



*Education & Training
Joint Cross-Service Group*

**BASE CLOSURE
AND
REALIGNMENT
REPORT**

Volume VI

May 2005

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TABLE OF CONTENTS

| | | |
|-------------|--|------------|
| I. | Letter from the E&T JCSG Chair | iv |
| II. | Executive Summary | v |
| III. | Organization and Charter | 1 |
| | a. Group Identity and Organization into Subgroups | 1 |
| | b. Functions Evaluated | 3 |
| | c. Overarching Strategy | 4 |
| IV. | Analytical Approach/Analysis | 5 |
| | a. Capacity Analysis | 5 |
| | b. Military Value Analysis | 7 |
| | c. Scenario Development | 9 |
| | d. Force Structure Plan | 13 |
| | e. Surge Requirements | 14 |
| V. | Recommendations | 15 |
| VI. | Appendices | |
| | a. Final Capacity Report | A-1 |
| | b. Final Military Value Report | B-1 |
| | c. Acronyms | C-1 |
| | d. Glossary | D-1 |



PERSONNEL AND
READINESS

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APR 21 2005

MEMORANDUM FOR ACTING USD (ACQUISITION, TECHNOLOGY &
LOGISTICS)
CHAIRMAN, INFRASTRUCTURE STEERING GROUP

FROM CHAIRMAN OF THE EDUCATION AND TRAINING JOINT CROSS-
SERVICE GROUP (E&T JCSG)

SUBJECT: 2005 Base Realignment and Closure Recommendations (BRAC)

Enclosed please find the E&T JCSG's recommendations for BRAC 2005. As required by Section 2903(c)(5) of the Defense Base Closure and realignment Act of 1990, I certify that the information contained in this E&T JCSG report and the supporting data and analyses are accurate and complete to the best of my knowledge and belief. I look forward to working with the commission as our recommendations proceed through the BRAC process.

Charles S. Abell

Principal Deputy Under Secretary of Defense
(Personnel & Readiness)
Chairman, Education and Training
Joint Cross-Service Group

Enclosure as stated

Executive Summary

The Secretary of Defense chartered the Education and Training Joint Cross-Service Group (E&T JCSG) to conduct a review of Department of Defense (DoD) common, business-oriented education and training functions, which included: Flight Training, Professional Development Education, Range activities, and Specialized Skill Training. The Principal Deputy Under Secretary of Defense (Personnel & Readiness) chaired the E&T JCSG. The E&T JCSG Principals included senior members from each Military Department, the Office of the Secretary of Defense, and the Joint Staff.

The E&T JCSG was responsible for the joint cross-service analysis of education and training functions and sub-functions. The group performed a detailed analysis of existing education and training capacity using certified data and developed recommendations that best satisfied current and future DoD requirements. The JCSG used Military Value as the primary consideration, while balancing other selection criteria and the future force structure, to evaluate realignment and closure recommendations. In developing its analytical process, the JCSG established internal policies and procedures consistent with: DoD policy memoranda, force structure plan, and installation inventory; Base Realignment and Closure (BRAC) selection criteria; and the requirements of Public Law 101-510, as amended. The DoD Inspector General's office monitored the E&T process to ensure compliance with public law. To facilitate the group's efforts, the E&T Principals determined categories of functions and then organized into four corresponding subgroups, each with JCSG-approved functions and strategies:

- **Flight Training**
 - Functions
 - Undergraduate fixed wing pilot training
 - Undergraduate rotary wing pilot training
 - Navigator/Naval Flight Officer
 - Joint Strike Fighter initial training site
 - Unmanned Aerial Vehicle operators
 - Operational Strategy
 - Move toward fewer, more joint bases
 - Position DoD to conduct similar UFT across services with common aircraft
 - Enhance jointness while preserving Service-unique training and culture

- **Professional Development Education**
 - Functions
 - Professional Military Education (PME)
 - Joint Professional Military Education
 - Other full-time education programs
 - Individual leadership development
 - Operational Strategy
 - Transfer appropriate functions to the private sector
 - Create Joint Center of Excellence for common educational functions
 - Balance joint and service competencies within the PME spectrum
- **Ranges & Collective Training Capability**
 - Functions
 - Unit, interoperable, and joint ranges
 - Training support enablers for training ranges
 - Test and Evaluation ranges
 - Simulation Centers
 - Operational Strategy
 - Establish cross functional/service regional range complexes
 - Preserve irreplaceable, one-of-a-kind facilities
 - Create new range capabilities for emerging joint needs
- **Specialized Skill Training**
 - Functions
 - Initial skill training
 - Skill progression training
 - Functional training
 - Operational Strategy
 - Create Centers of Excellence for common training functions
 - Rely on private sector for appropriate technical training
 - Preserve opportunities for continuing service acculturation

Each subgroup calculated capacity for each function and sub-function using defined attributes and metrics. Questions, formulas, and filters were developed and tested for validity, adequacy, and quality. The central BRAC office issued a controlled data call, in question format, to installations via the Military Departments and Defense Agencies. Certified data were received from Military Departments and Defense Agencies via the central BRAC office. Each E&T JCSG Subgroup performed a capacity analysis which

included a review of potential surge requirements. Responses defined locations and scope for each function. Subgroups assessed Military Value for each function using a targeted installation response. Military Value data call questions enabled assessment of operational and physical characteristics outlined in BRAC Selection Criteria 1-4. Each Subgroup identified strategy-based, data-supported realignment or closure scenarios that advanced jointness and total force capability; minimized redundancy, duplication and excess capacity; achieved synergy; reduced costs by increasing effectiveness, efficiency and interoperability; and exploited best business practices. After scenarios were developed, the E&T JCSG applied Selection Criteria 5-8 using DoD BRAC standard procedures and/or models.

The E&T JCSG Subgroups generated 295 ideas, refined into 164 proposals. The E&T JCSG narrowed the 164 proposals to 64 declared scenarios using a deliberative process. Through detailed analysis, the scenarios (some of which were alternates or derivatives) were further refined, ultimately leading to the presentation of 17 fully developed candidate recommendations (CRs) to the Infrastructure Steering Group (ISG). The ISG disapproved two CRs and forwarded the remaining 15 to the Infrastructure Executive Council (IEC). Subsequently, the IEC disapproved two of the 15 CRs. During integration of the JCSG and Military Department CRs, four E&T CRs were integrated into larger Military Department CRs; the remaining nine E&T JCSG recommendations were submitted to the Secretary of Defense for review.

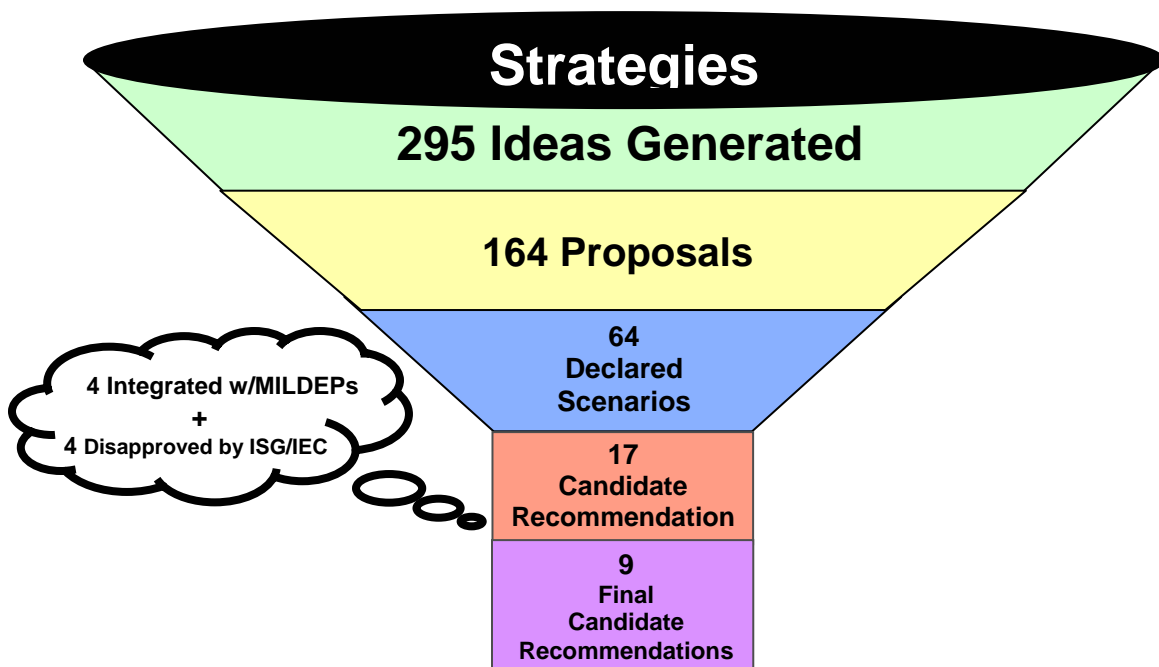


Figure 1 -- Education and Training Joint Cross Service Group Statistics.

Organization and Charter

The Secretary of Defense established the Education and Training Joint Cross-Service Group (E&T JCSG) to address Base Realignment and Closure implications for education and training functions and processes across the Department of Defense, Military Departments, and Defense Agencies. The Principal Deputy Under Secretary of Defense (Personnel & Readiness) chaired the E&T JCSG. The E&T JCSG Principals included senior members from each Service, OSD, and the Joint Staff (JS). The E&T JCSG was chartered to conduct a review of Department of Defense (DoD) common business-oriented education and training functions, which included: Flight Training, Professional Development Education, Range activities, and Specialized Skill Training.

The E&T JCSG was responsible for the joint cross-service analysis of education and training functions within their area. The group performed a detailed analysis of existing education and training capacity using certified data and developed recommendations that best satisfied current and future DoD requirements. The JCSG used Military Value as the primary consideration, while balancing selection criteria and the future force structure, to evaluate and document realignment and closure recommendations. In developing its analytical process, the JCSG established internal policies and procedures consistent with: DoD policy memoranda, force structure plan, and installation inventory; BRAC selection criteria; and the requirements of Public Law 101-510, as amended. The DoD Inspector General's office monitored and reviewed the E&T JCSG process to ensure compliance with public law and DoD policy memoranda.

Group Identity and Organization into Subgroups

On November 15, 2002, the Secretary of Defense formally initiated the 2005 BRAC process. He established the Infrastructure Executive Council (IEC) and the subordinate Infrastructure Steering Group (ISG) to oversee and operate the BRAC 2005 process. The ISG oversaw and reviewed the recommendations of seven functional groups: Industrial (IND), Supply and Storage (S&S), Technical (TECH), Education and Training (E&T), Headquarters and Support Activities (H&SA), Intelligence (INTEL), and Medical (MED). The Principal Deputy Under Secretary of Defense for Personnel and Readiness was selected as Chair for the E&T JCSG. Senior members were appointed from the United States Air Force (USAF), Navy (USN), Marine Corps (USMC), Army (USA), and Joint Staff (JS) to serve as E&T JCSG Principals. The E&T JCSG constituted the deliberative body for all decisions from the JCSG. The E&T JCSG was organized into four subgroups: Flight Training (FT), Professional Development Education (PDE), Specialized Skill Training (SST), and Ranges & Collective Training Capability (Ranges). A flag officer or (civilian equivalent) chaired each Subgroup. Each Service and OSD appointed members to each of the Subgroups. This structure provided an effective

framework to evaluate the potential of cross service, joint, and transformational opportunities to improve DoD education and training. The subgroups are as follows:

- **Flight Training:** Category of institutional training that provides individual flying skills needed by pilots, Navigators, and Naval Flight Officers to permit them to function effectively upon assignment to operational aircraft flight programs and/or operational units. *Aircrew members are those who maintain a record of flight activity and receive compensation for performing flight duties in their specialty.*
- **Professional Development Education:** Category of institutional training that is primarily educational courses conducted at Service or civilian institutions to broaden the outlook and knowledge of personnel or to impart knowledge in advanced academic disciplines.
- **Ranges & Collective Training Capability:** Instruction and applied exercises that prepare an organizational team to accomplish required military tasks as a unit.
- **Specialized Skill Training:** Category of institutional training that provides officer and enlisted personnel with new or higher-level skills in military specialties or functional area to match specific job requirements.

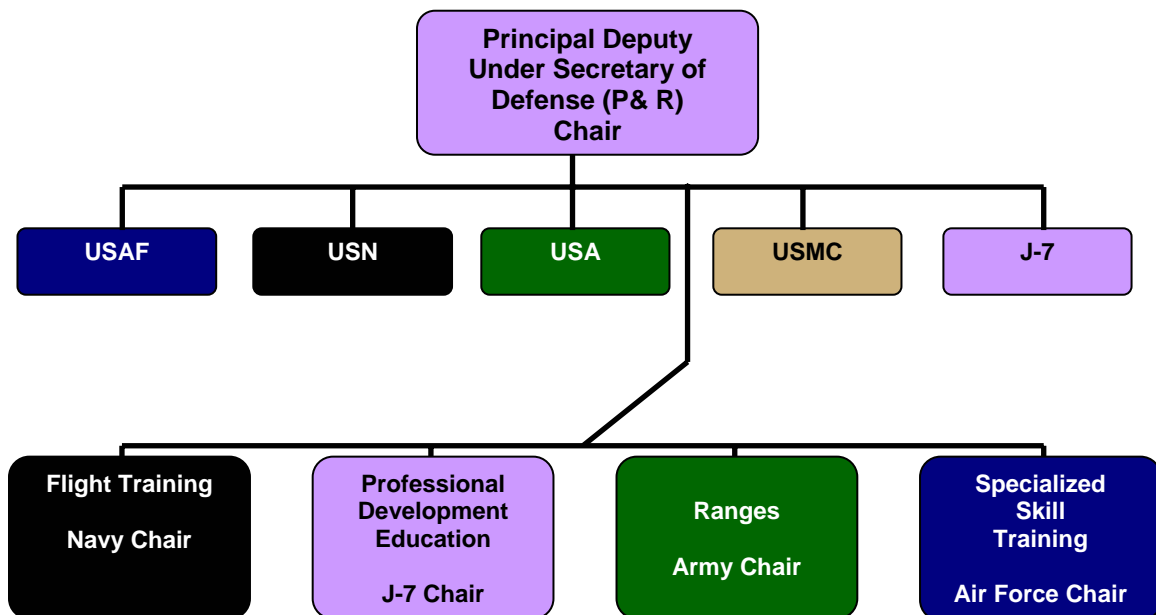


Figure 2 -- Education and Training Joint Cross Service Group Organizational Structure

Functions Evaluated

The JCSG had no counterpart in previous BRAC rounds and therefore was charged with defining appropriate functions and sub-functions for analysis. The E&T JCSG defined its scope of analysis and designated specific functions and sub-functions to each of the subgroups it created. E&T JCSG functions/sub-functions encompassed institutional educational and training programs regardless of Service component, agency, or curricula content. The E&T JCSG evaluated active and reserve component (AC/RC) institutions, Special Operations Forces (SOF) schools, defense agencies schools, and civilian institutions, with the exceptions of healthcare (all categories) and intelligence (professional education category). Also excluded from E&T JCSG analysis were categories/sub-categories of institutional education and training to be evaluated by the Military Departments, which included: Army one-station Unit Training; service-unique basic and recruit training; officer accessions (Academies, Reserve Officer Training Corps (ROTC), etc.); junior officer PME programs (unique career officer schools); service Non-commissioned Officer (NCO) academies and enlisted leadership schools; and unit-level collective training (service policy, doctrine and war fighting). The Ranges and Collective Training Capability Subgroup was designated to evaluate training ranges, test and evaluation ranges, and simulation centers.

- **Flight Training**
 - Undergraduate Fixed Wing Pilot Training (UFWT)
 - Undergraduate Rotary Wing Pilot Training (URWT)
 - Navigator/Naval Flight Officer (NAV/NFO)
 - Joint Strike Fighter Initial Training Site (JSF ITS)
 - Unmanned Aerial Vehicle (UAV) Operators

- **Professional Development Education**
 - Professional Military Education (PME)
 - Joint Professional Military Education (JPME)
 - Other full time education programs (OFTE)

- **Ranges & Collective Training Capability**
 - Unit, interoperable, and joint ranges
 - Training support enablers for training ranges
 - Test and Evaluation (T&E) Ranges
 - Simulation Centers

- **Specialized Skill Training**
 - Initial skill training
 - Skill progression training
 - Functional training

Overarching Strategy

Training is a force multiplier that supports Total Force capability. The E&T JCSG's fundamental objective was to ensure that the department maintained availability of world class training to enhance force readiness. The E&T members established general guiding principles which formed their overarching strategy for the entire process. These guiding principles included:

- Advance jointness and Total Force capability
- Eliminate excess capacity, redundancy, and duplication
- Achieve synergies
- Reduce costs by increasing effectiveness, efficiency and interoperability
- Exploit best business practices

Each subgroup developed strategies that supported E&T JCSG overarching principles and helped guide E&T JCSG scenario development, deliberation and declaration of candidate recommendations (CRs). Subgroup strategies were as follows:

- **Flight Training**
 - Move toward fewer, more joint bases
 - Position DoD to conduct similar UFT across services with common aircraft
 - Enhance jointness while preserving Service-unique training and culture
- **Professional Development Education**
 - Transfer appropriate functions to the private sector
 - Create Joint Centers of Excellence for common functions
 - Balance Joint with Service competencies across PME Spectrum
- **Ranges & Collective Training Capability**
 - Establish cross functional/service regional range complexes
 - Preserve irreplaceable, one-of-a-kind facilities
 - Create new range capabilities for emerging joint needs
- **Specialized Skill Training**
 - Create Centers of Excellence for common functions
 - Rely on private sector for appropriate technical training
 - Preserve opportunities for continuing Service acculturation

Analytical Approach/Analysis

The E&T JCSG approach to the BRAC process involved iterative and concurrent actions in close collaboration with OSD BRAC and the Military Departments. The E&T JCSG served as the deliberative body; subgroups generated ideas and brought forth recommendations to the group for consideration. Subgroups established overall scope for their analyses followed by development of common data standards. E&T JCSG Standard Operating Procedures (SOPs) provided overarching guidance and Subgroup SOPs provided “how to” details. Subgroups participated in weekly cross-talk meetings convened by the E&T JCSG Coordination Team to coordinate responses to OSD BRAC and share lessons learned throughout each phase.

Data standardization was crucial for each subgroup throughout the effort. Standards allowed equitable measurement across the Military Department and Defense Agencies despite differing missions, training practices, and cultures. To maintain these standards, the group conducted data collection and determined policy constraints. Upon receipt of the certified data, the group carried out analysis and modeling with the output leading to the generation of alternative basing options. At each step throughout the process, the subgroups reported to the E&T JCSG for additional guidance and step-by-step approval.

Capacity Analysis

E&T JCSG Subgroups focused capacity analysis calculations on each installation’s existing capability to perform specific functions/sub-functions. Each Subgroup calculated physical and operational capacity for individual functions/sub-functions using defined attributes and metrics. Questions, formulas, and filters were developed and tested for validity and adequacy. Data call questions were vetted through the Data Standardization Team (DST), whose members included the Military Departments, OSD BRAC office and JCSG representatives, to ensure quality data. Questions were issued to installations in the form of controlled data calls. Responses from installations were compiled and transmitted to E&T JCSG subgroups from the central OSD BRAC office database in the form of certified data. Each E&T Subgroup performed a capacity analysis review for its functions that included a review of potential surge requirements based on the 20-year force structure plan. Responses helped identify specific locations where functions and sub-functions were performed, which provided an overall scope of universe for each function. These results facilitated the compilation of target installation lists for subsequent military value analyses.

The group’s capacity analysis concluded that efficiencies in business processes are available and excess capacity in the Education and Training infrastructure exists. The E&T JCSG Capacity Analysis Report provides the results for current capacity, maximum potential capacity, and current usage for every location that currently performs the

function/sub-function under the group's purview. (See Appendix A) Current usage plus a "capability hedge" demonstrates current capability to meet unanticipated short term production variations. Characterizations of potential excess capacity allowed each subgroup to assess what capacity is available to surge.

The Flight Training Subgroup identified bases presently assigned UFT, URWT, NFO, and UNT missions with excess runway capacity as high as 78 percent for T-34 operations at NAS Whiting Field, Florida, or as low as 12 percent for all fixed-wing operations at Sheppard AFB, Texas. Special Use Airspace (SUA) usage was identified as the second "fixed quantity asset" which impacts UFT Fixed-wing operations. Excess airspace capacity ranged from a high of 71 percent at NAS Kingsville, Texas to a low of 6 percent at NAS Whiting Field. Undergraduate Flight Training requires pilot candidates to fly the majority of their training missions during daylight hours. This factor was included in the capacity calculations. Excess ramp space exists at 10 installations, but may be constrained at Laughlin AFB, Texas, and Vance AFB, Oklahoma, which presently use 102 percent and 97 percent, respectively. Data identified excess classroom capacity, ranging from a low of 45 percent at Laughlin AFB to a high 88 percent at NAS Whiting Field. Finally, data indicated all fields have excess capacity for simulators with the exception of NAS Meridian (27 percent deficit) and NAS Whiting Field (deficit of 12 percent).

The FT Subgroup evaluated 965 airfields in the continental United States in order to determine those best suited to perform the Joint Strike Fighter (JSF) training mission. Using Service-endorsed JSF basing criteria to screen/identify airfields, FT identified 31 installations that met basic infrastructure criteria and merited further analysis.

The Professional Development Education Subgroup received the required capacity data to conduct an analysis. The majority of the data were obtained through the OSD-certified Capacity Analysis Database (CAD) and the remaining data were received via "hard copy" along with the appropriate certification letter(s) from the Service Deputy Assistant Secretaries (DAS) or the appropriate Defense Agencies. The analysis identified excess capacities for PME/JPME, Graduate Education, and other full-time education (OFTE) functions.

The Specialized Skill Training Subgroup's capacity analysis encompassed 70 installations. The maximum potential excess capacity (unsustainable baseline) across all the installations reflected an excess in berthing (10 percent), a shortage in messing (45 percent), and excess in classrooms (88 percent). The current capacity calculation across all installations has shown excess berthing (10 percent - same as maximum potential capacity), a shortage in messing (45 percent - same as maximum potential capacity), and excess classrooms (42 percent). Classroom capacity can increase by running three shifts per day, but messing and berthing do not increase by running additional shifts.

The Ranges and Collective Training Capability Subgroup (Ranges Subgroup) reviewed capacity for training and for test and evaluation and received the required Capacity data to conduct an analysis. The training range capacity of the filtered activities identified (when 25 percent surge capacity was factored in) no excess capacity at the ground or air ranges and a 28 percent excess capacity at sea ranges. The T&E range capacity activities identified (when 10 percent surge capacity was factored in) a 9.43 percent excess capacity.

Military Value

Military Value assessments of each function were conducted using the targeted installation responses derived from installation responses to the capacity analyses. Military Value was the primary consideration for development of scenarios and was the vehicle by which Selection Criteria 1-4 were evaluated. The four criteria are as follows:

- (1) The current and future mission capabilities and the impact on operational readiness of the total force of the Department of Defense, including the impact on joint warfighting, training, and readiness.
- (2) The availability and condition of land, facilities, and associated airspace (including training areas suitable for maneuver by ground, naval, or air forces throughout a diversity of climate and terrain areas and staging areas for the use of the Armed Forces in homeland defense missions) at both existing and potential receiving locations.
- (3) The ability to accommodate contingency, mobilization, surge, and future total force requirements at both existing and potential receiving locations to support operations and training.
- (4) The cost of operations and manpower implications.

The military value analysis phase of the BRAC process began with development of a quantitative method for assessing the military value of E&T JCSG functions at current locations. The evaluation process compared the capability of a single facility, combination of facilities, or installation against other locations accomplishing like (or similar) functions. Each subgroup developed detailed scoring plans that were approved by the E&T JCSG and the ISG for use in military analyses. Military Value scoring plans were continually reviewed, and updated if necessary, to ensure the quantitative results were robust, fair, and able to differentiate the alternative entities within the scope. Each of these evolutions was briefed and approved through the appropriate levels of leadership.

As data arrived and changed, the analysis process evolved. Multiple sensitivity analyses were conducted throughout the process to ensure robust and stable military value results associated with candidate recommendations. Sensitivity analysis for the final Military Value results were performed on three levels – accounting for data evolution, verifying impact on scenarios, and swinging the weight of the metrics. Each aspect of the results of the sensitivity analyses was presented to the JCSG leadership for their consideration and resolution.

E&T JCSG military value scores pertain to the facility performing the function at the location, not the military value of the entire location except for the Ranges Subgroup. Each subgroup's military value analysis followed E&T JCSG methodology and Military Value Scoring Plans as approved by the ISG. E&T JCSG military value scoring plans were submitted to the ISG in a July 2004 report. The approach was subsequently briefed to the ISG on September 30, 2004. The results of each subgroup's Military Value Analysis with rank order listings by functions/sub-functions performed at specific installations are at Appendix B.

The Flight Training Subgroup's scope of analysis included DoD installations and processes that support Aircrew Flight Training at Undergraduate Flight Training (UFT) and certain graduate levels (e.g., JSF, USAF Pilot Instructor Training (PIT), USAF Introduction to Fighter Fundamentals (IFF)). ISG decisions on July 23, 2004 removed all graduate level flight training from E&T JCSG review except UAV (joint) and the JSF. The FT Subgroup rank ordered installations by Military Value in five major sub-functions: Undergraduate Fixed-wing, Undergraduate Rotary-wing, Navigator/Naval Flight Officer (NAV/NFO)/Combat Systems Officer (CSO), Joint Strike Fighter, and Unmanned Aerial Vehicle (UAV) using six attributes identified in the ISG-approved Military Value Scoring Plan.

The Professional Development Education Subgroup's analysis included installation rankings for three sub-functions using the attributes in the Military Value Scoring Plans. However, several functional refinements were made from the initial military value report. E&T JCSG removed Defense Institute of Security Assistance Management (DISAM), Defense Institute of International Legal Studies (DIILS), and Defense Leadership and Management Program (DLAMP) from further analysis. JCSG-HSA agreed to include DLAMP office space requirements in their final analysis. E&T JCSG-SST Subgroup conducted analyses of Defense Ammunition Center (DAC), Defense Information School (DINFOS), Defense Polygraph Institute (DoDPI), and Defense Security Service Academy (DSSA). E&T JCSG agreed with the final recommendation of the *Business Initiative Council* (BIC) Report and removed professional continuing education (PCE) from further analysis. The PDE Subgroup received 100 percent of the required military value data. The majority of the data were obtained through the OSD-certified Capacity Analysis Database (CAD) and the remaining data were received via "hard copy" along

with the appropriate certification letter(s) from the Service Deputy Assistant Secretaries (DAS) or appropriate Defense Agencies.

The Specialized Skill Training (SST) Subgroup ranked 70 installations for each of its three sub-functions (Initial Skill Training, Skill Progression Training and Functional Training) using the six attributes identified in its Military Value Scoring Plan. SST's Military Value Scoring Plan gave greater value for bigger/more facilities and higher student through-put. The majority of the data were obtained through the OSD certified Capacity Analysis Database (CAD) and the remaining data were received via "hard copy" along with the certification letter(s) from the Service Deputy Assistant Secretaries (DAS) or appropriate Defense Agencies. The Navy reported Capacity and Military Value information by "activity" not by installation (fence-line). Navy BRAC rolled up activities into installations to allow SST to perform standardized analysis across all the Military Departments. The SST subgroup exercised military judgment as appropriate to proceed with analyses since the inclusion of multiple sites as an "installation" skewed overall SST military value scores for these aggregated installations.

The Ranges Subgroup was organized into two sub-functions: Training and Test & Evaluation (T&E). The Training Sub-working group used the attributes in their Military Value Scoring Plan to evaluate and rank order approximately 140 installations. To maintain a level of consistency across the Services, the Sub-working group coordinated clarifications of fence-lines with Department of the Navy and selected one organizational name to represent each Navy range. Military Value rankings for T&E sub-functions used five attributes in their Military Value Scoring Plan to evaluate and rank order 44 Open Air Ranges.

Scenario Development and Analysis

E&T JCSG Subgroups used Military Value analyses as their primary consideration for developing and analyzing closure or realignment scenarios. However, consideration of overarching E&T JCSG strategy, military judgment, results of the 20-year Force Structure Plan and Optimization Model, all contributed to the final collection of scenarios that E&T JCSG subgroups brought forward for deliberation.

Each Subgroup developed capabilities, in close consultation with the Military Departments, based upon the 20-year Force Structure Plan, infrastructure requirements, and other data collected. Capabilities metrics were used in a Navy-developed Optimization Model to size future requirements with the same functions/sub-functions used in Capacity and Military Value analyses. Because required capabilities varied over the 20-year period, a thorough examination over the entire period was needed to identify the appropriate capability levels to be used for the BRAC process.

The Optimization Model considered capacity, military value, and capabilities data along with business rules and constraints to identify options for closures and realignments. These results served as starting points for the scenario development phase in which the groups applied military judgment and conducted a more detailed feasibility analysis of potential scenario options. The Flight Training subgroup used the Navy-developed Optimization Model for undergraduate flight training. However, there were some instances where subgroups did not require such elaborate models. The Professional Development Education Subgroup compared two to six locations within each scenario, so the team manually developed scenarios by maximizing military value and capitalizing on excess capacity.

The E&T JCSG used a “strategy-driven and data-verified” construct for the development of recommendations. Each subgroup approach was briefed to the E&T JCSG members for deliberation and approval. The Flight Training Subgroup developed three business rules, which supported their strategy, to guide scenario development:

1. Status Quo. Consolidate assets at the least number of bases using present programs, along Service lines.
2. Cooperative. Consolidate common functions at installations across Service lines.
3. Transformational. Consolidate common functions (undergraduate and graduate levels) across Service lines.

Using syllabus events as building blocks, the subgroup determined commonality of various phases of flight training across all Services. The computerized optimization tool grouped common functions at installations with the highest Military Value within the bounds of each business model. This exercise identified the fewest number of installations that could accommodate flight training personnel and equipment while maximizing the overall military value of bases that would remain. Flight Training used model results as a starting point to develop scenario options for realigning flight training functions to meet the objectives of each business rule. Military judgment was used to ensure functions were assigned to bases that were well suited to host that type of flight training. Nine proposed scenarios were recommended to the E&T JCSG that would reduce the number of bases by as many as four under the Transformational rule, to as few as two in the Cooperative and Status Quo rules. These nine scenarios were further analyzed and evaluated, and ultimately reduced to two Candidate Recommendations.

The Professional Development Education Subgroup developed PME/JPME scenarios using either a Service- or joint-centric approach. The Service-centric axis supported current policy in which PME is a continuum and JPME is veined in PME, and the responsibility for school curriculum remains primarily with the Service Chiefs. The joint-centric axis supported the realignment of all Senior Service Schools (SSS) under the

auspices of the National Defense University (NDU) and placed responsibility for the curriculum with the Chairman of the Joint Chiefs of Staff (CJCS), but still left responsibility for Service-centric PME with the Service Chiefs.

Graduate Education scenarios were developed along two separate philosophies: either privatizing Graduate Education and maximizing cost savings or consolidating Military Graduate Education to combine redundant activities. In accordance with the OFTE requirement, the PDE Subgroup assessed the feasibility of consolidating, realigning and/or privatizing: Services Chaplain and Staff Judge Advocate education and training function, as well as ten E&T JCSG identified DoD agencies. The Subgroup based its final analysis of scenario viability on sound analysis of the collected data and its military judgment. Best practices for the function were considered as part of military judgment.

Of the 163 ideas generated, 94 proposals were documented. Through analysis and evaluation, the Professional Development Education Subgroup eliminated duplicity and redundancy, and incorporated the proposals into 18 proposed scenarios. The E&T JCSG analyzed and evaluated these 18 scenarios and ultimately reduced them to five Candidate Recommendations, all but one of which was ultimately rejected by either the ISG or the IEC.

Ranges/range complexes/OPAREAs were evaluated during the Scenario Development phase in accordance with the same filters applied under Capacity and Military Value Analysis. The Range Training Sub-working group initially developed 51 ideas by training domains – ground, sea, and air – and geographically-focused capabilities, where combinations of ranges or range complexes could provide the most benefit to Joint and Service-specific training. The Range Training Sub-working Group developed 38 ideas focusing on cross-Service capabilities with combinations of ranges that accommodate more than one Service training activities – multiple ground, air, sea, air-ground, sea-ground, and sea-air. The group developed nine ideas focusing on Joint capability of ranges/range complexes that protected unique capabilities, regardless of domains or filters, and identified those complexes with full capability that address all Service training requirements in all domains. Lastly, the Range Training Sub-working Group developed four ideas focusing on Service-specific unit/collective training, with the thought process being to develop a 1...N list for each Service of that Service's ranges/range complexes/OPAREAs. Of the 51 ideas generated, 18 proposals were documented. Through analysis and evaluation, the Range Training Sub-working Group merged like ideas, eliminated duplicity and redundancy, and incorporated the ideas into eight scenarios. Three separate scenarios established Joint Regional Range Coordination Centers with JFCOM as the executive agent. One scenario was developed to create a Joint national urban operations training center, which was ultimately disapproved as a non-BRAC issue. The E&T JCSG further analyzed and evaluated the eight scenarios and ultimately reduced to one Candidate Recommendation which would establish three

regional Joint Range Coordination Centers. This candidate recommendation was rejected by the ISG as a non-BRAC action.

The Specialized Skill Training Subgroup built scenarios around their strategies to establish Joint Centers of Excellence, rely on the private sector for appropriate technical training, and preserve opportunities for continuing Service acculturation. The Subgroup focused on common functions/content areas that appeared to be redundant across more than one service. Examples of common training functions are: supply, transportation, culinary, diver, and religious training. Based upon its analyses, the Subgroup used a modified-Optimization Model to consider various options for closure and realignment recommendations.

The subgroup generated 31 ideas: 25 proposals were documented. Through analysis and evaluation, the Subgroup eliminated duplicity and redundancy, and incorporated proposals into 23 declared scenarios. The 23 scenarios were further analyzed and evaluated, and ultimately reduced to nine Candidate Recommendations. Two were integrated into Military Department recommendations and one was disapproved by the ISG.

The E&T JCSG narrowed the 164 subgroup proposals to 64 declared scenarios using a deliberative process. Through detailed analysis and application of military judgment, the scenarios (some of which were alternates or derivatives) were further refined, ultimately leading to the presentation of 17 fully developed candidate recommendations (CRs) to the ISG. The rationale used to refine proposals to scenarios and then to candidate recommendations is documented in the minutes of the group's deliberative sessions. The exercise of military judgment occurred through the application of OSD approved principles. Limited in number and written broadly, the principles enumerated the essential elements of military judgment. Other decision aids, including overhead imagery provided by the OSD Installation Visualization Tool, were also used.

Scenario Analysis focused on Criteria 5-8 assessments and the preparation of recommendations. Each Subgroup performed cost and saving analysis on each scenario via Criterion 5/Cost of Base Realignment Actions (COBRA) data calls issued to the Military Departments. These focused exclusively on data not previously gathered concerning specific losing and gaining site(s). The COBRA software provided an estimate of costs, savings, and return on investment for each potential closure/realignment scenario. Review of COBRA results (a "COBRA run") led to changes in scenarios, which reduced costs or improved long term savings. After refinement, these scenarios were analyzed again to ensure optimal outcomes. Calculations were based upon a set of OSD-approved common factors as well as information collected through COBRA scenario data calls. COBRA estimates did not provide budget-quality data. However, COBRA results provided the JCSG with an

important scenario comparison tool to consider scenarios, and later candidate recommendations.

Following the COBRA assessment, scenarios that showed promise were evaluated to assess their economic impact (Selection Criterion 6), Community Infrastructure (Criterion 7), and Environmental Impacts (Criterion 8). Based on these results, the E&T JCSG forwarded 17 candidate recommendations to the ISG & IEC for consideration. As candidate recommendations were forwarded to the ISG and IEC, they were occasionally modified and refined based on other quantitative aspects of the larger integration and decision-making process or through the exercise of military judgment by senior DoD decision makers. The scenario development process resulted in a total of 295 ideas, 164 proposals, 64 declared scenarios, 13 approved E&T JCSG-specific candidate recommendations and 9 recommendations following OSD-level integration.

Force Structure Plan

The BRAC 2005 statute required the Secretary of Defense to devise closure and realignment recommendations based on a 20-year Force Structure Plan. The 20-year Force Structure Plan includes an assessment of probable threats to national security, projected end-strength levels and major military units needed to meet these threats, and anticipated funding levels available for national defense. This plan was submitted with the FY 2005 budget and revised with the FY 2006 budget.

In making BRAC recommendations, the E&T JCSG assessed the relationship between the Force Structure Plan and the capacity required to support that plan. As part of this evaluation of future required education and training capabilities, the E&T JCSG also considered capacity necessary to meet projected changes in force structure.

For some E&T JCSG functions, there were obvious, direct, and quantifiable correlations. For example, the area required to park aircraft includes: parking space, wing-tip separation between aircraft, interior and peripheral taxi lanes. Specifically, the T-45 aircraft requires 985 square yards of ramp space to park at a 45 degree angle. Assuming 20 percent of all aircraft assigned to the facility will be in a hangar at any given time, 80 percent of the aircraft will require ramp space. Therefore, the aircraft footprint requirement times 80 percent of the aircraft assigned plus 75 percent of the peripheral taxi way requirements (based on field configuration) will equal the total amount of ramp space necessary to support the parking, loading, unloading and servicing of assigned aircraft. In most cases, the correlation between the force structure plan and capabilities was indirect, qualitative, and derived from military judgment. For example, there are no direct professional development education future capabilities requirements established for implementation during wartime or a national emergency. Therefore, E&T JCSG utilized

Military Judgment to quantify modifications to the currently capacity requirements and/or any decrease in student throughput that may be influenced by outside events.

E&T JCSG determined capacities in consultation with and based upon inputs provided by the Military Departments. Direct correlation between the force structure plan and required capabilities was facilitated by ensuring required capacities were quantified in the same units of measure outlined in the E&T JCSG capacity analysis. Since the determination of capabilities was not a data collection effort, data call certification requirements were not applicable to determining the capacities necessary to support the force structure requirements.

Surge Requirements

Surge requirements were considered throughout the analytical process. Within Military Value Analysis, each E&T JCSG subgroup evaluated the infrastructure supporting its functions/sub-functions within the framework provided by the BRAC selection criteria. Criteria 1 and 3 capture the concept of “surge.” In Criteria 1, subgroups considered “current and future” mission capabilities, while in Criteria 3, subgroups assessed the ability to accommodate contingency, mobilization, surge, and future total force requirements. Services do not have mandated surge requirements for education and training. Historically, Services have accelerated, truncated, or canceled education and training courses to meet student throughput requirements in the event of a crisis. Short-term increases in student production generally have been handled by working extra shifts, longer hours, or hiring extra personnel. Training requirements needed to meet full mobilization are unknown; however, Subgroups used military judgment to calculate an additional hedge for unanticipated increases in training. The ISG concurred with the E&T JCSG surge definitions based on military judgment. Subgroup functional diversity was reflected by the differences in the percentages used to calculate this hedge. Flight Training Subgroup calculated a 20 percent surge based on their assessment of current planning documents and military judgment. Range Subgroup used 25 percent for training ranges and 10 percent for test and evaluation ranges. Based upon recent history and military judgment, Specialized Skill Training Subgroup calculated a 20 percent surge capability into their analyses. For Professional Development Education Subgroup, the correlation between surge capacity and educational requirement was not stated and was at best indirect and qualitative. Therefore, Professional Development Education did not calculate a surge capacity or hedge. Through the selection of attributes for Criteria 1 and 3, weighing those attributes, and establishing metrics to measure those attributes, each JCSG and Military Department ensured that surge capacity was appropriately reflected in its military value analysis.

In the final stage of the process, each Subgroup analyzed alternative infrastructure configurations against the force structure plan and the selection criteria to arrive at

candidate recommendations. This analysis represented another opportunity to fully consider surge capacities because it incorporated surge considerations made during the evaluation of capabilities necessary to support the force structure plan and the impact of military value analyses.

The capability to surge by retaining “difficult-to-reconstitute” assets was also considered. “Difficult-to-reconstitute” assets consist of infrastructure that is not readily commercially available for military use (e.g. Arctic, littoral, and tropical settings). These assets go beyond physical structures to include elements of topography and the ability to meet military needs. These assets are costly to operate and maintain, and require periodic recapitalization. In contrast, “reconstitute-able assets” are physical facilities and structures that can easily be constructed (e.g., Joint Urban Operations National Training Center). Through collaboration with the Military Departments and development of closure and realignment recommendations that valued “difficult-to-reconstitute” assets, the E&T JCSG strived to retain sufficient “difficult-to-reconstitute” assets to respond to surge requirements.

Recommendations

Joint Center of Excellence for Religious Training & Education

Recommendation: Realign Maxwell Air Force Base, AL; Naval Air Station Meridian, MS; and Naval Station Newport, RI, by relocating religious training and education to Fort Jackson, SC, establishing a Joint Center of Excellence for religious training and education.

Justification: Consolidation at Fort Jackson, SC, creates a synergistic benefit by having each Services’ officer and enlisted programs conducted in close proximity to operational forces. Realized savings result from consolidation and alignment of similar officer and enlisted educational activities and the merging of common support functions. This recommendation supports the following DoD transformational options: 1) establish center of excellence for joint education and training by combining like schools; and 2) establish joint officer and enlisted specialized skills training.

Payback: The total estimated one-time cost to the Department of Defense to implement this recommendation is \$1.0M. The net of all costs and savings to the Department during the implementation period is a savings \$4.0M. Annual recurring savings to the Department after implementation is \$0.8M, with a payback expected in one year. The net present value of the costs and savings to the Department over 20 years is a savings of \$11.9M.

Economic Impact: Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 88 jobs (39 direct jobs and 49 indirect jobs) over the 2006-2011 period in the Providence-New Bedford-Fall River, RI, Metropolitan Statistical Area, which is less than 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 32 jobs (17 direct jobs and 15 indirect jobs) over the 2006-2011 period in the Meridian, MS, Metropolitan Statistical Area, which is less than 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 37 jobs (22 direct jobs and 15 indirect jobs) over the 2006-2011 period in the Montgomery, AL, Metropolitan Statistical Area, which is less than 0.1 percent of economic area employment.

The aggregate economic impact of all recommended actions on these economic regions of influence was considered.

Community Infrastructure: A review of community attributes indicates no issues regarding the ability of the infrastructure of the communities to support missions, forces, and personnel. There are no known community infrastructure impediments to implementation of all recommendations affecting the installations in this recommendation.

Environmental Impact: This recommendation will have a minimal impact on air quality at Fort Jackson. This recommendation has no impact on cultural, archaeological, or tribal resources; dredging; land use constraints or sensitive resources areas; marine mammals, resources or sanctuaries; noise; threatened and endangered species or critical habitat; waste management; water resources; or wetlands. This recommendation will require spending approximately \$0.3M for waste management and environmental compliance activities. This cost was included in the payback calculation. This recommendation does not otherwise impact the costs of environmental restoration, waste management, and environmental compliance activities. The aggregate environmental impact of all recommended BRAC actions affecting the bases in this recommendation has been reviewed. There are no known environmental impediments to implementation of this recommendation.

Joint Center of Excellence for Culinary Training

Recommendation: Realign Lackland Air Force Base, TX, by relocating Culinary Training to Fort Lee, VA, establishing it as a Joint Center of Excellence for Culinary Training.

Justification: Consolidates Culinary Training at the installation with the largest Service requirement. Eliminates redundancy and costs. Trains the Services culinary training under Inter-service Training Review Organization (ITRO). It is the military judgment of the JCSG that consolidation at the location with the largest amount of culinary training produces the greatest overall military value to the Department, through increased training efficiency at a lower cost.

Payback: The total estimated one-time cost to the Department of Defense to implement this recommendation is \$5.4M. The net of all costs and savings to the Department during the implementation period is a cost of \$2.6M. Annual recurring savings to the Department after

implementation is \$1.4M with a payback expected in two years. The net present value of the costs and savings to the Department over 20 years is a savings of \$15.7M.

Economic Impact on Communities: Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 471 jobs (291 direct jobs and 180 indirect jobs) over 2006-2011 in the San Antonio, TX, Metropolitan Statistical Area, which is less than 0.1 percent of economic area employment. The aggregate economic impact of all recommended actions on these economic regions of influence was considered.

Community Infrastructure: A review of community attributes indicates no issues regarding the ability of the infrastructure of the communities to support missions, forces, and personnel. There are no known community infrastructure impediments to implementation of all recommendations affecting the installations in this recommendation.

Environmental Impacts: This recommendation has no impact on air quality; cultural, archeological, or tribal resources; dredging; land use constraints or sensitive resources areas; marine mammals, resources or sanctuaries; noise; threatened and endangered species or critical habitat; waste management; water resources; or wetlands. The recommendation will require spending \$0.1M for environmental compliance activities. This cost was included in the payback calculation. This recommendation does not otherwise impact the costs of environmental restoration, waste management, and environmental compliance activities. The aggregate environmental impact of all recommended BRAC actions affecting the bases in this recommendation has been reviewed. There are no known environmental impediments to implementation of this recommendation.

Prime Power to Fort Leonard Wood, MO

Recommendation: Realign Fort Belvoir, VA, by relocating Army Prime Power School training to Fort Leonard Wood, MO.

Justification: The United States Army Prime Power School courses taught at Fort Belvoir, VA, are Engineer Branch courses. The United States Army Engineer Center at Fort Leonard Wood, MO, serves as the Service engineer proponent. The common-core phase of engineer courses are already taught at Fort Leonard Wood, MO. This realignment consolidates engineer courses at Fort Leonard Wood, MO. Consolidate like schools while preserving service unique culture. The United States Army Engineer School trains other services under Inter-service Training Review Organization (ITRO).

Payback: The total estimated one-time cost to the Department of Defense to implement this recommendation is \$6.0M. The net of all costs and savings to the Department during the implementation period is a cost of \$3.9M. Annual recurring savings to the Department after implementation is \$0.5M with a payback expected in 16 years. The net present value of the costs and Department savings over 20 years is a savings of \$0.8M.

Economic Impact: Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 170 jobs (102 direct jobs and 68 indirect jobs) over 2006-2011 in the Washington-Arlington-Alexandria, DC-VA-MD-WV, Metropolitan Division, which is less than 0.1 percent of economic area employment. The aggregate economic impact of all recommended actions on this economic region of influence was considered.

Community Infrastructure: Review of community attributes indicates no issues regarding the ability of the infrastructure of the communities to support missions, forces, and personnel. There are no known community infrastructure impediments to implementation of all recommendations affecting the installations in this recommendation.

Environmental Impacts: This recommendation has no impact on air quality; cultural, archeological, tribal resources; dredging; land use constraints or sensitive resources areas; marine mammals, resources or sanctuaries; noise; threatened and endangered species or critical habitat; waste management; water resources; or wetlands. This recommendation will require spending \$0.1M for environmental compliance activities. This cost was included in the payback calculations. This recommendation does not otherwise impact the costs of environmental restoration, waste management, and environmental compliance activities. The aggregate environmental impact of all recommended BRAC actions affecting the bases in this recommendation has been reviewed. There are no known environmental impediments to implementation of this recommendation.

Undergraduate Pilot and Navigator Training

Recommendation: Realign Moody Air Force Base, GA, as follows: relocate the Primary Phase of Fixed-wing Pilot Training to Columbus Air Force Base, MS, Laughlin Air Force Base, TX, and Vance Air Force Base, OK; relocate Introduction to Fighter Fundamentals Training for Pilots to Columbus Air Force Base, MS, Laughlin Air Force Base, TX, Randolph Air Force Base, TX, Sheppard Air Force Base, TX, and Vance Air Force Base, OK; relocate Introduction to Fighter Fundamentals Training for Weapons Systems Officers to Columbus Air Force Base, MS, Laughlin Air Force Base, TX, Sheppard Air Force Base, TX, and Vance Air Force Base, OK; and relocate Introduction to Fighter Fundamentals Training for Instructor Pilots to Randolph Air Force Base, TX.

Realign Randolph Air Force Base, TX, by relocating Undergraduate Navigator Training to Naval Air Station, Pensacola, FL.

Justification: This recommendation will realign and consolidate USAF's primary phase of undergraduate flight training functions to reduce excess/unused basing capacity to eliminate redundancy, enhance jointness for UNT/Naval Flight Officer (NFO) training, reduce excess capacity, and improve military value.

The basing arrangement that flows from this recommendation will allow the Inter-service Training Review Organization (ITRO) process to establish a DoD baseline program in UNT/NFO with curricula that permit services latitude to preserve service-unique culture and a

faculty and staff that brings a “Train as we fight; jointly” national perspective to the learning process.

Payback: The total estimated one-time cost to the Department of Defense to implement this recommendation is \$71.7M. The net of all costs and savings to the Department during the implementation period is a cost of \$1.6M. Annual recurring savings to the Department after implementation are \$18.3M with a payback expected in four years. The net present value of the costs and savings to the Department over 20 years is a savings of \$174.2M.

Economic Impact on Communities: Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 1,079 jobs (571 direct jobs and 508 indirect jobs) over 2006-2011 in the San Antonio, TX, Metropolitan Statistical Area, which is 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 1,170 jobs (702 direct jobs and 468 indirect jobs) over 2006-2011 in the Valdosta, GA, Metropolitan Statistical Area, which is 1.77 percent of economic area employment.

The aggregate economic impact of all recommended actions on these economic regions of influence was considered.

Community Infrastructure: A review of community attributes indicates no issues regarding the ability of the infrastructure of the communities to support missions, forces, and personnel. There are no known community infrastructure impediments to implementation of all recommendations affecting the installations in this recommendation.

Environmental Impact: This recommendation may require significant air permit revisions for Columbus, Laughlin, Vance, and Sheppard Air Force Bases. This recommendation may impact cultural, archeological, or historical resources at Columbus, Sheppard, and Laughlin Air Force Bases. DoD will need to re-evaluate noise contours for Columbus, Laughlin, Vance, Sheppard, and Pensacola. Additional operations at Sheppard may impact threatened and endangered species and/or critical habitat. May need to modify the hazardous waste program for Columbus, Laughlin, Vance, and Sheppard Air Force Bases. Additional operations at Columbus, Laughlin, Vance, and Sheppard Air Force Bases may impact wetlands, which may restrict operations. This recommendation has no impact on dredging; land use constraints or sensitive resource areas; marine mammals, resources, or sanctuaries; or water resources. This recommendation will require spending approximately \$2.3M for waste management and environmental compliance activities. This cost was included in the payback calculation. This recommendation does not otherwise impact the cost of environmental restoration, waste management, or environmental compliance activities. The aggregate environmental impact of all recommended BRAC actions affecting the bases in this recommendation has been reviewed. There are no known environmental impediments to implementation of this recommendation.

Joint Strike Fighter Initial Joint Training Site

Recommendation: Realign Luke Air Force Base, AZ, by relocating to Eglin Air Force Base, FL, a sufficient number of instructor pilots and operations support personnel to stand up the Air Force's portion of the Joint Strike Fighter (JSF) Initial Joint Training Site, hereby established at Eglin Air Force Base, FL. Realign Marine Corps Air Station Miramar, CA, by relocating to Eglin Air Force Base, FL, a sufficient number of instructor pilots and operations support personnel to stand up the Marine Corps' portion of the JSF Initial Joint Training Site, hereby established at Eglin Air Force Base, FL. Realign Naval Air Station Oceana, VA, by relocating to Eglin Air Force Base, FL, a sufficient number of instructor pilots, operations, and maintenance support personnel to stand up the Navy's portion of the JSF Initial Joint Training Site, hereby established at Eglin Air Force Base, FL. Realign Sheppard Air Force Base, TX, by relocating to Eglin Air Force Base, FL, a sufficient number of front-line and instructor-qualified maintenance technicians and logistics support personnel to stand up the Air Force's portion of the JSF Initial Joint Training Site, hereby established at Eglin Air Force Base, FL. Realign Naval Air Station Pensacola, FL, by relocating to Eglin Air Force Base, FL, a sufficient number of front-line and instructor-qualified maintenance technicians and logistics support personnel to stand up the Department of the Navy's portion of the JSF Initial Joint Training Site hereby established at Eglin Air Force Base, FL.

Justification: This recommendation establishes Eglin Air Force Base, FL as an Initial Joint Training Site that teaches entry-level aviators and maintenance technicians how to safely operate and maintain the new Joint Strike Fighter (JSF) (F-35) aircraft. The Department is scheduled to take delivery of the F-35 beginning in 2008. This joint basing arrangement will allow the Inter-service Training Review Organization (ITRO) process to establish a DoD baseline program in a consolidated/joint school with curricula that permit services latitude to preserve service-unique culture and a faculty and staff that brings a "Train as we fight; jointly" national perspective to the learning process.

Payback: The total estimated one-time cost to the Department of Defense to implement this recommendation is \$199.1M. The net of all costs and savings to the Department during the implementation period is a cost of \$209.6M. Annual recurring costs to the Department after implementation are \$3.3M with no payback expected. The net present value of the costs and savings to the Department over 20 years is a cost of \$226.3M.

Economic Impact on Communities: Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 888 jobs (392 direct jobs and 496 indirect jobs) over 2008-2011 in the Pensacola-Ferry, Pass-Brent, FL, Metropolitan Statistical Area, which is 0.42 percent of economic area employment. Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 85 jobs (48 direct jobs and 37 indirect jobs) over 2006-2011 in the Phoenix-Mesa-Scottsdale, AZ, Metropolitan Statistical Area, which is less than 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 82 jobs (43 direct jobs and 39 indirect jobs) over 2006-2011 in the San Diego-

Carlsbad-San Marcos, CA, Metropolitan Statistical Area, which is less than 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 69 jobs (33 direct jobs and 36 indirect jobs) over 2006-2011 in the Virginia Beach-Norfolk-Newport News, VA-NC, Metropolitan Statistical Area, which is less than 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 487 jobs (295 direct jobs and 192 indirect jobs) over 2006-2011 in the Wichita Falls, TX, Metropolitan Statistical Area, which is 0.52 percent of economic area employment.

The aggregate economic impact of all recommended actions on these economic regions of influence was considered.

Community Infrastructure: A review of community attributes indicates no issues regarding the ability of the infrastructure of the communities to support missions, forces, and personnel. There are no known community infrastructure impediments to implementation of all recommendations affecting the installations in this recommendation.

Environmental Impact: This recommendation may require a significant air permit revision for Eglin Air Force Base. Additional operations at Eglin Air Force Base could impact cultural, archeological, or historic sites, which would then impact operations. DoD will need to re-evaluate Eglin Air Force Base noise contours as a result of the change in mission. This recommendation will require Endangered Species Act Consultation for all T&E species at Eglin. This recommendation may require modifying the hazardous waste program and on-installation water treatment works permits. Additional operations may impact wetlands at Eglin. This recommendation has no impact on dredging; land use constraints or sensitive resource areas; marine mammals, resources, or sanctuaries; or water resources. This recommendation will require approximately \$1.0M for waste management and environmental compliance activities. This cost was included in the payback calculation. This recommendation does not otherwise impact the cost of environmental restoration, waste management, or environmental compliance activities. The aggregate environmental impact of all recommended BRAC actions affecting the bases in this recommendation has been reviewed. There are no known environmental impediments to implementation of this recommendation.

Joint Center for Consolidated Transportation Management Training

Recommendation: Realign Lackland Air Force Base, TX, by relocating the Transportation Management training to Fort Lee, VA.

Justification: Eliminates redundancy. “Train as we fight; jointly.” Consolidates like schools while preserving service unique culture. Although Lackland Air Force Base, TX, has a higher military value than Fort Lee, VA, it is the military judgment of the JCSG that consolidation at the location with the largest amount of transportation training produces the greatest overall

Military Value to the Department. Uses Inter-service Training Review Organization (ITRO) as the baseline.

Payback: The total estimated one-time cost to the Department of Defense to implement this recommendation is \$1.5M. The net of all costs and savings to the Department during the implementation period is a cost of \$5.8M. Annual recurring savings to the Department after implementation is \$1.3M with a payback expected in one year. The net present value of the costs and Department savings over 20 years is a savings of \$18.0M.

Economic Impact on Communities: Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 260 jobs (155 direct jobs and 105 indirect jobs) over 2006-2011 in the San Antonio, TX, Metropolitan Statistical Area, which is less than 0.1 percent of economic area employment. The aggregate economic impact of all recommended actions on this economic region of influence was considered.

Community Infrastructure: Review of community attributes indicates no issues regarding the ability of the infrastructure of the communities to support missions, forces, and personnel. There are no known community infrastructure impediments to implementation of all recommendations affecting the installations in this recommendation.

Environmental Impacts: This recommendation has no impact on air quality; cultural, archeological, or tribal resources; dredging; land use constraints or sensitive resources areas; marine mammals, resources or sanctuaries; noise; threatened and endangered species or critical habitat; waste management; water resources; or wetlands. This recommendation requires spending approximately \$0.1M for environmental compliance activities. This cost was included in the payback calculation. This recommendation does not otherwise impact the costs of environmental restoration, waste management, and environmental compliance activities. The aggregate environmental impact of all recommended BRAC actions affecting the bases in this recommendation has been reviewed. There are no known environmental impediments to implementation of this recommendation.

Net Fires Center

Recommendation: Realign Fort Bliss, TX, by relocating the Air Defense Artillery (ADA) Center & School to Fort Sill, OK. Consolidate the Air Defense Artillery Center & School with the Field Artillery Center & School to establish a Net Fires Center.

Justification: This recommendation consolidates Net Fires training and doctrine development at a single location. The moves advance the Maneuver Support Center (MANSCEN) model, currently in place at Ft. Leonard Wood, which consolidated the Military Police, Engineer, and Chemical Centers and Schools. This recommendation improves the MANSCEN concept by consolidating functionally related Branch Centers & Schools, which fosters consistency, standardization, and training proficiency. It also facilitates task force stabilization, by combining operational forces with institutional training. In addition, it consolidates both ADA and Field Artillery skill level I courses at one location, which allows the Army to reduce the total number

of Military Occupational Skills training locations (reducing the TRADOC footprint). Additionally, it enhances military value, supports the Army's force structure plan, and maintains sufficient surge capability to address future unforeseen requirements. It improves training capabilities while eliminating excess capacity at institutional training installations. This provides the same or better level of service at a reduced cost. This recommendation supports Army Transformation by collocating institutional training, Modification Table of organization and Equipment (MTOE) units, Research, Development, Test and Evaluation (RDTE) organizations and other TDA units in large numbers on single installations to support force stabilization and engage training.

Payback: The total estimated one-time cost to the Department of Defense to implement this recommendation is \$247.0M. The net of all costs and savings to the Department of Defense during the implementation period is a cost of \$93.0M. Annual recurring savings to the Department after implementation are \$42.6M with a payback expected in 6 years. The net present value of the costs and savings to the Department over 20 years is a savings of \$319.1M.

Economic Impact on Communities: Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 6,020 jobs (3369 direct jobs and 2651 indirect jobs) over the 2006-2011 period in the El Paso, TX, metropolitan economic area, which is 1.9 percent of economic area employment. The aggregate economic impact of all recommended actions on this economic region of influence was considered.

Community Infrastructure: A review of community attributes revealed no significant issues regarding the ability of the infrastructure of the community to support missions, forces, and personnel. There are no known community infrastructure impediments to implementation of all recommendations affecting the installations in this recommendation.

Environmental Impact: Development of a Programmatic Agreement will be necessary at Fort Sill to formalize mitigation measures and restrictions and evaluations to determine significance of cultural and historical resources. Tribal/government-to-government consultations may be required. A Noise Analysis and continuous monitoring efforts will likely be required at Fort Sill. Additional operations at Fort Sill may impact the Black-capped Vireo, possibly leading to restrictions on operations. Significant mitigation measures to limit releases may be required at Fort Sill to reduce impacts to water quality and achieve USEPA Water Quality Standards. This recommendation has no impact on dredging; land use constraints or sensitive resource areas; marine mammals, resources, or sanctuaries; waste management; or wetlands. This recommendation will require spending approximately \$0.4M for environmental compliance costs. These costs were included in the payback calculation. This recommendation does not otherwise impact the costs of environmental restoration, waste management, and environmental compliance activities. The aggregate environmental impact of all recommended BRAC actions affecting the bases in this recommendation has been reviewed. There are no known environmental impediments to implementation of this recommendation.

Aviation Logistics School

Recommendation: Realign Fort Eustis by relocating the Aviation Logistics School and consolidating it with the Aviation Center and School at Fort Rucker.

Justification: This recommendation consolidates Aviation training and doctrine development at a single location. Consolidating Aviation Logistics training with the Aviation Center and School fosters consistency, standardization and training proficiency. It consolidates both Aviation skill level I producing courses at one location, which allows the Army to reduce the total number of Military Occupational Skills (MOS) training locations (lessening the TRADOC footprint). Additionally, it enhances military value, supports the Army's force structure plan, and maintains sufficient surge capability to address future unforeseen requirements. It improves training capabilities while eliminating excess capacity at institutional training installations. This provides the same or better level of service at a reduced cost. This recommendation supports Army Transformation by collocating institutional training, MTOE units, RDTE organizations and other TDA units in large numbers on single installations to support force stabilization and engage training.

Payback: The total estimated one-time cost to the Department of Defense to implement this recommendation is \$492.3M. The net of all costs and savings to the Department of Defense during the implementation period is a cost of \$348.1M. Annual recurring savings to the Department after implementation are \$42.9M with a payback expected in 13 years. The net present value of the costs and savings to the Department over 20 years is a savings of \$77.4M.

Economic Impact on Communities: Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 5000 jobs (2410 direct jobs and 2590 indirect jobs) over the 2006-2011 period in the Virginia Beach-Norfolk-Newport News, VA, metropolitan statistical area, which is 0.5 percent of economic area employment. The aggregate economic impact of all recommended actions on this economic region of influence was considered.

Community Infrastructure: A review of community attributes revealed no significant issues regarding the ability of the infrastructure of the communities to support missions, forces, and personnel. There are no known community infrastructure impediments to implementation of all recommendations affecting the installations in this recommendation.

Environmental Impact: This recommendation has no impact on air quality; cultural, archeological, or tribal resources; dredging; land use constraints or sensitive resource areas; marine mammals, resources, or sanctuaries; noise; threatened and endangered species or critical habitat; waste management; water resources; or wetlands. This recommendation will require spending approximately \$0.4M for environmental compliance activities. This cost was included in the payback calculation. This recommendation does not otherwise impact the costs of environmental restoration, waste management, and environmental compliance activities. The aggregate environmental impact of all recommended BRAC actions affecting the bases in this recommendation has been reviewed. There are no known environmental impediments to implementation of this recommendation.

Combat Service Support Center

Recommendation: Realign Fort Eustis, VA, by relocating the Transportation Center and School to Fort Lee, VA. Realign Aberdeen Proving Ground, MD by relocating the Ordnance Center and School to Fort Lee, VA. Realign Redstone Arsenal, AL, by relocating the Missile and Munitions Center to Fort Lee, VA. Consolidate the Transportation Center and School and the Ordnance Center and School with the Quartermaster Center & School, the Army Logistic Management College, and Combined Arms Support Command, to establish a Combat Service Support Center at Fort Lee, VA.

Justification: This recommendation consolidates Combat Service Support (CSS) training and doctrine development at a single installation, which promotes training effectiveness and functional efficiencies. The moves advance the Maneuver Support Center (MANSCEN) model, currently in place at Fort Leonard Wood, MO, which consolidates the Military Police, Engineer, and Chemical Centers and Schools. This recommendation improves the MANSCEN concept by consolidating functionally related Branch Centers & Schools. It enhances military value, supports the Army's force structure plan, and maintains sufficient surge capability to address future unforeseen requirements. It improves training capabilities while eliminating excess capacity at institutional training installations. This provides the same or better level of service at a reduced cost. This recommendation supports Army Transformation by collocating institutional training, MTOE units, RDTE organizations, and other TDA units in large numbers on single installations to support force stabilization and engage training.

Payback: The total estimated one-time cost to the Department of Defense to implement this recommendation is \$754.0M. The net of all costs and savings to the Department of Defense during the implementation period is a savings of \$352.4M. Annual recurring savings to the Department after implementation are \$131.8M with a payback expected in 6 years. The net present value of the costs and savings to the Department over 20 years is a savings of \$934.2M.

Economic Impact on Communities: Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 3,581 jobs (1,709 direct jobs and 1,872 indirect jobs) over the 2006-2011 period in the Virginia Beach-Norfolk-Newport New, VA-NC, metropolitan economic area, which is 0.4 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 7,386 jobs (4,200 direct jobs and 3,186 indirect jobs) over the 2006-2011 period in the Baltimore-Towson, MD, metropolitan economic area, which is 0.5 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 2,120 jobs (1,443 direct jobs and 677 indirect jobs) over the 2006-2011 period in the Huntsville, AL, metropolitan economic area, which is 0.9 percent of economic area employment.

The aggregate economic impact of all recommended actions on these economic regions of influence was considered.

Community Infrastructure: A review of community attributes revealed no significant issues regarding the ability of the infrastructure of the communities to support missions, forces, and personnel. There are no known community infrastructure impediments to implementation of all recommendations affecting the installations in this recommendation.

Environmental Impact: This recommendation may impact air quality at Fort Lee. However, noise caused by Ordnance School operations may result in significant impacts at Fort Lee. A noise analysis and mitigation may be required. This recommendation will have some impact on water resources at Fort Lee due to the increased in demand from incoming personnel. This recommendation may require upgrade of wastewater treatment plan. This recommendation has no impact on cultural, archeological, or tribal resources; dredging; land use constraints or sensitive resource areas; marine mammals, resources, or sanctuaries; threatened and endangered species or critical habitat; or wetlands. The recommendation will require spending approximately \$1.2M for environmental compliance activities. This cost was included in the payback calculation. This recommendation does not otherwise impact the costs of environmental restoration, waste management, and environmental compliance activities. The aggregate environmental impact of all recommended BRAC actions affecting the bases in this recommendation has been reviewed. There are no known environmental impediments to implementation of this recommendation.

**EDUCATION AND TRAINING
JOINT CROSS-SERVICE GROUP**



CAPACITY ANALYSIS REPORT

TO THE

INFRASTRUCTURE STEERING GROUP

20 April 2005

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TABLE OF CONTENTS

| | <u>Page</u> |
|--|-------------|
| EXECUTIVE SUMMARY | i |
| OVERVIEW OF EDUCATION AND TRAINING JCSG CAPACITY ANALYSIS | |
| SECTION 1 | 1 |
| FLIGHT TRAINING SUBGROUP CAPACITY ANALYSIS | |
| SECTION 2 | 12 |
| PROFESSIONAL DEVELOPMENT EDUCATION SUBGROUP CAPACITY ANALYSIS | |
| SECTION 3 | 20 |
| SPECIALIZED SKILL TRAINING SUBGROUP CAPACITY ANALYSIS | |
| SECTION 4 | 33 |
| RANGES AND COLLECTIVE TRAINING SUBGROUP CAPACITY ANALYSIS | |
| Appendix: Capacity Analysis Data Call Questions (IQT)..... | A-1 |
| (FT, PDE, SST, Ranges) | |

EXECUTIVE SUMMARY

Capacity Analysis Report

The Education and Training Joint Cross Service Group (E&T JCSG) has four subgroups: Flight Training (FT), Professional Development Education (PDE), Specialized Skill Training (SST), and Ranges & Collective Training Capability (Ranges). E&T JCSG functions encompass designated institutional educational and training programs regardless of Service component, agency or curricula content. The E&T JCSG was designated to evaluate active and reserve component (AC/RC) institutions, special operations forces (SOF) schools, defense agencies schools, and civilian institutions, with the exceptions of healthcare (all categories) and intelligence (professional education category). Also, excluded from E&T JCSG analysis were categories/sub-categories of institutional education and training to be evaluated by the Services, e.g., basic and recruit training, officer acquisition training, junior officer PME, enlisted leadership programs, and Army One-Station Unit Training. The Ranges and Collective Training Capability Subgroup was designated to evaluate training ranges, test and evaluation ranges, and simulation centers. As described in initial and interim Capacity Analysis reports, functions/sub-functions were refined with subgroups' rationale and subsequent E&T JCSG and Infrastructure Steering Group (ISG) approval.

Each E&T JCSG subgroup focused capacity analysis calculations on installations' existing operational and physical capability to perform specific functions/sub-functions. Each subgroup calculated capacity for each function/sub function using defined attributes and metrics. Questions, formulas, and filters were developed and tested for validity and adequacy. Data call questions were vetted through the Data Standardization Team to ensure quality data. Questions were issued to installations in the form of controlled data calls. Responses from installations were compiled and transmitted to E&T JCSG subgroups from the central OSD database in the form of certified data. Each E&T subgroup performed a capacity analysis review for their functions which included a review of potential surge requirements and future force structure requirements. Responses helped identify specific locations where functions were performed which provided an overall scope of the universe for each function. At each step, the adequacy and quality of the data were independently validated by the DoD Inspector General.

The FT subgroup identified bases presently assigned UFT, URWT, NFO, and UNT missions with excess runway capacity as high as 78% for T-34 operations at NAS Whiting, Florida, or as low as 12% for all fixed-wing operations at Sheppard AFB, Texas. Special Use Airspace (SUA) usage was identified as the second "fixed quantity asset" which impacts UFT Fixed-wing operations. Excess airspace capacity ranged from a high of 71% at NAS Kingsville, Texas to a low of 6% at NAS Whiting Field.

Education & Training Joint Cross-Service Group

Undergraduate Flight Training requires pilot candidates to fly the majority of their training missions during daylight hours. This factor was included in the capacity calculations. Excess ramp space exists at 10 installations, but may be constrained at Laughlin AFB, Texas, and Vance AFB, Oklahoma, which presently use 102% and 97%, respectively. Data identified excess classroom capacity, ranging from a low of 45% excess capacity at Laughlin AFB to a high of 88% at NAS Whiting Field. Finally, data indicated all fields have excess capacity for simulators with the exception of NAS Meridian (27% deficit) and NAS Whiting Field (deficit of 12%).

The FT Subgroup evaluated 965 airfields in the Continental United States in order to determine those best suited to perform the Joint Strike Fighter (JSF) training mission. Using Service-endorsed JSF basing criteria to screen/identify airfields, FT identified 31 installations that met basic infrastructure criteria and merited further analysis.

PDE subgroup received 100% of the required capacity data. The majority of the data was obtained through the OSD-certified Capacity Analysis Database (CAD) and the remaining data was received via “hard copy” along with the appropriate certification letter(s) from the service Deputy Assistant Secretaries (DAS) and Defense Agencies. The analysis identified excess capacities for PME/JPME, Graduate Education, and other full-time education (OFTE) functions.

The SST Subgroup’s capacity analysis encompassed 70 installations. The maximum potential excess capacity (unsustainable baseline) across all the installations reflected an excess in berthing (10%), a shortage in messing (45%), and excess in classrooms (88%). The current capacity calculation across all installations has shown excess berthing (10% - same as maximum potential capacity), a shortage in messing (45% - same as maximum potential capacity), and excess classrooms (42%). (Note: classroom capacity can increase by running three shifts per day, but messing and berthing do not increase by running additional shifts).

The Ranges Subgroup reviewed capacity for training and for test and evaluation and received 100% of the required Capacity data. The training range capacity of the filtered activities identified (when 25% surge capacity was factored in) no excess capacity at the ground or air ranges and a 28% excess capacity at sea ranges. The T&E range capacity activities identified (when 10% surge capacity was factored in) a 9.43% excess capacity.

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SECTION 1 FLIGHT TRAINING SUBGROUP CAPACITY ANALYSIS

1. Introduction

- a. The E&T JCSG Flight Training (FT) Subgroup scope of analysis includes DoD installations and functions for Officer Flight Training in the following sub-functions:
 - i. Undergraduate Flight Training (UFT)
 - 1) Fixed-wing Pilot (UFWT)
 - 2) Rotary-wing Pilot (URWT)
 - 3) Navigator/Naval Flight Officer/Combat Systems Officer (NAV/NFO/CSO)
 - ii. Graduate Flight Training
 - 1) Joint Strike Fighter (JSF) Pilot
 - 2) Unmanned Aerial Vehicle (UAV) Operator

- b. The analysis did not include:
 - i. Retiring aircraft in BRAC implementation window of 2011, Service-unique, Single-site, and/or Specialized (e.g. Special Ops) aircraft flight training.
 - ii. Air Battle Manager (ABM) training (Air Force will review this unique training).
 - iii. Tilt-rotor (V-22), H-60 Series, and Airlift Pilot (C-130J, C-12) flight training (ISG remanded this training to appropriate parent Service for review).
 - iv. Specialized Skills Training (SST) Subgroup evaluated JSF maintenance training installation requirements. FT and SST Subgroups collaborated on a proposal to integrate JSF initial flight and maintenance training at a single base.
 - v. SST Subgroup will evaluate Enlisted Aircrew Undergraduate Flight Training (Navy “A” Schools and Air Force “3-level” training programs conduct flight training (loadmaster, flight engineer, and gunner) at the Graduate level).

- c. **Function parameters:** On 23 July 2004, the ISG directed the E&T JCSG FT Subgroup to only review graduate level flight training for the Joint Strike Fighter (JSF) and Unmanned Aerial Vehicle (UAV; Predator & Global Hawk joint platforms only) programs and then provided the following guidance for Graduate Flight Training: “Only those aircraft flown by more than one Service are considered within E&T JCSG’s scope of analysis.”

Education & Training Joint Cross-Service Group

2. Organization. The Chief of Naval Air Training (CNATRA), RADM George Mayer, is the chair of the E&T JCSG FT Subgroup. The FT Subgroup has no subset group specifically designated to conduct capacity analysis. A one-person “Director of Analysis” organizes and manages data collection, assigns areas for data analysis, and prepares data for presentation.

3. Inventory of Installations.

a. Undergraduate Flight Training

i. Fixed-Wing Pilot Training

| | | |
|------------------------|-----------------------|------------------|
| Columbus AFB, MS | NAS Kingsville, TX | Sheppard AFB, TX |
| Laughlin AFB, TX | NAS Meridian, MS | Vance AFB, OK |
| Moody AFB, GA | NAS Whiting Field, FL | |
| NAS Corpus Christi, TX | Randolph AFB, TX | |

ii. Rotary-Wing Pilot Training

| | |
|-----------------|-----------------------|
| Fort Rucker, AL | NAS Whiting Field, FL |
|-----------------|-----------------------|

iii. NAV/NFO/CSO Training

| | |
|-------------------|------------------|
| NAS Pensacola, FL | Randolph AFB, TX |
|-------------------|------------------|

b. Graduate Training

i. Fixed-Wing Pilot Training (JSF)

FT Subgroup evaluated 965 airfields in the Continental United States to discover which were best suited to perform the Joint Strike Fighter (JSF) training mission. FT used the service-endorsed JSF basing criteria to screen/identify airfields. Of the 31 airfields that meet basic infrastructure criteria, the following 11 installations meet two or more “first tier” criteria (i.e. meet criteria services’ established for runway length/width, field elevation, and/or distance to coastline within 550 nautical miles).

| | | | |
|--------------------|------------------|------------------|-----|
| MCAS Beaufort, SC | Moody AFB, GA | Columbus AFB, MS | NAS |
| Pensacola, FL | Eglin AFB, FL | Shaw AFB, SC | |
| NAS Kingsville, TX | Tyndall AFB, FL | Laughlin AFB, TX | |
| Vance AFB, OK | NAS Meridian, MS | | |

ii. UAV (Predator/Global Hawk) Training

The FT Subgroup evaluated airfields using a service endorsed requirements matrix to determine baseline requirements for a UAV Center of Excellence (COE). While many bases surfaced with infrastructure suitable to host a UAV COE, a USAF requirement that entry-level aviators have access to and fly the Predator, made airspace

Education & Training Joint Cross-Service Group

the single most weighted factor in nominating a base for initial UAV training. DoD Installations conducting UAV training are:

Choctaw OLF, FL
Fort Huachuca, AZ
Indian Springs AFB, NV

4. Capacity Analysis Methodology.

- a. FT Subgroup capacity analysis measured runway, airspace, ramp space and ground-training facilities that support fixed and rotary wing flight training operations. It is based on existing/approved curriculum requirements, existing infrastructure, and FY 2004 obligated military construction funding. Metrics and analysis calculations were based on aircraft currently assigned to a particular base.

The two primary resources the E&T JCSG FT Subgroup measured are: 1) runway(s) and, 2) airspace capacity. FT Subgroup used the methodology described in FAA Advisory Circular 150.5060-5, "Airport Capacity and Delay Manual" as their basis to calculate runway capacity for fixed-wing aircraft. This methodology defines the number of runway operations users could conduct during daylight hours over the course of a year. The approach accounts for weather conditions, the number and configuration of runways (main and outlying fields), the mix of aircraft, and the percentage of touch-and-go operations at home station and auxiliary fields. FT Subgroup calculated airspace requirements based on training events in each flying training syllabus to determine, as a function of student throughput, the number and size of dedicated blocks of airspace required for each type of training event (e.g., contact, formation flying, etc.). This approach summed dedicated airspace required to perform all flying events and compared this area (sq. nm as "shadow on the ground") with the available Special Use Airspace controlled/scheduled by the installation. Due to the fact a single block of airspace may support many types of training events during a single day, there is no viable way to calculate a fixed Maximum Potential Capacity for airspace. Instead FT determined Maximum Capacity using a time component (11-hour window for each of the 244 student training days each year) and airspace requirement relationship for syllabus-driven and overhead training events. An increase in the number of flight hours (over 11 hours per day) or number of days dedicated to flight training (over 244 days per academic year) would decrease the number of blocks of airspace, and subsequently the amount of airspace required for a specific syllabus objective when measured for a set number of students. Given the notion that the combination of training events a given block of airspace could accommodate is infinite, the group was unable to distinguish an upper limiting factor to determine Maximum Potential Capacity. Prudent scheduling may well result in more training without a commensurate increase in special use airspace. That said, it is important to note the amount of airspace and its location relative to the main operating base are important considerations because safety demands most flying events take place during daylight hours. This combination of factors may limit the ability to

Education & Training Joint Cross-Service Group

“grow” UFT units at a location where there is abundant excess parking apron and runway capacity but limited airspace.

- b. Two secondary resources FT Subgroup measured are; 1) Ramp (Apron) Area and, 2) Ground Training Facilities. FT Subgroup defined Ramp Capacity in square yards of usable ramp space. Capacity calculations compared total area available with area required to accommodate the “footprint” (parked and taxi operations) for aircraft assigned to an installation. FT Subgroup divided Ground Training Facilities into two categories: 1) Classrooms and 2) Simulators. Capacity calculations were based on the number of facilities and their design capacity (maximum student population). This approach summed the requirements over all events for the planned student throughput requirement and compared this requirement with available resources.

5. Capacity Definitions. The FT Subgroup terms and definitions follow:

- a. **Maximum Potential Capacity** is a theoretical maximum (unconstrained/multiple shifts) operational dimension for an existing physical plants' capability to perform functions/sub-functions over a period of 365 days X 24 hours per day minus restrictions (weather and statutory/legislative restrictions) measured against existing runways/airspace/et cetera.
- b. **Current Capacity** is demonstrated based on the standardized/peacetime operations for existing physical plants' capability to perform functions/sub-functions (normalized for comparability between Services' installations). All measurements are in accordance with peacetime restrictions and constraints (e.g., environment/weather, encroachment, and legislation) based on 244 training days X 12 hours per day and existing runways/airspace/et cetera.
- c. **Current Usage** is derived from the certified MilDep & Def Agency responses (and subsequent updates) to BRAC data calls. Current usage may be “current capacity” as defined above and considers maintenance/equipment downtime, end strength (faculty, staff, and students), personnel resources/accounts (pay/overtime pay), duty hours (e.g., days/year, hours/day for budgetary constraints), training policy/requirements, et cetera.

*Note: **Future Usage** requirements (end strength driven education and training requirements, weapon system acquisition or modification driven education and training requirements, out year budgets, et cetera) will impact current usage.*

- d. **Surge Capacity** is an additional “capability hedge” to meet unanticipated increases within an existing physical plants' capability to perform functions/sub-functions. Surge capacity for Flight Training is defined as the current usage plus 20%.

*Note: **Surge Capacity**. No formal surge requirements for DoD flight training.*

Education & Training Joint Cross-Service Group

- e. **Excess Capacity** is an installation's current capacity minus current usage plus surge capacity. For example, current capacity (standardized/peacetime operations) minus current usage (certified Data Call #1 responses) may be greater than Current Capacity minus Surge Capacity (20% of current usage).
6. **Capacity Analysis Results.** The capacity analysis for E&T JCSG FT Subgroup yielded the following results:
- a. **Undergraduate Flight Training**
General: FT Subgroup worked with Service BRAC offices to collect certified data for Capacity Analysis. Tables in this Report are as follows: 1) Runway Capacity Analysis Table includes annual runway operations (current usage) and 20% surge based on FY03 data, 2) Airspace Capacity Analysis Table includes syllabus requirements per sortie, annual pilot training throughput requirements and the total square miles of owned/scheduled airspace, 3) Ramp (Apron) Analysis Table includes the total square yards of reported ramp space divided by the footprint of the aircraft (type/model/series) times the number of aircraft assigned, and 4) Ground Training Facility Analysis Table includes the total number of available seats for student throughput requirements for each syllabus.

Education & Training Joint Cross-Service Group

i. Results for Undergraduate Training: Fixed-Wing Pilot

| | NAS Corpus Christi | NAS Kingsville | NAS Meridian | NAS Whiting Field (FW T-34) | NAS Whiting Field (FW T-6) | Columbus AFB | Laughlin AFB | Moody AFB | Sheppard AFB | Vance AFB |
|---|--------------------|----------------|--------------|-----------------------------|----------------------------|--------------|--------------|-----------|--------------|-----------|
| Runway Capacity (Annual Runway Operations) | | | | | | | | | | |
| Max Potential Cap. | 913,349 | 723,920 | 535,277 | 2,689,874 | 1,608,510 | 901,313 | 955,974 | 414,309 | 736,012 | 832,827 |
| Current Capacity | 614,092 | 483,935 | 357,829 | 1,798,162 | 1,075,278 | 602,521 | 639,062 | 276,963 | 521,687 | 556,739 |
| Current Usage | 362,176 | 171,004 | 249,380 | 328,302 | 328,302 | 408,256 | 398,325 | 142,604 | 383,816 | 382,755 |
| % Usage | 59% | 35% | 70% | 18% | 31% | 68% | 62% | 51% | 74% | 69% |
| Usage + Surge | 434,611 | 205,205 | 299,256 | 393,962 | 393,962 | 489,907 | 477,990 | 171,125 | 460,579 | 459,306 |
| % (Usage + Surge) | 71% | 42% | 84% | 22% | 37% | 81% | 75% | 62% | 88% | 82% |
| Excess Capacity | 179,480 | 278,731 | 58,573 | 1,404,200 | 681,316 | 112,614 | 161,072 | 105,838 | 61,108 | 97,433 |
| % Excess | 29% | 58% | 16% | 78% | 63% | 19% | 25% | 38% | 12% | 18% |
| Airspace Capacity (Sq. nm of SUA) | | | | | | | | | | |
| Max Potential Cap. | 15,569 | 12,338 | 6,980 | 6,717 | 7,385 | 6,471 | 9,081 | 8,186 | 9,791 | 9,791 |
| Current Capacity | 15,569 | 12,338 | 6,980 | 6,717 | 7,385 | 6,471 | 9,081 | 8,186 | 9,791 | 9,791 |
| Current Usage | 4,740 | 3,025 | 2,650 | 5,250 | 3,800 | 3,800 | 2,250 | 4,880 | 3,600 | 3,600 |
| % Usage | 30% | 25% | 38% | 78% | 51% | 59% | 25% | 60% | 37% | 37% |
| Usage + Surge | 5,688 | 3,630 | 3,180 | 6,300 | 4,560 | 4,560 | 2,700 | 5,856 | 4,320 | 4,320 |
| % (Usage + Surge) | 37% | 29% | 46% | 94% | 62% | 70% | 30% | 72% | 44% | 44% |
| Excess Capacity | 9,881 | 8,708 | 3,800 | 417 | 2,825 | 1,911 | 6,381 | 2,330 | 5,471 | 5,471 |
| % Excess | 63% | 71% | 54% | 6% | 38% | 30% | 70% | 28% | 56% | 56% |
| Ramp Capacity (Sq. yd. Usable Space) | | | | | | | | | | |
| Max Potential Cap. | 404,623 | 305,267 | 313,878 | 354,419 | 410,887 | 297,242 | 494,485 | 483,667 | 297,268 | 297,268 |
| Current Capacity | 404,623 | 305,267 | 313,878 | 354,419 | 410,887 | 297,242 | 494,485 | 483,667 | 297,268 | 297,268 |
| Current Usage | 289,714 | 150,841 | 186,438 | 166,386 | 272,128 | 301,867 | 192,387 | 300,877 | 287,229 | 287,229 |
| % Usage | 72% | 49% | 59% | 47% | 66% | 102% | 39% | 62% | 97% | 97% |
| Usage + Surge | 347,657 | 181,010 | 223,725 | 199,664 | 326,554 | 362,240 | 230,865 | 361,053 | 344,674 | 344,674 |
| % (Usage + Surge) | 86% | 59% | 71% | 56% | 79% | 122% | 47% | 75% | 116% | 116% |
| Excess Capacity | 56,966 | 124,257 | 90,153 | 154,755 | 84,333 | -64,998 | 263,620 | 122,614 | -47,407 | -47,407 |
| % Excess | 14% | 41% | 29% | 44% | 21% | -22% | 53% | 25% | -16% | -16% |
| Classroom Capacity (Annual Student Hours) | | | | | | | | | | |
| Max Potential Cap. | 1,497,960 | 464,280 | 473,040 | 4,064,640 | 4,765,440 | 4,204,800 | 2,049,840 | 4,406,280 | 5,015,100 | 5,015,100 |
| Current Capacity | 667,584 | 206,912 | 210,816 | 1,811,456 | 2,123,776 | 1,873,920 | 913,536 | 1,963,712 | 2,235,040 | 2,235,040 |
| Current Usage | 142,057 | 24,783 | 39,350 | 188,261 | 870,875 | 864,882 | 294,653 | 566,447 | 813,793 | 813,793 |
| % Usage | 21% | 12% | 19% | 10% | 41% | 46% | 32% | 29% | 36% | 36% |
| Usage + Surge | 170,468 | 29,739 | 47,219 | 225,913 | 1,045,050 | 1,037,858 | 353,584 | 679,736 | 976,551 | 976,551 |
| % (Usage + Surge) | 26% | 14% | 22% | 12% | 49% | 55% | 39% | 35% | 44% | 44% |
| Excess Capacity | 497,116 | 177,173 | 163,597 | 1,585,543 | 1,078,726 | 836,062 | 559,952 | 1,283,976 | 1,258,489 | 1,258,489 |
| % Excess | 74% | 86% | 78% | 88% | 51% | 45% | 61% | 65% | 56% | 56% |
| Simulator Capacity (Annual Student Hours) | | | | | | | | | | |
| Max Potential Cap. | 135,780 | 464,280 | 39,420 | 135,780 | 87,600 | 122,640 | 52,560 | 52,560 | 78,840 | 78,840 |
| Current Capacity | 60,512 | 206,912 | 17,568 | 60,512 | 39,040 | 54,656 | 23,424 | 23,424 | 35,136 | 35,136 |
| Current Usage | 27,085 | 12,010 | 18,593 | 56,528 | 26,812 | 27,151 | 17,430 | 15,669 | 24,874 | 24,874 |
| % Usage | 45% | 6% | 106% | 93% | 69% | 50% | 74% | 67% | 71% | 71% |
| Usage + Surge | 32,502 | 14,412 | 22,311 | 67,833 | 32,174 | 32,581 | 20,916 | 18,803 | 29,849 | 29,849 |
| % (Usage + Surge) | 54% | 7% | 127% | 112% | 82% | 60% | 89% | 80% | 85% | 85% |
| Excess Capacity | 28,010 | 192,500 | -4,743 | -7,321 | 6,866 | 22,075 | 2,508 | 4,621 | 5,287 | 5,287 |
| % Excess | 46% | 93% | -27% | -12% | 18% | 40% | 11% | 20% | 15% | 15% |

Education & Training Joint Cross-Service Group

ii. Results for Undergraduate Flight Training: Rotary-Wing Pilots

| | Runway Capacity (Annual runway operations) | | Apron Space (Square yards) | |
|------------------------|---|---------------------------|--|---------------------------|
| | Fort Rucker | NAS Whiting Field (RW) | Fort Rucker | NAS Whiting Field (RW) |
| Max Potential Capacity | 21,261,250 | 3,767,009 | 1,827,741 | 430,365 |
| Current Capacity | 14,213,000 | 2,518,220 | 1,827,741 | 430,365 |
| Current Usage | 2,250,588 | 1,038,220 | 729,217 | 172,767 |
| % Usage | 16% | 41% | 40% | 40% |
| Usage + Surge | 2,700,706 | 1,245,864 | 875,060 | 207,320 |
| % (Usage + Surge) | 19% | 49% | 48% | 48% |
| Excess Capacity | 11,512,294 | 1,272,356 | 952,681 | 223,045 |
| % Excess | 81% | 51% | 52% | 52% |
| | Classroom Capacity (Annual Student Hours) | | Simulator Capacity (Annual Student Hours) | |
| Max Potential Capacity | 7,358,400 | 4,064,640 | 1,581,180 | 135,780 |
| Current Capacity | 3,279,360 | 1,811,456 | 704,672 | 60,512 |
| Current Usage | 966,265 | 188,261 | 127,662 | 56,528 |
| % Usage | 29% | 10% | 18% | 93% |
| Usage + Surge | 1,159,518 | 225,913 | 153,195 | 67,833 |
| % (Usage + Surge) | 35% | 12% | 22% | 112% |
| Excess Capacity | 2,119,842 | 1,585,543 | 551,477 | -7,321 |
| % Excess | 65% | 88% | 78% | -12% |

iii. Results for Undergraduate Flight Training: Navigator/Naval Flight Officer Fixed-Wing

| | Runway Capacity (Annual runway operations) | | Ramp Capacity (Sq. yd. Usable Space) | | Airspace Capacity (Sq. nm of SUA) | |
|------------------------|---|-----------------|--|-----------------|--------------------------------------|-----------------|
| | NAS Pensacola | Randolph AFB | NAS Pensacola | Randolph AFB | NAS Pensacola | Randolph AFB |
| Max Potential Capacity | 396,464 | 712,544 | 330,910 | 597,912 | 6,630 | 4,925 |
| Current Capacity | 265,033 | 482,491 | 330,910 | 597,912 | 6,630 | 4,925 |
| Current Usage | 85,836 | 180,949 | 141,655 | 263,744 | 5,104 | 1,125 |
| % Usage | 32% | 38% | 43% | 44% | 77% | 23% |
| Usage + Surge | 103,003 | 217,138 | 169,986 | 316,493 | 6,125 | 1,350 |
| % (Usage + Surge) | 39% | 45% | 51% | 53% | 92% | 27% |
| Excess Capacity | 162,030 | 265,353 | 160,923 | 281,419 | 505 | 3,575 |
| % Excess | 61% | 55% | 49% | 47% | 8% | 73% |
| | Classroom Capacity (Annual Student Hours) | | Simulator Capacity (Annual Student Hours) | | | |
| Max Potential Capacity | 3,587,220 | 4,822,380 | 113,880 | 65,700 | | |
| Current Capacity | 1,598,688 | 2,149,152 | 50,752 | 29,280 | | |
| Current Usage | 164,593 | 330,324 | 18,618 | 11,284 | | |
| % Usage | 10% | 15% | 37% | 39% | | |
| Usage + Surge | 197,512 | 396,389 | 22,342 | 13,540 | | |
| % (Usage + Surge) | 12% | 18% | 44% | 46% | | |
| Excess Capacity | 1,401,176 | 1,752,763 | 28,410 | 15,740 | | |
| % Excess | 88% | 82% | 56% | 54% | | |

Education & Training Joint Cross-Service Group

b. Graduate Flight Training, Pilot, Fixed Wing (JSF).

The FT Subgroup used Service-endorsed criteria derived from a base selection matrix developed by the Joint Program Office to guide the search for the location to nominate as the best place to host JSF Initial Joint Training unit(s). FT evaluated 3,318 airfields named in the DoD Airfield Suitability, and Requirements Report (965 of which lay within the Continental US). FT eliminated 3,287 airfields from consideration based on one or more of the following:

- 1) Airfield does not lay within the Continental United States
- 2) Airfield designated Civilian, Air National Guard, or Air Reserve use
- 3) Airfield elevation is higher than 3,000 feet mean sea level
- 4) Airfield main runway is less than 8,000 feet
- 5) No second runway or second runway is less than 8,000 feet
- 6) Airfield is greater than 550 nautical miles from the coastline
- 7) Traditional weather is less than 3,000/3 more than 200 days a year

The remaining 31 airfields meet basic infrastructure criteria to host the JSF training mission but, based on military judgment, the present mission at the following 20 bases make nomination to host the initial JSF Schoolhouse in the near term imprudent or infeasible.

| | |
|--------------------|---|
| Altus AFB | Strategic Airlift (C-17) Training Base |
| Andrews AFB | Proximity to DC as DV Airlift Mission |
| Brunswick NAS | Poor weather conditions |
| Cherry Point MCAS | Operational AV-8B, C-130, and EA-6B Base |
| China Lake NAWS | Test & Evaluation Center |
| Dover AFB | Strategic Airlift Hub |
| Lemoore NAS | Operational Fixed-/Rotary-wing Base |
| Luke AFB | Fighter (F-16) Training Center |
| McConnell AFB | Operational KC-135 Tanker Base |
| Miramar MCAS | Operational Fixed-/Rotary-wing Base |
| Nellis AFB | Operational Fighter/Exercise Base |
| Oceana NAS | Operational (F/A-18/F-14) Base |
| Patuxent River NAS | Test & Evaluation Center |
| Randolph AFB | Pilot Instructor Training Base |
| Scott AFB | Headquarters TRANSCOM/AMC |
| Sheppard AFB | Euro-NATO Joint Jet Pilot Training (Treaty Limited) |
| Tinker AFB | Major Depot, Operational AWACS/TACAMO Base |
| Travis AFB | Strategic Airlift Hub |
| Whidbey Island NAS | Operational Fixed-/Rotary-wing Base |
| Yuma MCAS | Joint Civil-use Airfield |

Education & Training Joint Cross-Service Group

The first 11 installations listed below, represent the remaining candidates for the Joint Strike Fighter Initial Training Site and formed the universe for more detailed analysis. In addition, the Services requested that MCAS Cherry Point, MCAS Yuma, Sheppard AFB and Randolph AFB be included for a total of 15 as possible candidates.

| | | | |
|----------------|--------------|---------------|-------------------|
| MCAS Beaufort | NAS Meridian | Vance AFB | MCAS Yuma |
| Moody AFB | Eglin AFB | NAS Pensacola | Sheppard AFB |
| Shaw AFB | Laughlin AFB | Tyndall AFB | MCAS Cherry Point |
| NAS Kingsville | Columbus AFB | Randolph AFB | |

Education & Training Joint Cross-Service Group

JOINT STRIKE FIGHTER (JSF) BASING DISCRIMINATORS FOR USAF/USN/USMC

| CATEGORY | Desired | Min Required | Least Desired |
|---------------------------|-------------------------------------|---|---|
| AIRFIELD | | | |
| MOB Runway | > 2 Parallel 9,000' x 200' | Single/2 crossed 8,000' x 150' | Runway < 8,000' x 150' |
| MOB Elevation | < 1,000 MSL | > 1,000 but ≤ 3,000 MSL | > 3,000 MSL |
| MOB to Carrier | < 600NM | | > 600NM |
| Acft Parking Apron | 140 aircraft | 140 but ≥ 75 acft | < 75 aircraft |
| Arm/De-arm Pads | 12 each @ runway ends | Room to construct 24 pads | No room to arm/de-arm |
| MOB STOVL Ops | 3 Pads / Strip IAW BTC | | No room for STOVL Pads |
| Aux Runway | 8,000' x 150' | | < 8,000' x 150' |
| | < 50NM from MOB | | > 50NM from MOB |
| Aux Fld Availability | 24-hour operations | ≥ 18-hour but < 24-hour ops | < 18-hour operations |
| Aux Fld Elevation | < 1,000 MSL | ≥ 1,000 but < 3,000MSL | > 3,000 |
| Aux Fld Config | FCLPs | | No FCLPS |
| AIRSPACE/RANGE | | | |
| MOB and/or Aux Fld | SFO pattern at both | SFO pattern at MOB or Aux | No room for SFO pattern |
| Air Refuel Tracks | < 120 NM from MOB | ≥ 120 but < 250NM | > 250 NM from MOB |
| Low Level Routes | > 3 Routes | ≥ 2 Routes | No routes |
| | Entry < 90NM from MOB | Entry < 90NM from MOB | Entry > 90NM from MOB |
| | Available 24/5 | Available < 24/5 | No night ops |
| MOA | | | |
| Dist from MOB | < 120 NM | ≥ 120 to < 150 NM | > 150 NM |
| AG Range Size | > 1,600 Sq/Mi (40x40) | ≥ 250 but < 1600 Sq/Mi | < 250 Sq/Mi |
| AG Range Location | In/beside MOA | Not collocated with MOA | |
| AG Range Alt | > 30K AGL | > 20K but < 30K AGL | < 20K AGL |
| AG Range Capacity | > 4 areas concurrent use | | < 4 areas concurrent use |
| AA Range Size | 3,200 Sq/Mi (80x40) | > 1,800 but < 3,200 Sq/Miles | < 1,800 Sq/Mi (30x60) |
| AA Range Alt | > 50K AGL | > 25K but < 50K AGL | < 25K AGL |
| AA Range Capacity | > 4 simultaneous use | | < 4 simultaneous use |
| Range Capability | Live weapon & Scoring | Inert weapon no scoring | No inert or live weapon |
| | Supersonic approved | | No supersonic |
| | Chaff/Flare/ACMI/TACTS | No Chaff/Flare/ACMI/TACTS | |
| | Threat Emitters | Limited Threat Emitters | |
| WEATHER | | | |
| Ceiling & Visibility | > 3,000 & 3 SM | ≥ 3,000 & 3 SM | > 3,000 & 3 SM |
| MOB | > 300 days/year | ≥ 200 days/year | < 200 days/year |
| Aux Field | > 250 days/year | ≥ 200 days/year | < 200 days/year |
| Range | > 250 days/year | ≥ 200 days/year | < 200 days/year |
| ENVIRONMENTAL | | | |
| Pollutant Emissions | Attainment | Attainment w/Mitigation | Non-attainment w/oMitigation |
| Noise Emissions | < 65 DNL no residential development | Noise 66 to 75 DNL with residential development | |
| TEMPO | | | |
| | Unimpeded | | Unable to meet training/syllabus requirements |
| CURRENT MISSION(S) | | | |
| | Compatible | Relocateable | Incompatible/not moveable |

Education & Training Joint Cross-Service Group

c. Initial Unmanned Aerial Vehicle Flight Training.

Unmanned Aerial Vehicle (UAV) BASING DISCRIMINATORS FOR USAF/USMC/USA

| CATEGORY | Desired | Min Required | Least Desired |
|----------------------|---|---|---|
| AIRFIELD | | | |
| MOB* | 5,000 x 150 foot runway | 3,000 x 150 feet | < 3000 x 150 feet |
| AIRSPACE/RANGE | | | |
| MOB** | W/I 20 NM | W/I 21-50 NM | More Than 50 NM Away |
| WEATHER | | | |
| Ceiling & Visibility | 1,000 & 3 SM | 1,000 & 3 SM | 1,000 & 3 SM |
| MOB | ≥ 244 days/year | ≥ 200 days/year | < 200 days/year |
| Range | ≥ 244 days/year | ≥ 200 days/year | < 200 days/year |
| ENVIRONMENTAL | | | |
| Pollutant Emissions | Attainment | Non-attainment w/Mitigation | Non-attainment w/o Mitigation |
| Noise Emissions | Noise ≤ XX DNL no residential development | Noise 'XX' to 'YY' DNL with residential development | Noise ≥ YY DNL with residential development |
| TEMPO | | | |
| | Unimpeded | Able to meet training/syllabus requirements w/alterations | Unable to meet training/syllabus requirements |
| CURRENT MISSION(S) | | | |
| | Compatible | Relocateable | Incompatible/not moveable |

* *RUNWAY CONSIDERATIONS.* UAV training may be best-accomplished using simulators that would preclude requirement for actual flights and therefore not require a runway/airspace.

** *This is in reference to air vehicles in excess of 300 lbs ramp weight.*

7. Summary. FT capacity analysis is designed to help Military Departments and OSD achieve three main objectives:

- 1) Discover feasible base realignment and closure alternatives for UFWT, URWT, NFO, and UNT programs,
- 2) Select a location for the initial (consolidated) JSF graduate-level flight training program, and
- 3) Select a location for a “Center of Excellence” to train government agents on Unmanned Aerial Vehicle (UAV) operations.

The FT Subgroup used Service-provided data to analyze 12 DoD bases that conduct UFT, URWT, NFO, and UNT as well as service-endorsed JSF and UAV graduate-

Education & Training Joint Cross-Service Group

level training program requirements to search for locations best suited to host those missions. FT identified and rationalized common practices to standardize data to attain an equitable measure of infrastructure and activities across Military Departments. The 5 “fixed quantity” categories in this analysis are: 1) Runway, 2) Airspace, 3) Ramp, 4) Classroom, and 5) Simulator capacity. It presumed Service-unique flight training programs would remain unchanged.

UFT, URT, NFO, and UNT bases have room to increase activities at certain locations. Undergraduate flight training pilot candidates fly most of their training missions during clear weather and during daylight hours, which may serve as a significant constraint to consolidate forces. Data reveals excess ramp space exists at 10 installations and constrained at two installations: Laughlin AFB, Texas, and Vance AFB, Oklahoma. Data also shows classrooms and simulators at certain locations have growth potential.

FT was tasked to nominate a candidate base to host the initial JSF Training program. FT evaluated airfields in the Continental United States against a Service-endorsed JSF Flight Training program requirements matrix. The matrix outlined fixed-facility criteria (field elevation, runway, aircraft parking apron, distance to available ranges, etc.) required for a base to perform the Joint Strike Fighter (JSF) training mission. Using Capacity data and the Service-endorsed criteria, FT found, with minor modifications, 11 installations are best suited to host the JSF training mission. In addition, the Services requested that MCAS Cherry Point, MCAS Yuma, Sheppard AFB, and Randolph AFB be added as candidates.

Since no two Services currently fly the same UAV platforms and training syllabus requirements are different, developing a methodology to compare installation capacities for UAV training was not feasible. The FT Subgroup used Military Value and a criteria matrix similar to the JSF requirements matrix to select the most suitable site for Joint UAV training. The results of UAV analysis are located in the Military Value report.

Education & Training Joint Cross-Service Group

SECTION 2

PROFESSIONAL DEVELOPMENT EDUCATION SUBGROUP CAPACITY ANALYSIS

1. Introduction.

a. Installations and processes in the Professional Development Education category include DoD Professional Military Education (PME) and Other Professional Education. The April 22, 2003, Deputy Secretary of Defense Memorandum provided the E&T JCSG an attachment that revised specific functions for E&T JCSG analysis IAW April 4, 2003 ISG meeting decisions. Professional Development Education is a category of institutional learning that includes educational courses conducted at Service or civilian institutions to broaden the outlook and knowledge of personnel or to impart knowledge in advanced academic disciplines and attended on a full-time basis. The following are functions or sub-functions to be analyzed by the PDE subgroup:

- i. **Professional Military Education (PME).** The ISG approved E&T JCSG analysis of intermediate level colleges (ILC) and senior service colleges (SSC). Primary (e.g. junior-officer) PME and enlisted leadership programs within this category are to be addressed via Service BRAC processes, if desired. All PME is Service-directed education.
 - 1) Joint Professional Military Education (JPME). JPME is a subset of PME, which (due to its criticality to DoD's capability to conduct joint operations) merits specific BRAC 2005 analysis. The institutions and programs under consideration support fulfillment of the educational requirements for joint officer management.
 - 2) JPME is an OSD/JCS directed subset to Title 10.
- ii. **Graduate Education.** PDE subgroup analysis encompasses advanced academic disciplines, graduate education, and education programs as directed by the Office of the Secretary of Defense. Specified graduate education programs are Air Force Institute of Technology and Naval Post Graduate School.
- iii. **Other Full-Time Education (OFTE) Programs.** PDE subgroup analysis of other full-time education includes federal civilian service leader development programs as well as other military and civilian professional education attended full-time (normal institutional workday). OFTE programs vary in duration and are not restricted to "degree granting" programs. In addition to chaplain schools, military law/Judge Advocate General schools, and various Defense Agency schools, OFTE programs within PDE's purview include Services' civilian personnel and other functionally oriented education and training establishments. IAW

Education & Training Joint Cross-Service Group

ISG decision, intelligence and medical/health professions are excluded from PDE OFTE analysis.

b. Function refinements.

- i. Defense Institute of Security Assistance Management (DISAM) and Defense Institute of International Legal Studies (DIILS) were approved to be removed from further JCSG-PDE analysis. E&T JCSG Principals approved on 9 Sept 2004. DISAM and DIILS are both defense-wide programs, with DISAM also containing a multi-national mission. Furthermore, the Principals requested the Services monitor these two programs closely if Wright-Patterson AFB and/or Naval Training Station Newport were recommended under Base Closure.
- ii. Defense Leadership and Management Program (DLAMP) was approved to be removed from further JCSG-PDE analysis. E&T JCSG Principals approved on 9 Sept 2004. JCSG-HSA will include DLAMP data of office space requirements in their final analysis.
- iii. Defense Ammunition Center (DAC), Defense Information School (DINFOS), and Defense Polygraph Institute (DoDPI) analysis to be conducted by JCSG-SST. Justification based on agreement between PDE and SST subgroups with approval from E&T JCSG Principals on 9 Sept 2004.
- iv. Mr. Dominguez briefed the 2003 Business Initiative Council (BIC) Study for Professional Continuing Education (PCE) to the other E&T JCSG Principals. The Principals agreed with the final recommendation of the BIC Report and voted to remove PCE from further JCSG-SST and JCSG-PDE analysis (E&T JCSG minutes, 23 September 2004).
- v. Defense Security Service Academy (DSSA) analysis to be conducted by JCSG-SST with approval from E&T JCSG Principals on 9 Sept 2004.

2. Organization. The Professional Development Education Joint Cross Service Subgroup reports findings and recommendation to the Education and Training Joint Cross Service Group, and is chaired by JCS/VDJ-7 BG Thomas Maffey.

3. Inventory of Installations and Educational Programs.

Air Force:

Maxwell AFB

- 1) Air War College (PME)
- 2) Air Command and Staff College (PME)

Education & Training Joint Cross-Service Group

- 3) Chaplains School (OFTE)
- 4) Air Force JAG (OFTE)

Wright-Patterson AFB

- 1) Air Force Institute of Technology (Graduate)

Patrick AFB

- 1) Defense Equal Opportunity Management Institute (OFTE)

Army:

Carlisle Barracks

- 1) US Army War College (PME)

Ft. Leavenworth

- 1) US Army Command and General Staff School (PME)
- 2) Non Resident School (PME)

Ft. Belvoir

- 1) Army Management Staff College (OFTE)
- 2) Defense Acquisition University (OFTE)

Ft. McNair

- 1) National Defense University (PME)

Ft. Jackson

- 1) Chaplains School (OFTE)

Charlottesville VA

- 1) DOD Military Law Graduate Degree Program (OFTE)
- 2) US Army Judge Advocate General School (OFTE)

Navy:

Monterey CA

- 1) Naval Post Graduate School (Graduate)

Naval Station Newport RI

- 1) College of Naval Warfare (PME)
- 2) College of Naval Command and Staff (PME)
- 3) Chaplains School (OFTE)
- 4) Naval Justice School (OFTE)

Naval Station Norfolk VA

- 1) Joint Forces Staff College (PME)

Marine Corps:

Marine Corps Base Quantico

- 1) Marine Corps War College (PME)
- 2) Marine Corps Command and Staff College (PME)
- 3) Marine Corps College of Continuing Education (PME)

Defense Agencies/Activities (Not Military Installations):

Memphis, TN

- 1) Defense Contract Auditing Agency (OFTE)

Education & Training Joint Cross-Service Group

4. Capacity Analysis for Assigned Programs and Installations.

a. **Capacity Definitions.** Determination of capacity is based on both the physical characteristics of the available facilities and how those facilities are utilized. Utilization standards must be established to effectively analyze capacity and to provide a baseline to compare the various installations. This analysis established standards to define maximum potential capacity, current capacity, surge capacity, and excess capacity.

- i. **Maximum Potential Capacity:** Theoretical maximum capacity for existing physical plants capability to perform functions/sub-functions. Based on 20 hour day, 365 days a year. 4 hours are unavailable due to cleaning and maintenance and class rotation requirements.
- ii. **Current Capacity:** Standardized/peacetime operations for existing physical plants' capability to perform functions / sub-functions. Based on a 6 hour day, 244 days a year. 6 hour day is based on 0900-1700 academic day with 2 hours unavailable due to lunch break and class rotation requirements.
- iii. **Surge Capacity:** Surge capacity is not applicable since there currently is no legislative requirement or DoD Instruction that calls for a surge capacity in education. If surge capacity is required, it could be accomplished through Distance Education.
- iv. **Excess Capacity:** Current capacity minus current usage.

b. Approach.

- i. **Data Collection.** The Professional Development Education Subgroup capacity analysis effort collected capacity data from the installations and programs listed in the previous section. Data collection addressed four main areas: facility data, personnel data, program data, and current and projected student throughput. Facility data identified the square footage and condition of classroom, library, faculty, auditorium, administrative and other spaces dedicated to identified PDE programs. Personnel data identified the number of authorized faculty, actual faculty, management headquarters personnel, administrative support personnel and IT personnel dedicated to PDE programs. Program data identified PDE programs at each installation and the number of student hours required to complete each program. Student throughput data identified the annual student throughput for each PDE program for FY 00 – 09.
- ii. **Capacity Assumptions.** Several assumptions were utilized to simplify the analysis process. The assumptions are geared mainly for the PME and

Education & Training Joint Cross-Service Group

graduate education programs. The other education programs included in the PDE purview are not necessarily structured around the same assumptions; however, in order to set a standard baseline metric to compare and analyze various facilities, all installations will be analyzed based on the same assumptions.

Facility Assumptions (Facility assumptions are based on: Navy Facilities (NAVFAC) P-80, 171 series); General Instruction Building Design Criteria (Army); and Handbook 32-1084 (Air Force).

- 1) 35 SF of classroom space required per student
- 2) 60 SF of classroom space required per instructor
- 3) 90 SF of office space required per instructor
- 4) 9 SF of auditorium space required per student
- 5) 100 SF of office space required per administrator
- 6) 4 part time administrators or faculty are equivalent to 1 full time administrator or faculty in terms of facility space requirements.

Program Assumptions (based on legislative requirements or accepted graduate level practices)

- 1) Intermediate Level College (ILC) programs require a student to instructor ratio of 4:1
- 2) Senior Service College (SSC) programs require a student to instructor ratio of 3.5:1
- 3) Standard seminar or class size of 15 students
- 4) Classroom Equivalent SF is equal to 585 SF. Based on (35 SF * 15 students) + 60 SF for instructor)

iii. Metric Calculations. Formulas were developed to process the raw data collected into useful metrics. The developed formulas determined metrics addressing facility requirements, percentage of facility requirements met, student load, and classroom load. Formulas were also developed to determine maximum capacity and current capacity based on both classroom space available and instructor space available. Finally a formula was developed to determine current annual usage. Enclosure 1 (Metric Calculations) to Section 2 (Professional Development Education) includes descriptions of the formulas and metrics and the calculations for each installation.

iv. Determination of Installation PDE Capacity. Installation PDE capacity is measured in classroom equivalent hours available per year. Classroom equivalent hours represent the number of one-hour classes (15 students per class) that can be held in designated PDE facilities. There are two key factors that affect the number of classroom equivalent hours that

Education & Training Joint Cross-Service Group

designated PDE facilities can support: classroom space available and instructor office space available. The available classroom space determines how many classes can physically be held in designated PDE facilities. Instructor office space available determines the number of instructors that can be supported by designated PDE facilities, which in turn determines the number of students that can be enrolled at a given time. The lower, or limiting, factor will define the capacity of designated PDE facilities. Classroom equivalent hours based on classroom space and instructor office space were calculated to determine maximum capacity and current capacity. Calculations were installation-based, including designated PDE programs only. The data was graphed and then compared. The factor that results in the lowest number of classroom equivalent hours possible, determines the maximum and current capacity of designated PDE facilities.

| | Maxwell AFB - AWC | Maxwell AFB - ACSC | Maxwell AFB - Chaplains | Maxwell AFB - JAG | Wright- Patterson AFB |
|---|------------------------|-----------------------|----------------------------------|---------------------------|-----------------------------|
| Classroom Based Current Capacity | 67416.6 | 46622.8 | 4804.9 | 32142.9 | 37808.7 |
| Instructor office space based Current Capacity | 148347.7 | 88234.7 | 10644.9 | 9976.9 | 106882.8 |
| Limiting Factor | Classroom | Classroom | Classroom | Instructor | Classroom |
| | Patrick AFB - DEOMI | Carlisle Barracks | Fort Leavenworth - USACGSC | Fort Belvoir - AMSC | Fort Belvoir - DAU |
| Classroom Based Current Capacity | 17137.6 | 85893.0 | 351184.8 | 91546.3 | 53805.1 |
| Instructor office space based Current Capacity | 23510.8 | 121037.0 | 274579.6 | 33552.7 | 73742.2 |
| Limiting Factor | Classroom | Classroom | Instructor | Instructor | Classroom |

| | Fort McNair - ICAF | Fort McNair - NWC | Fort Jackson - Chaplains | Charlottesville | Monterey - NPS |
|---|-----------------------|----------------------|-----------------------------|-----------------|-------------------|
| Classroom Based Current Capacity | 55997.4 | 44653.3 | 32658.5 | 109302.0 | 137613.5 |
| Instructor office space based Current Capacity | 56174.2 | 39061.7 | 8727.6 | 99868.7 | 583578.6 |
| Limiting Factor | Classroom | Instructor | Instructor | Instructor | Classroom |

Education & Training Joint Cross-Service Group

| | NS Newport - NWC | NS Newport - JAG | NS Newport - Chaplains | NS Norfolk - JFSC | MCB Quantico - MCWAR |
|---|------------------|------------------|------------------------|-------------------|----------------------|
| Classroom Based Current Capacity | 92244.5 | 30436.2 | 19304.8 | 317099.9 | 2440.0 |
| Instructor office space based Current Capacity | 171949.5 | 18782.6 | 26460.4 | 480934.8 | 5344.1 |
| Limiting Factor | Classroom | Instructor | Classroom | Classroom | Classroom |

| | MCB Quantico - MCCSC | Memphis - DCAI | Fort McNair – Lincoln Hall |
|---|----------------------|----------------|----------------------------|
| Classroom Based Current Capacity | 33972.3 | 12783.1 | 189386.5 |
| Instructor office space based Current Capacity | 25475.8 | 5942.8 | 229138.8 |
| Limiting Factor | Instructor | Instructor | Classroom |

Based on the determination of the limiting factor, the capacity analysis produced the following results. The supporting spreadsheets and graph data can be found in the Tabs to Enclosure 1 (Metric Calculations) to Section 2 (Professional Development Education).

| | Maxwell AFB – AWC | Maxwell AFB - ACSC | Maxwell AFB - Chaplains | Maxwell AFB - JAG | Wright-Patterson AFB |
|-----------------------------------|---------------------|--------------------|----------------------------|---------------------|----------------------|
| Maximum Potential Capacity | 336161.9 | 232476.9 | 23959.0 | 49748.1 | 188527.2 |
| Current Capacity | 67416.6 | 46622.8 | 4804.9 | 9976.9 | 37808.7 |
| Current Usage (FY 03) | 11192.6 | 17206.3 | 153.0 | 1236.2 | 115256.0 |
| Excess Capacity (FY03) | 56224.0 | 29416.5 | 4651.9 | 8740.7 | -77447.3 |
| | Patrick AFB – DEOMI | Carlisle Barracks | Fort Leavenworth - USACGSC | Fort Belvoir - AMSC | Fort Belvoir - DAU |
| Maximum Potential Capacity | 85453.7 | 428291.6 | 1369146.9 | 167305.2 | 268290.6 |
| Current Capacity | 17137.6 | 85893.0 | 274579.6 | 33552.7 | 53805.1 |
| Current Usage (FY 03) | 9829.3 | 28672.0 | 121136.0 | 10386.0 | 65066.7 |
| Excess Capacity (FY03) | 7308.2 | 57221.0 | 153443.6 | 23166.7 | -11261.5 |

Education & Training Joint Cross-Service Group

| | Fort McNair - ICAF | Fort McNair - NWC | Fort Jackson - Chaplains | Charlottesville | Monterey - NPS |
|-----------------------------------|-----------------------|----------------------|-----------------------------|-----------------|-------------------|
| Maximum Potential Capacity | 279221.9 | 194774.8 | 43518.8 | 497979.0 | 686187.5 |
| Current Capacity | 55997.4 | 39061.7 | 8727.6 | 99868.7 | 137613.5 |
| Current Usage (FY 03) | 31109.3 | 21077.3 | 6166.1 | 27042.3 | 98374.2 |
| Excess Capacity (FY03) | 24888.0 | 17984.4 | 2561.5 | 72826.3 | 39239.3 |

| | NS Newport- NWC | NS Newport - JAG | NS Newport - Chaplains | NS Norfolk - JFSC | MCB Quantico - MCWAR |
|-----------------------------------|--------------------|---------------------|---------------------------|----------------------|----------------------------|
| Maximum Potential Capacity | 459962.4 | 93656.3 | 96260.2 | 1581167.5 | 12166.7 |
| Current Capacity | 92244.5 | 18782.6 | 19304.8 | 317099.9 | 2440.0 |
| Current Usage (FY 03) | 63230.6 | 3910.7 | 1592.0 | 34474.7 | 1841.6 |
| Excess Capacity (FY03) | 29013.9 | 14871.9 | 17712.8 | 282625.2 | 598.4 |

| | MCB Quantico - MCCSC | Memphis - DCAI | Fort McNair - Lincoln Hall |
|-----------------------------------|-------------------------|-------------------|-------------------------------|
| Maximum Potential Capacity | 127030.8 | 29632.6 | 944345.5 |
| Current Capacity | 25475.8 | 5942.8 | 189386.5 |
| Current Usage (FY 03) | 19404.8 | 8467.2 | 0 |
| Excess Capacity (FY03) | 6071.0 | -2524.4 | 189386.5 |

5. Summary

The PDE subgroup received 100% of the required capacity data. The majority of the data was obtained through the OSD-certified Capacity Analysis Database (CAD) and the remaining data was received via “hard copy” along with the appropriate certification letter(s) from the Service Deputy Assistant Secretaries (DAS) and Defense Agencies.

Overall the analysis shows excess capacity at the installations conducting the following functions:

- PME/JPME - Maxwell AFB, Carlisle Barracks, Ft. Leavenworth, JFSC at Norfolk, and Ft. McNair (ICAF, NWC, and Lincoln Hall).
- Graduate Education - Naval Postgraduate School at Monterey, CA.
- OFTE - JAG and Chaplain Schools at Maxwell AFB and Naval Station Newport, RI, Army Management Staff College (AMSC) at Ft. Belvoir, and Defense Contract Auditing Institute (DCAI) at Memphis, TN.

Education & Training Joint Cross-Service Group

SECTION 3

SPECIALIZED SKILL TRAINING SUBGROUP CAPACITY ANALYSIS

1. Introduction.

- a. Installations and processes in the Specialized Skill Training (SST) category include all institutional training sites that provide officer and enlisted personnel with new or higher-level skills in military specialties or functional areas to match specific job requirements and include the sub-categories of initial skill, skill progression, and functional training.
 - i. **Initial Skill Training.** Instruction in a specific skill leading to the award of a Military Occupational Specialty or rating/classification at the lowest level; completion qualifies the individual for a position in the job structure (Air Force Specialty Code, Military Occupational Specialty, and Navy rating awarding courses).
 - ii. **Skill Progression Training.** Instruction for personnel after Initial Skill Training, and usually some experience working in their specialty, to increase job knowledge and proficiency and to qualify individuals for more advanced job duties.
 - iii. **Functional Training.** Instruction for personnel in various military occupational specialties who require specific additional skills or qualifications without changing their primary specialty or skill level.

- b. **Function refinements.**
 - i. Enlisted Aviator Flying Training data analysis to be conducted by SST subgroup (orientation course only, not any flying training that involves sorties). Justification based on agreement between Flight Training and SST subgroups with approval from Education and Training Joint Cross Service Group (E&T JCSG) and the Office of the Secretary of Defense (P&R).
 - ii. Air Battle Manager Training data analysis to be completed by SST subgroup (only that portion of Air Battle Manager Training that is classroom; does not include any flying training that involves sorties). Justification based on agreement between Flight Training and SST subgroups with approval from E&T JCSG and the Office of the Secretary of Defense (P&R).
 - iii. Officer and enlisted medical education and training were assigned to the Medical JCSG and are not included under SST. SST subgroup will continue to monitor medical skill training and participate with the Medical JCSG to

Education & Training Joint Cross-Service Group

help ensure consolidation of like medical skill training into the fewest locations. E&T JCSG approved 30 Jun 04.

- iv. All training (both SST and non-SST) located with related operational units/platforms are excluded from further SST analysis. E&T JCSG approved on 10 Jun 04.
- v. Following analysis, DoD agencies were excluded from further SST analysis as approved by E&T JCSG on 10 Jun 04. Subsequently on 9 Sept 04, SST subgroup accepted the transfer of the Defense Ammunition Center (DAC), Defense Information School (DINFOS), and the Defense Polygraphic Institute (DPI) from the PDE subgroup with E&T JCSG approval. Additionally, the E&T JCSG transferred the Defense Security Service Academy from PDE to SST subgroup. On 12 Oct 04, the Army certified that the Defense Ammunition Center (DAC) does not conduct SST and DAC was therefore excluded from further analysis. On 21 Oct 04, the Headquarters and Support Activities (H&SA) JCSG advised the SST subgroup that H&SA had a scenario involving DSSA. H&SA requested approval to continue with the analysis under the overwatch of the E&T JCSG and E&T JCSG approved.

2. Organization. SST is a subgroup of the E&T JCSG and is chaired by Maj Gen (S) Mike Hostage, Air Education and Training Command, Director of Plans and Programs (AETC/XP). The scope of analysis for SST includes all DoD installations and processes that support the function of SST associated with three sub-functions, excluding approved exceptions/refinements.

3. Inventory of Installations.

- a. This list contains the primary SST locations by Service, excluding E&T JCSG approved exceptions/refinements:

Air Force

- | | | |
|-----------------------|-----------------------|----------------------|
| 1) Keesler AFB, MS | 5. Sheppard AFB, TX | 9. Lackland AFB, TX |
| 2) Goodfellow AFB, TX | 6. Vandenberg AFB, CA | 10. Maxwell AFB, AL |
| 3) Bolling AFB, DC | 7. Pope AFB, NC | 11. Tyndall AFB, FL |
| 4) Eglin AFB, FL | 8. Fairchild AFB, WA | 12. Kirtland AFB, NM |

Army

- | | | |
|--------------------------------|------------------------------|--------------------------|
| 1) Aberdeen Proving Ground, MD | 9. Fort Belvoir, VA | 17. Fort Benning, GA |
| 2) Fort Bliss, TX | 10. Fort Bragg, NC | 18. Fort Campbell, KY |
| 3) Fort Dix, NJ | 11. Fort Eustis, VA | 19. Fort Gordon, GA |
| 4) Fort Huachuca, AZ | 12. Fort Jackson, SC | 20. Fort Knox, KY |
| 5) Fort Lee, VA | 13. Fort Leonard Wood, MO | 21. Fort McCoy, WI |
| 6) Fort Meade, MD | 14. Fort Monmouth, NJ | 22. Fort Rucker, AL |
| 7) Fort Sill, OK | 15. Presidio of Monterey, CA | 23. Redstone Arsenal, AL |
| 8) Tobyhanna Army Depot, PA | 16. Yuma Proving Ground, AZ | |

Education & Training Joint Cross-Service Group

Navy

- | | | |
|-----------------------|----------------------|------------------------|
| 1) Brunswick, ME | 11. Newport, RI | 20. Groton, CT |
| 2) Ballston Spa, NY | 12. Willow Grove, PA | 21. Dahlgren, VA |
| 3) Wallops Island, VA | 13. Norfolk, VA | 22. Little Creek, VA |
| 4) Oceana, VA | 14. Charleston, SC | 23. Athens, GA |
| 5) Kings Bay, GA | 15. Mayport, FL | 24. Pensacola, FL |
| 6) Panama City, FL | 16. Gulfport, MS | 25. Meridian, MS |
| 7) Crane, IN | 17. Great Lakes, IL | 26. Fallon, NV |
| 8) Point Loma, CA | 18. San Diego, CA | 27. Coronado, CA |
| 9) Port Hueneme, CA | 19. Bangor, WA | 28. Whidbey Island, WA |
| 10) Pearl Harbor, HI | | |

Marine Corps

- | | | |
|-------------------|-----------------------|--------------------------|
| 1) Quantico, VA | 4. Camp Lejeune, NC | 6. Twenty-Nine Palms, CA |
| 2) San Diego, CA | 5. Camp Pendleton, CA | 7. Yuma, AZ |
| 3) Bridgeport, CA | | |

Military installation capacity analysis data includes co-located DoD agencies (e.g., Defense Investigative Service at Fort Meade and Defense Polygraphic Institute at Fort Ackson).

4. Capacities for Assigned Functions.

- a. Approach. Capacity data are fiscal year 2003 actual data including obligated military construction funding for fiscal year 2004. Capacity calculations are based on Department of Defense standards. The three capacity measures for SST are berthing, messing, and classrooms. For clarity, each measure is expressed by the number of students that can be supported.

b. Capacity Definitions.

- i. **Maximum Potential Capacity:** Throughput based on 365 training days per year, using three 8-hr shifts per day, minus constraints and restrictions {classrooms (total square feet (Sq/Ft)), dorms (design capacity), messing (four 30 minute seatings/meal)}. This is measured by student population (Average On Board (AOB)) that can be sustained under maximum conditions. Note: While classrooms can be used for three shifts per day, maximum potential capacity for messing and berthing remains the same as current capacity (the number of beds and meals does not increase by running additional shifts).
- ii. **Current Capacity:** Throughput based on 244, 8-hour training days per year. This is measured by AOB that can be sustained under a normal peacetime training schedule.
- iii. **Current Usage:** Actual throughput reported in FY03 certified data. This is measured by the AOB that is reported monthly in FY03.

Education & Training Joint Cross-Service Group

iv. **Surge Capacity:** Surge (hedge) is defined as 20% of current usage.

v. **Excess Capacity:** The excess capacity is defined as:
(current capacity) - (current usage + surge capacity)

c. **Capacity Calculations:** Reported classroom space (Sq/Ft) is used to determine the number of students that can be supported (current capacity), using the following NAVFAC P-80 calculation to solve for AOB:

i. Current classroom capacity (*Classroom space (SqFt)*) = *AOB x Net Square Feet required per student x 1.5 scheduling factor*

ii. A net square feet value of 30 Sq/Ft per student is used for general-purpose training space in accordance with the Interservice Training Review Organization (ITRO) manual. Thus: *AOB = reported Sq Ft / 45 SqFt per student*

5. Capacity Analysis Results.

a. Capacity summaries for berthing, messing, and classrooms are provided (below) by Service for each installation.

| BERTHING (# Students that can be billeted) | | | | | |
|--|----------------------------|------------------|---------------|-------|-----------------|
| | Maximum Potential Capacity | Current Capacity | Current Usage | Surge | Excess Capacity |
| <u>AIR FORCE</u> | | | | | |
| Keesler AFB, MS | 3668 | 3668 | 5593 | 1119 | (3044) |
| Sheppard AFB, TX | 4840 | 4840 | 6888 | 1378 | (3426) |
| Lackland AFB, TX | 9679 | 9679 | 8948 | 1790 | (1059) |
| Goodfellow AFB, TX | 1966 | 1966 | 2440 | 488 | (962) |
| Vandenberg AFB, CA | 256 | 256 | 555 | 111 | (410) |
| Maxwell AFB, AL | 726 | 726 | 881 | 176 | (331) |
| Bolling AFB, DC | 24 | 24 | 0 | 0 | 24 |
| Pope AFB, NC | 48 | 48 | 45 | 9 | (6) |
| Tyndall AFB, FL | 90 | 90 | 0 | 0 | 90 |
| Eglin AFB, FL | 502 | 502 | 659 | 132 | (289) |
| Fairchild AFB, WA | 352 | 352 | 305 | 61 | (14) |
| Kirtland AFB, NM | 420 | 420 | 309 | 62 | 49 |

Education & Training Joint Cross-Service Group

| BERTHING (# Students that can be billeted) | | | | | |
|--|----------------------------|------------------|---------------|-------|-----------------|
| | Maximum Potential Capacity | Current Capacity | Current Usage | Surge | Excess Capacity |
| Total USAF Berthing | 22571 | 22571 | 26623 | 5326 | (9378) |
| <u>ARMY</u> | | | | | |
| Aberdeen PG, MD | 2915 | 2915 | 1991 | 398 | 526 |
| Fort Belvoir, VA | 70 | 70 | 0 | 0 | 70 |
| Fort Benning, GA | 11563 | 11563 | 14729 | 2946 | (6112) |
| Fort Bliss, TX | 913 | 913 | 1250 | 250 | (587) |
| Fort Bragg, NC | 1202 | 1202 | 958 | 192 | 52 |
| Fort Campbell, KY | 252 | 252 | 0 | 0 | 252 |
| Fort Dix, NJ | 964 | 964 | 0 | 0 | 964 |
| Fort Eustis, VA | 1718 | 1718 | 2136 | 427 | (845) |
| Fort Gordon, GA | 2660 | 2660 | 3171 | 634 | (1145) |
| Fort Huachuca, AZ | 2228 | 2228 | 1538 | 308 | 382 |
| Fort Jackson, SC | 1400 | 1400 | 131 | 26 | 1243 |
| Fort Knox, KY | 8870 | 8870 | 4887 | 977 | 3006 |
| Fort Lee, VA | 5101 | 5101 | 4502 | 900 | (301) |
| Fort Leonard Wood, MO | 20928 | 20928 | 9730 | 1946 | 9252 |
| Fort McCoy, WI | 1912 | 1912 | 128 | 26 | 1758 |
| Fort Meade, MD | 675 | 675 | 676 | 135 | (136) |
| Fort Monmouth, NJ | 120 | 120 | 220 | 44 | (144) |
| Fort Rucker, AL | 763 | 763 | 751 | 150 | (138) |
| Fort Sill, OK | 4060 | 4060 | 4737 | 947 | (1624) |
| Presidio of Monterey, CA | 2734 | 2734 | 2534 | 507 | (307) |
| Redstone Arsenal, AL | 1241 | 1241 | 596 | 119 | 526 |
| Tobyhanna Depot, PA | 846 | 846 | 278 | 56 | 512 |
| Yuma Proving Ground, AZ | 196 | 196 | 60 | 12 | 124 |

Education & Training Joint Cross-Service Group

| BERTHING (# Students that can be billeted) | | | | | |
|--|----------------------------|------------------|---------------|-------|-----------------|
| | Maximum Potential Capacity | Current Capacity | Current Usage | Surge | Excess Capacity |
| Total Army Berthing | 73331 | 73331 | 55003 | 11000 | 7328 |
| <u>NAVY</u> | | | | | |
| Brunswick, ME | 500 | 500 | 35 | 7 | 458 |
| Newport, RI | 1568 | 1568 | 677 | 135 | 756 |
| Groton, CT | 1452 | 1452 | 1848 | 370 | (766) |
| Ballston Spa, NY | 0 | 0 | 228 | 46 | (274) |
| Willow Grove, PA | 24 | 24 | 0 | 0 | 24 |
| Dahlgren, VA | 580 | 580 | 0 | 0 | 580 |
| Wallops Island, VA | 89 | 89 | 65 | 13 | 11 |
| Norfolk, VA | 2971 | 2971 | 6 | 1 | 2964 |
| Little Creek, VA | 939 | 939 | 242 | 48 | 649 |
| Oceana, VA | 2662 | 2662 | 697 | 139 | 1826 |
| Charleston, SC | 2400 | 2400 | 3093 | 619 | (1312) |
| Athens, GA | 217 | 217 | 312 | 62 | (157) |
| Kings Bay, GA | 234 | 234 | 116 | 23 | 95 |
| Mayport, FL | 0 | 0 | 10 | 2 | (12) |
| Pensacola, FL | 9114 | 9114 | 7189 | 1438 | 487 |
| Panama City, FL | 173 | 173 | 297 | 59 | (183) |
| Gulfport, MS | 564 | 564 | 580 | 116 | (132) |
| Meridian, MS | 1896 | 1896 | 668 | 134 | 1094 |
| Crane, IN | 0 | 0 | 0 | 0 | 0 |
| Great Lakes, IL | 8364 | 8364 | 4143 | 829 | 3392 |
| Fallon, NV | 1830 | 1830 | 364 | 73 | 1393 |
| Point Loma, CA | 650 | 650 | 110 | 22 | 518 |
| San Diego, CA | 2016 | 2016 | 937 | 187 | 892 |
| Coronado, CA | 1267 | 1267 | 206 | 41 | 1020 |
| Port Hueneme, CA | 1058 | 1058 | 320 | 64 | 674 |
| Bangor, WA | 96 | 96 | 0 | 0 | 96 |
| Whidbey Island, WA | 200 | 200 | 231 | 46 | (77) |
| Pearl Harbor, HI | 0 | 0 | 28 | 6 | (34) |

Education & Training Joint Cross-Service Group

| BERTHING (# Students that can be billeted) | | | | | |
|--|----------------------------|------------------|---------------|-------------|-----------------|
| | Maximum Potential Capacity | Current Capacity | Current Usage | Surge | Excess Capacity |
| Total USN Berthing | 40864 | 40864 | 22402 | 4480 | 13982 |
| <u>MARINE CORPS</u> | | | | | |
| Quantico, VA | 354 | 354 | 283 | 57 | 14 |
| Camp Lejeune, NC | 7043 | 7043 | 2889 | 578 | 3576 |
| Twenty-Nine Palms, CA | 2199 | 2199 | 2059 | 412 | (272) |
| San Diego, CA | 500 | 500 | 300 | 60 | 140 |
| Camp Pendleton, CA | 1595 | 1595 | 1253 | 251 | 91 |
| Yuma, AZ | 0 | 0 | 0 | 0 | 0 |
| Bridgeport, CA | 1500 | 1500 | 1261 | 252 | (13) |
| Total USMC Berthing | 13191 | 13191 | 8045 | 1609 | 3537 |

| MESSING (# Students that can be fed per day) | | | | | |
|--|----------------------------|------------------|---------------|-------|-----------------|
| | Maximum Potential Capacity | Current Capacity | Current Usage | Surge | Excess Capacity |
| <u>AIR FORCE</u> | | | | | |
| Keesler AFB, MS | 3402 | 3402 | 5604 | 1121 | (3323) |
| Sheppard AFB, TX | 8800 | 8800 | 6889 | 1378 | 533 |
| Lackland AFB, TX | 12964 | 12964 | 10392 | 2078 | 494 |
| Goodfellow AFB, TX | 2158 | 2158 | 2504 | 501 | (847) |
| Vandenberg AFB, CA | 247 | 247 | 233 | 47 | (33) |
| Maxwell AFB, AL | 3024 | 3024 | 2497 | 499 | 28 |
| Bolling AFB, DC | 0 | 0 | 0 | 0 | 0 |
| Pope AFB, NC | 117 | 117 | 117 | 23 | (23) |
| Tyndall AFB, FL | 528 | 528 | 470 | 94 | (36) |
| Eglin AFB, FL | 907 | 907 | 907 | 181 | (181) |
| Fairchild AFB, WA | 560 | 560 | 305 | 61 | 194 |
| Kirtland AFB, NM | 307 | 307 | 307 | 61 | (61) |

Education & Training Joint Cross-Service Group

| MESSING (# Students that can be fed per day) | | | | | |
|--|----------------------------|------------------|---------------|-------|-----------------|
| | Maximum Potential Capacity | Current Capacity | Current Usage | Surge | Excess Capacity |
| Total USAF Messing | 33012 | 33014 | 30225 | 6044 | (3255) |
| <u>ARMY</u> | | | | | |
| Aberdeen PG, MD | 4172 | 4172 | 1880 | 376 | 1916 |
| Fort Belvoir, VA | 960 | 960 | 199 | 40 | 721 |
| Fort Benning, GA | 15431 | 15431 | 3611 | 722 | 11098 |
| Fort Bliss, TX | 1732 | 1732 | 1177 | 235 | 320 |
| Fort Bragg, NC | 932 | 932 | 2208 | 442 | (1718) |
| Fort Campbell, KY | 75 | 75 | 212 | 42 | (179) |
| Fort Dix, NJ | 6860 | 6860 | 336 | 67 | 6457 |
| Fort Eustis, VA | 1550 | 1550 | 1286 | 257 | 7 |
| Fort Gordon, GA | 4040 | 4040 | 4276 | 855 | (1091) |
| Fort Huachuca, AZ | 1880 | 1880 | 5540 | 1108 | (4768) |
| Fort Jackson, SC | 3248 | 3248 | 10947 | 2190 | (9890) |
| Fort Knox, KY | 42540 | 42540 | 4887 | 977 | 36676 |
| Fort Lee, VA | 9255 | 9255 | 3885 | 777 | 4593 |
| Fort Leonard Wood, MO | 11726 | 11726 | 8726 | 1745 | 1255 |
| Fort McCoy, WI | 2105 | 2105 | 1286 | 257 | 562 |
| Fort Meade, MD | 604 | 604 | 29002 | 5800 | (34198) |
| Fort Monmouth, NJ | 240 | 240 | 240 | 48 | (48) |
| Fort Rucker, AL | 1292 | 1292 | 2104 | 421 | (1233) |
| Fort Sill, OK | 8800 | 8800 | 4724 | 945 | 3131 |
| Presidio of Monterey, CA | 574 | 574 | 107530 | 21506 | (128462) |
| Redstone Arsenal, AL | 1100 | 1100 | 500 | 100 | 500 |
| Tobyhanna Depot, PA | 4000 | 4000 | 181 | 36 | 3783 |
| Yuma Proving Ground, AZ | 400 | 400 | 93 | 19 | 288 |

Education & Training Joint Cross-Service Group

| MESSING (# Students that can be fed per day) | | | | | |
|--|----------------------------|------------------|---------------|-------|-----------------|
| | Maximum Potential Capacity | Current Capacity | Current Usage | Surge | Excess Capacity |
| Total USA Messing | 123516 | 123516 | 194830 | 38965 | -110280 |
| <u>NAVY</u> | | | | | |
| Brunswick, ME | 656 | 656 | 120 | 24 | 512 |
| Newport, RI | 550 | 550 | 600 | 120 | (170) |
| Groton, CT | 1794 | 1794 | 1950 | 390 | (546) |
| Ballston Spa, NY | 0 | 0 | 0 | 0 | 0 |
| Willow Grove, PA | 200 | 200 | 15 | 3 | 182 |
| Dahlgren, VA | 0 | 0 | 0 | 0 | 0 |
| Wallops Island, VA | 352 | 352 | 65 | 13 | 274 |
| Norfolk, VA | 799 | 799 | 996 | 199 | (396) |
| Little Creek, VA | 119 | 119 | 219 | 44 | (144) |
| Oceana, VA | 935 | 935 | 1261 | 252 | (578) |
| Charleston, SC | 1892 | 1892 | 3170 | 634 | (1912) |
| Athens, GA | 0 | 0 | 0 | 0 | 0 |
| Kings Bay, GA | 600 | 600 | 234 | 47 | 319 |
| Mayport, FL | 0 | 0 | 0 | 0 | 0 |
| Pensacola, FL | 9800 | 9800 | 7065 | 1413 | 1322 |
| Panama City, FL | 137 | 137 | 165 | 33 | (61) |
| Gulfport, MS | 800 | 800 | 634 | 127 | 39 |
| Meridian, MS | 2640 | 2640 | 1116 | 223 | 1301 |
| Crane, IN | 0 | 0 | 0 | 0 | 0 |
| Great Lakes, IL | 18752 | 18752 | 14796 | 2959 | 997 |
| Fallon, NV | 1152 | 1152 | 364 | 73 | 715 |
| Point Loma, CA | 0 | 0 | 0 | 0 | 0 |
| San Diego, CA | 2350 | 2350 | 2350 | 470 | (470) |
| Coronado, CA | 910 | 910 | 758 | 152 | 0 |
| Port Hueneme, CA | 940 | 940 | 560 | 112 | 268 |
| Bangor, WA | 0 | 0 | 0 | 0 | 0 |
| Whidbey Island, WA | 500 | 500 | 162 | 32 | 306 |
| Pearl Harbor, HI | 60 | 60 | 0 | 0 | 60 |

Education & Training Joint Cross-Service Group

| MESSING (# Students that can be fed per day) | | | | | |
|--|----------------------------|------------------|---------------|-------|-----------------|
| | Maximum Potential Capacity | Current Capacity | Current Usage | Surge | Excess Capacity |
| Total USN Messing | 45888 | 45888 | 36600 | 7320 | 2018 |
| <u>MARINE CORPS</u> | | | | | |
| Quantico, VA | 5574 | 5574 | 2388 | 478 | 2708 |
| Camp Lejeune, NC | 7588 | 7588 | 4755 | 951 | 1882 |
| Twenty-Nine Palms, CA | 1400 | 1400 | 2053 | 411 | (1064) |
| San Diego, CA | 8600 | 8600 | 7090 | 1418 | 92 |
| Camp Pendleton, CA | 5715 | 5715 | 2960 | 592 | 2163 |
| Yuma, AZ | 2120 | 2120 | 2120 | 424 | (424) |
| Bridgeport, CA | 948 | 948 | 889 | 178 | (119) |
| Total USMC Messing | 31945 | 31945 | 22255 | 4451 | 5239 |

| CLASSROOM CAPACITY (# Students AOB) | | | | | |
|-------------------------------------|----------------------------|------------------|---------------|-------|-----------------|
| | Maximum Potential Capacity | Current Capacity | Current Usage | Surge | Excess Capacity |
| <u>AIR FORCE</u> | | | | | |
| Keesler AFB, MS | 33537 | 7473 | 5763 | 1153 | 557 |
| Sheppard AFB, TX | 151734 | 33811 | 7774 | 1555 | 24482 |
| Lackland AFB, TX | 158123 | 35235 | 11679 | 2,336 | 21220 |
| Goodfellow AFB, TX | 10965 | 2443 | 3139 | 628 | (1323) |
| Vandenberg AFB, CA | 28588 | 6370 | 555 | 111 | 5704 |
| Maxwell AFB, AL | 11606 | 2586 | 917 | 183 | 1486 |
| Bolling AFB, DC | 1021 | 227 | 78 | 16 | 134 |
| Pope AFB, NC | 410 | 91 | 45 | 9 | 37 |
| Tyndall AFB, FL | 12580 | 2803 | 822 | 164 | 1817 |
| Eglin AFB, FL | 5244 | 1169 | 1208 | 242 | (281) |
| Fairchild AFB, WA | 37149 | 8278 | 296 | 59 | 7923 |
| Kirtland AFB, NM | 3082 | 687 | 394 | 79 | 214 |

Education & Training Joint Cross-Service Group

| CLASSROOM CAPACITY (# Students AOB) | | | | | |
|-------------------------------------|----------------------------|------------------|---------------|-------------|-----------------|
| | Maximum Potential Capacity | Current Capacity | Current Usage | Surge | Excess Capacity |
| Total USAF Classrms | 454039 | 101173 | 32670 | 6535 | 61970 |
| <u>ARMY</u> | | | | | |
| Aberdeen PG, MD | 5749 | 1281 | 1720 | 344 | (783) |
| Fort Belvoir, VA | 4829 | 1076 | 106 | 21 | 949 |
| Fort Benning, GA | 27940 | 6226 | 11709 | 2342 | (7825) |
| Fort Bliss, TX | 430 | 96 | 835 | 167 | (906) |
| Fort Bragg, NC | 13840 | 3084 | 1202 | 240 | 1642 |
| Fort Campbell, KY | 0 | 0 | 200 | 40 | (240) |
| Fort Dix, NJ | 0 | 0 | 0 | 0 | 0 |
| Fort Eustis, VA | 6426 | 1432 | 2261 | 452 | (1281) |
| Fort Gordon, GA | 3375 | 752 | 3331 | 666 | (3245) |
| Fort Huachuca, AZ | 4245 | 946 | 2207 | 441 | (1702) |
| Fort Jackson, SC | 5883 | 1311 | 0 | 0 | 1311 |
| Fort Knox, KY | 110568 | 24638 | 4842 | 968 | 18828 |
| Fort Lee, VA | 19925 | 4440 | 3545 | 709 | 186 |
| Fort Leonard Wood, MO | 20558 | 4581 | 9727 | 1945 | (7091) |
| Fort McCoy, WI | 1077 | 240 | 278 | 56 | (94) |
| Fort Meade, MD | 0 | 0 | 0 | 0 | 0 |
| Fort Monmouth, NJ | 0 | 0 | 139 | 28 | (167) |
| Fort Rucker, AL | 10322 | 2300 | 2448 | 490 | (638) |
| Fort Sill, OK | 1988 | 443 | 3568 | 714 | (3839) |
| Presidio of Monterey, CA | 32446 | 7230 | 3766 | 753 | 2711 |
| Redstone Arsenal, AL | 1463 | 326 | 562 | 112 | (348) |
| Tobyhanna Depot, PA | 0 | 0 | 262 | 52 | (314) |
| Yuma Proving Ground, AZ | 0 | 0 | 109 | 22 | (131) |

Education & Training Joint Cross-Service Group

| CLASSROOM CAPACITY (# Students AOB) | | | | | |
|-------------------------------------|----------------------------|------------------|---------------|--------------|-----------------|
| | Maximum Potential Capacity | Current Capacity | Current Usage | Surge | Excess Capacity |
| Total USA Classrooms | 271064 | 60402 | 52817 | 10562 | (2977) |
| <u>NAVY</u> | | | | | |
| Brunswick, ME | 2967 | 661 | 38 | 8 | 616 |
| Newport, RI | 9947 | 2217 | 1065 | 213 | 939 |
| Groton, CT | 13808 | 3077 | 1848 | 370 | 859 |
| Ballston Spa, NY | 4705 | 1048 | 741 | 148 | 159 |
| Willow Grove, PA | 588 | 131 | 68 | 14 | 49 |
| Dahlgren, VA | 2078 | 463 | 1643 | 329 | (1509) |
| Wallops Island, VA | 1703 | 380 | 65 | 13 | 302 |
| Norfolk, VA | 31490 | 7017 | 2074 | 415 | 4528 |
| Little Creek, VA | 9565 | 2131 | 1374 | 275 | 482 |
| Oceana, VA | 30055 | 6697 | 2753 | 551 | 3394 |
| Charleston, SC | 15146 | 3375 | 3344 | 669 | (638) |
| Athens, GA | 4277 | 953 | 356 | 71 | 526 |
| Kings Bay, GA | 26703 | 5950 | 186 | 37 | 5727 |
| Mayport, FL | 3347 | 746 | 403 | 81 | 262 |
| Pensacola, FL | 61692 | 13747 | 6749 | 1351 | 5648 |
| Panama City, FL | 2591 | 577 | 297 | 59 | 221 |
| Gulfport, MS | 18427 | 4106 | 1017 | 203 | 2886 |
| Meridian, MS | 7568 | 1686 | 758 | 152 | 777 |
| Crane, IN | 0 | 0 | 22 | 4 | (26) |
| Great Lakes, IL | 48655 | 10842 | 4075 | 815 | 5952 |
| Fallon, NV | 2150 | 479 | 364 | 73 | 42 |
| Point Loma, CA | 20236 | 4509 | 560 | 112 | 3837 |
| San Diego, CA | 5507 | 1227 | 1283 | 257 | (312) |
| Coronado, CA | 13542 | 3018 | 584 | 117 | 2317 |
| Port Hueneme, CA | 17336 | 3863 | 2119 | 424 | 1320 |
| Bangor, WA | 14932 | 3327 | 1089 | 218 | 2020 |
| Whidbey Island, WA | 9552 | 2129 | 549 | 110 | 1470 |
| Pearl Harbor, HI | 11672 | 2601 | 942 | 188 | 1471 |

Education & Training Joint Cross-Service Group

| CLASSROOM CAPACITY (# Students AOB) | | | | | |
|-------------------------------------|----------------------------|------------------|---------------|-------------|-----------------|
| | Maximum Potential Capacity | Current Capacity | Current Usage | Surge | Excess Capacity |
| Total USN Classrooms | 377325 | 84079 | 35263 | 7056 | 41764 |
| <u>MARINE CORPS</u> | | | | | |
| Quantico, VA | 1644 | 366 | 338 | 68 | (39) |
| Camp Lejeune, NC | 45569 | 10154 | 2301 | 460 | 7393 |
| Twenty-Nine Palms, CA | 61692 | 3730 | 2053 | 411 | 1266 |
| San Diego, CA | 2425 | 554 | 261 | 52 | 241 |
| Yuma, AZ | 592 | 132 | 180 | 36 | (84) |
| Camp Pendleton, CA | 7313 | 1630 | 1253 | 251 | 126 |
| Bridgeport, CA | 4694 | 1046 | 843 | 169 | 34 |
| Total USMC Classrms | 123929 | 17612 | 7229 | 1447 | 8937 |

6. Summary (reflects E&T JCSG approved SST refinements).

| | Berthing | | | Messing | | | Classrooms | | |
|-------|------------------|---------|------------|--------------------|---------|------------|------------------|---------|------------|
| | Capacity | Usage | Excess | Capacity | Usage | Excess | Capacity* | Usage | Excess |
| USAF | 22,571 | 26,623 | (9,378) | 33,012 | 30,225 | (3,255) | 101,173 | 32,670 | 61,970 |
| USA | 73,331 | 55,003 | 7,328 | 123,516 | 194,830 | (110,280) | 60,402 | 52,817 | (2,977) |
| USN | 40,864 | 22,402 | 13,982 | 45,888 | 36,600 | 2,018 | 84,079 | 35,263 | 41,764 |
| USMC | 13,191 | 8,045 | 3,537 | 31,945 | 22,255 | 5,239 | 17,612 | 7,229 | 8,937 |
| Total | 149,957 | 112,073 | 15,469 | 234,361 | 283,910 | (106,278) | 263,266 | 127,979 | 109,694 |
| | Excess of | | 10% | Shortage of | | 45% | Excess of | | 42% |

* Note: Classrooms' Capacities are based on Current Capacity figures.

The SST capacity analysis encompassed 70 installations. The maximum potential excess capacity (unsustainable baseline) across all installations shows excess in berthing (10%), a shortage in messing (45), and excess in classrooms (88%). The current capacity across all installations shows excess berthing [10% (same as maximum potential capacity)], a shortage in messing [45% (same as maximum potential capacity)], and excess classrooms (42%). (Note: classroom capacity increases by running three shifts per day, but messing and berthing do not increase by running additional shifts). While there is excess classroom capacity across all Services, overall capacity is a combination of all three measures. In many cases, berthing is the limiting factor.

Education & Training Joint Cross-Service Group

Section 4

RANGES AND COLLECTIVE TRAINING SUBGROUP CAPACITY ANALYSIS

1. Introduction.

a. The Ranges and Collective Training Capability Subgroups of the Education and Training Joint Cross Service Group (E&T JCSG) addresses Collective Training Capabilities on ranges, to include Service unit, interoperability (cross-Service) and joint training. This assessment includes ranges that support both test and evaluation and collective training. The Ranges and Collective Training Capability Subgroup, hereinafter referred to as the “Ranges Subgroup,” includes members from OSD and the Services. The test and evaluation sub-working group (TESWG) of the ranges subgroup collaboratively supports the Technical Joint Cross Service Group (TJCSG). The Ranges Subgroup’s approved functions, Training and Test & Evaluation (T&E), are two separate and distinct functions for which ranges are but one asset required to meet mission requirements. The capacity of the ranges to support these two functions will be reported separately in this section of the report.

b. Training:

- i. **Unit/Collective:** Instruction and applied exercises that prepare an organizational team (such as a squad, aircrew, battalion, or multi-Service task force) to accomplish required military tasks as a unit.
- ii. **Interoperable Training (Service-to-Service or Cross-Service):** US Military Service components training that ensures the ability of systems, units, or forces to provide services to and accept services from other systems, units, or forces and to use the services, so exchanged, to enable them to operate effectively together during multi-Service operations. Services are responsible for providing interoperable forces to Combatant Commanders. Interoperability training is based on joint doctrine, and Joint Tactics Techniques and Procedures (JTTP).
- iii. **Joint Training:** US military training based on joint doctrine or JTTP to prepare joint forces and/or joint staffs to respond to strategic and operational requirements deemed necessary by Combatant Commanders to execute their assigned missions. Joint training involves forces of two or more military departments interacting with a Combatant Commander or subordinate joint force commander; involves joint forces and/or joint staffs; and is conducted using joint doctrine and JTTP.

Education & Training Joint Cross-Service Group

c. Test & Evaluation.

- i. The T&E Sub Working Group (TESWG), in support of the Ranges Subgroup, determined the capacity of the ranges to support the T&E function performed on open-air ranges in accordance with its Capacity Analysis Methodology Report. The TESWG determined the inventory of ranges that perform T&E functions and the excess throughput capacity at those ranges.
- ii. Open-air ranges (OARs) are one of six commonly recognized T&E resource categories used in support of the acquisition process. The other categories are Digital Modeling and Simulation Facility (Digital Models and Computer Simulations); Hardware in the Loop (HITL) Facility; Integration Laboratory (IL); Installed System Test Facility (ISTF); and Measurement Facility (MF). The Technical JCSG is addressing inventory and capacity for these five T&E resource capability areas.
- iii. OARs are defined as specifically bounded or designated geographic areas, including Operating Areas (OPAREAs), that encompass a landmass, body of water (above and below surface), and/or airspace used to conduct test and evaluation of military hardware, personnel, tactics, munitions, explosives, or electronic combat systems. Open-air ranges will include a fixed, reconfigurable, and/or mobile physical plant for range operations or support and may include personnel and equipment for command and control, scoring, debriefing, radio frequency management, security, traffic control and deconfliction, safety, fixed targets, fixed threat simulators, buildings and other real property, natural topography, and interconnectivity and interoperability with other ranges and facilities. Airfields/Aerodromes that are used for specific T&E events (e.g. hover and load tests, catapult and arresting gear events, sloped landing pads, etc.) should be reported as OARs. Multiple contiguous open-air ranges (e.g., a range complex) may be considered a single range or may be reported individually if designed or equipped for specific missions; however, non-contiguous ranges must be identified separately. Open-air ranges and training ranges both include fixed or geographically designated airspace, ground space, and sea space; however training ranges differ from OARs in the lack of T&E workload.
- iv. The following functional areas categorize the T&E work accomplished on OARs and are based on standard T&E Reliance functions adopted in the late 1980's:
 - 1) Armaments/Munitions (including directed energy weapons)
 - 2) Electronic Combat

Education & Training Joint Cross-Service Group

- 3) Space Combat and Ballistic Missiles
- 4) Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (to include information operations/information assurance)
- 5) Air Combat
- 6) Land Combat
- 7) Chemical and Biological Defense
- 8) Sea Combat
- 9) Other

This categorization differs slightly from the commonly recognized T&E Reliance functions in order to better align with the Technical JCSG Defense Technology Area Plan (DTAP) construct. These differences include placing directed energy weapons in the “Armaments/Munitions” function as opposed to the “Electronic Combat” function; “Chemical and Biological Defense” testing has been moved to a separate category as opposed to being a sub-area under “Land Combat”; and a separate category “Other” was added to cover T&E work performed in DTAP areas not defined as pieces of T&E Reliance functions.

d. Range Subgroup Function Refinements/Changes.

- i. Simulation Centers for Training are not included in this analysis.
- ii. Simulation Centers will be addressed as part of Military Training value.

e. Capacity Analysis and Results Summary.

- i. **Training:** Utilizing the approved Capacity Report, the capacity analysis, using the service certified data, has provided the subgroup with the empirical mechanism required to ensure the capacity formulas could be executed. The results are conclusive that the formulas, as written provide the basis for capacity analysis.
- ii. **Testing:** Per agreement with the Technical Joint Cross-Service Group (TJCSG), the TESWG determined capacity and military value for OARs and referred all capacity and military value determinations for the five other T&E functional areas/resources to the TJCSG. In turn, the TJCSG will use the values for OARs as determined by the Ranges Subgroup in their determinations.

2. Organization.

- a. Ranges Subgroup organizational description including functional subgroups and analytical divisions within each subgroup. The Ranges subgroup is chaired by, Deputy Chief of Staff, G-3, Headquarters, Department of the Army. The Ranges subgroup is organized into two distinct subgroups, Training and Testing.

Education & Training Joint Cross-Service Group

- i. The Training Sub-Working Group being divided into three further working groups, as indicated below:
 - 1) Ground Training: Army led with Marine Corps.
 - 2) Air Training: Air Force led with Navy and Marine Corps.
 - 3) Maritime Training: Navy led with Marine Corps.
- ii. The T&E Sub-Working Group (TESWG) is chaired by the Army T&E staff and consists of members from OSD and Service T&E Staffs. The TESWG is responsible for creating the capacity, supplemental, military value, and scenario data calls and for the evaluation and analysis of data responses from the Services and Defense Agencies for T&E OARs.

3. Capacities for Assigned Functions.

a. Training:

i. Capacity Definitions:

Maximum potential capacity = theoretical maximum operational dimension for plants' capability to perform functions/sub-functions (assumes weather, environmental and legislative restrictions but otherwise multiple shifts/ unconstrained).

= Net existing air/land/sea range space volume (design minus restrictions) X:

365 days for ground ranges (Acre Days)

365 x 24 hours for air ranges (NM3 hours)

365 x 24 hours for sea ranges (NM2 hours)

Current capacity = standardized/peacetime operations for existing physical plants' capability to perform functions/sub-functions (normalized for comparability between Services' installations /range/OPAREAs).

= Net existing air/land/sea range space volume (design minus restrictions) X:

244 training days for land ranges (acre days)

260 days X 16 hours per day for air ranges (NM3 hours)

365 X 24 hours for sea ranges (NM2 hours)

Note: oceans have essentially unlimited availability.

Current usage = As reported, may be < or > "current capacity" as defined above and considers maintenance/equipment downtime, end strength (faculty, staff & students), personnel resources/accounts (pay/overtime pay), duty hours (e.g., days/year, hours/day for budgetary constraints), training policy/requirements .

NOTE: Future usage requirements (end strength driven education and training requirements, weapon system acquisition or modification driven education and training requirements, out year budgets, et cetera) may exceed or fall short of current usage. Scenario development considered future usage requirements.

Education & Training Joint Cross-Service Group

Surge capacity = Additional “capability hedge” in order to meet unanticipated increases for an existing physical plants’ capability to perform functions/sub-functions. Training Ranges = current usage plus 25%.

Excess capacity = Current capacity minus (surge capacity) (in other words) Current capacity (Standardized / peacetime operations in acre days minus Surge (in acre days) = Excess (in acre days). Percentage Excess = Excess capacity (in acre days) / Current (Standard) in acre days.

NOTE: Current usage (certified Data Call #1 responses) plus surge capacity may be greater than current capacity.

- ii. Physical Plant: Operational Volume/Capability. Airspace: Calculation;**
Gross (Available) question #160. Calculations in MN3/hours per year.
- a) Volume Metric: Gross (Available) cubic nautical miles x hours
 - b) Gross (total air space encompassed within the range)
 - c) Net (less unusable airspace – with limitations noted) question #160
 - d) Current Usage (Scheduled) question #169
- 2) Sea Space (Surface and Undersea) question # 192.
Calculations in NM2/hours per year.
- a) Size: Metric: square nautical miles x days
 - b) Gross (total sea space encompassed within the range)
 - c) Net (less unusable sea space with limitations noted), question(s) 248, 49, 50, 52, 53, 54, 56, 59, 60
 - d) Unusable sea space would include areas only available for transit with no significant military activity authorized.
 - e) Depth
 - Shallow water area (less than 100 fathoms) question #192
 - Open ocean area (greater than 100 fathoms) question #192
- 3) Capability (Attribute/volume) Current Usage (Scheduled) question #193
- 4) Current Usage (Scheduled) question #193

Education & Training Joint Cross-Service Group

iii. Ground Space.

- 1) Size Metric: Acres x days
- 2) Gross Maneuver Area (total ground space encompassed within the range) Gross acres (Available) question # 150 (x) 365 Days/yr = Available annual acre days (Maximum Potential Capacity), ground footprint of AF selected air ranges question #176
- 3) Net Maneuver Area (less unusable ground space with limitations noted) question # 150 (Gross acres (-) Encroachments/Restrictions) (x) (365 days/yr) = Net Acre Days
- 4) Current Usage (Scheduled) question MV#1683: # Days (x) Net Acres = scheduled acre days.
- 5) Surge Capacity Requirements: Surge Capacity Requirements: Current usage (x) 25% = Surge Capacity (in acre days)

iv. Other Physical Plant.

- 1) Weapons Capabilities (Mil Val Analysis)
- 2) Limitation/Restrictions (Mil Val Analysis)
- 3) Instrumentation Capabilities (Mil Val Analysis)
- 4) Range Infrastructure Backbone (Mil Val Analysis)
- 5) Threat Representation/Sim Capability (Mil Val Analysis)
- 6) Target Control Capability (Mil Val Analysis)

v. Range Control and Support Capabilities and Facilities.

- 1) Range Operation Buildings: Not required in Capacity or Military Value analysis. The range control building has no bearing on the capacity or the military value analysis of a range. It does not add to nor subtract from the value of the range. A range control facility could be a permanent or temporary structure and can be fixed or mobile.

vi. Workload and Utilization.

- 1) Events (Capacity Analysis)
- 2) Funding (Mil Val Analysis)

vii. Levels of Capacity (Capacity Analysis) (Replaced with E&T approved definitions).

viii. Personnel.

- 1) Government Authorized Personnel (Mil Val Analysis)
- 2) Contract Personnel (Mil Val Analysis)

ix. Sustainability.

- 1) Encroachment Factors (Capacity Analysis)
- 2) Environmental Conditions and Limitations (Capacity Analysis)

Education & Training Joint Cross-Service Group

x. **Capacity calculations** at each facility: The following Collective Training filters provide a minimum capacity needed for collective training for ground, sea, and air forces.

- 1) **Ground:** 19,000 acres or greater (minimum maneuver acreage required for “Light Battalion Training”). This filter is based on Army Training Circular 25-1 and is agreed to by the USMC
- 2) **Sea:** 50 Nautical Miles Squared (NM²). The final draft of the Fleet's Range Capabilities Document states the minimum sized OPAREA has 50 sq. NM. This is considered the minimum for Intermediate training in Amphibious Warfare and Special Operations. This is the minimum size required stated to do any major training in the sea ranges.
- 3) **Air:** The calculation of airspace capacity for the range training function used the values from a limited subset of the types of Military Airspace. The legal definitions of Restricted Areas, MOAs, and Warning areas are defined in FAA Order 7400.8 and ATCAAs are defined by local agreement with the FAA. Airspace was included if it provided for the segregation of nonparticipating aircraft from participating aircraft operations or allowed aircraft operation that may be hazardous to nonparticipating aircraft. The four types of airspace included were Restricted Areas, Military Operations Areas (MOAs), Warning Areas, and Air Traffic Control Assigned Areas (ATCAAs):
 - *Restricted Areas:* Restricted Areas are established to provide the ability to completely exclude nonparticipating aircraft from the area to allow operation that may be hazardous to these aircraft.
 - *MOAs:* MOAs are established outside of Class A Airspace to separate/segregate certain military activities from IFR traffic and to identify for VFR traffic where these activities are conducted.
 - *Warning Areas:* A Warning Area is airspace of defined dimensions, extending from 3 nautical miles outward from the coast of the United States that contains activity that may be hazardous to non- participating aircraft. The purpose of such warning areas is to warn nonparticipating pilots of the potential danger. A warning area may be located over domestic and/or international waters.

Education & Training Joint Cross-Service Group

- ATCAAs: ATCAAs are normally established above 18,000 feet MSL to separate/segregate certain military activities from other air traffic.

The types of airspace excluded were:

- Alert Areas: Airspace that may contain a high volume of pilot training activities or an unusual type of aerial activity, neither of which is hazardous to aircraft.
- Prohibited Areas: Aircraft are prohibited from flying in these areas without permission from the using agency. Currently there are no Prohibited Areas managed by the DoD.
- Control Fire Areas (CFAs): CFAs are set up due to ground operations that may be hazardous to aircraft operations such as artillery firing, ordnance disposal, and rocket testing.
- Military Training Routes (MTRs): While MTRs may provide a military training capacity; most MTRs cannot be tied to a specific range or base. In many cases they provide a means of ingress and egress between many bases, ranges, and/or training areas rather than for the air operations over a range. With this in mind, they tend to affect the military value of bases for training and will be addressed in the Military Value phase.
- Low Altitude Tactical Navigation Areas (LATN): These are defined areas in which the military performs random VFR operations in accordance with all VFR rules and regulations. These areas are primarily designated for the purpose of addressing environment regulations and not due to incompatible aircraft operation.
- Air Refueling Tracks (ARs): Defined tracks where military aircraft are refueled in flight. These tracks mostly occur in Class A and are compatible with normal aircraft operation in this airspace.

xi. Other notes

- For purposes of this analysis, airspace altitudes were capped at 50,000 feet because several sections of SUAS/ATCAAs have an upper limit defined as “Unlimited.”
- Data concerning airspace that was excluded from the capacity analysis has been collected and is available for use, if necessary, during the Military Value and scenario phases.
- Facility list Training

Education & Training Joint Cross-Service Group

- xii. Ground Training Locations Data:** Capacity data for Ground is based on the 15 March 2005 Capacity Analysis Data (CAD) from the OSD access database.

| Range/OPAREA Designation (list from capacity data call) | Max Potential Capacity (Available) (Net Acres (Column F) X 365) | Standard (Annual Acre Days) = Standard Acre Days (Column J) * Net Acres (Column F) | Current Usage (Scheduled Acre Days) Net Acres (Column F) * Actual Scheduled Days (Column L) | SURGE = (Current Usage Scheduled (Column M) * 1.25) | Excess Percent (Col D) - surge (Col E) / (Col D) (%) |
|---|---|--|---|---|--|
| ARMY | | | | | |
| DUGWAY PROVING GROUND | 231,775,000 | 154,940,000 | 91,440,000 | 114,300,000 | 26.23% |
| FORT A P HILL | 21,147,370 | 14,136,872 | 13,847,182 | 17,308,978 | -22.44% |
| FORT BENNING | 51,875,990 | 34,678,744 | 51,023,234 | 63,779,043 | -83.91% |
| FORT BLISS/MCGREGOR | 367,886,420 | 245,929,552 | 146,146,660 | 182,683,325 | 25.72% |
| FORT BRAGG | 38,592,545 | 25,798,852 | 37,958,147 | 47,447,684 | -83.91% |
| FORT CAMPBELL | 24,244,760 | 16,207,456 | 21,787,072 | 27,233,840 | -68.03% |
| FORT CARSON (Pinyon Canyon) | 128,160,260 | 85,674,256 | 20,365,192 | 25,456,490 | 70.29% |
| FORT DRUM | 18,175,540 | 12,150,224 | 11,104,508 | 13,880,635 | -14.24% |
| FORT EUSTIS | 1,549,060 | 1,035,536 | 1,082,220 | 1,352,775 | -30.64% |
| FORT GORDON | 17,436,050 | 11,655,880 | 16,480,650 | 20,600,813 | -76.74% |
| FORT HOOD | 67,256,725 | 44,960,660 | 57,490,680 | 71,863,350 | -59.84% |
| FORT HUACHUCA | 17,403,930 | 11,634,408 | 1,716,552 | 2,145,690 | 81.56% |
| FORT JACKSON | 9,222,820 | 6,165,392 | 3,790,200 | 4,737,750 | 23.16% |
| FORT KNOX | 32,074,375 | 21,441,500 | 16,872,000 | 21,090,000 | 1.64% |
| FORT LEONARD WOOD | 19,943,600 | 13,332,160 | 3,005,200 | 3,756,500 | 71.82% |
| FORT LEWIS | 127,656,195 | 85,337,292 | 98,977,269 | 123,721,586 | -44.98% |
| FORT MCCOY | 17,205,005 | 11,501,428 | 15,319,525 | 19,149,406 | -66.50% |
| FORT POLK | 66,848,290 | 44,687,624 | 47,617,960 | 59,522,450 | -33.20% |
| FORT RICHARDSON | 19,208,855 | 12,840,988 | 17,209,029 | 21,511,286 | -67.52% |
| FORT RILEY | 25,171,130 | 16,826,728 | 25,102,168 | 31,377,710 | -86.48% |
| FORT RUCKER | 15,061,725 | 10,068,660 | 12,214,440 | 15,268,050 | -51.64% |
| FORT SAM HOUSTON (Cp Bullis) | 8,751,605 | 5,850,388 | 8,607,743 | 10,759,679 | -83.91% |
| FORT SILL | 17,683,885 | 11,821,556 | 15,455,231 | 19,319,039 | -63.42% |
| FORT STEWART/HUNTER AF | 96,245,025 | 64,339,140 | 95,981,340 | 119,976,675 | -86.48% |
| FORT WAINWRIGHT | 471,604,455 | 315,264,348 | 228,695,859 | 285,869,824 | 9.32% |
| HAWTHORNE ARMY DEPOT | 24,918,185 | 16,657,636 | 3,959,602 | 4,949,503 | 70.29% |

Education & Training Joint Cross-Service Group

| Range/OPAREA Designation (list from capacity data call) | Max Potential Capacity (Available) (Net Acres (Column F) X 365) | Standard (Annual Acre Days) = Standard Acre Days (Column J) * Net Acres (Column F) | Current Usage (Scheduled Acre Days) Net Acres (Column F) * Actual Scheduled Days (Column L) | SURGE = (Current Usage Scheduled (Column M) * 1.25) | Excess Percent (Col D) - surge (Col E) / (Col D) (%) |
|---|---|--|---|---|--|
| NTC AND FORT IRWIN | 130,962,730 | 87,547,688 | 107,640,600 | 134,550,750 | -53.69% |
| SCHOFIELD BRKS | 12,960,055 | 8,663,708 | 11,788,324 | 14,735,405 | -70.08% |
| WHITE SANDS MISSILE RANGE | 203,358,290 | 135,943,624 | 151,543,712 | 189,429,640 | -39.34% |
| YUMA PROVING GROUND | 393,650,675 | 263,152,780 | 322,470,005 | 403,087,506 | -53.18% |
| USMC | | | | | |
| CG_MCB_QUANTICO_VA | 111,380,480 | 74,457,088 | 60,114,944 | 75,143,680 | -0.92% |
| CG_MCB_CAMP LEJEUNE_NC | 36,428,460 | 24,352,176 | 34,132,968 | 42,666,210 | -75.20% |
| CG_MCB_CAMP EN | 26,713,255 | 17,857,628 | 19,980,051 | 24,975,064 | -39.86% |
| CG_MAGTF_TRNGCOM | 127,750 | 85,400 | 58,100 | 72,625 | 14.96% |
| CG_MCB_HAWAII | 9,912,670 | 6,626,552 | 9,831,196 | 12,288,995 | -85.45% |
| MCMWTC Bridgeport | 418,503,890 | 279,766,984 | - | - | 100.00% |
| MCAS_YUMA_AZ | 16,790,000 | 11,224,000 | 12,650,000 | 15,812,500 | -40.88% |
| USAF | - | | | | |
| CANNON AFB | 24,102,045 | 16,112,052 | 16,640,316 | 20,800,395 | -29.10% |
| EDWARDS AFB | 102,393,815 | 68,449,564 | 88,928,327 | 111,160,409 | -62.40% |
| EGLIN AFB | 168,662,485 | 112,749,716 | 168,200,396 | 210,250,495 | -86.48% |
| HILL AFB | 751,877,005 | 502,624,628 | 348,129,353 | 435,161,691 | 13.42% |
| HULMAN REGIONAL APT AGS | 23,871,000 | 15,957,600 | 1,438,800 | 1,798,500 | 88.73% |
| LUKE AFB (GOLDWATER) | 383,263,140 | 256,208,784 | - | - | 100.00% |
| NELLIS AFB | 1,065,759,850 | 712,453,160 | 721,212,830 | 901,516,038 | -26.54% |
| SHAW AFB (AVON PARK) | 4,191,660 | 2,802,096 | 2,813,580 | 3,516,975 | -25.51% |
| USN | - | | | | |
| NAS_WHIDBEY_ISLAND_WA | 14,664,970 | 9,803,432 | 1,446,408 | 1,808,010 | 81.56% |
| COMNAVAIRWARCENWPNDIV_CHINA_LAKE_CA | 678,535 | 453,596 | 490,776 | 613,470 | -35.25% |
| COMNAVSPECWARCEN | 262,800 | 175,680 | 205,200 | 256,500 | -46.00% |
| COMNAVSPECWARGRU_ONE | 25,550 | 17,080 | 21,000 | 26,250 | -53.69% |

Education & Training Joint Cross-Service Group

| Range/OPAREA Designation (list from capacity data call) | Max Potential Capacity (Available) (Net Acres (Column F) X 365) | Standard (Annual Acre Days) = Standard Acre Days (Column J) * Net Acres (Column F) | Current Usage (Scheduled Acre Days) Net Acres (Column F) * Actual Scheduled Days (Column L) | SURGE = (Current Usage Scheduled (Column M) * 1.25) | Excess Percent (Col D) - surge (Col E) / (Col D) (%) |
|---|---|--|---|---|--|
| NAVSTKAIRWA RCEN_FALLON_NV | 68,355,375 | 45,695,100 | 24,720,300 | 30,900,375 | 32.38% |

xiii. Sea Training: Capacity data for Sea is based on the 22 Feb 2005 Capacity Analysis Data (CAD) from the OSD access database.

| Range/OPAREA Designation (list from capacity data call) | Max Potential Capacity (Available) (Net NM2 (Column F) X 365 X 24) (NM2/Hrs/yr) | Standard (Annual NM2/hrs/yr) = Standard Hours/Year (Column J) * Net NM2 (Column F) | Current Usage (Scheduled Nm2/hrs/yr) Net NM2 (Column F) * Actual Scheduled hours (Column L) | SURGE = (Current Usage Scheduled (Column M) * 1.25) | Excess Percent (Col D) - surge (Col f) / (Col D) (%) |
|---|---|--|---|---|--|
| COMNAVIRWA RCENACDIV_PA TUXENT_RIVER_MD ¹ | 2,811,960 | 2,811,960 | 83,139 | 103,924 | 96% |
| COMNAV MARIA NAS_GU | 122,640,000 | 122,640,000 | 73,584,000 | 91,980,000 | 25% |
| COMSUBLANT_NORFOLK_VA | 111,252,000 | 111,252,000 | 111,252,000 | 139,065,000 | -25% |
| COMSUBFORPA C_PEARL_HARBOR_HI | 1,226,400,000 | 1,226,400,000 | 1,226,400,000 | 1,533,000,000 | -25% |
| FACSFAC JACKSONVILLE_FL ² | 468,186,960 | 468,186,960 | 454,291,000 | 567,863,750 | -21% |
| FACSFAC SAN DIEGO_CA | 2,482,610,280 | 2,482,610,280 | 561,137,940 | 701,422,425 | 72% |
| FACSFAC VAC APES_OCEANA_VA | 761,077,560 | 761,077,560 | 761,077,560 | 951,346,950 | -25% |
| FCTCLANT DAM_NECK_VA | 2,409,000 | 2,409,000 | - | - | 100% |
| NAS_KEY_WEST_FL | 169,304,520 | 169,304,520 | 3,865,400 | 4,831,750 | 97% |
| NAS_PENSACOLA_FL | 52,822,800 | 52,822,800 | 3,973,770 | 4,967,213 | 91% |
| NAVIRWARCE NWPNDIV_PT_MUGU_CA | 238,955,280 | 238,955,280 | 96,318,618 | 120,398,273 | 50% |
| NAVSTA_PEARL_HARBOR_HI | 1,957,255,560 | 1,957,255,560 | 1,189,993,506 | 1,487,491,883 | 24% |

Education & Training Joint Cross-Service Group

| Range/OPAREA Designation (list from capacity data call) | Max Potential Capacity (Available) (Net NM2 (Column F) X 365 X 24) (NM2/Hrs/yr) | Standard (Annual NM2/hrs/yr) = Standard Hours/Year (Column J) * Net NM2 (Column F) | Current Usage (Scheduled Nm2/hrs/yr) Net NM2 (Column F) * Actual Scheduled hours (Column L) | SURGE = (Current Usage Scheduled (Column M) * 1.25) | Excess Percent (Col D) - surge (Col f) / (Col D) (%) |
|--|---|--|---|---|--|
| NAVSURFWARC EN_COASTSYS STA_PANAMA_CITY_FL | 24,195,120 | 24,195,120 | 6,485,176 | 8,106,470 | 66% |
| NAVSURFWARC EN_DIV_DAHLGR EN_VA | 1,497,960 | 1,497,960 | 204,687 | 255,859 | 83% |
| NAVUNSEAWARC EN_DIV_KEYPORT_WA | 23,406,720 | 23,406,720 | 3,048,752 | 3,810,940 | 84% |
| PACMISRANFAC_HAWAREA_BARKING_SANDS_HI | 9,636,000 | 9,636,000 | 5,799,200 | 7,249,000 | 25% |
| USMC | | | | | |
| CG_MCB_CAMP LEJEUNE_NC | 464,280 | 464,280 | 12,879 | 16,099 | 97% |
| CG_MCB_CAMP EN | 1,042,440 | 1,042,440 | 387,702 | 484,628 | 54% |
| USAF | | | | | |
| VANDENBERG AFB | 919,800 | 919,800 | 7,665 | 9,581 | 99% |
| EGLIN AFB | 210,257,520 | 210,257,520 | 36,291,024 | 45,363,780 | 78% |

- xiv. Air Training:** Capacity data for Air is based on the 22 Feb 2005 Capacity Analysis Data (CAD) from the OSD access database.

| Range/OPAREA Designation (list from capacity data call) | Max Potential Capacity (Available) (Net NM3 (Column F) X 365 X 24) (NM3/Hrs/yr) | Standard (Annual NM3/hrs/yr) = Standard Hours/Year (Column J) * Net NM3 (Column F) | Current Usage (Scheduled Nm3/hrs/yr) Net NM3 (Column F) * Actual Scheduled hours (Column L) | SURGE = (Current Usage Scheduled (Column M) * 1.25) | Excess Percent (Col D) - surge (Col N) / (Col F) (%) |
|--|--|--|---|---|--|
| USA | | | | | |
| ABERDEEN PROVING GROUND | 21,118,608 | 10,028,928 | 7,420,470 | 9,275,588 | 8% |
| ANNISTON ARMY DEPOT | 15,105 | 7,173 | - | - | 100% |
| DUGWAY PROVING GROUND | 68,467,459 | 32,514,227 | 7,503,283 | 9,379,104 | 71% |
| FORT A P HILL | 580,262 | 275,558 | 333,493 | 416,867 | -51% |

Education & Training Joint Cross-Service Group

| Range/OPAREA Designation (list from capacity data call) | Max Potential Capacity (Available) (Net NM3 (Column F) X 365 X 24) (NM3/Hrs/yr) | Standard (Annual NM3/hrs/yr) = Standard Hours/Year (Column J) * Net NM3 (Column F) | Current Usage (Scheduled Nm3/hrs/yr) Net NM3 (Column F) * Actual Scheduled hours (Column L) | SURGE = (Current Usage Scheduled (Column M) * 1.25) | Excess Percent (Col D) - surge (Col N) / (Col F) (%) |
|--|---|---|--|--|---|
| FORT BENNING | 6,237,291 | 2,962,001 | 4,153,884 | 5,192,355 | -75% |
| FORT BLISS | 144,846,600 | 68,785,600 | 31,782,741 | 39,728,426 | 42% |
| FORT BRAGG | 6,934,130 | 3,292,920 | 6,100,631 | 7,625,789 | 132% |
| FORT CAMPBELL | 12,530,830 | 5,950,714 | 8,890,550 | 11,113,187 | -87% |
| FORT CARSON | 89,738,262 | 42,615,430 | 2,138,262 | 2,672,827 | 94% |
| FORT DIX | 246,331 | 116,979 | 85,077 | 106,346 | 9% |
| FORT DRUM | 4,029,600 | 1,913,600 | 3,919,200 | 4,899,000 | 156% |
| FORT GORDON | 651,306 | 309,296 | 374,724 | 468,405 | -51% |
| FORT HOOD | 19,604,880 | 9,310,080 | 5,953,272 | 7,441,590 | 20% |
| FORT HUACHUCA | 52,254,276 | 24,814,816 | 7,824,427 | 9,780,533 | 61% |
| FORT JACKSON | 1,636,894 | 777,338 | 122,742 | 153,428 | 80% |
| FORT KNOX | 4,293,882 | 2,039,104 | 2,211,713 | 2,764,641 | -36% |
| FORT LEONARD WOOD | 1,546,666 | 734,490 | 236,931 | 296,164 | 60% |
| FORT LEWIS | 35,534,677 | 16,874,915 | 5,761,228 | 7,201,535 | 57% |
| FORT MCCOY | 1,908,629 | 906,381 | 999,177 | 1,248,971 | -38% |
| FORT POLK | 93,003,903 | 44,166,237 | 8,392,307 | 10,490,383 | 76% |
| FORT RICHARDSON | 507,271 | 240,896 | - | - | 100% |
| FORT RILEY | 9,494,964 | 4,509,024 | 3,424,113 | 4,280,141 | 5% |
| FORT RUCKER | 1,078,251 | 512,046 | 361,116 | 451,394 | 12% |
| FORT SILL | 9,085,259 | 4,314,461 | 5,283,828 | 6,604,785 | -53% |
| FORT STEWART | 15,778,424 | 7,492,950 | 6,154,308 | 7,692,885 | -3% |
| NTC AND FORT IRWIN CA | 22,601,676 | 10,733,216 | 22,477,831 | 28,097,289 | 162% |
| REDSTONE ARSENAL | 1,192,814 | 566,451 | 88,200 | 110,250 | 81% |
| SCHOFIELD BARRACKS | 4,382,784 | 2,081,322 | 1,001 | 1,251 | 100% |
| WEST POINT MIL RESERVATION | 43,800 | 20,800 | - | - | 100% |
| WHITE SANDS MISSILE RANGE | 580,183,560 | 275,520,960 | 309,043,348 | 386,304,185 | -40% |
| YUMA PROVING GROUND | 176,899,440 | 84,007,040 | 88,748,835 | 110,936,044 | -32% |
| USAF | | | | | |
| Atlantic City IAP AGS | 1,261,440 | 599,040 | 258,912 | 323,640 | 46% |
| BARKSDALE AFB | 44,711,040 | 21,232,640 | 2,719,516 | 3,399,395 | 84% |
| Barnes MPT | 70,080 | 33,280 | 208 | 260 | 99% |

Education & Training Joint Cross-Service Group

| Range/OPAREA Designation (list from capacity data call) | Max Potential Capacity (Available) (Net NM3 (Column F) X 365 X 24) (NM3/Hrs/yr) | Standard (Annual NM3/hrs/yr) = Standard Hours/Year (Column J) * Net NM3 (Column F) | Current Usage (Scheduled Nm3/hrs/yr) Net NM3 (Column F) * Actual Scheduled hours (Column L) | SURGE = (Current Usage Scheduled (Column M) * 1.25) | Excess Percent (Col D) - surge (Col N) / (Col F) (%) |
|--|---|---|--|--|---|
| AGS | | | | | |
| BEALE AFB | 91,524,480 | 43,463,680 | 1,461,648 | 1,827,060 | 96% |
| Boise Air Terminal AGS | 56,186,640 | 26,682,240 | 8,041,194 | 10,051,493 | 62% |
| Bradley IAP AGS | 38,211,120 | 18,145,920 | 1,182,123 | 1,477,654 | 92% |
| BUCKLEY AFB | 243,860,880 | 115,806,080 | 12,004,524 | 15,005,655 | 87% |
| CANNON AFB | 557,092,200 | 264,555,200 | 54,443,331 | 68,054,164 | 74% |
| Capital APT AGS | 84,459,540 | 40,108,640 | 2,166,029 | 2,707,536 | 93% |
| Carswell ARS | 4,038,360 | 1,917,760 | 1,248,904 | 1,561,130 | 19% |
| COLUMBUS AFB | 141,846,913 | 67,361,091 | 18,802,049 | 23,502,561 | 65% |
| Dane County Regional - Truax Field AGS | 282,510,000 | 134,160,000 | 9,296,939 | 11,621,174 | 91% |
| Dannelly Field AGS | 65,472,240 | 31,091,840 | 14,200,600 | 17,750,750 | 43% |
| DAVIS-MONTHAN AFB | 246,296,160 | 116,962,560 | 7,733,440 | 9,666,800 | 92% |
| Des Moines IAP AGS | 308,746,200 | 146,619,200 | 22,349,240 | 27,936,550 | 81% |
| Duluth IAP AGS | 1,601,520,720 | 760,539,520 | - | - | 100% |
| Dyess AFB | 154,176,000 | 73,216,000 | 43,419,200 | 54,274,000 | 26% |
| Edwards AFB* | 2,010,333,416 | 954,678,883 | 1,166,307,731 | 1,457,884,663 | -53% |
| EGLIN AFB | 3,738,312,480 | 1,775,271,680 | 1,290,244,132 | 1,612,805,165 | 9% |
| EIELSON AFB | 2,254,780,200 | 1,070,763,200 | 109,296,906 | 136,621,133 | 87% |
| Ellington Field AGS | 1,004,316,480 | 476,935,680 | 136,536,105 | 170,670,131 | 64% |
| ELLSWORTH AFB | 304,865,520 | 144,776,320 | 10,554,880 | 13,193,600 | 91% |
| Elmendorf AFB | 1,911,686,040 | 907,832,640 | - | - | 100% |
| Fort Smith Regional APT AGS | 119,535,456 | 56,765,696 | 4,038,967 | 5,048,709 | 91% |
| Fort Wayne IAP AGS | 53,760,120 | 25,529,920 | 3,302,624 | 4,128,280 | 84% |
| Great Falls IAP AGS | 1,111,118,400 | 527,654,400 | 80,350,500 | 100,438,125 | 81% |
| Hancock Field AGS | 108,878,040 | 51,704,640 | 2,997,430 | 3,746,788 | 93% |
| Harrisburg IAP AGS | 1,717,573 | 815,651 | - | - | 100% |
| HILL AFB | 613,831,596 | 291,499,936 | 613,786,657 | 767,233,322 | 163% |
| HOLLOMAN AFB | 669,877,200 | 318,115,200 | 52,248,770 | 65,310,963 | 79% |
| Hulman Regional APT AGS | 57,938,640 | 27,514,240 | 3,371,770 | 4,214,713 | 85% |

Education & Training Joint Cross-Service Group

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|--|---|---|--|--|---|
| Joe Foss Field AGS | 60,444,000 | 28,704,000 | 2,760,000 | 3,450,000 | 88% |
| Key Field AGS | 129,848,604 | 61,663,264 | 1,006,410 | 1,258,012 | 98% |
| KIRTLAND AFB | 122,689,932 | 58,263,712 | 2,745,117 | 3,431,397 | 94% |
| Klamath Falls IAP AGS | 859,180,800 | 408,012,800 | 15,891,610 | 19,864,513 | 95% |
| Lambert - St. Louis IAP AGS | 255,091,200 | 121,139,200 | 17,473,200 | 21,841,500 | 82% |
| Langley AFB | 16,258,560 | 7,720,960 | 259,008 | 323,760 | 96% |
| LAUGHLIN AFB | 93,101,280 | 44,212,480 | 34,317,712 | 42,897,140 | 3% |
| Lincoln MAP AGS | 40,120,800 | 19,052,800 | - | - | 100% |
| LUKE AFB | 672,803,040 | 319,504,640 | 231,666,529 | 289,583,161 | 9% |
| McChord AFB | 1,508,629,680 | 716,426,880 | 236,341,353 | 295,426,691 | 59% |
| MCCONNELL AFB | 67,793,640 | 32,194,240 | 6,576,190 | 8,220,238 | 74% |
| Moody AFB | 192,693,720 | 91,507,520 | 43,188,902 | 53,986,128 | 41% |
| MOUNTAIN HOME AFB | 401,866,226 | 190,840,582 | 122,852,833 | 153,566,042 | 20% |
| NELLIS AFB | 780,664,920 | 370,726,720 | 188,711,302 | 235,889,128 | 36% |
| OFFUTT AFB | 81,012,480 | 38,471,680 | 638,112 | 797,640 | 98% |
| Pope AFB | 10,608,360 | 5,037,760 | 1,226,743 | 1,533,429 | 70% |
| RANDOLPH AFB | 97,560,120 | 46,329,920 | 28,740,660 | 35,925,825 | 22% |
| Rome Laboratory | 436,276,345 | 207,181,461 | - | - | 100% |
| Schriever AFB | 14,016 | 6,656 | 14,016 | 17,520 | 163% |
| Selfridge ANGB | 566,929,680 | 269,226,880 | 37,860,854 | 47,326,068 | 82% |
| Seymour Johnson AFB | 56,896,200 | 27,019,200 | 8,849,345 | 11,061,681 | 59% |
| Shaw AFB | 371,607,960 | 176,471,360 | 85,602,183 | 107,002,729 | 39% |
| SHEPPARD AFB | 157,574,880 | 74,830,080 | 48,610,587 | 60,763,234 | 19% |
| Sioux Gateway APT AGS | 90,841,200 | 43,139,200 | 3,339,140 | 4,173,925 | 90% |
| Springfield-Beckley MPT AGS | 168,962,880 | 80,238,080 | 37,988,500 | 47,485,625 | 41% |
| Tucson IAP AGS | 659,986,985 | 313,418,477 | 73,718,818 | 92,148,522 | 71% |
| Tulsa IAP AGS | 38,000,880 | 18,046,080 | 1,566,018 | 1,957,523 | 89% |
| TYNDALL AFB | 71,584,793 | 33,994,605 | 9,022,707 | 11,278,384 | 67% |
| VANCE AFB | 203,500,932 | 96,639,712 | 60,757,748 | 75,947,185 | 21% |
| VANDENBERG AFB | 25,044,840 | 11,893,440 | 18,240,864 | 22,801,080 | -92% |
| W. K. Kellogg APT AGS | 14,392,680 | 6,834,880 | 243,164 | 303,955 | 96% |
| WHITEMAN AFB | 187,989,162 | 89,273,392 | 3,591,052 | 4,488,815 | 95% |
| USMC | | | | | |
| CG_MAGTF_TR | 221,628 | 105,248 | 102,754 | 128,443 | -22% |

Education & Training Joint Cross-Service Group

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|---|---|--|---|---|--|
| NGCOM | | | | | |
| CG_MCAS_CHE RRY_PT | 9,563,292 | 4,541,472 | 1,511,190 | 1,888,988 | 58% |
| CG_MCB_CAMP LEJEUNE_NC | 3,953,914 | 1,877,658 | 1,080,349 | 1,350,437 | 28% |
| CG_MCB_CAMP EN | 6,156,178 | 2,923,482 | 2,820,715 | 3,525,894 | -21% |
| CG_MCB_QUAN TICO_VA | 2,957,376 | 1,404,416 | 2,941,171 | 3,676,464 | 162% |
| MCAS_BEAUFORT_SC | 14,223,689 | 6,754,629 | 7,989 | 9,987 | 100% |
| MCAS_YUMA_A Z | 219,385,440 | 104,183,040 | 28,682,407 | 35,853,009 | 66% |
| USN | | | | | |
| COMNAVAIRWARCENACDIV_PATUXENT_RIVER_MD | 2,193,657,300 | 1,041,736,800 | 77,286,013 | 96,607,517 | 91% |
| COMNAVAIRWARCENWPNDIV_CHINA_LAKE_CA* | 1,581,561,148 | 751,061,002 | 893,552,553 | 1,116,940,691 | -49% |
| COMNAVMAIRNAS_GU | 520,256 | 247,062 | 326,645 | 408,306 | -65% |
| COMPATRECONWING_FIVE_BRUNSWICK_ME | 390,639,060 | 185,508,960 | 7,895,136 | 9,868,920 | 95% |
| COMSTRKFIGHTWINGPAC_LEMOORE_CA | 49,529,040 | 23,520,640 | 2,103,423 | 2,629,279 | 89% |
| FACSFAC_JACKSONVILLE_FL | 6,634,061,880 | 3,150,422,080 | 880,065,444 | 1,100,081,805 | 65% |
| FACSFAC_SAN_DIEGO_CA | 33,592,681,560 | 15,952,688,960 | 28,257,560,664 | 35,321,950,830 | 121% |
| FACSFAC_VACAPES_OCEANA_VA | 7,786,404,840 | 3,697,653,440 | 5,531,991,068 | 6,914,988,835 | -87% |
| NAS New Orleans ARS | 698,750,160 | 331,826,560 | 97,145,680 | 121,432,100 | 63% |
| NAS_ATLANTA_GA | 192,807,600 | 91,561,600 | 2,465,120 | 3,081,400 | 97% |
| NAS_CORPUS_CHRISTI_TX | 632,362,500 | 300,300,000 | - | - | 100% |
| NAS_JRB_FT_WORTH_TX | 22,592,040 | 10,728,640 | 9,707,356 | 12,134,195 | -13% |

Education & Training Joint Cross-Service Group

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|---|---|--|---|---|--|
| NAS_KEY_WEST_FL | 2,104,835,280 | 999,556,480 | 2,104,835,280 | 2,631,044,100 | 163% |
| NAS_KINGSVILLE_TX | 362,077,080 | 171,945,280 | 66,418,879 | 83,023,599 | 52% |
| NAS_MERIDIAN_MS | 149,060,160 | 70,786,560 | 61,972,580 | 77,465,725 | -9% |
| NAS_PENSACOLA_FL | 558,450,000 | 265,200,000 | 39,967,020 | 49,958,775 | 81% |
| NAS_WHIDBEY_ISLAND_WA | 1,892,028,600 | 898,497,600 | 192,638,026 | 240,797,533 | 73% |
| NAS_WHITING_FIELD_MILTON_FL | 31,071,720 | 14,755,520 | 19,802,901 | 24,753,626 | -68% |
| NAVAIRWARCE NWPNDIV_PT_MUGU_CA | 1,929,039,600 | 916,073,600 | 780,424,240 | 975,530,300 | -6% |
| NAVSTA_PEARL_HARBOR_HI | 5,765,595,638 | 2,737,999,755 | 205,329,204 | 256,661,505 | 91% |
| NAVSTKAIRWARCEN_FALLON_NV | 564,344,604 | 267,999,264 | 210,018,654 | 262,523,318 | 2% |
| NAVSURFWARCE ENDIV_DAHLGR EN_VA | 3,047,604 | 1,447,264 | 276,404 | 345,505 | 76% |
| PACMISRANFAC_HAWAREA_BARKING_SANDS_HI | 3,042,803,520 | 1,444,984,320 | 645,879,656 | 807,349,570 | 44% |

xv. **Capacity Analysis:** Throughout the capacity analysis process data from Air, Ground, and Sea training arenas had to be re-requested via requests for clarifications. All requests for clarification were ultimately received and updated in the OSD database.

b. **The Range Capacity methodology**, for each of the *T&E and training functions*, required different measures of maximum potential capacity, current capacity and current usage.

i. Range capacity and utilization for the functions of testing and training are dependent upon the following factors:

Education & Training Joint Cross-Service Group

- Usable Volume (Air space, land, and sea space)
 - Available Time
 - Personnel
 - Physical Plant
- ii. Range capacity and utilization for the T&E function is determined by throughput measured in test hours and is dependent on numerous factors such as range support personnel, facilities, processes, encroachment and safety constraints, security, and the scope of each test requirement (the largest variable).
- iii. Maximum Potential Capacity, which has been described as what each function is capable of doing, is, for ranges, interpreted to mean maximum potential availability, which is 24 hours per day, 365 days per year.
- iv. Current Capacity and Current Usage is measured differently for the functions of training and testing.
- c. **Training Capacity Integration on T&E OARs:** To determine how much Training capacity is available on T&E OARs, the Training and T&E Sub-Working Groups devised the following methodology:
- i. Current Capacity training (CC_{tr}) is the current training capacity on a T&E OAR represented by:
 - Ground = 244 days x Net Acres (UOM: Acre Days)
 - Sea = NM2 x 365 days x 24 hours (UOM: NM2 Hours)
 - Air = NM3 x 260 days x 16 hours (UOM: NM3 Hours)
 - ii. Range Hours Testing (RH_{tst}) represents the number of Range hours spent on a T&E OAR conducting testing. (Assumption that any hour of T&E activity commits the entire volume of the OAR).
 - iii. Range Hours Training (RH_{tr}) represents the number of range hours currently spent on a T&E OAR conducting training.
 - iv. Test Surge (S_{tst}) represents 10% of RH_{tst} ; that is, $S_{tst} = 0.10 \times RH_{tst}$.
 - v. The formula for calculation of excess range time available for training is:
Current Capacity Training (CC_{tr}) (-) Range Hours Test (RH_{tst}) - 0.10 x RH_{tst} - Range Hours Training (RH_{tr}). Simplified, this equation is [$CC_{tr} - 1.1 \times RH_{tst} - RH_{tr}$].

This formula was not used nor was the information required during calculations of Training or T&E Range capacities. Training and T&E were treated as two distinct and different functions.

Education & Training Joint Cross-Service Group

d. T&E Capacity Approach

- i. The analysis of the DoD T&E OAR infrastructure consists of both inventory and throughput components. The inventory component is for locations having open-air ranges that perform T&E. (NOTE: combined test and training events on ranges, such as for operational test and evaluation, may be reported as only training time or only as test time as the mission of individual units in large scale events may be transparent to the range or OPAREA hosting it). Based on the review of the responses from the Supplemental Capacity data call, the following list comprises the inventory of locations containing OARs on which T&E was performed. Installations listed below reported test hours in their responses to questions DoD# 4002 and DoD# 4005 indicating the accomplishment of T&E. Army ammunition plants and depots reporting OAR's were removed from consideration as the testing reported was in support of the primary mission of the facility (e.g. lot acceptance testing, quality control functions, etc.) and these facilities are being evaluated in their entirety by the Industrial JCSG.

T&E Activity List:

Army:

- | | |
|--|-------------------------------|
| 1) Aberdeen Proving Ground, MD* | 9. Dugway Proving Ground, UT* |
| 2) Fort AP Hill, VA | 10. Fort Belvoir, VA |
| 3) Fort Benning, GA | 11. Fort Bliss, TX |
| 4) Fort Bragg, NC | 12. Fort Eustis, VA |
| 5) Fort Huachuca, AZ* | 13. Fort Rucker, AL |
| 6) Fort Sill, OK | 14. Fort Wainwright, AK |
| 7) Hawthorne Army Depot, NV (USMC Test Range tenant) | |
| 8) Picatinny Arsenal, NJ | 15. Redstone Arsenal, AL |
| 9) White Sands Missile Range, NM* | 16. Yuma Proving Ground, AZ* |

Navy:

- | | |
|-----------------------------------|---|
| 1) CG MAGTF TRNGCOM, 29 Palms, CA | 9. CG MCB Camp Pendleton, CA |
| 2) NAWC-AD Patuxent River, MD* | 10. NAWC-WD China Lake, CA* |
| 3) COMSUBLANT, Norfolk, VA | 11. MCAS Beaufort, SC |
| 4) MCAS Yuma, AZ | 12. MCMWTC Bridgeport, CA |
| 5) NAS Key West, FL | 13. NAWC-WD Pt. Mugu, CA* |
| 6) NAVSTKWARCEN Fallon, NV | 14. NSWC Coastal Systems, Panama City, FL |
| 7) NSWC Dahlgren, VA | 15. NUWC Keyport, WA |
| 8) PMRF Barking Sands, HI* | |

Air Force:

- | | |
|------------------------|----------------------|
| 1) Buckley AFB, CO | 6. Edwards AFB, CA* |
| 2) Eglin AFB, FL* | 7. Ellsworth AFB, SD |
| 3) Hill AFB, UT* | 8. Luke AFB, AZ |
| 4) McConnell AFB, KS | 9. Nellis AFB, NV* |
| 5) Vandenberg AFB, CA* | |

Education & Training Joint Cross-Service Group

* Indicates the installation is listed as being part of the Major Range and Test Facility Base (MRTFB) as defined in DoD 3200.11. The MRTFB is a national asset that shall be sized, operated, and maintained primarily for DoD T&E support missions, but may also be available to all users having a valid requirement for its capabilities. While entire installations are listed in the instruction, only selected facilities, equipments and ranges at these respective installations may actually be in the MRTFB as defined by receipt of MRTFB institutional funding.

e. **Provide the Capacities for Assigned Functions:**

- i. The TESWG determined that output in terms of test hours indicates the degree of support provided for S&T, development and acquisition, in-service engineering functions and formal DT/OT as the best aggregate measure of OAR throughput capacity. Support requirements vary as to the specific type of test being conducted; the OAR equipment, facility, and frequency spectrum required; and individual test event spatial needs. Simultaneous and overlapping test events can and do occur during the same block of range time at most T&E OARs; hence while test hours is a useful measure of capacity to perform T&E, it says little about availability of the OAR to support other functions such as training events. Further, differences in specific test support requirements per test event, and the broad span of types of testing (from small requiring only a fraction of an OAR's area or volume, to those requiring use of multiple OARs operating as one), do not lend themselves to a geometrical measure of capacity that might be more appropriate for other mission areas such as training. Test hours take into account the ability of an OARs physical plant (including its personnel, facilities, and equipment) and the physical constraints of location specific range space to simultaneously accommodate multiple tests, training evolutions, or other events. Test hours are auditable and verifiable.
- ii. Test Hours are defined as the amount of time used for the conduct of a single test event on an OAR including the amount of time used for setup, reconfiguration, teardown, or cleanup of the OAR if those preclude use of the OAR for another test event. Multiple test hours may occur on an OAR in one clock hour (range hour) if multiple test events are being conducted within safety and spatial constraints. Test hours, however, do not directly correlate to range hours, labor hours or even test events. A single test event or multiple test events may be conducted

Education & Training Joint Cross-Service Group

in any one-hour of range time, depending on the type of tests to be supported, spatial capacity of the range, the spatial needs of the test event(s), and the specific requirements for Range instrumentation, frequency spectrum, etc. Smaller-sized OARs may accumulate many test hours in one hour of range time but may not be capable of running any large spatial volume-driven test event. Similarly, large-sized OARs may have the spatial volume required to run multiple small-scale events but lack the equipment, bandwidth or personnel to do it.

- iii. T&E OAR infrastructure consists of personnel, facilities, and equipment all aligned to efficient and effective utilization of resources. Automation of equipment and type of testing being conducted may determine labor hours as much as or even more than the amount of workload. For these reasons, the TESWG decided on test hours as the most equitable and accurate aggregate measurement of throughput. Spatial volumes, personnel manning, available range time and types or numbers of events all aid in completing the picture for each OAR but fall short as a measure of aggregate capacity.
- iv. Test hours, then, reflects the aggregate of these components as an average of the output of an OAR, and is considered a fair and consistent measure of each OAR's capability. However, these resulting values are not useful for comparing among OARs since each varies so much; i.e., there is no "standard" T&E OAR, even among those doing T&E in the same T&E Reliance area.

Excess throughput capacity for OARs, in terms of test hours, is calculated according to the following equation:

$$\text{Excess Capacity} = \frac{[(\text{Current Capacity}) - (\text{Current Usage} + \text{Surge Capacity})]}{\text{Current Capacity}} \times 100\%$$

Where:

Current Capacity = Peak demonstrated workload in test hours for the OAR in any fiscal year in its current configuration.

Current Usage = Average workload in test hours computed from actual workload executed during FY 01, FY 02, and FY 03.

Surge Capacity = 10% of Current Usage, where the "10%" is based on a general consensus of T&E subject matter experts for a sustained long-term surge effort.

Excess Capacity = Percentage of additional (if positive) test hours that could be accommodated on an OAR compared with difference from the maximum demonstrated usage in a given year, and the average usage during FY 2001-2003 plus what would be needed for surge. If negative, the average usage during FY 2001-

Education & Training Joint Cross-Service Group

2003 plus what would needed for surge exceeds that which was demonstrated in the peak year.

Maximum Potential Capacity = Defined but not used in the calculation. Defined as what each OAR is capable of doing. Interpreted for “ranges” to mean maximum potential availability of airspace, land space and/or sea space; which is 24 hours per day, 365 days per year. Not applicable for T&E OAR capacity calculation due to difference in units of measure. Maximum Potential Capacity cannot be calculated for T&E OARs.

f. Identify the Excess Throughput Capacity

- i. Data received from the initial Capacity Data Call was generally incomplete, incorrectly reported, or missing entirely. The majority of the required data to determine T&E throughput capacity for OARs was contained in responses to Capacity Data Call Question DoD #748. During the Data Standardization Team review this question was consolidated with a question from another JCSG, resulting in a rewording of the question. The rewording lost the granularity required for capacity analysis.
- ii. A Supplemental Data Call was released in July 2004 that contained reissued capacity questions. Responses were received in mid August 2004 from the installations and activities. Initial responses were resolved and clarified through the request for clarifications process and subsequent OSD database updates.
- iii. The TESWG capacity report approved in April uses the same metric and equation as was used in BRAC '95 (with the surge factor added). Results from the data call suggest that OAR capacity has been managed to reflect workload and is fairly well in balance considering the cyclic nature of acquisition.

g. Following tables display the T&E OAR Capacity Data.

| Name | <u>Current Usage</u> | <u>Current Capacity</u> | <u>Surge Capacity</u> | <u>Excess Capacity</u> |
|--|----------------------|-------------------------|-----------------------|------------------------|
| ABERDEEN PROVING GROUND* | 103266.0 | 119700.0 | 10326.6 | 5.1% |
| DUGWAY PROVING GROUND* | 18986.7 | 19470.0 | 1898.7 | -7.3% |
| FORT A P HILL | 10615.3 | 16320.0 | 1061.5 | 28.5% |
| FORT BLISS | 186.7 | 560.0 | 18.7 | 63.3% |
| FORT BRAGG | 609.0 | 786.0 | 60.9 | 14.8% |
| FORT HOOD | 2577.3 | 4454 | 257.7 | 36.3% |
| FORT HUACHUCA* | 4673.0 | 5200.0 | 467.3 | 1.1% |
| FORT KNOX | 8293.3 | 19360.0 | 829.3 | 52.9% |
| FORT LEONARD WOOD | 1837.3 | 2314.0 | 183.7 | 12.7% |
| FORT RUCKER | 5968.3 | 6484.0 | 596.8 | -1.3% |
| FORT SILL | 3400.3 | 6552.0 | 340.0 | 42.9% |
| FORT WAINWRIGHT (cold Regions Test Center) | 9773.0 | 13230 | 977.3 | 18.7% |
| HAWTHORNE ARMY DEPOT | 1242.0 | 2066.0 | 124.2 | 33.9% |
| NTC AND FORT IRWIN CA | 330.7 | 624.0 | 33.1 | 41.7% |

Education & Training Joint Cross-Service Group

| Name | Current Usage | Current Capacity | Surge Capacity | Excess Capacity |
|--|-----------------|------------------|----------------|-----------------|
| REDSTONE ARSENAL | 20790.7 | 23853.0 | 2079.1 | 4.1% |
| WHITE SANDS MISSILE RANGE* | 20616.7 | 21194.0 | 2061.7 | -7.0% |
| YUMA PROVING GROUND* | 45821.7 | 60975 | 4582.2 | 17.3% |
| BUCKLEY AFB | 4.2 | 12.5 | 0.4 | 63.3% |
| EDWARDS AFB* | 26896.3 | 35669.8 | 2689.6 | 17.1% |
| EGLIN AFB* | 23624.4 | 23876.0 | 2362.4 | -8.8% |
| ELLSWORTH AFB | 31.8 | 66.3 | 3.2 | 47.3% |
| HILL AFB* | 485.9 | 1109.1 | 48.6 | 51.8% |
| LUKE AFB | 311.3 | 350.0 | 31.1 | 2.2% |
| MCCONNELL AFB | 21.7 | 39.0 | 2.2 | 38.9% |
| NELLIS AFB* | 26924.0 | 27740.0 | 2692.0 | -6.76% |
| VANDENBERG AFB* | 27284.3 | 34739.0 | 2728.4 | 13.6% |
| CG_MAGTF_TRNGCOM | 2996.8 | 3350 | 299.7 | 1.60% |
| CG_MCB_CAMPEN | 896.7 | 1050.0 | 89.7 | 6.1% |
| COMNAVAIRWARCENACDIV_PATUXENT_RIVER_MD* | 28966.7 | 30419.0 | 2896.7 | -4.7% |
| COMNAVAIRWARCENWPNDIV_CHINA_LAKE_CA* | 3571.7 | 3995.0 | 357.2 | 1.7% |
| COMSUBLANT_NORFOLK_VA | 80.0 | 120.0 | 8.0 | 26.7% |
| MCAS_BEAUFORT_SC | 1.3 | 4.0 | 0.1 | 63.3% |
| MCAS_YUMA_AZ | 70.0 | 100.0 | 7.0 | 23.0% |
| MCMWTC | 612.0 | 648.0 | 61.2 | -3.9% |
| NAS_KEY_WEST_FL | 3152.7 | 3435.0 | 315.3 | -1.0% |
| NAVAIRWARCENWPNDIV_PT_MUGU_CA* | 3213.7 | 4812.0 | 321.4 | 26.5% |
| NAVSTKAIRWARCEN_FALLON_NV | 90.3 | 149.9 | 9.0 | 33.7% |
| NAVSURFWARCEN_COASTSYSSTA_PANAMA_CITY_FL | 2430.3 | 2689.0 | 243.0 | 0.6% |
| NAVSURFWARCENDIV_DAHLGREN_VA | 2349.0 | 2707.0 | 234.9 | 4.6% |
| NAVUNSEAWARCENDIV_KEYPORT_WA | 862.3 | 984.0 | 86.2 | 3.60% |
| PACMISRANFAC_HAWAREA_BARKING_SANDS_HI* | 1520.7 | 1932.0 | 152.1 | 13.4% |
| T&E OAR Summary | 414788.9 | 503788.45 | 41478.9 | 9.43% |

* Indicates the installation is listed as being part of the Major Range and Test Facility Base (MRTFB) as defined in DoD 3200.11. The MRTFB is a national asset that shall be sized, operated, and maintained primarily for DoD T&E support missions, but may also be available to all users having a valid requirement for its capabilities. While entire installations are listed in the instruction, only selected facilities, equipments and ranges at the respective installation may actually be in the MRTFB as defined by receipt of MRTFB institutional funding.

Note: Capacity data for T&E is reported as a roll-up of all OAR's and T&E capability areas by base and or installation. The data above is based on the 15 Mar 2005 OSD Capacity database.

4. Capacity Analysis Methodology Range Subgroup Functions.

Range capacity was developed based on two major functions carried out on ranges. These functions are training and testing.

- a. For Training, capacity was defined in terms of ground, air and sea domains and Was stated in units of measure that capture both volume and time. The results of our analysis indicate that Maximum Potential Capacity for ground ranges considered is 5,837,351,560 Acre Days. Maximum Potential Capacity for sea

Education & Training Joint Cross-Service Group

ranges considered is 7,864,333,800 NM2 Hrs. Maximum Potential Capacity for air ranges considered is 98,143,716,509 NM3 Hrs. The Current Capacity (Standard) for each domain is: ground, 3,902,229,536 Acre Days; sea, 7,864,333,800 NM2 Hrs; and air, 46,607,061,721 NM3 Hrs. Current usage for ground ranges is 3,142,760,349 acre days. Current usage for sea ranges is 4,534,130,879 NM2 hrs. Current usage for air ranges is 45,660,760,218 NM3 Hrs. A surge factor of 25% over current usage is used for training. Excess Capacity calculation is: Current Capacity (Standard) minus Current Usage, plus 25% surge. Excess for ground ranges is – (26,220,900) Acre Days, -1% of Current Capacity (Standard). Excess for air ranges is – (10,468,888,551) NM3 Hrs, -22% of Current Capacity (Standard). Excess for sea ranges is +2,196,670,201 NM3 Hrs, +28% of Current Capacity (Standard).

i. Ground:

Current Usage (Standard) – (Current Usage + (Current Usage X .25 = Surge)) = Excess

- Current Capacity (Standard) 3,902,229,536 (Acre Days) – (Current Usage X .25) 3,928,450,436 (Acre Days) = Excess – (26,220,900) (Acre Days) = -1% excess capacity
- Ground shows there is an excess of -1% capacity on all the ground maneuver/live fire ranges when calculated using Current Capacity (Standard) minus Current Usage with a 25% surge factor figured in.

Current Capacity (Standard) – (Current Usage) = Current Capacity Excess

- Current Usage (Standard) 3,902,229,536 (Acre Days) – (Current Usage X .25) 3,928,450,436 (Acre Days) (Acre Days) – (Current Usage) 3,142,760,349 (Acre Days) = Current Capacity Excess 759,469,187 (Acre Days) = +19% current excess.
- Ground shows an excess capacity +19% on all the ground maneuver/live fire ranges when calculated using Current Capacity (Standard) minus Current Usage.

ii. Sea:

Current Usage (Standard) – (Current Usage + (Current Usage X .25 = Surge)) = Excess

Education & Training Joint Cross-Service Group

- Current Usage (Standard) 7,864,333,800 (NM2 Hrs/Yr) – (Current Usage X .25) 5,667,663,599 (NM2 Hrs/Yr) = Excess 2,196,670,201 (NM2 Hrs/Yr) = +28% excess capacity
- Sea shows there is an excess of +28% capacity on all the sea ranges when calculated using Current Usage (Standard) minus current usage with a 25% surge factor figured in.

Current Capacity (Standard) – (Current Usage) = Current Capacity Excess

- Current Usage (Standard) 7,864,333,800 (NM2 Hrs/Yr) – (Current Usage) 4,534,130,879 (NM2 Hrs/Yr) = Current Usage Excess + 3,333,931,742 (NM2 Hrs/Yr) = +42% excess
- Sea shows an excess capacity +42% on all the sea ranges when calculated using Current Capacity (Standard) minus Current Usage.

iii. Air:

Current Capacity (Standard) – (Current Usage + (Current Usage X .25 = Surge)) = Excess

- Current Capacity (Standard) 46,607,061,721 (NM3 Hrs/Yr) – (Current Usage X .25) 57,075,950,273 (NM3 Hrs/Yr) = Excess – 10,468,888,551 (NM3 Hrs/Yr) = -22% excess capacity
- Air shows there is a negative excess of -22% capacity on all the air ranges when calculated using Current Capacity (Standard) minus current usage with a 25% surge factor figured in.

Current Capacity (Standard) – (Current Usage) = Current Capacity Excess

- Current Capacity (Standard) 46,607,061,721 (NM3 Hrs/Yr) – (Current Usage) 45,660,760,218 (NM3 Hrs/Yr) = Current Capacity Excess + 946,301,503 (NM3 Hrs/Yr) = +2% current excess
- Air shows an excess capacity of +2% on all the air ranges when calculated using Current Capacity (Standard) minus current usage.

- b. The T&E Sub Working Group (TESWG) addressed the capacity of test and evaluation (T&E) functions performed on open-air ranges (OARs). The methodology provided a self-described inventory of ranges that perform T&E and determined excess throughput capacity for those ranges based on the **Capacity**

Education & Training Joint Cross-Service Group

Calculations below:

$$\text{Excess Capacity} = \frac{[(\text{Current Capacity}) - (\text{Current Usage} + \text{Surge Capacity})]}{\text{Current Capacity}}$$

Total DoD OAR

$$\text{Excess Capacity} = \frac{[(503788.5) - (414788.9 + 41478.9)]}{503788.5} \times 100 = 9.43\%$$

Where:

Current Capacity = Peak demonstrated workload in test hours for the OAR and function.

Current Usage = Average workload in test hours computed from actual workload executed during FY 01, FY 02, and FY 03 based on our intent to measure capacity of a consistent and current OAR configuration baseline.

Surge Capacity = 10% of Current Usage, where the “10%” is based on a general consensus of T&E subject matter experts for a sustained long-term surge effort.

5. Summary for the Ranges and Collective Training Capability Subgroup

- a. Training: Overall, after receiving 100% of activity responses to the Range Subgroup’s capacity questions and requests for clarification, analyses of the filtered activities (with 25% surge factor) revealed no excess capacities at ground and air ranges and a 28% excess capacity at sea ranges.
- b. T&E: Overall, after receiving 100% of activity responses to the Range Subgroup’s capacity questions and requests for clarification, analyses of the T&E range activities (with a 10% surge factor) revealed a 9.43% excess capacity.

**EDUCATION AND TRAINING
JOINT CROSS-SERVICE GROUP**

MILITARY VALUE ANALYSIS REPORT



INFRASTRUCTURE STEERING GROUP

20 April 2005

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TABLE OF CONTENTS

| | <u>Page</u> |
|--|-------------|
| Executive Summary | i |
| Overview of Education and Training JCSG Military Value Analysis | |
| Section 1 | 1 |
| Flight Training Subgroup Military Value Analysis | |
| Section 2 | 5 |
| Professional Development Education Subgroup Military Value Analysis | |
| Section 3 | 8 |
| Specialized Skill Training Subgroup Military Value Analysis | |
| Section 4 | 16 |
| Ranges and Collective Training Subgroup Military Value Analysis | |

EXECUTIVE SUMMARY

E&T JCSG Military Value Analysis Report

The Education & Training Joint Cross Service Group (E&T JCSG) was designated to evaluate Active and Reserve Component institutions, Special Operations Forces (SOF) schools, defense agencies' schools, and civilian institutions. Excluded from E&T JCSG analyses were healthcare (all categories) and intelligence (professional education category) which were designated for analyses by the Medical JCSG and Intelligence JCSG, respectively. Also excluded were categories/sub-categories of institutional education and training designated to be evaluated by the Services, e.g., recruit training, officer acquisition training, junior officer professional military education (PME), enlisted leadership programs, and Army One Station Unit Training.

The E&T JCSG was organized into four subgroups: Flight Training (FT), Professional Development Education (PDE), Specialized Skill Training (SST), and Ranges & Collective Training Capability. As described in initial and interim Military Value Analysis (MVA) Reports, Subgroups Military Value Analysis calculations focused on existing physical plants' capabilities to perform specific functions based upon DoD selection criteria, reference Federal Register published February 12, 2004. This final MVA Report highlights the results of each subgroup's review of the distinct functional areas (e.g. categories/sub-categories of institutional training) within the purview of the E&T JCSG.

Results of Military Value Analyses (as provided in each section of this report) reflect key E&T JCSG assumptions that helped guide each subgroup's approach to calculating and assigning final rank order scores (a.k.a. 1-n list) for those installations related to the specific sub-function examined. The guiding assumptions included:

1. The primary objective of military education and training is to provide operational forces with sufficient numbers of personnel who are educated and trained to assume duty responsibilities in both Active and Reserve military units. The extent to which DoD education and training establishments provide military members the knowledge and skills needed to perform operational/wartime missions is a cornerstone of readiness.
2. The E&T JCSG developed the following Guiding Principles which were inherent to each subgroup's approach to military value analysis of functions within their purview and to subsequent E&T JCSG deliberations:
 - Advance "Jointness" and Total Force Capability
 - Achieve synergy

Education & Training Joint Cross-Service Group

- Reduce Costs by increasing Effectiveness, Efficiency and Interoperability
 - Exploit Best Business Practices
 - Minimize Redundancy, Duplication and Excess Capacity
3. The E&T JCSG established a common set of Quality of Life metrics and questions in order to provide greater uniformity. Subgroups selected from the common set recognizing that some metrics were not applicable to their function and some metrics were given differing weights as appropriate to the different subgroups. For example, SST placed a greater weight on transient housing than other groups, while PDE was more concerned with adequacy of family housing. The reasoning behind the number of questions with relatively low weights per question is that no single factor would decide the Quality of Life metric; analyses were based on the aggregate score.
4. Military Value scores were calculated for specific locations that currently conduct functions within the purview of the E&T JCSG. Each E&T JCSG Military Value score only pertains to the function at the location, not the Military Value of the entire location except for the Ranges & Collective Training Capability Subgroup. Each subgroup's military value analysis followed E&T JCSG methodology and Military Value Scoring Plans as approved by the Infrastructure Steering Group (ISG). E&T JCSG military value scoring plans were submitted to the ISG in a July 2004 report. The approach was subsequently briefed to the ISG on September 30, 2004.
- a. The Flight Training (FT) Subgroup rank ordered installations by Military Value in five major sub-functions: Undergraduate Fixed-wing, Undergraduate Rotary-wing, Navigator/Naval Flight Officer (NFO)/Combat Systems Officer (CSO), Joint Strike Fighter, and Unmanned Aerial Vehicle using six attributes identified in the ISG-approved Military Value Scoring Plan (Airfield Capacity, Weather, Environment, Quality of Life, Managed Training Areas, and Ground Training Facilities). The FT subgroup received all of the required military value data, most of which was obtained through the OSD certified Capacity Analysis Database (CAD) and remaining data was received via "hard copy" along with the certification letter(s). Quality of Life was a significant factor in an installation's ranking within the Fixed-wing sub-function. Ground Training Facility scores became discriminators for Fixed-wing pilot and Nav/NFO/CSO sub-functions. Managed Training Areas scores were the largest driver of rankings for the installation best suited to host the JSF's Initial Joint Training Site.
 - b. The Professional Development Education (PDE) Subgroup's analysis included installation rankings for three sub-functions using the attributes in

Education & Training Joint Cross-Service Group

the Military Value Scoring Plans. The PDE subgroup received 100% of the required military value data. The majority of the data was obtained through the OSD-certified Capacity Analysis Database (CAD) and the remaining data was received via “hard copy” along with the appropriate certification letter(s) from the Service Deputy Assistant Secretaries (DAS) or appropriate Defense Agencies.

- c. The Specialized Skill Training (SST) Subgroup ranked 70 installations for each of its three sub-functions (Initial Skill Training, Skill Progression Training and Functional Training) using the six attributes identified in its Military Value Scoring Plan. SST’s Military Value Scoring Plan gave greater value for bigger/more facilities and higher student through-put. The majority of the data was obtained through the OSD certified Capacity Analysis Database (CAD) and the remaining data was received via “hard copy” along with the certification letter(s) from the Service Deputy Assistant Secretaries (DAS) or appropriate Defense Agencies. The SST subgroup exercised military judgment to proceed with scenario analysis that called for specific data by location.
- d. The Ranges and Collective Training Capability Subgroup (Ranges Subgroup) organized into two sub functions; training and test & evaluation (T&E). The Training sub-function used the attributes in their Military Value Scoring Plan to evaluate and rank order approximately 140 installations. In order to maintain a level of consistency across the Services, the Subgroup coordinated clarifications of fence-lines with DoN and selected one organizational name to represent each Navy range. The Military Value rankings for T&E sub-function used the five attributes in their Military Value Scoring Plan to evaluate and rank order 44 Open Air Ranges.

Education & Training Joint Cross-Service Group

FLIGHT TRAINING SUBGROUP MILITARY VALUE ANALYSIS

Section 1: Introduction

The Flight Training (FT) Military Value Analysis captured and compared data that revealed DoD installations' suitability to host Undergraduate or Graduate-level Flight Training sub-functions, e.g., Undergraduate Fixed-wing Pilot Training, Undergraduate Rotary-wing Pilot Training, Undergraduate Navigator/Naval Flight Officer/Combat Systems Officer Training, Graduate-level Joint Strike Fighter (JSF) Initial Joint Training, and Initial Unmanned Aerial Vehicle (UAV) Training. FT survey questions targeted DoD's 12 primary flight-training installations and all DoD-owned bases that could reasonably accept the JSF or UAV training missions. To create a meaningful measure of merit and final ranking, FT developed survey questions that captured specific information for each installation as it related to six global attributes relevant to each of the following sub-functions: Airfield Capacity, Weather, Environment, Quality of Life, Managed Training Areas and Ground Training Facilities. The final ranking provided a list of installations ranked most-to-least dear as they relate to the specific sub-function examined. The FT military value analysis followed the E&T JCSG methodology and Military Value Scoring Plans approved by the ISG.

Section 2: Military Value Score

The following charts provide the numerical score by sub-function and location within the purview of the E&T JCSG Flight Training Subgroup:

| Education and Training JCSG | | | | | | | |
|---------------------------------------|---------------------|-----------------|----------------|--------------------|------------|-------------------------|----------------------|
| Flight Training Subgroup | | | | | | | |
| <i>Undergraduate Fixed-wing Pilot</i> | | | | | | | |
| Installation | MilVal Score | Airfield | Weather | Environment | QoL | Managed Training | GT Facilities |
| NAS Pensacola, FL | 68.40 | 17.29 | 10.63 | 8.94 | 7.26 | 13.98 | 10.29 |
| Laughlin AFB, TX | 65.37 | 19.23 | 8.83 | 9.08 | 5.39 | 12.61 | 10.23 |
| Vance AFB, OK | 63.23 | 18.79 | 6.67 | 10.07 | 5.13 | 12.22 | 10.34 |
| NAS Meridian, MS | 62.94 | 18.69 | 8.44 | 7.96 | 5.12 | 14.71 | 8.01 |
| NAS Kingsville, TX | 62.69 | 17.85 | 9.69 | 8.30 | 4.22 | 13.67 | 8.96 |
| NAS Whiting Field, FL | 62.28 | 16.09 | 8.00 | 8.02 | 5.73 | 16.93 | 7.51 |

Education & Training Joint Cross-Service Group

| <i>Undergraduate Fixed-wing Pilot (continued)</i> | | | | | | | |
|---|--------------|----------|---------|-------------|------|------------------|---------------|
| Installation | MilVal Score | Airfield | Weather | Environment | QoL | Managed Training | GT Facilities |
| NAS Corpus Christi, TX | 60.38 | 17.10 | 10.23 | 9.01 | 5.10 | 13.40 | 5.53 |
| Columbus AFB, MS | 60.22 | 17.98 | 7.28 | 9.00 | 3.95 | 10.78 | 11.23 |
| Sheppard AFB, TX | 59.73 | 18.51 | 8.47 | 8.03 | 5.15 | 9.24 | 10.33 |
| Randolph AFB, TX | 57.60 | 17.82 | 6.77 | 7.00 | 4.94 | 10.70 | 10.38 |
| Moody AFB, GA | 56.24 | 18.88 | 6.25 | 9.72 | 2.91 | 9.49 | 8.99 |

| Education and Training JCSG | | | | | | | |
|--|--------------|----------|---------|-------------|------|------------------|---------------|
| Flight Training Subgroup | | | | | | | |
| <i>Undergraduate Rotary-wing Pilot</i> | | | | | | | |
| Installation | MilVal Score | Airfield | Weather | Environment | QoL | Managed Training | GT Facilities |
| Fort Rucker, AL | 81.37 | 23.59 | 11.49 | 7.81 | 5.21 | 22.87 | 10.40 |
| NAS Whiting Field, FL | 67.50 | 16.92 | 9.84 | 6.72 | 5.53 | 20.39 | 8.10 |

| Education and Training JCSG | | | | | | | |
|--|--------------|----------|---------|-------------|------|------------------|---------------|
| Flight Training Subgroup | | | | | | | |
| <i>Undergraduate Navigator/Naval Flight Officer/Combat Systems Officer</i> | | | | | | | |
| Installation | MilVal Score | Airfield | Weather | Environment | QoL | Managed Training | GT Facilities |
| NAS Pensacola, FL | 73.07 | 14.37 | 9.15 | 10.36 | 7.26 | 18.03 | 13.90 |
| Sheppard AFB, TX | 70.92 | 15.61 | 6.85 | 9.47 | 5.15 | 18.46 | 15.38 |
| Laughlin AFB, TX | 70.04 | 16.21 | 7.26 | 10.16 | 5.39 | 15.55 | 15.47 |
| Vance AFB, OK | 68.00 | 14.81 | 5.36 | 11.13 | 5.13 | 16.09 | 15.47 |
| NAS Kingsville, TX | 65.10 | 14.62 | 8.79 | 9.62 | 4.22 | 15.77 | 12.08 |
| NAS Corpus Christi, TX | 64.90 | 13.75 | 9.24 | 10.09 | 5.10 | 19.28 | 7.44 |

Education & Training Joint Cross-Service Group

| <i>Undergraduate Navigator/Naval Flight Officer/Combat Systems Officer (continued)</i> | | | | | | | |
|---|-------|-------|------|-------|------|-------|-------|
| NAS Whiting Field, FL | 64.47 | 13.43 | 8.80 | 9.22 | 5.73 | 17.19 | 10.10 |
| Columbus AFB, MS | 63.90 | 14.96 | 4.57 | 10.10 | 3.95 | 15.15 | 15.18 |
| Randolph AFB, TX | 62.61 | 15.61 | 6.24 | 8.12 | 4.94 | 12.03 | 15.67 |
| NAS Meridian, MS | 61.96 | 15.25 | 6.34 | 9.40 | 5.12 | 15.07 | 10.77 |
| Moody AFB, GA | 61.35 | 15.43 | 5.32 | 9.51 | 2.91 | 14.37 | 13.80 |

| Education and Training JCSG | | | | | | | |
|---|--------------|----------|---------|-------------|------|------------------|---------------|
| Flight Training Subgroup | | | | | | | |
| <i>Joint Strike Fighter (JSF) Graduate-level Initial Joint Training Site</i> | | | | | | | |
| Installation | MilVal Score | Airfield | Weather | Environment | QoL | Managed Training | GT Facilities |
| Eglin AFB, FL | 72.44 | 14.36 | 8.73 | 12.24 | 4.38 | 19.98 | 10.25 |
| Laughlin AFB, TX | 67.78 | 14.05 | 6.05 | 14.01 | 5.77 | 16.21 | 11.29 |
| *Cherry Point, NC | 66.32 | 16.12 | 7.92 | 11.75 | 4.67 | 14.63 | 8.97 |
| Pensacola, FL | 66.88 | 13.63 | 7.44 | 12.83 | 7.73 | 13.69 | 10.21 |
| Tyndall AFB, FL | 64.94 | 16.94 | 7.92 | 11.70 | 3.69 | 12.49 | 10.85 |
| Vance AFB, TX | 64.24 | 15.28 | 4.41 | 13.92 | 5.49 | 13.44 | 11.29 |
| Kingsville, TX | 64.23 | 14.15 | 6.99 | 12.03 | 4.53 | 17.09 | 8.43 |
| NAS Meridian, MS | 64.11 | 14.85 | 6.03 | 11.71 | 5.48 | 16.80 | 7.89 |
| Shaw AFB, SC | 63.98 | 15.77 | 8.33 | 13.92 | 4.08 | 9.89 | 10.11 |
| *Yuma, AZ | 63.90 | 16.57 | 10.95 | 9.08 | 3.54 | 12.69 | 9.54 |
| Columbus AFB, MS | 62.84 | 14.22 | 5.07 | 13.93 | 4.24 | 13.87 | 11.09 |
| *Randolph AFB, TX | 60.77 | 13.35 | 4.92 | 10.21 | 5.29 | 15.17 | 11.43 |
| Beaufort, SC | 59.43 | 12.06 | 9.23 | 11.71 | 6.06 | 10.70 | 9.25 |
| *Sheppard AFB, TX | 58.38 | 14.46 | 5.74 | 12.37 | 5.50 | 9.01 | 11.29 |
| Moody AFB, GA | 57.10 | 15.76 | 4.28 | 11.80 | 3.15 | 10.66 | 10.14 |

*Note: Four installations added for analysis at the request of the Services.

Education & Training Joint Cross-Service Group

| Education and Training JCSG | | | | | | | |
|--|--------------|----------|---------|-------------|------|------------------|---------------|
| Flight Training Subgroup | | | | | | | |
| <i>Unmanned Aerial Vehicle Initial Joint Training Site</i> | | | | | | | |
| Installation | MilVal Score | Airfield | Weather | Environment | QoL | Managed Training | GT Facilities |
| FT Rucker, AL | 78.39 | 16.53 | 13.11 | 11.20 | 5.39 | 19.85 | 12.30 |
| Choctaw NOLF, FL | 73.66 | 7.76 | 13.46 | 10.86 | 7.26 | 22.67 | 11.65 |
| FT Huachuca, AZ | 58.25 | 10.69 | 10.22 | 10.21 | 2.54 | 18.64 | 5.94 |
| Indian Springs, NV | 57.06 | 10.37 | 13.59 | 10.74 | 0 | 16.52 | 5.85 |

Section 3: Results of Analysis

The FT Subgroup was able to compile a useful measure of merit regarding Military Value of training installations. Overall, NAS Pensacola received the highest score for Undergraduate Fixed Wing Pilot Training and Fort Rucker received the highest score for Undergraduate Rotary Wing Training. Although only 2 installations currently conduct Undergraduate Navigator / Naval Flight Officer / Combat Systems Officer training, all 11 undergraduate flight training bases were included in the scoring for comparative analysis. Laughlin AFB received the highest score for this function. Since there are no installations that host JSF training, the Flight Training subgroup evaluated 965 airfields within CONUS against criteria developed by the Joint Strike Fighter Program Office for the Initial Training Site. Of the 31 bases that met the initial criteria, 20 were eliminated using military judgment. The Services subsequently requested 4 of the eliminated bases (based on military judgment) be reconsidered and included in the list of 11 remaining bases. Eglin AFB received the highest military value score for the list of 15 bases “best” suited for hosting the Initial Joint Training Site for the JSF. For UAV training, the Army requested that FT Rucker be included in military value scoring along with the 3 sites that currently train UAV operators. FT Rucker received the highest score of the 4 sites.

Education & Training Joint Cross-Service Group

PROFESSIONAL DEVELOPMENT EDUCATION SUBGROUP MILITARY VALUE ANALYSIS

Section 1: Introduction

The Professional Development Education (PDE) Subgroup established criteria in order of importance. Next attributes were designed that were indicative of military value in the sub-functions. Finally, the subgroup selected metrics that would measure the attributes and developed questions that would allow data to be collected for each. The PDE Subgroup military value analysis followed the E&T JCSG methodology and Military Value Scoring Plans approved by the ISG.

Note: For the analysis of historical data, the basis was academic years 2000-2002. Due to anomalies caused by Operation IRAQI FREEDOM and Operation ENDURING FREEDOM, student data for academic year 2003 was not used. Analysis parallels force projection figures to account for manning combat operations.

Section 2: Military Value Score

A numerical score by function and location is provided for each approved sub-function within the PDE Subgroup's purview:

| Education and Training JCSG | |
|---|---------------------------------------|
| Professional Development Education Subgroup | |
| JPME/PME | |
| Installation/Location | Numerical Military Value Score |
| Marine Corps Base Quantico, VA | 65.3 |
| Ft. Leavenworth, KS | 59.3 |
| Maxwell AFB, AL | 53.8 |
| Carlisle Barracks, PA | 53.6 |
| Ft. McNair, DC | 52.7 * |
| Naval Station Newport, RI | 52.5 |
| Naval Station Norfolk, VA | 47.5 |

* Fort McNair's military value score did not include data for Lincoln Hall nor buildable acres, reference 2 Feb 05 E&T JCSG meeting minutes.

Education & Training Joint Cross-Service Group

| Education and Training JCSG | |
|--|--------------------------------|
| Professional Development Education Subgroup | |
| <i>Graduate Education</i> | |
| Installation/Location | Numerical Military Value Score |
| Monterey, CA (Naval Postgraduate School) | 74.7 |
| Wright-Patterson AFB, OH (Air Force Institute of Technology) | 52.0 |

| Education and Training JCSG | |
|--|--------------------------------|
| Professional Development Education Subgroup | |
| <i>Other Full Time Education (Defense Agencies)</i> | |
| Installation/Location | Numerical Military Value Score |
| Ft. Belvoir, VA (Defense Acquisition University) | 58.8 |
| Memphis, TN (Defense Contract Audit Institute) | 40.5 |
| Patrick AFB, FL (Defense Equal Opportunity Management Institute) | 43.7 |

| Education and Training JCSG | |
|--|--------------------------------|
| Professional Development Education Subgroup | |
| <i>Other Full Time Education (Chaplains)</i> | |
| Installation/Location | Numerical Military Value Score |
| Ft. Jackson, SC | 51.6 |
| Maxwell AFB, AL | 41.3 |
| Naval Station Newport, RI | 34.1 |

| Education and Training JCSG | |
|---|--------------------------------|
| Professional Development Education Subgroup | |
| <i>Other Full Time Education (JAGs)</i> | |
| Installation/Location | Numerical Military Value Score |
| Maxwell AFB, AL | 45.4 |
| Charlottesville, VA | 33.5 |
| Naval Station Newport, RI | 33.2 |

Education & Training Joint Cross-Service Group

Section 3: Results of Analysis

The PDE Subgroup compiled useful measures of merit regarding installations that conduct educational programs. The PDE subgroup received 100% of the required military value data. The majority of the data was obtained through the OSD-certified Capacity Analysis Database (CAD) and the remaining data was received via “hard copy” along with the appropriate certification letter(s) from the Service Deputy Assistant Secretaries (DAS) or appropriate Defense Agencies. Overall, the National Capitol Region received the highest military value scores for the three PME schools; Monterey, CA, for graduate education; and Fort Jackson, SC, for OFTE (Chaplains). Military judgment confirmed the values of the scoring plans and justified additional analysis of other sites suitable for PDE functions. Ultimately, the candidate recommendations forwarded allowed senior leadership to select the options that best suited their assessment of future DoD needs.

| |
|--|
| SPECIALIZED SKILL TRAINING SUBGROUP MILITARY VALUE ANALYSIS |
|--|

Section 1: Introduction

The Specialized Skill Training (SST) function includes the sub-functions of initial skill training, skill progression training, and functional training. The six attributes analyzed under each sub-function were location, quality of life, training facilities/resources, support for other missions, training mission/throughput, and environmental constraints/expansion potential. The Specialized Skill Training analysis followed the approach approved by the ISG.

Section 2: Military Value Score

The following SST analysis provides a numerical score by function and by location. Military Value scores were compiled only for specific locations that currently conduct SST. The Military Value score only pertains to SST functions at the location, not the Military Value of the entire location.

| | |
|---------------------------------------|---------------------------------------|
| Education and Training JCSG | |
| Specialized Skill Training Subgroup | |
| <i>Initial Skills Training</i> | |
| Installations/Location | Numerical Military Value Score |
| Sheppard AFB, TX | 63.06 |
| Pensacola, FL | 56.75 |
| Lackland AFB, TX | 53.67 |
| Keesler AFB, MS | 52.00 |
| Fort Leonard Wood, MO | 51.07 |
| Fort Benning, GA | 48.15 |
| Goodfellow AFB, TX | 47.04 |
| Fort Lee, VA | 45.55 |
| Fort Knox, KY | 43.06 |
| Oceana, VA | 42.96 |
| Fort Gordon, GA | 42.05 |
| Camp Lejeune, NC | 41.87 |
| Fort Bliss, TX | 41.35 |
| Kings Bay, GA | 40.79 |

Education & Training Joint Cross-Service Group

| Initial Skills Training (continued) | |
|--|---------------------------------------|
| Installations/Location | Numerical Military Value Score |
| Fort Huachuca, AZ | 40.69 |
| Fort Eustis, VA | 40.27 |
| Tyndall AFB, FL | 40.10 |
| Charleston, SC | 39.72 |
| Great Lakes, IL | 39.31 |
| Gulfport, MS | 39.04 |
| Maxwell AFB, AL | 38.92 |
| Norfolk, VA | 38.55 |
| Fairchild AFB, WA | 38.35 |
| Fort McCoy, WI | 38.04 |
| Little Creek, VA | 37.37 |
| Kirtland AFB, NM | 36.59 |
| Pope AFB, NC | 36.58 |
| Fort Sill, OK | 36.37 |
| Groton, CT | 35.82 |
| Coronado, CA | 35.43 |
| Port Hueneme, CA | 35.33 |
| Pt. Loma, CA | 35.15 |
| Fort Jackson, SC | 35.07 |
| USN San Diego, CA | 35.06 |
| Camp Pendleton, CA | 35.02 |
| Vandenberg AFB, CA | 34.96 |
| Yuma, AZ | 34.80 |
| Fort Rucker, AL | 34.62 |
| Meridian, MS | 34.10 |
| Eglin AFB, FL | 33.97 |
| Fallon, NV | 32.74 |
| Tobyhanna Army Depot, PA | 32.38 |
| Twenty-Nine Palms, CA | 32.17 |
| Newport, RI | 31.85 |
| Panama City, FL | 31.80 |
| Fort Belvoir, VA | 31.78 |
| Bolling AFB, DC | 31.55 |
| Whidbey Island, WA | 30.87 |
| Mayport, FL | 30.85 |
| Aberdeen Proving Grounds, MD | 30.84 |

Education & Training Joint Cross-Service Group

| Initial Skills Training (continued) | |
|--|---------------------------------------|
| Installations/Location | Numerical Military Value Score |
| Brunswick, ME | 30.79 |
| Athens, GA | 30.09 |
| Redstone Arsenal, AL | 29.73 |
| Ballston Spa, NY | 29.53 |
| Fort Bragg, NC | 29.42 |
| Bangor, WA | 29.36 |
| Dahlgren, VA | 28.08 |
| Fort Dix, NJ | 27.72 |
| Fort Campbell, KY | 27.34 |
| USMC San Diego, CA | 26.90 |
| Pearl Harbor, HI | 26.67 |
| Quantico, VA | 26.06 |
| Fort Monmouth, NJ | 25.57 |
| Wallops Island, VA | 25.54 |
| Yuma Proving Ground, AZ | 25.43 |
| Crane, IN | 25.21 |
| Presidio of Monterey, CA | 24.80 |
| Willow Grove, PA | 24.59 |
| Fort Meade, MD | 24.19 |
| Bridgeport, CA | 24.02 |

| Education and Training JCSG | |
|--|---------------------------------------|
| Specialized Skill Training Subgroup | |
| Skills Progression | |
| Installations/Location | Numerical Military Value Score |
| Kings Bay, GA | 56.45 |
| Norfolk, VA | 52.68 |
| Oceana, VA | 51.99 |
| Fort Leonard Wood, MO | 50.32 |
| Sheppard AFB, TX | 49.34 |
| Fort Knox, TN | 49.06 |
| Kirtland AFB, NM | 45.97 |
| Fort Eustis, VA | 45.33 |
| Fort McCoy, WI | 44.76 |

Education & Training Joint Cross-Service Group

| Skills Progression (continued) | |
|---------------------------------------|---------------------------------------|
| Installations/Location | Numerical Military Value Score |
| Pensacola, FL | 44.44 |
| USN San Diego, CA | 44.08 |
| Lackland AFB, TX | 43.74 |
| Fort Benning, GA | 43.41 |
| Pt. Loma, CA | 43.17 |
| Little Creek, VA | 43.16 |
| Gulfport, MS | 42.36 |
| Fort Gordon, GA | 41.74 |
| Fort Jackson, SC | 41.72 |
| Charleston, SC | 41.02 |
| Fort Huachuca, AZ | 40.83 |
| Brunswick, ME | 40.70 |
| Goodfellow AFB, TX | 40.22 |
| Fort Rucker, AL | 40.17 |
| Fort Belvoir, VA | 40.16 |
| Fort Lee, VA | 40.00 |
| Eglin AFB, FL | 39.88 |
| Camp Lejeune, NC | 39.86 |
| Groton, CT | 39.56 |
| Fort Bliss, TX | 39.55 |
| Tobyhanna Army Depot, PA | 39.43 |
| Keesler AFB, MS | 39.43 |
| Bangor, WA | 38.73 |
| Fort Sill, OK | 38.61 |
| Whidbey Island, WA | 38.27 |
| Fairchild AFB, WA | 38.07 |
| Fort Campbell, KY | 37.86 |
| Coronado, CA | 37.74 |
| Fort Bragg, NC | 37.68 |
| Bolling AFB, DC | 37.18 |
| Mayport, FL | 37.16 |
| Newport, RI | 37.12 |
| Tyndall AFB, FL | 36.66 |
| Fallon, NV | 36.53 |
| Port Hueneme, CA | 36.30 |

Education & Training Joint Cross-Service Group

| <i>Skills Progression (continued)</i> | |
|--|---------------------------------------|
| Installations/Location | Numerical Military Value Score |
| Great Lakes, IL | 35.94 |
| Dahlgren, VA | 35.90 |
| Maxwell AFB, AL | 35.77 |
| Yuma, AZ | 35.59 |
| Camp Pendleton, CA | 35.24 |
| Redstone Arsenal, AL | 35.03 |
| Ballston Spa, NY | 34.88 |
| Aberdeen Proving Grounds, MD | 34.70 |
| Vandenberg AFB, CA | 34.46 |
| Panama City, FL | 34.41 |
| Pope AFB, NC | 34.08 |
| Meridian, MS | 33.90 |
| Pearl Harbor, HI | 32.91 |
| Yuma Proving Ground, AZ | 32.55 |
| Bridgeport, CA | 32.43 |
| Twenty-Nine Palms, CA | 31.97 |
| Athens, GA | 31.74 |
| Willow Grove, PA | 31.07 |
| USMC San Diego, CA | 30.60 |
| Quantico, VA | 30.58 |
| Fort Dix, NJ | 30.06 |
| Fort Monmouth, NJ | 30.04 |
| Fort Meade, MD | 29.37 |
| Crane, IN | 29.29 |
| Wallops Island, VA | 28.25 |
| Presidio of Monterey, CA | 26.69 |

| Education and Training JCSG | |
|-------------------------------------|---------------------------------------|
| Specialized Skill Training Subgroup | |
| <i>Functional Training</i> | |
| Installations/Location | Numerical Military Value Score |
| Norfolk, VA | 51.29 |
| Fort Benning, GA | 51.08 |
| Oceana, VA | 47.85 |

Education & Training Joint Cross-Service Group

| Functional Training (continued) | |
|--|---------------------------------------|
| Installations/Location | Numerical Military Value Score |
| Sheppard AFB, TX | 47.50 |
| Little Creek, VA | 45.68 |
| Pearl Harbor, HI | 45.61 |
| Fort Leonard Wood, MO | 45.50 |
| Kings Bay, GA | 45.34 |
| Pt. Loma, CA | 44.50 |
| Lackland AFB, TX | 44.36 |
| Fort Knox, TN | 43.08 |
| Fort Belvoir, VA | 43.03 |
| Gulfport, MS | 42.96 |
| Port Hueneme, CA | 42.33 |
| Charleston, SC | 42.09 |
| Fort Sill, OK | 42.08 |
| Goodfellow AFB, TX | 41.81 |
| USN San Diego, CA | 41.36 |
| Fort McCoy, WI | 41.14 |
| Brunswick, ME | 40.90 |
| Kirtland AFB, NM | 40.82 |
| Fort Eustis, VA | 40.70 |
| Tyndall AFB, FL | 40.48 |
| Pensacola, FL | 39.83 |
| Fort Lee, VA | 39.45 |
| Bangor, WA | 39.40 |
| Coronado, CA | 39.06 |
| Mayport, FL | 39.02 |
| Fort Huachuca, AZ | 38.78 |
| Camp Lejeune, NC | 38.74 |
| Fort Bliss, TX | 38.62 |
| Fallon, NV | 38.29 |
| Fort Campbell, KY | 38.24 |
| Keesler AFB, MS | 37.97 |
| Bolling AFB, DC | 37.85 |
| Groton, CT | 37.85 |
| Fort Gordon, GA | 37.40 |
| Fort Rucker, AL | 37.37 |

Education & Training Joint Cross-Service Group

| Functional Training (continued) | |
|--|---------------------------------------|
| Installations/Location | Numerical Military Value Score |
| Fort Jackson, SC | 37.01 |
| Fairchild AFB, WA | 36.64 |
| Eglin AFB, FL | 36.63 |
| Yuma, AZ | 36.63 |
| Vandenberg AFB, CA | 36.63 |
| Tobyhanna Army Depot, PA | 35.59 |
| Newport, RI | 35.48 |
| Yuma Proving Ground, AZ | 35.39 |
| Bridgeport, CA | 34.64 |
| Ballston Spa, NY | 34.44 |
| Great Lakes, IL | 34.13 |
| Redstone Arsenal, AL | 34.03 |
| Fort Bragg, NC | 33.97 |
| Meridian, MS | 33.40 |
| Maxwell AFB, AL | 33.30 |
| Panama City, FL | 32.24 |
| Whidbey Island, WA | 31.41 |
| USMC San Diego, CA | 31.15 |
| Camp Pendleton, CA | 30.97 |
| Willow Grove, PA | 30.41 |
| Aberdeen Proving Grounds, MD | 30.29 |
| Athens, GA | 30.02 |
| Quantico, VA | 30.00 |
| Twenty-Nine Palms, CA | 29.99 |
| Dahlgren, VA | 29.86 |
| Pope AFB, NC | 29.54 |
| Fort Dix, NJ | 29.30 |
| Fort Monmouth, NJ | 29.24 |
| Fort Meade, MD | 28.00 |
| Crane, IN | 27.66 |
| Wallops Island, VA | 26.32 |
| Presidio of Monterey, CA | 24.90 |

Education & Training Joint Cross-Service Group

Section 3: Results of Analysis

The SST Subgroup compiled rank order listings of training installations based upon a Military Value score for specific locations that currently conduct SST. The Military Value Score pertains only to SST functions at the location, not the Military Value of the entire location. The preceding “1-n” lists include Navy SST conducted at 28 “installations.” Navy responded to military value questions by “activity” rather than “installation” as requested in the military value data call. Subsequently for SST’s analysis, Navy BRAC merged activity data into “installations” some of which were multiple sites (geographically separate sites with different fence lines, e.g., Pensacola included Corry Station, NAS Oceana included Dam Neck, and Coronado included NAS North Island). The SST subgroup exercised military judgment as appropriate to proceed with analyses since the inclusion of multiple sites as an “installation” skewed overall SST military value scores for these aggregated installations. Under the SST military value scoring plan “bigger was better” so multiple sites would generate a higher military value when combined than if reported separately.

| |
|---|
| <p>RANGES AND COLLECTIVE TRAINING SUBGROUP MILITARY VALUE ANALYSIS</p> |
|---|

Section 1: Introduction

The scope of military value analysis for the Ranges and Collective Training subgroup includes all DoD Active Component and Reserve installations and processes that support collective training capabilities to include Service unit, and interoperability (cross-service) and joint training functions, and test and evaluation (T&E) functions. This assessment includes training, test and evaluation (T&E) ranges, and training simulations centers. For purposes of MILVAL analysis of capability, Army and Air National Guard ranges are included in this analysis. As training and T&E are distinctly different functions, separate training and T&E military values were determined for each function. The Range and Collective Training military value analysis followed the E&T JCSG methodology and Military Value Scoring Plans approved by the ISG.

Section 2: Military Value Score

A numerical score by function and location is provided for each approved sub-function within the Range and Collective Training Subgroup purview:

| Education and Training JCSG | |
|--|---------------------------------------|
| Range and Collective Training Subgroup | |
| <i>Training</i> | |
| Installation/Location | Numerical Military Value Score |
| Eglin AFB, FL | 63.60 |
| Fort Wainwright, AK | 62.63 |
| Facsfac San Diego, Ca | 61.81 |
| White Sands Missile Range, NM | 59.72 |
| Fort Bliss, TX | 56.55 |
| Yuma Proving Ground, AZ | 52.40 |
| Comnavmarianas, GU | 50.18 |
| Pacmisranfac Hawarea Barking Sands, HI | 49.18 |
| Navairwarcenwpndiv Pt Mugu, CA | 48.85 |
| Facsfac Vacapes Oceana, VA | 48.59 |
| CG MCB Campen, NC | 46.73 |

Education & Training Joint Cross-Service Group

| Education and Training JCSG | |
|--|--------------------------------|
| Range and Collective Training Subgroup | |
| <i>Training (Continued)</i> | |
| Installation/Location | Numerical Military Value Score |
| NAS Whidbey Island, WA | 46.17 |
| Fort Polk, LA | 45.91 |
| Dugway Proving Ground, UT | 45.84 |
| COMNAVAIRWARCENWPNDIV China Lake, CA | 45.65 |
| NAVSTAKAIRWARCEN Fallon, NV | 45.43 |
| NAVSTA Pearl Harbor, HI | 45.42 |
| CG MBB Camp Lejeune, NC | 45.20 |
| Fort Carson, CO | 44.75 |
| MCAS Yuma, AZ | 44.17 |
| Fort Lewis, WA | 44.16 |
| CG MAGTF TRNGCOM, CA | 43.79 |
| Nellis AFB, NV | 43.57 |
| Hill AFB, UT | 42.96 |
| COMNAVAIRWARCENACDIV, Patuxent River, MD | 42.50 |
| Luke AFB (Goldwater), AZ | 41.70 |
| Fort Hood, TX | 41.69 |
| FACSFAC Jacksonville, FL | 41.68 |
| Fort Knox, TN | 41.01 |
| NAVUNSEAWARCENDIV Keyport, WA | 40.54 |
| Fort Drum, NY | 40.33 |
| Edwards AFB, CA | 40.30 |
| Fort Bragg, NC | 38.86 |
| Fort Stewart, GA | 38.42 |
| Cannon AFB, NM | 38.37 |
| NTC and Fort Irwin, CA | 38.31 |
| NAS Key West, FL | 36.41 |
| Fort Rucker, AL | 36.37 |
| Fort A P Hill, VA | 35.00 |
| Fort Sill, OK | 34.92 |
| CG MCB Quantico, VA | 34.69 |

Education & Training Joint Cross-Service Group

| Education and Training JCSG | |
|---|--------------------------------|
| Range and Collective Training Subgroup | |
| <i>Training (continued)</i> | |
| Installation/Location | Numerical Military Value Score |
| NAS Pensacola, FL | 34.03 |
| Key Field, MS | 33.98 |
| Shaw AFB, SC | 33.82 |
| NAVSURFWARCEN, COASTSYSSTA Panama City, FL | 33.47 |
| Fort Huachuca, AZ | 33.13 |
| Buckley AFB, CO | 33.05 |
| Selfridge ANGB, MI | 32.78 |
| Fort Campbell, KY | 32.49 |
| Hancock Field AGS, NY | 32.33 |
| Fort Sam Houston, TX | 32.25 |
| Fort Riley, KS | 32.18 |
| MCAS Beaufort, SC | 32.17 |
| Hulman Regional APT AGS, IN | 31.91 |
| Carswell ARS, NAS Fort Worth Joint Reserve, TX | 31.69 |
| Schofield Barracks, HI | 31.67 |
| Aberdeen Proving Ground, MD | 31.64 |
| McConnell AFB, KS | 31.16 |
| Fort Eustis, VA | 31.03 |
| Fort Richardson, TX | 30.77 |
| CG MCAS Cherry Pt, NC | 30.37 |
| Fort Dix, NJ | 29.11 |
| Fort Leonard Wood, MO | 28.83 |
| COMNAVSPECWARGRU One, CA | 28.71 |
| COMSUBFORPAC Pearl Harbor, HI | 28.63 |
| NAS JRB Ft Worth, TX | 28.56 |
| Fort Benning, GA | 28.41 |
| CG MCB Hawaii | 28.01 |
| NAS Kingsville, TX | 27.68 |
| Seymour Johnson AFB, NC | 27.51 |
| Fort Gordon, GA | 27.49 |
| Fort McCoy, WI | 27.09 |
| Vandenberg AFB, CA | 27.02 |

Education & Training Joint Cross-Service Group

| Education and Training JCSG | |
|--|--------------------------------|
| Range and Collective Training Subgroup | |
| <i>Training (continued)</i> | |
| Installation/Location | Numerical Military Value Score |
| Mountain Home AFB, ID | 26.77 |
| Eielson AFB, AK | 26.45 |
| COMSTRKFIGHTWINGPAC Lemoore, CA | 26.13 |
| COMNAVSPECWARCEN, CA | 25.96 |
| Holloman AFB, NM | 24.85 |
| Atlantic City IAP AGS, NJ | 24.02 |
| Kirtland AFB, NM | 23.57 |
| MCMWTC Bridgeport, CT | 23.49 |
| Barksdale AFB, LA | 23.33 |
| NAS Whiting Field Milton, FL | 23.23 |
| Fort Jackson, SC | 23.04 |
| NAS Meridian, MS | 22.94 |
| COMSUBLANT Norfolk, VA | 22.71 |
| Lambert - St. Louis IAP AGS, MO | 22.48 |
| Harrisburg IAPAGS, PA | 22.34 |
| NAS Corpus Christi, TX | 21.58 |
| Moody AFB, GA | 21.26 |
| Redstone Arsenal, WA | 20.95 |
| Fort Smith Regional Apt AGS, AR | 19.10 |
| FCTCLANT, Dam Neck, VA | 18.59 |
| Mcchord AFB, WA | 16.93 |
| NAVSURFWARCENDIV Dahlgren, VA | 16.75 |
| Elmendorf AFB, AK | 16.70 |
| Tucson IAP AGS, AZ | 16.70 |
| NAS New Orleans ARS, LA | 16.09 |
| Klamath Falls IAP AGS, PA | 15.14 |
| Offutt AFB, NE | 14.34 |
| Davis-Monthan AFB, AZ | 14.12 |
| Whiteman AFB, MO | 13.84 |
| DULUTH IAP AGS, MN | 13.73 |
| Laughlin AFB, TX | 13.30 |
| Vance AFB, OK | 13.20 |
| Columbus AFB, MS | 13.14 |
| Ellsworth AFB, SD | 13.12 |

Education & Training Joint Cross-Service Group

| Education and Training JCSG | |
|---|--------------------------------|
| Range and Collective Training Subgroup | |
| <i>Training (continued)</i> | |
| Installation/Location | Numerical Military Value Score |
| NAS Atlanta, GA | 13.01 |
| Tyndall AFB, FL | 12.97 |
| Langley AFB, VA | 12.88 |
| Great Falls IAP AGS, MT | 12.55 |
| Pope AFB, NC | 12.00 |
| Ellington Field AGS, TX | 11.87 |
| Boise Air Terminal AGS, ID | 11.85 |
| Dane County Regional, Truax Field AGS, WI | 11.20 |
| Hawthorne Army Depot, NV | 10.91 |
| Rome Laboratory, NY | 10.87 |
| Dyess AFB, TX | 10.69 |
| Des Moines IAP AGS, IA | 10.49 |
| Springfield-Beckley MPT AGS, OH | 10.10 |
| Sheppard AFB, TX | 10.04 |
| Beale AFB, CA | 9.24 |
| Sioux Gateway APT AGS, IA | 9.23 |
| Capital APT AGS, IL | 9.22 |
| Randolph AFB, TX | 9.17 |
| Joe Foss Field AGS, SD | 9.16 |
| Fort Wayne IAP AGS, IN | 9.14 |
| Dannelly Field AGS, AL | 9.13 |
| West Point Mil Reservation, NY | 8.97 |
| Anniston Army Depot, AL | 8.80 |
| Lincoln Map AGS, NE | 8.72 |
| Bradley IAP AGS, CT | 8.72 |
| Tulsa IAP AGS, OK | 8.71 |
| W. K. Kellogg APT AGS, MI | 8.66 |
| Barnes MPT AGS | 8.63 |

Education & Training Joint Cross-Service Group

| Education and Training JCSG | |
|---|--------------------------------|
| Ranges and Collective Training Subgroup | |
| <i>Testing and Evaluation (T&E)</i> | |
| Installation/Location | Numerical Military Value Score |
| EGLIN AFB | 78.11 |
| WHITE SANDS MISSILE RANGE | 72.89 |
| COMNAVAIRWARCENWPNDIV_CHINA_LAKE | 71.33 |
| NAVAIRWARCENWPNDIV_PT_MUGU_CA | 69.67 |
| HILL AFB | 67.46 |
| COMNAVAIRWARCENACDIV_PATUXENT_RI | 65.46 |
| EDWARDS AFB | 63.56 |
| ABERDEEN PROVING GROUND | 59.15 |
| YUMA PROVING GROUND | 56.98 |
| FORT HUACHUCA | 55.40 |
| NELLIS AFB | 55.01 |
| PACMISRANFAC_HAWAREA_BARKING_SANDS_HI | 53.29 |
| NAVSURFWARCEN_COASTSYSSTA_PANAMA | 52.94 |
| NAVUNSEAWARCENDIV_KEYPORT_WA | 52.73 |
| NAVSURFWARCENDIV_DAHLGREN_VA | 50.51 |
| DUGWAY PROVING GROUND | 50.23 |
| REDSTONE ARSENAL | 49.98 |
| VANDENBERG AFB | 49.05 |
| FORT KNOX | 47.75 |
| LUKE AFB | 47.53 |
| FORT SILL | 43.14 |
| NAVSTKAIRWARCEN_FALLON_NV | 42.63 |
| FORT A P HILL | 42.60 |
| FORT BLISS | 42.50 |
| CG_MAGTF_TRNGCOM | 41.94 |
| NAS_KEY_WEST_FL | 41.70 |
| FORT WAINWRIGHT | 41.18 |
| MCAS_YUMA_AZ | 41.00 |

Education & Training Joint Cross-Service Group

| Education and Training JCSG | |
|--|--------------------------------|
| Ranges and Collective Training Subgroup | |
| <i>Testing and Evaluation (T&E)(Continued)</i> | |
| Installation/Location | Numerical Military Value Score |
| FORT RUCKER | 40.65 |
| MCAS_BEAUFORT_SC | 40.03 |
| FORT LEONARD WOOD | 39.10 |
| ELLSWORTH AFB | 37.13 |
| MCCONNELL AFB | 35.96 |
| NTC AND FORT IRWIN CA | 35.39 |
| FORT BRAGG | 35.26 |
| FORT HOOD | 35.09 |
| BUCKLEY AFB | 33.93 |
| COMSUBLANT_NORFOLK_VA | 33.63 |
| MCMWTC | 30.27 |
| CG_MCB_CAMPEN | 30.20 |
| HAWTHORNE ARMY DEPOT | 28.71 |

Section 3: Results of Analysis

Training

The Range Training Sub-working Group, using Military Value analysis guidance as established by OSD, provided a means to rank-order ranges/range complexes/operating areas (OPAREAs) on the measure of merit and quantifiable attributes. Four DoD selection criteria were weighted based on relative importance in assessing the Military Value of training ranges/range complexes/OPAREAs. A range's military value is predominantly its ability and capability to support the training mission. The cost was not the primary discriminator for the Range Training Sub-working Group in the calculation of Military Value. The Range Training Sub-working Group followed the *Recruit and Train* principle as defined in Policy Memorandum Two and Final Selection Criteria 1 through 4. Shear un-encroached space and the number of environments a range has available were major factors in the Military Value analysis. The Range Training Sub-working Group addressed 14 attributes across the 4 criteria resulting in a prioritized "1-n" list of training ranges/range complexes/OPAREAs.

Education & Training Joint Cross-Service Group

Based on certified data, the Range Training Sub-working Group analyzed Military Value for collective training capabilities: Service unit; interoperability (cross-Service); and joint training for the three domains – ground, sea, and air. The same targeted installation list of training range was used for both Capacity and Military Value analyses.

T&E

The Test & Evaluation Sub Working Group (TESWG), in support of the Ranges Subgroup calculated Military Value scores for the inventory of open-air ranges (OARs) generated in the capacity analysis; i.e., reported test hours during the period of FY 2001-2003. The Military Value of each T&E range was determined according to five attributes as weighted according to applicability to the four mandatory BRAC 2005 Military Value criteria. These attributes are *Personnel*, *Workload*, *Physical Plant*, *Synergy*, and *Encroachment*. The relative Military Value in the 1-n list of any OAR location does not imply that T&E workload or missions from one OAR are necessarily suitable for realignment to another OAR without evaluation of required capacity, current capacity, availability and an assessment of capabilities and features required to support the realigned mission. Ranges are not generally interchangeable. Each OAR has evolved to perform T&E Reliance area workload matching its unique capabilities and attributes. Most OARs support multiple, simultaneous and distinct test events and many are configured to and do support both test and training events. Training hours, events, and associated labor hours were not, nor were they intended to be, counted within the test hours used to determine Military Value with respect to the T&E mission. The analysis for OAR ranges revealed that “large enough” to sustain adequate workload in at least one of the T&E functions is a critical metric. Those OARs that have T&E as a primary mission and identified as a Major Range and Test Facility Base under DoD Directive 3200.11 all scored in the top half of the “1-n” list. This outcome reflects the spatial area/volumes, competent and experienced personnel, special equipment and instrumentation required to accomplish the T&E mission on an open-air range. Many of the OAR’s in the lower half of the “1-n” list are primarily training ranges. Their importance lies in the presence of significant numbers of uniformed military personnel typically required for the conduct of operational testing.

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Appendix C

Acronyms

| | |
|----------------|--|
| AA | Alert Areas |
| AA | Air to Air |
| AAP | Army Ammunition Plant |
| ABM | Air Battle Manager |
| AC | Active Component |
| ACFT | Aircraft |
| ACSC | Air Command and Staff College |
| AD | Active Duty |
| ADA | Air Defense Artillery |
| AETC/XP | Air Education and Training Command, Plans and Programs |
| AF | Air Force |
| AFB | Air Force Base |
| AFIT | Air Force Institute of Technology |
| AFIT/CI | Air Force Institute of Technology/Civilian Institution |
| AFS | Air Force Station |
| AFSC | Air Force Specialty Code |
| AG | Air Guard |
| AMC | Air Mobility Command |
| AMPL | A Mathematical Programming Language |

| | |
|-----------------|---------------------------------------|
| AMSC | Army Management Staff College |
| ANG | Air National Guard |
| AOB | Average On Board |
| AR | Air Refueling Tracks |
| ASW | Antisubmarine Warfare Center |
| AT&L | Acquisition, Technology and Logistics |
| ATCAA | Air Traffic Control Assigned Area |
| ATEC | Army Test and Evaluation Command |
| Aux Fld | Auxiliary Field |
| AUX RW | Auxiliary Field Runway |
| AWACS | Airborne Warning And Control System |
| AWC | Air War College |
| BAH | Basic Allowance for Housing |
| BG | Brigadier General |
| BIC | Business Initiative Council |
| BIO | Biological |
| BOS | Base Operations Support |
| BRAC | Base Realignment and Closure |
| CA | Capacity Analysis |
| CAA | Clean Air Act |
| CAD | Capacity Analysis Database |
| CAPT | Captain |

| | |
|------------------------|---|
| CAR | Capacity Analysis Report |
| CBC | Construction Battalion Center (Navy) |
| CC | Current Capacity |
| CC_{tr} | Current Capacity Training |
| CDC | Capacity Data Call |
| CERL | Construction Engineering Research Laboratory |
| CFA | Control Fire Areas |
| CG | Commanding General |
| CHEM | Chemical |
| CJCS | Chairman, Joint Chiefs of Staff |
| CMAC | CHAMPUS Maximum Allowable Charge |
| CNATRA | Chief of Naval Air Training |
| CNR | Center (Office) of Naval Research |
| CNSC | Command and Naval Staff College |
| CNW | College of Naval Warfare |
| COBRA | Cost of Base Realignment Actions |
| COE | Centers of Excellence |
| COMSUBLANT | Commander, Submarine Force, US Atlantic Fleet |
| COTS | Commercial-off-the-shelf |
| CR | Candidate Recommendation |
| CSO | Combat Systems Officer |

| | |
|------------------|---|
| CSS | Combat Service Support |
| CT | Computed Topography (imaging technique) |
| CTC | Cost To Complete |
| D & A | Development and Acquisition |
| DA | Department of the Army |
| DAC | Defense Ammunition Center |
| DAS | Deputy Assistant Secretaries |
| DAU | Defense Acquisition University |
| DCAA | Defense Contract Auditing Agency |
| DCAI | Defense Contract Auditing Institute |
| DE | Distance Education |
| Def | Defense |
| DEOMI | Defense Equal Opportunity Management Institute |
| DERA | Defense Environmental Restoration Account |
| DIILS | Defense Institute of International Legal Studies |
| DINFOS | Defense Information School |
| DIS | Defense Investigative Service |
| DISAM | Defense Institute of Security Assistance Management |
| DLAMP | Defense Leadership and Management Program |
| DMS | Digital Modeling and Simulation |
| DNL | Decibel Noise Level |
| DoD | Department of Defense |

| | |
|---------------------|--|
| DoD IG | Department of Defense Inspector General |
| DoDPI | Department of Defense Polygraph Institute |
| DON | Department of the Navy |
| DPAS | Defense Property Accountability System |
| DPI | Defense Polygraph Institute |
| DRMI | Defense Resource Management Institute |
| DSMC | Defense Systems Management College |
| DSSA | Defense Security Service Academy |
| DST | Data Standardization Team |
| DT/OT | Design Testing and Operational Testing |
| DTAP | Defense Technology Area Plan |
| DUSD | Deputy Under Secretary of Defense |
| E&T | Education and Training |
| E&T JCSG | Education & Training Joint Cross Service Group |
| E&T JCSG | Education and Training JCSG |
| EEO | Equal Employment Opportunity |
| ENJJPT | European NATO Joint Jet Pilot Training |
| EO | Equal Opportunity |
| EROI | Economic Region of Influence |
| ESA | Environmental Services Association |
| FAA | Federal Aviation Administration |
| FAC | Facility |

| | |
|----------------|---|
| FBI | Federal Bureau of Investigation |
| FNIC | Force and infrastructure category |
| FOIA | Freedom Of Information Act |
| FRS | Fleet Replacement Squadron |
| FT | Flight Training |
| FTE | Full Time Equivalent |
| FTU | Flying Training Unit |
| FW | Fixed Wing |
| FY | Fiscal Year |
| GAO | Government Accountability Office |
| GS | General Schedule |
| GTF | Ground Training Facility |
| HITL | Hardware In The Loop Facility |
| HQ | Headquarters |
| HSA | Headquarters and Support Administration |
| I&E | Installations and Environment |
| IAW | In Accordance With |
| ICAF | Industrial College of the Armed Forces |
| ICP | Internal Control Process |
| IEC | Infrastructure Executive Committee |
| IFF | Introduction to Fighter Fundamentals |
| IFR | Instrument Flight Rules |

| | |
|------------------------|---|
| IG | Inspector General |
| IGPBS | Integrated Global Presence and Basing Strategy |
| IL | Integration Laboratory |
| ILC | Intermediate Level College |
| IM | Information Management |
| IMC | Instrument Meteorological Conditions |
| IND | Industrial JCSG |
| INTEL | Intelligence JCSG |
| IQT | Input Question Tool |
| IREM | Integrated Resource and Environmental Management |
| IRMC | Information Resource Management College |
| ISG | Infrastructure Steering Group |
| ISR | Installation Status Report |
| ISTF | Installed System Test Facility |
| IT | Individual training |
| ITRO | In-service Training Review Organization |
| JAG | Judge Advocate General |
| JCS | Joint Chief of Staff |
| JCSG | Joint Cross-service Groups |
| JCSG (H&SA) | Joint Cross Service Group Headquarters and Support Activities |
| JFCOM | Joint Forces Command |

| | |
|----------------|---|
| JFSC | Joint Forces Staff College |
| JPME | Joint Professional Military Education |
| JS | Joint Staff |
| JSF | Joint Strike Fighter |
| JSF ITS | Joint Strike Fighter Initial Training Site |
| JTTP | Joint Tactics Techniques and Procedures |
| JUONTC | Joint Urban Operations National Training Center |
| KSF | Thousands (K) of Square Feet |
| LATN | Low Altitude Tactical Navigation Area |
| LBS. | Pounds |
| LL | Low Level Military Training Routes |
| MAD | Military Value Analysis Database |
| MAGTF | Marine Air Ground Task Force |
| MANSCEN | Maneuver Support Center |
| MCAGCC | Marine Corps Air-Ground Combat Center |
| MCAS | Marine Corps Air Station |
| MCB | Marine Corps Base |
| MCCCE | Marine Corps College of Continuing Education |
| MCCSC | Marine Corps Command and Staff College |
| MCLB | Marine Corps Logistics Base |
| MCMWTC | Marine Corps Mountain Warfare Training Center |
| MCRD | Marine Corps Recruit Depot |

| | |
|---------------|--|
| MCSA | Marine Corps Supply Activity |
| MCWAR | Marine Corps War College |
| MED | Medical JCSG |
| MF | Measurement Facility |
| MFR | Memorandum For Record |
| MG | Major General |
| MG (S) | Major General (Select) |
| MGD | Million Gallons per Day |
| MHA | Military Housing Area |
| MILCON | Military Construction |
| MILDEP | Military Departments |
| MilVal | Military Value |
| MLGDP | Military Law Graduate Degree Program |
| MOA | Military Operating Area |
| MOB | Main Operating Base |
| MOS | Military Occupational Specialty (Army) |
| MRTFB | Major Range and Test Facility Base |
| MSA | Military Statistical Area |
| MTA | Managed Training Areas |
| MTOE | Modification Table of organization and Equipment |
| MVA | Military Value Analysis |

| | |
|---------------|--|
| MWTC | Mountain Warfare Training Center (USMC) |
| NAB | Naval Air/Amphibious Base |
| NAES | Naval Air Engineering Station, Naval Air Experimental Station |
| NAF | Naval Air Facility, Numbered Air Force |
| NAS | Naval Air Station |
| NAV | Navigator |
| NAVFAC | Navy Facilities |
| NAVSTA | Naval Station |
| NAVWS | Naval Air Weapons Station |
| NAWC | Naval Air Warfare Center |
| NCTAMS | Naval Computer and Telecommunications Area Master Station |
| NDC | Naval Doctrine Command |
| NDU | National Defense University |
| NEC | Navy Enlisted Classification |
| NEPA | National Environmental Policy Act |
| NFC | Net Fire Centers |
| NFO | Naval Flight Officer |
| NHPA | National Historic Preservation Act |
| NM | Nautical Miles |
| NMC | Naval Missile/Medical Center, Naval Material Command, Naval Media Center |
| NMITC | Navy & Marine Corps Intelligence Training Center |

| | |
|-------------|---|
| NMR | Nuclear Magnetic Resonance |
| NNMC | National Naval Medical Center (Bethesda, MD, USA) |
| NOBC | Navy Officer Billet Classification |
| NOLF | Navy Outlying Field |
| NPS | Naval Postgraduate School |
| NPV | Net Present Value |
| NRL | Naval Research Laboratory |
| NS | Naval Station |
| NSA | Naval Support Activity |
| NSCS | Naval Supply Corps School |
| NSF | Net Square Feet |
| NSR | New Source Review |
| NSU | Naval Support Unit |
| NSWC | Naval Special Warfare Command (SEAL) |
| NSWC | Naval Surface Warfare Center |
| NSY | Naval Shipyard |
| NTC | Naval Training Center |
| NTL | No Later Than |
| NTS | Naval Training Station |
| NTS | Naval Training Station |
| NTTC | Naval Technical Training Center |
| NUWC | Naval Undersea Warfare Center |

| | |
|----------------------|---|
| NWC | National War College |
| NWS | Naval Weapons Station |
| OEF | Operation ENDURING FREEDOM |
| OFTE | Other Full-Time Education |
| OGC | Office of General Counsel |
| OIF | Operation IRAQI FREEDOM |
| OIG | Office of the Inspector General |
| OLF | Outlying Field |
| OMB | Office of Management and Budget |
| OPAREA | Operations Area |
| OPS | Operations |
| OSD | Office of the Secretary of Defense |
| OSD (P&R) | Office of the Secretary of Defense, Personnel and Readiness |
| OSUT | One-Station Unit Training |
| PA | Prohibited Areas |
| PCE | Professional Continuing Education |
| PCS | Permanent Change of Station |
| PDE | Professional Development Education |
| PDTS | Performance Reporting System |
| PIT | Pilot Instructor Training |
| PME | Professional Military Education |

| | |
|-------------------------|--|
| PMRF | Pacific Missile Range Facility |
| POC | Point of Contact |
| POM | Program Objective Memorandum |
| POV | Privately Owned Vehicle |
| PPP | Priority Placement Program |
| PRV | Plant Replacement Value |
| QoL | Quality of Life |
| Range | Ranges and Collective Training subgroup |
| RCRA | Resource Conservation and Recovery Act |
| RDTE | Research, Development, Test and Evaluation |
| RD&A | Research, Development and Acquisition |
| RDML | Rear Admiral (Lower Half) |
| RADM | Rear Admiral (Upper Half) |
| RFC | Request for Clarification |
| RH | Range Hours |
| RH_{tst} | Range Hours Test |
| RIF | Reduction in Force |
| RITA | Relocation Income Tax Allowance |
| ROI (COBRA) | Return on Investment |
| ROI (Criteria 6) | Region of Influence |
| ROTC | Reserve Officer Training Corps |
| RSE | Relocation Services Entitlement |

| | |
|------------------------|--|
| RTD&E | Research, Development, Training and Evaluation |
| RVU | Relative Value Unit |
| RW | Rotary Wing |
| RWP | Relative Weighted Product |
| S&S | Supply and Storage JCSG |
| SECDEF | Secretary of Defense |
| SF | Square Foot |
| SF | Standard Form |
| SHPO | State Historic Preservation Office |
| SIP | State Implementation Plan |
| SIRRA | Sustainable Installations Regional Resource Assessment |
| SLC | Senior Level Colleges |
| SM | Statue Miles |
| SME | Subject Matter Expert |
| SOF | Special Operations Forces |
| SOP | Standard Operating Procedures |
| Sq NM | Square Nautical Miles |
| SSC | Senior Service Colleges |
| SSS | Senior Service Schools |
| SST | Specialized Skills Training |
| S_{tst} | Surge Test |
| SUA | Special Use Airspace |

| | |
|-----------------|---|
| T&E | Test and Evaluation |
| TABS | The Army Basing Study |
| TADSS | Training aids, devices, simulation, and simulators |
| TECH | Technical JCSG |
| TES | Threatened and Endangered Species |
| TESWG | Test and Evaluation Sub-Working Group |
| TMS | Type / Model / Series |
| TO | Transformational Options |
| TO&E | Table of Organization and Equipment |
| TRADOC | Training and Doctrine Command |
| TRANSCOM | United States Transportation Command |
| TRAWNG | Training Wing |
| TRIGA | Training Research and Isotope Production, General Atomics |
| TS | Top Secret |
| TSDF | Treatment Storage and Disposal Facility |
| UAV | Unmanned Aerial Vehicle |
| UCR | Uniform Crime Reports |
| UFT | Undergraduate Flight Training |
| UFWT | Undergraduate Fixed Wing Training |
| UM | Unit of Measure |
| UNT | Undergraduate Navigator Training |

| | |
|---------------------|---|
| UPT | Undergraduate Pilot Training |
| URT | Undergraduate Rotary-wing Training |
| URWT | Undergraduate Rotary-wing Training |
| US | United States |
| USA | United States Army |
| USACGSC | United States Army Command and General Staff College |
| USACGSS | United States Army Command and General Staff School |
| USAF | United States Air Force |
| USAFA | United States Air Force Academy |
| USAWC | United States Army War College |
| USD | Under Secretary of Defense |
| USD/AT&L | Under Secretary of Defense / Acquisition Technology and Logistics |
| USG | United States Government |
| USMA | United States Military Academy |
| USMC | United States Marine Corps |
| USN | United States Navy |
| USNA | United States Naval Academy |
| VA | Veterans Affairs |
| VDJ-7 | Vice Director of JCS/J-7 |
| VFR | Visual Flight Rules |
| VMC | Visual Meteorological Conditions |

VVSD

Visual Vestibular Sphere Device

WA

Warning Areas

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Appendix D

Glossary

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| Accession Training | The number of personnel in recruit, one-station unit training, and officer acquisition not related to Specialized Skill Training. |
| Air Command and Staff College | The Air Force's intermediate professional military education (PME) school that, prepares field grade officers of all services (primarily majors and major selects), international officers, and US civilians to assume positions of higher responsibility within the military and other government arenas. |
| Air Education Training Command / Plans and Programs (XP) | The focal point for AETC mission requirements, programming efforts related to Planning, Programming, Budgeting System, and all command basing actions including unit moves and new program |
| Air Filter | The calculation of airspace capacity for the range training function used the values from a limited subset of the types of Military Airspace. The legal definitions of Restricted Areas, MOAs, and Warning areas are defined in FAA Order 7400.8 and ATCAAs are defined by local agreement with the FAA. Airspace was included if it provided for the segregation of nonparticipating aircraft from participating aircraft operations or allowed aircraft operation that may be hazardous to nonparticipating aircraft. The four types of airspace included were Restricted Areas, Military Operations Areas (MOAs), Warning Areas, and Air Traffic Control Assigned Areas (ATCAAs): |
| Air Force Institute of Technology / Civilian Institution | One of several educational departments of the Air Force Institute of Technology with the mission to support Air Force educational requirements through graduate and professional continuing education and research at civilian universities, hospitals, research centers, and cooperation. |
| Air Force Institute of Technology | The Air Force's graduate school of engineering and management as well as its institution for technical professional continuing education. |
| Air Refueling Tracks AR | Defined tracks where military aircraft are refueled in flight. These tracks mostly occur in Class A and are compatible with normal aircraft operation in this airspace. |

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| Air Traffic Control Assigned Airspace | Airspace of defined vertical/lateral limits, assigned by Air Traffic Control, for the purpose of providing air traffic segregation between the specified activities being conducted within the assigned airspace and other IFR air traffic. (See Alert Area, Military Operations Area, Special Use Airspace). ATCAAs are normally established above 18,000 feet MSL to separate/segregate certain military activities from other air traffic. |
| Air War College | The Air Force's senior professional military education (PME) school that, prepares senior officers of all services (primarily lieutenant colonel and colonel or equivalents), international officers, and US civilians to assume positions of higher responsibility within the military and other government arenas. |
| Alert Area | Airspace that may contain a high volume of pilot training activities or an unusual type of aerial activity, neither of which is hazardous to aircraft. |
| Army Management Staff College | Educates and prepares Army civilian and military leaders to assume leadership and management responsibilities throughout the sustaining base. AMSC also provides consulting services and conduct research in support of the sustaining base. |
| Average On Board | The highest monthly average number of students that a Service Component trains during a fiscal year. |
| Base Closure Law | The provisions of Title II of the Defense Authorization Amendments and Base Closure and Realignment Act (Pub. L. 100-526, 102 Stat. 2623, 10 U.S.C. S 2687 note), or the Defense Base Closure and Realignment Act of 1990 (Pub. L. 100-526, Part A of Title XXIX of 104 Stat. 1808, 10 U.S.C. S 2687 note). |
| BRAC | Stands for base realignment and closure. It is the process DoD has previously used to reorganize its installation infrastructure to more efficiently and effectively support its forces, increase operational readiness and facilitate new ways of doing business. DoD anticipates that BRAC 2005 will build upon processes used in previous BRAC efforts. |
| Business Initiative Council | A council created by the Sectary of Defense to seek business practices focused on transforming the US military into a 21 st century fighting force. The purpose of the BIC is to create a more agile, responsive, and adaptive staff for business transformation by reducing layers of review and approval and applying business approaches and techniques to DoD challenges. |

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| CJCS | Senior ranking member of the Armed Forces. As such, the Chairman of the Joint Chiefs of Staff is the principal military adviser to the President. |
| Closure | All missions of the installation have ceased or have been relocated. All personnel positions (military, civilian and contractor) have either been eliminated or relocated, except for personnel required for caretaking, conducting any ongoing environmental cleanup, and disposal of the base, or personnel remaining in authorized enclaves. |
| COBRA | An analytical tool used to calculate the costs, savings, and return on investment, of proposed realignment and closure actions. |
| College of Naval Warfare | A multidisciplinary, senior level professional military education program that provides students with executive-level preparation for higher responsibilities as senior captains/colonels and flag/general officers. |
| Command and Naval Staff College | A multidisciplinary, intermediate level service college that provides an initial opportunity for professional military education wherein students prepare for increased responsibilities as commanders/lieutenant colonels. |
| Commission | Established by section 2902 of the Defense Base Closure and Realignment Act of 1990, as amended. |
| Controlled Fire Areas | Set up due to ground operations that may be hazardous to aircraft operations such as artillery firing, ordnance disposal, and rocket testing. |
| Current Capacity (Range Subgroup T&E) | Peak demonstrated workload in test hours for the OAR in any fiscal year in its current configuration. |
| Current Capacity (Range Subgroup Training) | Standardized/peacetime operations for existing physical plants' capability to perform functions/sub-functions (normalized for comparability between Services' installations/range/OPAREAs). |
| Current Usage (Range Subgroup T&E) | Average workload in test hours computed from actual workload executed during FY 01, FY 02, and FY 03. |
| Current Usage (Range Subgroup Training) | As reported, may be < or > "current capacity" as defined above and considers maintenance/equipment downtime, end strength (faculty, staff & students), personnel resources/accounts (pay/overtime pay), duty hours (e.g., days/year, hours/day for budgetary constraints), training policy/requirements. |

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| Defense Acquisition University | A corporate university which provides a full range of basic, intermediate, and advanced certification training, assignment-specific training, performance support, job-relevant applied research, and continuous learning opportunities. |
| Defense Ammunition Center | Provides the military services timely ammunition training, demil technology, explosives safety, engineering, career management, and technical assistance through logistics support. |
| Defense Contract Auditing Agency | Developed to reduce duplication by consolidating audit activities of the military services. The Defense Contract Auditing Agency has provides auditing and financial advisory services to components within the DoD as well as to non-DoD Government Agencies. |
| Defense Contract Auditing Institute | Develops and delivers training for DCAA personnel currently offers the following types of training: CMTL Courses, Resident Courses, and Seminars. |
| Defense Equal Opportunity Management Institute | Designed to enhance leadership and readiness by fostering Equal Opportunity (EO) and Equal Employment Opportunity (EEO) programs and positive human relations through education, training, and research. |
| Defense Information School | Produces outstanding Public Affairs and Visual Information personnel for the U.S. Department of Defense. |
| Defense Institute of International Legal Studies | Provides expertise in over 320 legal topics of Military Law, Justice Systems, and the Rule of Law, with an emphasis on the execution of Disciplined Military Operations through both resident courses and mobile education teams. |
| Defense Institute of Security Assistance Management | Provides professional education, research, and support to advance U.S. foreign policy through Security Assistance and Cooperation. |
| Defense Investigative Service | This Department of Defense agency conducts personnel security investigations and provides industrial security products and services, as well as comprehensive security education and training to DoD and other governmental entities. |
| Defense Leadership and Management Program | A systematic, Department-wide program of "joint" civilian leader training, education, and development within and across the DoD Components. It provides the framework for developing future civilian leaders with a DoD-wide capability. |

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| Defense Polygraph Institute | Qualifies DoD and other federal personnel for careers as psycho physiological detection of deception examiners, provides continuous research in forensic psychophysiology and credibility assessment methods. |
| Defense Resource Management Institute | Conducts professional education programs in analytical decision making and resources management for military officers of all services, and senior civilian officials of the US and 125 other countries. |
| Defense Security Service Academy | Provides DoD security professionals, DoD contractors, employees of other Federal agencies, and selected foreign governments with a security curriculum, awareness products, and professional development services that are relevant and responsive to their needs. |
| Defense Systems Management College | Provides executive-level and international acquisition management training, consulting, and research. |
| Department of Defense Polygraph Institute | A federally funded institution providing graduate and continuing education courses in forensic psychophysiology. |
| Digital Modeling and Simulation Facility | Simulation facilities are used to evaluate weapon system requirements and concept feasibility, define the technical limits of system performance, plan tests, assess risks, interpolate or extrapolate test results, support analyses and evaluations, and to refine combat doctrine, tactics, and procedures. A digital model is a physical, mathematical, or otherwise logical representation of a system, entity, phenomenon, or process. Computer simulations are a method for implementing digital models over time. Computer simulations may drive simulators, and may also be networked with other M&S and live and virtual resources to provide a fuller and more stressful operational-like environment. Simulation facilities include manned simulators. |
| DINFOS | Provides a corps of professional organizational communicators who fulfill communication needs of military leaders and audiences. |
| Distance Education | The delivery of a structured curriculum to a student available at a different time or place than the teaching institution's resident program. It is a deliberate and planned learning experience that incorporates both teaching by the sponsoring institution as well as learning efforts by the student. |

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| Excess Capacity (Range Subgroup T&E) | Percentage of additional (if positive) test hours that could be accommodated on an OAR compared with difference from the maximum demonstrated usage in a given year, and the average usage during FY 2001-2003 plus what would needed for surge. If negative, the average usage during FY 2001-2003 plus what would needed for surge exceeds that which was demonstrated in the peak year. |
| Excess Capacity (Range Subgroup Training) | Current capacity <u>minus</u> surge capacity. (In other words: Current capacity (Standardized/peacetime operations in acre days minus Surge (in acre days) = Excess (in acre days)). Percentage Excess = Excess capacity (in acre days) / Current (Standard) in acre days. |
| Fleet Replacement Squadron | Training squadrons that educate Navy Pilot/NFO to operate and employ fleet aircraft. |
| Flying Training Units | Training squadrons that educate US Air Force Pilot/NAV/CSO to operate and employ fleet aircraft. |
| Ground Filter (Range Subgroup Training) | 19,000 acres or greater (minimum maneuver acreage required for "Light Battalion Training"). This filter is based on Army Training Circular 25-1 and is agreed to by the USMC. |
| Hardware in the Loop Facility | Used to evaluate actual or proposed system hardware elements. This process can examine the performance of those elements during the acquisition phases of Concept Refinement, Technology Development, and System Development and Demonstration phases before an entire system is available, or when a specific capability cannot be tested or produced from actual hardware. Such test events are conducted indoors in a secure, controlled environment and provide repeatable measurements of test hardware performance. Threat systems, against which the test hardware performance is measured, can be actual hardware or simulations, or a combination. |
| Individual Training | Training of individual military members in formal courses conducted by active component organizations whose primary mission is training. |
| Industrial College of the Armed Forces | The mission is to prepare military officers/civilians for senior leadership/staff positions by conducting postgraduate, executive-level courses of study and associated research dealing with resource component of national power, with special emphasis on material acquisition and joint logistics, and their integration into national security strategy for peace and war. |

Information Resource Management College

The mission is to prepare leaders to direct the information component of national power by leveraging information and information technology for strategic advantage.

Infrastructure Executive Council (IEC)

One of two senior groups established by the Secretary of Defense to oversee and operate the BRAC 2005 process. The Infrastructure Executive Council, chaired by the Deputy Secretary of Defense, and composed of the Secretaries of the Military Departments and their Chiefs of Services, the Chairman of the Joint Chiefs of Staff and Under Secretary of Defense (Acquisition, Technology and Logistics) (USD(AT&L)), is the policy making and oversight body for the entire BRAC 2005 process.

Infrastructure Steering Group (ISG)

The subordinate of two senior groups established by the Secretary of Defense to oversee and operate the BRAC 2005 process. The Infrastructure Steering Group, chaired by the Under Secretary of Defense (Acquisition, Technology and Logistics) (USD(AT&L)), and composed of the Vice Chairman of the Joint Chiefs of Staff, the Military Department Assistant Secretaries for installations and environment, the Service Vice Chiefs, and the Deputy Under Secretary of Defense (Installations & Environment) (DUSD(I&E)), will oversee joint cross-service analyses of common business-oriented functions and ensure the integration of that process with the Military Department and Defense Agency specific analyses of all other functions.

Installed System Test Facility

Provides capabilities to evaluate developing systems installed on, and integrated with, their intended host platform, as well as to test the whole platform. ISTFs provide simulated natural environments coupled with high-density threats and secure signal generation capabilities that are not feasible or affordable in an open-air test environment. Simulation of test conditions relies on M&S. An example of a robust ISTF may consist of integrating an aircraft under test with a number of computer simulations, authentic threat signals and supporting HITL laboratories.

Integration Laboratory

Tests the interaction of subsystems of software and hardware system components with each other and with other systems and environments. These laboratories usually employ and integrate a variety of digital models and computer simulations. Integration laboratories are most often used to support hardware and software development and to assess a complete range of subsystem performance.

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| Intermediate Level College | A formal, intermediate-level Service college; includes institutions commonly referred to as intermediate Service colleges, intermediate-level schools, intermediate Service schools, or military education level-4 producers. |
| Interoperable Training | Service-to-Service or Cross-Service: US Military Service components training that ensures the ability of systems, units, or forces to provide services to and accept services from other systems, units, or forces and to use the services, so exchanged, to enable them to operate effectively together during multi-Service operations. Services are responsible for providing interoperable forces to Combatant Commanders. Interoperability training is based on joint doctrine, and Joint Tactics Techniques and Procedures (JTTP). |
| Inter-service Training Review Organization (ITRO) | An organization of the military Services, established to improve the effectiveness and efficiency of Service Training consistent with individual Service requirements. |
| JCS (Joint Chiefs of Staff) | Consists of the Chairman, the Vice Chairman, the Chief of Staff of the Army, the Chief of Naval Operations, the Chief of Staff of the Air Force, and the Commandant of the Marine Corps. The collective body of the JCS is headed by the Chairman, who sets the agenda and presides over JCS meetings. |
| Joint Forces Staff College | A component of the National Defense University that educates and acculturates joint and multinational warfighters to plan and lead at the operational level. |
| Joint Professional Military Education | A CJSC-approved body of objectives, policies, procedures, and standards supporting the educational requirements for joint officer management. |
| Joint Training | US military training based on joint doctrine or JTTP to prepare joint forces and/or joint staffs to respond to strategic and operational requirements deemed necessary by Combatant Commanders to execute their assigned missions. Joint training involves forces of two or more military departments interacting with a Combatant Commander or subordinate joint force commander; involves joint forces and/or joint staffs; and is conducted using joint doctrine and JTTP. |
| Low Altitude Tactical Navigation Area | Defined areas in which the military performs random VFR operations in accordance with all VFR rules and regulations. These areas are primarily designated for the purpose of addressing environment regulations and not due to incompatible aircraft operation. |

Major Range and Test Facility Base

Defined in DoD 3200.11. The MRTFB is a national asset that shall be sized, operated, and maintained primarily for DoD T&E support missions, but may also be available to all users having a valid requirement for its capabilities. While entire installations are listed in the instruction, only selected facilities, equipments and ranges at the respective installation may actually be in the MRTFB as defined by receipt of MRTFB institutional funding.

Marine Corps College of Continuing Education (MCCCE)

Develops the professional competence of Marine, other Service, international, and civilian students by formulating and implementing professional military education (PME) and training through distance learning. This is accomplished through a worldwide network of satellite campuses and learning resource centers (LRC). CCE's mission is to design, develop, and deliver distance learning programs by providing high quality e-learning courseware, instructional products, professional military education seminars, technology-enabled learning centers, and educational services to Marine Corps students worldwide in order to increase USMC total force operational readiness.

Marine Corps Command and Staff College

Provides intermediate and advanced-intermediate professional military education to field grade officers of the Marine Corps, other services, and foreign countries to prepare them for command and staff duties with Marine Air-Ground Task Forces (MAGTFs) and for assignment with joint, multinational, and high-level service organizations.

Marine Corps War College

Prepares senior-level officers to assume senior positions of increasingly complex responsibilities associated with the application of maritime expeditionary warfare, joint and combined warfare concepts, theater strategy and plans, and Marine Corps support to those strategies within the context of national security policies, decision making, objectives, and resources.

Maximum Potential Capacity (Range Subgroup Training)

Theoretical maximum operational dimension for plants' capability to perform functions/sub-functions (assumes weather, environmental and legislative restrictions but otherwise multiple shifts/ unconstrained).

Measurement Facility

Provide a controlled environment for precise technical measurement of unique characteristics of a system or component. These facilities range in size from large climatic chambers to small laboratories and open-air facilities that perform measurements of material properties. Examples include radar cross-section measurement facilities that collect spherical spectral reflectivity data from military aircraft, live fire test and evaluation facilities and propulsion test cells.

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| Military Departments | Department of the Army, Department of the Navy, which includes the Marine Corps, and Department of the Air Force. |
| Military Installation | A base, camp, post, station, yard, center, homeport facility for any ship, or other activity under the jurisdiction of the Department of Defense, including any leased facility. Such term does not include any facility used primarily for civil works, rivers and harbors projects, flood control, or other projects not under the primary jurisdiction or control of the Department of Defense. |
| Military Law Graduate Degree Program | Graduate legal education program conducted by the Judge Advocate General's Legal Center and School culminating in the award of a master of laws degree, for all Army judge advocates, judge advocates from the other armed services, and Army civilian attorneys. |
| Military Operating Area | Established outside of Class A Airspace to separate/segregate certain military activities from IFR traffic and to identify for VFR traffic where these activities are conducted. |
| Military Training Routes | While MTRs may provide a military training capacity; most MTRs cannot be tied to a specific range or base. In many cases they provide a means of ingress and egress between many bases, ranges, and/or training areas rather than for the air operations over a range. With this in mind, they tend to affect the military value of bases for training and will be addressed in the Military Value phase. |
| Modification Table of organization and Equipment | A document that lists the equipment that is required and on-hand in any unit. |
| National Defense University | Educates military and civilian leaders through teaching, research, and outreach in national security strategy, national military strategy, and national resource strategy; joint and multinational operations; information strategies, operations, and resource management; acquisition; and regional defense and security studies. |
| National War College | Prepares future leaders of the Armed Forces, State Department, and other civilian agencies for high-level policy, command, and staff responsibilities. NWC conducts a senior-level course of study in national security policy and strategy for selected U.S. and foreign military officers and federal officials. |

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| Naval Postgraduate School | An academic institution whose emphasis is on study and research programs relevant to the Navy's interests, as well as to the interests of other arms of the Department of Defense. The programs are designed to accommodate the unique requirements of the military. |
| Naval Facilities (NAVFAC P-80) | A facility planning factor criteria for Navy and Marine Corps Shore Installations. |
| Office of the Secretary of Defense (OSD (P&R)) | The principal staff assistant and advisor to the Secretary and Deputy Secretary of Defense for Total Force Management as it relates to readiness; National Guard and Reserve component. |
| One-Station Unit Training (OSUT) | An Army Training Program that meets the training objectives of both Recruit Training and Specialized Skill Training in certain skill areas through a single course conducted by a single training institution. It includes |
| Open Air Ranges | A specifically bounded or designated geographic areas, including Operating Areas (OPAREAs), that encompass a landmass, body of water (above and below surface), and/or airspace used to conduct test and evaluation of military hardware, personnel, tactics, munitions, explosives, or electronic combat systems. Open-air ranges will include a fixed, reconfigurable, and/or mobile physical plant for range operations or support and may include personnel and equipment for command and control, scoring, debriefing, radio frequency management, security, traffic control and de-confliction, safety, fixed targets, fixed threat simulators, buildings and other real property, natural topography, and interconnectivity and interoperability with other ranges and facilities. |
| Other Full-Time Education | A subset of the E&T JCSG PDE subgroup. It includes federal civilian service leader development programs as well as other military and civilian professional education attended full-time (normal institution workday). OFTE programs vary in duration and are not restricted to "degree granting" programs. In addition to chaplain schools, military law/Judge Advocate General schools, and various Defense Agency schools, OFTE programs within PDE's purview include Services' civilian personnel, and other functionally oriented education and training establishments. |
| Professional Continuing Education | A short course instruction in a broad range of essential education programs to meet specific skills and functional competencies required in designated career fields. |

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| Professional Development Education | Education that includes educational courses conducted at Service schools or at civilian institutions to broaden the outlook and knowledge of military personnel or to impart knowledge in advanced academic discipline. |
| Professional Military Education | The systematic instruction of professionals in subjects which will enhance their knowledge of the science and art of war. |
| Prohibited Area | Aircraft are prohibited from flying in these areas without permission from the using agency. Currently there are no Prohibited Areas managed by the DoD. |
| Research, Development, Test and Evaluation | Identified phases of acquisition/procurement. |
| Realignment | Includes any action that both reduces and relocates functions and civilian personnel positions, but does not include a reduction in force resulting from workload adjustments, reduced personnel or funding levels, or skill imbalances. |
| Recruit Training | Provides introductory physical conditioning and military training to indoctrinate and acclimate enlisted entrants in each of the Services to military life. It is also known as basic training. |
| Restricted Area | Established to provide the ability to completely exclude nonparticipating aircraft from the area to allow operation that may be hazardous to these aircraft. |
| Sea Filter (Range Subgroup Training) | 50 Nautical Miles Squared (NM ²). The final draft of the Fleet's Range Capabilities Document states the minimum sized OPAREA has 50 sq. NM. This is considered the minimum for Intermediate training in Amphibious Warfare and Special Operations. This is the minimum size required stated to do any major training in the sea ranges. |
| Senior Level Colleges | The four formal, senior-level Service colleges (Air War College, US Army War College, Marine Corps War College, and College of Naval Warfare) and the two NDU colleges (National War College, Industrial College of the Armed Forces). |
| Senior Service Colleges | The four formal, senior-level Service colleges include Air War College, US Army War College, Marine Corps War College, and College of Naval Warfare. |

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| Senior Service Schools | The four formal, senior-level Service colleges (Air War College, US Army War College, Marine Corps War College, and College of Naval Warfare) and the two NDU colleges (National War College, Industrial College of the Armed Forces). |
| Special Use Airspace | Airspace of defined dimensions identified by an area on the surface of the earth wherein activities must be confined because of their nature and/or wherein limitations may be imposed upon aircraft operations that are not a part of those activities. |
| Specialized Skills Training | Provides personnel with initial job qualification skills and new or higher levels of skill in military specialties or functional areas to meet specific job requirements. |
| Subject Matter Expert | An individual who exhibits the highest level of expertise in performing a specialized job, task, or skill within the organization. |
| Surge Capacity (Range Subgroup T&E) | 10% of Current Usage, where the “10%” is based on a general consensus of T&E subject matter experts for a sustained long-term surge effort. |
| Surge Capacity (Range Subgroup Training) | Additional “capability hedge” in order to meet unanticipated increases for an existing physical plants’ capability to perform functions/sub-functions. Training Ranges = current usage plus 25%. |
| T&E: Maximum Potential Capacity | Defined but not used in the calculation. Defined as what each OAR is capable of doing. Interpreted for “ranges” to mean maximum potential availability of airspace, land space and/or sea space, this is 24 hours per day, 365 days per year. |
| Test and Evaluation (T&E) | That process which supports DoD Development and Acquisition, including all measurements and analyses from facilities and open-air ranges for science and technology (S&T) development and acquisition (D&A), developmental test and evaluation, operational test and evaluation, live fire test and evaluation, contractor test and evaluation, in-service engineering testing, safety certifications, concept refinement, advanced technology demonstrations, shelf-life and lot verification testing, and for experimentation when predominantly used for acquisition or materiel decisions. |

Test Hours

The amount of time used for the conduct of a single test event on an OAR including the amount of time used for setup, reconfiguration, teardown, or cleanup of the OAR if those preclude use of the OAR for another test event. Multiple test hours may occur on an OAR in one clock hour (range hour) if multiple test events are being conducted within safety and spatial constraints. Test hours, however, do not directly correlate to range hours, labor hours or even test events. A single test event or multiple test events may be conducted in any one-hour of range time, depending on the type of tests to be supported, spatial capacity of the range, the spatial needs of the test event(s), and the specific requirements for Range instrumentation, frequency spectrum, etc. Smaller-sized OARs may accumulate many test hours in one hour of range time but may not be capable of running any large spatial volume-driven test event. Similarly, large-sized OARs may have the spatial volume required to run multiple small-scale events.

Testing and Evaluation (T&E)

That process which supports DoD Development and Acquisition, including all measurements and analyses from facilities and open-air ranges for science and technology (S&T) development and acquisition (D&A), developmental test and evaluation, operational test and evaluation, live fire test and evaluation, contractor test and evaluation, in-service engineering testing, safety certifications, concept refinement, advanced technology demonstrations, shelf-life and lot verification testing, and for experimentation when predominantly used for acquisition or materiel decisions.

Training Load

The number of student-years that a Service Component received (or projects to receive) in formal institutional training and education courses during a fiscal year.

Training: Unit/Collective

Instruction and applied exercises that prepare an organizational team (such as a squad, aircrew, battalion, or multi-Service task force) to accomplish required military tasks as a unit.

Transformation

“A process that shapes the changing nature of military competition and cooperation through new combinations of concepts, capabilities, people and organizations that exploit our nation's advantages and protect against our symmetric vulnerabilities to sustain our strategic position, which helps underpin peace and stability in the world.”

United States Air Force Academy

Prepares and motivates cadets for careers as Air Force officers. The Academy stresses character development, military training, and physical fitness as well as academics, emphasizing leadership in all areas.

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| United States Army Command and General Staff College | An intermediate-level program that develops leaders prepared to execute full spectrum joint, interagency, intergovernmental, multinational operations, advances the profession of military art and science, and supports operational requirements. |
| United States Army Command and General Staff College (USACGSC) | The senior education institution for teaching tactics and staff procedures for the United States Army (the College consists of four schools: Command and General Staff School, Combined Arms and Services Staff School, Command and General Staff Officers Course, and the School of Advanced Military Studies). |
| United States Army Command and General Staff School (USACGSS) | The senior education institution for teaching tactics and staff procedures for the United States Army (the College consists of four schools: Command and General Staff School, Combined Arms and Services Staff School, Command and General Staff Officers Course, and the School of Advanced Military Studies). |
| United States Army War College | A senior-level professional military education program that prepares its graduates for senior command and staff positions within the Army and throughout the Defense establishment, to promote an understanding of the art and science of land warfare and to conduct strategic studies on the value and use of the US Army during peace and war. |
| United States Military Academy | Is to educate, train, and inspire the Corps of Cadets so that each graduate is a commissioned leader of character committed to the values of duty, honor, and country; professional growth throughout a career as an officer in the United States Army; and a lifetime of selfless service to the nation. |
| United States Naval Academy | Is to develop midshipmen morally, mentally, and physically and to imbue them with the highest ideals of duty, honor and loyalty in order to provide graduates who are dedicated to a career of naval service and have potential for future development in mind and character to assume the highest responsibilities of command, citizenship and government. |
| Warning Area | Airspace of defined dimensions, extending from 3 nautical miles outward from the coast of the United States that contains activity that may be hazardous to non- participating aircraft. The purpose of such warning areas is to warn nonparticipating pilots of the potential danger. A warning area may be located over domestic and/or international waters. |