity to perform a function. Use data call responses to calculate capacities.
Requirements analyses	For each function, develop methodology to estimate the out-year DoD requirement to perform the function. Calculate the required capacity and identify excess capacity reduction goals.
Functional value (FV) assessments	Develop measures and weights for assessing the value of performing a function at a site or an activity based upon data call responses. Provide FV for all appropriate functions and site/activity combinations.
Optimize functional requirement allocations (preliminary formulation)	Find the best allocation of functional requirements to sites or activities based solely upon functional capacities and functional values.
Optimize allocations of functional requirements to high military value sites or activities (primary formulations)	Develop solutions based upon the first three products, above, and policy imperatives. Solutions will be developed using the optimization formulations described later in this document as a tool to explore alternatives.

Hierarchical Structure

The Office of the Secretary of Defense (OSD), the departments, and other groups all use different terms to describe the various components of infrastructure that are to be considered by the users. In this document a ***site*** refers to an installation, base, or station. An ***activity*** refers to a component of the site such as depot or test facility residing on the site. A site may have one or more activities. A ***function*** is the capability to perform a particular support action or produce a particular commodity. A common support function is a function. An activity includes a collection of functions. For example, a depot (an activity) may repair engines and airframes. These would be two functions performed at this activity. A function may be further broken down into subfunctions or facilities required to perform functions, but the approach described here does not consider the subfunctions or facilities. Subfunctions or facilities can be incorporated into the process described here if the appropriate data is available. The following diagram illustrates this hierarchical structure.



2. Data Elements

The analytical approach assumes that the following data will be available for all of the sites and functions:

Data Elements	Description
mv_s	Military value of site s expressed as 3 (high), 2 (medium), or 1 (low).
fv_{sf}	Functional value for performing function f at site/activity s expressed as a number from 0 (low) to 100 (high).
cap_{sf}	Capacity of site/activity s to perform function f.
req_f	The total DoD requirement or goal to perform function f.

The military value of a site, mv_s, should measure the overall value of the site.

The fv_{sf} functional value for performing function f at site (or activity) s measures the capability and quality of performing work of type f at site (or activity) s. Capacity to perform a specialized subfunction that is not one of the functions called out in the formulation can be considered in calculating functional value.

3. Optimization Formulations

The mixed integer linear programming (MILP) model formulations, that are described below, serve as the basic analytical tools to assist users in the development of cross-service alternatives, allow for modification of formulations, and incorporation of policy imperatives.[1]

[1] A *policy imperative* is a statement that restricts the solutions that are acceptable and that can be modeled as a constraint in the formulation. An example of a policy imperative is included in one of the examples.

Preliminary Formulation.

The preliminary formulation of the optimization problem will be solved once the initial data (fv_{sf}, cap_{sf}, req_f) are available. This formulation, called **MAXFV** will maximize the functional values weighted by the assigned workload and normalized by the functional requirement. No constraints other than the functional capacities at each site and the requirement to meet the DoD requirement for each cross-service function are included in this formulation. This solution will serve as a baseline of what is possible if no other factors, such as military values of sites or costs, are considered.

For each function, this formulation will load as much of the functional DoD requirement as it can into the site or activity having the highest functional value for that function. If that site or activity does not have the capacity to accommodate the full requirement, the site or activity having the next highest functional value will be allocated any remaining requirement up to its capacity, and so on.

The mathematical description of this formulation follows:

$$\underset{l_{sf}}{Maximize} \ \Sigma_{s\in S}\Sigma_{f\in F} l_{sf} \times fv_{sf}/req_f$$

subject to :

$\Sigma_{s\in S} l_{sf} = req_f$: for all functions $f \in F$,

$l_{sf} \le k_{sf} \times cap_{sf}$: for all sites $s \in S$ and $f \in F$,

$o_s \le \Sigma_{f\in F} k_{sf}$: for all sites $s \in S$,

$k_{sf} \le \frac{l_{sf}}{\alpha \times cap_{sf}}$: for all functions $f \in F$ and sites $s \in S$,

$0 \le o_s \le 1$, *integer* : for all sites $s \in S$,

$0 \le k_{sf} \le 1$, *integer* : for all sites $s \in S$ and functions $f \in F$;

where

$S =$ The set of all sites under consideration by joint cross-service groups;

$F =$ The set of all functions under consideration by joint cross-service groups;

$o_s =$ 1 if any functional requirement is assigned to the site, and 0 otherwise;

$\alpha =$ 0.01. No assignment of less than one percent of capacity will be allowed.

Decision variable

$l_{sf} =$ amount of the DoD requirement for function f to be assigned to site s.

$k_{sf} =$ 1 if any amount of function f is assigned to site s, 0 otherwise.

The o_s variables are included in this formulation only to keep count of the number of sites that actually have some functional requirement assigned to them. Their inclusion in the model does not affect the assignment of the functional requirement to sites or activities. The

two constraints involving the o_s variables are used to ensure that these variables are set to the correct values.

The k_{sf} variables that are structural variables that indicate whether or not any functional workload of type f has been assigned to site s. The α parameter can be used to prevent small functional workload assignments. If α is set to 0.01, then the minimum workload assignment of a function to a site, given that any functional workload for this function is made to this site, would be one percent of that site's capacity to perform that function. The α parameter may be adjusted as required to meet the requirements of the particular user.

Primary Formulations

These formulations explore potential cross-service functional alternatives. The basic formulation is shown below. Specification of the objective function, $f(o_s, l_{tg}, k_{uh})$, will create a different optimization problem.

$$\textit{Minimize } f(o_s, l_{tg}, k_{uh})$$
$$o_s, l_{tg}, k_{uh}$$

subject to

$\Sigma_{s \in S} l_{sf} = req_f$: for all functions $f \in F$,

$o_s \leq \Sigma_{f \in F} k_{sf}$: for all sites $s \in S$,

$0 \leq l_{sf} \leq k_{sf} \times cap_{sf}$: for all functions $f \in F$ and sites $s \in S$,

$k_{sf} \leq \frac{l_{sf}}{\alpha \times cap_{sf}}$: for all functions $f \in F$ and sites $s \in S$,

$0 \leq o_s \leq 1$, *integer* : for all sites $s \in S$,

$0 \leq k_{sf} \leq 1$, *integer* : for all sites $s \in S$ and functions $f \in F$,

where

$S =$ The set of all sites under consideration by joint cross-service groups;

$F =$ The set of all functions under consideration by joint cross-service groups;

$\alpha =$ 0.01. No assignment of less than one percent of capacity will be allowed.

Decision variables

$o_s =$ 1 if any cross-service functional requirements are assigned to the site or activity, 0 otherwise;

$l_{sf} =$ amount of the DoD requirement for function f to be assigned to site or activity s.

$k_{sf} =$ 1 if any DoD requirement for function f is to be assigned to site s, 0 otherwise.

Three different optimization formulations that vary only in the specification of the objective function are discussed next.

The MINNMV Formulation. This formulation will find a small number of sites having the highest military value that can accommodate the DoD required workload. In addition, it will assign the DoD requirement for each cross-service function to the retained sites (or activities) having the highest functional value for that function. The purpose of this formulation is to assign, to the extent possible, the cross-service functional requirements to sites or activities having high military value and high functional values. The rationale for this approach is that sites having high military value are the ones most likely to be retained by the military departments. The objective function for this formulation is as follows:

$$\underset{o_s, l_{tg}}{Minimize}\ f(o_s, l_{tg}, k_{uh}) = \left(\frac{w}{u_1}\right) \times \Sigma_{s \in S}\, o_s \times nmv_s - \left(\frac{100-w}{u_2}\right) \times \Sigma_{t \in S} \Sigma_{g \in F}\, l_{tg} \times fv_{tg}/req_g$$

where

$0 \le w \le 100$	Weight parameter used to vary the emphasis between military value and functional value,
$u_1 \ge 0, u_2 \ge 0$	$u_1 = \Sigma_{s \in S}(4 - mv_s),\ u_2 = \Sigma_{f \in F} \max_{s \in S} fv_{sf}$
$nmv_s =$	$4 - mv_s$.

This formulation will be referred to as the **MINNMV** model since it minimizes the sum of $4 - mv_s$ for retained sites or activities. Site or activities having a high military value (3) will have 1 as their value. Site or activities with low military value (1) will have 3 as their value.

The parameters u_1 and u_2 are used to scale the two components of the objective function. Scaling the components of the objective function enhances the ability of the solver to find a solution. Apart from the weight parameters, these scaling parameters will scale the components of the objective function to values near 1.0 .

The weight parameter, w, can be varied to change the emphasis the formulation gives to military value versus functional value. If $w = 0$, this formulation matches the preliminary formulation (**MAXFV**) as site military value would have zero weight. Conversely, if w is set to a large value ($w = 99$), functional value would have little weight. The **MAXFV** and **MINNMV** formulations are the same formulation, only differing in the parameter w . Varying $w$in the formulation allows the model to be used to create a family of solutions. These points are illustrated by an example in the next section.

The component of the objective function that addresses military value of sites, $\Sigma_{s \in S}\, o_s \times nmv_s = \Sigma_{s \in S}\, o_s \times (4 - mv_s)$, affects the optimal solution as follows. (For this discussion we will ignore the functional value component of the objective function, $-\Sigma_{t \in S} \Sigma_{g \in F}\, l_{tg} \times fv_{tg}/req_g$.) If there were no constraints in the formulation, i.e., satisfy the DoD requirement, the minimum value of the objective function would be achieved by setting $o_s = 0$ for all sites since $4 - mv_s \ge 1$ for all sites. Given that some sites have to be open, all else being equal, it is better to open a site with $mv_s = 3$ because it increases the objective function by the least amount.

The MINXCAP Formulation. If the parameter w is set to a large value ($w = 99$), this problem formulation will find the set of retained sites having the smallest total functional capacity but still able to perform the DoD functional requirement. Depending on w, functional assignments are also optimized. The objective function for this formulation is:

$$Minimize\ f(o_s, l_{tg}, k_{uh}) = \left(\frac{w}{u_1}\right) \times \Sigma_{s \in S}\, o_s \times \left(\Sigma_{f \in F}\, cap_{sf}/req_f\right) - \left(\frac{100-w}{u_2}\right) \times \Sigma_{t \in S} \Sigma_{g \in F}\, l_{tg} \times fv_{tg}/req_g$$
$$o_s, l_{tg}, k_{uh}$$

If $w = 0$, this formulation, like the **MINNMV** formulation, is also equivalent to the **MAXFV** formulation. If w is set to a large value, excess capacity is reduced as much as possible without regard to functional values. As in the **MINNMV** formulation, u_1 and u_2 are used to scale the components of the objective function. For this formulation $u_1 = \Sigma_{s \in S} \Sigma_{f \in F}\, cap_{sf}/req_f$. The other scale parameter u_2 is set to the same value for all formulations.

The MINSITES Formulation. This formulation, depending on the value of w, will find the minimum-sized set of site or activities that can perform the DoD functional requirement. As in the previous formulations, if $w = 0$, this formulation is also equivalent to **MAXFV**. The objective function for this formulation is given by:

$$Minimize\ f(o_s, l_{tg}, k_{uh}) = \left(\frac{w}{u_1}\right) \times \Sigma_{s \in S}\, o_s - \left(\frac{100-w}{u_2}\right) \times \Sigma_{t \in S} \Sigma_{g \in F}\, l_{tg} \times fv_{tg}/req_g$$
$$o_s, l_{tg}, k_{uh}$$

If w is set to a large value, the cross-service functional workload is assigned to the smallest possible number of sites regardless of functional values. For this formulation $u_1 = |S|$, the number of sites in the set S.

The MAXSFV formulation. This formulation maximizes the sum of the functional values for all of the retained sites. The objective function for this formulation is given by:

$$Maximize\ f(o_s, l_{tg}, k_{uh}) = \left(\frac{w}{u_1}\right) \times \Sigma_{s \in S}(o_s \times \Sigma_{f \in F} fv_{sf}) + \left(\frac{100-w}{u_2}\right) \times \Sigma_{t \in S} \Sigma_{g \in F}\, l_{tg} \times fv_{tg}/req_g$$
$$o_s, l_{tg}, k_{uh}$$

For this formulation $u_1 = \Sigma_{f \in F} \Sigma_{s \in S} fv_{sf}$. If the number of sites to be retained is not constrained, all of the sites will be retained in the solution since the objective function is maximized when $o_s = 1$ for all sites. Obtaining meaningful results with this formulation, therefore, requires a constraint on the number of sites retained.

Policy Imperatives

A policy imperative is any statement that can be formulated as a constraint in the model. The model described here is very flexible in its capacity to handle imperatives. Examples of imperatives that can be modeled include:

- assigning functions in groups,
- increasing the average DoD military value of the sites assigned any cross-service functional workload,

- requiring the weighted functional value for a given common support function to be at least as great as some value,
- limiting the number of sites that have any cross-service functional workload assigned to them,
- requiring that each department's average military value is not allowed to go below some level,
- requiring a certain number of sites in a geographic area to remain open, and
- requiring the distribution of functional workload to follow a certain pattern, e.g., in one department, in one location, or on both coasts.

This is not an exhaustive list of the possibilities for policy imperatives. An example of a policy imperative added to the **MINNMV** formulation is given in the following section.

Consistent Alternatives

The functional data and constraints from all of the users may be combined into a single formulation. In the event that two users obtain solutions that are inconsistent (e.g., the solutions have a site or activity receiving cross-service functional workload in one, and losing all of its cross-service functional workload in the other) this capability can be used to resolve the inconsistency.

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4. Optimization Examples

The following examples use representative, notional data to demonstrate the formulations. Three different departments, X, Y, and Z, each have 5 sites (A, B, C, D, and E). Six functions are considered: air vehicles, munitions, electronic combat, fixed-wing avionics, conventional missiles and rockets, and satellites. Table 1 shows the basic data for these sites. Table 1 also shows the DoD requirement by function and the percent of excess capacity. Percent excess capacity is calculated as

$$100 \times \left(\frac{\sum_{s \in S} cap_{sf}}{req_f} - 1 \right).$$

Preliminary Formulation (MAXFV).

Results for the **MAXFV** formulation are shown in table 2. If there is no functional requirement assigned to a site, the capacity for that function is shown as zero at that site even if the site has requirements for other functions assigned. Notice that, for this solution, *all sites have some cross-service functional workload assigned.*

The column in table 2 labeled *Wgt FV* shows the weighted functional value for each function. Wgt FV for function $f \in F = \frac{\sum_{s \in S} fv_{sf} \times req_{sf}}{\sum_{s \in S} req_{sf}}$. Wgt FV is an indicator of the quality of the cross-service allocation of the functional requirement across all sites and activities. The

average FV, the weighted average FV, and the weighted percent excess capacity are also shown in the table. These three numbers are gross measures of the quality of the solution.

Primary Formulation (MINNMV).

Table 3 shows the data for the optimal solution to the **MINNMV** formulation with $w = 99$. The number of sites having cross-service functional workload assigned has been reduced from 15 to six. Excess capacity is greatly reduced. The weighted percent excess capacity is only 31 percent compared to 60 for the **MAXFV** formulation. The DoD military value average is increased by 28.8 percent. The military value averages for the two departments with any sites retained have both been increased. The weighted functional value scores are not as good as the scores obtained from the **MAXFV** formulation. The average FV score is almost 14 points lower than for the **MAXFV** formulation.

Primary Formulation (MINNMV) with Policy Imperative

As an example of a policy imperative, consider the following. Suppose the user responsible for the missile function determines that only two sites should perform the conventional missiles and rockets function. The optimal solution to the original **MINNMV** formulation assigned the missile function to four different sites. Modifying the **MINNMV** formulation such that only two sites are allowed to perform the missile function results in the solution shown in table 4. The optimal solution still requires only six sites to perform the cross-service functions, but the sites are different. Only four of the sites are common to both solutions. Since the model has an additional constraint, the average military value has decreased compared to the original **MINNMV** formulation.

Parameterization of the MINNMV Formulation

Table 5 summarizes the results of varying the parameter w in the **MINNMV** formulation over the values 0, 2, 3, 5, 10, 20, 30, 40, 60, and 99 . As is to be expected, the number of sites and activities with cross-service functional workload assigned and weighted functional value decrease as w increases. The average military value generally increases as w increases. Though these results pertain only to this particular example, they clearly illustrate qualitative differences between the **MAXFV** and **MINNMV** formulations. The optimal solutions to the formulation do not change as w varies over the range of 60 to 99.

This example illustrates how the parameter w can be used to generate a family of cross-service functional solutions. For instance, a user with table 5 before him could decide that from this family of solutions, the solution obtained by setting $w = 20$ is worth exploring further since the weighted functional values are very close to the best values obtained in the **MAXFV** formulation and the weighted average percent excess capacity has been reduced from 60 to 17 percent. Table 6 displays the full output from this formulation.

Figure 1 displays this information in graphical form. The figure shows the sharp decrease in the average functional value for conventional missiles and rockets when w is changed

from 20 to 30. The figure also displays the increase in average military value that is achieved by using the **MINNMV** formulation.

Primary Formulation (MINXCAP)

Table 7 shows the output of the **MINXCAP** formulation with $w = 99$. As would be expected, this formulation produces a solution that greatly reduces excess capacity, but the weighted functional values have suffered. The weighted average percent excess capacity has been reduced to almost 6 percent.

Primary Formulation (MINSITES)

The results of using the **MINSITES** formulation with $w = 99$ are given in table 8. The optimal solution retains only six sites. The sites are different than the sites retained in the **MINNMV** solution.

Primary Formulation (MAXSFV)

The results of using the MAXSFV formulation with the number of retained sites constrained to be no more than six are displayed in table 9.

Summary of Formulation Results

The following table summarizes the basic statistics for the five formulations.

Statistics	MAXFV	MINNMV	MINXCAP	MINSITES	MAXSFV
Sites retained	15	6	7	6	6
Weighted avg. percent excess capacity	60.37	31.39	6.11	12.14	24.1
Weighted average FV	84.7	73.9	74.2	76.5	62.9
Average military value	2.2	2.83	2	2.67	2.67

5. Generating Alternatives

Alternative solutions, in terms of the retained sites or activities, may be obtained by excluding a set of retained or open sites from a formulation. For example, the optimal solution obtained from the **MINNMV** formulation (see table 3) retains sites XA, XC, XD, ZA, ZB, and ZD. To find another optimal solution with the same objective function value or the next best solution, we define the set $\Delta_1 = \{XA, XC, XD, ZA, ZB, ZD\}$ and add the following constraints to the **MINNMV** formulation:

$\Sigma_{s \in \Delta_1} o_s \leq |\Delta_1| - \alpha$ (condition 1)

$\Sigma_{s \in S-\Delta_1} o_s \geq \beta$ (condition 2)

$\alpha + \beta \geq 1$

$\alpha = 0, 1$ and $\beta = 0, 1$.

A solution that satisfies either condition 1 ($\alpha = 1$) or condition 2 ($\beta = 1$) will be different from the original optimal solution. The formulation given above guarantees that at least one of these two conditions will hold at the optimal solution. The second best solution to the **MINNMV** formulation is given in table 10. The second-best solution retains sites XC, XD, YC, ZA, ZB, ZD. This solution actually has weighted functional values that are superior to those of the original optimal solution for some of the functions. Comparing values in tables 3 and 10, it would be difficult to argue that the optimal solution is clearly superior to the solution given in table 10.

If we define the set $\Delta_2 = \{XC, XD, YC, ZA, ZB, ZD\}$, then the following formulation can be used to find the third best solution:

$\Sigma_{s \in \Delta_1 \cap \Delta_2} o_s \leq |\Delta_1 \cap \Delta_2| - \alpha$ (condition 1)

$\Sigma_{s \in \Delta_1 \cap \Delta_2} o_s \geq \beta$ (condition 2)

$\left.\begin{array}{l} \Sigma_{s \in \Delta_1 - \Delta_2} o_s \geq \gamma \\ \Sigma_{s \in \Delta_2 - \Delta_1} o_s \geq \gamma \end{array}\right\rangle$ (condition 3)

$\alpha + \beta + \gamma \geq 1$

$\alpha = 0, 1$, $\beta = 0, 1$, and $\gamma = 0, 1$.

Any solution that satisfies any one of the three conditions will be different from the first two solutions. Table 11 shows the third best solution. Comparing table 11 to tables 3 and 10 results in a less compelling case for the strength of the third best alternative. Based upon this type of comparison, the first two solutions would be subjected to further analysis before selecting one as a recommendation.

6. Optimization Software

The solutions to these optimization problems were obtained using the commercially-available, IBM Optimization Subroutine Library (OSL)[2] interfaced with AMPL[3]. The text file describing these formulations in the AMPL format is contained in appendix A. Note that all of the different objective functions are defined in this single text file. This file contains the code required to generate the second and third best alternatives. The AMPL-format data file for the example is given in appendix B. These files are processed by the AMPL/OSL package to produce the outputs discussed in the examples section of this document.

[2] *Optimization with OSL* by Ming S. Hung, Walter O. Rom, and Allan D. Waren, published by The Scientific Press.

[3] *AMPL: A Modeling Language for Mathematical Programming* by Robert Fourer, David M. Gay, and Brian Kernighan, published by The Scientific Press, 1993.

Table 1. Joint Cross-Service Analysis Example
Basic Data

Function	Department X					Department Y					Department Z					Totals
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	
Capacities																
Air vehicles	450	7000	2500	0	0	5000	500	0	0	0	3000	1200	0	2857	0	22,507
Munitions	850	200	4500	0	0	300	0	2000	0	0	1000	0	1000	0	0	9,850
Electronic combat	3000	0	0	0	0	1000	0	0	0	0	2000	0	0	1543	20	7,563
Fixed-wing avionics	0	0	250	3500	0	0	0	400	3500	0	1000	4000	0	2000	500	15,150
Conv. missiles/rockets	0	0	200	0	3000	0	0	200	100	2000	3000	700	200	300	200	9,900
Satelites	0	0	300	4000	0	0	0	500	0	0	250	50	0	300	2200	7,600
Function FV Scores																
Air vehicles	50	70	68	0	0	57	72	0	0	0	81	92	0	86	0	
Munitions	88	71	58	0	0	54	0	88	0	0	72	0	75	0	0	
Electronic combat	67	0	0	0	0	91	0	0	0	0	52	0	0	78	77	
Fixed-wing avionics	0	0	92	94	0	0	0	78	69	0	72	93	0	66	71	
Conv. missiles/rockets	0	0	62	0	89	0	0	59	93	92	56	59	50	65	91	
Satelites	0	0	71	58	0	0	0	64	0	0	85	61	0	73	93	
Department Military Value	3	3	3	2	1	2	1	3	2	1	3	3	2	3	1	

Function	DoD req.	Pct. excess
Air vehicles	9,463	137.8
Munitions	5,503	79.0
Electronic combat	3,234	133.9
Fixed-wing avionics	3,775	301.3
Conv. missiles/rockets	3,743	164.5
Satelites	2,480	206.5

Table 2. MAXFV Model Output

Function	Department X A	X B	X C	X D	X E	Y A	Y B	Y C	Y D	Y E	Z A	Z B	Z C	Z D	Z E	Retained totals	Percent excess
Retain=1, Close=0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15	
Department Mil. Val.	3	3	3	2	1	2	1	3	2	1	3	3	2	3	1		
Capacities																	
Air vehicles	0	7000	0	0	0	0	500	0	0	0	3000	1200	0	2857	0	14557	53.8
Munitions	850	200	4500	0	0	0	0	2000	0	0	1000	0	1000	0	0	9550	73.5
Electronic combat	3000	0	0	0	0	1000	0	0	0	0	0	0	0	1543	20	5563	72.0
Fixed-wing avionics	0	0	0	3500	0	0	0	0	0	0	0	4000	0	0	0	7500	98.7
Conv. missiles/rockets	0	0	0	0	3000	0	0	0	100	2000	0	0	0	0	200	5300	41.6
Satelites	0	0	0	0	0	0	0	0	0	0	250	0	0	300	2200	2750	10.9
																Wgt. avg.	**60.37**
Workload assigned																**Totals**	
Air vehicles	0	1906	0	0	0	0	500	0	0	0	3000	1200	0	2857	0	9463	
Munitions	850	200	453	0	0	0	0	2000	0	0	1000	0	1000	0	0	5503	
Electronic combat	671	0	0	0	0	1000	0	0	0	0	0	0	0	1543	20	3234	
Fixed-wing avionics	0	0	0	3500	0	0	0	0	0	0	0	275	0	0	0	3775	
Conv. missiles/rockets	0	0	0	0	1443	0	0	0	100	2000	0	0	0	0	200	3743	
Satelites	0	0	0	0	0	0	0	0	0	0	250	0	0	30	2200	2480	
Department avg. MV			2.4					1.8					2.4				
Percent change			-0.0					0.0					-0.0				
DoD average MV								2.20									
Percent change								0.0									

DoD weighted FVs	
Function	**Wgt FV**
Air vehicles	81.2
Munitions	79.6
Electronic combat	79.7
Fixed-wing avionics	93.9
Conv. missiles/rockets	90.8
Satelites	92.0
Average FV	**86.2**
Weighted avg. FV	**84.7**

Table 3. MINNMV Model Output

Function	Department X A	X B	X C	X D	X E	Y A	Y B	Y C	Y D	Y E	Z A	Z B	Z C	Z D	Z E	Retained totals	Percent excess
Retain=1, Close=0	1	0	1	1	0	0	0	0	0	0	1	1	0	1	0	6	
Department Mil. Val.	3	3	3	2	1	2	1	3	2	1	3	3	2	3	1		
Capacities																	
Air vehicles	0	0	2500	0	0	0	0	0	0	0	3000	1200	0	2857	0	9557	1.0
Munitions	850	0	4500	0	0	0	0	0	0	0	1000	0	0	0	0	6350	15.4
Electronic combat	3000	0	0	0	0	0	0	0	0	0	0	0	0	1543	0	4543	40.5
Fixed-wing avionics	0	0	0	3500	0	0	0	0	0	0	0	4000	0	0	0	7500	98.7
Conv. missiles/rockets	0	0	200	0	0	0	0	0	0	0	3000	700	0	300	0	4200	12.2
Satelites	0	0	300	4000	0	0	0	0	0	0	250	50	0	300	0	4900	97.6
																Wgt. avg.	**31.39**
Workload assigned																**Totals**	
Air vehicles	0	0	2406	0	0	0	0	0	0	0	3000	1200	0	2857	0	9463	
Munitions	850	0	3653	0	0	0	0	0	0	0	1000	0	0	0	0	5503	
Electronic combat	1691	0	0	0	0	0	0	0	0	0	0	0	0	1543	0	3234	
Fixed-wing avionics	0	0	0	3500	0	0	0	0	0	0	0	275	0	0	0	3775	
Conv. missiles/rockets	0	0	200	0	0	0	0	0	0	0	2543	700	0	300	0	3743	
Satelites	0	0	300	1580	0	0	0	0	0	0	250	50	0	300	0	2480	
Department avg. MV			2.7					0.0					3.0				
Percent change			11.1					-100.0					25.0				
DoD average MV								2.83									
Percent change								28.8									

DoD weighted FVs	
Function	**Wgt FV**
Air vehicles	80.6
Munitions	65.2
Electronic combat	72.2
Fixed-wing avionics	93.9
Conv. missiles/rockets	57.6
Satelites	64.2
Average FV	**72.3**
Weighted avg. FV	**73.9**

Table 4. MINNMV Model with Policy Imerative Output

Function	Department X A	X B	X C	X D	X E	Y A	Y B	Y C	Y D	Y E	Z A	Z B	Z C	Z D	Z E	Retained totals	Percent excess
Retain=1, Close=0	0	1	1	1	1	0	0	0	0	0	1	0	0	1	0	6	
Department Mil. Val.	3	3	3	2	1	2	1	3	2	1	3	3	2	3	1		
Capacities																	
Air vehicles	0	7000	0	0	0	0	0	0	0	0	3000	0	0	2857	0	12857	35.9
Munitions	0	200	4500	0	0	0	0	0	0	0	1000	0	0	0	0	5700	3.6
Electronic combat	0	0	0	0	0	0	0	0	0	0	2000	0	0	1543	0	3543	9.6
Fixed-wing avionics	0	0	250	3500	0	0	0	0	0	0	1000	0	0	0	0	4750	25.8
Conv. missiles/rockets	0	0	0	0	3000	0	0	0	0	0	3000	0	0	0	0	6000	60.3
Satelites	0	0	300	4000	0	0	0	0	0	0	250	0	0	300	0	4850	95.6
																Wgt. avg.	**33.70**
Workload assigned																**Totals**	
Air vehicles	0	3606	0	0	0	0	0	0	0	0	3000	0	0	2857	0	9463	
Munitions	0	200	4303	0	0	0	0	0	0	0	1000	0	0	0	0	5503	
Electronic combat	0	0	0	0	0	0	0	0	0	0	1691	0	0	1543	0	3234	
Fixed-wing avionics	0	0	250	3500	0	0	0	0	0	0	25	0	0	0	0	3775	
Conv. missiles/rockets	0	0	0	0	3000	0	0	0	0	0	743	0	0	0	0	3743	
Satelites	0	0	300	1630	0	0	0	0	0	0	250	0	0	300	0	2480	
Department avg. MV			2.3					0.0					3.0				
Percent change			-6.3					-100.0					25.0				
DoD average MV								2.50									
Percent change								13.6									

DoD weighted FVs	
Function	**Wgt FV**
Air vehicles	78.3
Munitions	61.0
Electronic combat	64.4
Fixed-wing avionics	93.7
Conv. missiles/rockets	82.4
Satelites	64.1
Average FV	**74.0**
Weighted avg. FV	**74.7**

Table 5. Parameterization of the MINNMV Model

	Percent of weight on FV									
	0 MAXFV	2	3	5	10	20	30	40	60	99 MINNMV
Sites/activities open	15	13	12	11	9	8	7	6	6	6
Percent excess										
Air vehicles	53.8	48.5	48.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Munitions	73.5	73.5	73.5	69.9	51.7	51.7	51.7	15.4	15.4	15.4
Electronic combat	72.0	72.0	72.0	72.0	72.0	41.1	41.1	41.1	40.5	40.5
Fixed-wing avionics	98.7	98.7	6.0	6.0	6.0	6.0	6.0	6.0	98.7	98.7
Conv. missiles/rockets	41.6	38.9	38.9	38.9	4.2	4.2	22.9	17.6	12.2	12.2
Satelites	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9	97.6	97.6
Wgt. avg. % excess	**60.37**	**58.24**	**45.83**	**29.16**	**21.00**	**17.46**	**19.94**	**12.14**	**31.39**	**31.39**
Weighted FV										
Air vehicles	81.2	81.1	81.1	80.6	80.6	80.6	80.6	80.6	80.6	80.6
Munitions	79.6	79.6	79.6	79.2	76.1	76.1	76.1	65.2	65.2	65.2
Electronic combat	79.7	79.7	79.7	79.7	79.7	72.3	72.3	72.3	72.2	72.2
Fixed-wing avionics	93.9	93.9	93.0	93.0	93.0	93.0	93.0	93.0	93.9	93.9
Conv. missiles/rockets	90.8	90.7	90.7	90.7	85.4	85.4	59.6	59.5	57.6	57.6
Satelites	92.0	92.0	92.0	92.0	92.0	92.0	92.0	92.0	64.2	64.2
Average FV	**86.2**	**86.2**	**86.0**	**85.9**	**84.5**	**83.2**	**78.9**	**77.1**	**72.3**	**72.3**
Weighted avg. FV	**84.7**	**84.6**	**84.5**	**84.2**	**82.9**	**82.1**	**78.6**	**76.5**	**73.9**	**73.9**
DoD average MV	**2.20**	**2.31**	**2.33**	**2.27**	**2.44**	**2.50**	**2.71**	**2.67**	**2.83**	**2.83**

Figure 1. Parameterization of MINNMV

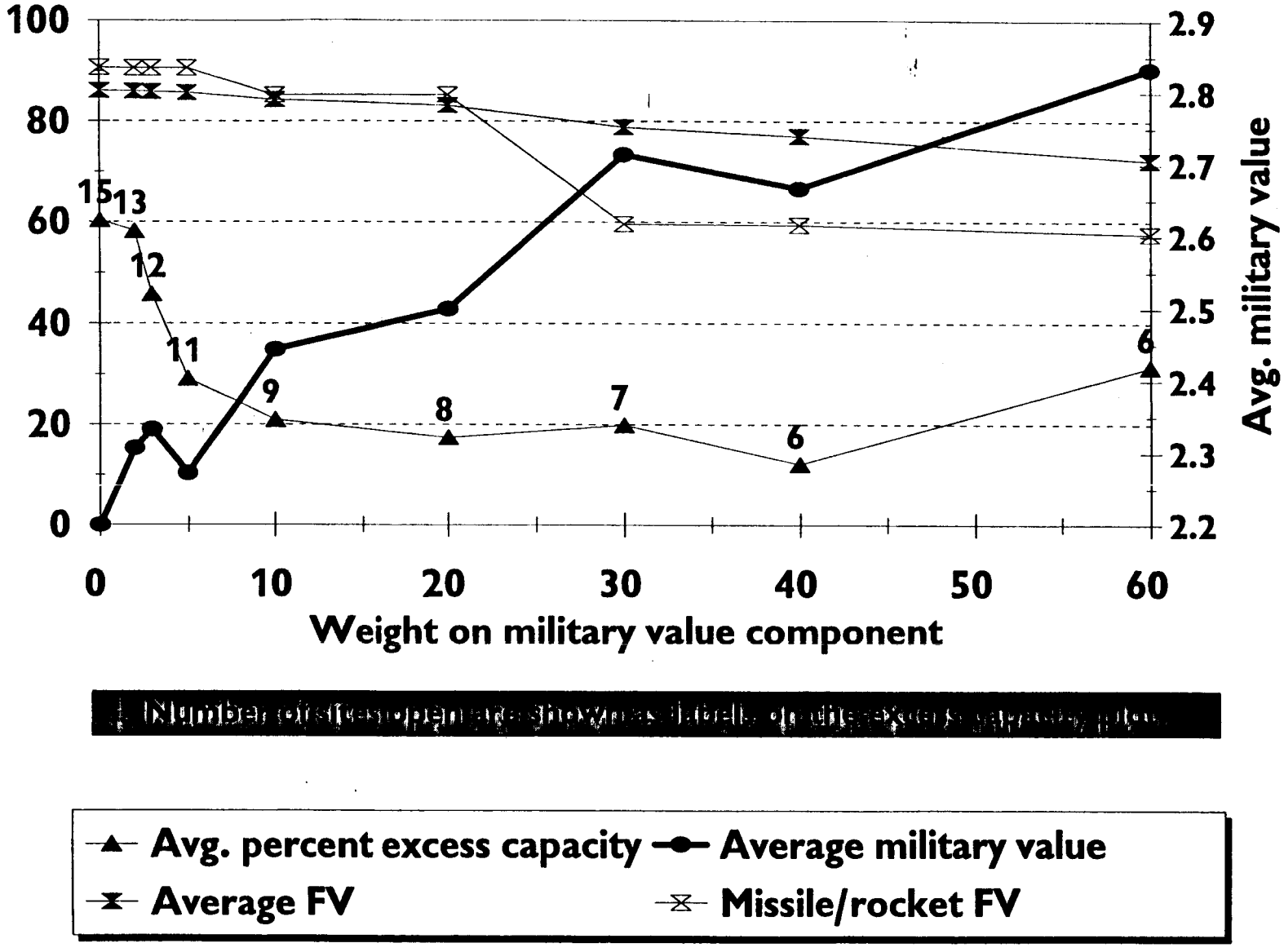

Table 6. MINNMV Model Output with Weight = 20

Function	Department X A	X B	X C	X D	X E	Y A	Y B	Y C	Y D	Y E	Z A	Z B	Z C	Z D	Z E	Retained totals	Percent excess
Retain=1, Close=0	1	0	1	0	1	0	0	1	0	0	1	1	0	1	1	8	
Department Mil. Val.	3	3	3	2	1	2	1	3	2	1	3	3	2	3	1		
Capacities																	
Air vehicles	0	0	2500	0	0	0	0	0	0	0	3000	1200	0	2857	0	9557	1.0
Munitions	850	0	4500	0	0	0	0	2000	0	0	1000	0	0	0	0	8350	51.7
Electronic combat	3000	0	0	0	0	0	0	0	0	0	0	0	0	1543	20	4563	41.1
Fixed-wing avionics	0	0	0	0	0	0	0	0	0	0	0	4000	0	0	0	4000	6.0
Conv. missiles/rockets	0	0	200	0	3000	0	0	200	0	0	0	0	0	300	200	3900	4.2
Satelites	0	0	0	0	0	0	0	0	0	0	250	0	0	300	2200	2750	10.9
																Wgt. avg.	**17.46**
Workload assigned																**Totals**	
Air vehicles	0	0	2406	0	0	0	0	0	0	0	3000	1200	0	2857	0	9463	
Munitions	850	0	1653	0	0	0	0	2000	0	0	1000	0	0	0	0	5503	
Electronic combat	1671	0	0	0	0	0	0	0	0	0	0	0	0	1543	20	3234	
Fixed-wing avionics	0	0	0	0	0	0	0	0	0	0	0	3775	0	0	0	3775	
Conv. missiles/rockets	0	0	200	0	3000	0	0	43	0	0	0	0	0	300	200	3743	
Satelites	0	0	0	0	0	0	0	0	0	0	250	0	0	30	2200	2480	
Department avg. MV			2.3					3.0					2.5				
Percent change			-2.8					66.7					4.2				
DoD average MV								2.50									
Percent change								13.6									

DoD weighted FVs	
Function	**Wgt FV**
Air vehicles	80.6
Munitions	76.1
Electronic combat	72.3
Fixed-wing avionics	93.0
Conv. missiles/rockets	85.4
Satelites	92.0
Average FV	**83.2**
Weighted avg. FV	**82.1**

Table 7. MINXCAP Model Output

Function	Department X A	X B	X C	X D	X E	Y A	Y B	Y C	Y D	Y E	Z A	Z B	Z C	Z D	Z E	Retained totals	Percent excess
Retain=1, Close=0	1	0	1	0	1	1	1	0	0	0	0	1	0	0	1	7	
Department Mil. Val.	3	3	3	2	1	2	1	3	2	1	3	3	2	3	1		
Capacities																	
Air vehicles	450	0	2500	0	0	5000	500	0	0	0	0	1200	0	0	0	9650	2.0
Munitions	850	0	4500	0	0	300	0	0	0	0	0	0	0	0	0	5650	2.7
Electronic combat	3000	0	0	0	0	1000	0	0	0	0	0	0	0	0	20	4020	24.3
Fixed-wing avionics	0	0	0	0	0	0	0	0	0	0	0	4000	0	0	0	4000	6.0
Conv. missiles/rockets	0	0	200	0	3000	0	0	0	0	0	0	700	0	0	200	4100	9.5
Satelites	0	0	300	0	0	0	0	0	0	0	0	0	0	0	2200	2500	0.8
																Wgt. avg.	**6.11**
Workload assigned																**Totals**	
Air vehicles	263	0	2500	0	0	5000	500	0	0	0	0	1200	0	0	0	9463	
Munitions	850	0	4500	0	0	153	0	0	0	0	0	0	0	0	0	5503	
Electronic combat	2214	0	0	0	0	1000	0	0	0	0	0	0	0	0	20	3234	
Fixed-wing avionics	0	0	0	0	0	0	0	0	0	0	0	3775	0	0	0	3775	
Conv. missiles/rockets	0	0	200	0	3000	0	0	0	0	0	0	343	0	0	200	3743	
Satelites	0	0	280	0	0	0	0	0	0	0	0	0	0	0	2200	2480	
Department avg. MV			2.3					1.5					2.0				
Percent change			-2.8					-16.7					-16.7				
DoD average MV								2.00									
Percent change								-9.1									

DoD weighted FVs	
Function	**Wgt FV**
Air vehicles	64.9
Munitions	62.5
Electronic combat	74.5
Fixed-wing avionics	93.0
Conv. missiles/rockets	84.9
Satelites	90.5
Average FV	**78.4**
Weighted avg. FV	**74.2**

Table 8. MINSITES Model Output

Function	Department X A	X B	X C	X D	X E	Y A	Y B	Y C	Y D	Y E	Z A	Z B	Z C	Z D	Z E	Retained totals	Percent excess
Retain=1, Close=0	1	0	1	0	0	0	0	0	0	0	1	1	0	1	1	6	
Department Mil. Val.	3	3	3	2	1	2	1	3	2	1	3	3	2	3	1		
Capacities																	
Air vehicles	0	0	2500	0	0	0	0	0	0	0	3000	1200	0	2857	0	9557	1.0
Munitions	850	0	4500	0	0	0	0	0	0	0	1000	0	0	0	0	6350	15.4
Electronic combat	3000	0	0	0	0	0	0	0	0	0	0	0	0	1543	20	4563	41.1
Fixed-wing avionics	0	0	0	0	0	0	0	0	0	0	0	4000	0	0	0	4000	6.0
Conv. missiles/rockets	0	0	200	0	0	0	0	0	0	0	3000	700	0	300	200	4400	17.6
Satelites	0	0	0	0	0	0	0	0	0	0	250	0	0	300	2200	2750	10.9
																Wgt. avg.	**12.14**
Workload assigned																**Totals**	
Air vehicles	0	0	2406	0	0	0	0	0	0	0	3000	1200	0	2857	0	9463	
Munitions	850	0	3653	0	0	0	0	0	0	0	1000	0	0	0	0	5503	
Electronic combat	1671	0	0	0	0	0	0	0	0	0	0	0	0	1543	20	3234	
Fixed-wing avionics	0	0	0	0	0	0	0	0	0	0	0	3775	0	0	0	3775	
Conv. missiles/rockets	0	0	200	0	0	0	0	0	0	0	2343	700	0	300	200	3743	
Satelites	0	0	0	0	0	0	0	0	0	0	250	0	0	30	2200	2480	
Department avg. MV			3.0					0.0					2.5				
Percent change			25.0					-100.0					4.2				
DoD average MV								2.67									
Percent change								21.2									

DoD weighted FVs	
Function	**Wgt FV**
Air vehicles	80.6
Munitions	65.2
Electronic combat	72.3
Fixed-wing avionics	93.0
Conv. missiles/rockets	59.5
Satelites	92.0
Average FV	**77.1**
Weighted avg. FV	**76.5**

Table 9. MAXSFV Model Output

Function	Department X					Department Y					Department Z					Retained totals	Percent excess
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E		
Retain=1, Close=0	0	0	1	1	0	1	0	0	0	0	1	1	0	1	0	6	
Department Mil. Val.	3	3	3	2	1	2	1	3	2	1	3	3	2	3	1		
Capacities																	
Air vehicles	0	0	2500	0	0	5000	0	0	0	0	3000	0	0	0	0	10500	11.0
Munitions	0	0	4500	0	0	300	0	0	0	0	1000	0	0	0	0	5800	5.4
Electronic combat	0	0	0	0	0	0	0	0	0	0	2000	0	0	1543	0	3543	9.6
Fixed-wing avionics	0	0	250	0	0	0	0	0	0	0	1000	4000	0	2000	0	7250	92.1
Conv. missiles/rockets	0	0	200	0	0	0	0	0	0	0	3000	700	0	0	0	3900	4.2
Satelites	0	0	0	4000	0	0	0	0	0	0	0	0	0	0	0	4000	61.3
																Wgt. avg.	**24.10**
Workload assigned																**Totals**	
Air vehicles	0	0	2500	0	0	5000	0	0	0	0	1963	0	0	0	0	9463	
Munitions	0	0	4500	0	0	300	0	0	0	0	703	0	0	0	0	5503	
Electronic combat	0	0	0	0	0	0	0	0	0	0	2000	0	0	1234	0	3234	
Fixed-wing avionics	0	0	250	0	0	0	0	0	0	0	1000	525	0	2000	0	3775	
Conv. missiles/rockets	0	0	43	0	0	0	0	0	0	0	3000	700	0	0	0	3743	
Satelites	0	0	0	2480	0	0	0	0	0	0	0	0	0	0	0	2480	
Department avg. MV			2.5					2.0					3.0				
Percent change			4.2					11.1					25.0				
DoD average MV								2.67									
Percent change								21.2									

DoD weighted FVs	
Function	**Wgt FV**
Air vehicles	64.9
Munitions	59.6
Electronic combat	61.9
Fixed-wing avionics	73.1
Conv. missiles/rockets	56.6
Satelites	58.0
Average FV	**62.3**
Weighted avg. FV	**62.9**

Table 10. MINNMV Model Output: Alternative 1

Function	Department X A	X B	X C	X D	X E	Y A	Y B	Y C	Y D	Y E	Z A	Z B	Z C	Z D	Z E	Retained totals	Percent excess
Retain=1, Close=0	0	0	1	1	0	0	0	1	0	0	1	1	0	1	0	6	
Department Mil. Val.	3	3	3	2	1	2	1	3	2	1	3	3	2	3	1		
Capacities																	
Air vehicles	0	0	2500	0	0	0	0	0	0	0	3000	1200	0	2857	0	9557	1.0
Munitions	0	0	4500	0	0	0	0	2000	0	0	1000	0	0	0	0	7500	36.3
Electronic combat	0	0	0	0	0	0	0	0	0	0	2000	0	0	1543	0	3543	9.6
Fixed-wing avionics	0	0	0	3500	0	0	0	0	0	0	0	4000	0	0	0	7500	98.7
Conv. missiles/rockets	0	0	200	0	0	0	0	200	0	0	3000	700	0	300	0	4400	17.6
Satelites	0	0	300	4000	0	0	0	500	0	0	250	50	0	300	0	5400	117.7
																Wgt. avg.	**34.41**
Workload assigned																**Totals**	
Air vehicles	0	0	2406	0	0	0	0	0	0	0	3000	1200	0	2857	0	9463	
Munitions	0	0	2503	0	0	0	0	2000	0	0	1000	0	0	0	0	5503	
Electronic combat	0	0	0	0	0	0	0	0	0	0	1691	0	0	1543	0	3234	
Fixed-wing avionics	0	0	0	3500	0	0	0	0	0	0	0	275	0	0	0	3775	
Conv. missiles/rockets	0	0	200	0	0	0	0	200	0	0	2343	700	0	300	0	3743	
Satelites	0	0	300	1080	0	0	0	500	0	0	250	50	0	300	0	2480	
Department avg. MV			2.5					3.0					3.0				
Percent change			4.2					66.7					25.0				
DoD average MV								2.83									
Percent change								28.8									

DoD weighted FVs	
Function	**Wgt FV**
Air vehicles	80.6
Munitions	71.4
Electronic combat	64.4
Fixed-wing avionics	93.9
Conv. missiles/rockets	57.8
Satelites	65.4
Average FV	**72.3**
Weighted avg. FV	**74.4**

Table 11. MINNMV Model Output: Alternative 2

Function	Department X A	X B	X C	X D	X E	Y A	Y B	Y C	Y D	Y E	Z A	Z B	Z C	Z D	Z E	Retained totals	Percent excess
Retain=1, Close=0	1	1	1	1	0	0	0	0	0	0	1	1	0	0	0	6	
Department Mil. Val.	3	3	3	2	1	2	1	3	2	1	3	3	2	3	1		
Capacities																	
Air vehicles	0	7000	0	0	0	0	0	0	0	0	3000	1200	0	0	0	11200	18.4
Munitions	850	200	4500	0	0	0	0	0	0	0	1000	0	0	0	0	6550	19.0
Electronic combat	3000	0	0	0	0	0	0	0	0	0	2000	0	0	0	0	5000	54.6
Fixed-wing avionics	0	0	0	3500	0	0	0	0	0	0	0	4000	0	0	0	7500	98.7
Conv. missiles/rockets	0	0	200	0	0	0	0	0	0	0	3000	700	0	0	0	3900	4.2
Satelites	0	0	300	4000	0	0	0	0	0	0	250	50	0	0	0	4600	85.5
																Wgt. avg.	**37.42**
Workload assigned																**Totals**	
Air vehicles	0	5263	0	0	0	0	0	0	0	0	3000	1200	0	0	0	9463	
Munitions	850	200	3453	0	0	0	0	0	0	0	1000	0	0	0	0	5503	
Electronic combat	3000	0	0	0	0	0	0	0	0	0	234	0	0	0	0	3234	
Fixed-wing avionics	0	0	0	3500	0	0	0	0	0	0	0	275	0	0	0	3775	
Conv. missiles/rockets	0	0	200	0	0	0	0	0	0	0	2843	700	0	0	0	3743	
Satelites	0	0	300	1880	0	0	0	0	0	0	250	50	0	0	0	2480	
Department avg. MV			2.8					0.0					3.0				
Percent change			14.6					-100.0					25.0				
DoD average MV								2.83									
Percent change								28.8									

DoD weighted FVs	
Function	**Wgt FV**
Air vehicles	76.3
Munitions	65.7
Electronic combat	65.9
Fixed-wing avionics	93.9
Conv. missiles/rockets	56.9
Satelites	62.4
Average FV	**70.2**
Weighted avg. FV	**71.6**

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WASHINGTON, DC 20301-3300

ECONOMIC SECURITY

13 APR 1994

MEMORANDUM FOR CHAIRPERSONS, BRAC 95 JOINT CROSS-SERVICE GROUPS

SUBJECT: Internal Control Plan for Managing the Identification of DoD Cross-Service Opportunities as Part of the DoD 1995 Base Realignment and Closure Process

The attached Internal Control Plan contains a description of the management controls that will guide and regulate Department of Defense use of Joint Cross-Service Groups as part of the 1995 Base Realignment and Closure (BRAC-95) process. The management controls described in this Internal Control Plan provide a basis for monitoring the BRAC-95 process and complying with the statutory requirements set forth in the Defense Base Closure and Realignment Act of 1990 (Public Law 101-510), as amended by Public Law 102-190 and Public Law 103-160, and policy guidance issued by the Deputy Secretary of Defense on 7 January 1994.

This Internal Control Plan is effective immediately and may be supplemented, as necessary, to enhance management control. Joint Cross-Service Group supplementary guidance is subject to approval by the Chairman of the BRAC 95 Steering Group.

Robert E. Bayer
Acting Chairman
BRAC 95 Steering Group

Attachment

15 MAR 94

DRAFT

Internal Control Plan for Managing the Identification of DoD Cross-Service Opportunities as Part of the DoD 1995 Base Realignment and Closure Process (BRAC-95)

Background

The exclusive procedures by which the Secretary of Defense (SECDEF) may pursue realignment or closure of military installations inside the United States are contained in Part A, Title XXIX of Public Law 101-510, entitled as the Defense Base Closure and Realignment Act of 1990; as amended by Public Law 102-190 and Public Law 103-160; hereafter referred to as the Base Closure Act. The Base Closure Act also includes a provision for the President to appoint independent Base Closure and Realignment Commissions to review the Secretary of Defense's recommendations in calendar years 1991, 1993, and 1995.

The Deputy Secretary of Defense (DEPSECDEF), in a memorandum dated 7 January 1994, set forth guidance, policy, procedures, authorities and responsibilities for recommending bases for realignment or closure for submission to the 1995 Defense Base Closure and Realignment Commission. The DEPSECDEF guidance included a requirement for the establishment of BRAC-95 Joint Cross-Service Groups in six areas with significant potential for cross-service impacts in BRAC-95.

Five of the Joint Cross-Service Groups are functional areas encompassing Depot Maintenance, Test and Evaluation, Laboratories, Military Treatment Facilities including Graduate Medical Education, and Undergraduate Pilot Training. These functional groups shall, when operationally and cost effective, strive to: retain in only one Service militarily unique capabilities used by two or more Services; consolidate workload across the Services to reduce excess capacity; and assign operational units from more than one Service to a single base. A sixth Joint Cross-Service Group was formed as a Joint Economic Impact Group to establish guidelines for measuring economic impacts. The five functional area joint cross-service groups have been tasked by the DEPSECDEF to:

- determine the common support functions and bases to be addressed by each cross-service group:
- establish the guidelines, standards, assumptions, measures of merit, data elements and milestone schedules for DoD Component conduct of cross-service analyses of common support functions;
- oversee DoD Component cross-service analyses of these common support funetions;

- identify necessary outsourcing policies and make recommendations regarding those policies;
- review excess capacity analyses;
- develop closure or realignment alternatives and numerical excess reduction targets for consideration in such analyses; and
- analyze cross-service tradeoffs.

The economic impact joint cross-service group has been tasked by the DEPSECDEF to:

- establish the guidelines for measuring economic impact and, if practicable, cumulative economic impact; to analyze DoD Component recommendations under those guidelines; and
- develop a process for analyzing alternative closures or realignments necessitated by cumulative economic impact considerations, if necessary.

The DEPSECDEF directed the BRAC-95 Joint Cross-Service Groups to complete the above analytical design tasks and issue guidance to the DoD Components, after review by the BRAC-95 Review Group, no later than 31 March 1994.

Purpose

The primary purpose of this Internal Control Plan is to provide a consistent set of management controls for all Joint Cross-Service Groups and to meet the requirements established by the DEPSECDEF regarding the DoD Component cross-service analyses of all assets within each category, as annunciated in his Memorandum of 7 January 1994. More specifically, the DEPSECDEF directed the Joint Cross-Service Groups to develop and implement an Internal Control Plan to ensure the accuracy of data collection for conducting base realignment or closure assessments. At a minimum this Internal Control Plan includes:

- Uniform guidance defining data requirements and sources;
- Systems for verifying the accuracy of data at all levels of command;
- Documentation justifying changes made to data received from subordinate commands;
- Procedures to check the accuracy of the analyses made from the data; and

- Assessment by auditors of the adequacy of this Internal Control Plan.

In addition to the above requirements, DEPSECDEF requires that the Internal Control Plan incorporate certification procedures required by the Base Closure Act. The Joint Cross-Service Groups will not be gathering original data, but will specify the data required to be gathered by Military Departments and Defense Agencies. Therefore, all data and information provided to the Joint Cross-Service Groups for purposes of analysis and decision making are required to be certified as accurate and complete by the Military Departments and Defense Agencies in accordance with their respective BRAC-95 Internal Control Plans.

Responsibilities

The BRAC-95 Steering Group will oversee implementation and adherence to this Internal Control Plan by the Joint Cross-Service Groups. The basic goal of this Internal Control Plan is to ensure consistency in the data gathered and used, application of selection criteria, methodology and reports to the SECDEF and subsequently to the 1995 Base Closure and Realignment Commission.

The Secretaries of the Military Departments, the OSD Secretariats, and the Directors of the Defense Agencies are responsible for providing staff resources to the Joint Cross-Service Groups. The Chairs of the individual Joint Cross-Service Groups are responsible for ensuring that the members of the Groups are fully aware of the management controls presented in this Internal Control Plan. Team members are responsible for implementing and adhering to the controls while also reporting to the Chairs any noted control violations or weaknesses identified during the collection and analysis of data. The Chairs of the Joint Cross-Service Groups are authorized to implement further guidance to control the functioning of their respective Groups in a way as to meet the intent of this Internal Control Plan.

Internal Control Mechanisms

The objective of the internal control mechanisms to be employed by the Joint Cross-Service Groups is to ensure the accuracy, completeness, and integrity of the information upon which the SECDEF recommendations for closures and realignments will be based. The two principal mechanisms are organization and documentation.

Organization Controls.

Under the oversight and guidance of the DEPSECDEF, there are four groups/organizations within the DoD which have primary responsibility for assisting the SECDEF to identify cross-service asset sharing opportunities. To ensure the integrity of the selection process, the four groups/organizations are to be separated by distinct functional

boundaries and levels of decision making authority. The Chair and membership for each Joint Cross-Service Group have already been determined and assigned by the DEPSECDEF. Individual members to the Groups have also been appointed by the OSD Secretariats, the Secretaries of the Military Departments and the Directors of the Defense Agencies.

BRAC-95 Review Group. The BRAC-95 Review Group is empowered to develop recommendations to the SECDEF regarding cross-service tradeoffs and asset sharing opportunities. Only the BRAC-95 Review Group and the Secretaries of the Military Departments are empowered to make specific closure or realignment recommendations to the SECDEF. The BRAC-95 Review Group is responsible for ensuring that a fair and complete analysis was conducted for every cross-service tradeoff and asset sharing opportunity that results in a recommendation made to the SECDEF. This includes overseeing the work of the Steering Group and making decisions regarding definitions, assumptions, measures of merit, excess capacity, military value, return on investment, and other impacts deemed appropriate.

BRAC-95 Steering Group. The BRAC-95 Steering Group is a subordinate organization to the BRAC-95 Review Group. It will oversee the actions of the Joint Cross-Service Groups. The results of such direction and evaluations will be periodically reported to the BRAC-95 Review Group. The BRAC-95 Steering Group will rely on the Joint Cross-Service Groups to review analyses of potential cross-service tradeoffs, cross-service asset sharing and closure or realignment opportunities. The use of other DoD and Federal agencies, private sector contractors, or any other private or public organization to conduct such analyses will not be permitted unless specifically authorized by the BRAC-95 Review Group. This prohibition includes any analysis relating to capacity analysis, military value, return on investment, and other impacts that may eventually be provided to the BRAC-95 Review Group.

BRAC-95 Joint Cross-Service Groups. The basic purpose of the Joint Cross-Service Groups is to oversee and guide the Military Departments and the Defense Agencies in conducting fair cross-service analyses and in developing recommended alternatives for consideration by the DoD Components. The Joint Cross-Service Groups have been established to identify cross-service tradeoff opportunities that will maximize the military value and cost effectiveness of operating the entire DoD infrastructure of specified functional areas. The Joint Cross-Service Group are subordinate to the direction and guidance of the BRAC-95 Steering Group. Other OSD elements, Military Departments, or Defense Agencies will not direct any particular data collection or analysis effort for a Joint Cross-Service Group unless such direction has been authorized by a group. The Joint Cross-Service Groups may employ any internal organization or subgroups to accomplish their tasks, but such subgroups shall comply with the terms of this Internal Control Plan. The membership of any internal organizations or subgroups employed shall be documented in the official records of the Joint Cross-Service Groups. The Joint Cross-Service Groups are responsible for protecting the integrity of the BRAC-95 by preventing either the improper dissemination or collection of BRAC-95 data and information.

Inspector General, DoD. The Inspector General, DoD will advise the BRAC-95 Steering Group and the Joint Cross-Service Groups on the implementation of this Internal Control Plan. As such, auditors from the Office of the Inspector General, DoD will be available to review the activities of the Joint Cross-Service Groups to ensure such activities comply with the requirements of the Internal Control Plan.

Documentation Controls.

All significant events in the DoD BRAC-95 process will be recorded and clearly documented to ensure the integrity of the process performed by the Joint Cross-Service Groups. Furthermore, controls will be implemented to ensure that the information used by the Joint Cross-Service Groups to identify opportunities for cross-service tradeoffs or recommended alternatives is certified for accuracy and completeness, and that the information is used consistently throughout the BRAC-95 process. To protect the integrity of the BRAC-95 documentation prepared, handled, or processed by the Joint Cross-Service Groups the following control elements will be adhered to:

Data Collection. Information utilized for analyses and/or decision making by the Joint Cross-Service Group will be obtained from the Military Departments and the Defense Agencies. The mechanism for requesting data from the Military Departments and the Defense Agencies will be in the form of information requests issued to the Military Departments and Defense Agencies by the Joint Cross-Service Groups. The Joint Cross-Service Groups will coordinate their information requests with the respective BRAC-95 organizations of each Military Department and the Defense Agencies. The Military Departments and Defense Agencies will use their BRAC-95 internal control mechanisms for collecting the requested information and ensuring such information collected is certified for accuracy and completeness before it is submitted to the Joint Cross-Service Groups. Information used by the Joint Cross-Service Groups to establish measures of merit for assessments of military value, and determining methods for conducting capacity analysis is not required to be certified. However, only certified information will be used to make decisions on prospective basing alternatives to the Secretaries of the Military Departments.

Certification. The statutory requirements for certification were enacted by the Base Closure Act. More specifically, all information used to make closure and realignment recommendations submitted to the SECDEF and the 1995 Defense Base Closure and Realignment Commission must be certified as accurate and complete to the best of the certifier's knowledge and belief. The preparation of responses to the information requests by the Military Departments and the Defense Agencies will adhere to the BRAC-95 certification procedures and the internal control plans implemented for those entities.

Any electronic data files or magnetic media forwarded to the Joint Cross-Service by the Military Departments or Defense Agencies must be accompanied with a

complete certified "hard copy" document of the entire data file or magnetic media. The Joint Cross-Service Groups will verify that a complete certified copy is obtained from the Military Departments or Defense Agencies and make such documentation and electronic data available for independent audit validation.

Record Keeping. Minutes will be maintained of formal meetings of the Joint Cross-Service Groups and will record who was in attendance and a synopsis of items discussed and deliberated upon. Responsibility for producing and maintaining these minutes will be determined by the Chair of each Group. The Chairs will be responsible for overseeing and enforcing certification procedures to ensure that any information and data collected and used by the Joint Cross-Service Groups are certified for accuracy and completeness. The responsibility for safeguarding BRAC-95 information and data rests with the Chairs of the Joint Cross-Service Groups. Records of meetings of sub-working groups are not required as their work product must be presented and approved by the pertinent Joint Cross-Service Group.

Oral Briefings. From time to time, the Joint Cross-Service Groups may receive formal and informal briefings from inside and outside the Federal Government. To ensure a record of all information provided to the Joint Cross-Service Group is maintained, the content of all oral briefings must be captured in the minutes prepared for the meeting at which a particular briefing was presented. All briefing slides presented will be attached to the minutes recorded for the meeting.

Outside Studies. During the BRAC-95 process, studies and reports may be brought to the attention of a Joint Cross-Service Group that originated outside of the BRAC-95 process and address such things as assessment of facilities, military value, and/or capacity. While such studies may be useful in developing policies or suggesting methods for making measurements or evaluations, no recommendations regarding actions at specific installations may be entertained nor may data from such studies be accepted by the Joint Cross-Service groups.

Technical Experts. Technical experts may be used to support both the development and/or the refinement of the analytical efforts of the Joint Cross-Service Groups. When technical experts provide information or data that a Joint Cross-Service Group considers relevant and appropriate for analyses, the experts shall be requested to submit that information or data in writing with the required certification. The use of technical experts will be communicated, either orally or in writing, to the BRAC-95 Steering Group. Technical experts will be granted only limited access to BRAC-95 data and information that will allow them to assist the Joint Cross-Service Groups in the development and/or refinement of analytical efforts. Upon completion of their efforts, technical experts will be advised not to release or discuss any BRAC-95 data or information outside of the Joint Cross-Service Groups.

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Access to BRAC-95 Files

To protect the integrity of the DoD BRAC-95 process, all files, data and materials relating to that process are deemed sensitive and internal to DoD. Any dissemination of such data or other materials shall be made only upon the express authorization of the BRAC-95 Review Group. Pending the forwarding to the Defense Base Closure and Realignment Commission by SECDEF of his recommendations for closure or realignment of military installations, requests under the Freedom of Information Act for release of DoD BRAC-95 data and materials shall be denied on the basis that both are predecisional and are internal government memoranda.

The members of the Joint Cross-Service Groups are entrusted to have access to BRAC-95 information and data that originated from either the Military Departments or the Defense Agencies. Consistent with the organization controls set forth in this Internal Control Plan, access will not be granted to any individuals, to include technical experts, without the consent of either the BRAC-95 Review Group or the BRAC-95 Steering Group. Such access carries a responsibility for ensuring that BRAC-95 information and data is treated as sensitive and predecisional. The members of the Joint Cross-Service Groups are required to protect the BRAC-95 process from either improper or unofficial disclosures. The group members must also take precautions to prevent the acceptance of information that is not certified or may be forwarded to a Joint Cross-Service Group through channels other than the official DoD BRAC-95 process implemented by the OSD Secretariats, the Military Departments and the Defense Agencies.

Audit Access to Records.

The Base Closure Act includes a requirement that the SECDEF make available to the Comptroller General of the United States, the agency head of the General Accounting Office (GAO), all information and materials used by DoD in making recommendations for closure and realignment. To meet these requirements, the GAO is being provided full and open access to all official BRAC-95 records and documentation. In addition to the full and open access granted to the GAO, such access will be granted to the DoD Inspector General regarding records, data, information and other materials either collected or retained by the Joint Cross-Service Groups. Information requests forwarded by the Joint Cross-Service Groups to the Military Components and Defense Agencies for processing will be subjected to review by the audit agencies cognizant to the Military Components and the Defense Agencies. The audit agencies of the Military Departments, the DoD Inspector General, and the Defense Agencies will coordinate their efforts in a way to avoid audit duplication of the same information, data, and other materials.

Dissemination

Members of the BRAC-95 Review Group, the BRAC-95 Steering Group, and the Joint Cross-Service Groups must use every precaution to prevent the improper release of and/or access to BRAC-95 information and data. Not only is access restricted to those individuals officially approved to take part in the BRAC-95 Process, care must also be taken to avoid inadvertent dissemination through either facsimile "FAX" transmissions or electronic "E" mail. Any dissemination of information that is not discussed in this Internal Control Plan will only be made with the expressed documented approval of the BRAC-95 Review Group.

The Chairs of the BRAC-95 Joint Cross-Service Groups shall disseminate this Internal Control Plan as widely as possible throughout their organizations. The BRAC-95 Steering Group will be advised of any control violations or weaknesses that are identified through application of this Internal Control Plan or of any modifications that may be needed.

Laboratory Joint Cross-Service Group

PHASE 1 ACTION

A. PHYSICAL ENTITIES (BASES, FACILITIES)
ORGANIZATIONS, FUNCTIONS,
MISSIONS, WORK PRODUCTS

B. COMMON SUPPORT FUNCTIONS
(CORE CAPABILITIES)
RELIANCE WILL HELP

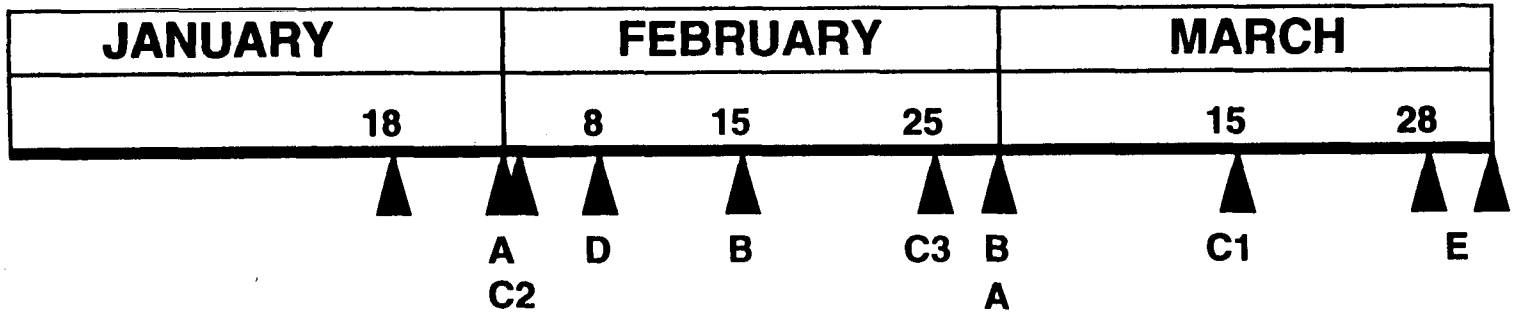
C. DEFINE EXCESS CAPACITY AND HOW TO MEASURE
1. OUTSOURCING
2. SIZING STUDIES
3. MEASURES OF MERIT

D. INTERNAL CONTROLS,
ELECTRONIC DATA MANAGEMENT

E. ISSUE POLICY GUIDANCE

Laboratory Joint Cross-Service Group

PHASE 1 MILESTONES



A. PHYSICAL ENTITIES (BASES, FACILITIES) ORGANIZATIONS, FUNCTIONS, MISSIONS, WORK PRODUCTS

B. COMMON SUPPORT FUNCTIONS (CORE CAPABILITIES) RELIANCE WILL HELP

C. DEFINE EXCESS CAPACITY AND HOW TO MEASURE
   1. OUTSOURCING
   2. SIZING STUDIES
   3. MEASURES OF MERIT

D. INTERNAL CONTROLS, ELECTRONIC DATA MANAGEMENT

E. ISSUE POLICY GUIDANCE

MAINTAIN CLOSE COORDINATION WITH OTHER GROUPS THROUGHOUT

Undergraduate Pilot Training (UPT)
Joint / Cross-Service Group

Actions & Milestones

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26 January 1994
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UPT JOINT/CROSS-SERVICE GROUP

DATE	ACTION / MILESTONE
9 Feb 94	Determination of Scope Completed Agreement on Joint Internal Control Plan
11 Feb 94	Installations in Category Determined
28 Feb 94	Review of Policies Completed
31 Mar 94	Analytical Design/Process Finalized –Measures of Merit –"Capacity" Standards
1 Apr 94	Data Call - Provide Data Elements and Measures Critical to Cross-Service Analysis to Military Departments (MILDEPs)

DETERMINE SCOPE

- Type Personnel: Pilots, NFOs, Navigators, Enlisted Aircrew
- Type Aircraft: Fixed-wing, Helo
- Flight Training Pipeline Area:
  - » 1. Screening
  - » 2. Undergraduate Training (Pre-"Wings")
  - » 3. Graduate Training (Post-"Wings")
- Type Installations: Active Installations, Reserve Installations

INSTALLATIONS IN CATEGORY

• **ARMY:**	Fort Rucker	AATC	AL
• **NAVY:**	Whiting Field	NAS	FL
	Corpus Christi	NAS	TX
	Pensacola	NAS	FL
	Meridian	NAS	MS
	Kingsville	NAS	TX
• **AIR FORCE:**	Randolph	AFB	TX
	Shepperd	AFB	TX
	Vance	AFB	OK
	Reese	AFB	TX
	Laughlin	AFB	TX
	Columbus	AFB	MS

REVIEW OF POLICIES/PRACTICES

EXAMPLES:

- Planned Joint Undergraduate Pilot Training Using JPATS for Navy and Air Force
- Navy Carrier Qualifications
- Fixed-wing Training for Helo Pilots
- Etc.

ANALYTICAL DESIGN/PROCESS FINALIZED

- Develop Measures of Merit for "8" DoD Criteria (Build on BRAC 93 Measures)

- Agree On Common Capacity Standards:

  - Average Student Load
  - Graduates Per Year
  - Normal, Maximum, Surge
  - Etc.

- Responsibilities for Data Collection/Analyses

UPT JOINT/CROSS-SERVICE GROUP

DATE	ACTION / MILESTONE
1 Jul 94	Response to Data Call Received
1 Aug 94	Capacity Analysis Completed and Discussed Installation Measures of Merit Analysis Completed
1 Sep 94	Alternatives Provided to MILDEPs for Consideration
1 Oct 94	Review of MILDEP's Progress on Alternatives
1 Nov 94	Further Alternatives, If any, provided to MILDEP's for Consideration
1 Dec 94	Final Review of MILDEP's Progress on Alternatives
1 Jan 95	Service BRAC 95 Inputs to OSD

UNDERGRADUATE PILOT TRAINING (UPT)
JOINT/CROSS-SERVICE GROUP

• Mr. Lou Finch	- Chair	
• Mr. Mike Parmentier	- Study Team Leader	
• Mr. Todd Weiler	- DASA TECS	Army Primary
• BGEN Ric Shinseki	- DAMO-TR	Army Alternate
• LTC John Finlay	- DAMO-TRO	Army Study Team Lead
• LTC David Powell	- DACS-TABS	Army Study Team Assist
• CAPT Brian Buzzell	- BSAT/DON	Navy Primary
• COL Dave Stockwell	- BSAT/DON	Navy Alternate
• MGEN Glenn Profitt	- AETC/XO	Air Force Primary
• MGEN Ed Tenoso	- AF/XOO	Air Force Alternate
• Lt Col Lyn Jarman	- AF/XOOT	Air Force Study Team Lead
• Lt Col Jerry Free	- AETC/XOG	Air Force Study Team Assit
• Mr. Dan Gardner	- OASD(P&R)	Study Team Member
• Mr. Joseph Angelo	- OSD(PA&E	Study Team Member
• COL Paul Thompson	- OASD(ES)BCU	Study Team Member

UNDERGRADUATE PILOT TRAINING (UPT) JOINT/CROSS-SERVICE GROUP

DRAFT ACTIONS AND MILESTONES

DATE	ACTION / MILESTONE
9 Feb 94	Determination of Scope Completed Agreement on Joint Internal Control Plan (ICP)
11 Feb 94	Installations in Category Determined
28 Feb 94	Review of Policies Completed
31 Mar 94	Analytical Design/Process Finalized: - Measures of Merit - "Capacity" Standards
1 Apr 94	Data Call - Provide Data Elements and Measures Critical to Cross-Service Analysis to Military Departments (MILDEPs)
1 Jul 94	Response to Initial Data Call Received
1 Aug 94	Capacity Analysis Completed and Discussed Installation Measures of Merit Analysis Completed
1 Sep 94	Alternatives Provided to MILDEPs for Consideration
1 Oct 94	Review of MILDEPs' Progress on Alternatives
1 Nov 94	Further Alternatives, if any, provided to MILDEPs for Consideration
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NOTES: 1) The UPT Joint/Cross Service Group will schedule tentative meetings for every Thursday at 1300 from 4 February to 30 March. From April through October meetings will be scheduled as required.

2) The Study Team will meet as required in accordance with the "Actions and Milestones" and in advance of the UPT Joint/Cross-Service Group.

3) The Study Team expects to visit each of the Service's Aviation Training Commands prior to completion of the Policy Review on 28 February.

1/26/94

JOINT CROSS-SERVICE GROUP ECONOMIC IMPACT

KEY MILESTONES

General

February 4	Complete Discussion of Broad Policy Issues
February 11	Approve Group Internal Control Plan for Data

Development of BRAC 95 Economic Impact Tools

February 4	Review Existing Methodologies
February 18	Identify Methodologies for BRAC 95
February 25	Identify Necessary Improvements
March 4	Determine the Feasibility of Analyzing Costs to Other Federal Agencies and State and Local Governments

JOINT CROSS-SERVICE GROUP ECONOMIC IMPACT

KEY MILESTONES

Preparation of Guidance

March 14	Circulate First Draft Guidance Memo
March 21	Circulate Second Draft Guidance Memo
March 31	Issue Guidance Memo

Additional Tasks

March 14	Identify Standard Presentation Tools
May 31	Complete Enhancements to Methodologies (if any)
NLT June 30	Complete User Training Update Economic Data Provide Baseline Data Complete Testing of Enhancements (if necessary)

POSSIBLE CHANGES TO BASE CLOSURE SELECTION CRITERIA

WHY

- DepSecDef Kick-off Memo requires BRAC 95 Review Group to make a recommendation to SecDef on whether to change the selection criteria -- Due January 31st

- BRAC 95 Steering Group saw the need to review selection criteria and report to BRAC 95 Review Group

- Selection Criteria Working Group formed with the Military Departments to review possible changes to selection criteria

EXISTING CRITERIA

In selecting military installations for closure or realignment, the Department of Defense, giving priority consideration to military value (the first four criteria below), will consider:

Military Value

1. The current and future mission requirements and the impact on operational readiness of the Department of Defense's total force.

2. The availability and condition of land, facilities and associated airspace at both the existing and potential receiving locations.

3. The ability to accommodate contingency, mobilization, and future total force 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 costs and savings, including the number of years, beginning with the date of completion of the closure or realignment, for the savings to exceed the costs.

Impacts

6. The economic impact on communities.

7. The ability of both the existing and potential receiving communities' infrastructure to support forces, missions and personnel.

8. The environmental impact.

Note: These are the selection criteria used for the 1991 and 1993 rounds of closure and are substantially the same as those used for the 1988 round of closures.

POSSIBLE CHANGE TO BASE CLOSURE SELECTION CRITERIA

WHAT

- Compiled list of possible changes to the selection criteria suggested by various sources over the past two rounds of closures
  - Congress, GAO, Base Closure Commission, communities and within DoD
- Reviewed each possible change and evaluated the merits of each
- Prepared background, comments, conclusions and recommendation papers for each possible change
- Developed pros and cons for changing the criteria

POSSIBLE CHANGES TO BASE CLOSURE SELECTION CRITERIA

THE ISSUES

- Include all costs of closures and realignments (government-wide and State and local costs)
- Include cumulative economic impact and give it greater emphasis
- Place more emphasis on cost effectiveness of recommendations
- Include "incremental" environmental restoration costs
- Place more emphasis on the shortage of funds to maintain infrastructure

POSSIBLE CHANGES TO BASE CLOSURE SELECTION CRITERIA

PROS

- Changing criteria would be clear public policy statement by the new Administration that BRAC 95 is different from prior rounds.
- Changing criteria would show DoD takes base closures seriously and, for the last round, wants to maximize closures.
- Since the Act explicitly allows amendment of selection criteria, Congress clearly envisioned changes.

POSSIBLE CHANGES TO BASE CLOSURE SELECTION CRITERIA

PROS (Continued)

- Opening selection criteria to public comment ensures that concerns (such as those below) are fully considered in open forum.
  - Communities and their congressional delegations want more emphasis placed on the cumulative economic impact of base closures to be more fair and balanced with future base closure recommendations.
  - It is the Sense of Congress that DoD should consider Federal, state and local costs resulting from base closures to better portray "true costs of closure"
  - GAO wants DoD to place more emphasis on the "costs of doing business" as important to the military value of industrial activities.
  - The Base Closure Commission suggests DoD should consider the "incremental environmental restoration costs" which would not be incurred if the installation remained open in order to more accurately determine base closure costs.

POSSIBLE CHANGE TO BASE CLOSURE SELECTION CRITERIA

CONS

- Present selection criteria are broadly defined, which permits adjustment to changing circumstances, both in general policy development and in application of criteria to differing types of activities.
  - Cumulative impact can be given more emphasis through policy guidance on application of the economic impact criterion without changing the existing criteria or removing the primacy of military value in selecting bases for closure.
  - Appropriate policy guidance on calculating (or not calculating) non-DoD costs can be issued without the need to change the existing criteria as this involves the application of existing criteria.
  - Appropriate emphasis on the "cost of doing business" for industrial activities can be issued through policy guidance on the military value criteria without changing the existing criteria.
  - Appropriate policy guidance on calculating (or not calculating) "incremental environmental restoration costs" can be issued without the need to change the existing criteria as this involves the application of existing criteria.

POSSIBLE CHANGES TO BASE CLOSURE SELECTION CRITERIA

CONS (Continued)

- Neither the Commission nor GAO have recommended substantive changes to the existing criteria during prior base closure rounds.

- Congress would have up until February 15, 1995 to disapprove criteria; could disrupt the process within DoD as SecDef recommendations are due March 1, 1995, to the Commission.

- DoD and its components know how to work with and defend the existing criteria; their processes are based upon these criteria.

POSSIBLE CHANGES TO BASE CLOSURE SELECTION CRITERIA

CONS (Continued)

- Changing criteria would call into question fairness and adequacy of prior rounds of base closure; DoD open to attacks:
  - "Not fair" to change the rules for this last round of base closures.
  - Bases closed or realigned during 1995 round would not be selected on the same basis as those chosen during prior rounds, and vice versa.
  - Changes may be viewed as attempts to target specific installations for closure or retention. Communities could try and reverse engineer BRAC 95 closure decisions through criteria changes.
  - Would require DoD to continually justify any changes and resultant recommendations -- distracting from central rationale for selections.

POSSIBLE CHANGES TO BASE CLOSURE SELECTION CRITERIA

CONCLUSIONS

- o No changes to the selection criteria are necessary
- o Each issue identified deals with application of the existing criteria
- o Policy guidance can implement these issues, as appropriate

NEXT ACTIONS

- o BRAC 95 Review Group to establish policy on application of criteria by March 31st
  - oo Establish a policy working group under the BRAC 95 Steering Group
- o Report to Congress and publish in the Federal Register our intent regarding the criteria -- March 31st

SELECTION CRITERIA WORKING GROUP
SUMMARY OF POSSIBLE CHANGES TO CRITERIA

Subject: Possible Changes to the Base Closure Selection Criteria

Background: The BRAC 95 Steering Group established a Selection Criteria Working Group within the Military Departments to review the record over the past two rounds of base closures of proposed changes to the selection criteria. Suggested changes from Congress, the GAO, the Defense Base Closure and Realignment Commission, communities and from within DoD were reviewed by the working group.

Discussion: The Selection Criteria Working Group identified the following possible changes to the selection criteria:

- Include the direct costs of closures and realignments to other Federal Departments and State and local governments.
- Include cumulative economic impact and give it greater emphasis.
- Place more emphasis on the cost effectiveness of recommendations.
- Place greater emphasis on the cost of doing business for industrial-type activities.
- Include incremental environmental restoration costs.
- Place more emphasis on the shortage of funds to maintain infrastructure.

The following six pages describe each issue, identify the source of the possible change, and provide background information, comments and the working group's recommendations on each.

Conclusion: The Working Group concluded that no changes to the selection criteria are necessary; that each of the issues identified deal with application of the existing criteria. Official policy guidance to the DoD Components can effectively deal with each issue, as appropriate, as determined by the BRAC 95 Review Group chaired by the Under Secretary of Defense, Acquisition and Technology.

Attachments: Six Issue Papers on Possible Changes to the Base Closure Selection Criteria

POSSIBLE CHANGE TO
BASE CLOSURE SELECTION CRITERIA

Possible Change: Change the selection criterion on costs and savings (criterion 5) to include the direct costs of closures and realignments to other Federal Departments and agencies and, to the extent possible, to state and local governments (Source: FY 94 DoD Authorization Act and GAO)

Background: Some potential non-DoD costs include: Medicare, losses incurred by GSA because of leased properties being vacated by DoD, the cost of economic assistance to affected communities, unemployment costs, and the cost to replace services formerly provided by DoD (e.g., air traffic control for the FAA). DoD has tried to respond to past GAO recommendations to compute Government-wide costs (i.e., include non-DoD costs) by calculating in 1991 and 1993 the impact closures have on CHAMPUS (DoD Health) costs, DoD unemployment contribution increases attributable to closures and realignments, and DoD Homeowners Assistance Program costs. DoD has not agreed with GAO's recommendation to include Medicare costs, or other non-DoD costs, arguing that we are unable to quantify such costs with any degree of certainty.

The FY 94 DoD Authorization Act includes a "Sense of Congress" that asks DoD to consider the inclusion of costs to other Federal Departments and agencies and, to the extent possible, to state and local governments.

Comments: All potential non-DoD costs we could attempt to measure would be applied under the Return on Investment criterion number five where we calculate the cost and savings implications of closures and realignments. Such changes involve issues of application of this criterion which do not necessitate a change to the criterion itself. In previous rounds we have issued detailed guidance on how to estimate various cost elements and on whether to include some elements in the cost and savings calculations or to leave them uncalculated as they are deemed to be the same regardless of scenario or of marginal impact.

Recommendation: Do not change the selection criteria.

Policy memoranda can be issued to include non-DoD costs, if appropriate, in the cost and savings calculations. Each possible non-DoD cost element will be examined and a determination made by the BRAC 95 Review Group on whether to include it as a cost element or not. The Review Group must also draft a letter to Congress on the outcome of these determinations.

POSSIBLE CHANGE TO
BASE CLOSURE SELECTION CRITERIA

Possible Change: Change the selection criterion on economic impact (criterion 6) to specifically include cumulative economic impact and to give cumulative impact more emphasis. (Source: Congress and Communities)

Background: During hearings before the Senate Armed Services Committee (SASC), Defense Base Closure and Realignment Commissioners and Secretary Aspin committed to consider cumulative economic impact on base closure communities during the 1993 base closure process. DoD had also considered cumulative economic impact during the 1991 base closure process.

Selection criterion number six directs the Military Departments to consider economic impact which does not exclude consideration of cumulative economic impact. The Department did, in fact, calculate cumulative economic impact during the 1991 and 1993 base closure rounds. Secretary Aspin removed McClellan AFB from the Air Force list of 1993 recommendations based on cumulative economic impact.

The selection criteria give priority consideration to military value criteria (the first four of the eight criterion). This has been a critical part of the success of past base closure rounds as the courts, communities and even the Congress have difficulty challenging DoD's military judgement. DoD exists to provide for the national security and the base closure process' contribution to national security is giving priority consideration to military value (i.e., keeping our most militarily valuable bases open and closing our least valuable). The military value criteria ensure that the roles and responsibilities of DoD and the Military Departments defined in Title 10 of the U.S. Code are given primary consideration.

Comments: Increasing the emphasis on cumulative economic impact to the extent that military value is no longer to be given priority consideration would require a change to the selection criteria. However, such a change could seriously undermine our national security by changing the rules to stress job impacts as the predominate reason for closing or not closing bases.

We can issue policy that cumulative economic impact be part of economic impact considerations and have established a cross-service group to develop a process and guidelines for the calculation and application of the economic impact criterion.

Recommendations: Do not change the selection criteria.

No change is required either to expressly include cumulative economic impact or to increase the emphasis on cumulative economic impact, short of making cumulative impact the priority consideration vice military value.

Guidance on cumulative economic impact can be issued by policy as it involves application of an existing criterion. However, we should refrain from making policy changes until after the economic impact working group has submitted its recommendations to the BRAC 95 Review Group on March 31, 1994, including its recommendations on the appropriate emphasis on cumulative economic impact.

POSSIBLE CHANGE TO
BASE CLOSURE SELECTION CRITERIA

Possible Change: Change the selection criteria to place more emphasis on the cost effectiveness of recommendations (military value compared to the cost and savings) (Source: Internal DoD)

Background: The Bottom-up Review tells us that we must close many more bases to realize the savings and therefore free up resources for readiness.

Comment: This change, and the change that would place more emphasis on cumulative economic impact vis-a-vis military value are potentially not complementary and could be in direct conflict. If the emphasis changed enough to obviate the current selection criteria's priority consideration of military value, it would require a formal change to the criteria.

Changing the criteria to reduce the primacy of military value in favor of other considerations is ill-advised. Priority consideration of military value among the selection criteria has been endorsed by the Commission and GAO during all three rounds. Also, "changing the rules" after three rounds of closures could have significant political implications and could open up past closure decisions. However, if military value considerations are roughly equal more emphasis could be placed on cost effectiveness through policy guidance without changing the criteria as that change would involve application of existing criteria.

Recommendation: Do not change the selection criteria.

Retain the primacy of military value among the selection criteria. Draft policy to place appropriate emphasis on cost effectiveness. The BRAC 95 Review Group will review this and other issues requiring policy guidance over the next few months.

POSSIBLE CHANGE TO
BASE CLOSURE SELECTION CRITERIA

Possible Change: Change the selection criteria to place greater emphasis on the costs of doing business especially for business-like functions such as depot maintenance (Source: GAO)

Background: The GAO has suggested that in considering industrial activities for closure or realignment, cost and savings criteria should be given more emphasis. The Department has in the past agreed that cost of doing business considerations may be more important for industrial type activities than for operational bases, but has not issued specific policy on the issue.

Comments: Decisions to close or realign industrial activities must be based on the ability of the activity to contribute to the Defense mission and readiness capabilities. However, the military value criteria include the criterion "cost and manpower implications" (criterion number four). Hence, additional policy guidance on the importance of the "cost of doing business" for industrial activities as a factor in military value calculations would clarify the issue without requiring a change to selection criteria. The distinction must be maintained between the "cost of doing business", which must be defined, vs the "cost of closure" which is measured in the Return on Investment criterion number five. The cost of doing business could be defined as mission costs, work product output costs, unit costs, etc.

Recommendation: No change to the criteria is required.

Clarifying that the cost of doing business is an important part of military value for industrial activities can be implemented through policy memoranda as it involves application of an existing criterion. The BRAC 95 Review Group will review this and other issues requiring policy guidance over the next few months. The joint cross-service groups established to look at depot maintenance, laboratories and test and evaluation would implement this policy by defining the cost elements to be measured.

POSSIBLE CHANGE TO
BASE CLOSURE SELECTION CRITERIA

Possible Change: Change the selection criteria to include in the Return on Investment calculations (criterion number five) "incremental environmental restoration costs" i.e, those costs that would not be incurred if the installation remained open (i.e., unexploded ordnance on ranges) or accelerated environmental restoration costs. (Source: 1993 Base Closure Commission Report)

Background: Environmental restoration costs at closing bases have not, in the past, been considered a cost of closure since the Department has a legal obligation for environmental restoration regardless of whether a base is closed or not. The Department also has ongoing programs for clean-up of unexploded ordnance on ranges.

Comments: Including the cost of accelerated or unique environmental restoration at closing bases would appear to duplicate costs which would occur regardless of whether the base closes. Consequently, such costs should not be considered a cost of closure as the increase in cost to accelerate ongoing programs is marginal at best. Also, including such costs would create a perverse incentive to only close clean facilities.

More importantly, if including such "incremental costs" are deemed appropriate by the BRAC 95 Review Group, guidance to include such costs would involve guidance on application of an existing criterion. Hence, no change to the criteria itself would be needed.

Recommendation: The criteria do not need to be changed.

Any guidance on this issue can be affected through a policy memorandum as this would involve application of an existing criterion. The BRAC 95 Review Group will review this and other issues requiring policy guidance over the next few months.

POSSIBLE CHANGE TO
BASE CLOSURE SELECTION CRITERIA

Possible Change: During BRAC 95, place more emphasis on the shortage of funds to maintain infrastructure to encourage maximum closures and realignments (Source: Bottom-Up Review)

Background: In recent years, the Military Departments have not had sufficient funds to maintain their infrastructure at acceptable levels. Reducing infrastructure (closing bases) is an alternative to increased funding levels. The Bottom-Up Review's reduced force structure scenarios will facilitate infrastructure reductions.

Comments: Reduced force structure is the "why" and "how many" portion of base closures. With force structure coming down, we cannot afford to keep unnecessary bases open.

The selection criteria, however, help us determine "which bases" to close after we have determined "how many" during the earlier, excess capacity, part of the closure analysis. Hence, this is clearly not a selection criteria issue.

The DepSecDef BRAC 95 "Kickoff" memorandum incorporates the conclusions of the Bottom-Up Review. It provides the DoD Components with an infrastructure reduction goal of at least 15 percent and establishes a methodology for determining excess capacity reduction targets by category of base.

Recommendation: No change to the selection criteria is warranted.

Additional guidance on how to calculate excess capacity in 5 key cross-service ares will be promulgated by March 31, 1994. Finally, the BRAC 95 Review Group will review all excess capacity calculations both operational and cross-service and will determine appropriate reduction targets this summer.

SELECTION CRITERIA WORKING GROUP
PROS AND CONS TO CHANGING THE BASE CLOSURE SELECTION CRITERIA

PROS

- Changing criteria would be clear public policy statement by the new Administration that BRAC 95 is different from prior rounds.

- Changing criteria would show DoD takes base closures seriously and, for the last round, wants to maximize closures.

- Since the Act explicitly allows amendment of selection criteria, Congress clearly envisioned changes.

- Opening selection criteria to public comment ensures that concerns (such as those below) are fully considered in open forum.

  - Communities and their congressional delegations want more emphasis to be placed on the cumulative economic impact of base closures to be more fair and balanced with future closure recommendations.

  - It is the Sense of Congress that DoD should consider Federal, state and local costs resulting from base closures to better portray "true costs of closure."

  - GAO wants DoD to place more emphasis on the "costs of doing business" as important to the military value of industrial activities.

  - The Base Closure Commission suggests DoD should consider the "incremental environmental restoration costs" which would not be incurred if the installation remained open in order to more accurately determine base closure costs.

CONS

- Present selection criteria are broadly defined, which permits adjustment to changing circumstances, both in general policy development and in application of criteria to differing types of activities.

  - Cumulative impact can be given more emphasis through policy guidance on application of the economic impact criterion without changing the existing criteria or removing the primacy of military value in selecting bases for closure.

  - Appropriate policy guidance on calculating (or not calculating) non-DoD costs can be issued without the need to change the existing criteria as this involves the application of existing criteria.

- Appropriate emphasis on the "cost of doing business" for industrial activities can be issued through policy guidance on the military value criteria without changing the existing criteria.

- Appropriate policy guidance on calculating (or not calculating) "incremental environmental restoration costs" can be issued without the need to change the existing criteria as this involves the application of existing criteria.

- Neither the Commission nor GAO have recommended substantive changes to the existing criteria during prior base closure rounds.

- Congressional approval/disapproval timetable (Congress would have up until February 15, 1995 to disapprove criteria) could disrupt the process within DoD as SecDef recommendations are due March 1, 1995, to the Commission.

- Changing criteria would call into question fairness and adequacy of prior rounds of base closure; DoD open to attacks:

  - "Not fair" to change the rules for this last round of base closures.

  - Bases closed or realigned during 1995 round would not be selected on the same basis as those chosen during prior rounds, and vice versa.

  - Changes may be viewed as attempts to target specific installations for closure or retention. Communities could try and reverse engineer BRAC 95 closure decisions through criteria changes.

  - Would require DoD to continually justify any changes and resultant recommendations -- distracting from central rationale for selections.

- DoD and its components know how to work with and defend the existing criteria; their processes are based upon these criteria.

Attachment: Detailed Issue Paper on Changing the Base Closure Selection Criteria

CHANGING THE BASE CLOSURE SELECTION CRITERIA

Background

The selection criteria used for the 1991 and 1993 rounds of the base closure process were established under the procedures set forth in the Defense Base Closure and Realignment Act of 1990 (the Act), Section 2903(b). The Secretary of Defense published in the Federal Register of December 31, 1990, the criteria proposed to be used by DoD in making recommendations for the closure or realignment of military installations inside the United States and transmitted those proposed criteria to the Congressional defense committees. The proposed criteria were similar to those used during the Secretary of Defense's 1988 base closure process and consisted of eight criteria relating to military value, costs and savings, and economic, environmental and community impacts, with priority consideration given to military value. After the 30-day public comment period, the Secretary published the final criteria in the Federal Register of February 15, 1991, and transmitted them to the Congressional defense committees. That publication and transmittal discussed the comments received, their validity as they related to the process, and any actions taken to incorporate the comments into the criteria and/or the DoD process through policy guidance.

For the 1993 base closure process, OSD reviewed the criteria that had been used during the 1991 round, as well as comments relating to those criteria made by the Defense Base Closure and Realignment Commission, the General Accounting Office (GAO), and the public. Upon determination that no significant changes were warranted in the criteria, the Secretary of Defense published a notification in the Federal Register of December 15, 1992, and transmitted a notification to the Congressional defense committees, that DoD would use the same selection criteria used during the 1991 base closure round.

Section 2903(b)(2)(B) of the Act sets forth the procedures for amending the selection criteria. That section provides that

> The Secretary may amend such [selection] criteria, but such amendments may not become effective until they have been published in the Federal Register, opened to public comment for at least 30 days, and then transmitted to the congressional defense committees in final form by not later than January 15 [1995]. Such amended criteria shall be the final criteria to be used, along with the force-structure plan [submitted with the 1996 budget justification documents], in making such recommendations unless disapproved by a joint resolution of Congress enacted on or before February 15 [1995].

The Deputy Secretary of Defense has tasked the BRAC 95 Review Group with making a recommendation to the Secretary of Defense no later than January 31, 1994 on whether an amendment to the selection criteria is appropriate. The BRAC 95 Steering Group established a Selection Criteria Working Group on January 11, 1994, made up of DoD Components and OSD representatives, to accomplish this task.

Discussion

The primary argument for amending the selection criteria is that the change in criteria would act as a clear public policy statement by the new Administration that the focus of this round of base closure is different from prior rounds. In a radically changed post-Cold War world, military missions and modes of operation are different. Accordingly, the reasons for having domestic bases and the operations which they must support may have changed, and the selection criteria should reflect that change. Amendment of the selection criteria would indicate that DoD is taking base closure seriously and, recognizing that this is the last round provided under the Act, are anxious to maximize closures. Since the Act explicitly provides procedures for amending criteria, Congress clearly envisioned changes. Opening the selection criteria to public comment would ensure that concerns raised are fully considered. This opportunity for public input could lead to a perception that the criteria are more relevant and effective because the review was not confined solely within DoD. Hearing concerns, some of which have already been raised by Congress, GAO and the Commission, would improve confidence that DoD is pursuing the right criteria in closing bases.

The strongest counter-argument is the existing selection criteria are broadly defined, which permits adjustment to changing circumstances, both in general policy development and in application of policies to differing types of activities. Concerns which are raised by Congress, GAO, the Commission or the public are able to be addressed through DoD base closure policy guidance on how to apply each of the existing criterion. Reacting, either favorably or unfavorably, to suggested changes will improve the perception that the existing criteria, as clarified through policy guidance, are relevant to today's circumstances.

It is significant that neither the Base Closure Commission nor GAO have recommended substantive changes to the existing criteria during prior base closure rounds. Their tacit endorsement of the selection criteria is an indication that these are, in fact, the most relevant and appropriate criteria upon which to base closure and realignment decisions. While it is true that military missions are changing, the roles and responsibilities of DoD and the Military Departments defined in Title 10 of the U.S. Code have not changed, hence the broadly defined criteria remain relevant.

Not only do the procedures set forth in the Act for such amendment shift the ultimate approval/disapproval decision to Congress, the timetable could operate to disrupt the process within DoD. Under the Act, Congress has until February 15, 1995, to disapprove the amended criteria by joint resolution. The Act was amended by the Fiscal Year 1994 Authorization Act to require SecDef recommendations be forwarded to the Base Closure Commission not later than March 1, 1995. Hence, if Congress disapproved the amended criteria, it could be too late in the process to revert to the old selection criteria and issue recommendations. This effectively could halt this last round of base closure in its entirety. Additionally, having to wait until February 15, 1995, for a clear determination of whether the selection criteria have been approved or not would lend a substantial element of uncertainty to the entire DoD process.

Lastly, changing the selection criteria would call into question the fairness and adequacy of prior rounds of base closure, as well as require DoD to continually justify any changes and the resultant recommendations. DoD would be open to attacks that it is "not fair" to change the rules for this last round of base closures, and that any bases closed or realigned during the 1995 round were not selected on the same basis as those chosen during the prior rounds. Challengers could argue, among other things, that a change to the criteria was an attempt to target specific installations for closure or retention. Alternatively, Congressional or public comments could attempt to protect bases through criteria changes.

Not only could criteria changes complicate the defense of the new recommendations, but they could call into question decisions of prior base closure rounds. DoD would have to deal with Congressional and media comparisons between the allegations that particular bases closed in 1991 and 1993 would not have closed if the amended criteria had been used or, alternatively, that bases selected in the 1995 round would not have been affected if the 1991/1993 selection criteria had been used. DoD and its components know how to work with and defend the existing criteria, and their base closure processes have developed based upon these criteria.

Conclusion/Recommendation

Although we can expect legal challenges if the criteria are changed, clearly the issue relating to amendment of the selection criteria is not a legal issue. The Act explicitly provides a procedure for changes. The issue is more properly framed as a political one -- how DoD and the new Administration can be responsive to its own and other concerns about the adequacy and relevance of the criteria. In view of the risk posed by any changes, the critical delays that amendment could cause, and the potential for significant modification to DoD component processes, changing the selection criteria is not recommended. To the extent that relevant suggestions for additional evaluation factors have been received in prior base closure rounds from the Base Closure Commission, GAO, and the public, all could be accomplished through OSD policy issuance. Such policy formation would allow a clear statement of OSD goals and objectives and could clearly reflect public policy concerns, without the risks attendant to amending the criteria.

BRAC 95

Steering Group Meeting

March 1, 1994

Minutes

The DASD(ER&BRAC) chaired this fourth Steering Group meeting acting for the ASD(ES). The meeting began at 15:30, the agenda and a list of principal attendees are attached.

The Chair began the meeting by stating that there were 365 days to the March 1st deadline for forwarding recommendations to the Commission. The Chair then stated that he had approved the previous meeting's minutes and they were available for review. The Chair reiterated the guidance he had provided at previous Steering Group meetings regarding the fact that these documents were "Close Hold" and would not be distributed or coordinated.

The Chair then stated that there were three points to be raised from the Review Group meeting held on January 28, 1994: Data Interchange; use of FFRDC's; and the establishment of the Policy Working Group. In the Data interchange area there was some discussion regarding both the sharing of data between the Services and Joint Cross-Service Groups and the ability to transfer such data electronically. It was stated for the record that a test of electronic data interchanges was successfully conducted and was found to be feasible. Each Military Department also stated for the record that data would be freely shared. It was stressed at this point that in addition to sharing data, timely receipt of data would be extremely important. In regard to the use of FFRDC's, it was agreed that, as decided at the January 28, 1994 BRAC 95 Review Group meeting, these organizations could be used provided they did not conduct independent analysis. Additionally, the internal control plan now under development would deal with FFRDC utilization.

Discussion then centered on the conduct of cross-service analysis. Considerable discussion ensued, without resolution, on Service perogatives regarding evaluation of bases and Joint Cross-Service Group responsibilities to define the analytical framework for analysis. The Chair stated that oversight of the Service analysis required dialogue, arriving at Service capacity would produce reduction targets and each joint group could arrive at alternatives that the Services would not otherwise address.

Presentations from each joint group were the next item on the agenda. The Depot maintenance group presented first (slides attached) with discussion centering around the requirement for certified data in the BRAC process and the requirement for data of equal accuracy and timeliness as used for other depot maintenance related initiatives. The presentation continued that the Depot Maintenance Joint Cross-Service Group was on track.

The presentation then centered on those policies that are important to the BRAC 95 process. It was stated that the Depot Task Force was a complicating factor in this as the Task Force will cause policies to be issued, especially given the statutory requirement for a 60-40 inhouse/outhouse workload split. It was further stated that there is now a definition of core that the Services had signed up to. The next important policy in this area concerned interservicing policy guidelines, centers of excellence and the fact that Defense Depot Maintenance Council can make decisions and document where these centers are.

The Undergraduate Pilot Training Group presented next. Slides are attached. Policy issues discussed included concern about whether there should be common service training procedures and should that be an OSD policy initiative. An additional concern is that external policy analysis may need to use generic bases rather than specific bases. The last issue brought up by the UPT group concerned the relationship of the UPT's BRAC analysis to the roles and mission commission.

The Test and Evaluation Group presented next (slides attached). It was stated that the main thrust of their group would be to make sure that the Services were looking at what should be looked at. Other areas of importance concerned outsourcing and certifying data concerning outsourcing, such as data received from NASA and/or from industry and how to deal with classified facilities. In regard to classified facilities it was stated that an "executive" group of people with the proper clearances should be brought together to handle these facilities. Some discussion then ensued in regard to the cross service analysis that will be conducted by the Services would then be shuffled together into a true cross service analysis or, alternatively, the cross service analysis could be conducted by the joint cross service groups. It was further stated that these analyses concerned functions, not bases.

The Laboratories Group presented next (slides attached). It was stated, again, that data interchange had been successfully tested. It was further stated the Services had differing process timelines. In the case of the Navy, while the 1 July date for receipt of data is adequate, Navy would try an expedite. Finally, it was stated that the most potential existed in the laboratory support function.

The Medical Group presented next (slides attached). Consistency of data was presented as an important issue. It was further stated that PA&E was very interested in the Graduate Medical Education. A comment was made that there is a linkage between wartime requirements and facilities.

As time was now short, it was announced that the balance of the agenda would be covered at the next meeting of the Steering Group, scheduled for March 15th. A draft Internal Control Plan was distributed along with correspondence to and from the Base Closure Commission staff concerning their request for information from existing databases and for information briefings.

The meeting then concluded at 18:05.

Approved: Robert E. Bayer
Acting Chairman

BRAC 95 STEERING GROUP MEETING

March 1, 1994 3:30PM - 5:30PM Rm 3D-1019

AGENDA

- Previous Meeting's Minutes

- Recap of January 28th Review Group Meeting
  - Testing Interchangability of Service Data
  - Use of FFRDC's
  - Policy Working Group

- Joint Cross-Service Group Progress Reports
  - Formal Report: External Policy Decisions Important to BRAC 95 and Officials or Mechanisms to Make Such Policy Decisions
  - Progress Toward March 31, 1994 Deadline
  - Problem Areas

- Standard Internal Control Plan
  - Working Group Report (Handout)
  - Discussion

- Sharing Info With the Commission (Handout)

- Senate Appropriations Committee Report (Handout)

- Other Business

CLOSE HOLD

BRAC 95

Steering Group Meeting

March 1, 1994

Key Attendees

Mr. Robert Bayer, OSD (Economic Reinvestment and BRAC)
Mr. Mark Wagner, OSD (Economic Security)
Mr. Doug Hansen, OSD (Base Closure and Utilization)
MG Stroup, Army
Mr. Charles Nemfakos, Navy
Mr. Jim Boatright, Air Force
Mr. James Klugh, DUSD (Logistics)
Mr. John Davey, OSD (Personnel and Readiness)
Mr. Lou Finch, OSD (Personnel and Readiness)
MG Lawrence Farrel, DLA
Mr. Nick Toomer, OSD (OT&E)
Mr. John Bolino, OSD (T&E)
Mr. Craig Dorman, OSD (DR&E)
RADM Harold Koenig, OSD (Health Affairs)
Col Mike Donnelly, OGC
CAPT Gumbert, Joint Staff
Mr. John Rosamond, OSD (Reserve Affairs)
Mr. David McNicol, OSD (PA&E)
Mr. Gary Vest, OSD (Environmental Security)

CLOSE HOLD

BRAC 95 JCSG-DM ISSUES

Issue 1

- **Capacity Sizing Requirements for BRAC 95**
  - **Size to:**
    - » **CORE Only**
    - » **CORE Plus (e.g., Last Source of Repair, Economies of Scale, Technical Expertise for Contractor Oversight)**
    - » **Statutory Requirements (60/40)**
    - » **Programmed Requirements (Funded)**
    - » **Total Requirements (Unconstrained)**

BRAC 95 JCSG-DM ISSUES

Issue 2

- **Define Policy Guidelines for the Interservicing of Depot Maintenance Workload**
  - **What is Core Interservice Policy?**
  - **What is Non-Core Interservice Policy?**
  - **Directed Workload Assignments**
  - **Single Source of Repair/Centers of Technical Excellence**
  - **Public/Public Competition**

BRAC 95 JCSG-DM Status

- **Group Membership Identified and Stabilized**
- **Group Meetings Scheduled Weekly**
  - **Working Sub-Group Meeting Almost Daily**
- **Finalized Action Plan and Milestones Group Approval Expected March 3, 1994**
- **Key Policy Issues Identified**

UPT JOINT / CROSS-SERVICE GROUP

External Policy Issues with BRAC Implications

- Flight Screening
- Training Aircraft Mix
- Fixed-Wing Training for Helo Pilots
- UHPT Consolidation -- Single Site
- Aircraft Beddown Configuration
- JPATS Syllabus Questions:
  - IFR vs. VFR
  - Class Progression

UPT JOINT / CROSS-SERVICE GROUP

Resolving External Policy Issues Mechanisms & Players

- Build on Roles & Missions Study Efforts
  - Draw on Service / JCS Study Teams
  - Use Existing "Joint Fixed-Wing Training" and "Consolidation of Initial Helicopter Training" Studies as an Analytical Base
- Recommended Participation:
  - Services, JCS, OSD
  - OUSD (P&R) -- Chair
- Proposed Deadline -- July 1, 1994
  - Policy Analysis Complete -- June 1, 1994

T&E JOINT CROSS-SERVICE GROUP

STATUS OF ACTIONS

REPORT TO BRAC '95 STEERING GROUP

1 MARCH 1994

T&E JOINT CROSS-SERVICE GROUP STATUS

ACCOMPLISHED

- Internal Control Plan (provided to Steering Group Subgroup)
- Outsourcing Policy
- Statement of Objective
- Standards
- Process with Schedule
- Cross-Service Funtional Areas

IN PROGRESS

- Assumptions
- Guidance for Data Collection
- Guidance for Data Analysis
- Definitions of Functional Areas
- Figures of Merit per Functional Area
- Data Elements

T&E JOINT CROSS-SERVICE GROUP EXTERNAL PROBLEM AREAS

OUTSOURCING: How to collect data that can be certified?

- **Commercial bids are time consuming and perishable**
- **Opportunities as potential for closure without savings information**

CONSOLIDATING FUNCTIONAL AREAS: How to investigate consolidating non-T&E functions (e.g., labs, training, depot maintenance test facilities, program offices)

- **Beyond T&E Group purview**
- **May impact cross- Service opportunities**

CROSS-SERVICE ANALYSIS: What is methodology for cross-Service analyses by the components?

"CLASSIFIED" FACILITIES: Handling data, and cross-Service analyses?

FINAL FORMAT FOR 31 MARCH: Need guidance.

BACKUPS

PRODUCTS OF T&E JOINT CROSS-SERVICE GROUP

AS OF 1 MARCH 1994

DRAFT -- February 28, 1994

SUBJECT: INTERNAL CONTROL PLAN (ICP) FOR MANAGEMENT OF BRAC 95 TEST AND EVALUATION (T&E) JOINT CROSS-SERVICE GROUP

REFERENCES: (a) Defense Base Closure and Realignment Act of 1990 (P.L. 101-510 as amended by P.L. 102-190)

(b) USD(A&T) Memorandum, "1995 Base Realignment and Closures (BRAC 95)," January 3, 1994

(c) DEPSECDEF Memorandum, "1995 Base Realignment and Closures (BRAC 95)," January 7, 1994

1. Purpose. This memorandum describes the management controls that will guide and regulate the DoD Test and Evaluation (T&E) Joint Cross-Service Group's actions to comply with the requirements of reference (a) and the direction contained in references (b) and (c).

2. Background. Part A, Title XXIX of Public Law 101-510, as amended by Public Law 102-190 and Public Law 103-160, establishes the exclusive procedures under which the Secretary of Defense may pursue realignment or closure of military installations inside the United States, with certain exceptions. The law established independent Defense Base Closure and Realignment Commissions to review the Secretary of Defense's recommendations in calendar years 1991, 1993, and 1995. Reference (c) establishes six Joint Cross-Service Groups, one of which is the Test and Evaluation (T&E) Joint Cross-Service Group (T&EG). Reference (c) also directs that the T&EG must develop and implement an internal control plan for base realignment, closure, or consolidation studies to ensure the accuracy of data collection and analyses.

3. Scope. This internal control plan includes:

- Uniform guidance defining data requirements and sources;
- Systems for verifying the accuracy of data at all levels of command;
- Documentation justifying changes made to data received from subordinate commands;
- Procedures to check the accuracy of the analyses made from the data; and
- An assessment by auditors of the adequacy of each internal control plan.

4. Internal Control Mechanisms. The objective of the internal control mechanisms employed by the T&EG is to ensure the accuracy and completeness of the information upon which the T&EG decisions and recommendations will be based. The two principal control mechanisms are organization and documentation.

a. Organizational Controls. There are two organizations which have primary responsibility for the T&E contribution to the BRAC 95 process: The T&E Joint Cross-Service Group (T&EG) itself and the secretariat to the T&EG that has been established by the T&EG Action Plan. The T&EG Secretariat (T&EGS) has been tasked to develop procedures and methods to maintain the records required by the T&EG. The DoD Inspector General (DoD IG) services as technical advisor to the T&EG and as the field auditor for data gathered in support of T&EG activities. The specific responsibilities of these organizations for ensuring internal control requirements are met are as follows:

(1) T&E Joint Cross-Service Group (T&EG). The T&EG is charged with developing analyses guidance and criteria for the use of the DoD Components while conducting cross-service analyses in the T&E area, and for providing oversight of these analyses and making recommendations to the USD(A&T). The T&EG is responsible for ensuring a fair and complete evaluation is made of the T&E facilities and installations in accordance with the provisions of reference (a). This includes overseeing the compilations of required data and information; and making decisions regarding analyses guidelines, standards, assumptions, measures of merit, data elements, excess capacity, military value, and other impacts.

(2) Secretariat for T&E Joint Cross-Service Group (T&EGS). The chairs of the T&E Joint Group have established from members of their own staffs, a secretariat for the group. The secretariat is led by the Deputy Director, Test Facilities and Resources, (D,T&E) in close coordination with the Deputy Director, Resources and Administration, (D,OT&E). From the date of receipt of the DEPSECDEF BRAC 95 memorandum, the secretariat will develop procedures and methods to maintain the records required by the DEPSECDEF guidance. The secretariat will develop, as directed by the T&E Joint Cross-Service Group, and keep:

- Minutes of T&EG meetings. The minutes will be kept by the representative from the DASD (Economic Reinvestment and BRAC) and will not be circulated. Coordination by the co-chairs will be required as a minimum.

- Descriptions of how base realignment and closure policies, analyses and recommendations were made, including minutes of all deliberative meetings;

- All policy, data, information, and analyses considered in making base realignment and closure recommendations;

- Descriptions of how DoD Components recommendations met the final selection criteria and were based on the final force structure plan; and

- Documentation that addresses each recommendation to the Secretary of Defense to realign or close a military installation under the law.

(3) DoD Inspector General. Reference (c) states that the DoD Inspector General shall be available to assist the in developing, implementing, and evaluating internal control plans. The T&E Joint Cross-Service Group shall submit this internal control plan to the DoD IG for review and evaluation. If any data is collected directly as a result of the T&E Group's actions then the DoD IG will be requested to provide field audits that will review the supporting data and documentation used to develop the data that was submitted to the T&E Joint Cross-Service Group. The DoD IG will ensure audit standards are met and will advise the T&E Joint Group of any significant issues identified during the independent audit ass any such issues are identified.

b. Documentation Control. All significant events in the T&EG involvement in the BRAC 95 process will be promptly recorded and clearly documented to ensure the accuracy and completeness of the information used by the T&EG in performing evaluations of T&E facilities and installations. The following elements will be strictly adhered to:

(1) T&E Facility and Installation Data Base (TEFIDB). The TEFIDB will be the sole and authoritative data base for conducting cross-service analyses of T&E facilities and installations. The TEFIDB will contain all relevant data and information, pertaining to all T&E facilities and installations within the scope of the T&E Cross-Service Group. Specific procedures will be promulgated for development and maintenance of the TEFIDB. Elements included in the data base must have been certified in accordance with the attachment and will be subject to DoD IG source validity checks and data accuracy assessments.

(2) Certification. By the attached certification procedures, the Co-Chairs of the T&E Joint Cross-Service Group establish the policy implementing the requirements of the Act

that information submitted to the Secretary of Defense and to the Defense Base Closure and Realignment Commission must be certified as accurate and complete to the best of the certifier's knowledge and belief. The procedures outlined in that reference will ensure the accuracy and completeness of the data and information contained in the TEFIDB.

(3) Record Keeping. Minutes will be prepared by the representative of DASD (ER&BRAC) of all formal T&EG meetings which are part of the decision-making process in arriving at recommendations for base closure and realignment to be forwarded to the Secretary of Defense. Decision papers will be prepared to memorialize each decision made by the Group and the justification for that decision. All documents or data files on magnetic media forwarded from other sources, generated for the BRAC 95 process, and used for analyses, and all other documents that relate to the BRAC 95 process will be maintained in a library with controlled access by the T&EGS.

(4) Oral Briefings. From time to time, the T&E Cross-Service Group will receive formal and informal briefings from persons both in and out of the Federal government. If the T&EG considers any such briefing presents relevant and useful information or data, before such information or data can be entered into the TEFIDB, the T&EG must either (i) require the presenter (if a DoD employee) to reduce such information or data to writing, or (ii) request the appropriate DoD organization to replicate such information or data. In both cases, certification required by the attachment applies.

(5) Technical Experts. Technical experts will be utilized to support both the development and/or refinement of T&EG analytical efforts and its deliberations. When the T&EG utilizes the input of a technical expert, the specific contribution, notes, analyses, or other correspondence developed in support of the BRAC 95 process will be made a part of the TEFIDB. When technical experts provide information or data that the T&EG considers relevant and appropriate for consideration during their deliberations, the experts shall be requested to submit the information/data in writing with the required certification, so that it may be included in the TEFIDB. Whenever either the T&EG or the T&EGS incorporates the contribution of technical experts into the TEFIDB, the entry will include a description of the qualifications for designating an individual as a technical expert. For any information/data that is derived from an authoritative sources (e.g., a Federal, state, or local government agency), the document which includes the certification shall identify the source and provide adequate justification for relying on the source.

(6) Access to Data. Access to the TEFIDB will be limited to those persons identified by the T&EG and the T&EGS. Access to the TEFIDB by non-government personnel will be determined by the T&EGS and will be for the sole purpose of completing and maintaining the data base. Analyses of data from the TEFIDB will not be conducted by non-government personnel. Subsets of the TEFIDB will be provided as required to the DoD Components in the course of their analyses. During the periods when the data is in the custody of a DoD Component, the BRAC 95 Internal Control Procedures of the Component shall apply.

5. Responsibilities. The T&EG, the T&EGS, and the DoD IG will execute their responsibilities consistent with the provisions of references (b) and (c).

6. Implementation. This Internal Control Plan is implemented immediately and will be updated as necessary to enhance the level of management control needed to achieve the desired results of the references.

Charles E. Adolph
Director
Test and Evaluation

Lee H. Frame
Acting Director
Operational Test and Evaluation

STATEMENT OF OUTSOURCING POLICY
T&E JOINT CROSS-SERVICE GROUP

The T&E Joint Cross-Service Group has been directed by the DEPSECDEF to "identify necessary outsourcing policies and make recommendations regarding those policies." This paper contains the material to meet this requirement.

Terminology:

Government Owned, Contractor Operated (GOCO). The complete operation of a facility is contracted to a contractor (who may subcontract portions of the task). The contractor assumes the responsibility for management decisions and the application of his resources to the operation of the facility to meet the facility's mission requirements as stated in his contract. The government oversight is primarily from contracting officials. There may be situations where no government officials are physically located at the facility.

Contracted Out. Certain functions performed within the DoD are identified as "commercial activities" (CA). A CA is an activity that provides a product or service that is obtainable (or obtained) from a commercial source. There are two types of CAs. A contract CA is one that is managed by a DoD Component, but operated with contractor personnel. An In-House CA is operated by a DoD Component with DoD personnel (civilian or military). In this alternative, the government decides to contract for the performance of one or more CAs within a government owned and operated facility.

Policy:

The policy concerning "outsourcing" for T&E facilities and bases is:

a. In the conduct of analysis of alternatives concerning T&E facilities and bases to support the BRAC 95, the DoD Components should examine the alternatives for providing the required T&E capabilities by "outsourcing" the T&E facility or the base.

b. Outsourcing alternatives will include:

(1) Contracting-out the operation of the existing T&E facility,
(2) Converting the base to a GOCO, or
(3) Transferring the workload to another existing federal government or commercial test facility.

c. The transfer of T&E workload to a foreign facility will not be considered as an alternative that leads to the closing of a unique U.S. test facility.

There is always a possibility that some future security requirements will prohibit the use of a foreign facility for testing. A foreign facility may be considered as an alternative to supplement the capacity of a U.S. facility.

Outsourcing Goal:

In contrast with other areas of DoD support operations, there is no goal for the amount or percentage of the DoD test facilities operation that will be performed by the commercial sector. Contractors are currently providing effective T&E facility operation and support at a number of DoD locations. Instead of a statement of a goal of a percentage that should be performed by the commercial sector, the determination of whether a commercial source or a governmental operation would be most advantageous will be made based on the conclusions from a specific case-by-case analysis.

Discussion:

While outsourcing by contracting for support from a commercial source is a viable and important option for some DoD common support functions, there is a limited application of this alternative to the T&E area. Commercial testing companies do exist and provide capability mostly at the subsystem and component level. Other U.S. Government agencies, e.g., NASA, possess the capability to provide significant system-level testing. The outsourcing approach that has been effectively applied in T&E is the use of contracted operation of DoD facilities and bases. The approach to date has primarily been through contracting for specific support services on an installation that is retained as a Government-Owned, Government Operated (GOGO) facility.

There is a limit on the number of analyses of outsourcing alternatives that should be examined. The limit on these analyses is to preclude the requirement for each DoD Components to investigate and evaluate a very large number of sources that are not really comparable to the large DoD test facilities and bases. A large majority of the DoD test facilities and bases are sited and operated because of the land, air, or sea space associated with the facility. The only external source alternatives for most major T&E mission areas are the facilities owned and operated by other U.S. Government agencies, e.g., NASA.

The examination of existing T&E facilities and bases will be extended to address the question of government development/ownership of new or improved T&E facilities as compared to contractor development/ownership. It is the policy of DoD to rely on commercial operation for all situations where that alternative will result in the most cost effective alternative. For each major new or improved T&E facility, the responsible DoD Component will consider the use of contracting out or GOCO as an alternative that must be evaluated.

Specific Alternatives:

In addition to this policy statement, the T&E Joint Group will identify specific outsourcing alternatives that are to be analyzed. These specific alternatives will be included in the analysis guidance and the DoD Components will examined the alternatives during their analyses.

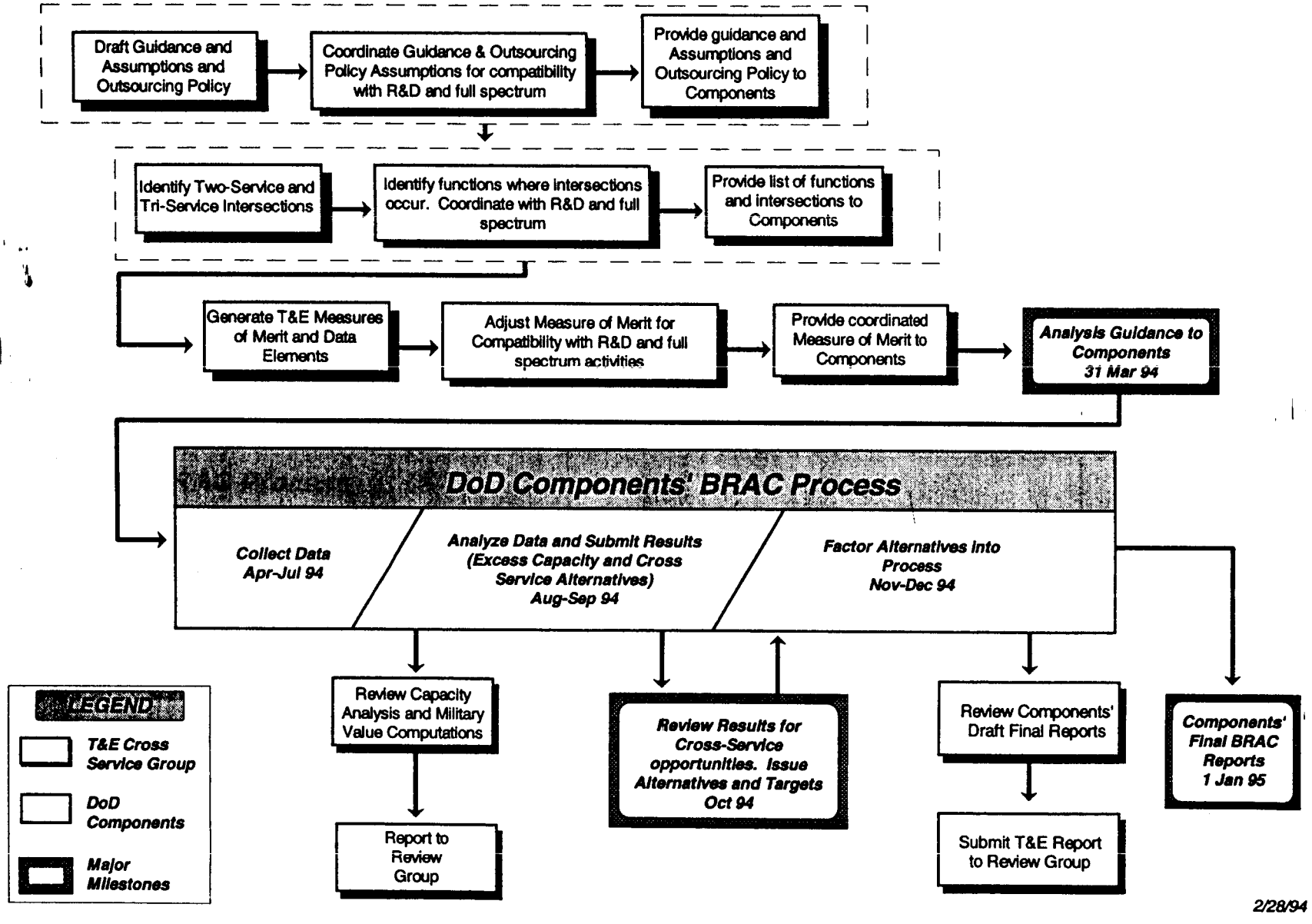
STATEMENT OF OBJECTIVE
T&E JOINT CROSS SERVICE GROUP

DETERMINE OPPORTUNITIES FOR THE SERVICES AND DEFENSE AGENCIES TO CLOSE, REALIGN, OR CONSOLIDATE FACILITIES/CAPABILITIES THAT PERFORM TEST OR EVALUATION FUNCTIONS. THIS WILL BE ACCOMPLISHED BY IDENTIFYING ALTERNATIVES IN THE SERVICES AND DEFENSE AGENCIES, OTHER GOVERNMENT AGENCIES, OR IN INDUSTRY.

STANDARDS

- **All services and defense agencies are to collect the same data elements, and use the same definitions as required by the T&E Joint Cross-Service Group, and as coordinated with other joint cross-Service groups.**

CROSS SERVICE ANALYSIS PROCESS



SUMMARY PROCESS
T&E JOINT CROSS-SERVICE GROUP

MILESTONES	T&E JOINT CROSS-SERVICE GROUP	DoD COMPONENTS
31 Mar	Issue guidance, assumptions, standards, measures of merit, data elements required	
Apr-Jul		Collect data
1 Aug-Sep		Analyze data and submit results to T&E Group
Oct	Review results for cross-Service opportunities. Issue alternatives and targets.	
Nov-Dec		Factor alternatives into each Component's BRAC process
Jan 1995		Submit Component BRAC Reports
Jan-Feb	Review Component BRAC Reports - Submit T&E Report to BRAC Review Group	

T&E JOINT CROSS-SERVICE GROUP
CROSS-SERVICE FUNCTIONS

TEST CATEGORIES

1. AIR VEHICLES

   - FIXED WING
   - ROTARY WING
   - PROPULSION
   - AVIONICS
   - CREW SYSTEMS
   - LIGHTER-THAN-AIR

2. SPACE SYSTEMS

   - LAUNCH/ORBIT TRANSFER
   - SATELLITES
   - RE-ENTRY VEHICLES

3. C^4I

   - COMMUNICATIONS NETWORK
   - RADIO LINKS
   - PROCESSING
   - DATA FUSION
   - FIRE CONTROL

T&E JOINT CROSS-SERVICE GROUP (CONT)
CROSS-SERVICE FUNCTIONS

TEST CATEGORIES (CONTINUED)

4. SENSOR SYSTEMS

   - RADARS
   - ELECTRO-OPTICAL/INFRARED/MILLIMETER WAVE/ ACOUSTIC/SEISMIC/ULTRAVIOLET

5. MUNITIONS (TERMINAL EFFECTS)

   - WARHEADS
   - FUZES
   - DISPOSAL

6. ELECTRONIC COMBAT

   - THREAT WARNING
   - RF COUNTERMEASURES
   - EO/IR COUNTERMEASURES
   - C3 COUNTERMEASURES
   - ECCM

T&E JOINT CROSS-SERVICE GROUP (CONT)
CROSS-SERVICE FUNCTIONS

TEST CATEGORIES (CONTINUED)

7. PROPULSION

- LARGE AIRCRAFT, AIR BREATHING
- SMALL AIRCRAFT, AIR BREATHING
- ROCKETS

8. WEAPONS

- ELECTRIC GUN
- DIRECTED ENERGY
- MISSILE SYSTEMS
- ARMAMENTS
- FIRE CONTROL
- MINES

T&E JOINT CROSS-SERVICE GROUP (CONT)
CROSS-SERVICE FUNCTIONS

TEST SUPPORT CATEGORIES

1. NUCLEAR EFFECTS
   - ELECTROMAGNETIC PULSE
   - BLAST
   - THERMAL
   - INITIAL RADIATION

2. ENVIRONMENTAL EFFECTS
   - CLIMATIC
   - ELECTROMAGNETIC INTERFERENCE/COMPATIBILITY
   - QUALIFICATION
   - LIGHTNING

3. T&E SUPPORT AIRCRAFT

BRAC 95 JOINT CROSS-SERVICE GROUP FOR MTFs AND GME

■ Action Plan & Timeline (thru 3/31/94)

➤ Agree on Statement of Principles	2/4	✓
➤ Define role of Group & Services	2/4	✓
➤ Develop Analysis Assumptions	2/11	✓
➤ Determine Categories for Study	2/18	✓
➤ Determine General Analytical Approach	2/18	✓
➤ Review interim force structure plan	2/25	✓
➤ Submit list of irreconcilable differences, if necessary, to USD (A&T)	2/28	✓
➤ Define Measures of Merit & Data Sources	3/4	
➤ Determine weights for Measures of Merit	3/11	
➤ Complete Data Definitions	3/11	
➤ Establish Data Internal Control Plan	3/17	
➤ Draft report to Joint Group for review	3/17	
➤ Final report to Steering Group	3/31	

BRAC 95 JOINT CROSS-SERVICE GROUP FOR MTFs AND GME

■ Policy Issues

- ➤ Need for Consistency
  - – Service analysis deliverable not defined
  - – Services may have different weighting and scoring systems for major BRAC criteria.
  - – Inconsistent products will invalidate Study Design and may lead to significant criticism by Commission, communities, and political forces
- ➤ Issues should be resolved via Steering Group or Joint Review Group

BRAC-95 STEERING GROUP

DISCUSSION ISSUES ON THE INTERNAL CONTROL PLAN FOR THE BRAC-95 JOINT CROSS-SERVICE GROUPS

The proposed Internal Control Plan for the Joint Cross-Service Groups makes the following points:

- The Joint Cross-Service Groups will not be gathering original data, but will specify the data required to be gathered by the Military Departments and Defense Agencies.

- Only the BRAC-95 Review Group and the Secretaries of the Military Departments are empowered to make specific closure or realignment recommendations to the SECDEF.

- The use of other DoD and Federal agencies, private sector contractors, or any other private or public organization to conduct such analyses will not be permitted unless specifically authorized by the BRAC-95 Review Group.

- The Joint Cross-Service Groups will coordinate their information requests with the respective BRAC-95 organizations of each Military Department and the Defense Agencies.

- In addition to the full and open access granted to the GAO, such access will be granted to the DoD Inspector General regarding records, data, information and other materials either collected or retained by the Joint Cross-Service Groups.

DRAFT 1 MAR 94

Internal Control Plan for Managing the Identification of DoD Cross-Service Opportunities as Part of the DoD 1995 Base Realignment and Closure Process (BRAC-95)

Background

The exclusive procedures by which the Secretary of Defense (SECDEF) may pursue realignment or closure of military installations inside the United States are contained in Part A, Title XXIX of Public Law 101-510, entitled as the Defense Base Closure and Realignment Act of 1990; as amended by Public Law 102-190 and Public Law 103-160; hereafter referred to as the Base Closure Act. The Base Closure Act also includes a provision for the President to appoint independent Base Closure and Realignment Commissions to review the Secretary of Defense's recommendations in calendar years 1991, 1993, and 1995.

The Deputy Secretary of Defense (DEPSECDEF), in a memorandum dated 7 January 1994, set forth guidance, policy, procedures, authorities and responsibilities for recommending bases for realignment or closure for submission to the 1995 Defense Base Closure and Realignment Commission. The DEPSECDEF guidance included a requirement for the establishment of BRAC-95 Joint Cross-Service Groups in six areas with significant potential for cross-service impacts in BRAC-95.

Five of the Joint Cross-Service Groups are functional areas encompassing Depot Maintenance, Test and Evaluation, Laboratories, Military Treatment Facilities including Graduate Medical Education, and Undergraduate Pilot Training. These functional groups shall, when operationally and cost effective, strive to: retain in only one Service militarily unique capabilities used by two or more Services; consolidate workload across the Services to reduce excess capacity; and assign operational units from more than one Service to a single base. A sixth Joint Cross-Service Group was formed as a Joint Economic Impact Group to establish guidelines for measuring economic impacts. The five functional area joint cross-service groups have been tasked by the DEPSECDEF to:

- determine the common support functions and bases to be addressed by each cross-service group:
- establish the guidelines, standards, assumptions, measures of merit, data elements and milestone schedules for DoD Component conduct of cross-service analyses of common support functions;
- oversee DoD Component cross-service analyses of these common support functions;

- identify necessary outsourcing policies and make recommendations regarding those policies;
- review excess capacity analyses;
- develop closure or realignment alternatives and numerical excess reduction targets for consideration in such analyses; and
- analyze cross-service tradeoffs.

The economic impact joint cross-service group has been tasked by the DEPSECDEF to:

- establish the guidelines for measuring economic impact and, if practicable, cumulative economic impact; to analyze DoD Component recommendations under those guidelines; and
- develop a process for analyzing alternative closures or realignments necessitated by cumulative economic impact considerations, if necessary.

The DEPSECDEF directed the BRAC-95 Joint Cross-Service Groups to complete the above analytical design tasks and issue guidance to the DoD Components, after review by the BRAC-95 Review Group, no later than 31 March 1994.

Purpose

The primary purpose of this Internal Control Plan is to provide a consistent set of management controls for all Joint Cross-Service Groups and to meet the requirements established by the DEPSECDEF regarding the DoD Component cross-service analyses of all assets within each category, as annunciated in his Memorandum of 7 January 1994. More specifically, the DEPSECDEF directed the Joint Cross-Service Groups to develop and implement an Internal Control Plan to ensure the accuracy of data collection for conducting base realignment or closure assessments. At a minimum this Internal Control Plan includes:

- Uniform guidance defining data requirements and sources;
- Systems for verifying the accuracy of data at all levels of command;
- Documentation justifying changes made to data received from subordinate commands;
- Procedures to check the accuracy of the analyses made from the data; and

- Assessment by auditors of the adequacy of this Internal Control Plan.

In addition to the above requirements, DEPSECDEF requires that the Internal Control Plan incorporate certification procedures required by the Base Closure Act. The Joint Cross-Service Groups will not be gathering original data, but will specify the data required to be gathered by Military Departments and Defense Agencies. Therefore, all data and information provided to the Joint Cross-Service Groups for purposes of analysis and decision making are required to be certified as accurate and complete by the Military Departments and Defense Agencies in accordance with their respective BRAC-95 Internal Control Plans.

Responsibilities

The BRAC-95 Steering Group will oversee implementation and adherence to this Internal Control Plan by the Joint Cross-Service Groups. The basic goal of this Internal Control Plan is to ensure consistency in the data gathered and used, application of selection criteria, methodology and reports to the SECDEF and subsequently to the 1995 Base Closure and Realignment Commission.

The Secretaries of the Military Departments, the OSD Secretariats, and the Directors of the Defense Agencies are responsible for providing staff resources to the Joint Cross-Service Groups. The Chairs of the individual Joint Cross-Service Groups are responsible for ensuring that the members of the Groups are fully aware of the management controls presented in this Internal Control Plan. Team members are responsible for implementing and adhering to the controls while also reporting to the Chairs any noted control violations or weaknesses identified during the collection and analysis of data. The Chairs of the Joint Cross-Service Groups are authorized to implement further guidance to control the functioning of their respective Groups in a way as to meet the intent of this Internal Control Plan.

Internal Control Mechanisms

The objective of the internal control mechanisms to be employed by the Joint Cross-Service Groups is to ensure the accuracy, completeness, and integrity of the information upon which the SECDEF recommendations for closures and realignments will be based. The two principal mechanisms are organization and documentation.

Organization Controls.

Under the oversight and guidance of the DEPSECDEF, there are four groups/organizations within the DoD which have primary responsibility for assisting the SECDEF to identify cross-service asset sharing opportunities. To ensure the integrity of the selection process, the four groups/organizations are to be separated by distinct functional

boundaries and levels of decision making authority. The Chair and membership for each Joint Cross-Service Group have already been determined and assigned by the DEPSECDEF. Individual members to the Groups have also been appointed by the OSD Secretariats, the Secretaries of the Military Departments and the Directors of the Defense Agencies.

BRAC-95 Review Group. The BRAC-95 Review Group is empowered to develop recommendations to the SECDEF regarding cross-service tradeoffs and asset sharing opportunities. Only the BRAC-95 Review Group and the Secretaries of the Military Departments are empowered to make specific closure or realignment recommendations to the SECDEF. The BRAC-95 Review Group is responsible for ensuring that a fair and complete analysis was conducted for every cross-service tradeoff and asset sharing opportunity that results in a recommendation made to the SECDEF. This includes overseeing the work of the Steering Group and making decisions regarding definitions, assumptions, measures of merit, excess capacity, military value, return on investment, and other impacts deemed appropriate.

BRAC-95 Steering Group. The BRAC-95 Steering Group is a subordinate organization to the BRAC-95 Review Group. It will oversee the actions of the Joint Cross-Service Groups. The results of such direction and evaluations will be periodically reported to the BRAC-95 Review Group. The BRAC-95 Steering Group will rely on the Joint Cross-Service Groups to review analyses of potential cross-service tradeoffs, cross-service asset sharing and closure or realignment opportunities. The use of other DoD and Federal agencies, private sector contractors, or any other private or public organization to conduct such analyses will not be permitted unless specifically authorized by the BRAC-95 Review Group. This prohibition includes any analysis relating to capacity analysis, military value, return on investment, and other impacts that may eventually be provided to the BRAC-95 Review Group.

BRAC-95 Joint Cross-Service Groups. The basic purpose of the Joint Cross-Service Groups is to oversee and guide the Military Departments and the Defense Agencies in conducting fair cross-service analyses and in developing recommended alternatives for consideration by the DoD Components. The Joint Cross-Service Groups have been established to identify cross-service tradeoff opportunities that will maximize the military value and cost effectiveness of operating the entire DoD infrastructure of specified functional areas. The Joint Cross-Service Group are subordinate to the direction and guidance of the BRAC-95 Steering Group. Other OSD elements, Military Departments, or Defense Agencies will not direct any particular data collection or analysis effort for a Joint Cross-Service Group unless such direction has been authorized by a group. The Joint Cross-Service Groups may employ any internal organization or subgroups to accomplish their tasks, but such subgroups shall comply with the terms of this Internal Control Plan. The membership of any internal organizations or subgroups employed shall be documented in the official records of the Joint Cross-Service Groups. The Joint Cross-Service Groups are responsible for protecting the integrity of the BRAC-95 by preventing either the improper dissemination or collection of BRAC-95 data and information.

Inspector General, DoD. The Inspector General, DoD will advise the BRAC-95 Steering Group and the Joint Cross-Service Groups on the implementation of this Internal Control Plan. As such, auditors from the Office of the Inspector General, DoD will be available to review the activities of the Joint Cross-Service Groups to ensure such activities comply with the requirements of the Internal Control Plan.

Documentation Controls.

All significant events in the DoD BRAC-95 process will be recorded and clearly documented to ensure the integrity of the process performed by the Joint Cross-Service Groups. Furthermore, controls will be implemented to ensure that the information used by the Joint Cross-Service Groups to identify opportunities for cross-service tradeoffs or recommended alternatives is certified for accuracy and completeness, and that the information is used consistently throughout the BRAC-95 process. To protect the integrity of the BRAC-95 documentation prepared, handled, or processed by the Joint Cross-Service Groups the following control elements will be adhered to:

Data Collection. Information utilized for analyses and/or decision making by the Joint Cross-Service Group will be obtained from the Military Departments and the Defense Agencies. The mechanism for requesting data from the Military Departments and the Defense Agencies will be in the form of information requests issued to the Military Departments and Defense Agencies by the Joint Cross-Service Groups. The Joint Cross-Service Groups will coordinate their information requests with the respective BRAC-95 organizations of each Military Department and the Defense Agencies. The Military Departments and Defense Agencies will use their BRAC-95 internal control mechanisms for collecting the requested information and ensuring such information collected is certified for accuracy and completeness before it is submitted to the Joint Cross-Service Groups. Information used by the Joint Cross-Service Groups to establish measures of merit for assessments of military value, and determining methods for conducting capacity analysis is not required to be certified. However, only certified information will be used to make decisions on prospective basing alternatives to the Secretaries of the Military Departments.

Certification. The statutory requirements for certification were enacted by the Base Closure Act. More specifically, all information used to make closure and realignment recommendations submitted to the SECDEF and the 1995 Defense Base Closure and Realignment Commission must be certified as accurate and complete to the best of the certifier's knowledge and belief. The preparation of responses to the information requests by the Military Departments and the Defense Agencies will adhere to the BRAC-95 certification procedures and the internal control plans implemented for those entities.

Any electronic data files or magnetic media forwarded to the Joint Cross-Service by the Military Departments or Defense Agencies must be accompanied with a

complete certified "hard copy" document of the entire data file or magnetic media. The Joint Cross-Service Groups will verify that a complete certified copy is obtained from the Military Departments or Defense Agencies and make such documentation and electronic data available for independent audit validation.

Record Keeping. Minutes will be maintained of formal meetings of the Joint Cross-Service Groups and will record who was in attendance and a synopsis of items discussed and deliberated upon. Responsibility for producing and maintaining these minutes will be determined by the Chair of each Group. The Chairs will be responsible for overseeing and enforcing certification procedures to ensure that any information and data collected and used by the Joint Cross-Service Groups are certified for accuracy and completeness. The responsibility for safeguarding BRAC-95 information and data rests with the Chairs of the Joint Cross-Service Groups. Records of meetings of sub-working groups are not required as their work product must be presented and approved by the pertinent Joint Cross-Service Group.

Oral Briefings. From time to time, the Joint Cross-Service Groups may receive formal and informal briefings from inside and outside the Federal Government. To ensure a record of all information provided to the Joint Cross-Service Group is maintained, the content of all oral briefings must be captured in the minutes prepared for the meeting at which a particular briefing was presented. All briefing slides presented will be attached to the minutes recorded for the meeting.

Outside Studies. During the BRAC-95 process, studies and reports may be brought to the attention of a Joint Cross-Service Group that originated outside of the BRAC-95 process and address such things as assessment of facilities, military value, and/or capacity. While such studies may be useful in developing policies or suggesting methods for making measurements or evaluations, no recommendations regarding actions at specific installations may be entertained nor may data from such studies be accepted by the Joint Cross-Service groups.

Technical Experts. Technical experts may be used to support both the development and/or the refinement of the analytical efforts of the Joint Cross-Service Groups. When technical experts provide information or data that a Joint Cross-Service Group considers relevant and appropriate for analyses, the experts shall be requested to submit that information or data in writing with the required certification. The use of technical experts will be communicated, either orally or in writing, to the BRAC-95 Steering Group. Technical experts will be granted only limited access to BRAC-95 data and information that will allow them to assist the Joint Cross-Service Groups in the development and/or refinement of analytical efforts. Upon completion of their efforts, technical experts will be advised not to release or discuss any BRAC-95 data or information outside of the Joint Cross-Service Groups.

complete certified "hard copy" document of the entire data file or magnetic media. The Joint Cross-Service Groups will verify that a complete certified copy is obtained from the Military Departments or Defense Agencies and make such documentation and electronic data available for independent audit validation.

Record Keeping. Minutes will be maintained of formal meetings of the Joint Cross-Service Groups and will record who was in attendance and a synopsis of items discussed and deliberated upon. Responsibility for producing and maintaining these minutes will be determined by the Chair of each Group. The Chairs will be responsible for overseeing and enforcing certification procedures to ensure that any information and data collected and used by the Joint Cross-Service Groups are certified for accuracy and completeness. The responsibility for safeguarding BRAC-95 information and data rests with the Chairs of the Joint Cross-Service Groups. Records of meetings of sub-working groups are not required as their work product must be presented and approved by the pertinent Joint Cross-Service Group.

Oral Briefings. From time to time, the Joint Cross-Service Groups may receive formal and informal briefings from inside and outside the Federal Government. To ensure a record of all information provided to the Joint Cross-Service Group is maintained, the content of all oral briefings must be captured in the minutes prepared for the meeting at which a particular briefing was presented. All briefing slides presented will be attached to the minutes recorded for the meeting.

Outside Studies. During the BRAC-95 process, studies and reports may be brought to the attention of a Joint Cross-Service Group that originated outside of the BRAC-95 process and address such things as assessment of facilities, military value, and/or capacity. While such studies may be useful in developing policies or suggesting methods for making measurements or evaluations, no recommendations regarding actions at specific installations may be entertained nor may data from such studies be accepted by the Joint Cross-Service groups.

Technical Experts. Technical experts may be used to support both the development and/or the refinement of the analytical efforts of the Joint Cross-Service Groups. When technical experts provide information or data that a Joint Cross-Service Group considers relevant and appropriate for analyses, the experts shall be requested to submit that information or data in writing with the required certification. The use of technical experts will be communicated, either orally or in writing, to the BRAC-95 Steering Group. Technical experts will be granted only limited access to BRAC-95 data and information that will allow them to assist the Joint Cross-Service Groups in the development and/or refinement of analytical efforts. Upon completion of their efforts, technical experts will be advised not to release or discuss any BRAC-95 data or information outside of the Joint Cross-Service Groups.

Access to BRAC-95 Files

To protect the integrity of the DoD BRAC-95 process, all files, data and materials relating to that process are deemed sensitive and internal to DoD. Any dissemination of such data or other materials shall be made only upon the express authorization of the BRAC-95 Review Group. Pending the forwarding to the Defense Base Closure and Realignment Commission by SECDEF of his recommendations for closure or realignment of military installations, requests under the Freedom of Information Act for release of DoD BRAC-95 data and materials shall be denied on the basis that both are predecisional and are internal government memoranda.

The members of the Joint Cross-Service Groups are entrusted to have access to BRAC-95 information and data that originated from either the Military Departments or the Defense Agencies. Consistent with the organization controls set forth in this Internal Control Plan, access will not be granted to any individuals, to include technical experts, without the consent of either the BRAC-95 Review Group or the BRAC-95 Steering Group. Such access carries a responsibility for ensuring that BRAC-95 information and data is treated as sensitive and predecisional. The members of the Joint Cross-Service Groups are required to protect the BRAC-95 process from either improper or unofficial disclosures. The group members must also take precautions to prevent the acceptance of information that is not certified or may be forwarded to a Joint Cross-Service Group through channels other than the official DoD BRAC-95 process implemented by the OSD Secretariats, the Military Departments and the Defense Agencies.

Audit Access to Records.

The Base Closure Act includes a requirement that the SECDEF make available to the Comptroller General of the United States, the agency head of the General Accounting Office (GAO), all information and materials used by DoD in making recommendations for closure and realignment. To meet these requirements, the GAO is being provided full and open access to all official BRAC-95 records and documentation. In addition to the full and open access granted to the GAO, such access will be granted to the DoD Inspector General regarding records, data, information and other materials either collected or retained by the Joint Cross-Service Groups. Information requests forwarded by the Joint Cross-Service Groups to the Military Components and Defense Agencies for processing will be subjected to review by the audit agencies cognizant to the Military Components and the Defense Agencies. The audit agencies of the Military Departments, the DoD Inspector General, and the Defense Agencies will coordinate their efforts in a way to avoid audit duplication of the same information, data, and other materials.

Dissemination

Members of the BRAC-95 Review Group, the BRAC-95 Steering Group, and the Joint Cross-Service Groups must use every precaution to prevent the improper release of and/or access to BRAC-95 information and data. Not only is access restricted to those individuals officially approved to take part in the BRAC-95 Process, care must also be taken to avoid inadvertent dissemination through either facsimile "FAX" transmissions or electronic "E" mail. Any dissemination of information that is not discussed in this Internal Control Plan will only be made with the expressed documented approval of the BRAC-95 Review Group.

The Chairs of the BRAC-95 Joint Cross-Service Groups shall disseminate this Internal Control Plan as widely as possible throughout their organizations. The BRAC-95 Steering Group will be advised of any control violations or weaknesses that are identified through application of this Internal Control Plan or of any modifications that may be needed.

OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE
3300 DEFENSE PENTAGON
WASHINGTON, DC 20301-3300

ECONOMIC SECURITY

16 FEB 1994

Mr. Matt Behrmann
Staff Director, Defense Base Closure
and Realignment Commission
1700 North Moore Street, Suite 1425
Arlington, Virginia 22209

Dear Mr. Behrmann:

This is response to your letter of January 26, 1994, regarding our recent meeting.

Confirming our discussions, we will try and keep the Commission abreast of the Department's progress throughout the BRAC 95 process and as such, we will forward our OSD level BRAC 95 policy issuances to you. For your information, I expect "Policy Memorandum One" to be issued in the early March timeframe.

In regard to your request for "static" base data, we will work with the Services to provide you with updates to data from established databases. Please let me know what you need.

You also requested operational and organizational briefings from the Services, agencies and joint cross-service groups. As the BRAC 95 process is just beginning, I believe that these kinds of briefings can be appropriately arranged in the Spring and I will work with the Services and joint groups to arrange them.

I will raise your request for data questionnaires with the Services, Defense Agencies and joint cross-service groups at the next BRAC 95 Steering Group meeting. We want to give you as much information as possible without compromising the deliberative process. I will advise you as soon as we have reached a decision on release of questionnaires.

If I can be of further assistance, please feel free to call.

Sincerely,

Robert E. Bayer
Deputy Assistant Secretary
(Economic Reinvestment and
Base Realignment and Closure)

DEFENSE BASE CLOSURE AND REALIGNMENT COMMISSION
1700 NORTH MOORE STREET SUITE 1425
ARLINGTON, VA 22209
703-696-0504

January 26, 1994

The Honorable Robert Bayer
Deputy Assistant Secretary of Defense
for ER and BRAC
The Pentagon
Washington, D.C. 20301

Please refer to this number
when responding 940128-2

Dear Bob:

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I was also pleased by your willingness to included the DBCRC on the OSD distribution list for all future base closure policy memos to the services and agencies. As we discussed, it is imperative for us to be abreast of all organizational developments impacting the approaching '95 round. As we also discussed, it is equally important for the Commission to be advised of the logical implementation steps taken by the services, agencies and joint study groups to meet OSD base closure policy. I would like to again formally request your support for service, agency and joint study group distribution of all implementation and policy guidance to the Commission.

Additionally, I would like to make a case for, and request of, early receipt of data questionnaires sent from the services, agencies and joint study groups to the bases under review. It is important for the Commission to have a clear sense of the various data points which will be under review in order to properly staff, organize and prepare analysis plans. The early receipt of these data questionnaires is critical to this effort.

Finally, the Commission is hopeful of continued OSD support for the exchange of "static" base data. Real property records and various financial data, if relatively current, provide us with essential alternative reviews of DoD recommendations utilizing readily available information. We are hopeful that this exchange can be expanded to include operational and organizational briefings from the services, agencies and joint study groups.

Bob, I know that we covered a great deal in our meeting and have requested your support in a number of areas. Our senior staff would be pleased to address questions from any Department entity in any forum on past closure rounds and ways we can jointly improve the process. Experience tells me we will need this kind of mutual support and cooperation early in 1994 if we are to meet our joint charge of a successful and fair round of base closings in 1995. I look forward to your response on these issues and to working closely with you over the next few years.

Sincerely,

Matthew P. Behrmann
Staff Director

Calendar No. 221

103D CONGRESS, 1st Session | SENATE | REPORT 103-183

DEPARTMENT OF DEFENSE APPROPRIATIONS BILL, 1994

REPORT

OF THE

COMMITTEE ON APPROPRIATIONS

U.S. SENATE

ON

H.R. 3116

OCTOBER 4 (legislative day, SEPTEMBER 27), 1993.—Ordered to be printed

U.S. GOVERNMENT PRINTING OFFICE
WASHINGTON : 1993

—Satisfy a moral obligation of the Department of Defense;
—Require a demonstrated commitment from the beneficiary; and
—Have clear objectives and measures of success.

The Committee looks forward to working with the Department and Congress on this critical issue.

Center for Aviation Technology and Training.—The Center for Aviation Technology and Training in McMinnville, OR, is an innovative model in economic development and education. It is being designed in partnership with Oregon's economic development department, elementary and secondary schools, institutions of higher education, business, and industry. Eventually, the center will represent an environment dedicated to providing on-site training programs in aviation technology for workers, including those displaced by the defense drawdown, aviation research in new aerospace technologies, and hands-on aviation experiences for all. The center also will offer interactive, participatory training and education programs that will supplement traditional classroom-based study, to become an integral part of the State's enhanced technology education and training curriculum, and a critical new resource for all of the citizens of the Pacific Northwest. The Committee directs the Department to provide a minimum of $4,500,000 to the State of Oregon to pursue this aviation and retraining initiative.

Maintenance facilities approved for closure.—The Committee understands that a recent policy directive by the Deputy Secretary of Defense precludes military maintenance installations approved for closure or realignment from bidding on and performing future contracts to be competitively offered by the Department of Defense. Such a policy could be detrimental to conversion efforts by the affected communities and could result in higher maintenance costs for the Department by limiting competition in the industrial maintenance market. Accordingly, the Committee directs the Department to give fair consideration to all bids for depot maintenance from installations approved for closure or realignment.

Base closure documentation.—The existing statutes mandate that materials prepared within the Department be made available to the Congress and GAO to assess the base closure recommendations and process. The Committee understands that substantial external documentation is received by the Department and military services associated with the consideration of installations and activities for closure or realignment. The Committee requests that the Assistant Secretary of Defense for Production and Logistics provide the House and Senate Committees on Armed Services and Appropriations a listing of all such external submissions related to the base closure process. The first such report should be submitted not later than January 15, 1994, and each 6 months thereafter. Awareness of these external inputs will assist the Committees and the GAO with their assessment of the base closure recommendations.

Redevelopment authority for Philadelphia Naval Shipyard.—The Committee strongly urges the Secretary of Defense to work with the regional redevelopment authority in Philadelphia to formulate a detailed business plan for converting the Philadelphia Naval Shipyard to commercial use. It is the view of the Committee that redevelopment authorities are most effective when include equal participation from all of the affected State, re[illegible]d local gov-

ASSUMPTIONS

T&E workload is not a direct function of force structure.

At least one test facility/capability will be required to address any technology in use or nearing maturation. Geographic assets must be adequate.

Closure or realignments of laboratories, maintenance depots, and training activities could necessitate consolidation with test facilities/capabilities.

Evaluation of developing technologies and systems will follow a process that involves a progression of test facilities/capabilities ranging from modeling and simulation, component measurement, through hardware-in-the-loop, system integration laboratories, installed-system, to open air/field.

Potential for internetting facilities/capabilities can be considered in workload projections if investments to provide internetting capability are programmed.

Certification Procedures

PURPOSE.

The Defense Base Closure and Realignment Act of 1990, as amended (P.L. 102-190) requires a certification by each person who is in a position the duties of which include personal and substantial involvement in the preparation and submission of information and recommendations concerning the closure or realignment of military installations.

COMMITMENT TO DATA ACCURACY AND RELIABILITY.

The T&E Joint Cross-Service Group (T&EG) will take such efforts as are deemed necessary to ensure that the information used concerning the closure or realignment of an installation is complete, accurate, and reliable.

The T&EG will ensure that information submitted to the T&EG for the preparation of its recommendations to the USD(A&T) or the BRAC 95 Steering Group, and information that will be submitted through the T&EG to Secretary of Defense or the Commission be certified accurate and complete to the best of one's knowledge and belief. Certification statements will be used as further evidence and documentation that the information has been reviewed and validated.

The T&EG will use the DoD IG to conduct a detailed examination of methodologies employed, decision processes followed and data used.

PROCEDURES.

The T&EG will receive information and data primarily from the DoD Components, and from the T&E Board of Directors. Each of these sources shall identify to the T&EG one or more certifying officials who will certify all information or data provided to the T&EG for use in its deliberations or analyses.

Information that is obtained by the T&EG from other sources, such as previous or on-going T&E studies, will be submitted to the DoD Components for their review and certification.

GUIDANCE.

The Secretariat of the T&E Joint Cross-Service Group will issue any additional guidance concerting the certification requirement that becomes necessary. The T&EGS will require documentation form key individuals and organizations on the steps they are taking to ensure the accuracy and reliability of the information being provided.

GUIDANCE TO SERVICES
DATA ANALYSIS

- Use 1995 FYDP as baseline to calculate costs and savings
- Address closure/realignment opportunities at facility level
- Retain essential technical capabilities for core competencies/technologies
- Use data elements only to the degree that they can withstand audit.
- Identify impacts of single node failure
- Consider consolidation of subfunctions such as centralized maintenance of common platforms, instrumentation, data processing
- Consider retention of difficult-to-replace essential geographic assets (e.g., airspace, ground/terrain, climates, sea, ports) without regard to "ownership"
- Recognize adaptability to future technologies
- Do not consider environmental cleanup costs/difficulties for closure or downsizing a facility/capability

GUIDANCE TO SERVICES
DATA COLLECTION

- Use T&E facility/capability guidance definition (attached)
- Include funded investments for new facilities/capabilities through FY95
- Include improvements/upgrades in Service or Defense Agency 1995 FYDP.
- Use definitions for "capacity" and "utilization" (to be specified per functional area)

GUIDANCE FOR QUALIFYING AS A TEST AND EVALUATION FACILITY/CAPABILITY

The smallest identifiable work entity consisting of a set of DoD-owned or controlled real property, air/land/sea/space, or any collection of equipment, platforms, ADPE and instrumentation that can conduct a T&E operation and provide a deliverable test or evaluation product for any one of the following functions: modeling and simulation, measurement, integration laboratory, hardware-in-the-loop, installed system, open air range, or test mission support. It will typically consist of all of the following components: data collection sensors and instrumentation, data reception and storage, data processing, and data display and reporting. Can support test or evaluation of components through systems, platforms, or missions in the following categories: air, land, naval, space, C4I, munitions, electronic combat, nuclear effects, chem/bio, propulsion, environmental effects, directed energy, guidance, and materiels.

Includes all funding sources (RDT&E, procurement, O&M, training,etc).

PRODUCTS OF T&E JOINT CROSS-SERVICE GROUP (FROM COMPONENT ANALYSES)

Alternatives to Services and Defense Agencies to Include:

A list of all DoD test and evaluation facilities/capabilities identified as to their potential for closure, realignment, or consolidation (coordinated with Labs and Depot Maintenance Groups).

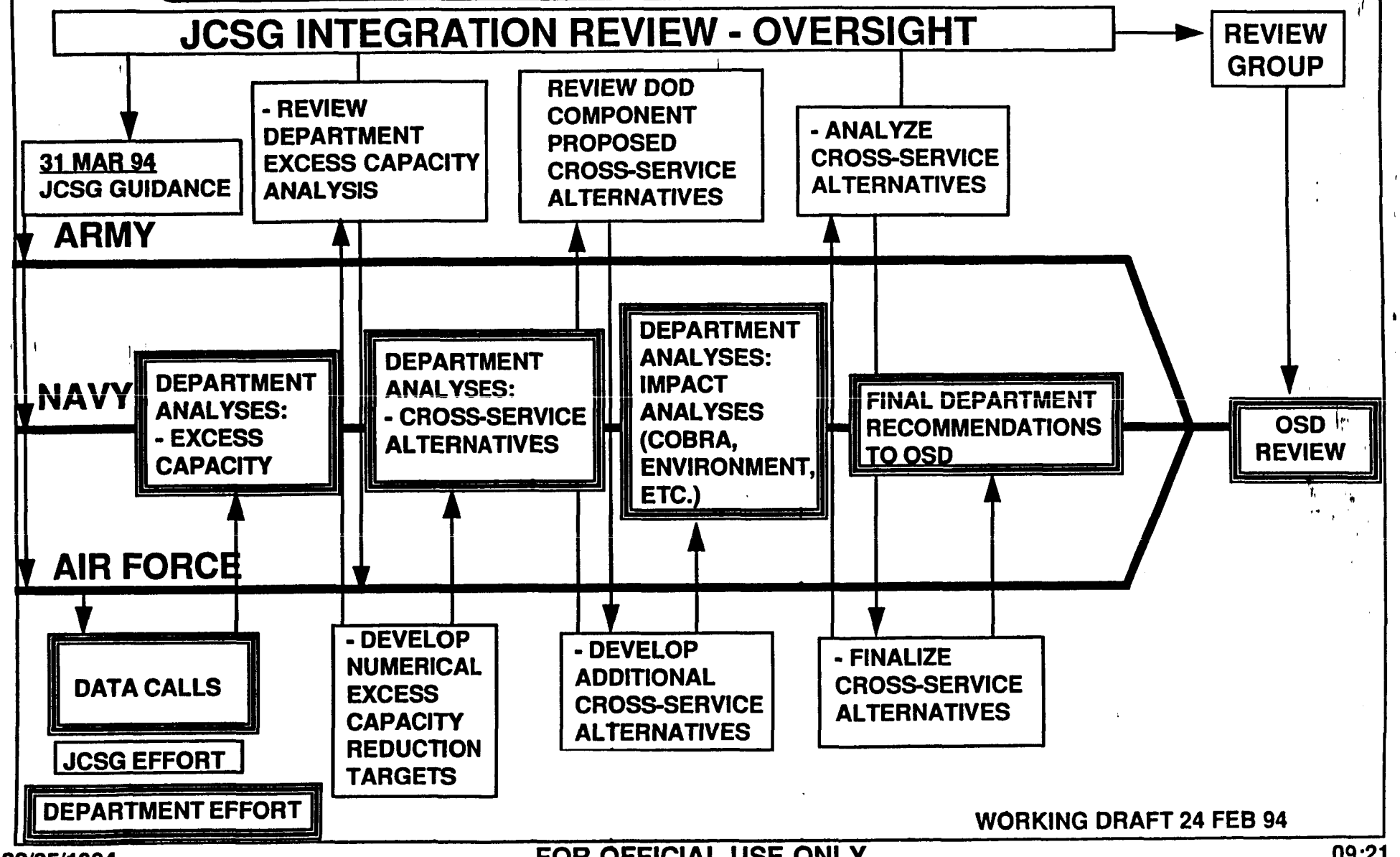
A list of all (DoD and non-DoD) test and evaluation facilities/capabilities projected to have excess capacity or be under-utilized that are determined capable of absorbing other workload. Investment could be needed.

A list of DoD installations that could accommodate, with reinvestment, relocation of current test or evaluation facilities/capabilities.

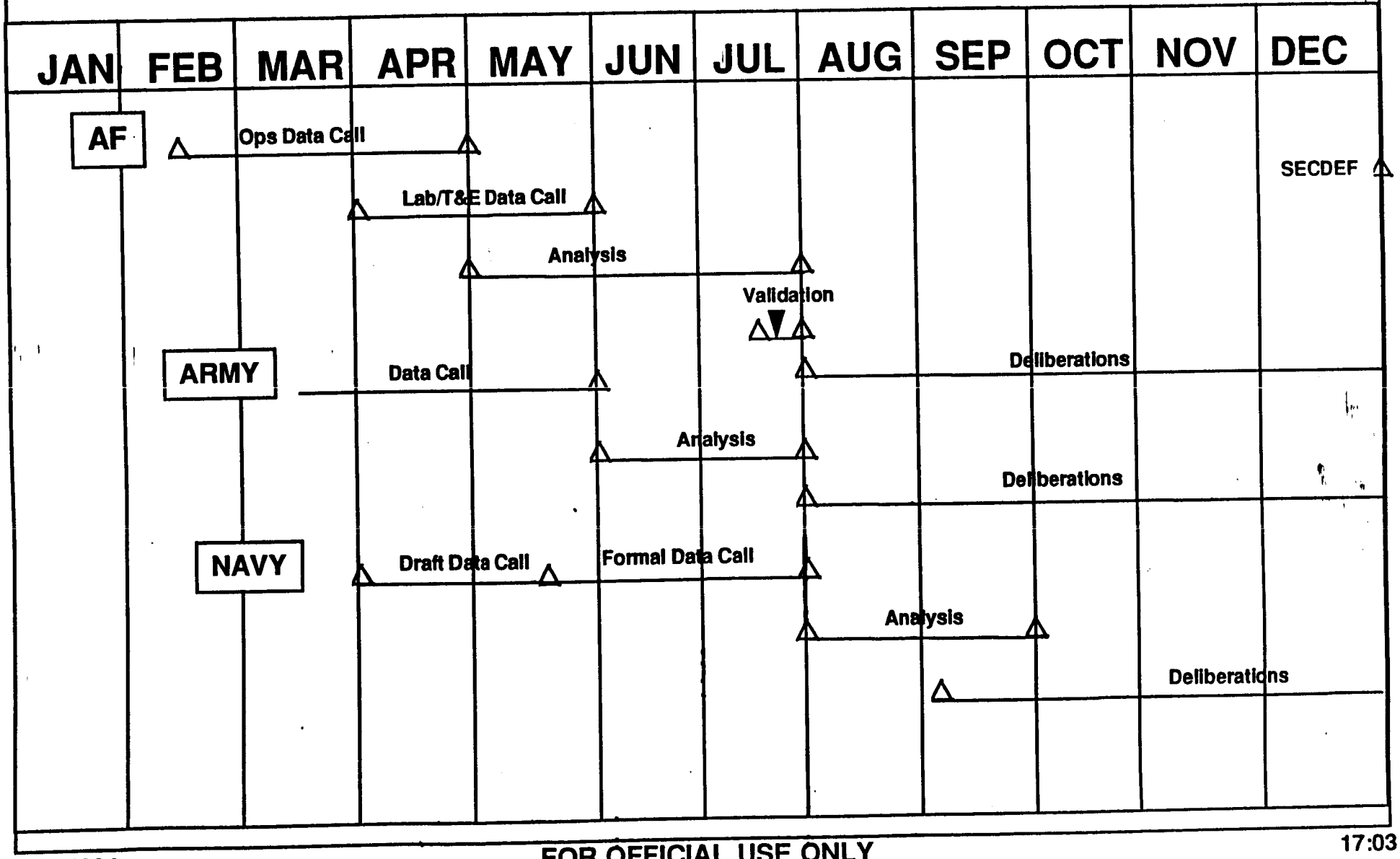
Proposed facility closure/realignment scenarios.

A list of outsourcing opportunities determined feasible.

JOINT CROSS-SERVICE GROUP PROCESS



BRAC 95 Schedule



Challenges

- Military Department's BRAC Process/Timelines
- Excess Capacity Approach
- Outsourcing
- Common Support Function List

Laboratory Common Support Functions

- Air Vehicles
- Space Systems
- Air & Missile Defense
- Weapons
- C4I
- Electronic Warfare
- Training & Simulation Equipment
- Advanced Materials
- Electronic Devices
- Sensors
- Human Systems Interface

Working Draft 2-18-94

BRAC 95

Steering Group Meeting

March 15, 1994

Minutes

The DASD(ER&BRAC) chaired this fifth Steering Group meeting acting for the ASD(ES). The meeting began at 15:00, the agenda and a list of principal attendees are attached.

The Chair welcomed the attendees and stated that the minutes from the previous meeting were available for review. The Chair then began with the first agenda item and discussion ensued in regard to sharing information with the Commission. It was the group's consensus that a balance must be struck between giving the Commission as much information as possible, on the one hand, so that they can be better prepared while on the other hand avoiding giving the Commission potentially sensitive information which would be provided to the Congress and the public at a point too early in the deliberative process. This would not enhance the deliberative process and would create an additional workload and a diversion from the deliberative process when the inevitable requirement to discuss this information with the Congress and/or the public occurs before the recommendations are finalized. It was then decided by the group to keep the Commission at "arms length" but to provide them with information from "static" (existing) databases and to provide them with informational briefings regarding the organization and operation of the BRAC 95 process later in the Spring. However, it was also decided to not provide the Commission with the blank data call questionnaires they had requested (see attached).

The next item discussed concerned the requirement for a six-month report on external documentation received regarding the BRAC process contained in the Senate Appropriations Committee Report (attached). It was the group's consensus that this requirement pertained to substantial (i.e. from officials or groups) materials received form outside of the Department of Defense, as of January 7, 1994 (the date of the Deputy Secretary's memorandum which formally began the BRAC 95 process). It was further decided that the first report would cover the period through March 15, 1994 and inputs from the Services and each Joint Cross-Service Group were requested to be received by March 25, 1994, for the first report.

The next item concerned the draft Joint Cross-Service Group internal control plan. Discussion centered on the issues/comments received from the Navy, Air Force, Laboratories and T&E groups, contained in the attached paper, and included the authority for the BRAC 95 Review Group to make recommendations provided by the Deputy Secretary's "kick-off" memorandum. The Group's consensus was that this authority should be included in

the Internal Control Plan. Additionally, the conduct of the cross-service analysis was discussed and the Group's consensus was that the plan clearly state that cross-service analyses would be conducted but not how such analyses would be conducted. The use of outside contractors was also discussed and it was stated (again) that outside contractors were permissible as long as they conducted no independent analysis. Another issue discussed was the ability of other federal agencies to provide certified data. It was the group's consensus that other federal agencies would have to follow DoD certification procedures in order to provide true certified data. It was the group's consensus that after amending the draft internal control plan to incorporate comments resulting from this discussion, the plan would be forwarded to the DoDIG and the Office of General Counsel for their formal coordination. The plan would then be issued after receiving the this formal coordination.

The Chairman of the Policy Working Group then provided a presentation on this groups's efforts (see attached handouts). It was stated that three BRAC 95 policy memoranda were anticipated to be issued (in addition to the Deputy Secretary's kick-off memorandum). "Policy Memorandum One" would cover policy from the previous round that needs to be re-issued. This memorandum should be out for coordination within a week. "Policy Memorandum Two" was anticipated to cover more potentially substantial/sensitive issues and would probably be out for coordination during mid-April. Finally, the last policy memorandum anticipated would be issued late in the BRAC 95 process and would cover formats and administrative details associated with the Service Secretaries forwarding their formal recommendations to the Secretary of Defense.

The next discussion concerned a handout (attached), assembled from briefing charts provided at the last Steering Group meeting, listing Non-BRAC policy issues that would impact the BRAC 95 process especially in regard to those policies that would impact on the analysis of workload. The Chair asked attendees to update and correct this listing (with special emphasis on whether some of the issues were really non-BRAC) as well as indicate the source (who or how) for these policy decisions, and a date for completion of the needed policy. The revised listing would then become a source document for briefing the BRAC 95 Review Group on the 30th.

The next item discussed concerned the format handed out (attached) for the "deliverables" that each joint cross-service group should complete for the next BRAC 95 Steering Group meeting. It was further discussed that the Joint Cross-Service Groups should concern themselves with only Selection Criteria 1-4, since the Services would be responsible for integrating the entire eight selection criteria into installation specific recommendations. Discussion continued in regard to the Services actually performing this integration function and therefore factoring into their criteria 1-8 analysis data for the entire

installation. It was again the consensus that how the cross-service analysis must be conducted could be decided later, but it was important now to get the Services started collecting data. A further discussion ensued in regard to policy decisions being made now, independent of the BRAC process that could positively or negatively impact the analytical process. It was agreed that the Joint Cross-Service Groups, the BRAC 95 Steering Group and the BRAC 95 Review Group were the proper forums to work through these issues.

The Chair then asked for a brief status report from each group on their progress to date. The Chair of the Economic Impact group stated that his group would make the March 31 deadline but the report on non DoD costs required by Congress would be difficult. The Medical Group reported they would also make the deadline. The Depot Maintenance group provided a quick overview as outlined on the attached slides, stating that they would also make the deadline. Some discussion ensued in regard to sizing to "core" while trying to retain workload to remain economical. The issue of considering Foreign Military Sales (FMS) workload was then discussed and it was decided that the data that would be collected should provide sufficient information to cover FMS. The Laboratories group followed by the Test and Evaluation groups both briefed that they too, would make the deadline. These groups were followed by the Undergraduate Pilot Training Group representative who also stated that the deadline would be met.

The discussion then centered on the format to be used for the presentation, to the BRAC 95 Review Group on the 30th. It was stated that a succinct presentation was necessary and the final format would be decided at the Steering Group meeting on the 28th.

The meeting then concluded.

Approved: Robert E. Bayer
Acting Chairman

BRAC 95 STEERING GROUP MEETING

March 15, 1994 1:00PM - 3:00PM Rm 3D-1019

AGENDA

- o Previous Meeting's Minutes
- o Sharing Info With the Commission (Handout)
- o Senate Appropriations Committee Report (Handout)
- o Standard Internal Control Plan Approval
  - oo Comments Received on Draft (Handout)
  - oo Discussion
- o Policy Working Group Report (Handout)
- o Joint Cross-Service Group Progress
  - oo Recap of Non-BRAC Policy Issues (Handout)
  - oo Formal Report: Progress Toward March 31, 1994 Deadline (Handouts)
  - oo Format for Issuing Guidance (Handout)
  - oo Problem Areas
- o Cross Service Analysis -- Who? How? -- Discussion
- o Other Business

BRAC 95

Steering Group Meeting

March 15, 1994

Key Attendees

Mr. Robert Bayer, OSD (Economic Reinvestment and BRAC)
Mr. Doug Hansen, OSD (Base Closure and Utilization)
Mr. Mike Owen, Army
BG Jim Shane, Army
Mr. Charles Nemfakos, Navy
Mr. Jim Boatright, Air Force
Mr. James Klugh, DUSD (Logistics)
Mr. Lou Finch, OSD (Personnel and Readiness)
MG Lawrence Farrel, DLA
Mr. Lee Frame, OSD (OT&E)
Mr. Nick Toomer, OSD (OT&E)
Mr. John Bolino, OSD (T&E)
Mr. Craig Dorman, OSD (DR&E)
Ms Patricia Watson , OSD (Health Affairs)
Col Mike Donnelly, OGC
COL Kurtz, Joint Staff
Mr. Bill Paseur, OSD Compt
Mr. John Rosamond, OSD (Reserve Affairs)
COL Anthony Hermes, OSD (PA&E)
Mr. John Delaware, DoD IG
Mr. Earl Dehart, OSD (Environmental Security)

OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE
3300 DEFENSE PENTAGON
WASHINGTON, DC 20301-3300

ECONOMIC SECURITY

16 FEB 1994

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Deputy Assistant Secretary
(Economic Reinvestment and
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DEFENSE BASE CLOSURE AND REALIGNMENT COMMISSION
1700 NORTH MOORE STREET SUITE 1425
ARLINGTON, VA 22209
703-696-0504

January 26, 1994

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for ER and BRAC
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Washington, D.C. 20301

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Matthew P. Behrmann
Staff Director

Calendar No. 221

103D CONGRESS, 1st Session | SENATE | REPORT 103-159

DEPARTMENT OF DEFENSE APPROPRIATIONS BILL, 1994

REPORT

OF THE

COMMITTEE ON APPROPRIATIONS

U.S. SENATE

ON

H.R. 3116

OCTOBER 4 (legislative day, SEPTEMBER 27), 1993.—Ordered to be printed

U.S. GOVERNMENT PRINTING OFFICE
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—Have clear objectives and measures of success.

The Committee looks forward to working with the Department and Congress on this critical issue.

Center for Aviation Technology and Training.—The Center for Aviation Technology and Training in McMinnville, OR, is an innovative model in economic development and education. It is being designed in partnership with Oregon's economic development department, elementary and secondary schools, institutions of higher education, business, and industry. Eventually, the center will represent an environment dedicated to providing on-site training programs in aviation technology for workers, including those displaced by the defense drawdown, aviation research in new aerospace technologies, and hands-on aviation experiences for all. The center also will offer interactive, participatory training and education programs that will supplement traditional classroom-based study, to become an integral part of the State's enhanced technology education and training curriculum, and a critical new resource for all of the citizens of the Pacific Northwest. The Committee directs the Department to provide a minimum of $4,500,000 to the State of Oregon to pursue this aviation and retraining initiative.

Maintenance facilities approved for closure.—The Committee understands that a recent policy directive by the Deputy Secretary of Defense precludes military maintenance installations approved for closure or realignment from bidding on and performing future contracts to be competitively offered by the Department of Defense. Such a policy could be detrimental to conversion efforts by the affected communities and could result in higher maintenance costs for the Department by limiting competition in the industrial maintenance market. Accordingly, the Committee directs the Department to give fair consideration to all bids for depot maintenance from installations approved for closure or realignment.

Base closure documentation.—The existing statutes mandate that materials prepared within the Department be made available to the Congress and GAO to assess the base closure recommendations and process. The Committee understands that substantial external documentation is received by the Department and military services associated with the consideration of installations and activities for closure or realignment. The Committee requests that the Assistant Secretary of Defense for Production and Logistics provide the House and Senate Committees on Armed Services and Appropriations a listing of all such external submissions related to the base closure process. The first such report should be submitted not later than January 15, 1994, and each 6 months thereafter. Awareness of these external inputs will assist the Committees and the GAO with their assessment of the base closure recommendations.

Redevelopment authority for Philadelphia Naval Shipyard.—The Committee strongly urges the Secretary of Defense to work with the regional redevelopment authority in Philadelphia to formulate a detailed business plan for converting the Philadelphia Naval Shipyard to commercial use. It is the view of the Committee that redevelopment authorities are most effective if they include equal participation from all of the affected State, regional, and local go

BRAC-95 STEERING GROUP

DISCUSSION ISSUES ON THE INTERNAL CONTROL PLAN FOR THE BRAC-95 JOINT CROSS-SERVICE GROUPS

The proposed Internal Control Plan for the Joint Cross-Service Groups makes the following points:

- The Joint Cross-Service Groups will not be gathering original data, but will specify the data required to be gathered by the Military Departments and Defense Agencies.

- Only the BRAC-95 Review Group and the Secretaries of the Military Departments are empowered to make specific closure or realignment recommendations to the SECDEF.

- The use of other DoD and Federal agencies, private sector contractors, or any other private or public organization to conduct such analyses will not be permitted unless specifically authorized by the BRAC-95 Review Group.

- The Joint Cross-Service Groups will coordinate their information requests with the respective BRAC-95 organizations of each Military Department and the Defense Agencies.

- In addition to the full and open access granted to the GAO, such access will be granted to the DoD Inspector General regarding records, data, information and other materials either collected or retained by the Joint Cross-Service Groups.

PROPOSED INTERNAL CONTROL PLAN
FOR THE JOINT CROSS-SERVICE GROUPS

The following issues were raised by the Military Services, Defense Agencies and several Joint Cross-Service Groups as a result of their review of the draft Internal Control Plan:

Army

No issues raised.

Navy

Issue: "Only the BRAC-95 Review Group and the Secretaries of the Military Departments are empowered to make specific closure or realignment recommendations to the SECDEF"

The Navy disagrees with this section. The Navy's input states that "The BRAC-95 Review Group has not been empowered by either the Base Closure Act or the Deputy Secretary of Defense to make specific closure or realignment recommendations to the SECDEF. The role of the BRAC-95 Review Group regarding recommendations to the SECDEF, as specified in the DEPSECDEF 'Kickoff' memo, is '...making recommendations to the Secretary of Defense, including cross-service tradeoff recommendations and recommendations on submission of below-threshold actions to the 1995 Commission.' The intended role for the BRAC-95 Review Group is to oversee the BRAC-95 process for the entire Department of Defense and to advise the SECDEF of any cross-service tradeoff opportunities or other BRAC-95 issues that may be acted upon or addressed by the Secretaries of the Military Departments.

Air Force

Issue: Under "Organization Controls", "BRAC-95 Review Group", change the third sentence to read (additions are underlined):

"The BRAC-95 Review Group is responsible for ensuring that a fair and complete <u>cross-service</u> analysis <u>of all assets in each category</u> was conducted <u>and was considered</u> for every cross-service tradeoff and asset sharing opportunity that results in a recommendation made to the SECDEF."

Issue: Under "Organization Controls", "BRAC-95 Steering Group", change the fourth sentence to read (additions underlined):

"The BRAC-95 Steering Group will rely on the Joint Cross-Service Groups to review <u>cross-service</u> analyses <u>and</u> potential cross-service tradeoffs..."

Defense Logistics Agency

No issues raised.

Other Input Received

Test and Evaluation Joint Cross-Service Group

Issue: The second bullet states that "only the BRAC-95 Review Group and the Secretaries of the Military Departments are empowered to make specific closure or realignment recommendations to the SECDEF." This precludes the Defense Agencies from making closure or realignment recommendations for their facilities to SECDEF. This section needs to be revised to include Defense Agencies.

Issue: The use of private sector contractors, or other DoD and Federal agencies to conduct analyses is prohibited unless specifically authorized by the BRAC 95 Review Group. The Internal Control Plan should discuss how this permission is obtained and documented.

Issue: "The plan includes a warning against the improper use of facsimile transmission or electronic mail, but does not state a prohibition against the use of these modes of communications. At some point in the process, the material probably should not be communicated without a certified means of safeguarding data and information. How should things be marked considering the current requirement that prohibits the transmission of 'FOR OFFICIAL USE ONLY' information by facsimile?"

Laboratories Joint Cross-Service Group

Issue: The use of "outside studies" by the Joint Cross Service Groups. The Laboratory group recommends that the second sentence of the "Outside Studies" section on page six be changed to read (additions are underlined):

"~~While~~ Such studies may be useful in developing policies or suggesting methods for making measurements or evaluations.~~no recommendations regarding actions at specific installations may be entertained nor may data from such studies be accepted by the Joint Cross-Service Groups~~. However, the Joint Cross-Service Groups may only entertain recommendations regarding actions at specific installations and use data from those studies which adhered to BRAC '95 certification procedures."

BRAC 95 Policy Issues
Checklist
Source: BRAC 93 Policy (Not Yet Reissued)

New Policy Memo One Issues (Only)

Issue	Reissue As Is	Do Not Reissue	Redraft	Action
BRAC 93 Policy Memo One				
1.a. Cumulative Impacts on Installations			X	Title: Application of Thresholds
1.b. Activities in Leased Space		X		Army to Review for Policy Memo Two
1.c. Capacity/Military Value Analyses			X	Add: Excluded bases as potential receivers
1.d. Data Certification (after March 1, 1995)		X		Can Wait (Policy Memo Three)
BRAC 93 Policy Memo Two				
2.a Military Treatment Facility (MFT) Analyses		X		O.B.E.
2.b Return on Investment (ROI) - General			X	Minor edits
2.b.1.1. Champus Costs	X			
2.b.1.2. Medicare Costs		X		Economic Group Issue (Policy Memo Two)
2.b.2 Unemployment Costs		X		Economic Group Issue (Policy Memo Two)
2.b.3 HAP	X			
2.b.4 Environmental Restoration Costs		X		Include in Policy Memo Two
2.b.5 Environmental Compliance Costs		X		Include in Policy Memo Two
2.b.6 Land Value			X	Make consistent with Pryor
2.b.7 Force Structure Savings	X			
b.8 Military Construction	X			
o.9 Construction Cost Avoidances			X	Change timeframe
2c. COBRA Model Assumptions				
2.c.1 Local Moves	X			
2.c.2 PPS Costs	X			
2.c.3 Students	X			
2.d Economic Impacts		X		Economic Group Issue (Policy Memo Two)
2.e. Environmental Impacts		X		Include in Policy Memo Two
2.f. Receiving Bases	X			
2.g. Reserve Enclaves			X	Minor Edits
2.h. Actions with Multiple Installation Impacts			X	Include with 1.a. above
2.i. Reporting Formats		X		O.B.E
2.j. Attachment 1		X		Delete but add OMB Cir A-94 to 2.b. above
Attachment 2		X		Economic Group Issue (Policy Memo Two)
Attachment 3		X		Include in Policy Memo Two
2.m. Attachment 4		X		Wait until later (Policy Memo Three)

BRAC olicy Issues
Checklist
Source: Selection Criteria and New Policy Issues

Criteria Issue	Need Policy (Y/N)	Economic Group (Y/N)	Working Group Action
A. Include the direct costs of closures and realignments to other Federal Departments and State and local governments			
A-1 Economic Impact Costs Issues	Yes	Yes	Wait for Economic Group
A-2 Other Cost Issues	Yes	No	COBRA PAT Team Input
B. Include cumulative economic impact and give it greater emphasis	Yes	Yes	Wait for Economic Group
C. Place more emphasis on the cost effectiveness of recommendations	No	No	Include with Congressional report
D. Place greater emphasis on the cost of doing business for industrial-type activities	?	No	Include with Policy Memo Two
E. Include incremental environmental restoration costs	Tie	No	Include with Policy Memo Two
F. Place more emphasis on the shortage of funds to mainatain infrastructure	No	No	N/A

New Policy Issues	Description	Working Group Action
3.a	How to conduct joint analysis	Include with Policy Memo Two
3.b	Will joint groups develop measures for all eight criteria	Steering Group Decision
3.c	Will some areas be "off limits" due to cum impact	Wait for Economic Group

Non-BRAC Policy Issues Recap

Who or How?

Depot Maintenance

- Capacity Sizing Requirements for BRAC 95 (Core only, Core Plus, Statutory Requirement, Programmed Requirements (funded), Total Requirement (Unconstrained))

Undergraduate Pilot Training

- Flight Screening
- Training Aircraft Mix
- Fixed wing training for Helo Pilots
- UHPT Consolidation at a Single Site
- Aircraft Beddown Configuration
- JPATS Syllabus: IFR vs VFR, Class progression

Test and Evaluation

- Outsourcing (collecting certified data)
- Consolidating non T&E Functional (support) Areas
- Cross-Service Analysis Methodology
- Classified Facilities

Non-BRAC Policy Issues Recap

Who or How?

Laboratories

- Military Department BRAC Process/Timelines
- Excess Capacity Approach
- Outsourcing
- Common Support Function list

Military Treatment Facilities

- Consistency in Service Analysis

BRAC 95 JOINT CROSS-SERVICE GROUP FOR MTFs AND GME

■ Action Plan & Timeline (thru 3/31/94)

➤ Agree on Statement of Principles	2/4	✓
➤ Define role of Group & Services	2/4	✓
➤ Develop Analysis Assumptions	2/11	✓
➤ Determine Categories for Study	2/18	✓
➤ Determine General Analytical Approach	2/18	✓
➤ Review interim force structure plan	2/25	✓
➤ Submit list of irreconcilable differences, if necessary, to USD (A&T)	2/28	✓
➤ Define Measures of Merit & Data Sources	3/4	✓
➤ Determine weights for Measures of Merit	3/11	✓
➤ Complete Data Definitions	3/11	✓
➤ Establish Data Internal Control Plan	3/17	
➤ Draft report to Joint Group for review	3/17	
➤ Final report to Steering Group	3/31	

STATUS

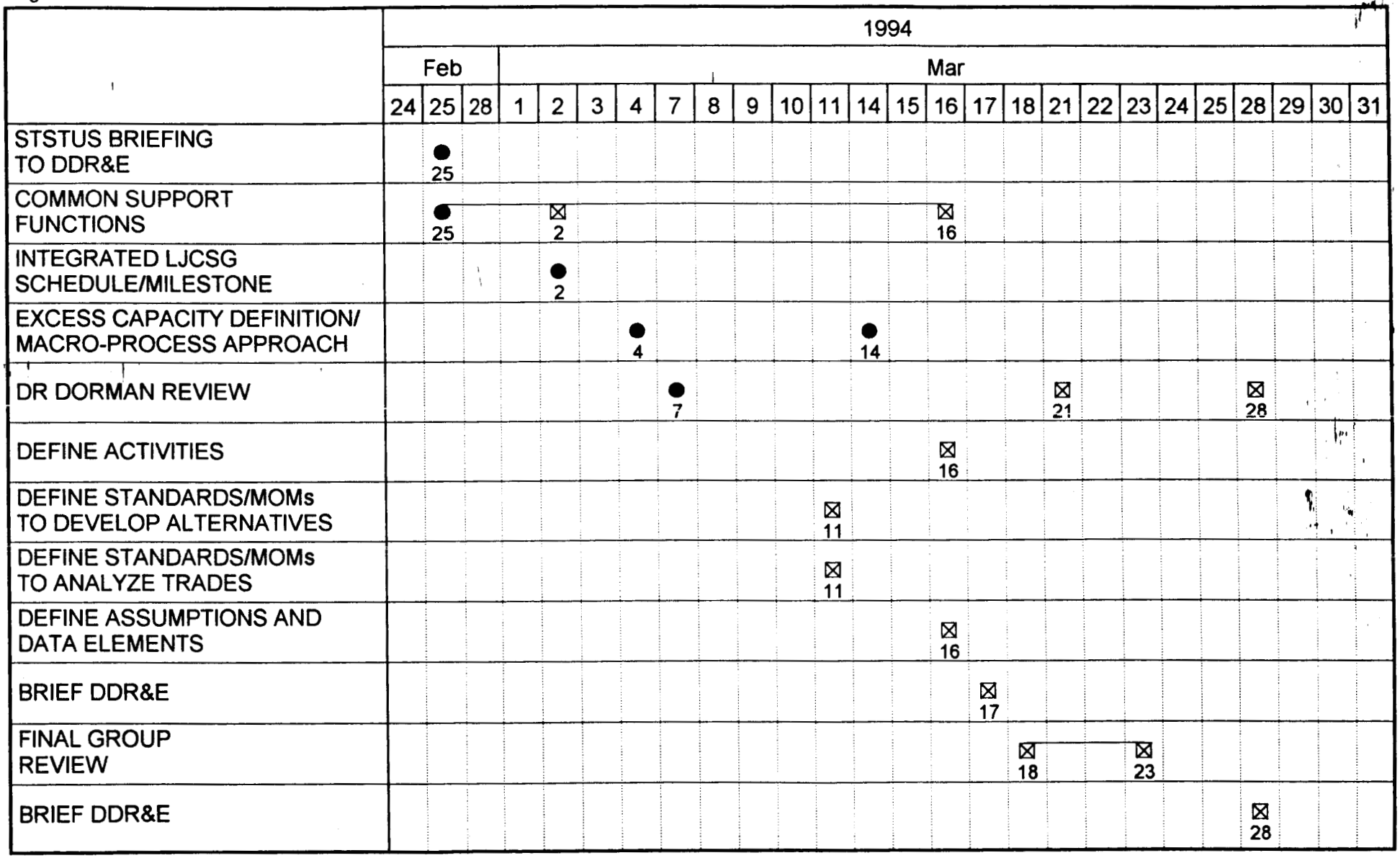
- "ACTIVITIES" DEFINED
  - S&T/ACQ/IN-SERVICE ENGR
  - SAME CHAIN OF COMMAND/LOCATION
- EXCESS CAPACITY/MACRO APPROACH AGREED
  - AGGREGATE PEAK WORKLOAD -- AGGREGATE PROJECTED WORKLOAD
- IN WORK
  - GUIDELINES/STANDARDS/ASSUMPTIONS/ MEASURES OF MERIT
  - COMMON SUPPORT FUNCTIONS
  - FORMATS/DATA ELEMENTS

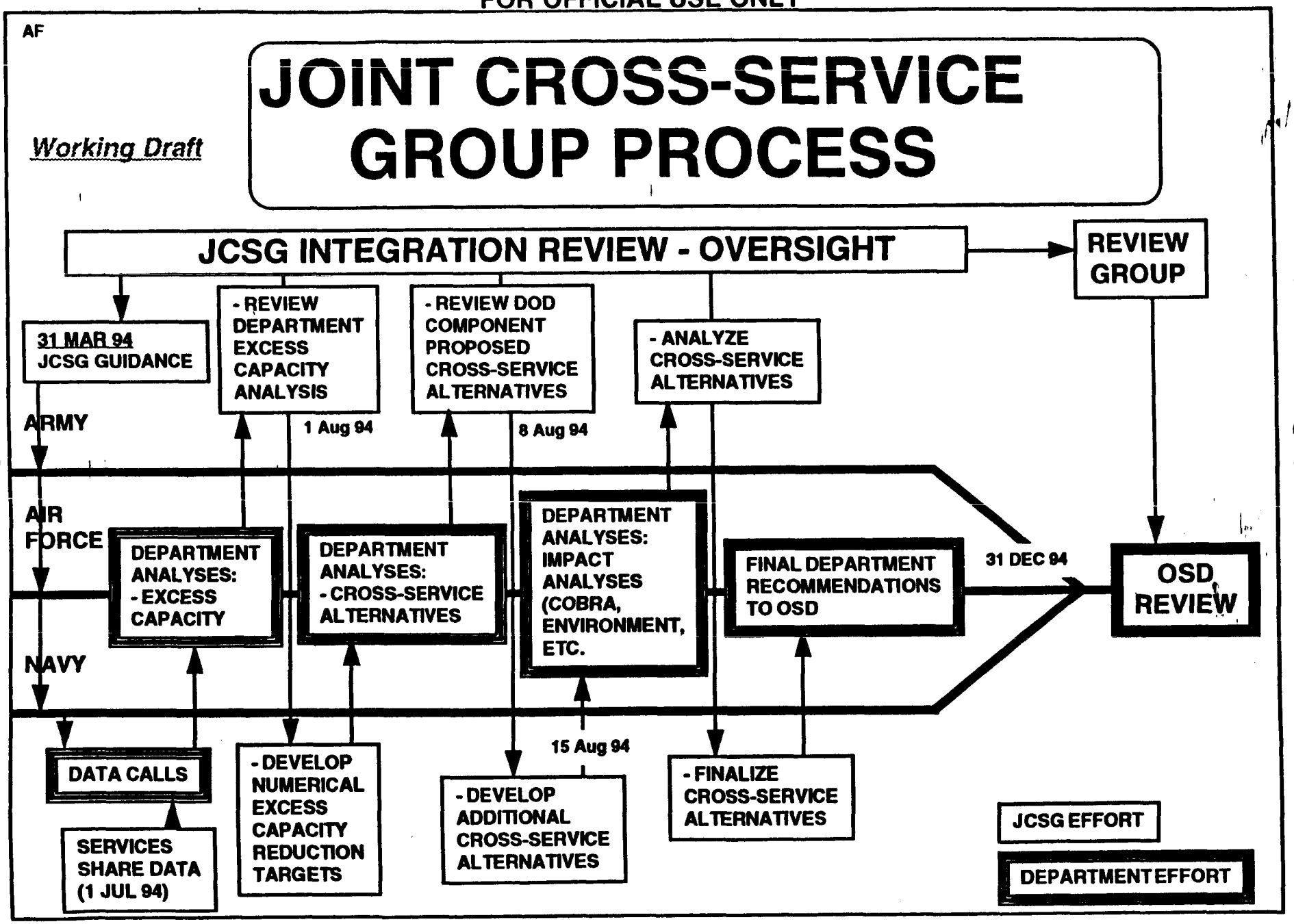
LABORATORY JOINT CROSS-SERVICE WORKING GROUP SCHEDULE

WORKING DRAFT

FOR OFFICIAL USE ONLY

3/15/1994




AF
JOINT CROSS-SERVICE GROUP PROCESS
Working Draft
JCSG INTEGRATION REVIEW - OVERSIGHT
REVIEW GROUP
31 MAR 94 JCSG GUIDANCE
- REVIEW DEPARTMENT EXCESS CAPACITY ANALYSIS
- REVIEW DOD COMPONENT PROPOSED CROSS-SERVICE ALTERNATIVES
- ANALYZE CROSS-SERVICE ALTERNATIVES
ARMY
1 Aug 94
8 Aug 94
AIR FORCE
NAVY
DEPARTMENT ANALYSES: - EXCESS CAPACITY
DEPARTMENT ANALYSES: - CROSS-SERVICE ALTERNATIVES
DEPARTMENT ANALYSES: IMPACT ANALYSES (COBRA, ENVIRONMENT, ETC.
FINAL DEPARTMENT RECOMMENDATIONS TO OSD
31 DEC 94
OSD REVIEW
DATA CALLS
SERVICES SHARE DATA (1 JUL 94)
- DEVELOP NUMERICAL EXCESS CAPACITY REDUCTION TARGETS
15 Aug 94
- DEVELOP ADDITIONAL CROSS-SERVICE ALTERNATIVES
- FINALIZE CROSS-SERVICE ALTERNATIVES
JCSG EFFORT
DEPARTMENT EFFORT

JCSG-DM Challenges

- Data consistency with Defense Depot Maintenance Task Force
- Uniformity in Services methodology and data
- Coordination and interface with other BRAC 95 cross-Service groups

JCSG-DM Progress Report

- **Action 1: Determine the common support function and maintenance activities to be addressed.**
  - **Analysis to be conducted on a commodity basis. Initial focus on 23 largest depot facilities. Any other activity identified by the Services as performing depot maintenance will also be analyzed.**

JCSG-DM Progress Report

- **Action 2: Identify necessary policy issues and make appropriate recommendations:**
  - Accomplishments:
    - » Core is DoD-wide. Service Secretaries may retain capability necessary to meet Title 10 responsibilities within their own depots.
    - » Size to "Core Plus" (e.g., last source of repair, economies of scale, technical expertise for contractor oversight). This will include all necessary work for all customers including FMS and interservice workloads.
  - Issues:
    - » Interservice methodology used by Components.
    - » Analysis of alternatives at variance with Service submissions.

JCSG-DM Progress Report

- **Action 3: Establish the guidelines, standards, assumptions, measures of merit, data elements, and milestone schedule for DoD Component conduct of cross-Service analysis.**
  - Agreement reached on guidelines, standards, and assumptions.
  - Measures of merit are being worked.
  - Data elements have been identified and will generally be expressed in terms of direct labor hours.
  - On schedule to meet approved milestone schedule through March 31, 1994.

PROPOSED GUIDANCE ON JCSG PRODUCTS/DELIVERABLES

PURPOSE: To provide a framework for JCSGs to give clear guidance on the products/deliverables to be transmitted to the Military Departments in support of BRAC 95 joint cross-service analysis

PRODUCT 1: Category Scope/Size

- List installations/functions included in category/subcategory
  - -- By installation or by location and function/commodity
- Give rationale for and narrative description of each category/subcategory

Note: We need this to: describe the category scope to the Commission, Congress, and communities; give the Steering and Review Groups a chance for sanity check; and to provide confirmation to Military Departments on the scope of the joint cross-service categories which allows them to finalize the scope of their own data calls, categories, and analysis process.

PRODUCT 2: Excess Capacity

- Measure(s) of capacity (what to measure) by category/subcategory
- Measure(s) of workload (what to measure) by category/subcategory
- Clear descriptions of what is needed to collect information on the measures of capacity and workload
  - -- Include guidelines, assumptions, and definitions needed by the user for successful response to the data call
- Description of the analytic framework for calculating excess capacity by category/subcategory
- Milestones

PRODUCT 3: Selection Criteria Measures of Merit/Factors/Common Data Elements

- List (by criterion) the measures of merit/factors/common data elements which support each of the DoD military value selection criteria (criterion 1-4) for the category/subcategory (sample attached)
- Clear descriptions of what is needed to collect information on the measures of merit/factors/common data elements
  - -- Include guidelines, assumptions, and definitions needed by the user for successful response to the data call
- Description of the analytic framework for determining military value for category/subcategory. [Question remains on whether JCSG would specify weights for measures of merit]
- Milestones

SAMPLE

JOINT CROSS-SERVICE CATEGORY

CRITERIA MEASURES OF MERIT/COMMON DATA ELEMENTS

MILITARY VALUE

CRITERION I: The current and future mission requirements and the impact on operational readiness of the Department of Defense's total force.

1. Measure of Merit/Factor/Common Data Element

   A. Data element (what to measure)

   B. Description crafted to get accurate answer/data for the measure

2. Measure of Merit/Factor/Common Data Element

   A. Data element (what to measure)

   B. Description crafted to get accurate answer/data for the measure

3. etc.

NOTE: Clearly show measures of merit/factors/common data elements and carefully crafted descriptions to support each DoD military value criterion (criterion 1-4). Include guidelines, assumptions, definitions needed by the user to respond accurately to the data call. If a common source or method is to be used to respond to a data element, specify the source or method.

CRITERION II: (etc.)

CRITERION III: (etc.)

CRITERION IV: (etc.)

BRAC 95

Steering Group Meeting

March 28, 1994

Minutes

The DASD(ER&BRAC) chaired this sixth Steering Group meeting acting for the ASD(ES). The meeting began at 14:00, the agenda and a list of principal attendees are attached.

The Chair welcomed the attendees, and introduced the Navy's new primary BRAC 95 Steering Group representative, Mr. Robin Pirie, who was recently confirmed as Assistant Secretary of the Navy (Installations and Environment). The Chair then stated that the minutes from the previous meeting were available for review. After announcing that there were now less than 365 days before the BRAC 95 recommendations were due, the Chair began discussing the agenda items, stating that Dr. Perry had approved the selection criteria used in BRAC 91 and BRAC 93 for use again in BRAC 95. The Chair then discussed the requirement for a report to Congress regarding non DoD costs involved in BRAC and that the recommendations of the Economic Impact Joint Cross-Service Group, in general would be that these costs not be included.

The Policy Sub-Group then provided its report, stating that Policy Memo One was out for coordination and about half of the necessary coordinations had been received. Policy Memo Two would be out for coordination within a week and would incorporate guidance on economic impact.

The Chair then began the Joint Cross-Service Group reports and stated that he would ask the Service Representatives after each presentation, today and at the upcoming Review Group meeting, whether the work product of that cross-service group met their needs. The Chair additionally stated that as the Review Group meeting was scheduled for only one hour, each group's presentation would have to be carefully formatted.

The Depot Maintenance Group presented first using the attached slides. Highlights of the presentation included discussion on the fact that: the Services would be tasked to collect data along commodity lines; the FYDP would be used to determine workload vice using a one or two year "snapshot" (such as 1996 or 1996/97); cumulative impact should be a factor since the Commission would most likely consider it; the Services are comfortable with the group's definitions; total and direct costs would be used vice overhead rates, and the group will use sizing to "core" as a standard. Additional discussions concerned the fact that the Services may issue supplemental guidance but timing would be an important factor in the issuance of this guidance since late guidance would negatively impact the process. Additionally, while the FYDP is a "moving target", this summer's

program review would provide insights into the FY96-01 FYDP. The FY96-01 FYDP will be the foundation of the final force structure plan to be issued in December. In the meantime, the first interim force structure plan has been issued, a second interim plan may be issued in the summer and the final will be issued in December after the budget is locked.

Discussion continued on the fact that the Services may need to supplement the data required by the Joint Cross-Service Groups to accommodate military requirements that are service unique and not reflected in the DoD view provided by these groups. An effective and ongoing communication process would be extremely important in ensuring that this requirement be fulfilled through a complementary vice duplicative analysis.

The Chair then asked if the Services were in agreement with the work product generated by the Depot Maintenance Joint Cross-Service Group. Additional discussions concerned using total cost and direct labor hour costs instead of overhead in the depot analysis and how structuring the analysis by commodity should indicate where there may be redundancy in centers of excellence. Indications from the Services followed that the work product developed to that point were acceptable. The Chair then thanked the Depot maintenance group for its work.

Test and Evaluation presented next using the attached slides. Discussion ensued and consensus reached that the test & evaluation activity's chain of command, not the installation commander, would certify data required by this group. Additional discussion concerned whether the group would provide the Services with a listing of test and evaluation activities (they would not). Discussion continued in regard to the group's consensus that the Test and Evaluation, Laboratories and Depot Maintenance groups were coordinating their activities sufficiently since there was overlap between these three groups in some facilities/functions. The Chair then asked if the Services were in agreement with the work product generated by the Test and Evaluation Group. The Army and Navy stated the product was acceptable. While expressing concern about the subjectiveness of some questions regarding Air Installation Compatibility Use Zones (AICUZ) section, the Air Force also stated that the product was workable.

The Medical Treatment Facilities group presented next using the attached slides. Key discussion items were that a closure of the military treatment facility would follow the closure of its installation and eliminating infrastructure may not reduce costs as the requirement for medical care may then require the purchase of that care outside of DoD. An additional discussion item concerned the fact that our infrastructure capability is twice the peacetime workload requirement of active duty and dependents. The Chair then asked if the Services were in agreement with the work product generated by the Military Treatment Facilities Group. The Services responded affirmatively.

The Undergraduate Pilot Training Group briefed next using the attached slides. Key discussion items included status on the outstanding policy issue of a single helicopter training site. Another discussion item concerned the fact that this group was proposing an additional data call covering selection criteria five through eight to aid the cross-service analysis since this category is largely installation oriented. The Chair then asked if the Services were in agreement with the work product generated by the Undergraduate Pilot Training Group. The Army and Navy responded affirmatively. The Air Force made the comment that the Air Installation Compatibility Use Zones (AICUZ) section needed some expansion.

The Laboratories group presented next using the attached slides. Key discussion items included the fact that excess capacity would be determined by using workyears, factoring peak workyears performed in the 86-93 timeframe minus the projected workyears required in the FYDP. Discussion continued on the fact that it would be necessary to document this baseline. The Chair then asked if the Services were in agreement with the work product generated by the Laboratories Group. The Services responded affirmatively.

The Economic Impact Group briefed next using the attached slides. Discussion began in regard to the fact that this group was developing an improved database tool that would allow: cumulative economic impact to be dealt with at the MilDep level before reaching the Secretary of Defense; using economic impact data in a relative sense instead of as a threshold (as in 1993) and using new multipliers for indirect job loss computations. The next issue concerned the consideration of non-DoD costs in the BRAC 95 analysis - whether accurate estimates could be obtained, whether this would be cost effective and whether this would add value to the process. It was the Economic Impact group's finding that only DoD costs should be considered, including lease penalty costs paid to GSA which would be directly attributable to BRAC. The Chair then asked if the Services were in agreement with the work product generated by the Economic Impact Group. The Services responded affirmatively.

The next item concerned the draft agenda (attached) for the upcoming Review Group meeting. It was decided that the group chairs would each brief and that it was essential that the services state their position on each group's presentation. Additional discussion concerned the Chair's intent to form a sub-group to look at the cross service analysis issue as well as milestones for the next phase of the BRAC process. The Chair stated that he would first meet with the Services then the cross-service groups in this regard. Additional discussion items

concerned the fact that the BRAC 95 Review Group could establish capacity reduction targets and these would have PPBS impacts. The final discussion item of the meeting concerned the affordability of the projected expense of this round of closures and realignments.

The meeting then concluded.

Approved: Robert E. Bayer
Acting Chairman

BRAC 95 STEERING GROUP MEETING

March 28, 1994 2:00PM - 4:00PM Rm 3D-1019

AGENDA

- o Previous Meeting's Minutes

- o Selection Criteria and Report to Congress

- o Joint Cross-Service Group Reports
  - oo Non-BRAC Policy Issue Brief to Review Group
  - oo BRAC Guidance Brief to Review Group
  - oo Next Steps
  - oo Problem Areas

- o Next Steps for Steering Group
  - oo Cross-Service Analyses
  - oo Milestones

- o Review Group Meeting (Wednesday, 2 P.M., 3E-869)
  - oo Agenda
  - oo Presentations -- Who? What?

- o Other Business

BRAC 95

Steering Group Meeting

March 28, 1994

Key Attendees

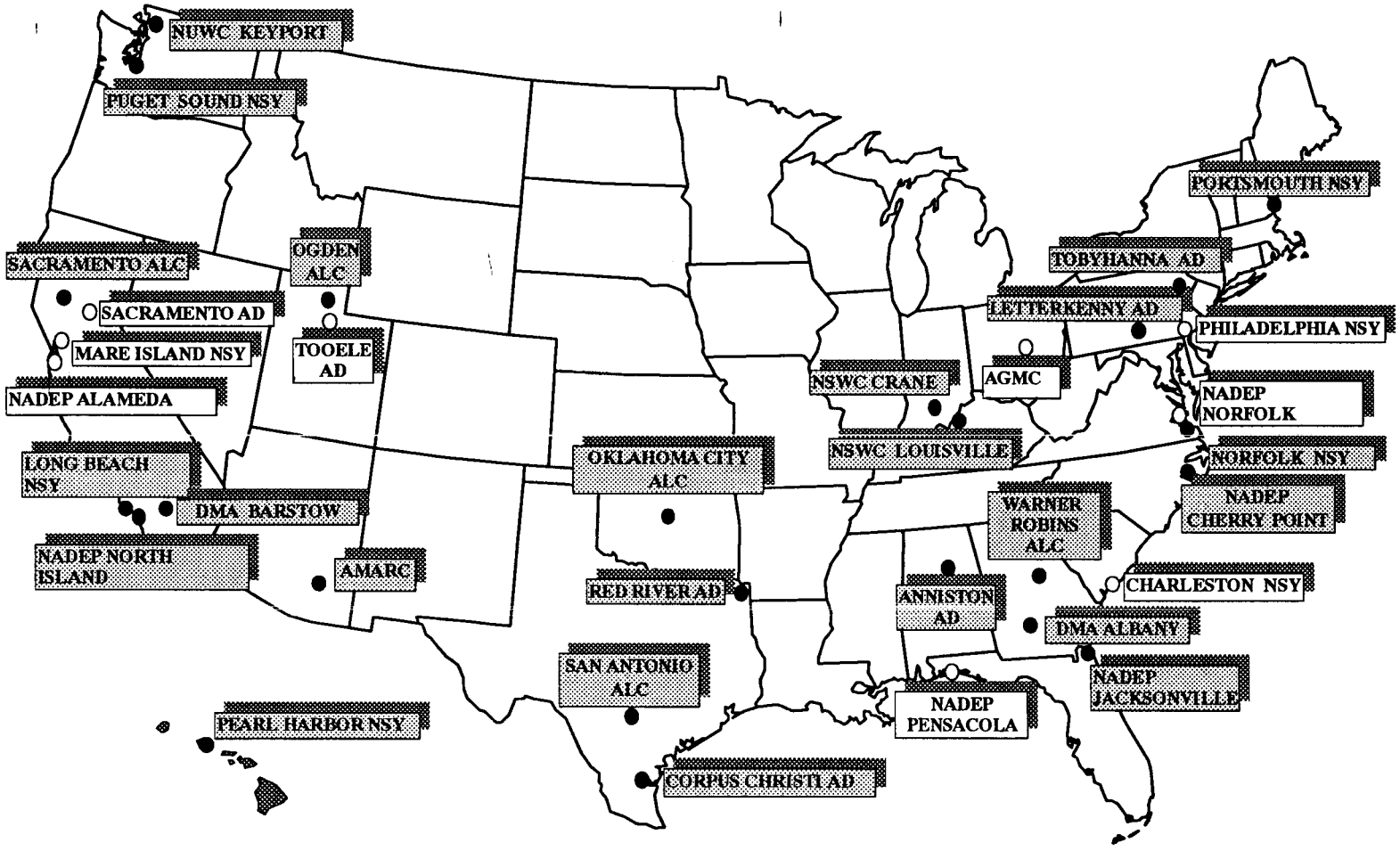
Mr. Robert Bayer, OSD (Economic Reinvestment and BRAC)
Mr. Doug Hansen, OSD (Base Closure and Utilization)
BG Jim Shane, Army
Mr. Robin Pirie, Navy
Mr. Charles Nemfakos, Navy
Mr. Jim Boatright, Air Force
Mr. James Klugh, DUSD (Logistics)
Mr. Mike Parmentier, OSD (Personnel and Readiness)
MG Marge McManamay, DLA
Mr. Lee Frame, OSD (OT&E)
Mr. Nick Toomer, OSD (OT&E)
Mr. John Bolino, OSD (T&E)
Mr. Craig Dorman, OSD (DR&E)
Mr. Edward Martin, OSD (Health Affairs)
Col Mike Donnelly, OGC
COL Kurtz, Joint Staff
Mr. Bill Paseur, OSD Compt
Mr. John Rosamond, OSD (Reserve Affairs)
Mr. John Morgan, OSD (PA&E)
Mr. John Delaware, DoDIG
Mr. Pat Meehan, OSD (Environmental Security)

Joint Cross Service Group Depot Maintenance

Depot Locations/Categories

- Initial focus on 24 remaining depot maintenance facilities.
- Analysis will be performed on a commodity basis. Each activity that is identified by the Services as performing depot maintenance will be subject to analysis.

Locations of DoD Organic Maintenance Depots



○ - Closing/Realigning

03/28/

Guidelines
Baselines for Analysis

- Core capability/capacity based on FYDP.
- Capacity/utilization - based on current year funded and outyear FYDP programmed workload mix
- Depots will be analyzed by commodity groups and sub-components

Guidelines
Definitions

- Standard definitions have been prepared.
- Definitions will be included as part of the standard data call.

Standards

- Size to Core
- Capacity/Utilization - In accordance with the principles established in the DDMC study on capacity measurement
- Maximum potential capacity - Current workload mix, no hiring constraints, optimum work station usage, no MILCON
- Maximum potential capacity minus core equals excess capacity
- All measures based on a one shift, 40 hour workweek

Assumptions

- People will follow the workload

Measures of Merit

- **Stage 1 - Development of Alternatives**

Military Value

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

- **Stage 2 - Service Analysis of Alternatives**
  - All eight BRAC criteria applicable

BRAC '93 Analysis Frameworks
Highlights of Common Data Elements
(Military Value Criteria)

Measure of Merit	Army	Navy/USMC	Air Force	Commission	JCSG-DM
Capacity	o	o	o	o	o
Location	o	o	o		o
Construction Investment	o			o	o
Equipment Investment		o		o	o
Encroachment	o	o	o	o	o
Buildable Acres		o	o		o
Unused Maintenance Capacity	o	o	o	o	o
Unused Building Admin Space	o	o			o
Work Force Available	o	o		o	x
Labor Rates	o	o	o	o	o
Overhead Rates				o	
Environmental Compliance	o	o	o		o
Programmed MILCON & Repair	o	o	o		o
Total Depot Maint Oper Costs					o
Actual Costs per DLH					o

Variations from BRAC 93 Analysis

- **Work force availability**
  - Working assumption: people will follow the workload
- **Overhead rates**
  - Accumulation methodology not consistent between the Military Components
    - » Cost pools contain different elements
    - » Direct funding inconsistently applied
  - Meaningful direct comparisons not possible with existing accounting systems
- **In lieu of overhead rates**
  - Total depot maintenance operating costs (excluding materials)
  - Actual costs per direct labor hour

STATUS

- Category Scope Rationale
- Installations in Category
- Data Call
  - Capacity
  - Military Value
- External Policy Issues

Category Scope Rationale

Installations in the UPT category include all DoD flight programs which support and facilitate selection and training of pilots, naval flight officers and navigators to the point of awarding "Wings"

INSTALLATIONS IN CATEGORY

Columbus	AFB	MS
Corpus Christi	NAS	TX
Fort Rucker	AATC	AL
Kingsville	NAS	TX
Laughlin	AFB	TX
Meridian	NAS	MS
Pensacola	NAS	FL
Randolph *	AFB	TX
Reese	AFB	TX
Sheppard	AFB	TX
Vance	AFB	OK
Whiting Field	NAS	FL

* Includes Enhanced Flight Screening sites at Hondo, TX and Air Force Academy

UPT JOINT / CROSS-SERVICE GROUP

External Policy Issues with BRAC Implications

- Flight Screening
- Training Aircraft Mix
- Fixed-Wing Training for Helo Pilots
- UHPT Consolidation -- Single Site
- Aircraft Beddown Configuration
- Common Syllabus Questions

UPT JOINT / CROSS-SERVICE GROUP

Resolving External Policy Issues Mechanisms & Players

- Build on Roles & Missions Study Efforts
  - Draw on Service / JCS Study Teams
  - Use Existing "Joint Fixed-Wing Training" and "Consolidation of Initial Helicopter Training" Studies as an Analytical Base
- Recommended Participation:
  - Services, JCS, OSD
  - OUSD (P&R) -- Chair
- Proposed Deadline -- July 1, 1994
  - Policy Analysis Complete -- June 1, 1994

T&E JOINT CROSS-SERVICE GROUP

STATUS OF ACTIONS

REPORT TO BRAC '95 STEERING GROUP

28 MARCH 1994

T&E JOINT CROSS-SERVICE GROUP

GUIDANCE TO SERVICES COMPLETED

- DATA CALL/COLLECTION
- CROSS-SERVICE ANALYSIS

APPROACH FOR TENANT T&E FACILITIES: THROUGH INSTALLATION OWNERS

DATA REQUIRED FOR

- OVERARCHING MEASURES OF MERIT AND CAPACITY INFORMATION FOR ALL FACILITIES CAPABLE OF DOING T&E
- ADDITIONAL INFORMATION REQUIRED FOR FACILITIES PERFORMING T&E IN SPECIFIC FUNCTIONAL AREAS:

  - AIR VEHICLES
  - ELECTRONIC COMBAT
  - ARMAMENTS AND MUNITIONS

NECESSARY OVERLAP WITH LABS AND DEPOT MAINTENANCE TEST

T&E JOINT CROSS-SERVICE GROUP

ISSUES

NONE

SUMMARY PROCESS
T&E JOINT CROSS-SERVICE GROUP

MILESTONES	T&E JOINT CROSS-SERVICE GROUP	DoD COMPONENTS
31 Mar	Issue guidance, assumptions, standards, measures of merit, data elements required	
Apr-Jul		Collect data
1 Aug-Sep		Analyze data and submit results to T&E Group
Oct	Review results for cross-Service opportunities. Issue alternatives and targets.	
Nov-Dec		Factor alternatives into each Component's BRAC process
Jan 1995		Submit Component BRAC Reports
Jan-Feb	Review Component BRAC Reports - Submit T&E Report to BRAC Review Group	

BRAC 95 JOINT CROSS-SERVICE GROUP FOR MTFs AND GME

- Compliance with Steering Group Guidance
  - ➤ Product #1 - Categories for study
    - – Defined as Health Clinics, Community Hospitals, and Medical Centers
    - – Rationale - MHSS provides health services in ambulatory settings, inpatient acute care settings , and Medical Center teaching environments
    - – Report lists each facility by category and location

BRAC 95 JOINT CROSS-SERVICE GROUP FOR MTFs AND GME

- Compliance with Steering Group Guidance (cont)
  - ➤ Product #2 - Capacity Measures
    - – Aggregate DoD Mobilization Bed Capacity
    - – Aggregate Peacetime Bed Capacity
  - ➤ Report Describes
    - – Data elements/sources required for measure
    - – Calculations to complete measure

BRAC 95 JOINT CROSS-SERVICE GROUP FOR MTFs AND GME

- Compliance with Steering Group Guidance (cont)
  - Product #3 - Measure of Merit/Factors/Common Data Elements
  - Report Describes
    - 10 Measures listed by BRAC criterion
      - Data elements/Sources required for measures
      - Calculations (where required)
      - Definitions
      - Weighting and scoring process

BRAC 95 JOINT CROSS-SERVICE GROUP FOR MTFs AND GME

■ Additional Areas for Rightsizing Opportunities

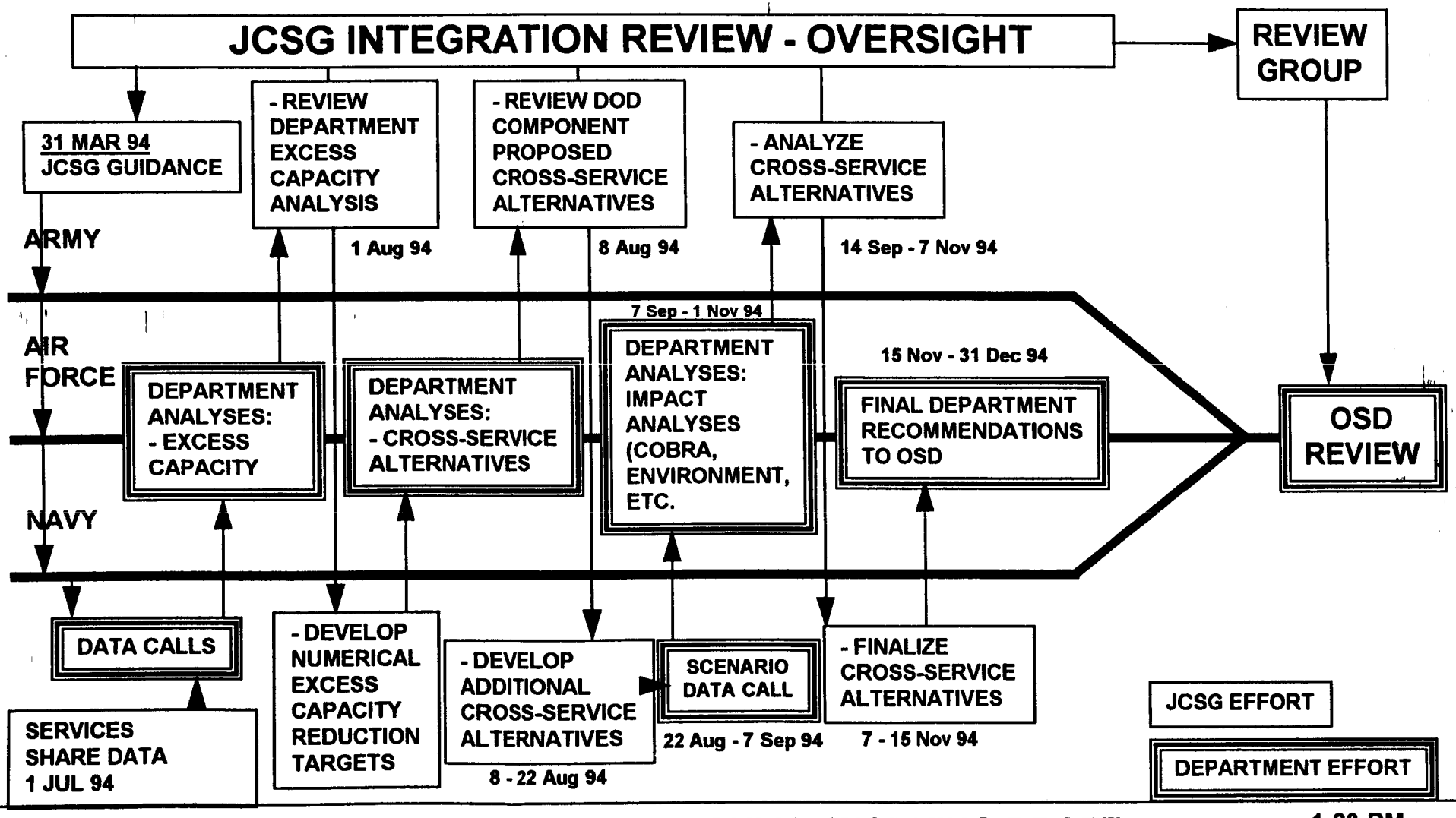
- ➤ Consolidation of Services'
  - – Biostatistical Activities
  - – Interservice Military Training Programs
  - – Medical Labs and Research
  - – Graduate Medical Education

BRAC 95 JOINT CROSS-SERVICE GROUP FOR MTFs AND GME

- **Remaining actions for 31 March report:**
  - ➤ Complete scoring methodology for Clinic population
  - ➤ Complete scoring methodology for inpatient cost measure
  - ➤ Complete Data Source Validation section

JOINT CROSS-SERVICE GROUP PROCESS

Working Draft



"Lab" Activities

Defined as:

- Primarily involved in Science & Technology, Engineering Development, and/or In-Service Engineering efforts
- Located at one base, under the same commander
  - Air Force -- 24 Activities
  - Army -- 28 Activities
  - Navy -- 27 Activities
  - DOD -- 1 Activity

Common Support Functions

- Product Functions
  - Air Vehicles
  - Weapons
  - Space Systems
  - C4I Systems
- Pervasive Functions
  - Electronic Devices
  - Environmental Sciences
  - Infectious Diseases
  - Human Systems
  - Manpower and Personnel
  - Training Systems
  - Environmental Quality
  - Materials

JOINT CROSS-SERVICE GROUP ON ECONOMIC IMPACT

CALCULATING ECONOMIC IMPACT

- NEW PROCESS AND NEW MEASURES
- NEW MULTIPLIERS FOR INDIRECT JOB EFFECTS
- IMPROVED DATABASE TOOL TO UNIFORMLY CALCULATE CUMULATIVE IMPACT
- REVIEWED ISSUE OF INCLUDING NON-DOD COSTS

COSTS TO OTHER FEDERAL AGENCIES AND STATE AND LOCAL GOVERNMENTS

- PAST POLICY HAS BEEN TO INCLUDE ONLY COSTS TO DOD
- CONGRESS AND G.A.O. WANT NON-DOD COSTS CONSIDERED
- REPORT DUE TO CONGRESS IF DOD DOES NOT INCLUDE COSTS TO OTHER GOVERNMENT ELEMENTS IN BRAC ANALYSES
- JOINT GROUP ANALYZED ABILITY TO ESTIMATE COSTS TO OTHER GOVERNMENT ELEMENTS FROM ACCURACY, COST-EFFECTIVENESS AND VALUE ADDED PERSPECTIVES

CONCLUSIONS

- DIFFICULT TO ACCURATELY ESTIMATE NON-DOD COSTS, NO MATTER THE EFFORT
  - DEPENDS ON UNKNOWN SUCCESS OF REUSE AND OTHER LOCAL ECONOMIC RECOVERY
  - COSTS FREQUENTLY OFFSET BY SAVINGS
  - NATIONAL/MACRO ASSUMPTIONS GENERALLY DO NOT FIT WIDELY VARIED LOCAL CONDITIONS
  - SOME STATE AND LOCAL CONDITIONS CANNOT BE QUANTIFIED
  - MANY COSTS ASSOCIATED WITH ENTITLEMENT PROGRAMS ARE TRIGGERED BY UNPREDICTABLE PERSONAL BEHAVIOR
  - ANALYSIS OF A FEW BRAC 88 CLOSURES SUGGESTS THAT ACTUAL ECONOMIC IMPACTS MAY BE SUBSTANTIALLY LESS THAN DOD MODEL ESTIMATES
- SOME DOD COSTS PAID TO OTHER GOVERNMENT ELEMENTS ARE MEASURABLE AND WILL BE IN COBRA
- LITTLE APPARENT VALUE ADDED TO CALCULATING NON-DOD COSTS
- JOB IMPACT ANALYSIS IS AN ACCEPTABLE PROXY FOR NON-DOD COSTS

RECOMMENDATION

- CONTINUE TO CONSIDER ONLY COSTS TO DOD IN ESTIMATING BRAC COSTS AND SAVINGS
  - ADDRESS G.S.A. LEASE TERMINATION COSTS AND UNEMPLOYMENT INSURANCE IN COBRA MODEL

NEXT STEPS

- REPORT TO CONGRESS (NEAR-TERM) AND COMMISSION (MARCH 1995)
- EXAMINE OTHER MODELS TO VALIDATE PRIMARY TOOL
- GATHER DATA AND DEVELOP SOFTWARE TO HAVE AVAILABLE BY JUNE 30, 1994 FOR SERVICE USE

DRAFT

BRAC 95 REVIEW GROUP MEETING

March 30, 1994 2:00 P.M. Rm 3E-869

AGENDA

- Introduction of New Members

- Joint Cross-Service Group Reports

  - Underlying Assumptions/Key Decisions
  - Unresolved Issues, If Any
  - Required External Policy Decisions

  Order:
  Depot Maintenance
  Test and Evaluation
  Laboratories
  Military Treatment Facilities
  Undergraduate Pilot Training
  Economic Impact

- Military Department Status Reports

- Next Issues for Steering Group

- Other Business

DRAFT

BRAC 95 Steering Group

Minutes of Meeting of June 8, 1994

The ASD(ES) chaired this meeting. The agenda, list of participants and a copy of presentations is attached. The chair announced that the previous meeting's minutes were available for review.

Analysis of Joint Cross-Service Groups

The role of optimization models was discussed. It was generally agreed that they could serve as a tool with varying applicability in different situations. The issue was raised whether analyses would be comparable if they incorporated (non-standardized) judgements about the military value of particular bases in addition to the (standardized) functional data.

It was decided that each of the JCSG's would work with the model and discuss their experience with Steering Committee representatives from ES, PA&E, the Comptroller and the Military Departments.

Analysis of Economic Impacts

The study team leader reported that an independent review of the JCSG's proposal had supported its approach.

The group also reported that non-DoD closure costs should not be included in the COBRA analyses, both because they are difficult to estimate and, when estimated, represented a small percentage of BRAC savings. This conclusion will be reported to Congress as required; a report is being drafted.

Other

In order to ensure that classified facilities are given proper scrutiny, C3I has agreed to facilitate their consideration in the BRAC process.

Approved: 30 July 94
Joshua Gotbaum
Chairman

BRAC 95

Steering Group Meeting

June 8, 1994

Key Attendees

Mr. Joshua Gotbaum, ASD (Economic Security)
Mr. Robert Bayer, OSD (Economic Reinvestment and BRAC)
Mr. Doug Hansen, OSD (Base Closure and Utilization)
Mr. Paul Johnson, Army
BG Jim Shane, Army
Mr. Robin Pirie, Navy
Mr. Charles Nemfakos, Navy
MGEN Jay Blume, Air Force
Mr. Roy Willis, DUSD (Logistics)
Ms. Jeanne Fites, OSD (Personnel and Readiness)
Ms. Kathy Kelleher, DLA
Mr. Nathaniel Cavallini, C3I
Mr. Vance Kauzlarich, DISA
Mr. Nick Toomer, OSD (OT&E)
Mr. John Bolino, OSD (T&E)
MAJ Robin Pope, OSD (DR&E)
Ms. Patricia Watson, OSD (Health Affairs)
Mr. Mike Donnelly, OGC
COL Fellers, Joint Staff
Mr. Bill Paseur, OSD Compt
Mr. John Rosamond, OSD (Reserve Affairs)
Mr. Frank McDonald, OSD (PA&E)
Mr. Wayne Million, DoDIG
Mr. Gary Vest, OSD (Environmental Security)

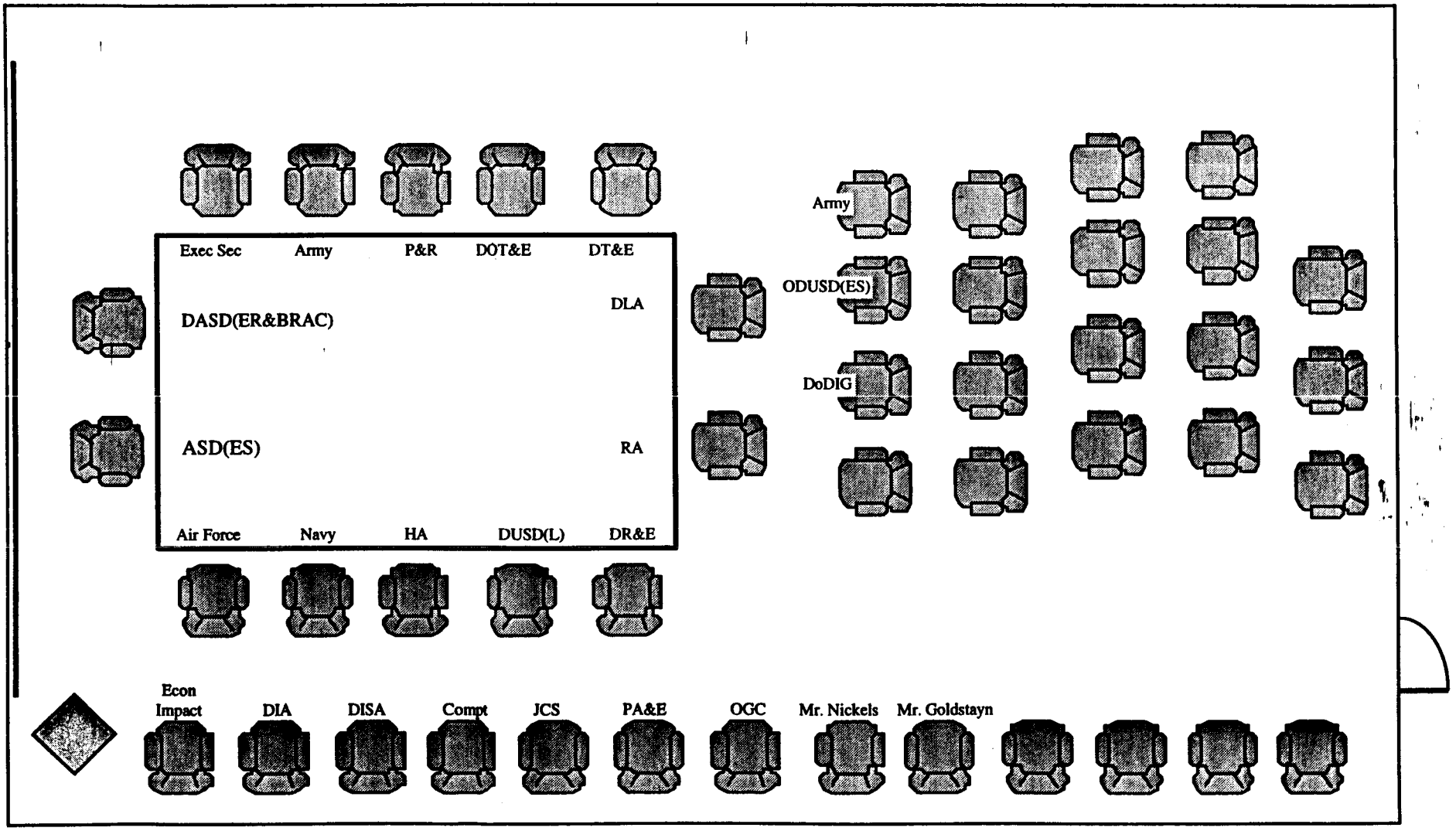
BRAC 95 STEERING GROUP MEETING

June 8, 1994 10:00 - 12:00 Rm 3D-1019

AGENDA

- **Chairman's Introductory Remarks/New Members**
- **Previous Meeting's Minutes**
- **Cross-Service Analyses**
  - **Agreements Reached**
  - **Issues Unresolved**
  - **Next Steps**
- **Controlling Access to Data and Analyses**
- **Policy Memorandum One Status**
- **Supreme Court Ruling/Defeat of the Hansen Amendment**
- **Status Report - JCSG on Economic Impact**
  - **Independent Review of Cumulative Economic Impact Model**
  - **Report to Congress on Non-DoD Costs**
- **Other Business**

BRAC 95 Steer[illegible] Group Meeting
June 8, 1994 -- Room 3D1019 -- 10:00 am



Steering Group Attendees
June 8, 1994

At the Table

DASD(ER&BRAC)	-	Mr. Bob Bayer	
Executive Secy	-	Mr. Doug Hansen	
Army	-	Mr. Paul Johnson	
P&R	-	Ms. Jeanne Fites	Undergrad Pilot Tng
DOT&E	-	Mr. Nick Toomer	T&E
DT&E	-	Mr. John Bolino	
DLA	-	Ms Marge McManamay	
Reserve Affairs	-	Mr. John Rosamond	
DR&E	-	MAJ Rob Pope	Labs
DUSD(L)	-	Mr. James Klugh	Depot Maintenance
Health Affairs	-	Ms. Patti Watson	Medical Treatment Facilities
Navy	-	Mr. Robin Pirie	
Air Force	-	MajGen Jay Blume	NEW person

On the Wall

Economic Impact	-	Mr. Mike Berger	Economic Impact
DIA	-	Mr. Nat Cavallini	NEW organization
DISA	-	Mr. Vance Kauzlarich	NEW organization
Comptroller	-	Mr. Billy Paseur	
Joint Staff	-	COL Ed Fellers	
PA&E	-	Mr. Frank McDonald	
OGC	-	Mr. Mike Donnelly	
Army	-	MGEN Theodore Stroup	
Environmental Sec	-	Mr. Gary Vest	
DoDIG	-	Mr. Wayne Million	

Cross-Service Analyses

Agreements Reached

- Military Departments will jointly conduct analyses
  - ✦ Based on instructions from Joint Cross-Service Groups
  - ✦ Tri-Department teams from Military Department BRAC offices will conduct analyses
  - ✦ Military Departments propose using an optimization model (linear soiver) as a tooi to help JCSGs
- Optimization Model would be run at least twice
  - ✦ Unconstrained based on JCSG functional data
  - ✦ Constrained based on Military Department installation military value
- Optimization model runs would be in September
- JCSG additional alternatives for Military Department consideration would be finalized in October

Cross-Service Analyses

Issues Unresolved

- What role should installation military value play in model
  - ✦ Use when running constrained model, or
  - ✦ Not needed as they are not comparable
- How many objective functions model would solve
  - ✦ One - i.e. maximize reduction in excess capacity, or
  - ✦ Multiple - i.e. minimize sites, maximize values, etc.
- Model output to include sensitivity analysis?
  - ✦ Not required, or
  - ✦ Yes, will aid JCSG's in developing alternatives
- Use of model
  - ✦ Optional for each JCSG, or
  - ✦ Mandatory

Cross-Service Analyses

Next Steps

- Hammer out issues
- Conduct training for JCSG's on how model works - run model on notional data
- JCSG's develop methodologies for inputs to model
  - ✦ Excess Capacity
  - ✦ Functional value
  - ✦ Methodology for decisionmaking (rules for model)
- Steering Group team reviews methodologies with JCSG's
- Steering Group approves methodologies
- JCSG's receive data inputs from Military Departments

Joint Cross-Service Group on Economic Impact

Status Report on
Independent Review and Non-DoD Costs

June 8, 1994

Independent Review of BRAC-95 Economic Analysis

Directed by DepSecDef on March 30, 1994

Independent Panel Review Met May 17, 1994

- Commerce, Labor, Academia, Private Sector Represented

Key Findings

- BRAC Economic Areas Reflect Panel Recommendations
- Job Change Measure is Reasonable, but
- Tends to Overstate Economic Impact, Especially Cumulative Economic Impact

Report to Congress on Non-DoD Costs

Section 2925 of FY 94 Authorization Act Requires Report on Non-DoD Costs

Draft Report and Cover Letter in Coordination

Key Conclusions in Draft

- Costs DoD Owes to Other Agencies Included in COBRA
- Other Non-DoD Costs Excluded
  - Difficult, Perhaps Impossible, to Estimate Accurately
  - Reuse Costs Can Not be Known During BRAC Process
  - Likely to be a Small Percentage of BRAC Savings

BRAC 95 Steering Group

Minutes of Meeting of July 28, 1994

The ASD(ES) chaired this meeting. The agenda and a list of participants is attached. The chair announced that the previous meeting's minutes were available for review.

Joint Cross-Service Group Presentations

There were three presentations.

o Test and Evaluation Group (slides attached). How construction or facility upgrades programmed in the FYDP would factor into the Test and Evaluation capacity analysis received a detailed discussion. The issue of policy imperatives (that constrain the optimization model) was also a discussion item. The consensus was that, if possible, policy imperatives should be decided upon by each group and approved by the Steering Group before the group received certified data. However, decisions to constrain the analysis could be made later, after review of the data, with the approval of the DASD(ER&BRAC), provided the requesting cross-service group could supply sufficient justification that could outweigh a strong presumption against approval. The Test and Evaluation group received provisional approval of their analytical framework pending review of their approach to construction/facility upgrades by the DASD(ER&BRAC). However, the group was not yet authorized to receive certified data.

o Laboratory Group (slides attached). Discussion items concerned the group's inability to roll individual common support functional values together to arrive at a composite activity value and to produce functional capacity reduction goals, independent of policy decisions. The Laboratory Group received approval of their analytical framework and was authorized to receive certified data.

o Undergraduate Pilot Training Group (slides attached). No significant discussions occurred and the group received approval of their analytical framework and authorization to receive certified data.

Other

o Draft Joint Analysis Policy and Management Control Plan. A short discussion ensued on the draft policy (attached). The Chair asked for written comments from members. There was no discussion on the draft management control plan (also attached).

o Excess Capacity Reduction Targets Schedule. A short discussion ensued on why the January kickoff memo envisions the Review Group establishing excess capacity reduction targets. The Services and some groups are opposed to this and the Chair took the issue under advisement.

Approved: Joshua Gotbaum
Chairman
8/5/94

BRAC 95 STEERING GROUP MEETING

July 28, 1994 15:30 - 17:00 Rm 1E-801#4

AGENDA

- o Previous Meeting's Minutes

- o Policy and Management Control Plan for Joint Analyses

- o BRAC Process Integrity
  - oo Comparability of Data
  - oo Written Documentation for Use of Optimization Model, D-Pads, COBRA, etc
  - oo Data Security

- o Joint Cross-Service Group Briefings
  - oo Methodology for Calculating Excess Capacity
  - oo Methodology for Calculating Functional Value
  - oo Policy Imperatives for Optimization Model
  - oo Documentation and Data Call Security

- o Schedule and Methodology for Determining Excess Capacity Reduction Targets
  - oo Methodology Discussion
  - oo Strawman Schedule for Next Five Months

- o Other Business

BRAC 95

Steering Group Meeting

July 28, 1994

Key Attendees

Mr. Joshua Gotbaum, Chairman, ASD (Economic Security)
Mr. Robert Bayer, OSD (Economic Reinvestment and BRAC)
Mr. Doug Hansen, OSD (Base Closure and Utilization)
Mr. Mike Walker, Army
Mr. Paul Johnson, Army
Mr. Robin Pirie, Navy
Mr. Charles Nemfakos, Navy
Mr. Rodney Coleman, Air Force
Mr. Jim Boatright, Air Force
MGEN Jay Blume, Air Force
MGEN Lawrence Farrell, DLA
Mr. Jim Klugh, DUSD Logistics
Mr. Roy Willis, DUSD (Logistics)
Mr. John Burt, OSD (T&E)
Mr. Lee Frame, OSD (OT&E)
Mr. Craig Dorman, OSD (DR&E)
LTC Ed Ponatoski, OSD (Health Affairs)
Mr. Lou Finch, OSD (P&R)
Mr. Bill O'Donnell, C3I
Mr. Vance Kauzlarich, DISA
LTC Jim Van Ness, OGC
COL Fellers, Joint Staff
Mr. John Rosamond, OSD (Reserve Affairs)
COL Anthony Hermes, OSD (PA&E)
Mr. Pat Meehan, OSD (Environmental Security)
Mr. Paul Granetto, DoDIG

T&E Joint Cross Service Group Analysis Plan Briefing To BRAC Steering Group

July 28, 1994

Purpose

- Present T&E JCSG Methodology for:
  - Excess Capacity
  - Functional Value
- Address T&E JCSG and OSD concerns
- Authorize Military Department BRAC offices to release data to begin T&E JCSG analysis

Agenda

- Analysis Plan
- Concerns
- Summary/Recommendation

Analysis Plan Outline

- **Joint Analysis Plan Completed Containing**
  - Background
  - Joint Team Structure
  - Joint Analysis Process/schedule

- **Appendices contain**

→ A- T&E Functional Value Methodology

B- T&E Workload Projection Methodology

→ C- T&E Excess Capacity and Target Reduction Methodology

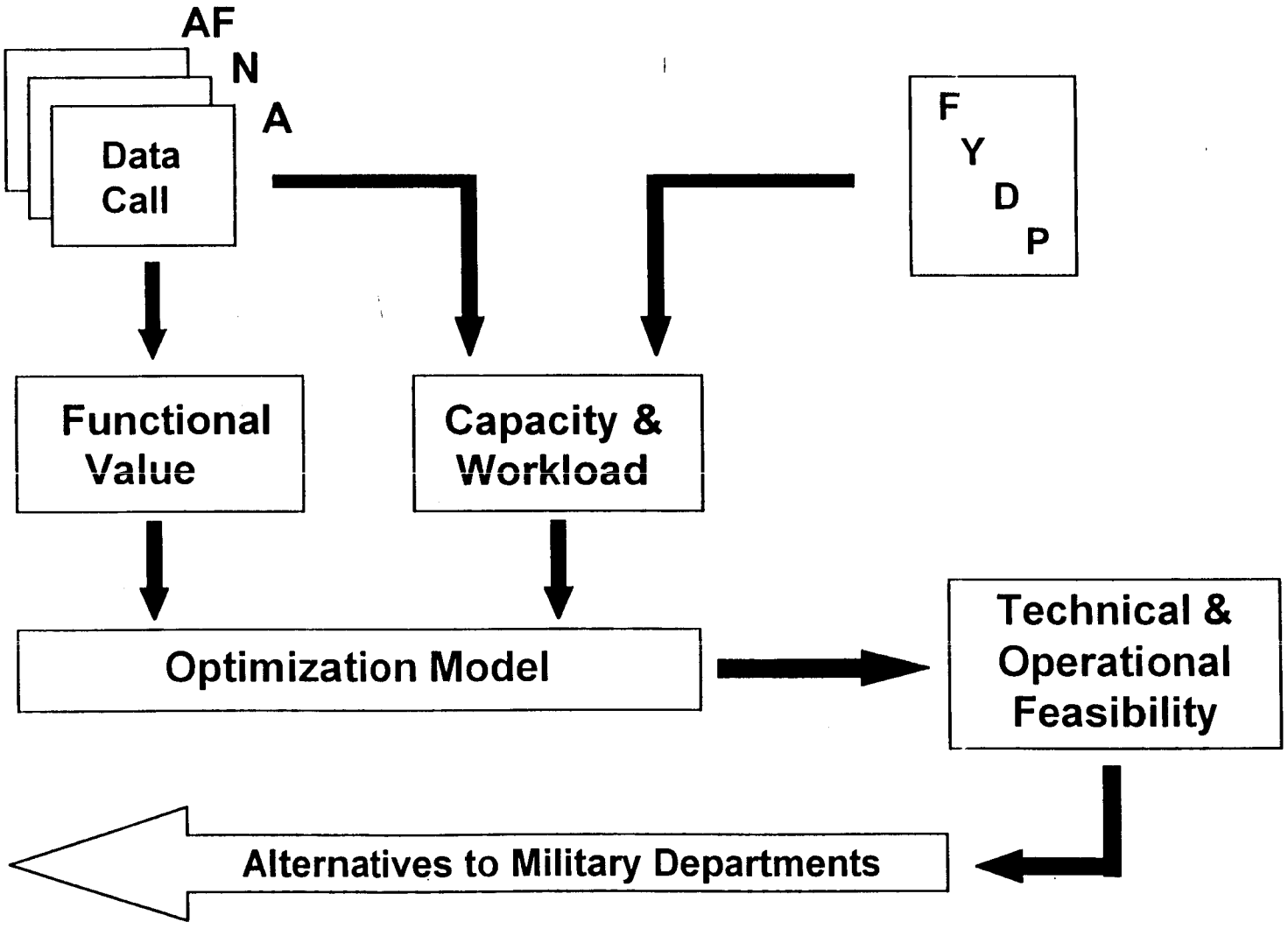
D- T&E Optimization Formulations

E- T&E Questions, Weights, and Scoring Process (including rationale)

F- T&E Data Base Management Process

G- Classified Data Analysis Procedures

Analysis Framework



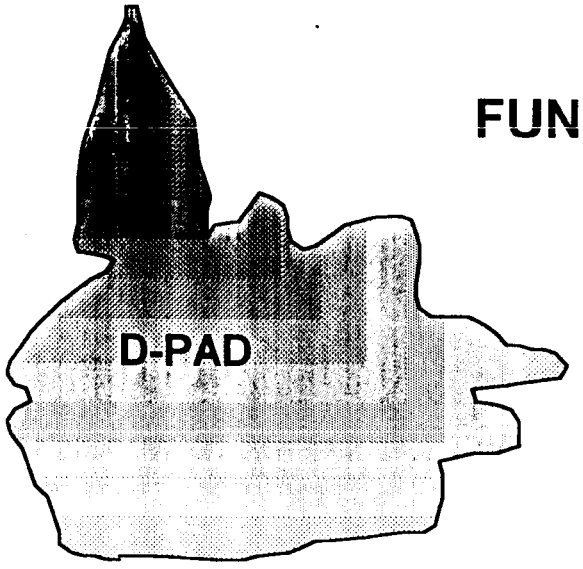
Excess Capacity Methodology

- Excess Capacity = Capacity - FY01 Projected Workload
- Capacity is measured in test hours and is based on the number of tests a T&E test facility can conduct simultaneously, using an estimated single shift standard of 2008 facility hours per year (will pursue double shift as extension to primary analysis)
- Capacity is based on existing and programmed infrastructure
- Assumes that the downtime can be accommodated outside of the single shift time period

Excess Capacity Reduction Target Methodology

- **Target**
  - Reduce all excess capacity where cost effective
- **Reduction Target Constraints**
  - Separate for each T&E functional area
  - Separate for each test facility category within each T&E functional area
  - Exclude excess capacity associated with unique, one-of-a-kind facilities

FUNCTIONAL VALUE FRAMEWORK



Armaments/Wpns

$FV_{A/W}$

EC

FV_{EC}

Air Vehicles

FV_{AV}

Physical Value | Technical Value

W_{PV} W_{TV}

critical air/land/ sea space | topo | climate | encroa | environ

M&S | MF | IL | HITL | ISTF | OAR

$W_{PV,S}$ $W_{PV,T}$ $W_{PV,C}$ $W_{PV,ENC}$ $W_{PV,ENV}$

$W_{TV,MS}$ $W_{TV,MF}$ $W_{TV,IL}$ $W_{TV,HITL}$ $W_{TV,ISTF}$ $W_{TV,OAR}$

QUESTION 1 | . . . . . | QUESTION "N"

TRI-SERVICE CERTIFIED DATA

T&E JCSG Concerns

- **Final approval of optimization model formulations?**
  - Notional data runs still in process
- **Tri-Department BRAC Group**
  - Plan to receive, store and transfer data
  - Location/secure area
  - Production capability
- **One month behind original schedule**
  - Analysis teams need maximum flexibility and support

OSD Concerns

- **Comparability of data**
  - Addressed in Appendix E of Analysis Plan
  - Focus of initial review by T&E JWG
  - Clarifications to be requested through Military Department BRAC Offices as required
- **Optimization model**
  - Addressed in Appendix D of Analysis Plan
- **Policy imperatives**
  - None yet
  - Operational test activities excluded
  - T&E JCSG must have flexibility to add policy imperatives during analysis
- **Data call security**
  - Addressed in Appendices E - G of Analysis Plan

Summary/Recommendation

- Analysis Plan and Action Plan approved by T&E JCSG

- Request Military Departments release responses to T&E JCSG Data Call for analysis

SENSITIVE INFORMATION - FOR OFFICIAL USE ONLY

LABORATORY JOINT CROSS SERVICE GROUP STATUS

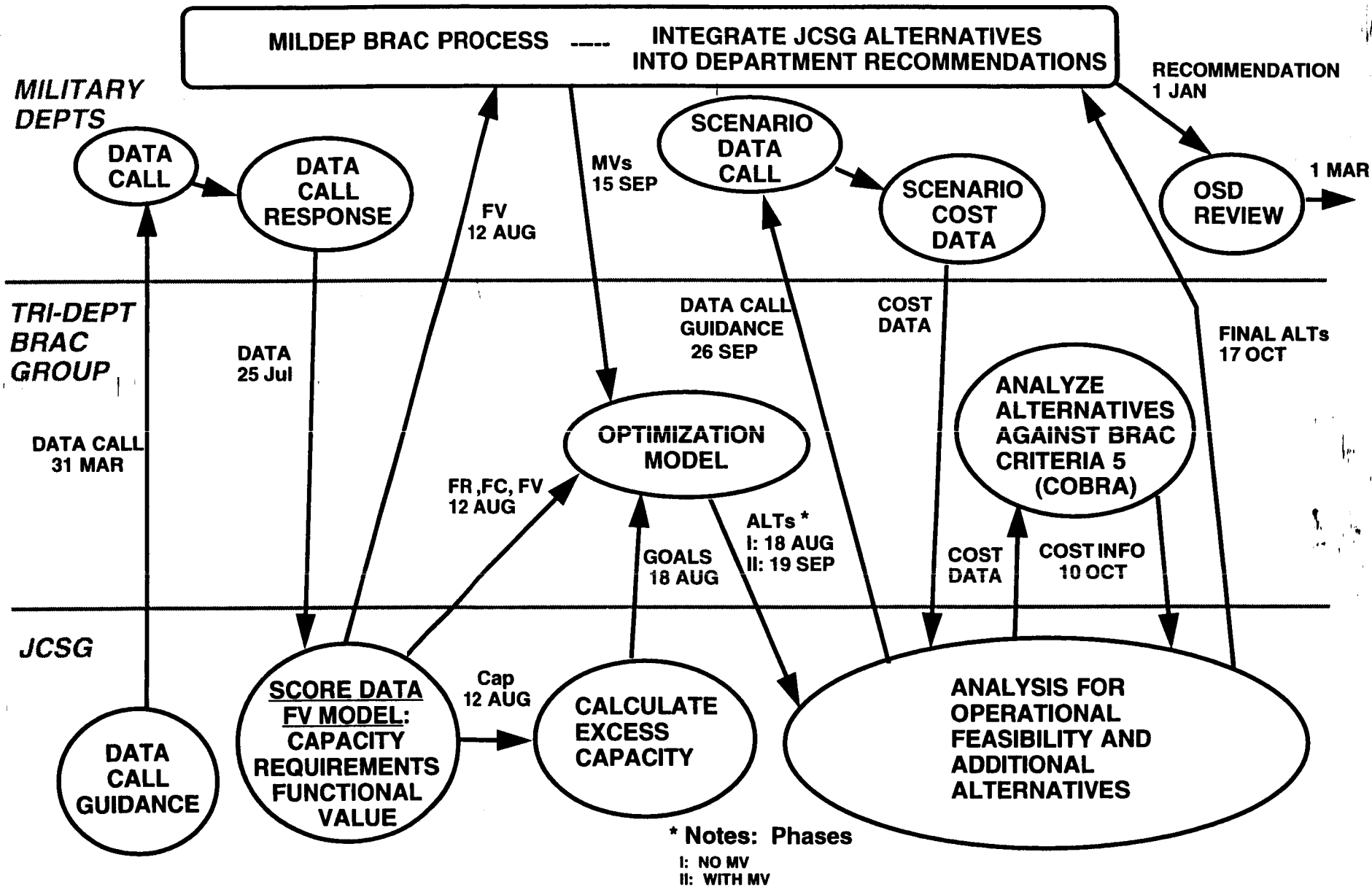
28 JUL 1994

LJCSG STATUS

- DATA CALL RESPONSES IN PROCESS FOR ALL MILDEP LJCSG ACTIVITIES
- LJCSG DATA ANALYSIS PLAN COMPLETE
  - MEASURES AND WEIGHTS DEFINED
  - METHODOLOGIES FOR CALCULATING CAPACITY, REQUIREMENT AND FUNCTIONAL VALUE
  - OPTIMIZATION AND FUNCTIONAL VALUE MODELS EVALUATED AGAINST NOTIONAL DATA
- WILL SHARE CROSS-SERVICE DATA UPON AUTHORIZATION
- LOCATION FOR DATA EVALUATION IDENTIFIED (IDA)
- ON SCHEDULE FOR CROSS-SERVICE ALTERNATIVES TO MILDEPS IN OCTOBER

28 JUL 94

LAB JOINT CROSS-SERVICE ANALYSIS



SENSITIVE INFORMATION - FOR OFFICIAL USE ONLY

JOINT CROSS-SERVICE ANALYSIS TOOL

TOTAL PROCESS FLOW / PLAN

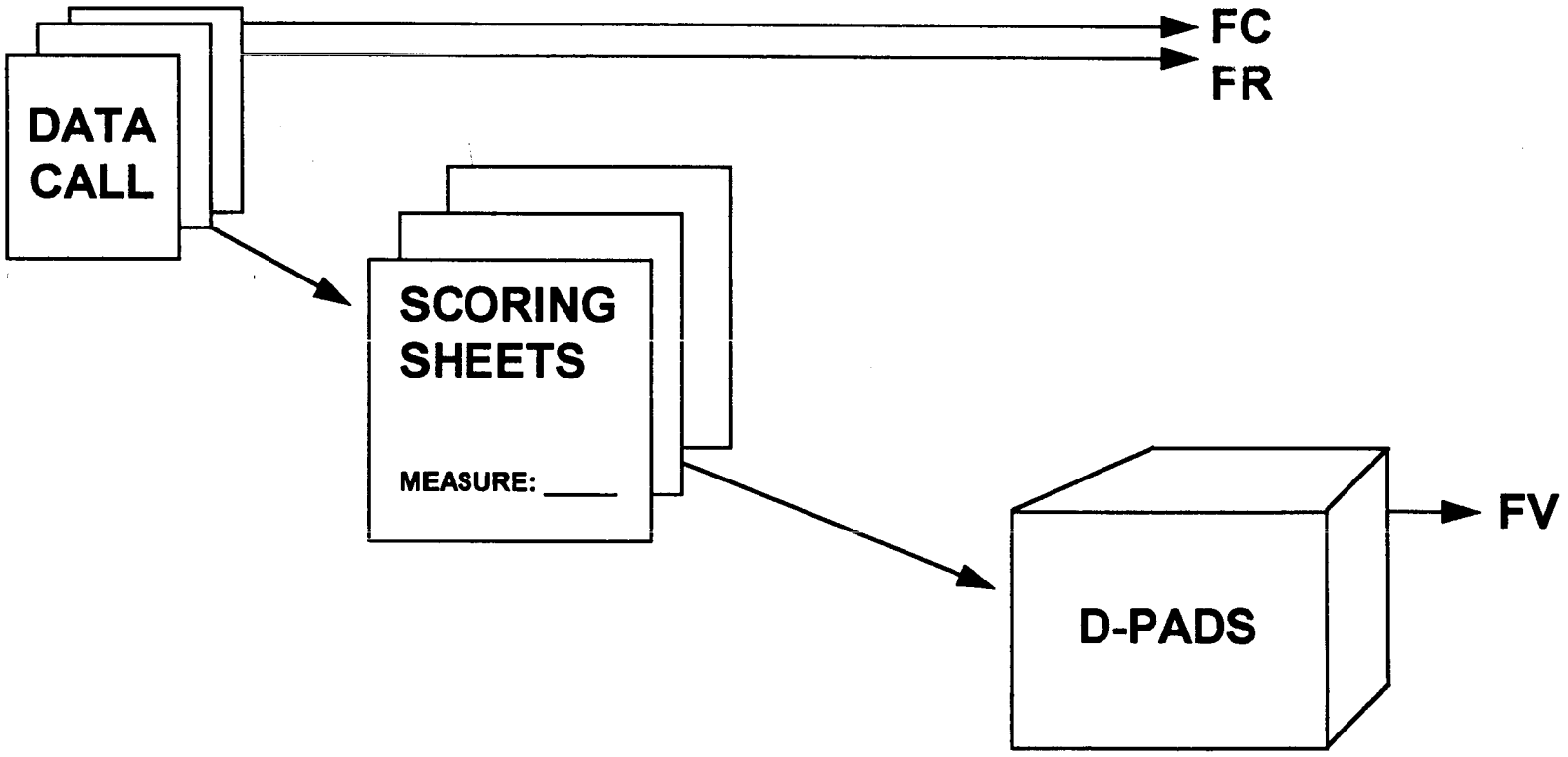
ANALYSIS TASKING

- STRG GROUP JOINT CROSS-SERVICE ANALYSIS GUIDANCE RECEIVED 14 JUN
- INCLUDES DETAILED DESCRIPTION OF "JOINT CROSS-SERVICE ANALYSIS TOOL"
- EACH JCSG TASKED TO:
  - EVALUATE THE "TOOL"
  - DEVELOP INPUTS
  - REPORT ON METHOD OF USING "TOOL"
- BRIEFED STATUS TO MR. GOTBAUM 28 JUN

LJCSG "METHODOLOGIES"

- **FUNCTIONAL CAPACITY**
  - THE CAPACITY, EXPRESSED IN WKYRS, TO DO A SPECIFIC FUNCTION AT A SPECIFIC ACTIVITY, FOR A SPECIFIC LIFE CYCLE(S&T, EMD,ISE)
- **FUNCTIONAL DOD REQUIREMENT**
  - THE REQUIREMENT ACROSS DOD, EXPRESSED IN WKYRS, FOR A SPECIFIC FUNCTION AND A SPECIFIC LIFE CYCLE
- **FUNCTIONAL VALUE**
  - A MEASURE OF THE CAPABILITY AND QUALITY OF PERFORMING WORK IN A SPECIFIC FUNCTION AT A SPECIFIC ACTIVITY
  - DERIVED FROM DATA ELEMENTS, MEASURES AND WEIGHTS

DEVELOP FV, FC, FR



FUNCTIONAL CAPACITY (FC)

- THE CAPACITY, EXPRESSED IN WKYRS, TO DO A SPECIFIC FUNCTION, IN A SPECIFIC LIFE CYCLE, AT A SPECIFIC ACTIVITY:

$$FC_{CSF,LC,ACTY} = FY1993\ WY_{CSF,LC,ACTY} \times (PEAK\ WY_{ACTY} / FY1993\ WY_{ACTY})$$

Where :

: $FY1993\ WY_{CSF,LC,ACTY}$ = RESPECTIVE LIFE CYCLE ROW TOTAL FROM DATA CALL QUESTION 3.3.1.1

: $PEAK\ WY_{ACTY}$ = PEAK OF THE TOTAL ACTUAL WORKYEARS AT AN ACTIVITY BETWEEN FY1986-1993, FROM DATA CALL QUESTION 2.1

: $FY1993\ WY_{ACTY}$ = TOTAL ACTUAL WORKYEARS AT AN ACTIVITY IN FY1993, FROM DATA CALL QUESTION 2.1

FUNCTIONAL DOD REQUIREMENT (FR)

- THE REQUIREMENT ACROSS DOD, EXPRESSED IN WKYRS, FOR A SPECIFIC FUNCTION, AND A SPECIFIC LIFE CYCLE:

$FR_{CSF,LC}$ = SUM OF ALL FY1993 $WY_{CSF,LC}$ X (ADJUSTMENT FACTOR)

Where : SUM OF ALL FY1993 $WY_{CSF,LC}$ = THE SUM OF ALL RESPECTIVE LIFE CYCLE ROW TOTALS;

FROM QUESTIONS 3.3.1.1 OF ALL ACTIVITIES PERFORMING THE CSF

: ADJUSTMENT FACTOR = SUM OF PROGRAMMED FY1997 WY_{ACTY}/ SUM OF FY1993 WY_{ACTY} ;

FROM QUESTION 2.1 OF ALL ACTIVITIES PERFORMING THE CSF & LC

(SEPARATE ADJUSTMENT FACTORS WILL BE CALCULATED FOR EACH CSF,LC COMBINATION)

FUNCTIONAL VALUE (FV)

A MEASURE OF THE CAPABILITY AND QUALITY OF PERFORMING WORK IN A SPECIFIC FUNCTION AT A SPECIFIC ACTIVITY

- **DERIVED FROM MEASURES AND WEIGHTS**
- **WILL USE D-PADS TO CALCULATE FV**
  - **COMMERCIAL PRODUCT USED BY ARMY IN BRAC 91/93**
- **INPUT DESIGN CONSISTENT WITH AGREED TO MEASURES AND WEIGHTS**
- **FUNCTIONAL VALUE WILL BE EXPRESSED AS A NUMBER FROM 0 (LOW) TO 100 (HIGH)**

FUNCTIONAL VALUE METHODOLOGY

- WHAT QUALITY DO WE WISH TO MEASURE?
- HOW/WHAT WILL WE USE AS A MEASURE?
- HOW WILL WE DECIDE HOW MUCH THE ACTIVITY HAS?
- HOW IMPORTANT DO WE BELIEVE IT IS?

SENSITIVE INFORMATION - FOR OFFICIAL USE ONLY

FUNCTIONAL VALUE MEASURES

- MEASURES DEVELOPED FROM AVAILABLE LJCSG DATA CALL ELEMENTS AND SELECTED TO:
  - PROVIDE MEANINGFUL DISCRIMINATION OF VALUE OF PERFORMING CSF AT ONE ACTIVITY RELATIVE TO ANOTHER ACTIVITY
  - REASONABLY REDUCIBLE TO A NUMERICAL SCALE WITHOUT SIGNIFICANT SUBJECTIVE JUDGMENT
  - ENSURE THAT LIMITATIONS OF THE DATA CALL ELEMENTS WILL NOT IMPART SIGNIFICANT BIAS TO THE MEASURE
- ALL MEASURES WILL BE NORMALIZED TO A CONSISTENT NUMERICAL SCALE
- OTHER DATA CALL ELEMENTS AVAILABLE FOR "FIT CHECK" AND/OR BACKGROUND AND CONTEXT
  - "FIT CHECK": PART OF PROCESS FOR ANALYZING OPERATIONAL FEASIBILITY OF ALTERNATIVES DERIVED FROM THE OPTIMIZATION MODEL. DATA / INFORMATION CONTAINED IN DATA CALL RESPONSES, NOT USED IN FUNCTIONAL VALUE DERIVATION AND IDENTIFIED AS "FIT CHECK", MAY BE USED IN THESE ANALYSES.

SENSITIVE INFORMATION - FOR OFFICIAL USE ONLY

FUNCTIONAL VALUE MEASURES

DATA CALL ELEMENTS	MEASURES
(3.0): INTERCONNECTIVITY WITH OTHER FUNCTIONS (COMMON OR OTHERWISE) IN SUPPORT OF OVERALL MISSION	1. NUMBER OF INTERCONNECTED FUNCTIONS WEIGHTED BY QUARTILE (MORE IS BETTER)
(3.1.1): GEOGRAPHIC/CLIMATOLOGICAL FEATURES IN AND AROUND THE ACTIVITY RELEVANT TO/REQUIRED FOR EACH CSF	2. YES/NO GEO FEATURE 3. YES/NO CLIMATE FEATURE "FIT CHECK"
(3.1.2): LICENSES & PERMITS REQUIRED FOR TEST, EXPERIMENT, OR SPECIAL CAPABILITY CURRENTLY HELD BY ACTIVITY	
(3.1.3): ENVIRONMENTAL CONSTRAINTS WHICH LIMIT OR RESTRICT CURRENT SCOPE / EXPANSION OF CSF AT ACTIVITY	4. TOTAL COUNT OF CONSTRAINTS (MORE IS WORSE)
(3.1.4): MISSION RELATED SPECIAL SUPPORT INFRASTRUCTURE (EG. UTILITIES) FOR CSF AT ACTIVITY	5. YES/NO: MISSION RELATED SPECIAL SUPPORT INFRASTRUCTURE "FIT CHECK"
(3.1.5): PROXIMITY TO MISSION RELATED ORGANIZATIONS WHICH FACILITATE ACTIVITY'S CSF MISSION	
(3.2.1): TOTAL PERSONNEL BROKEN OUT BY TECHNICAL, MANAGEMENT, OTHER AND BY GOVT (CIV,MIL), ON-SITE FFRDC, AND ON-SITE SETA.	6. SUMMATION OF TOTAL PERSONNEL, SCORED PER MATRIX CATEGORY (TECH=3, MGT=2, OTH=1; GOVT=3, FFRDC=2, SETA=1) (PROPORTIONAL DISTRIBUTION)
(3.2.2): EDUCATION OF GOVT PERSONNEL	7. AVERAGE EDUCATION LEVEL OF TECH/MGT (PROPORTIONAL: HIGHER IS BETTER)

FUNCTIONAL VALUE MEASURES (CONT)

DATA CALL ELEMENTS	MEASURES
(3.2.3): YEARS OF EXPERIENCE FOR GOVT TECHNICAL PERSONNEL	8. DIFFERENCE OF TOTAL & ACTIVITY CSF AVG EXPERIENCE; IF ACTIVITY AVG < TOTAL AVERAGE, NEGATIVE PROPORTIONAL DISTRIBUTION, IF >/= MAX POINTS
(3.2.4.1): PATENTS AWARDED FOR GOVT PERSONNEL	9. PATENTS PER S&T WKYR (FROM 3.3.1.1) (IF S&T WKYRS=0, NO POINTS)
(3.2.4.2): PAPERS PUBLISHED IN PEER JOURNALS BY GOVT PERSONNEL	10. PAPERS PER S&T WKYR (FROM 3.3.1.1) (IF S&T WKYRS=0, NO POINTS)
(3.3.1.1): FY1993 ACTUAL WKYRS BROKEN OUT BY LIFE CYCLE (S&T, ENG DEV, AND ISE) AND BY GOVT (CIV,MIL), ON-SITE FFRDC, AND ON-SITE SETA.	USE ONLY TO NORMALIZE OTHER DATA
(3.3.1.2): ENGINEERING DEVELOPMENT BY ACAT	11. NUMBER OF PROGRAMS, SCORED BY ACAT (ACAT I = 3, ACAT II = 2, ALL OTHERS =1) (PROPORTIONAL DISTRIBUTION)
(3.3.1.3): IN-SERVICE ENGINEERING EFFORTS	12. YES/NO: ISE WKYRS (FROM 3.3.1.1) > 5
(3.3.2.1, 3.3.2.2): PROJECTED DIRECT FUNDING AND PROJECTED OTHER OBLIGATIONAL AUTHORITY- FY1994-1997	NOT USED FOR FUNCT VALUE

FUNCTIONAL VALUE MEASURES (CONT)

DATA CALL ELEMENTS	MEASURES
(3.4.1): MAJOR CSF FACILITIES / EQUIPMENT AT ACTIVITY	13. USING ONLY EQUIP/FACILITIES >$10M: TOT REPLACEMENT COST (PROPORTIONAL DISTRIBUTION) 14. USING ONLY EQUIP/FACILITIES >$10M: PERCENT SHARED BY OTHER FUNCTIONS TIMES REPLACEMENT COST SUMMED (PROPORTIONAL DISTRIBUTION)
(3.5.1): LABORATORY CAPABILITY EXPANSION POTENTIAL	"FIT CHECK"
(3.5.1.1/3.5.1.2): ABILITY TO ABSORB ADDITIONAL CSF WKYRS	"FIT CHECK"
(3.5.1.3): IMPACT OF MILCON	"FIT CHECK"
(3.5.2): LAND USE	15. YES/NO BUILDABLE ACRES OVER THRESHOLD (WEAPONS >50; NON-WEAPONS >10 ACRES)
(3.5.3): UTILITIES	"FIT CHECK"

FUNCTIONAL VALUE WEIGHTING OF MEASURES

- WEIGHTS DEVELOPED FOR EACH MEASURE BASED ON THEIR RELATIVE IMPORTANCE IN ASSESSING FUNCTIONAL VALUE
- RELATIVE IMPORTANCE WAS DERIVED BY COMPARING MEASURES TO EACH OTHER AND BY ESTABLISHING A BALANCE ACROSS LARGER CATEGORIES; eg.
  - PEOPLE / FACILITIES & EQUIPMENT RESOURCES
  - SPECIFIC CSF CAPABILITY / INTEGRATED ACTIVITY CAPABILITY
  - QUALITY / SIZE
- WEIGHTS WILL BE NORMALIZED TO ENSURE FUNCTIONAL VALUE WILL BE EXPRESSED AS A NUMBER FROM 0 (LOW) TO 100 (HIGH)
- WEIGHTS WILL BE CONTAINED IN A SEPARATE ANNEX TO THE LJCSG ANALYSIS PLAN

SENSITIVE INFORMATION - FOR OFFICIAL USE ONLY

FUNCTIONAL VALUE WEIGHTS

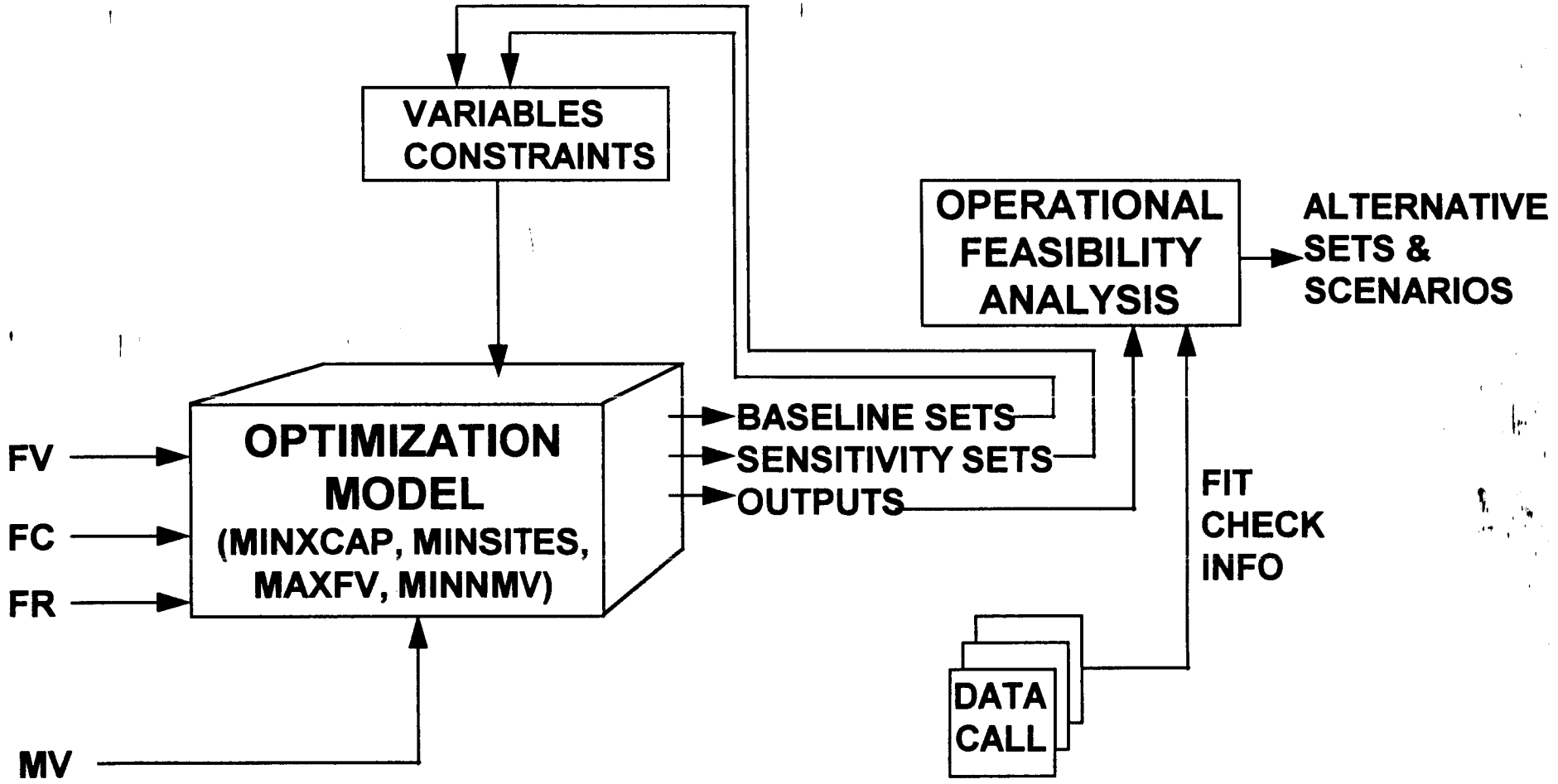
(NORMALIZED)

MEASURES	WEIGHTS
1. NUMBER OF INTERCONNECTED FUNCTIONS WEIGHTED BY QUARTILE (MORE IS BETTER)	10 (0.0877)
2. YES/NO GEO FEATURE	3 (0.0263)
3. YES/NO CLIMATE FEATURE	3 (0.0263)
4. TOTAL COUNT OF ENVIRONMENTAL CONSTRAINTS (MORE IS WORSE)	6 (0.0526)
5. YES/NO: MISSION RELATED SPECIAL SUPPORT INFRASTRUCTURE	3 (0.0263)
6. SUMMATION OF TOTAL PERSONNEL, SCORED PER MATRIX CATEGORY (TECH=3, MGT=2, OTH=1; GOVT=3, FFRDC=2, SETA=1) (PROPORTIONAL DISTRIBUTION)	15 (0.1316)
7. AVERAGE EDUCATION LEVEL OF TECH/MGT (PROPORTIONAL: HIGHER IS BETTER)	11 (0.0965)
8. DIFFERENCE OF TOTAL & ACTIVITY AVG CSF EXPERIENCE; IF ACTIVITY AVG < TOTAL AVERAGE, NEGATIVE PROPORTIONAL DISTRIBUTION, IF >/= MAX POINTS	12 (0.1053)
9. PATENTS PER S&T WKYR (FROM 3.3.1.1) (IF S&T WKYRS=0, NO POINTS)	8 (0.0702)
10. PAPERS PER S&T WKYR (FROM 3.3.1.1) (IF S&T WKYRS=0, NO POINTS)	7 (0.0614)
11. NUMBER OF PROGRAMS, SCORED BY ACAT (ACAT I = 3, ACAT II = 2, ALL OTHERS =1) (PROPORTIONAL DISTRIBUTION)	10 (0.0877)
12. YES/NO: ISE WKYRS (FROM 3.3.1.1) > 5	3 (0.0263)
13. USING ONLY EQUIP/FACILITIES >$10M: TOTAL REPLACEMENT COST (PROPORTIONAL DISTRIBUTION)	13 (0.1140)
14. USING ONLY EQUIP/FACILITIES >$10M: PERCENT SHARED BY OTHER FUNCTIONS TIMES TOTAL REPLACEMENT COST SUMMED (PROPORTIONAL DISTRIBUTION)	3 (0.0263)
15. YES/NO BUILDABLE ACRES OVER THRESHOLD (WEAPONS >50; NON-WEAPONS >10 ACRES)	4 (0.0352)

JOINT CROSS-SERVICE ANALYSIS TOOL EVALUATION

- TOOL WILL BE USED TO GENERATE A SET OF OPTIMAL LJCSG CROSS SERVICE ALTERNATIVES
- INITIAL DETAILED EVALUATION WITH NOTIONAL DATA COMPLETE
- OPTIMIZATION PROCESS BALANCES FLEXIBILITY AND DISCIPLINE
- MODEL IS SUFFICIENTLY FLEXIBLE TO ACCOMMODATE ADDITIONAL OBJECTIVE FUNCTIONS
- LJCSG ANALYSIS PLAN DOCUMENTS DETAILS

DEVELOP ALTERNATIVE SETS



OPTIMIZATION MODEL / SENSITIVITY ANALYSIS RUN PLAN

PARAMETER VALUES / CONSTRAINTS

OBJECTIVE FUNCTIONS	BASE LINE	FR				*W* VARY AS APPROPRIATE	OTHER OPTIMAL ALTERNATIVES
		+10%	+20%	-10%	-20%		
MINSITES	X	X	X	X	X	X	X
MAXFV	X	X	X	X	X	X	X
MINXCAP	X	X	X	X	X	X	X
MINNMV	X	X	X	X	X	X	X

EACH X REPRESENTS A SINGLE RUN (OR SET OF RUNS) OF THE JOINT CROSS SERVICE ANALYSIS TOOL AND WILL YIELD A SET (OR SETS) OF ALTERNATIVES FOR REVIEW BY THE JCSG

SENSITIVE INFORMATION - FOR OFFICIAL USE ONLY

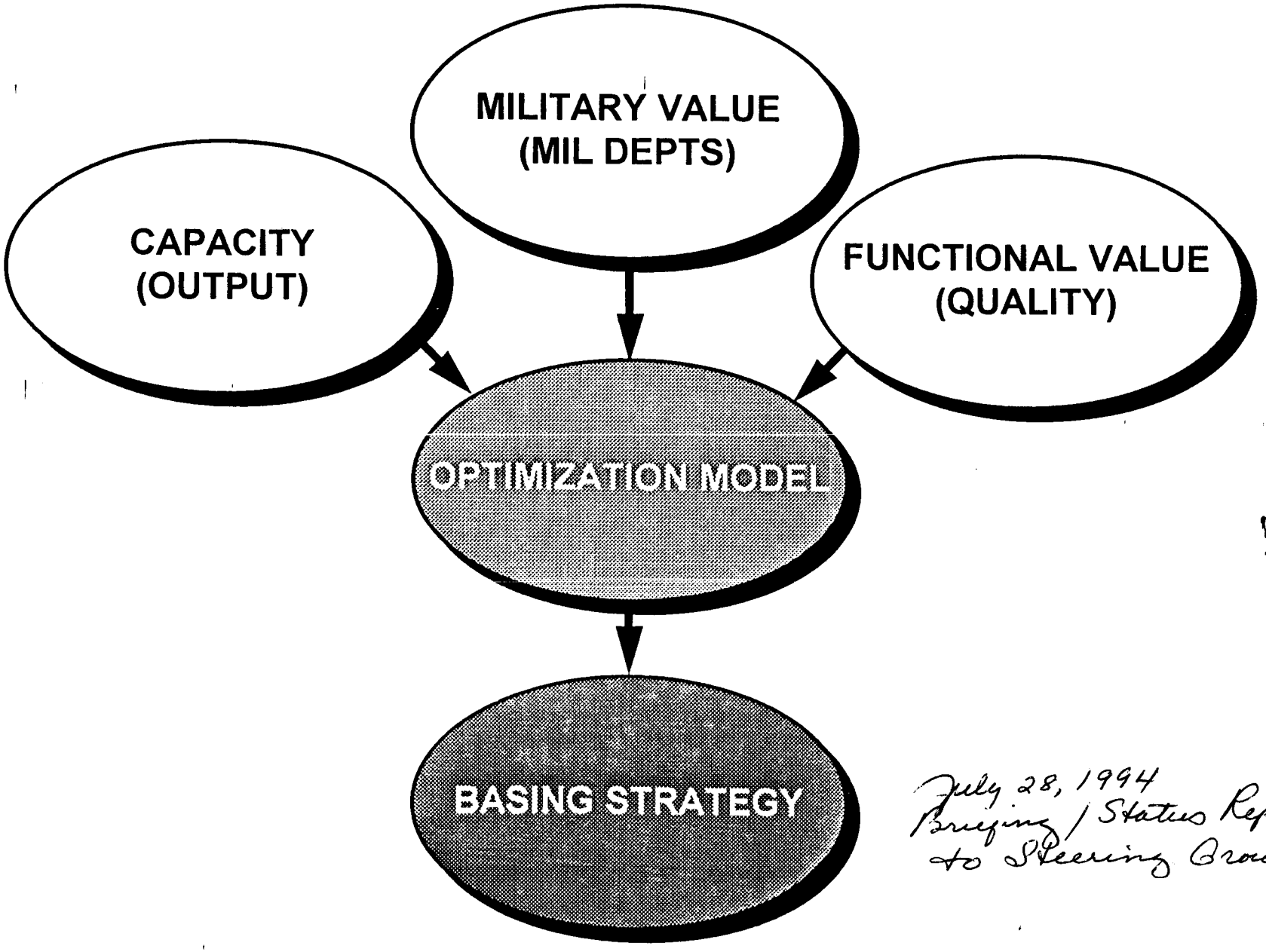
LAB JOINT CROSS-SERVICE ANALYSIS PLAN

- INTRODUCTION: LABORATORY JOINT ANALYSIS PROCESS
- INPUT METHODOLOGIES
  - FUNCTIONAL CAPACITY(FC)
  - FUNCTIONAL DOD REQUIREMENT (FR)
  - FUNCTIONAL VALUE (FV)
    - » MEASURES/WEIGHTS
- ALTERNATIVE FORMAT
- SCHEDULE
- SUMMARY
- ANNEXES

SUMMARY

- METHODOLOGY FOR FUNCTIONAL CAPACITY, FUNCTIONAL DOD REQUIREMENT, AND FUNCTIONAL VALUE DEVELOPED
- D-PADS DESIGN FOR FUNCTIONAL VALUE CALCULATION COMPLETE
- SELECTION OF OPTIMIZATION MODEL SPECIFICATIONS COMPLETE
- SENSITIVITY / ANALYSIS RUN PLAN COMPLETE
- LJCSG ANALYSIS PLAN SIGNED
- DATA SHARE AND EVALUATION WEEK OF 1 AUG

UNDERGRADUATE PILOT TRAINING
JOINT CROSS-SERVICE GROUP



July 28, 1994
Briefing / Status Report
to Steering Group

Undergraduate Pilot Training
Joint Cross-Service Group

Methodology for Calculating Excess Capacity

CLOSE HOLD

CAPACITY ANALYSIS

		REQUIREMENTS				
FACTORS	**HISTORICAL**	**PROG'MED TRAINING (SYLLABI) (A)**	**PROG'MED GRADS (B)**	**REQUIRED CAPACITY (AxB)**	**MAX AVAILABLE CAPACITY (C)**	**EXCESS CAPACITY (C-(AxB))**
TRAINING SORTIES	SORTIES/ GRAD SYLLABUS •OVERHEAD PG 6 # 5 PG 14 #2	SORTIES/ GRAD •MAJCOM PG 9 # 2	GRADS/YEAR •PGL •PTR PG 4 #1 & 2	SORTIES/ YEAR	SORTIES/ YEAR PG 19 # 16	SORTIES/ YEAR
AIRFIELD OPS	OPS/SORTIE •TRAFFIC CNT PG 17 # 10 •TOT # SORTIES PG 14 # 2	OPS/GRAD •MAJCOM PG 9 # 2 X =	GRADS/YEAR •PGL •PTR	OPS/YEAR	OPS/YEAR PG 17 # 9	OPS/YEAR
AIRSPACE BLOCK=(NM² x ALT)/AIRCRAFT	BLOCKS AVAILABLE BLOCK HOURS AVAILABLE SYLLABUS •OVERHEAD •MX PG 22 # 1	AIRSPACE BLOCK HRS GRAD •MAJCOM PG 8 # 1	GRADS/YEAR •PGL •PTR	AIRSPACE BLOCK HRS YEAR	# OF AREAS X HOURS AVAILABLE / YEAR = AIRSPACE BLOCK HRS YEAR PG 22 # 1	AIRSPACE BLOCK HRS YEAR
GROUND TRAINING	FACILITIES AVAILABLE FACILITY HOURS AVAIL/YEAR •SYLL + ATTRIT •CLASSROOMS •SIMULATORS •LIFE SPT TNG	FACILITY HRS GRAD •MAJCOM PG 10 # 1	GRADS/YEAR •PGL •PTR	FACILITY HRS YEAR	FACILITY HRS YEAR PG 25 # 1 PG 27 # 8	FACILITY HRS YEAR

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6/17/94 5:04

CAPACITY ANALYSIS (CONT)

FACILITY FACTORS	HISTORICAL	REQUIREMENTS: PROG'MED TRAINING (SYLLABI) (A)	REQUIREMENTS: PROG'MED GRADS (B)	REQUIRED CAPACITY (AxB)	MAX AVAILABLE CAPACITY (C)	EXCESS CAPACITY (C-(AxB))
RAMPS/ APRONS/ TAXIWAYS	TOT FT² USED # OF AIRCRAFT SUPPORTED FT² / AIRCRAFT REQ PG 28 # 1	AIRCRAFT (GRAD/YEAR) PG 28 # 1 PG 4 # 1	GRADS/YEAR •PGL •PTR PG 4 #1 & 2	AIRCRAFT	TOT FT² AVAIL / FT² / AIRCRAFT = AIRCRAFT PG 28 # 2	AIRCRAFT
HANGARS	HANGARS USED MX DOCKS/HANGAR AIRCRAFT/MX DOCK	AIRCRAFT (GRAD/YEAR)	GRADS/YEAR •PGL •PTR	AIRCRAFT	A/C / MX DOCK X MX DOCK / HANGAR X HANGAR = AIRCRAFT PG 29 # 4	AIRCRAFT
MAINTENANCE	FACILITIES USED # OF AIRCRAFT SUPPORTED AIRCRAFT / FACILITY REQ	AIRCRAFT (GRAD/YEAR)	GRADS/YEAR •PGL •PTR	AIRCRAFT	A/C / FACILITY X FACILITIES AVAILABLE = AIRCRAFT PG 29 # 6	AIRCRAFT
SUPPLY/ STORAGE	TOT FT² USED # OF AIRCRAFT SUPPORTED FT² / AIRCRAFT REQ	AIRCRAFT (GRAD/YEAR)	GRADS/YEAR •PGL •PTR	AIRCRAFT	TOT FT² AVAIL / FT² / AIRCRAFT = AIRCRAFT PG 30 # 9	AIRCRAFT
HOUSING	CAPACITY USED STUDENTS/DAY PG 31 # 1	STUDENTS/DAY PG 4 # 1		STUDENTS/DAY	STUDENTS/DAY PG 32 # 5	STUDENTS/DAY
Mmessing	CAPACITY USED STUDENTS/DAY PG 32 # 3	STUDENTS/DAY PG 4 # 1		STUDENTS/DAY	STUDENTS/DAY PG 32 # 5	STUDENTS/DAY

Undergraduate Pilot Training
Joint Cross-Service Group

Methodology for Calculating Functional Value

MEASURES OF MERIT FOR FUNCTIONAL AREAS
(CURRENT AS OF: 07/27/94 02:41 PM)

MEASURES OF MERIT	Flight Screening	Primary Pilot	Bomber/ Fighter	Strike/ Adv E-2/C-2	Airlift/ Tanker	Maritime/ Int E-2/C-2	CORRESPONDING QUESTIONS
Managed Training Areas	5	5	6	6	6	6	pg 7/#1, 2
Weather	15	14	10	7	9	9	pg 10/#1-3
Airspace and Flight Training Areas	27	22	27	27	24	24	pgs 11-17/#1-23
Airfields	23	24	17	17	22	22	pgs 18-21/#1-4
Ground Training Facilities	10	10	10	10	10	10	pg 22/#1, 2
Aircraft Maintenance Facilities	5	5	5	5	5	5	pg 23/#1 pg 21/#3
Special Military Facilities	0	0	4	4	0	0	pgs 24-25/#1-7
Proximity to Training Areas	0	0	0	3	0	0	pg 27/#1, 2, 3, 4
Proximity to Other Support Facilities	0	2	2	2	5	5	pg 28/#1, 2, 3
Unique Features	0	0	0	0	0	0	pg 29/#1, 2
Air Quality	5	5	5	5	5	5	pg 30/#1-5
Encroachment	5	5	6	6	6	6	pgs 31-38/#1-11
Services	5	8	8	8	8	8	pgs 39-47/#1-6
TTL POINTS	100	100	100	100	100	100	

MEASURES OF MERIT	Prim & Int NFO/NAV	WSO Strike	Pancl NAV	Helo	CORRESPONDING QUESTIONS
Managed Training Areas	5	6	5	8	pg 7/#1, 2
Weather	14	7	7	9	pg 10/#1-3
Airspace and Flight Training Areas	22	22	22	16	pgs 11-17/#1-23
Airfields	24	22	23	24	pgs 18-21/#1-4
Ground Training Facilities	10	17	20	10	pg 22/#1, 2
Aircraft Maintenance Facilities	5	5	5	5	pg 23/#1 pg 21/#3
Special Military Facilities	0	0	0	0	pgs 24-25/#1-7
Proximity to Training Areas	0	0	0	0	pg 27/#1, 2, 3, 4
Proximity to Other Support Facilities	2	2	0	2	pg 28/#1, 2, 3
Unique Features	0	0	0	8	pg 29/#1, 2
Air Quality	5	5	5	5	pg 30/#1-5
Encroachment	5	6	5	5	pgs 31-38/#1-11
Services	8	8	8	8	pgs 39-47/#1-6
TTL POINTS	**100**	**100**	**100**	**100**	

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WORKING PAPERS

MEASURES OF MERIT FOR:
PRIMARY

MEASURES OF MERIT	WEIGHT	RATIONALE
Managed Training Areas	5	The questions addressed in this area are focused toward ownership of special use airspace, air-to ground ranges, and outlying fields. In this analysis, *accessibility* to these facilities was considered more important than ownership.
Weather	14	This weight was used because students in primary flight training need better weather than students in the advanced tracks.
Airspace and Flight Training Areas	22	This area was weighted heavily due to the direct impact it has on primary flight training. Much of the training takes place in special use airspace; therefore, this area plays a large role in determining the training effectiveness of an installation.
Airfields	24	This area is weighted the heaviest due to the emphasis primary training places on pattern activities. This area plays a big role in evaluating the effectiveness of a training installation.
Ground Training Facilities	10	This weight is commensurate with the role classrooms, simulators, and other facilities play in flight training.
Aircraft Maintenance Facilities	5	Training aircraft are not difficult to maintain and do not require an extensive training infrastructure.
Special Military Facilities	0	N/A
Proximity to Training Areas	0	N/A
Proximity to Other Support Facilities	2	This area looks at the local area to determine what other facilities are available The overall training infrastructure is already established and in use at each base so the impact to this area should be minimal.
Unique Features	0	N/A
Air Quality	5	This has been baselined due to like aircraft.
Encroachment	5	Encroachment plays a role in determining installation compatibility with the training mission; however, training aircraft do not have a large impact on encroachment issues.
Services	8	Quality of life plays a significant role in determining installation compatibility with the training mission and this weight will be applied to the other training functions.

6:43 PM 21 July, 1994

Questions for Assessing the Functional Quality of *Primary* Pilot Training

Managed Training Areas (5 points)

1. The # of outlying/auxiliary fields that are controlled/owned by the installation and support primary training. (2.5 pt or 50%)
   Scoring: Linear scale between 0 and 6 (0 pt for 0 fields, 2.5 pts for 6 fields)
   Rationale: Owning airfields and airspace have equal impact on training.
2. The number and type of special use airspace that is controlled/owned by the installation and supports primary training. (2.5 pt or 50%)
   Scoring: 1.5 pt for MOA, 0.5 pt for MTR, 0.5 for AA
   Rationale: Owning airfields and airspace have equal impact on training.

Weather (14 points)

1. Percent of time weather is better than 1500/3. (4 pt or 29%)
   Scoring: Linear scale between 80% and 100% (1 pt for 80% and 4 pt for 95%)
   Rationale: USAF weather requirements to conduct training. Higher % is better.
2. Percent of time weather is better than 1000/3. (3 pt or 21%)
   Scoring: Linear scale between 80% and 100% (1 pt for 80% and 3 pt for 95%)
   Rationale: USN weather requirements to conduct training. Higher % is better.
3. Percent of time crosswinds are less than 15 knots. (3 pt or 21%)
   Scoring: Linear scale between min% and max% (0 pt for min% and 3 pt for max%)
   Rationale: Max crosswinds for majority of student training. Higher % is better.
4. Percent of time crosswinds are greater than 25 knots. (1 pt or 7%)
   Scoring: Linear scale between min% and max% (1 pt for min% and 0 pt for max%)
   Rationale: Max aircraft crosswind limits. Lower % is better.

Percent of sorties canceled/rescheduled. (1 pt or 7%)
Scoring: Linear scale between 5% and 20% (1 pt for 5% and 0 pt for 20%)
Rationale: This area captures weather attrition not covered by questions 1-4.

6. Official Planning factor for lost sorties due to weather. (2 pt or 14%)
   Scoring: Linear scale between 5% and 20% (2 pt for 5% and 1 pt for 20%)
   Rationale: This area captures weather attrition not covered by questions 1-4.

Airspace and Flight Training Areas (22 points)

1. Amount of airspace (MOA and AA) in nm^3 (12 pt or 64%).
   Scoring: Linear scale of weighted airspace from 0 to max airspace (MOA and .8 AA) (0 pt for 0 nm^3 and 12 pt for max nm^3). Weighted airspace for each site = amount of MOA airspace + .8(amount of AA airspace)
   Rationale: More airspace is better, MOA is slightly better than AA.
2. Average distance to airspace (2 pt or 9%)
   Scoring: Linear scale from 0 to max weighted average airspace size times distance (0 pt for min and 2 pt for max). Weighted average airspace size times distance for each site = Sum (airspace size in nm^3 times distance to airspace in nm) for all MOA or AA divided by the Sum of all airspace size.
   Rationale: Closer airspace is better.
3. Number of MTR's available (3 pt or 14%).
   Scoring: Linear scale from 0 to max (0 pt for 0 MTR's and 3 pt for max MTR's)
   Rationale: MTRs are required for training...more is better.
4. Percent of flight ops experiencing ATC delays of 15 minutes or greater. (2 pt or 9%)
   Scoring: Linear scale between 0 and some max (2 pt for 0 % delays and 0 pts for max % delay)
   Rationale: Fewer ATC delays is better.
5. Planned commercial hub within 100 miles. (1 pt or 4%)
   Scoring: 1 pt for no and 0 pt for yes.
   Rationale: Commercial hub will impact training. No hub is better.

Number of bisecting airways. (2 pt or 9%)
Scoring: Linear scale from 0 to max (2 pts for 0 and 0 pts for max).
Rationale: Bisecting airways reduce training effectiveness in areas.

Airfields (24 points)

1. The # of outlying/auxiliary fields usable for primary pilot training (4 pt or 17%) Definition of usable field will be based on runway length (preliminary cutoff -- 5000 ft)
   Scoring: Linear scale between 0 and some max (0 pt for 0 fields, 4 pt for max # fields)
   Rationale: More outlying fields improve capacity and quality of training.
2. The # of usable outlying/auxiliary fields with IFR or night? capability. (2 pt or 8%)
   Scoring: Linear scale between 0 and some max (0 pt for 0 fields, 2 pt for max # fields)
   Rationale: This capability will help reduce congestion at the home field.
3. Median distance to outlying/auxiliary fields. (2 pt or 8%)
   Scoring: Linear scale between some min and max (2 pt for min distance, 1 pt for max)
   Rationale: Closer airfields are better.
4. Runway length of longest runway at main airfield. (2 pt or 8%)
   Scoring: Linear scale between 5000 and 8000 ft (1 pt for 5000 ft runway , 2 points for 8000 ft runway)
   Rationale: Longer runway is better for safety reasons
5. Number of primary runways that can support concurrent ops and crosswind runways at main field. (7 pt or 29%)
   Scoring:
   With 0 crosswind runways: 2 pts for first runway, 4 pts for 2 parallel runways, 6 pts for 3 parallel runways without crosswind runways.
   With 1 crosswind runway: 3 pts for first primary runway, 5 pts for 2 parallel runways, 7 pts for 3 parallel runways.
   With 2 non-parallel crosswind runways: 3.5 pts for first primary runway, 5.5 pts for 2 parallel runways, 7 pts for 3 parallel runways.
   With 2 parallel crosswind runways: 4 pts for first primary runway, 6 pts for 2 parallel runways, 7 pts for 3 parallel runways.
   Rationale: More runways improve quality of training for safety reasons and flexibility
6. Condition of runways -- % of runway sq ft in adequate condition (2 pt or 8%)
   Scoring: Linear scale between 0 and 100 (0 pt for 0 %, 2 pt for 100%)
   Rationale: This indicates the quality of the runway. Higher quality is better.
7. Condition of taxiways/aprons -- % of taxiways/aprons sq ft in adequate condition (1.5 pt or 6%)
   Scoring: Linear scale between 0 and 100 (0 pt for 0 %, 1.5 pt for 100%)
   Rationale: This indicates the quality of the taxiways. Higher quality is better.
8. Condition of utilities -- ave % of facilities in adequate condition (1.75 pt or 7%)
   Scoring: Linear scale between 0 and 100 (0 pt for 0 %, 1.75 pt for 100%)
   Rationale: This indicates the quality of the utilities. Higher quality is better.
9. Condition of other facilities (e.g., term, admin) -- ave % of facilities in adeq cond (1.75 pt or 7%)
   Scoring: Linear scale between 0 and 100 (0 pt for 0 %, 1.75 pt for 100%)
   Rationale: This indicates the quality of the facilities. Higher quality is better.

Ground Training Facilities (10 points)

1. Amount of training facilities (classrooms) rated "adequate" in sq ft. (3 pt or 30%)
   Scoring: Linear scale between 0 and max (0 pt for 0 %, 3 pt for max%)
   Rationale: This measures the amount and quality of the training facilities. More quality is better.
2. Condition of training facilities (classrooms) - % of "adequate" sq ft. (1 pt or 10%)
   Scoring: Linear scale between 0 and 100 (0 pt for 0 %, 1 pt for 100%)
   Rationale: This measures the amount and quality of the training facilities. More quality is better.
3. Amount of training facilities (trainers) rated "adequate" in sq ft. (3 pt or 30%)
   Scoring: Linear scale between 0 and max (0 pt for 0 %, 3 pt for max%)
   Rationale: This measures the amount and quality of the training facilities. More quality is better.
4. Condition of training facilities (trainers) - % of "adequate" sq ft. (1 pt or 10%)
   Scoring: Linear scale between 0 and 100 (0 pt for 0 %, 1 pt for 100%)
   Rationale: This measures the amount and quality of the training facilities. More quality is better.
5. Amount of training facilities (other) rated "adequate" in sq ft. (1.5 pt or 15%)
   Scoring: Linear scale between 0 and max (0 pt for 0 %, 1.5 pt for max%)

Rationale: This measures the amount and quality of the training facilities. More quality is better.

c. Condition of training facilities (other) - % of "adequate" sq ft. (.5 pt or 5%)
Scoring: Linear scale between 0 and 100 (0 pt for 0 %, .5 pt for 100%)
Rationale: This measures the amount and quality of the training facilities. More quality is better.

Aircraft Maintenance Facilities (5 points)

1. Level of maintenance operations at site (3 pt or 60%)
Scoring: 1 pt for O-level, 2 pt for I-level, 2.5 pt for Depot level, 3 pt for Depot level for aircraft type (TMS)
Rationale: Higher level of maintenance is better.
2. Amount of hangars rated "adequate" in sq ft (1.5 pt or 30%)
Scoring: Linear scale between 0 and max (0 pt for 0 %, 1.5 pt for max%)
Rationale: More "adequate" hangar space is better.
3. Condition of hangars - % of hangars in "adequate" condition (.5 pt or 10%)
Scoring: Linear scale between 0 and 100 (0 pt for 0 %, .5 pt for 100%)
Rationale: This is another measure of installation quality. Higher % is better.

Proximity to Other Support Facilities (2 points)

1. Number of other airfields in the area that could support primary pilot training (1 pt or 50%)
Scoring: .5 pt for 1 field, 1 pt for 2 or more fields)
Rationale: More available airfields are better.
2. Distance to other airfields. (1 pt or 50%)
Scoring: .5 pt for 1 field less than 30 miles, 1 pt for 2 or more fields less than 30 miles
Rationale: Closer airfields are better.

Quality (5 points)

1. Is the air station in an attainment or maintenance area for CO, ozone, and PM-10? (3 pt or 60%)
Scoring: 3 pt for yes, 0 pt for no
Rationale: Attainment and maintenance areas are best.
2. Is the air station in a moderate non-attainment area or better area for CO, ozone, and PM-10? (1 pt or 20%)
Scoring: 1 pt for yes, 0 pt for no
Rationale: Moderate and marginal non-attainment (as well as attainment and maintenance) are better than Serious, Severe, and Extreme non-attainment.
3. There have been no restrictions or delays due to air quality considerations (1 pt or 20%)
Scoring: 1 pt for yes, 0 pt for no
Rationale: Fewer restrictions are better..

Encroachment (5 points)

1. Is the existing AICUZ study encoded in local zoning ordinances? (1 pts or 20%)
Scoring: 1 pts for yes, 0 pt for no
Rationale: Having an existing AICUZ study in the zoning ordinance is best.
2. What is the percent incompatible land use for clear zones? (1.5 pts or 30%)
Scoring: Linear scale from 0 to max (1.5 pts for 0 and 0 pts for max).
Rationale: The lower amount of incompatible land use is better.
3. What is the percent incompatible land use for APZ I? (1 pt or 20%)
Scoring: Linear scale from 0 to max (1 pt for 0 and 0 pts for max).
Rationale: The lower amount of incompatible land use is better.
4. What is the percent incompatible land use for APZ II? (0.5 pt or 10%)
Scoring: Linear scale from 0 to max (0.5 pt for 0 and 0 pts for max).
Rationale: The lower amount of incompatible land use is better.
5. Are real estate disclosures required by local communities? (0.5 pt or 10%)
Scoring: 0.5 pt for yes, 0 pt for no
Rationale: Real estate disclosures are best.

Has all clear zone acquisition been completed? (0.5 pt or 10%)
Scoring: 0.5 pt for yes, 0 pt for no
Rationale: It is best if all clear zones have been acquired.

Services (8 points)

1. Amount of BOQ rooms rated "adequate" (2 pt or 25%)
Scoring: Linear scale between 0 and max (0 pt for 0 %, 2 pt for max%)
Rationale: More "adequate" billeting space is better.
2. Condition of BOQ rooms - % of "adequate" (1 pt or 12%)
Scoring: Linear scale between 0 and 100 (0 pt for 0 %, 1 pt for 100%)
Rationale: More "adequate" billeting space is better.
3. Amount of BEQ rooms rated "adequate" (.6 pt or 8%)
Scoring: Linear scale between 0 and max (0 pt for 0 %, .6 pt for max%)
Rationale: More "adequate" billeting space is better.
4. Condition of BEQ rooms - % of "adequate" (.4 pt or 5%)
Scoring: Linear scale between 0 and 100 (0 pt for 0 %, .4 pt for 100%)
Rationale: More "adequate" billeting space is better.
5. What percent of the listed MWR and support facilities/programs are available? (2 pt or 25%)
Scoring: Linear scale from 0 to 100 (0 pt for 0 and 2 pt for 100).
Rationale: More MWR facilities are better to enhance quality of life.
6. Amount of military housing rated "adequate" (.6 pt or 8%)
Scoring: Linear scale between 0 and max (0 pt for 0 %, .6 pt for max%)
Rationale: More "adequate" housing is better.
7. Condition of military housing - % of "adequate" (.4 pt or 5%)
Scoring: Linear scale between 0 and 100 (0 pt for 0 %, .4 pt for 100%)
Rationale: More "adequate" housing is better.
8. Number of children on the waiting list. (0.5 pt or 6%)
Scoring: Linear scale from 0 to max (0.5 pt for 0 and 0 pt for max).
Rationale: Fewer children on waiting list is better.
9. Average wait for children on the waiting list. (0.5 pt or 6%)
Scoring: Linear scale from 0 to max (0.5 pt for 0 and 0 pt for max).
Rationale: Less waiting time for child care is better.

Undergraduate Pilot Training
Joint Cross-Service Group

Policy Imperatives for Optimization Model

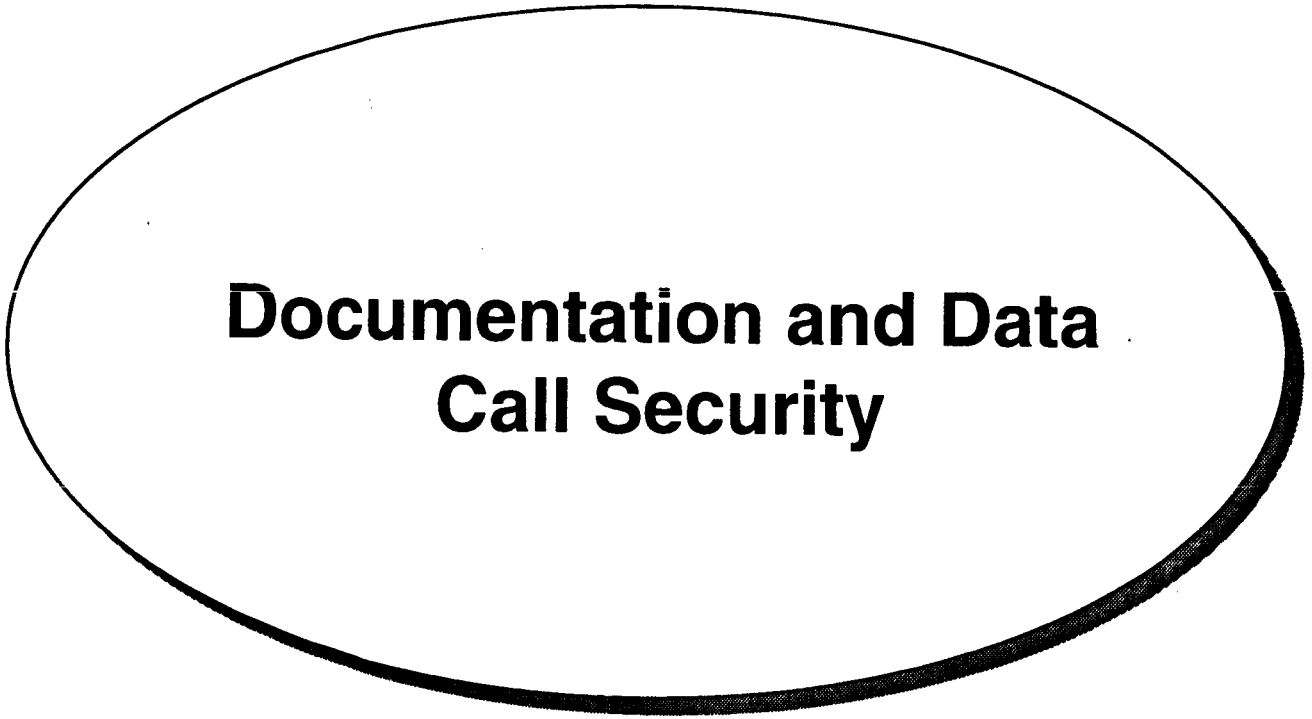
SITE / FUNCTION CONSTRAINT MATRIX

FUNCTION	SERVICE	A/C	RUCKER	WHITING	CORPUS	P-COLA	MERIDIAN	KING	RAN	SHEP	VANCE	REESE	LAU	COL
FLT SCREENING	USAF	T-3												
PRIMARY PILOT	USN USAF	T-34 T-37 JPATS	X (2)											
AIRLIFT/TANKER	USAF	T-1	X (1)	X (1)										
MARITIME/ INT E-2/C-2	USN USAF	T-44	X (2)											
STRIKE/ ADV E-2/C-2	USN	T-2 TA-4 T-45	X (1)	X (1)										
BOMBER/ FIGHTER	USAF	T-38	X (1)	X (1)	X (1)									
HELO	USN USAF USA	TH-57 UH-1 TH-67 OH-58			X (2)		X (2)	X (2)	X (2)	X (2)	X (2)	X (2)	X (2)	X (2)
PRIM & INT NAV/NFO	USN USAF	T-34 T-39	X (2)											
WSO STRIKE	USN USAF	T-39 T-2								X (3)	X (3)	X (3)	X (3)	
PANEL NAV	USN USAF	T-43	X (1)	X (1)										

(1) Runway length constraints based on model design series of training aircraft (FY 2001 requirements)
(2) Lack of suitable outlying fields (one or more for indicated fixed-wing programs, two or more for helo)
(3) Too far from water (greater than 200 NM to working area)

TO BE VERIFIED UPON RECEIPT OF CERTIFIED DATA

Undergraduate Pilot Training
Joint Cross-Service Group



Undergraduate Pilot Training
Joint Cross-Service Group

- Stored at CNA
- Secured Space
- Controlled Access
- Official Minutes

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MEMORANDUM FOR SECRETARIES OF THE MILITARY DEPARTMENTS
CHAIRMAN OF THE JOINT CHIEFS OF STAFF
UNDER SECRETARIES OF DEFENSE
ASSISTANT SECRETARIES OF DEFENSE
COMPTROLLER
GENERAL COUNSEL
INSPECTOR GENERAL
DIRECTOR, OPERATIONAL TEST AND EVALUATION
ASSISTANTS TO THE SECRETARY OF DEFENSE
DIRECTOR, ADMINISTRATION AND MANAGEMENT
DIRECTORS OF THE DEFENSE AGENCIES

SUBJECT: BRAC 95 -- Joint Cross-Service Function Analysis & Recommendation Process

This memorandum describes the process for integrating the evaluations of the Joint Cross-Service Groups (JCSGs) into the individual Military Department BRAC evaluation processes. It also documents the overall process needed for credible and defensible recommendations involving installations where common support functions (labs, depots, test and evaluation, undergraduate pilot training, and medical facilities) are located. Further guidance and documentation is contained in the attached management control plan.

JCSGs will determine a functional value for each of the activities within their jurisdiction. These functional values should be independent of the military value of any particular installation. The assessments of functional value will then be incorporated into analyses of possible closure or realignment alternatives, using certified data. The Joint Cross-Service Groups (which include representatives from the Military Departments) will use their own functional expertise and judgment to develop alternatives for consideration in the BRAC process.

To assist them as an analytic tool in this process, the JCSGs will use a linear programming optimization model (documentation attached). The model provides a basis for further JCSG analysis and application of judgement in developing alternatives. While the model has value in assessing the relative merit of functional common support activities, it cannot by itself make recommendations regarding closures or realignments of installations. Those can be made only by the Military Departments or the BRAC 95 Review Group, reflecting judgment by the Review Group, the Military Departments and the JCSG's concerning the operational and functional value of installations and their appropriate military value, based on the final criteria.

Each JCSG will be supported in their evaluation by a Joint Cross Service Working Group (JCSWG), variously referred to as sub-groups, study teams or technical and support groups. These groups are currently in existence and providing support to the JCSGs. JCSWGs will adapt the linear programming model and provide inputs to the COBRA model to assist each JCSG in its analyses and aid in developing alternatives. All JCSWGs will be supported by a single Tri-Department BRAC

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Group consisting of representatives from each Military Department which will execute runs of the linear programming (optimization) and COBRA models according to the objective functions and policy imperatives provided by the JCSGs. JCSG outputs can be derived from any number of combinations of objective functions and policy imperatives. An outcome of the JCSG initial analysis must be functional capacity reduction goals and an unconstrained ranking of activities by functional value. A set of recommended unconstrained relocations/consolidations of activities will also be produced. These JCSG products must then be provided to the Military Departments by September 1, 1994, to give the Military Departments time to accomplish their individual BRAC evaluation processes.

The Military Departments will conduct their individual BRAC processes in parallel with the JCSG analyses, to determine their BRAC 95 recommendations. The capacity reduction goals, approved by the Steering Group, and rankings by functional value derived by the JCSGs and provided to the Military Departments, should be used where and as appropriate to assist in determining installation military value in the individual Military Department BRAC processes. The product of each Military Department's analysis will be a banding of installations which will reflect the relative value of installations within the Military Department. Military Departments will provide these judgments to the JCSG's by October 3, 1994. These products will then be used to produce a second set of linear programming (optimization) outputs incorporating installation military values.

The JCSGs will then review these outputs. They will apply their functional expert judgment to compare feasible alternatives and work with the Military Departments to facilitate cross-service actions that will maximize the value of retained and consolidated functions. The JCSGs would then analyze these alternatives to determine the cost and return on investment consequences of each alternative using the COBRA mode. This combination of operational and financial screening is intended to help eliminate possible recommendations that while apparently attractive, are unexecutable. This cooperative work by the JCSGs and the Military Departments should be advanced and completed by the end of October, to provide time for Military Departments to formulate their proposals and for the Review Group to consider any issues that may be appropriate.

At the completion of their individual processes, the Military Departments would present their recommendations for closure and realignment to the Department of Defense no later than January 1, 1995.

This process will produce the best interaction between JCSG and Military Department analyses. It permits consideration of possible joint functional solutions to be incorporated with the existing BRAC process of the Military Departments. If you have questions concerning the process, please contact Mr. Robert Bayer, Deputy Assistant Secretary of Defense for Economic Reinvestment and BRAC, 703-697-1771.

Attachments

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BRAC 95 JOINT CROSS-SERVICE GROUP MANAGEMENT CONTROL PLAN JOINT ANALYTICAL PROCESS

I. BACKGROUND:

The exclusive procedures by which the Secretary of Defense (SecDef) may pursue realignment or closure of military installations inside the United States are contained in Part A, Title XXIX of Public Law 101-510, entitled the Defense Base Closure and Realignment Act of 1990; as amended by Public Law 102-190 and 103-160; hereafter referred to as the Base Closure Act. The Base Closure Act includes a provision for the President to appoint an independent Base Closure and Realignment (BRAC) Commission to review the SECDEF recommendations in calendar years 1991, 1993, and 1995.

The Deputy Secretary of Defense (DepSecDef) memorandum of January 7, 1994, set forth guidance, policy, procedures, authorities and responsibilities for selecting bases for realignment or closure and subsequent submission to the BRAC 1995 Commission. The DepSecDef guidance includes a requirement for the establishment of Joint Cross-Service Groups (JCSG) in six areas with significant potential for cross-service impacts in BRAC 95.

Five of these groups are functional in nature and the sixth was established to examine economic impacts. The five functional cross-service groups are Laboratories, Test and Evaluation, Maintenance Depots, Undergraduate Pilot Training, and Medical Treatment Facilities including Graduate Medical Education.

II. PURPOSE:

The primary purpose of this Management Control Plan (MCP) is to provide a set of management controls for the process that the five functional BRAC 95 Joint Cross-Service Groups (and sub working teams), will use to meet the requirements established by the DepSecDef. This MCP, with its associated joint analysis process, provides the necessary checks and balances between the JCSG's and the Military Departments to ensure viable alternatives are fully considered and results are auditable.

III. RESPONSIBILITIES:

a. Review Group: The BRAC 95 Review Group is the approving and reviewing authority for BRAC procedures, installation excess capacity reduction targets, JCSG closure and realignment alternatives and making recommendations to the SECDEF.

b. Steering Group: The BRAC 95 Steering Group is responsible for assisting the Review Group in exercising its authority and reviewing joint cross-service group guidance to the Military Departments. In addition, the Steering Group acts as an integrator across functional areas and will review joint cross-service group functional excess capacity analyses.

c. Military Departments: The Military Departments must follow all joint cross-service group guidance approved by the Steering Group and consider all recommendations of the joint cross-service groups that have been approved by the Review Group in the Military Departments BRAC submissions to the SECDEF.

d. Joint Cross-Service Groups: The joint cross-service groups are responsible for establishing guidelines, standards, assumptions, measures of merit, data elements, and milestones for their cross-service functional areas. They will provide functional oversight to the Military Departments in support of the analyses of common support functions, capacity analyses, alternative and scenario development/analyses, and cross-service trade-off analyses. They are responsible for conducting in-depth functional reviews of analyses and for applying judgement to ensure that alternatives and scenarios are operationally feasible. This group must review and approve all work conducted by any associated working group and used by the JCSG.

e. Working Groups: These groups, variously referred to as sub-groups, are sub-groups to Joint Cross-Service Groups that conduct detailed work prior to review by the Joint Cross-Service Group members. These groups are not official groups within the authorized structure described above (section I), therefore, they are not subject to the same record keeping requirements.

f. Tri-Department BRAC Group: This newly formed group is responsible for calculating capacity, requirements, and activity functional value as prescribed by each JCSG. They will run the linear programming (optimization) and COBRA models for each of the JCSGs. The Tri-Department BRAC Group is independent of the JCSG's will be composed of members of the Military Department BRAC planning offices. This group's primary function is to ensure auditability of the process.

IV. INTERNAL CONTROLS:

The Internal Control Plan (ICP) issued on April 13, 1994, was approved by the BRAC 95 Steering Group and provides the internal controls for the BRAC-95 Joint Cross-Service Groups and the Military Departments. This plan provides the controls for development, acquisition, certification, and verification of data. The ICP also describes the procedures for development, approval and dissemination of measures of merit, processes, policies and guidance as it refers to activities, or facilities.

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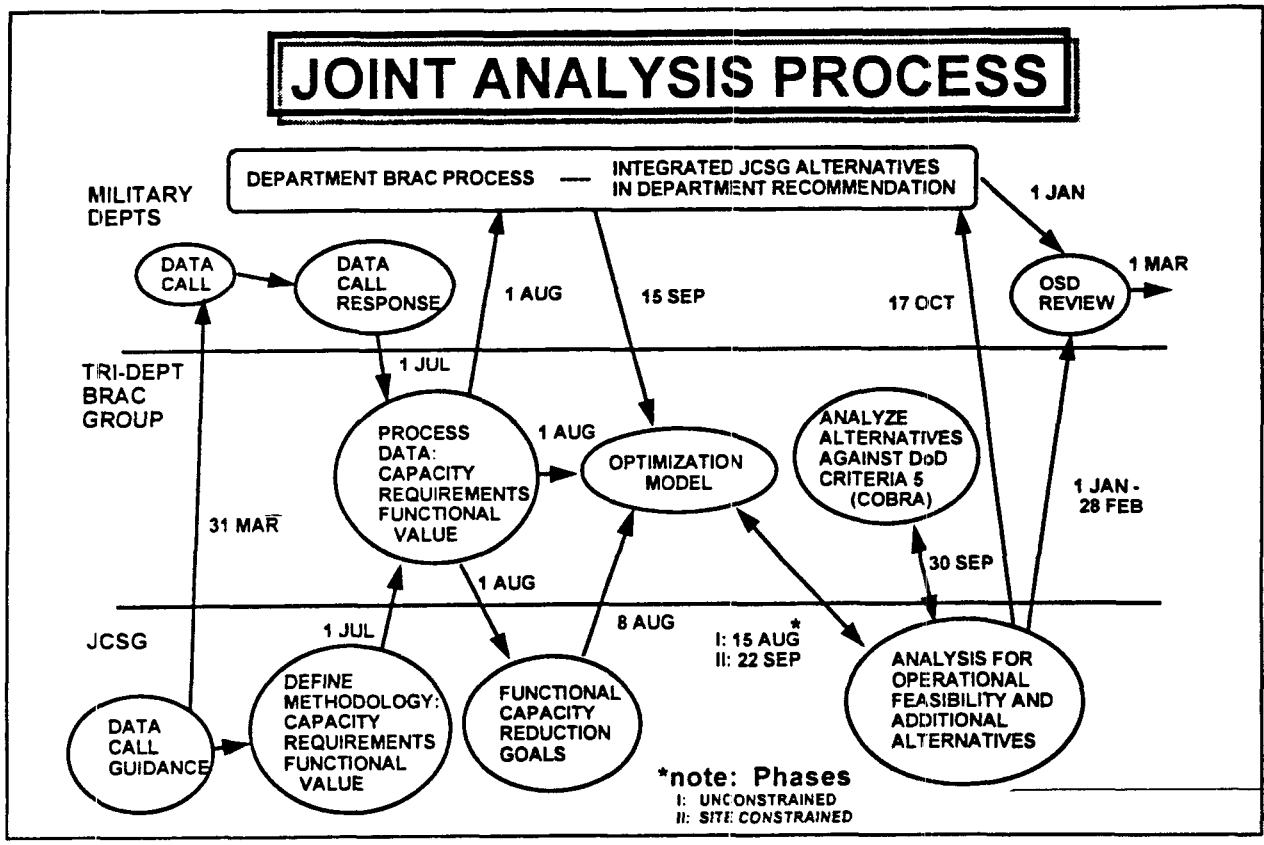
V. JOINT FUNCTIONAL ANALYSIS PROCESS:

The joint analysis process described below will be used by the Joint Cross-Service Groups. The integrity and auditability of the BRAC process will be enhanced by this common analytical framework. The process provides a set of standard tools (spreadsheet, cost analysis, and linear programming) to assist the JCSGs to focus their functional reviews and allows them to achieve their goals as stated in the DepSecDef memorandum. A flow diagram with milestones in the figure below illustrates the interaction and time-sequence of events.



Note: Milestones need to be updated

1. Common Support Functions: The JCSG will define the common support functions (i.e. commodities, functional categories, etc) within their area. In defining these common support functions, the JCSG's will consider Service inputs in order to develop a joint listing.

2. Structure: The JCSG will identify the structure that relates to each of the common support functions described above, to include how these activities fit into their respective command structures (chains of command). **[In addition, for each common support function, each Service will identify whether that area is either a core function for that service and**

must be retained, a candidate for out-sourcing, a candidate for cross-service consolidation, or an area that could be divested completely. This Service determination will consider other Service or non-DoD requirements. *QUESTION: AREN'T THESE NON-BRAC POLICY QUESTIONS? IF SO, SHOULDN'T WE DELETE THIS SECTION?]*

3. Functional Value: The JCSG will develop measures of merit. These measures will examine the capability of the activity, the needs of the Services, the facility infrastructure required to maintain the activity, [the ability of the industrial base to support this business area], and Cost of Base Realignment Actions Model (COBRA) input values for the cost analysis. The joint group must agree on the weights/importance of these attributes to gain a common basis for comparison across the Department of Defense. These weights and attributes will describe the Functional Value of each activity. The Tri-Department BRAC Group will conduct an initial functional value analysis, using the measures of merit and the data (step 6), and provide this analysis to the joint cross-service groups and the Military Departments.

4. Capacity and Requirements: The JCSG will develop the method to calculate capacity and requirements for each cross service function.

5. JCSG Data Call Guidance: The four requirements, stated above, will be transmitted to the Military Departments as a BRAC data call.

6. Data Call Responses: The Military Departments will collect data per the JCSG guidance and will forward the data to each group with the appropriate certifications.

7. Excess Capacity Goals: The JCSG will review their data call responses, for each common support functional area, for excess capacity. From this review, the group will develop excess capacity goals for each common support function. In addition, the JCSG will develop the methodology to be used with the linear programming (optimization) model described in step 8. This will include which combination of objective functions and policy imperatives are to be considered initially by the JCSG.

8. Optimization Model: The Tri-Department BRAC Group will produce a family of alternatives by using the jointly approved optimization model (documented separately). The inputs to this model are the functional values of activities, military value of sites (installations), excess capacity goals, and requirements that were determined in earlier steps. A family of alternatives, and a brief analysis and interpretation of the results, will be turned over to the JCSG for their detailed functional review. This step will be conducted in two phases, unconstrained and constrained. The unconstrained will be conducted to provide the JCSG's with a pure functional view and comparison of their functional area. The second run will be the constrained by site (installation) military value provided by the Military Departments. This family of alternatives will suggest alternatives that will be influenced by the Military Department determination of the sites that have low military value to that Department.

9. Functional/Operational Review: The JCSG's will conduct a detailed review of these sets of solutions for operational feasibility and apply judgement to each suggested alternative. This is a key step in the process to ensure a workable solution set of alternatives. JCSG's must describe alternatives seriously considered and explain why an alternative was not acceptable. Each JCSG has the authority to establish additional alternative sets for consideration. The result of this review will be a set of operationally feasible alternatives to be analyzed for cost, savings and return on investment using the COBRA model.

10. Functional COBRA: The Tri-Department BRAC Group will conduct functional COBRA analysis on the JCSG alternative scenarios to determine which scenarios, if any, is cost effective. This step will be repeated until all feasible alternatives have been explored and endorsed by the Joint Cross-Service Group or recommended for elimination from consideration.

11. JCSG/Military Department Coordination: Each feasible JCSG alternative will then be submitted through the Steering Group to the Review Group for approval. Once the Review Group approves the alternative, the Military Department must consider this proposal in their BRAC evaluation process. Implicit in this approach is the concept that DoD and the Military Department must allocate sufficient TOA to support the eventual closure or realignment recommendations and affected customers needs.

12. Review of Alternatives: The final step will be the review of the Military Department's BRAC 95 recommendations to SecDef. This review will include the JCSG's to ensure that their alternatives were considered fairly and their views are available to SecDef for consideration.

VI. DOCUMENTATION:

JCSG's must document their analyses and work products, including documentation of:

a. The activities across DoD that support the common support function.

b. The excess capacity analysis for each common support function.

c. The policies that affected the analysis.

d. The measures of merit, weights and functional value methodology that were used to evaluate alternatives.

e. The scenarios associated with each alternative considered.

f. The rationale for elimination or exclusion of alternatives from further review.

g. The analysis of each alternative considered to include the cost analysis.

h. Recommendations to the Steering Group, and Review Group, regarding alternatives for Military Department consideration.

i. Recommendations to SecDef regarding Military Department closure and realignment recommendations.

BRAC 95 Steering Group

Minutes of Meeting of August 19, 1994

The ASD(ES) chaired this meeting. The agenda and a list of participants is attached. The chair announced that the previous meeting's minutes were available for review.

Joint Cross-Service Group Presentations

o Military Treatment Facilities (slides attached). The PA&E representative responded affirmatively when asked if PA&E was in agreement with the MTF methodology. The briefer stated that the optimization model was a tool and that it would likely overstate the downsizing needed especially with single base Military Treatment Facilities. Hence, the group would have to apply judgement and sanity checks to the model's outputs. A discussion ensued on the policy imperative regarding the match between Medical Centers and the current 12 lead agents. The Chairman of the MTF Joint Cross-Service Group agreed to also run the model without this constraint as a sensitivity test. The Military Treatment Facilities Group received approval of their analytical framework and was authorized to receive certified data.

Other

o The Laboratories Study Team Leader distributed a series of slides for discussion (attached). The key item concerned whether the Laboratory Group was required to produce their alternatives by September 15. Another item concerned the Tri-Department Team for performing joint cross-service group COBRA analysis. It was decided that these issues would be discussed at the next meeting. Further discussion of these slides was deferred as these items would be included elsewhere on the agenda.

o A series of slides (attached) regarding the role of installation military value in joint cross-service group analysis were discussed. The Air Force stated that it would take approximately two and one half weeks to generate installation site value for the Depot Maintenance Group's use. The Navy stated their installation value would not be ready until approximately October 3rd.

o After a brief discussion, it was decided to defer further discussion on the strawman schedule until the next meeting.

o The Chair asked the group to think about capacity reduction targets, as this would be a discussion item for the next meeting.

o The latest version of the optimization model documentation was distributed (copy attached).

Approved: Joshua Gotbaum
Chairman

BRAC 95

Steering Group Meeting

August 19, 1994

Key Attendees

Mr. Joshua Gotbaum, Chairman, ASD (Economic Security)
Mr. Robert Bayer, OSD (Economic Reinvestment and BRAC)
Mr. Doug Hansen, OSD (Base Closure and Utilization)
Mr. Paul Johnson, Army
Mr. John Turnquist, Navy
Mr. Rodney Coleman, Air Force
Mr. Jim Boatright, Air Force
MGEN Jay Blume, Air Force
COL Dennis Reynolds, DLA
Mr. Jim Klugh, DUSD Logistics
Mr. Al Conte, OSD (P&R)
Mr. Irv Boyles, OSD (T&E)
Mr. Lee Frame, OSD (OT&E)
Mr. Craig Dorman, OSD (DR&E)
Mr. Ed Martin, OSD (Health Affairs)
Mr. George Ostrom, C3I
Mr. Vance Kauzlarich, DISA
LTC Jim Van Ness, OGC
COL Fellers, Joint Staff
Mr. John Rosamond, OSD (Reserve Affairs)
COL Anthony Hermes, OSD (PA&E)
Mr. Pat Meehan, OSD (Environmental Security)
Mr. Wayne Million, DoDIG

BRAC 95 STEERING GROUP MEETING

August 19, 1994 Time: 14:30 Room: 3D-1019

AGENDA

- **Previous Meeting's Minutes**
- **Joint Cross-Service Group Briefings**
- **Timing of MilDep Military Value Analysis**
- **Schedule for Rest of Calendar Year**
- **Excess Capacity Reduction Targets**
- **Other Business**

Joint Cross Service Group for MTFs and GME

- Methodology for Calculating Excess Capacity
- Methodology for Calculating Functional Value
- Model Development
- Policy Imperatives for Optimization Model
- Data Call Security

Capacity Definitions

- **Operating Beds - Beds that are set up, staffed, and equipped for patient care**
- **Expanded Beds - Spaced on 6 foot centers with embedded electrical and gas utility support**

Capacity Methodology

- **Operating bed capacity measured against aggregate demand for inpatient services**

include all categories active, dependants & retirees at current pattern for use

- **Expanded bed capacity measured against aggregate requirement for wartime beds**

what you could do using reserve docs etc

Functional Value Methodology

Measure of Merit (MoM)	MoM Wgt	Criterion Wgt
CRITERION 1 MISSION		40%
P1 - AD + ADFAM POPULATION	70%	
A1 - CIVILIAN PRIMARY CARE RATIO	15%	
A2 - CIVILIAN INPATIENT CAPABILITY	15%	
CRITERION 2 FACILITIES		20%
F1 - FACILITY CONDITION	15%	
F2 - REAL PROPERTY CONDITION	15%	
F3 - AVERAGE SQ FT AGE	40%	
F4 - SAFETY SCORES (JCAHO)	30%	
CRITERION 3 CONTINGENCY		20%
MC1 - AIR HUB	50%	
MC2- STUBBED BEDS	50%	
CRITERION 4 COST/MANPOWER		20%
C1 - COST OF INPATIENT CARE	100%	

Model Development

- **Why is the MHSS different?**
  - **Cannot relocate requirement unless beneficiary population relocates**
  - **Requirement to make or buy care for all non-medicare beneficiaries**

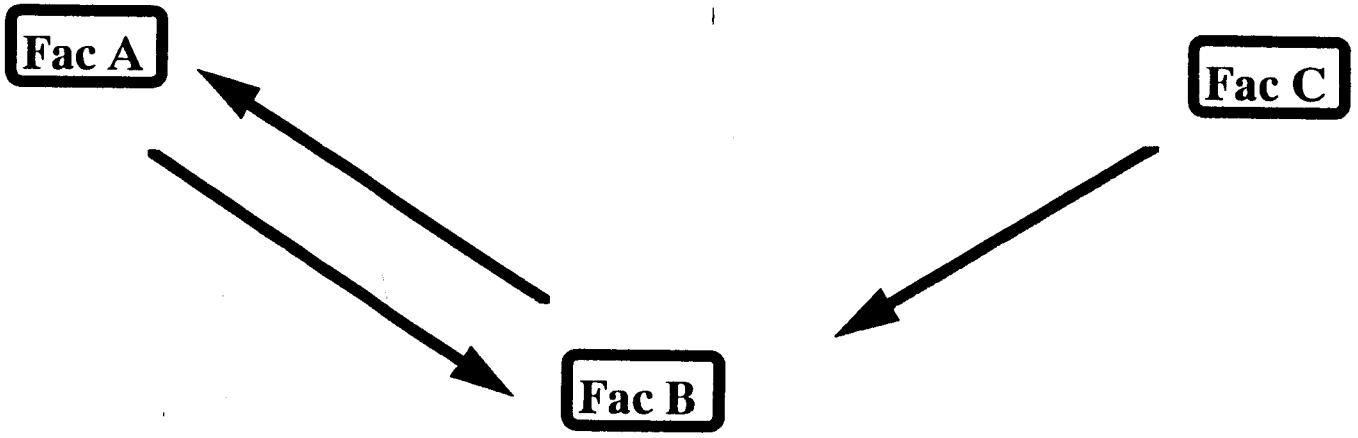
Model Development

- Services developed representative MTF and Medcen data
- Notional data consisted of 2 medical regions
  - 3 Medcens
  - 24 MTFs
  - 5 overlapping catchment areas

Model Development (cont)

- Use 1.1 to 2.0 beds per thousand as operating bed rate for beneficiaries
- Model will allow development of patient flows from MTF to MTF in overlapping catchment areas

Overlap Catchment Example



Relationship for flow from A to B and B to A

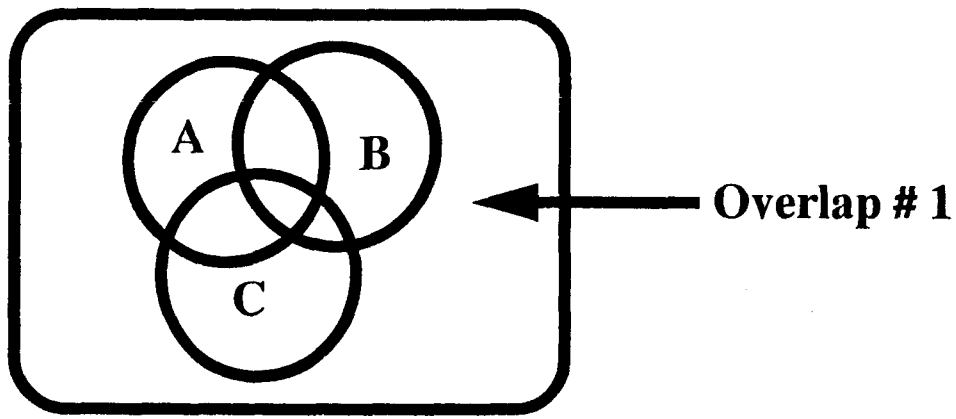
Relationship for flow from C to B

No relationship for flow from B to C

No relationship for flow from A to C or C to A

Overlapping Catchment Areas

- Model will meet bed demand requirement by selecting facilities with highest value and capacity
- Constraints will be applied on a community / overlapping basis



Model Behavior

- In non-overlapping catchment areas, model will close MTFs unless
  - MTF needed to meet wartime bed requirements
  - MTF needed to maintain functional value
  - MTF meets any one of the policy constraints

Proposed Constraints

- Maintain MTF if considered underserved primary care area (unless base closes) 1:3000
- Maintain MTF if < 2 accredited community facilities (unless base closes)
- Maintain by Service and MHSS the aggregate number of expanded beds to meet wartime requirements

Proposed Constraints (cont)

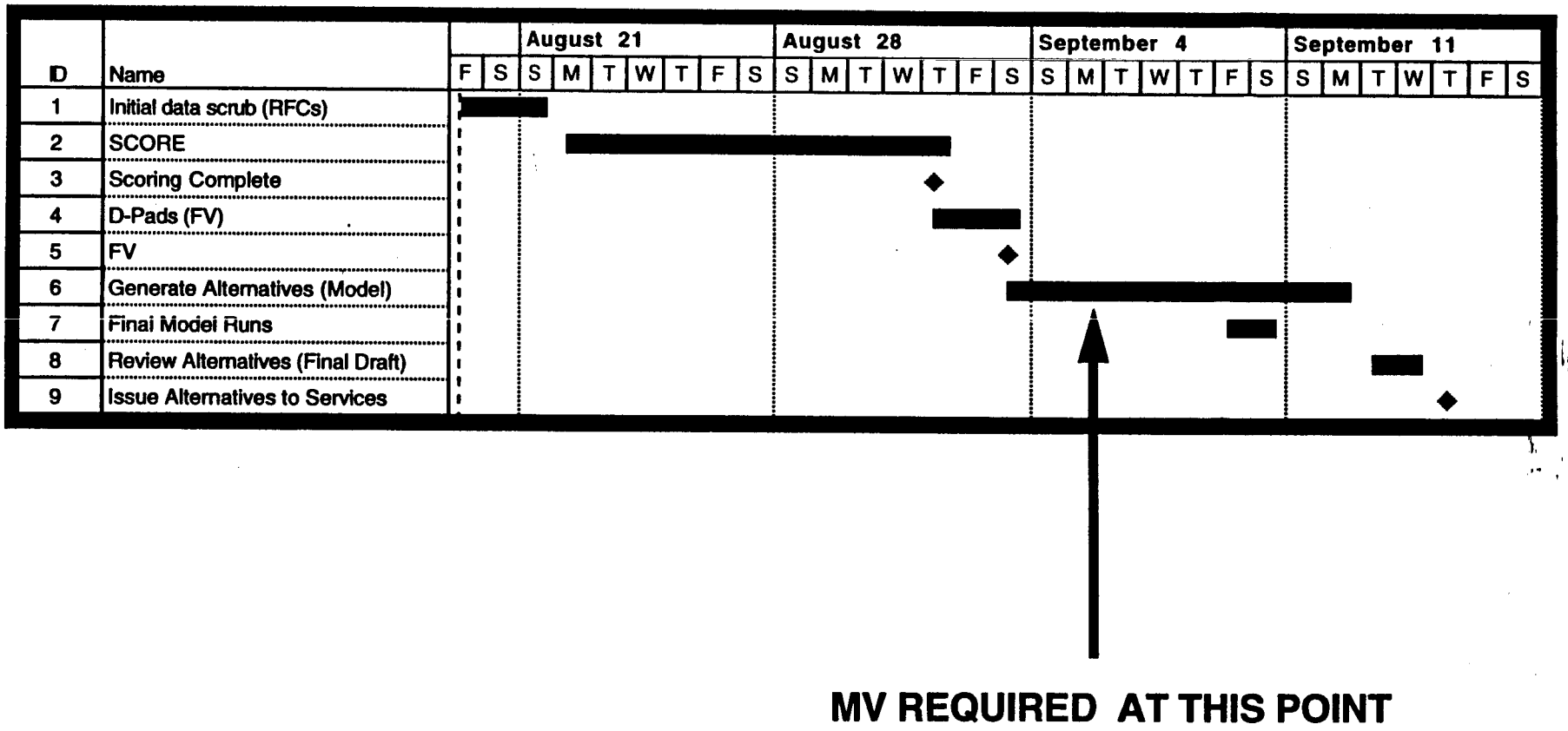
- Maintain 1 Medcen per Lead Agent Region
- Maintain average functional value within the aggregate MHSS

Data Security

- Data will be maintained and secured at CNA
- Limited Access
  - Service and OSD representatives on MTF JCSG and Ad Hoc Working Group

STEERING GROUP ISSUES

- TIMELINE (15 SEPT)
- MV (availability prior to 15 Sep ?)
- COST ANALYSIS (COBRA - W4)
- IG AS DATA ADMINISTRATOR
- ACTIONS AFTER 1 JAN



MV REQUIRED AT THIS POINT

COST ANALYSIS (COBRA - W4)

- WHO WILL COLLECT DATA, RUN COBRA
- WHAT LEVEL: BASE, ACTIVITY, FUNCTION
- WHEN: IN ORDER TO MEET SERVICE NEEDS
- WHERE

IG AS DATA ADMINISTRATOR

- CONSISTENCY ACROSS ALL GROUPS
- INDEPENDENT REVIEW VS. PARTICIPANT
- JOINT GROUP MANPOWER CONSTRAINTS
- FACILITY SPACE LIMITATION
- GAO - OK

ROLE OF INSTALLATION MILTIARY VALUE IN JCSG ANALYSES

OPTION 1 -- MODELED BEFORE

- **Military Departments submit installation military values for all affected bases, before**
- **JCSG determine functional values and unconstrained analyses and alternatives are initiated and completed.**
- **Constrained model runs are then completed where high military value bases are primary receivers.**

ROLE OF INSTALLATION MILTIARY VALUE IN JCSG ANALYSES

OPTION 2 -- MODELED AFTER

- JCSG determine functional values and complete unconstrained analyses and alternatives.
- Military Departments then submit installation military values for all affected bases.
- Constrained model runs are then completed where high military value bases are primary receivers.

ROLE OF INSTALLATION MILTIARY VALUE IN JCSG ANALYSES

OPTION 3 -- BY EXCEPTION

- JCSG determine functional values and complete unconstrained analyses and alternatives.
- Military Department closure candidates are compared with JCSG alternatives.
- Additional JCSG alternatives are developed to deal with disconnects (open-close or close-open).
  - ✦ Model is constrained only by disconnects and, therefore, non-closing bases are primary receivers.

BRAC 95 Strawman Schedule

AUG	Steering Group approval of JCSG methodologies
SEP	JCSG unconstrained analyses
SEP (end)	Review Group meeting re targets and results of JCSG unconstrained analyses
OCT	JCSG constrained analyses using military value
OCT (end)	Review Group meeting to approve JCSG alternatives for Military Department consideration
NOV	Military Department BRAC 95 analyses and continued interaction with JCSGs
NOV (end)	Review Group meeting to resolve problems
DEC	Military Department final decision making
JAN	OSD review of Military Department recommendations

Joint Cross-Service Analysis Tool

Executive Summary

Background

The integrity of the BRAC process will be enhanced if each of the Joint Cross-Service Groups (JCSG) uses a common analytical approach to assist in the generation of cross-service functional alternatives for consideration by the Military Departments. Defending base closure and realignment recommendations before the BRAC Commission, Congress, and the affected communities requires an analytical approach that can be audited, that generates results that can be reproduced, and that ensures compatibility across multiple JCSGs. This document describes an analytical tool that will aid the JCSGs in meeting these criteria.

DoD BRAC Goals

Goals of the DoD BRAC process include:

- elimination of DoD excess capacity,
- maintaining a high-quality infrastructure,
- making sure that required capabilities are retained, and
- being in compliance with all BRAC legislation and directives.

While it is true that the JCSGs are to focus on common support functions, it is also true that BRAC is about the closure and realignment of bases and installations. An analytical approach that does not give consideration to opportunities to close bases and installations is not likely to lead to any significant reductions in infrastructure. The shuffling of functions from one site to another does not, in general, require the burden of the BRAC process. The formulations described here will provide families of solutions for consideration by the JCSGs. Each solution will correspond to a different cross-service functional workload assignment.

Role of the Joint Cross-Service Groups

The JCSGs have been given the following responsibilities by the Deputy Secretary:

- Establish common data elements for analysis of assigned cross-service functions,
- Establish excess capacity reduction targets for their assigned functions, and
- Develop cross-service functional alternatives for consideration by the Military Departments. The JCSGs do not recommend installation or site closures.

Role of the Military Departments

The Military Departments have a number of responsibilities to support the work of the JCSGs. These include:

- Participate as members of each JCSG,
- Provide data as directed by the JCSGs,
- Provide analytical support to the JCSG such as running the analytical tool described here,
- Provide the JCSGs with the military value of their installations or sites, and
- Analyze cross-service functional alternatives within their BRAC process as directed by the JCSGs.

Analytical Approach

A standard resource allocation tool comprises the core of the analytical approach described in detail in the main body of this document . A standard tool used to find optimal solutions to complex allocation problems is the mixed-integer, linear program (MILP). Allocation of common support functional requirements to military department sites and activities is a complex allocation problem.

The MILP formulation described in the main body of this document can be used to generate cross-service functional alternatives. The data elements required for this approach are derived from the certified data available to the JCSGs. Policy imperatives agreed to by the members of the JCSGs and any other JCSG-unique considerations can be incorporated into a formulation in the form of additional constraints. This will allow the tailoring of the formulations to accommodate the unique perspectives of each JCSG.

While each JCSG will develop their model formulations independently, the structure of the analytical approach would allow the functional data and constraints from each JCSG to be combined into a single formulation that models all of the functions from all of the JCSGs. Without a common formulation, it is possible that cross-service functional alternatives generated from individual JCSG formulations will be inconsistent, i.e., one will be moving functions into a site or activity while the other is moving them out. If the outputs from different JCSGs are inconsistent, a common formulation could be run to resolve the inconsistencies.

The objective function for a formulation can be varied to obtain families of solutions. A solution defines a set of functional allocations and identification of sites or activities where cross-service functional workload could be assigned. An objective function that combines military value of sites and activities with functional values is discussed in the main body of this document. This particular objective function will tend to consolidate common support functions into high military value sites or activities. At the same time, this objective function will assign common support functions to sites having high functional values. The weighting between these two

goals can be parameterized to obtain families of solutions for further consideration by the JCSGs.

Second and third best alternatives for a given formulation can be obtained using methods described in this paper. The JCSGs may wish to consider these alternatives as additions to the set to reviewed for further action. Ignoring second and third alternatives that are as good or nearly as good as the optimal solution to a formulation is not advisable.

Other objective functions that the JCSGs may wish to consider in addition to the one mentioned above, include minimizing excess functional capacity, minimizing the total number of sites performing cross-service functions, and maximizing the sum of functional values. This tool will also allow the JCSGs to explore the sensitivity of the optimal solution for a given formulation to particular model inputs.

The JCSGs will use the MILP formulation described in the body of this document as the basic analytical tool to generate cross-service functional alternatives to be assessed by the military departments.

Document Organization

An overview of the analytical process proposed in this document is presented in the next section. That section describes the products of the process. The section also discusses terminology relating to what a *site or activity* is relative to a *function*.

The next section describes the basic data elements that are used in the process. This section discusses the data elements in terms of what these elements are meant to represent. This section also discusses who would be responsible for determining how to calculate the data elements.

The different optimization problem formulations that the JCSGs may choose to use to explore alternatives are discussed in the next section. These include finding a small set of high military value sites or activities that can perform the functional requirement, minimizing excess capacity, and minimizing the number of sites. All of these formulations are parameterized in such a way that the JCSGs can explore trade-offs between different factors, such as military value or excess capacity, and assignments of functional requirement based upon functional value. This section also discusses the incorporation of policy imperatives in the optimization problem formulations.

The next section uses an example to demonstrate the application of each of these formulations. This section is followed by a section that describes the methodology for obtaining the second and third best solutions to a given formulation. The last section identifies the commercial software product used to find the optimal solutions to the optimization example problems. Input files for this package are included in the appendices.

Analytical Process Overview

The optimization formulations described in this document require a set of data elements as inputs. All of the formulations require a functional value and functional capacity for each site capable of performing that specific cross-service function. The DoD requirement for each cross-service function is required. Some of the formulations will also require the military values for each site as determined by the Military Departments.

A preliminary formulation that allocates cross-service functional requirements based upon functional capacities and functional value will be conducted. The objective function of this formulation will assign the DoD requirement for each cross-service function to sites or activities having the highest functional value for each function. These assignments will only be constrained by the functional capacities at each site. This analysis will not require the military values for the sites.

The primary formulations optimize the assignment of cross-service functions based upon military values of sites, functional values, and capacities. These formulations are very flexible in that multiple objective functions and policy imperatives modeled as constraints may be used to explore different solutions.

A standard resource allocation tool comprises the core of the analytical approach. A standard tool used to find optimal solutions to complex allocation problems is the mixed-integer, linear program (MILP). Allocation of common support functional requirements to military department sites and activities subject to constraints is a complex allocation problem.

Process Products

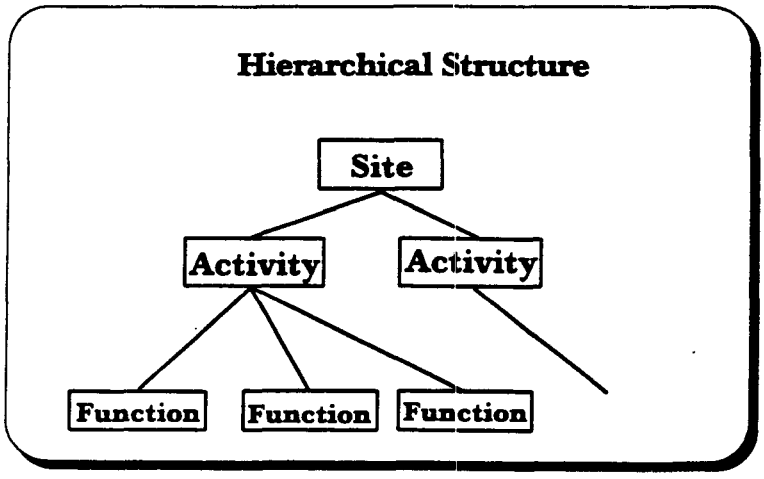
The following table lists the various products of the analytical approach defined in this document.

Process products	Description
Capacity analyses	Develop methodology to measure the capacity of a site or activity to perform a function. Use data call responses to calculate capacities.
Requirements analyses	For each function, develop methodology to estimate the out-year DoD requirement to perform the function. Calculate the required capacity and identify excess capacity reduction goals.
Functional value (FV) assessments	Develop measures and weights for assessing the value of performing a function at a site or an activity based upon data call responses. Compute FV for all appropriate functions and site/activity combinations.
Optimize functional requirement allocations (preliminary formulation)	Find the best allocation of functional requirements to sites or activities based solely upon functional capacities and functional values.
Optimize allocations of functional requirements to high military value sites or activities (primary formulations)	Develop solutions based upon the first three products, above, and policy imperatives. Solutions will be developed using the optimization formulations described later in this document as a tool to explore alternatives.

Hierarchical Structure

The Office of the Secretary of Defense (OSD), the departments, and other groups all use different terms to describe the various components of infrastructure that are to be considered by the JCSGs. In this document a ***site*** refers to an installation, base, or station. An ***activity*** refers to a component of the site such as depot or test facility residing on the site. A site may have one or more activities. A ***function*** is the capability to perform a particular support action or produce a particular commodity. A common support function is a function. An activity includes a collection of functions. For example, a depot (an activity) may repair engines and airframes. These would be two functions performed at this activity. A function may be further broken down into subfunctions or facilities required to perform functions, but the approach described here does not consider the subfunctions or facilities. Subfunctions or facilities can be

incorporated into the process described here if the appropriate data is available. The following diagram illustrates this hierarchical structure.



Data Elements

The analytical approach assumes that the following data will be available for all of the sites and functions under review by the JCSGs:

Data Elements	Description
mv_s	Military value of site s expressed as 3 (high), 2 (medium), or 1 (low).
fv_{sf}	Functional value for performing function f at site/activity s expressed as a number from 0 (low) to 100 (high).
cap_{sf}	Capacity of site/activity s to perform function f.
req_f	The total DoD requirement or goal to perform function f.

The military value of a site, mv_s, should measure the overall value of the site to the department in terms of the four DoD criteria: readiness, facilities, mobilization, and cost and manpower. Since sites that remain open after the BRAC process is complete will be the only resources available for many years into the future, it is imperative that this analytical process make the best use of those sites having the highest utility to the department. Each department should plan to band all of their sites under consideration by any joint cross-service group into three relatively equal-sized sets.

The JCSGs will develop methods to determine the functional value for performing functions at sites or activities. The methodologies must use data that is available in the joint data call responses. The Military Departments will provide the military value for each site.

The fv_{sf} functional value for performing function f at site (or activity) s should measure the capability and quality of performing work of type f at site (or activity) s. Since the formulations described below consider capacity in the allocation of cross-service functions to sites or

activities, functional capacity should not be an element of functional value. Capacity to perform a specialized subfunction that is not one of the functions called out in the formulation can be considered in calculating functional value.

Optimization Formulations

The mixed integer linear programming (MILP) model formulations, that are described below, will serve as the basic analytical tools to be used by the JCSGs. The JCSGs may modify these formulations with the consent of all of the military departments. Modifications would include the incorporation of policy imperatives.[1]

Preliminary Formulation.

The preliminary formulation of the optimization problem will be solved once the initial data (fv_{sf}, cap_{sf}, req_f) are available. This formulation, called **MAXFV** will maximize the functional values weighted by the assigned workload and normalized by the functional requirement. No constraints other than the functional capacities at each site and the requirement to meet the DoD requirement for each cross-service function are included in this formulation. The output from this formulation will be provided to the JCSGs and the departments to be used at their discretion. This solution will serve as a baseline of what is possible if no other factors, such as military values of sites or costs, are considered.

For each function, this formulation will load as much of the functional DoD requirement as it can into the site or activity having the highest functional value for that function. If that site or activity does not have the capacity to accommodate the full requirement, the site or activity having the next highest functional value will be allocated any remaining requirement up to its capacity, and so on.

The mathematical description of this formulation follows:

$$\textit{Maximize} \quad \sum_{s \in S} \sum_{f \in F} l_{sf} \times fv_{sf}/req_f$$
$$l_{sf}$$

subject to :

$\sum_{s \in S} l_{sf} = req_f$: for all functions $f \in F$,

$l_{sf} \le k_{sf} \times cap_{sf}$: for all sites $s \in S$ and $f \in F$,

$o_s \le \sum_{f \in F} k_{sf}$: for all sites $s \in S$,

$k_{sf} \le \frac{l_{sf}}{\alpha \times cap_{sf}}$: for all functions $f \in F$ and sites $s \in S$,

$0 \le o_s \le 1$, *integer* : for all sites $s \in S$,

$0 \le k_{sf} \le 1$, *integer* : for all sites $s \in S$ and functions $f \in F$;

[1] A *policy imperative* is a statement that restricts the solutions that are acceptable and that can be modeled as a constraint in the formulation. An example of a policy imperative is included in one of the examples.

where

S = The set of all sites under consideration by joint cross-service groups;

F = The set of all functions under consideration by joint cross-service groups;

o_s = 1 if any functional requirement is assigned to the site, and 0 otherwise;

α = 0.01. No assignment of less than one percent of capacity will be allowed.

Decision variable

l_{sf} = amount of the DoD requirement for function f to be assigned to site s.

k_{sf} = 1 if any amount of function f is assigned to site s, 0 otherwise.

The o_s variables are included in this formulation only to keep count of the number of sites that actually have some functional requirement assigned to them. Their inclusion in the model does not affect the assignment of the functional requirement to sites or activities. The two constraints involving the o_s variables are used to ensure that these variables are set to the correct values.

The k_{sf} variables that are structural variables that indicate whether or not any functional workload of type f has been assigned to site s. The α parameter can be used to prevent small functional workload assignments. If α is set to 0.01, then the minimum workload assignment of a function to a site, given that any functional workload for this function is made to this site, would be one percent of that site's capacity to perform that function. The α parameter may be adjusted as required to meet the requirements of the particular JCSG.

Primary Formulations

These formulations will also be used by the JCSGs to explore potential cross-service functional alternatives. The basic formulation is shown below. Specification of the objective function, $f(o_s, l_{tg}, k_{uh})$, will create a different optimization problem.

$$\underset{o_s, l_{tg}, k_{uh}}{Minimize}\ f(o_s, l_{tg}, k_{uh})$$

subject to

$\Sigma_{s \in S}\, l_{sf} = req_f$: for all functions $f \in F$,

$o_s \le \Sigma_{f \in F}\, k_{sf}$: for all sites $s \in S$,

$0 \le l_{sf} \le k_{sf} \times cap_{sf}$: for all functions $f \in F$ and sites $s \in S$,

$k_{sf} \le \frac{l_{sf}}{\alpha \times cap_{sf}}$: for all functions $f \in F$ and sites $s \in S$,

$0 \le o_s \le 1$, *integer* : for all sites $s \in S$,

$0 \le k_{sf} \le 1$, *integer* : for all sites $s \in S$ and functions $f \in F$,

where

S = The set of all sites under consideration by joint cross-service groups;

F = The set of all functions under consideration by joint cross-service groups;

α = 0.01. No assignment of less than one percent of capacity will be allowed.

Decision variables

o_s = 1 if any cross-service functional requirements are assigned to the site or activity, 0 otherwise;

l_{sf} = amount of the DoD requirement for function f to be assigned to site or activity s.

k_{sf} = 1 if any DoD requirement for function f is to be assigned to site s, 0 otherwise.

Three different optimization formulations that vary only in the specification of the objective function are discussed next.

The MINNMV Formulation. This formulation will find a small number of sites having the highest military value that can accommodate the DoD required workload. In addition, it will assign the DoD requirement for each cross-service function to the retained sites (or activities) having the highest functional value for that function. The purpose of this formulation is to assign, to the extent possible, the cross-service functional requirements to sites or activities having high military value and high functional values. The rationale for this approach is that sites having high military value are the ones most likely to be retained by the military departments. The objective function for this formulation is as follows:

$$\underset{o_s, l_{tg}}{Minimize}\ f(o_s, l_{tg}, k_{uh}) = \left(\frac{w}{u_1}\right) \times \Sigma_{s \in S}\, o_s \times nmv_s - \left(\frac{100-w}{u_2}\right) \times \Sigma_{t \in S} \Sigma_{g \in F}\, l_{tg} \times fv_{tg}/req_g$$

where

$0 \le w \le 100$ Weight parameter used to vary the emphasis between military value and functional value,

$u_1 \ge 0, u_2 \ge 0$ $u_1 = \Sigma_{s \in S}(4 - mv_s),\ u_2 = \Sigma_{f \in F} \max_{s \in S} fv_{sf}$

nmv_s = $4 - mv_s$.

This formulation will be referred to as the **MINNMV** model since it minimizes the sum of $4 - mv_s$ for retained sites or activities. Site or activities having a high military value (3) will have 1 as their value. Site or activities with low military value (1) will have 3 as their value.

The parameters u_1 and u_2 are used to scale the two components of the objective function. Scaling the components of the objective function enhances the ability of the solver to find a solution. Apart from the weight parameters, these scaling parameters will scale the components of the objective function to values near 1.0 .

The weight parameter, w, can be varied to change the emphasis the formulation gives to military value versus functional value. If $w = 0$, this formulation matches the preliminary formulation (**MAXFV**) as site military value would have zero weight. Conversely, if w is set to a

large value ($w = 99$), functional value would have little weight. The **MAXFV** and **MINNMV** formulations are the same formulation, only differing in the parameter w . Varying w in the formulation allows the model to be used to create a family of solutions. These points are illustrated by an example in the next section.

The component of the objective function that addresses military value of sites, $\Sigma_{s\in S}\, o_s \times nmv_s = \Sigma_{s\in S}\, o_s \times (4 - mv_s)$, affects the optimal solution as follows. (For this discussion we will ignore the functional value component of the objective function, $-\Sigma_{t\in S}\Sigma_{g\in F}\, l_{tg} \times fv_{tg}/req_g$.) If there were no constraints in the formulation, i.e., satisfy the DoD requirement, the minimum value of the objective function would be achieved by setting $o_s = 0$ for all sites since $4 - mv_s \geq 1$ for all sites. Given that some sites have to be open, all else being equal, it is better to open a site with $mv_s = 3$ because it increases the objective function by the least amount.

The MINXCAP Formulation. If the parameter w is set to a large value ($w = 99$), this problem formulation will find the set of retained sites having the smallest total functional capacity but still able to perform the DoD functional requirement. Depending on w, functional assignments are also optimized. The objective function for this formulation is:

$$\underset{o_s,\, l_{tg},\, k_{uh}}{Minimize}\ f(o_s, l_{tg}, k_{uh}) = \left(\frac{w}{u_1}\right) \times \Sigma_{s\in S}\, o_s \times \left(\Sigma_{f\in F}\, cap_{sf}/req_f\right) - \left(\frac{100-w}{u_2}\right) \times \Sigma_{t\in S}\Sigma_{g\in F}\, l_{tg} \times fv_{tg}/req_g$$

If $w = 0$, this formulation, like the **MINNMV** formulation, is also equivalent to the **MAXFV** formulation. If w is set to a large value, excess capacity is reduced as much as possible without regard to functional values. As in the **MINNMV** formulation, u_1 and u_2 are used to scale the components of the objective function. For this formulation $u_1 = \Sigma_{s\in S}\Sigma_{f\in F}\, cap_{sf}/req_f$. The other scale parameter u_2 is set to the same value for all formulations.

The MINSITES Formulation. This formulation, depending on the value of w, will find the minimum-sized set of site or activities that can perform the DoD functional requirement. As in the previous formulations, if $w = 0$, this formulation is also equivalent to **MAXFV**. The objective function for this formulation is given by:

$$\underset{o_s,\, l_{tg},\, k_{uh}}{Minimize}\ f(o_s, l_{tg}, k_{uh}) = \left(\frac{w}{u_1}\right) \times \Sigma_{s\in S}\, o_s - \left(\frac{100-w}{u_2}\right) \times \Sigma_{t\in S}\Sigma_{g\in F}\, l_{tg} \times fv_{tg}/req_g$$

If w is set to a large value, the cross-service functional workload is assigned to the smallest possible number of sites regardless of functional values. For this formulation $u_1 = |S|$, the number of sites in the set S.

The MAXSFV formulation. This formulation maximizes the sum of the functional values for all of the retained sites. The objective function for this formulation is given by:

$$\underset{o_s,\, l_{tg},\, k_{uh}}{Maximize}\ f(o_s, l_{tg}, k_{uh}) = \left(\frac{w}{u_1}\right) \times \Sigma_{s\in S}(o_s \times \Sigma_{f\in F} fv_{sf}) + \left(\frac{100-w}{u_2}\right) \times \Sigma_{t\in S}\Sigma_{g\in F}\, l_{tg} \times fv_{tg}/req_g$$

For this formulation $u_1 = \Sigma_{f\in F}\Sigma_{s\in S} fv_{sf}$. If the number of sites to be retained is not constrained, all of the sites will be retained in the solution since the objective function is maximized

when $o_s = 1$ for all sites. Obtaining meaningful results with this formulation, therefore, requires a constraint on the number of sites retained.

Policy Imperatives

A policy imperative is any statement that can be formulated as a constraint in the model. The model described here is very flexible in its capacity to handle imperatives. Examples of imperatives that can be modeled include:

- assigning functions in groups,
- increasing the average DoD military value of the sites assigned any cross-service functional workload,
- requiring the weighted functional value for a given common support function to be at least as great as some value,
- limiting the number of sites that have any cross-service functional workload assigned to them,
- requiring that each department's average military value is not allowed to go below some level,
- requiring a certain number of sites in a geographic area to remain open, and
- requiring the distribution of functional workload to follow a certain pattern, e.g., in one department, in one location, or on both coasts.

This is not an exhaustive list of the possibilities for policy imperatives. An example of a policy imperative added to the **MINNMV** formulation is given in the following section.

Consistent Alternatives

The functional data and constraints from all of the JCSGs may be combined into a single formulation since the functions of different JCSGs should be independent. In the event that two JCSGs obtain solutions that are inconsistent in that the solutions have a site or activity receiving cross-service functional workload in one and losing all of its cross-service functional workload in the other, this capability can be used to resolve the inconsistency.

Optimization Examples

The following examples use representative, notional data to demonstrate the formulations. Three different departments, X, Y, and Z, each have 5 sites (A, B, C, D, and E). Six functions are considered: air vehicles, munitions, electronic combat, fixed-wing avionics, conventional missiles and rockets, and satellites. Table 1 shows the basic data for these sites. Table 1 also shows the DoD requirement by function and the percent of excess capacity. Percent excess capacity is calculated as

$$100 \times \left(\frac{\sum_{s \in S} cap_{sf}}{req_f} - 1 \right).$$

Preliminary Formulation (MAXFV).

Results for the **MAXFV** formulation are shown in table 2. If there is no functional requirement assigned to a site, the capacity for that function is shown as zero at that site even if the site has requirements for other functions assigned. Notice that, for this solution, *all sites have some cross-service functional workload assigned.*

The column in table 2 labeled *Wgt FV* shows the weighted functional value for each function. Wgt FV for function $f \in F = \frac{\sum_{s \in S} fv_{sf} \times req_{sf}}{\sum_{s \in S} req_{sf}}$. Wgt FV is an indicator of the quality of the cross-service allocation of the functional requirement across all sites and activities. The average FV, the weighted average FV, and the weighted percent excess capacity are also shown in the table. These three numbers are gross measures of the quality of the solution.

Primary Formulation (MINNMV).

Table 3 shows the data for the optimal solution to the **MINNMV** formulation with $w = 99$. The number of sites having cross-service functional workload assigned has been reduced from 15 to six. Excess capacity is greatly reduced. The weighted percent excess capacity is only 31 percent compared to 60 for the **MAXFV** formulation. The DoD military value average is increased by 28.8 percent. The military value averages for the two departments with any sites retained have both been increased. The weighted functional value scores are not as good as the scores obtained from the **MAXFV** formulation. The average FV score is almost 14 points lower than for the **MAXFV** formulation.

Primary Formulation (MINNMV) with Policy Imperative

As an example of a policy imperative, consider the following. Suppose the JCSG responsible for the missile function determines that only two sites should perform the conventional missiles and rockets function. The optimal solution to the original **MINNMV** formulation assigned the missile function to four different sites. Modifying the **MINNMV** formulation such that only two sites are allowed to perform the missile function results in the solution shown in table 4. The optimal solution still requires only six sites to perform the cross-service functions, but the sites are different. Only four of the sites are common to both solutions. Since the model has an additional constraint, the average military value has decreased compared to the original **MINNMV** formulation.

Parameterization of the MINNMV Formulation

Table 5 summarizes the results of varying the parameter w in the **MINNMV** formulation over the values 0, 2, 3, 5, 10, 20, 30, 40, 60, and 99 . As is to be expected, the number of sites and activities with cross-service functional workload assigned and weighted functional value decrease as w increases. The average military value generally increases as w increases. Though these results pertain only to this particular example, they clearly illustrate qualitative differences

between the **MAXFV** and **MINNMV** formulations. The optimal solutions to the formulation do not change as w varies over the range of 60 to 99.

This example illustrates how the parameter w can be used to generate a family of cross-service functional solutions. For instance, a JCSG with table 5 before it could decide that from this family of solutions, the solution obtained by setting $w = 20$ is worth exploring further since the weighted functional values are very close to the best values obtained in the **MAXFV** formulation and the weighted average percent excess capacity has been reduced from 60 to 17 percent. Table 6 displays the full output from this formulation.

Figure 1 displays this information in graphical form. The figure shows the sharp decrease in the average functional value for conventional missiles and rockets when w is changed from 20 to 30. The figure also displays the increase in average military value that is achieved by using the **MINNMV** formulation.

Primary Formulation (MINXCAP)

Table 7 shows the output of the **MINXCAP** formulation with $w = 99$. As would be expected, this formulation produces a solution that greatly reduces excess capacity, but the weighted functional values have suffered. The weighted average percent excess capacity has been reduced to almost 6 percent.

Primary Formulation (MINSITES)

The results of using the **MINSITES** formulation with $w = 99$ are given in table 8. The optimal solution retains only six sites. The sites are different than the sites retained in the **MINNMV** solution.

Primary Formulation (MAXSFV)

The results of using the MAXSFV formulation with the number of retained sites constrained to be no more than six are displayed in table 9.

Summary of Formulation Results

The following table summarizes the basic statistics for the five formulations.

Statistics	MAXFV	MINNMV	MINXCAP	MINSITES	MAXSFV
Sites retained	15	6	7	6	6
Weighted avg. percent excess capacity	60.37	31.39	6.11	12.14	24.1
Weighted average FV	84.7	73.9	74.2	76.5	62.9
Average military value	2.2	2.83	2	2.67	2.67

Generating Alternatives

Alternative solutions, in terms of the retained sites or activities, may be obtained by excluding a set of retained or open sites from a formulation. For example, the optimal solution obtained from the **MINNMV** formulation (see table 3) retains sites XA, XC, XD, ZA, ZB, and ZD. To find another optimal solution with the same objective function value or the next best solution, we define the set $\Delta_1 = \{XA, XC, XD, ZA, ZB, ZD\}$ and add the following constraints to the **MINNMV** formulation:

$\Sigma_{s \in \Delta_1} o_s \leq |\Delta_1| - \alpha$ (condition 1)

$\Sigma_{s \in S - \Delta_1} o_s \geq \beta$ (condition 2)

$\alpha + \beta \geq 1$

$\alpha = 0, 1$ and $\beta = 0, 1$.

A solution that satisfies either condition 1 ($\alpha = 1$) or condition 2 ($\beta = 1$) will be different from the original optimal solution. The formulation given above guarantees that at least one of these two conditions will hold at the optimal solution. The second best solution to the **MINNMV** formulation is given in table 10. The second-best solution retains sites XC, XD, YC, ZA, ZB, ZD. This solution actually has weighted functional values that are superior to those of the original optimal solution for some of the functions. Comparing values in tables 3 and 10, it would be difficult to argue that the optimal solution is clearly superior to the solution given in table 10.

If we define the set $\Delta_2 = \{XC, XD, YC, ZA, ZB, ZD\}$, then the following formulation can be used to find the third best solution:

$\Sigma_{s \in \Delta_1 \cap \Delta_2} o_s \leq |\Delta_1 \cap \Delta_2| - \alpha$ (condition 1)

$\Sigma_{s \in \Delta_1 \cap \Delta_2} o_s \geq \beta$ (condition 2)

$\left.\begin{array}{l} \Sigma_{s \in \Delta_1 - \Delta_2} o_s \geq \gamma \\ \Sigma_{s \in \Delta_2 - \Delta_1} o_s \geq \gamma \end{array}\right\rangle$ (condition 3)

$\alpha + \beta + \gamma \geq 1$

$\alpha = 0, 1$, $\beta = 0, 1$, and $\gamma = 0, 1$.

Any solution that satisfies any one of the three conditions will be different from the first two solutions. Table 11 shows the third best solution. Comparing table 11 to tables 3 and 10 results in a less compelling case for the strength of the third best alternative. Based upon this type of comparison, the first two solutions would be subjected to further analysis before selecting one as a recommendation.

Optimization Software

The solutions to these optimization problems were obtained using the commercially-available, IBM Optimization Subroutine Library (OSL)[2] interfaced with AMPL[3]. The text file describing these formulations in the AMPL format is contained in appendix A. Note that all of the different objective functions are defined in this single text file. This file contains the code required to generate the second and third best alternatives. The AMPL-format data file for the example is given in appendix B. These files are processed by the AMPL/OSL package to produce the outputs discussed in the examples section of this document.

[2] *Optimization with OSL* by Ming S. Hung, Walter O. Rom, and Allan D. Waren, published by The Scientific Press.

[3] *AMPL: A Modeling Language for Mathematical Programming* by Robert Fourer, David M. Gay, and Brian Kernighan, published by The Scientific Press, 1993.

Table 1. Joint Cross-Service Groups Analysis Examples
Basic Data

Function	Department															Totals
	X					Y					Z					
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	
Capacities																
Air vehicles	450	7000	2500	0	0	5000	500	0	0	0	3000	1200	0	2857	0	22,507
Munitions	850	200	4500	0	0	300	0	2000	0	0	1000	0	1000	0	0	9,850
Electronic combat	3000	0	0	0	0	1000	0	0	0	0	2000	0	0	1543	20	7,563
Fixed-wing avionics	0	0	250	3500	0	0	0	400	3500	0	1000	4000	0	2000	500	15,150
Conv. missiles/rockets	0	0	200	0	3000	0	0	200	100	2000	3000	700	200	300	200	9,900
Satelites	0	0	300	4000	0	0	0	500	0	0	250	50	0	300	2200	7,600
Function FV Scores																
Air vehicles	50	70	68	0	0	57	72	0	0	0	81	92	0	86	0	
Munitions	88	71	58	0	0	54	0	88	0	0	72	0	75	0	0	
Electronic combat	67	0	0	0	0	91	0	0	0	0	52	0	0	78	77	
Fixed-wing avionics	0	0	92	94	0	0	0	78	69	0	72	93	0	66	71	
Conv. missiles/rockets	0	0	62	0	89	0	0	59	93	92	56	59	50	65	91	
Satelites	0	0	71	58	0	0	0	64	0	0	85	61	0	73	93	
Department Military Value	3	3	3	2	1	2	1	3	2	1	3	3	2	3	1	

Function	DoD req.	Pct. excess
Air vehicles	9,463	137.8
Munitions	5,503	79.0
Electronic combat	3,234	133.9
Fixed-wing avionics	3,775	301.3
Conv. missiles/rockets	3,743	164.5
Satelites	2,480	206.5

Table 2. MAXFV Model Output

Function	Department X A	X B	X C	X D	X E	Y A	Y B	Y C	Y D	Y E	Z A	Z B	Z C	Z D	Z E	Retained totals	Percent excess
Retain=1, Close=0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15	
Department Mil. Val.	3	3	3	2	1	2	1	3	2	1	3	3	2	3	1		
Capacities																	
Air vehicles	0	7000	0	0	0	0	500	0	0	0	3000	1200	0	2857	0	14557	53.8
Munitions	850	200	4500	0	0	0	0	2000	0	0	1000	0	1000	0	0	9550	73.5
Electronic combat	3000	0	0	0	0	1000	0	0	0	0	0	0	0	1543	20	5563	72.0
Fixed-wing avionics	0	0	0	3500	0	0	0	0	0	0	0	4000	0	0	0	7500	98.7
Conv. missiles/rockets	0	0	0	0	3000	0	0	0	100	2000	0	0	0	0	200	5300	41.6
Satelites	0	0	0	0	0	0	0	0	0	0	250	0	0	300	2200	2750	10.9
																Wgt. avg.	60.37
Workload assigned																Totals	
Air vehicles	0	1906	0	0	0	0	500	0	0	0	3000	1200	0	2857	0	9463	
Munitions	850	200	453	0	0	0	0	2000	0	0	1000	0	1000	0	0	5503	
Electronic combat	671	0	0	0	0	1000	0	0	0	0	0	0	0	1543	20	3234	
Fixed-wing avionics	0	0	0	3500	0	0	0	0	0	0	0	275	0	0	0	3775	
Conv. missiles/rockets	0	0	0	0	1443	0	0	0	100	2000	0	0	0	0	200	3743	
Sateiites	0	0	0	0	0	0	0	0	0	0	250	0	0	30	2200	2480	
Department avg. MV			2.4					1.8					2.4				
Percent change			-0.0					0.0					-0.0				
DoD average MV								2.20									
Percent change								0.0									

DoD weighted FVs	
Function	Wgt FV
Air vehicles	81.2
Munitions	79.6
Electronic combat	79.7
Fixed-wing avionics	93.9
Conv. missiles/rockets	90.8
Satelites	92.0
Average FV	**86.2**
Weighted avg. FV	**84.7**

Table 3. MINNMV Model Output

Function	Department X A	X B	X C	X D	X E	Y A	Y B	Y C	Y D	Y E	Z A	Z B	Z C	Z D	Z E	Retained totals	Percent excess
Retain=1, Close=0	1	0	1	1	0	0	0	0	0	0	1	1	0	1	0	6	
Department Mil. Val.	3	3	3	2	1	2	1	3	2	1	3	3	2	3	1		
Capacities																	
Air vehicles	0	0	2500	0	0	0	0	0	0	0	3000	1200	0	2857	0	9557	1.0
Munitions	850	0	4500	0	0	0	0	0	0	0	1000	0	0	0	0	6350	15.4
Electronic combat	3000	0	0	0	0	0	0	0	0	0	0	0	0	1543	0	4543	40.5
Fixed-wing avionics	0	0	0	3500	0	0	0	0	0	0	0	4000	0	0	0	7500	98.7
Conv. missiles/rockets	0	0	200	0	0	0	0	0	0	0	3000	700	0	300	0	4200	12.2
Satelites	0	0	300	4000	0	0	0	0	0	0	250	50	0	300	0	4900	97.6
																Wgt. avg.	31.39
Workload assigned																**Totals**	
Air vehicles	0	0	2406	0	0	0	0	0	0	0	3000	1200	0	2857	0	9463	
Munitions	850	0	3653	0	0	0	0	0	0	0	1000	0	0	0	0	5503	
Electronic combat	1691	0	0	0	0	0	0	0	0	0	0	0	0	1543	0	3234	
Fixed-wing avionics	0	0	0	3500	0	0	0	0	0	0	0	275	0	0	0	3775	
Conv. missiles/rockets	0	0	200	0	0	0	0	0	0	0	2543	700	0	300	0	3743	
Satelites	0	0	300	1580	0	0	0	0	0	0	250	50	0	300	0	2480	
Department avg. MV			2.7					0.0					3.0				
Percent change			11.1					-100.0					25.0				
DoD average MV								2.83									
Percent change								28.8									

DoD weighted FVs	
Function	Wgt FV
Air vehicles	80.6
Munitions	65.2
Electronic combat	72.2
Fixed-wing avionics	93.9
Conv. missiles/rockets	57.6
Satelites	64.2
Average FV	**72.3**
Weighted avg. FV	**73.9**

Table 4. MINNMV Model with Policy Imerative Output

Function	Department															Retained totals	Percent excess
	X					Y					Z						
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E		
Retain=1, Close=0	0	1	1	1	1	0	0	0	0	0	1	0	0	1	0	6	
Department Mil. Val.	3	3	3	2	1	2	1	3	2	1	3	3	2	3	1		
Capacities																	
Air vehicles	0	7000	0	0	0	0	0	0	0	0	3000	0	0	2857	0	12857	35.9
Munitions	0	200	4500	0	0	0	0	0	0	0	1000	0	0	0	0	5700	3.6
Electronic combat	0	0	0	0	0	0	0	0	0	0	2000	0	0	1543	0	3543	9.6
Fixed-wing avionics	0	0	250	3500	0	0	0	0	0	0	1000	0	0	0	0	4750	25.8
Conv. missiles/rockets	0	0	0	0	3000	0	0	0	0	0	3000	0	0	0	0	6000	60.3
Satelites	0	0	300	4000	0	0	0	0	0	0	250	0	0	300	0	4850	95.6
																Wgt. avg.	**33.70**
Workload assigned																**Totals**	
Air vehicles	0	3606	0	0	0	0	0	0	0	0	3000	0	0	2857	0	9463	
Munitions	0	200	4303	0	0	0	0	0	0	0	1000	0	0	0	0	5503	
Electronic combat	0	0	0	0	0	0	0	0	0	0	1691	0	0	1543	0	3234	
Fixed-wing avionics	0	0	250	3500	0	0	0	0	0	0	25	0	0	0	0	3775	
Conv. missiles/rockets	0	0	0	0	3000	0	0	0	0	0	743	0	0	0	0	3743	
Satelites	0	0	300	1630	0	0	0	0	0	0	250	0	0	300	0	2480	
Department avg. MV			2.3					0.0					3.0				
Percent change			-6.3					-100.0					25.0				
DoD average MV								2.50									
Percent change								13.6									

DoD weighted FVs	
Function	Wgt FV
Air vehicles	78.3
Munitions	61.0
Electronic combat	64.4
Fixed-wing avionics	93.7
Conv. missiles/rockets	82.4
Satelites	64.1
Average FV	**74.0**
Weighted avg. FV	**74.7**

Table 5. Parameterization of the MINNMV Model

	Percent of weight on FV									
	0 MAXFV	2	3	5	10	20	30	40	60	99 MINNMV
Sites/activities open	15	13	12	11	9	8	7	6	6	6
Percent excess										
Air vehicles	53.8	48.5	48.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Munitions	73.5	73.5	73.5	69.9	51.7	51.7	51.7	15.4	15.4	15.4
Electronic combat	72.0	72.0	72.0	72.0	72.0	41.1	41.1	41.1	40.5	40.5
Fixed-wing avionics	98.7	98.7	6.0	6.0	6.0	6.0	6.0	6.0	98.7	98.7
Conv. missiles/rockets	41.6	38.9	38.9	38.9	4.2	4.2	22.9	17.6	12.2	12.2
Satelites	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9	97.6	97.6
Wgt. avg. % excess	**60.37**	**58.24**	**45.83**	**29.16**	**21.00**	**17.46**	**19.94**	**12.14**	**31.39**	**31.39**
Weighted FV										
Air vehicles	81.2	81.1	81.1	80.6	80.6	80.6	80.6	80.6	80.6	80.6
Munitions	79.6	79.6	79.6	79.2	76.1	76.1	76.1	65.2	65.2	65.2
Electronic combat	79.7	79.7	79.7	79.7	79.7	72.3	72.3	72.3	72.2	72.2
Fixed-wing avionics	93.9	93.9	93.0	93.0	93.0	93.0	93.0	93.0	93.9	93.9
Conv. missiles/rockets	90.8	90.7	90.7	90.7	85.4	85.4	59.6	59.5	57.6	57.6
Satelites	92.0	92.0	92.0	92.0	92.0	92.0	92.0	92.0	64.2	64.2
Average FV	**86.2**	**86.2**	**86.0**	**85.9**	**84.5**	**83.2**	**78.9**	**77.1**	**72.3**	**72.3**
Weighted avg. FV	**84.7**	**84.6**	**84.5**	**84.2**	**82.9**	**82.1**	**78.6**	**76.5**	**73.9**	**73.9**
DoD average MV	**2.20**	**2.31**	**2.33**	**2.27**	**2.44**	**2.50**	**2.71**	**2.67**	**2.83**	**2.83**

Figure 1. Parameterization of MINNMV

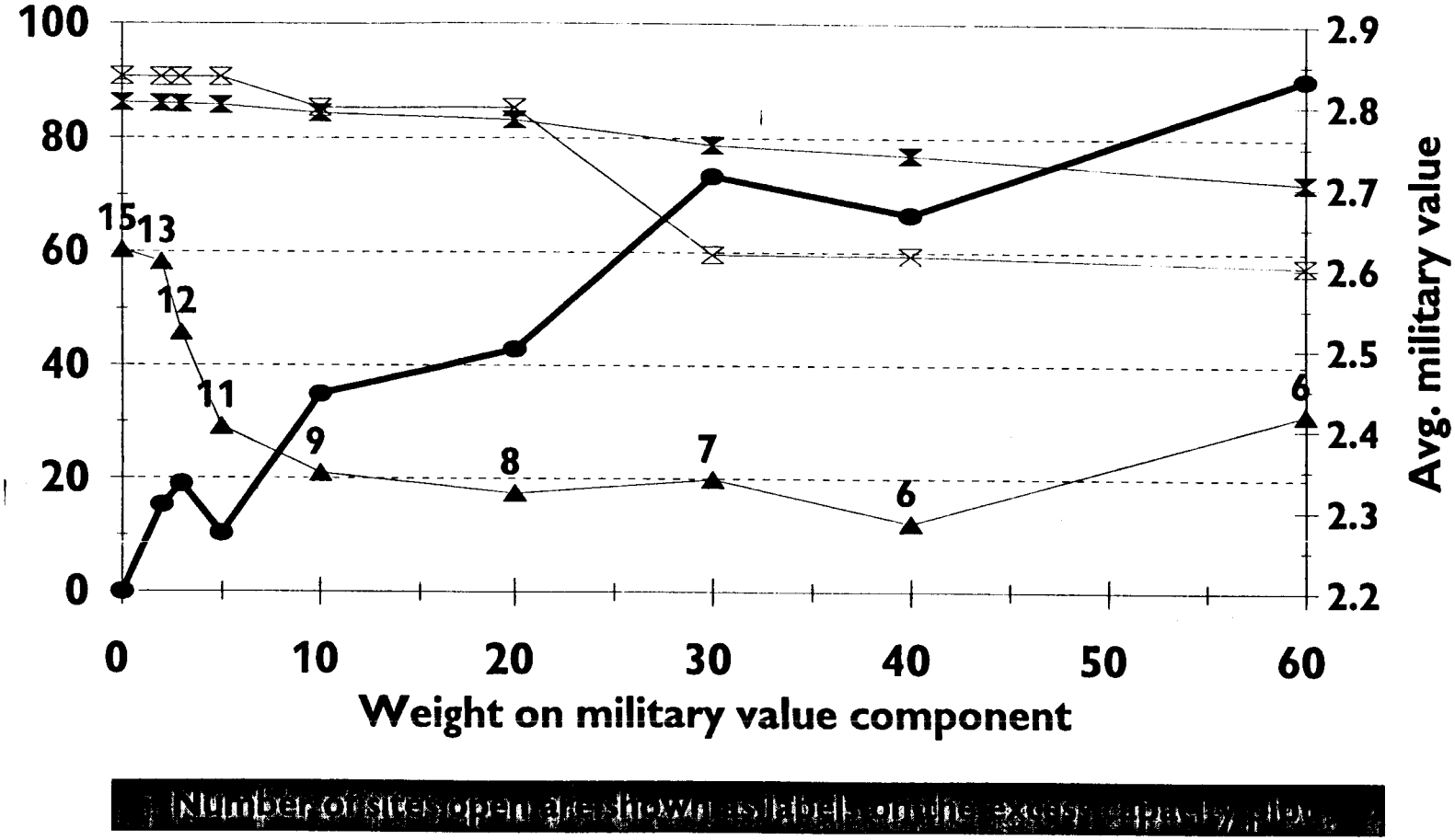


Table 6. MINNMV Model Output with Weight = 20

Function	Department X A	X B	X C	X D	X E	Y A	Y B	Y C	Y D	Y E	Z A	Z B	Z C	Z D	Z E	Retained totals	Percent excess
Retain=1, Close=0	1	0	1	0	1	0	0	1	0	0	1	1	0	1	1	8	
Department Mil. Val.	3	3	3	2	1	2	1	3	2	1	3	3	2	3	1		
Capacities																	
Air vehicles	0	0	2500	0	0	0	0	0	0	0	3000	1200	0	2857	0	9557	1.0
Munitions	850	0	4500	0	0	0	0	2000	0	0	1000	0	0	0	0	8350	51.7
Electronic combat	3000	0	0	0	0	0	0	0	0	0	0	0	0	1543	20	4563	41.1
Fixed-wing avionics	0	0	0	0	0	0	0	0	0	0	0	4000	0	0	0	4000	6.0
Conv. missiles/rockets	0	0	200	0	3000	0	0	200	0	0	0	0	0	300	200	3900	4.2
Satelites	0	0	0	0	0	0	0	0	0	0	250	0	0	300	2200	2750	10.9
																Wgt. avg.	**17.46**
Workload assigned																**Totals**	
Air vehicles	0	0	2406	0	0	0	0	0	0	0	3000	1200	0	2857	0	9463	
Munitions	850	0	1653	0	0	0	0	2000	0	0	1000	0	0	0	0	5503	
Electronic combat	1671	0	0	0	0	0	0	0	0	0	0	0	0	1543	20	3234	
Fixed-wing avionics	0	0	0	0	0	0	0	0	0	0	0	3775	0	0	0	3775	
Conv. missiles/rockets	0	0	200	0	3000	0	0	43	0	0	0	0	0	300	200	3743	
Satelites	0	0	0	0	0	0	0	0	0	0	250	0	0	30	2200	2480	
Department avg. MV			2.3					3.0					2.5				
Percent change			-2.8					66.7					4.2				
DoD average MV								2.50									
Percent change								13.6									

DoD weighted FVs	
Function	**Wgt FV**
Air vehicles	80.6
Munitions	76.1
Electronic combat	72.3
Fixed-wing avionics	93.0
Conv. missiles/rockets	85.4
Satelites	92.0
Average FV	**83.2**
Weighted avg. FV	**82.1**

Table 7. MINXCAP Model Output

Function	Department X A	X B	X C	X D	X E	Y A	Y B	Y C	Y D	Y E	Z A	Z B	Z C	Z D	Z E	Retained totals	Percent excess
Retain=1, Close=0	1	0	1	0	1	1	1	0	0	0	0	1	0	0	1	7	
Department Mil. Val.	3	3	3	2	1	2	1	3	2	1	3	3	2	3	1		
Capacities																	
Air vehicles	450	0	2500	0	0	5000	500	0	0	0	0	1200	0	0	0	9650	2.0
Munitions	850	0	4500	0	0	300	0	0	0	0	0	0	0	0	0	5650	2.7
Electronic combat	3000	0	0	0	0	1000	0	0	0	0	0	0	0	0	20	4020	24.3
Fixed-wing avionics	0	0	0	0	0	0	0	0	0	0	0	4000	0	0	0	4000	6.0
Conv. missiles/rockets	0	0	200	0	3000	0	0	0	0	0	0	700	0	0	200	4100	9.5
Satelites	0	0	300	0	0	0	0	0	0	0	0	0	0	0	2200	2500	0.8
																Wgt. avg.	**6.11**
Workload assigned																**Totals**	
Air vehicles	263	0	2500	0	0	5000	500	0	0	0	0	1200	0	0	0	9463	
Munitions	850	0	4500	0	0	153	0	0	0	0	0	0	0	0	0	5503	
Electronic combat	2214	0	0	0	0	1000	0	0	0	0	0	0	0	0	20	3234	
Fixed-wing avionics	0	0	0	0	0	0	0	0	0	0	0	3775	0	0	0	3775	
Conv. missiles/rockets	0	0	200	0	3000	0	0	0	0	0	0	343	0	0	200	3743	
Satelites	0	0	280	0	0	0	0	0	0	0	0	0	0	0	2200	2480	
Department avg. MV			2.3					1.5					2.0				
Percent change			-2.8					-16.7					-16.7				
DoD average MV								2.00									
Percent change								-9.1									

DoD weighted FVs	
Function	**Wgt FV**
Air vehicles	64.9
Munitions	62.5
Electronic combat	74.5
Fixed-wing avionics	93.0
Conv. missiles/rockets	84.9
Satelites	90.5
Average FV	**78.4**
Weighted avg. FV	**74.2**

Table 8. MINSITES Model Output

Function	Department X A	X B	X C	X D	X E	Y A	Y B	Y C	Y D	Y E	Z A	Z B	Z C	Z D	Z E	Retained totals	Percent excess
Retain=1, Close=0	1	0	1	0	0	0	0	0	0	0	1	1	0	1	1	6	
Department Mil. Val.	3	3	3	2	1	2	1	3	2	1	3	3	2	3	1		
Capacities																	
Air vehicles	0	0	2500	0	0	0	0	0	0	0	3000	1200	0	2857	0	9557	1.0
Munitions	850	0	4500	0	0	0	0	0	0	0	1000	0	0	0	0	6350	15.4
Electronic combat	3000	0	0	0	0	0	0	0	0	0	0	0	0	1543	20	4563	41.1
Fixed-wing avionics	0	0	0	0	0	0	0	0	0	0	0	4000	0	0	0	4000	6.0
Conv. missiles/rockets	0	0	200	0	0	0	0	0	0	0	3000	700	0	300	200	4400	17.6
Satelites	0	0	0	0	0	0	0	0	0	0	250	0	0	300	2200	2750	10.9
																Wgt. avg.	**12.14**
Workload assigned																**Totals**	
Air vehicles	0	0	2406	0	0	0	0	0	0	0	3000	1200	0	2857	0	9463	
Munitions	850	0	3653	0	0	0	0	0	0	0	1000	0	0	0	0	5503	
Electronic combat	1671	0	0	0	0	0	0	0	0	0	0	0	0	1543	20	3234	
Fixed-wing avionics	0	0	0	0	0	0	0	0	0	0	0	3775	0	0	0	3775	
Conv. missiles/rockets	0	0	200	0	0	0	0	0	0	0	2343	700	0	300	200	3743	
Satelites	0	0	0	0	0	0	0	0	0	0	250	0	0	30	2200	2480	
Department avg. MV			3.0					0.0					2.5				
Percent change			25.0					-100.0					4.2				
DoD average MV								2.67									
Percent change								21.2									

DoD weighted FVs	
Function	**Wgt FV**
Air vehicles	80.6
Munitions	65.2
Electronic combat	72.3
Fixed-wing avionics	93.0
Conv. missiles/rockets	59.5
Satelites	92.0
Average FV	**77.1**
Weighted avg. FV	**76.5**

Table 9. MAXSFV Model Output

Function	Department X A	X B	X C	X D	X E	Y A	Y B	Y C	Y D	Y E	Z A	Z B	Z C	Z D	Z E	Retained totals	Percent excess
Retain=1, Close=0	0	0	1	1	0	1	0	0	0	0	1	1	0	1	0	6	
Department Mil. Val.	3	3	3	2	1	2	1	3	2	1	3	3	2	3	1		
Capacities																	
Air vehicles	0	0	2500	0	0	5000	0	0	0	0	3000	0	0	0	0	10500	11.0
Munitions	0	0	4500	0	0	300	0	0	0	0	1000	0	0	0	0	5800	5.4
Electronic combat	0	0	0	0	0	0	0	0	0	0	2000	0	0	1543	0	3543	9.6
Fixed-wing avionics	0	0	250	0	0	0	0	0	0	0	1000	4000	0	2000	0	7250	92.1
Conv. missiles/rockets	0	0	200	0	0	0	0	0	0	0	3000	700	0	0	0	3900	4.2
Satelites	0	0	0	4000	0	0	0	0	0	0	0	0	0	0	0	4000	61.3
																Wgt. avg.	24.10
Workload assigned																Totals	
Air vehicles	0	0	2500	0	0	5000	0	0	0	0	1963	0	0	0	0	9463	
Munitions	0	0	4500	0	0	300	0	0	0	0	703	0	0	0	0	5503	
Electronic combat	0	0	0	0	0	0	0	0	0	0	2000	0	0	1234	0	3234	
Fixed-wing avionics	0	0	250	0	0	0	0	0	0	0	1000	525	0	2000	0	3775	
Conv. missiles/rockets	0	0	43	0	0	0	0	0	0	0	3000	700	0	0	0	3743	
Satelites	0	0	0	2480	0	0	0	0	0	0	0	0	0	0	0	2480	
Department avg. MV			2.5					2.0					3.0				
Percent change			4.2					11.1					25.0				
DoD average MV								2.67									
Percent change								21.2									

DoD weighted FVs	
Function	Wgt FV
Air vehicles	64.9
Munitions	59.6
Electronic combat	61.9
Fixed-wing avionics	73.1
Conv. missiles/rockets	56.6
Satelites	58.0
Average FV	**62.3**
Weighted avg. FV	**62.9**

Table 10. MINNMV Model Output: Alternative 1

Function	Department X A	X B	X C	X D	X E	Y A	Y B	Y C	Y D	Y E	Z A	Z B	Z C	Z D	Z E	Retained totals	Percent excess
Retain=1, Close=0	0	0	1	1	0	0	0	1	0	0	1	1	0	1	0	6	
Department Mil. Val.	3	3	3	2	1	2	1	3	2	1	3	3	2	3	1		
Capacities																	
Air vehicles	0	0	2500	0	0	0	0	0	0	0	3000	1200	0	2857	0	9557	1.0
Munitions	0	0	4500	0	0	0	0	2000	0	0	1000	0	0	0	0	7500	36.3
Electronic combat	0	0	0	0	0	0	0	0	0	0	2000	0	0	1543	0	3543	9.6
Fixed-wing avionics	0	0	0	3500	0	0	0	0	0	0	0	4000	0	0	0	7500	98.7
Conv. missiles/rockets	0	0	200	0	0	0	0	200	0	0	3000	700	0	300	0	4400	17.6
Satelites	0	0	300	4000	0	0	0	500	0	0	250	50	0	300	0	5400	117.7
																Wgt. avg.	**34.41**
Workload assigned																**Totals**	
Air vehicles	0	0	2406	0	0	0	0	0	0	0	3000	1200	0	2857	0	9463	
Munitions	0	0	2503	0	0	0	0	2000	0	0	1000	0	0	0	0	5503	
Electronic combat	0	0	0	0	0	0	0	0	0	0	1691	0	0	1543	0	3234	
Fixed-wing avionics	0	0	0	3500	0	0	0	0	0	0	0	275	0	0	0	3775	
Conv. missiles/rockets	0	0	200	0	0	0	0	200	0	0	2343	700	0	300	0	3743	
Satelites	0	0	300	1080	0	0	0	500	0	0	250	50	0	300	0	2480	
Department avg. MV			2.5					3.0					3.0				
Percent change			4.2					66.7					25.0				
DoD average MV								2.83									
Percent change								28.8									

DoD weighted FVs	
Function	**Wgt FV**
Air vehicles	80.6
Munitions	71.4
Electronic combat	64.4
Fixed-wing avionics	93.9
Conv. missiles/rockets	57.8
Satelites	65.4
Average FV	**72.3**
Weighted avg. FV	**74.4**

Table 11. MINNMV Model Output: Alternative 2

Function	Department X A	X B	X C	X D	X E	Y A	Y B	Y C	Y D	Y E	Z A	Z B	Z C	Z D	Z E	Retained totals	Percent excess
Retain=1, Close=0	1	1	1	1	0	0	0	0	0	0	1	1	0	0	0	6	
Department Mil. Val.	3	3	3	2	1	2	1	3	2	1	3	3	2	3	1		
Capacities																	
Air vehicles	0	7000	0	0	0	0	0	0	0	0	3000	1200	0	0	0	11200	18.4
Munitions	850	200	4500	0	0	0	0	0	0	0	1000	0	0	0	0	6550	19.0
Electronic combat	3000	0	0	0	0	0	0	0	0	0	2000	0	0	0	0	5000	54.6
Fixed-wing avionics	0	0	0	3500	0	0	0	0	0	0	0	4000	0	0	0	7500	98.7
Conv. missiles/rockets	0	0	200	0	0	0	0	0	0	0	3000	700	0	0	0	3900	4.2
Satelites	0	0	300	4000	0	0	0	0	0	0	250	50	0	0	0	4600	85.5
																Wgt. avg.	**37.42**
Workload assigned																**Totals**	
Air vehicles	0	5263	0	0	0	0	0	0	0	0	3000	1200	0	0	0	9463	
Munitions	850	200	3453	0	0	0	0	0	0	0	1000	0	0	0	0	5503	
Electronic combat	3000	0	0	0	0	0	0	0	0	0	234	0	0	0	0	3234	
Fixed-wing avionics	0	0	0	3500	0	0	0	0	0	0	0	275	0	0	0	3775	
Conv. missiles/rockets	0	0	200	0	0	0	0	0	0	0	2843	700	0	0	0	3743	
Satelites	0	0	300	1880	0	0	0	0	0	0	250	50	0	0	0	2480	
Department avg. MV			2.8					0.0					3.0				
Percent change			14.6					-100.0					25.0				
DoD average MV								2.83									
Percent change								28.8									

DoD weighted FVs	
Function	**Wgt FV**
Air vehicles	76.3
Munitions	65.7
Electronic combat	65.9
Fixed-wing avionics	93.9
Conv. missiles/rockets	56.9
Satelites	62.4
Average FV	**70.2**
Weighted avg. FV	**71.6**

Appendix A

AMPL Model Input File

```
# JCSG Model Example

# Ronald H. Nickel, Ph.D.
# LTC Roy Rice, USAF

# 8-3-94

set X_sites;        # The set of Department X sites.
set Y_sites;        # The set of Department Y sites.
set Z_sites;        # The set of Department Z sites.

set SITE := X_sites union {Y_sites union Z_sites};
            # The set of all labs and T&E sites.

set EXCLD1 within SITE default {};  # A solution to be excluded.

set EXCLD2 within SITE default {};  # A solution to be excluded.

set EXCLD_INTER := if card(EXCLD2) > 0 then (EXCLD1 inter EXCLD2)
                          else EXCLD1;

set EXCLD_1DIFF2 := EXCLD1 diff EXCLD2;   # Sites in EXCLD1 but not
                                          # in EXCLD2.

set EXCLD_2DIFF1 := EXCLD2 diff EXCLD1;   # Sites in EXCLD2 but not
                                          # in EXCLD1.

set EXCLD_COMPLEMENT := SITE diff (EXCLD1 union EXCLD2);
                # The set of sites not in EXCLD1 or EXCLD2.

param excld_num := max(0,card(EXCLD_INTER)-1);

set FUNC;       # The set of functions.

set SITE_CAP within {SITE, FUNC} ;  # The set of site/function
                          # combinations that are
                          # meaningful.

param CAPAC {SITE_CAP}; # The functional capacity at each site for each
                # meaningful site/function combination.

param no_func := card(FUNC);    # The number of function types.

# Define the set performing missile functions.

set MISSLE_FUNC within {FUNC};

param missile_sites >= 0, default 15;
            # Number of sites allowed to perform the
            # missile function.  Used in the policy
            # imperative example (missile_sites = 3).

param max_sites >= 0, default card(SITE);
            # Number of open sites allowed in the
            # solution.

param REQ {FUNC};   # The DoD requirement for each function.
```

```
param MV {SITE};     # Military value for each site.

param NMV {s in SITE} := 4 - MV[s]; # Negative MV scoring.

param FV {SITE_CAP} >= 0.0; # Functional value by site and function.

param min_assign default 0.001; # Cannot assign less than
                                # min_assign * CAPAC[s,f] of
                                # function f to site s.

#
# Calculate upper bounds for the objective function components.
# .

param MINNMV_UB := sum {s in SITE} NMV[s];

param MINSITES_UB := card(SITE);

param MINXCAP_UB := sum {(s,f) in SITE_CAP} CAPAC[s,f]/REQ[f];

param MAXSFV_UB := sum {(s,f) in SITE_CAP} FV[s,f];

param MAXFV_UB := sum {f in FUNC} max {(s,f) in SITE_CAP} FV[s,f];

#
# Use WGT_PCT to weight the functional value and non-functional value
# components of the objective functions.
#

param WGT_PCT >= 0, <= 100, default 99; # Percent of weight to put on
        # non-functional-value portion of the objective function.

param WGT1 := WGT_PCT;  # Weight for non-FV portion of the objective
                # functions.

param WGT2 := 100-WGT1; # Weight for FV portion of the objective functions.

#
# Decision variables
#

var OPEN {SITE} binary >= 0;     # Open or closed decision variable for
                # each site.

var SITE_LOAD {(s,f) in SITE_CAP} >= 0.0, <= CAPAC[s,f];
            # Amount of the requirement for function f to
            # be assigned to site s . Amount assigned
            # is limited by capacity of site s to perform
            # function f.

var SITE_FUNC {(s,f) in SITE_CAP} binary;
            # 1 if any assignment of workload for function
            # f is made to site s; 0-otherwise.

# The following variables, ALPHA, BETA,and GAMMA, are used to find
# alternative solutions.
```

```
var ALPHA binary; # At least one site from the intersection is excluded
                  # from the solution.

var BETA binary;  # At least one site from the complement of the union
                  # is included is included in the solution.

var GAMMA binary; # At least one site from
                  #   EXCLD1 - (EXCLD1 intersect EXCLD2)
                  # and at least one site from
                  #   EXCLD2 - (EXCLD1 intersect EXCLD2)
                  # are included in the solution.

#
# Objective Functions.
#

# Minimize total open site negative military value and
# maximize the normalized FV-weighted assignment of functional workload
# to sites.

minimize MINNMV:
    (WGT1/MINNMV_UB) * sum {s in SITE} OPEN[s]*NMV[s]
    - (WGT2/MAXFV_UB) * sum {(t,g) in SITE_CAP} FV[t,g]
    * (SITE_LOAD[t,g]/REQ[g]);

# Minimize the number of open sites and maximize the normalized
# FV-weighted assignment of functional workload to sites.

minimize MINSITES:
    (WGT1/MINSITES_UB) * sum {s in SITE} OPEN[s]
    - (WGT2/MAXFV_UB) * sum {(t,g) in SITE_CAP} FV[t,g]
    * (SITE_LOAD[t,g]/REQ[g]);

# Minimize total capacity and maximize the normalized FV-weighted
# assignment of functional workload to sites.

minimize MINXCAP:
    (WGT1/MINXCAP_UB) * sum {s in SITE}  OPEN[s] *
        (sum {(s,f) in SITE_CAP} CAPAC[s,f]/REQ[f])
    - (WGT2/MAXFV_UB) * sum {(t,g) in SITE_CAP} FV[t,g]
    * (SITE_LOAD[t,g]/REQ[g]);

# Maximize functional value without workload assignment weightings
# and maximize the normalized FV-weighted assignment of functional
# workload to sites.

maximize MAXSFV:
    (WGT1/MAXSFV_UB) * sum {(s,f) in SITE_CAP} FV[s,f]
    - (WGT2/MAXFV_UB) * sum {(t,g) in SITE_CAP} FV[t,g]
    * (SITE_LOAD[t,g]/REQ[g]);

#
# Constraints
#

# The requirement for each function has to be met.
```

```
subject to func_assgn {f in FUNC}:
    sum {(s,f) in SITE_CAP} SITE_LOAD[s,f] = REQ[f];

# Cannot assign functional workload to a site unless
# the site is open for assignment of that function.

subject to func_open {(s,f) in SITE_CAP}:
    SITE_LOAD[s,f] <= SITE_FUNC[s,f]*CAPAC[s,f];

# Sites with no functional requirement assigned
# are closed.

subject to site_closed {s in SITE}:
    OPEN[s] <= sum {(s,f) in SITE_CAP} SITE_FUNC[s,f];

# Allocation of functional requirements cannot be made
# to sites that are not open.

subject to site_open {s in SITE}:
    sum {(s,f) in SITE_CAP} SITE_FUNC[s,f] <= OPEN[s] * no_func;

# SITE_FUNC variables are set to 0 if little or no functional
# workload is assigned to a site.

subject to site_func_0 {(s,f) in SITE_CAP}:
    SITE_FUNC[s,f] <= SITE_LOAD[s,f]/(min_assign * CAPAC[s,f]);

# This constraint is an example of a policy imperative.
# Constrain the number of sites doing munitions work.
# This constraint only constrains the model if
#
#   missile_sites < card(SITE).

subject to missile_2 {f in MISSLE_FUNC}:
    sum {(s,f) in SITE_CAP} SITE_FUNC[s,f] <= missile_sites;

# This constraint is used to constrain the number of
# open sites in a solution.  max_sites has a default
# value equal to card(SITE), i.e., it does not constrain
# the solution unless max_sites is set to a lower value.

subject to no_sites:
    sum {s in SITE} OPEN[s] <= max_sites;

#
# Exclude solutions defined by the sets EXCLD1 and EXCLD2.
#

subject to alt_opt_cond_1:
    sum {s in EXCLD_INTER} OPEN[s] <= excld_num + 1 - ALPHA;

subject to alt_opt_cond_2:
   sum {s in EXCLD_COMPLEMENT} OPEN[s] >= BETA;

subject to alt_opt_cond_3a:
   sum {s in EXCLD_1DIFF2} OPEN[s] >= GAMMA;
```

```
subject to alt_opt_cond_3b:
   sum {s in EXCLD_2DIFF1} OPEN[s] >= GAMMA;

subject to alt_opt_cond_123:
   ALPHA + BETA + GAMMA >= 1;
```

Appendix B

AMPL Data Input File

```
# Data file for JCSG optimization examples.

# Ron NIckel
# 7-6-94

set X_sites :=
    X_A
    X_B
    X_C
    X_D
    X_E;

set Y_sites :=
    Y_A
    Y_B
    Y_C
    Y_D
    Y_E;

set Z_sites :=
    Z_A
    Z_B
    Z_C
    Z_D
    Z_E;

set EXCLD1 := X_A X_C X_D Z_A Z_B Z_D;

set EXCLD2 := X_C X_D Y_C Z_A Z_B Z_D;

set FUNC :=
    Air_Veh
    Mun
    E_Cmbt
    Avion
    Mis
    Sat;

set SITE_CAP :  Air_Veh Mun   E_Cmbt  Avion   Mis     Sat :=
        X_A             +             +       +               -       -
        X_B             +             +       -               -       -
        X_C             +             +       -               +       +
        X_D             -             -       -               +       -
        X_E             -             -       -               -       +
        Y_A             +             +       +               -       -
        Y_B             +             -       -               -       -
        Y_C             -             +       -               +       +
        Y_D             -             -       -               +       +
        Y_E             -             -       -               -       +
        Z_A             +             -       +               +       +
        Z_B             +             -       -               +       +
        Z_C             -             +       -               -       +
        Z_D             +             -       +               +       +
        Z_E             -             -       +               +       +

# Used to model the policy imperative.
```

```
set MISSLE_FUNC := Mis;

param CAPAC:    Air_Veh Mun     E_Cmbt  Avion   Mis     Sat :=
        X_A     450             850     3000            .       .       .
        X_B     7000            200     .               .       .       .
        X_C     2500            4500    .               250     200     300
        X_D     .               .       .               3500    .       4000
        X_E     .               .       .               .       3000    .
        Y_A     5000            300     1000            .       .       .
        Y_B     500             .       .               .       .       .
        Y_C     .               2000    .               400     200     500
        Y_D     .               .       .               3500    100     .
        Y_E     .               .       .               .       2000    .
        Z_A     3000            1000    2000            1000    3000    250
        Z_B     1200            .       .               4000    700     50
        Z_C     .               1000    .               .       200     .
        Z_D     2857            .       1543            2000    300     300
        Z_E     .               .       20              500     200     2200;

param FV:       Air_Veh Mun     E_Cmbt  Avion   Mis     Sat :=
    X_A     50              88      67              .       .       .
    X_B     70              71      .               .       .       .
    X_C     68              58      .               92      62      71
    X_D     .               .       .               94      .       58
    X_E     .               .       .               .       89      .
    Y_A     57              54      91              .       .       .
    Y_B     72              .       .               .       .       .
    Y_C     .               88      .               78      59      64
    Y_D     .               .       .               69      93      .
    Y_E     .               .       .               .       92      .
    Z_A     81              72      52              72      56      85
    Z_B     92              .       .               93      59      61
    Z_C     .               75      .               .       50      .
    Z_D     86              .       78              66      65      73
    Z_E     .               .       77              71      91      93;

param REQ :=
    Air_Veh 9463
    Mun             5503
    E_Cmbt  3234
    Avion           3775
    Mis             3743
    Sat             2480;

# Banded military values for each site.
# 3 is good, 1 is bad.

param MV :=
    X_A     3
    X_B     3
    X_C     3
    X_D     2
    X_E     1
    Y_A     2
    Y_B     1
    Y_C     3
    Y_D     2
```

```
Y_E     1
Z_A     3
Z_B     3
Z_C     2
Z_D     3
Z_E     1;
```