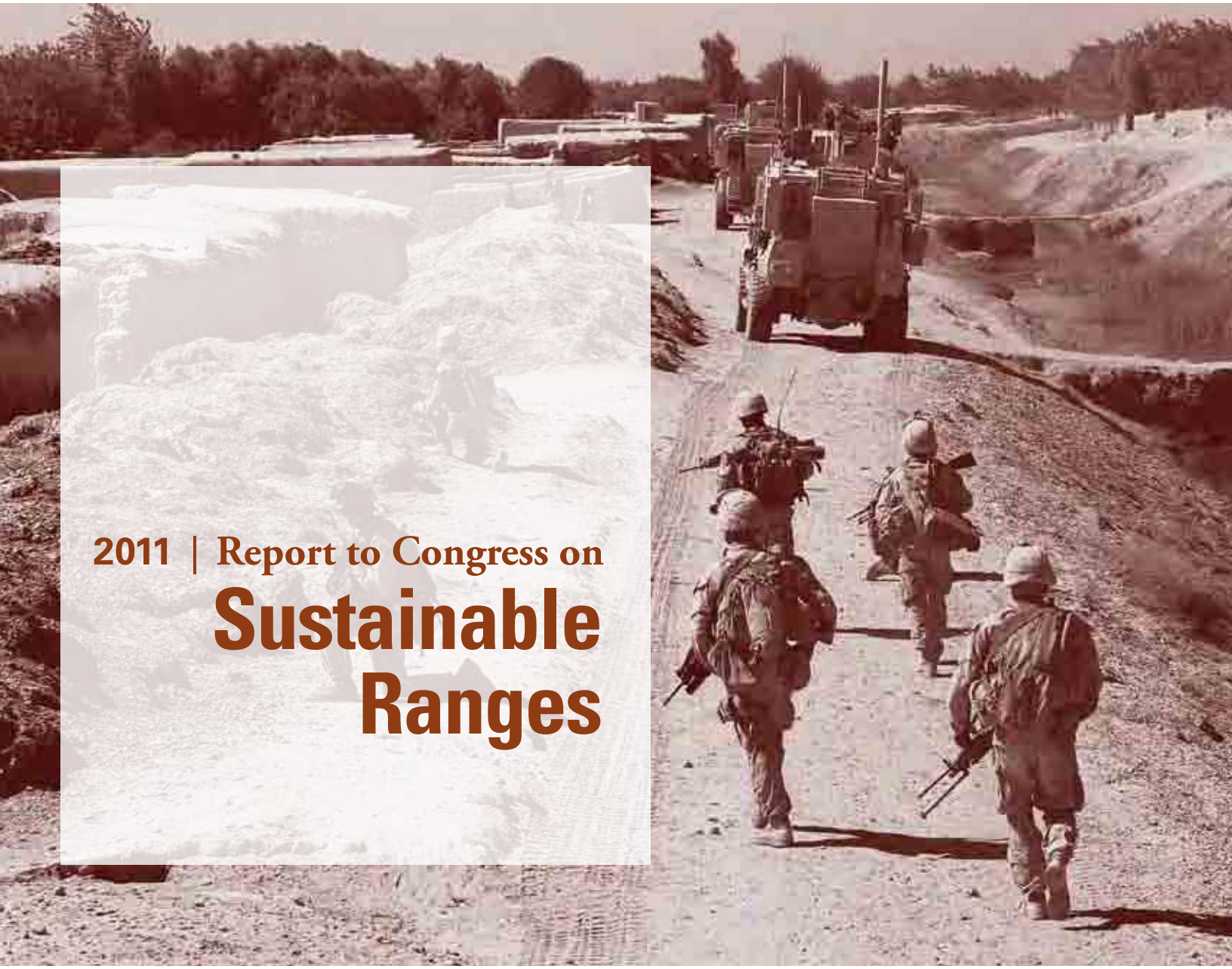
Report to Congress on

Sustainable Ranges

Submitted by the Secretary of Defense
Under Secretary of Defense
(Personnel and Readiness)



2011 | Report to Congress on

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Photo on cover:
U.S. Marines conduct a security patrol in the Nawa district in Helmand province, Afghanistan, Aug. 7, 2009. The Marines are assigned to Bravo Company, 1st Battalion, 5th Marine Regiment. U.S. Marine Corps photo by Cpl. Artur Shvartsberg.

Foreword

This is the eighth Congressional report, which addresses how the Department of Defense's (DoD's) actions provide for the long-term sustainability of its training ranges. These efforts are managed through the Department's Sustainable Ranges Initiative (SRI). Although this report focuses on DoD training ranges, the SRI's efforts are much broader in scope.

The SRI recognizes that access to military installations, ranges, operating areas, and other lands, seaspace, airspace, and frequency spectrum is essential. Having access to these areas provides our soldiers, sailors, airmen, and marines, and their associated equipment, with the realistic training and testing environments needed to prepare them for the diverse peacetime and wartime missions they support around the globe. Over the past several decades, access to live training and testing resources has been increasingly challenged by several factors including encroachment, which has inhibited the military's ability to use its installations, ranges, airspace, and other operating areas to conduct effective training and testing. In December 2001, the Deputy Secretary of Defense directed the Under Secretary of Defense for Personnel and Readiness in partnership with the Deputy Under Secretary of Defense for Installations and Environment, the Director of Operational Test and Evaluation, and the military departments, to form an Integrated Product Team (IPT). The IPT was to act as the coordinating body for all encroachment on DoD ranges, operating areas, and other locations where the Department trains for, tests or evaluates new weapons and sensors. The result was a broad-based, multi-faceted initiative, now known as the SRI. This initiative, aimed at addressing encroachment and range sustainment, includes policy formulation, programming activities, leadership and organization structuring, legislative and regulatory initiatives, compatible land use activities, engagement and partnering efforts, and comprehensive reporting to Congress.

Working under the direction of the Senior Readiness Oversight Council (SROC), DoD established the Overarching Integrated Product Team (OIPT). The OIPT is tri-chaired by the Deputy Assistant Secretary of Defense for Readiness, the Deputy Under Secretary of Defense for Installations and Environment, and the Deputy Director for Operational Test and Evaluation. Its members include senior officials from all of the Military Departments and other related offices within the Secretary of Defense. Additionally, the Working Integrated Product Team (WIPT) is the staff-level working body that supports the OIPT by coordinating and communicating ongoing sustainment activities.

Over the past nine years, this SROC-led initiative has succeeded in numerous efforts including:

- Issuing new and updated range sustainment policies and guidance.
- Developing and implementing an assessment methodology to gauge the health of our ranges in terms of capability attributes and encroachment factors.
- Obtaining conservation partnership authority and annual Congressional funding for compatible land use buffers under the Readiness and Environmental Protection Initiative (REPI) program (10 U.S.C. 2684(a)).

- Establishing broad-based partnerships for sustainable planning, including the Southeast Regional Partnership for Planning and Sustainability (SERPPAS) and the Western Regional Partnership (WRP)
- Facilitating the sharing of geographic information systems and decision-support information to foster community-driven planning and compatible land use partnerships
- Establishing a DoD Energy Siting Clearinghouse to facilitate fully-coordinated Department positions on the compatibility of proposed projects for energy developers, government agencies, and other concerned parties

In 2008, the Deputy Secretary of Defense reaffirmed the efforts of the SRI and endorsed seven specific focus areas including:

- Mitigating pressures on training and test activities from competing land and seaspace uses
- Addressing frequency spectrum competition
- Meeting military airspace challenges
- Managing increasing military demand for range lands
- Addressing impacts from new energy infrastructure and renewable energy initiatives
- Anticipating climate change initiatives
- Managing current and emerging environmental issues

In 2010, the OIPT reconfirmed these focus areas, which were also reflected in the various Services' goals and milestones. As the SRI evolves, it will continue to address the Department's abilities to train, test, and focus on the direction provided by the Deputy Secretary to sustain the required capabilities. We look forward to continuing our work with Congress on this initiative.

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1 Introduction

The need to train as we fight is fundamental to our armed forces. Ranges are some of our most valued assets because they closely resemble the operational environments of assigned military missions. Installations are also critical for maintaining military readiness and mission effectiveness. As such, ranges and installations must be available when and where needed and have the capabilities necessary to support current and future military mission requirements. Creating and sustaining a long-term network of ranges requires a management framework that effectively addresses mission requirements, environment and natural resource management, and the interests and aspirations of the local community.

DoD has developed the SRI to create the framework for addressing these fundamental issues. Strategic elements of this initiative include policy, programming, leadership and organization, legislation and regulation, outreach and engagement, an information enterprise, and comprehensive reporting to Congress. A key component of the SRI is the annual Report to Congress on Sustainable Ranges (SRR).

The 2011 SRR updates DoD's prior reports and addresses:

- Service methodologies and approaches for determining range requirements (Chapter 2)
- Service-specific mission based assessment using standardized range capability attributes and encroachment factors (Chapter 3)
- Critical range-related issues identified by the Military Services (Chapter 3)
- Progress toward the Office of the Secretary of Defense (OSD) and Service-based goals and key milestones for developing a sustainable range management program (Chapter 4)
- Approaches for reducing encroachment factors through partnerships with State and local governments, other Federal agencies and nongovernmental organizations (Chapter 4)
- Current and planned funding associated with range sustainment (Chapter 4)
- New program directions, priorities, and management initiatives (Chapter 5)

The 2011 SRR specifically:

- Accelerates the annual report development schedule to more closely align with the submission of the President's budget
- Limits discussion of test and evaluation (T&E) ranges to the aspects of their use in supporting training

- Updates Service-specific information on goals and milestones
- Puts additional emphasis on "Military Service Special Interest" issues for each branch of service and identifies critical ranges issues
- Responds to specific commentary offered by the U.S. Government Accountability Office (GAO) on the 2010 SRR
- Maintains the structure and format of the 2010 report with minor alterations to enhance comparability

1.1 Background

To properly prepare U.S. forces for mission success, DoD must train at ranges that have the types of natural conditions and operational contexts personnel and systems may encounter during their deployments. As such, sustaining a diverse set of range resources is critical to ensuring readiness and military effectiveness. Using realistic training ranges allows DoD to:

- Foster the development and maintenance of operational proficiency and mission readiness
- Enable increased force operational survivability and mission success
- Provide realistic environments needed for the development of tactical operational and strategic concepts, and tactics, techniques, and procedures
- Support the operational testing, evaluation, and improvement of system maneuverability, reliability, and effectiveness in the range environment outside of the laboratory or development facility

Increased operational tempo and overseas deployments, specifically to support operations in Iraq and Afghanistan, have put the ability of some existing range resources and infrastructure to continue supporting training at the required level under additional strain. These challenges, in addition to the constraints placed on range activities due to their proximity to growing communities and their associated economic development, are very real concerns for the Services.

In addition to training activities, some ranges also support tactics development and other similar activities. Other ranges principally support test and evaluation (T&E) activities related to system development and operational testing. Sustaining ranges that are primarily focused on supporting T&E activities is also critical to national security, partly because a significant amount of training occurs there. In many cases, capability requirements and encroachment impairments are quite different, depending on whether the primary focus of the activity in question is training or testing based. For example, frequency spectrum conditions that may be acceptable for training may not be sufficient for T&E purposes.

To sustain these valuable assets, the SRI emphasizes a comprehensive approach to the sustainability of all ranges. It provides visibility at the highest leadership levels through an Overarching Integrated Product Team (OIPT) made up of senior leadership in the Readiness, T&E, and Installations and Environment areas of responsibility. The SRI advocates for policy and funding in support of range sustainability and provides coordination of efforts between OSD and the Military Services. Additionally, the SRI provides a common framework for development of partnerships with other Federal agencies, State agencies, local governments, and nongovernmental organizations to work cooperatively on issues of mutual concern. Examples of this cooperation include the Southeast Regional Partnership for Planning and Sustainability (SERPPAS) and the multi-partner efforts included in many REPI projects.

DoD does not exclusively use DoD-managed areas to conduct training and testing/evaluation activities. It also utilizes land that is owned or managed by other Federal agencies like the Bureau of Land Management and non-government organizations along with privately and State-owned lands. With the permission of other nations, DoD also utilizes various land, air, sea, and undersea spaces and international areas for training. DoD must deal with various stakeholders to create the conditions required to best sustain ranges, support its missions, and stakeholders' interests.

1.2 Legislative Requirements and GAO Comments to the 2010 Report to Congress on Sustainable Ranges

The 2011 DoD Report to Congress on Sustainable Ranges (SRR) is an update to the 2010 report. It was developed in response to Section 366 of the 2003 National Defense Authorization Act (NDAA).[1,2] Congress required DoD to develop a comprehensive plan to address training constraints caused by limitations on the use of military lands, marine areas, and airspace that are available in the United States and overseas for training of the Military Services. Section 366 also required DoD to submit an annual progress report to

1 See Appendix A: National Defense Authorization Act Language for the full text of the cited sections.

2 Section 366 was enacted in the Bob Stump National Defense Authorization Act for Fiscal Year 2003, Public Law 107-314. The terms "range" and "operational range" were given statutory definitions in the FY2004 NDAA. Consequently, the terms and coverage of Section 366 from FY2003 are not entirely consistent with the later enacted definitions. Because DoD interprets Congress' intent for Section 366 to encompass more than operational ranges (as defined in the law), and because it is DoD's objective to provide Congress with an accurate and definitive statement of our training requirements, this report does not apply statutorily defined terms of "range" or "operational range." While this report does use the term "range," it does so in the context of that term's usage in Section 366, which is clearly broader than provided for in the statutory definition in 10 United States Code (U.S.C) 101(e).

Congress along with the President's budget through fiscal year 2013.

NDAA Section 366 requires GAO to provide Congress with an independent evaluation of DoD's annual report on sustainable ranges. In its assessment of the 2010 SRR, GAO acknowledged that:

- DoD addressed most Section 366 elements and that the report more fully addresses Congressional requirements.
- The report is responsive to the requirement that DoD describe the progress made in implementing its sustainable ranges plan.
- The report includes improvements to its standardized criteria and common factors for assessing the adequacy of current DoD resources to meet current and future requirements.
- The report updates the goals and milestones for tracking planned actions and measuring progress.
- The report updates the designated lead offices responsible for overseeing implementation of the range sustainability plan.

GAO had no formal recommendations on the 2010 SRR, but recognized these significant improvements:

- DoD reported future funding estimates of its range-sustainment efforts beyond the budget year for the first time.
- The report included measurable range-sustainment goals and milestones.
- The data became more meaningful because additional context on range assessments was included and the narrative was moved from the appendix to the body of the report.

This SRR makes continued progress toward improvement in identifying measurable goals and milestones, providing increased context to range assessments in the form of historical perspectives and future projections, and in explaining changes in funding.

1.3 Linking the 2011 Report to Congress on Sustainable Ranges to Other Reporting Requirements

DoD notes that the REPI Report to Congress, required separately under Section 2822 of the fiscal year (FY)2006 NDAA, describes funding, partnerships, and actions that protect habitat and ensure compatible land use around installations. The REPI report provides substantial information on how DoD has effectively employed the Congressional authority granted under Section 2684a of the FY2003 NDAA to enter into agreements with private organizations and State or local governments to limit incompatible development and preserve diminishing open space around military ranges and installations. As such, the REPI Report to Congress compliments this report in addressing actions taken by the Department to mitigate encroachment on military installations and ranges that require, or may reasonably require, safety or operational buffer areas. The SRR and REPI Report to Congress both respond to Congressional reporting requirements, but target different aspects of the Department's comprehensive efforts to fully capture mission requirements, current asset capability, and current and future risks to the these capabilities from encroachment. The focus of the SRR is on training. While the report also touches on test and evaluation (T&E) ranges, it does so only to the extent that these ranges support training activities and in the broader perspective of DoD's overall Sustainable Ranges Initiative. Beginning with the 2010 T&E Strategic Plan, the test community will report biennially on the encroachment factors impacting research, development, test, and evaluation activities biennially. This reporting will be based on the assessment survey process developed for the training ranges in the SRR. However, it will be modified to fit the needs of the T&E community to ensure that encroachment issues become a key consideration in the planning and maintaining of a robust T&E infrastructure throughout DoD.

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2 Current and Future Training Requirements

2.1 Development of Training Requirements

The quality and availability of range resources and infrastructure are fundamental to military readiness. The U.S. military operates the largest and most diverse training enterprise in the world. Its ability to train in realistic environments directly affects its current readiness and future mission success. Service members receive training opportunities that cover all the skills needed to ensure they are deployed safely and have the highest possible chance of achieving mission success and survival. To ensure Service members continue to receive these training opportunities, the appropriate training range resources and infrastructure must be available.

The Military Services must also clearly communicate their range requirements to the training support or range communities. While the Services use similar processes to develop their training requirements, they are not identical. These processes provide a structure to systematically develop requirements based on a series of strategic guidance documents and other information sources which include:

- The National Security Strategy of the United States
- The National Military Strategy of the United States
- Guidance for Development of the Force
- Guidance for Employment of the Force
- The Universal Joint Task List (UJTL) of the United States and global security environment, in which the military will operate
- Operational and functional profiles of the weapons and related systems that are available today and are expected to be available in the near future
- The lessons learned from military experience, training evolutions, and experimentation.

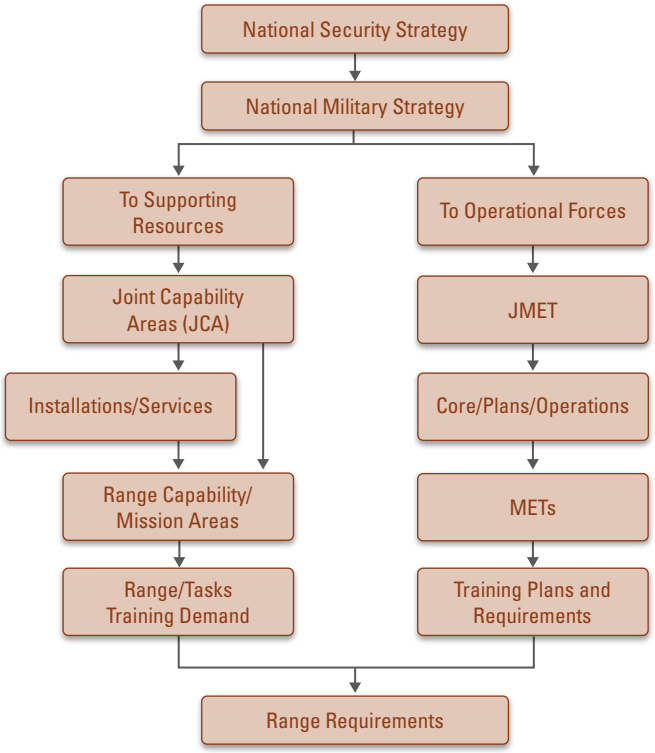
The Military Services determine how they will operate in the future by looking at the strategic guidance documents and working down to more specific tactics, techniques, and procedures. Next, they identify and develop mission essential tasks (METs) based on planned operations, the UJTL, and the Joint Mission Essential Task List (JMETL). The Military Services then develop training plans to ensure that their forces are proficient in executing the METs. These training plans are the foundation for the development of range resources and capabilities to support the execution of the Military Services' METs. Figure 2-1 details this process for the development of range requirements.

2.1.1 Assessing Current and Future Requirements

The Military Services generate training requirements through a comprehensive set of processes specific to their own mission and command structure that are used to develop, document, and execute training objectives and requirements. These processes link training strategies and requirements to a standard training curriculum based on Military Service specific and joint tasks identified in the UJTL and Mission Essential Task Lists (METLs). Common elements include assessing current and future requirements, data collection, and a management system tool to assist in assessing and quantifying encroachment impacts and the supporting documentation and plans that guide implementation. A variety of publications, including doctrinal reports, guidance documents, instructions, and annual messages or updates, prescribe the processes thoroughly and precisely.

Future training requirements can be grouped into two categories: near-term and long-term. Near-term training requirements can be generated with a higher degree of fidelity because the Military Services can more easily anticipate the near-term strategic environment operating concepts, and

Figure 2-1 Training Requirement and Range Requirement Development Process



technological capabilities. The ability to anticipate these elements originates from intelligence forecasting, trend analysis, training provided in current and evolving military tactics, strategic planning, educational opportunities with regard to transformational concepts, and knowledge of existing and planned system acquisition activities.

Assessing long-term training requirements is significantly more challenging because of greater uncertainty surrounding the strategic environment, operating concepts, and technological capabilities. However, this uncertainty is somewhat lessened because platforms, weapons, and systems are more capable; aircraft and vehicles travel farther and faster; sensors detect at longer distances, platforms accurately deliver weapons at greater distances; and communications systems carry and transmit more data. As the strategic environment, doctrine, tactics, and weapon systems change in the future, the Military Services will need to change the way they train and prepare for future missions. Changes in training will put new and, perhaps, unforeseen demands on range resources and infrastructure to address new or additional requirements to maintain readiness and support mission success.

2.2 DoD Training Transformation Program

SRI activities and efforts support and complement DoD's Training Transformation Program. The program was developed to address near-term training challenges associated with an uncertain and increasingly complex strategic environment, as well as an increasing need for joint training and interoperability. It provides dynamic, capabilities-based training for DoD personnel in support of evolving national security requirements across the full spectrum of integrated operations. The three capabilities of the program are described in Table 2-1.

2.2.1 Joint National Training Capability

Formally established in January 2003 under Management Initiative Decision 906, the underlying concept of the Joint National Training Capability (JNTC) is to train and prepare forces to operate globally through the development of a joint training infrastructure. The joint training infrastructure has four requirement pillars that guide training design; there must be credible and adaptive opposing forces, instrumentation that provides a common ground truth among the participants, effective data sharing, and high quality feedback to improve the assessment of joint training events. The JNTC is a significant addition to DoD's training infrastructure. It was envisioned as a permanently installed global communications network, designed to significantly reduce the amount of time required to configure and execute training in a live, virtual, and constructive (LVC) environment.

Table 2-1 Training Transformation Program Capabilities

Training Transformation Program Pillars	Description
Joint Knowledge Development and Distribution Capability	Focuses on individual training and education to enhance an individual's ability to intuitively think "jointly."
Joint National Training Capability (JNTC)	Focuses on collective training and preparing forces by providing units and commands staff with an integrated live, virtual, and constructive (LVC) joint operational training environment.
Joint Assessment and Enabling Capability (JAEC)	Focuses on assessing Training Transformation Program performance, and supporting tools and processes, to enable and enhance joint training and assess how such training meets validated Combatant Commander readiness requirements.

For this report, the JNTC is relevant because it addresses range sustainability and modernization efforts. It also focuses on LVC training and the role LVC plays in addressing training requirements and readiness and reporting systems. Detailed information on the Training Transformation Program can be found in DoD's Strategic Plan for the Next Generation of Training[3] and FY06-FY2011 Implementation Plan.[4]

The integration of LVC training strategy and policy as a component of near-term and long-term future training requirements is particularly relevant for the purposes of this report. Reporting on LVC is responsive to the NDAA Section 366(a) (2) (B) requirement that DoD address the adequacy of current resources, including virtual and constructive training assets. An overview of LVC training and the increasingly

important role it plays in providing realistic, comprehensive, and cost-effective training is detailed in the following paragraphs.

Live, Virtual, and Constructive Training

The following definitions clarify live, virtual, and constructive (LVC) in the training environment. The individual components of LVC training are identified and described in Table 2-2.

The DoD Training Environment is utilized primarily for training and provides the ability for integrated forces to conduct training operations nearly identical to real-world operations. It is composed of LVC domains that provide a seamless and transparent environment with fully functional interaction between participants to the limit of their respective operational system capabilities, when integrated. The Military Training Environment, as shown in the high-level operational concept (Figure 2-2), will be an evolutionary family-of-systems approach, linking a network of interoperable LVC components to provide the appropriate Joint context required for training and mission rehearsal.

The capability will provide a comprehensive training environment that includes:

- Interoperation of live participants and their operational systems.
- Realistic LVC representations of non-participant friendly warfighting capabilities across the full range of military operations (ROMO).
- Realistic LVC representations of opposing forces (OPFOR), neutral, and factional entities that may be required for the scenario. It is impossible to produce a level of adversary support sufficient to stress these high-technology platforms and sensors in the live domain without the integrated joint threat emitter (JTE) and its inherent capability to stimulate live sensors with synthetic entities.
- Suitable representations of the real world environment where the warfighting capabilities exist.

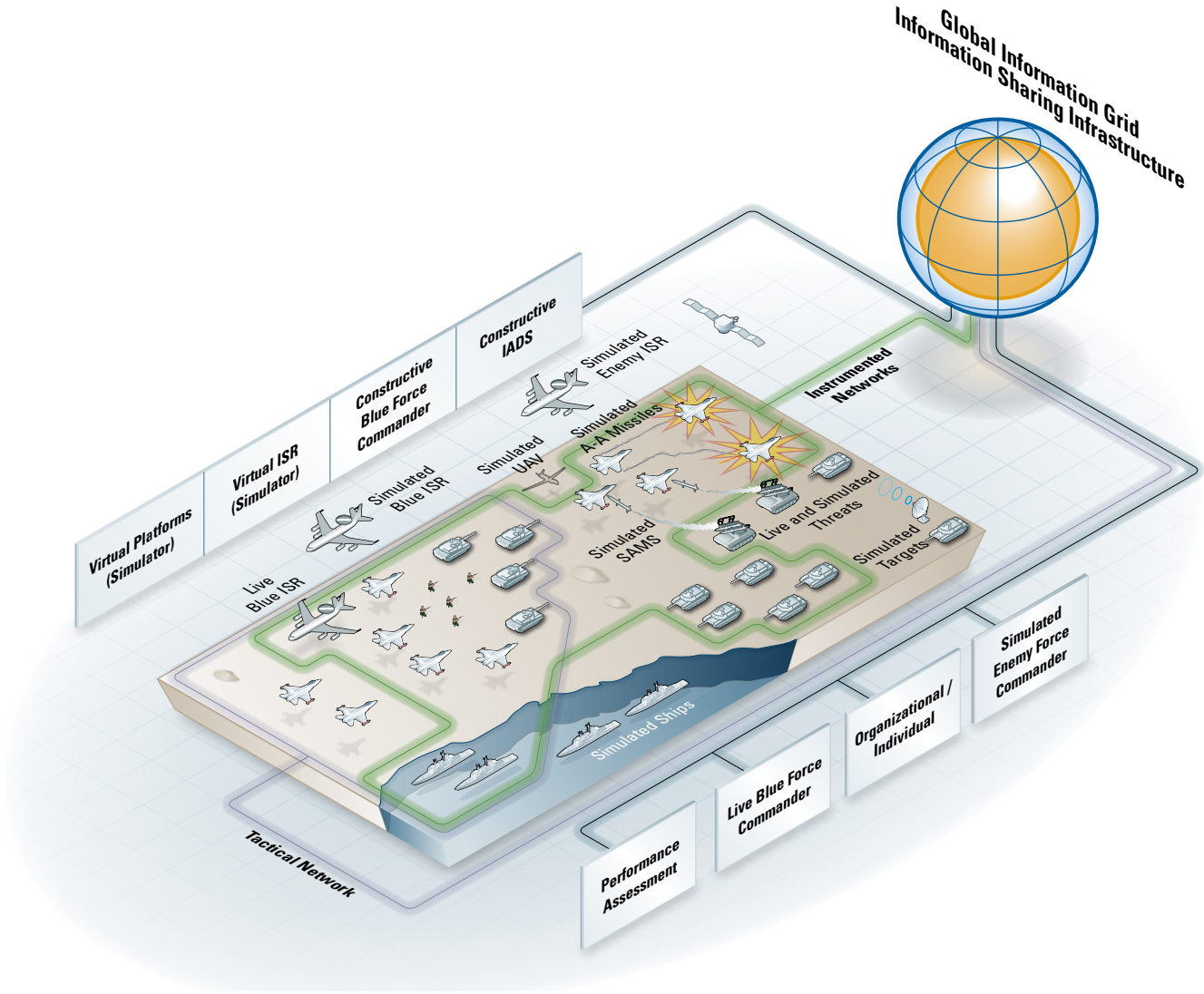
Table 2-2 Live, Virtual, and Constructive Training

LVC Training Component	Description
Live	▸ **Live Training**—Training where the training audience operates their operational systems and platforms (including their full range of mobility and capability) in the physical environment for which they were intended. ▸ **Live Training Domain**—The training domain where participants operate operational systems and platforms (including their full range of mobility) in the physical environment (land, sea, air) for which they were intended. The many parameters defining the live domain are fixed in physics rather than synthetic scenario generation, and constrained by the real environment (e.g., weather) that exists, to which the virtual and constructive domains must align in the integrated LVC training environment. Simulations used in the live training domain are used to maintain scenario validity during training. These models, *i.e.,* "scoring simulations" are used to automatically in the real time, assess hard and soft weapon effects on targets, incorporating countermeasure effects and other participant actions or behaviors that affect the outcome of the event. Synthetic entities can be injected into live sensors and systems to enhance the live environment. Neither the use of scoring simulations nor presence of synthetic entities makes the live environment a synthetic environment. This domain is commonly enhanced by the extensive employment of training systems (instrumentation and simulations) embedded in the live environment.
Virtual	▸ **Virtual Training**—Training where training audience operates simulators, emulators, or operational systems in a synthetic environment. ▸ **Virtual Training Domain**—The training domain where participants operate simulators, emulators, or operational systems in a synthetic environment. Fidelity may vary from "lightweight" laptop emulations, to full motion, domed simulators. Virtual components provide a very flexible capability, predominantly used for individual training in the specific platform or function being simulated, but may be linked to provide additional complexity and fidelity to the virtual training environment. Participants from the virtual domain can be injected as entities into live training operations through sensor stimulation, adding depth and breadth to the operation for those that can detect, display, and interact with the virtual entities. Virtual entities can also be injected into constructive simulations as entity participants in the synthetic mission-space. Collective applications include stand alone virtual mission training of combined forces, and integrated with live training providing individual platform augmentation to live force training.
Constructive	▸ **Constructive Training**—Training where the training audience, typically command and staff trainees, conducts activities in an environment constituted by a constructive simulation. The trainees provide stimulus to simulated forces at different levels and act upon consequences generated by the simulation. ▸ **Constructive Training Domain**—The training domain where the participants, typically command and staff trainees, conduct activities in an environment constituted by a constructive simulation. The trainees provide stimulus to simulated forces at different levels and act upon consequences generated by the simulation. A constructive simulation may be "wrapped around" a live operation, adding breadth and complexity to the scenario, providing more challenge to the training audience. Constructive discrete entities may also be injected into live and virtual operations, adding depth and breadth to the operation for those that can detect, display, and interact with the constructive entities. Light constructive simulations can be used to train individuals, small units, teams, and elements of staffs with less preparation than is needed for large-scale simulations.

3 Strategic Plan for the Next Generation of Training for the Department of Defense, 23 September 2010, Office of the Under Secretary of Defense (Personnel and Readiness), Readiness and Training Policy and Programs.

4 Department of Defense Training Transformation Implementation Plan FY2006–FY2011, 23 February 2006, Office of the Under Secretary of Defense for Personnel and Readiness, Director, Readiness and Training Policy and Programs.

Figure 2-2 The LVC Training Environment



- Architecture for easy and rapid integration of those representations into scalable training environments.
- Interfaces to warfighter equipment (e.g., operational platforms [ships, aircraft, and ground vehicles], command and control, communications, intelligence, surveillance, and reconnaissance systems) through connectivity to local and globally distributed venues.

Virtual and constructive training cannot replace the value of live training; however, they can supplement, enhance, and complement live training to sustain unit proficiency, readiness and mission effectiveness.

2.3 Military Service Training Range and OPAREA Requirements

As explained in Chapter 1, DoD installations and ranges are the foundations of the nation's security because they are critical to maintaining the readiness and mission effectiveness of the Military Services. These range assets must be available and adequately resourced when and where needed and have the capabilities to support current and future military mission requirements. Likewise, the Military Services must have the capability to train at ranges with the types of natural conditions and operational contexts personnel and systems may encounter during their deployment. As such, sustaining a diverse set of range resources is critical to ensuring readiness and military effectiveness. Additionally, mission and training objectives for each of the respective Military Services directly influence current and future training range and operations area requirements. The following paragraphs provide insight into the Services' specific assessments of their current range capabilities and encroachment challenges and how they impact the ability to meet current and future training objectives.

2.3.1 Army Requirements

Overview

The Army Campaign Plan (ACP) directs the planning, preparation, and execution of Army operations within the context of the transformation of the current to the future force. The ACP is the framework, which organizes and synchronizes the many changes underway as the Army builds a campaign-capable, joint and expeditionary force. ACP components, including Modularity, Global Defense Posture and Realignment (GDPR), Base Realignment and Closure (BRAC), Overseas Contingency Operations (OCO), and the Grow the Army Initiative, are driving changes to Army training range and operating area (OPAREA) requirements. Training requirements and operational activities associated with these components are creating readiness challenges by increasing both the number of fielded units and the level of training being conducted in the United States. These challenges, coupled with new weapons systems capabilities and new doctrinal maneuver space requirements, continue to place pressure on existing training land assets.

Prior to BRAC 2005, the Army identified a shortfall of maneuver training land on the majority of its major installations in the continental United States. The shortfall is based on a doctrinal requirement of 12 million acres against total Army assets of 7 million acres as reported in DoD's 2004 SRR. In addition to doctrinal requirements, BRAC 2005 consolidations, GDPR moves, and Army Force Generation (ARFORGEN), increases in the area of operations for Brigade Combat Teams (BCT) will compound the Army land shortfall.

Stationing and transformation are long-term initiatives designed to support and sustain the Army into the future. In 2003, the Range and Training Land Strategy (RTLS) was approved as a component of the Army's Sustainable Range Program to address the Army's increasing land deficit. The RTLS helps the Army prioritize its training land investment and helps to optimize the use of range and training land assets. The RTLS provides a long-range plan for the Army to make available the best range and training land assets, and a framework for the Army to select the most appropriate course of action to address training land shortfalls. In analyzing land requirements, the Army does not focus on high operational tempos or surge requirements. Instead, the Army conducts its training requirements planning based on the peacetime assumption that all units are at home station and available to conduct training. The Army is currently reviewing and updating the RTLS. The final revision will capture Chief of Staff, Army ARFORGEN guidance on home-station training requirements and the level of maneuver training required for Active Component and Reserve Component units. This guidance and analysis could affect overall maneuver training requirements and adjust the total Army training land shortfall. The revised final RTLS is anticipated to be complete by the end of FY2011.

Current and Future Range Requirements

Army range facilities are currently adequate to meet the throughput and surge requirements necessary to support training for current operations; however, funding the operation of range facilities under the expanded training schedule required to keep pace with ARFORGEN is increasingly challenging. The ARFORGEN model places units in a reset, train/ready, or available pool and will result in units experiencing longer periods of home-station dwell time. The Army resources its range operations on a home-station training schedule; however, Army installations are operating their ranges, particularly collective training and urban operation training facilities, for reset and mobilization on a round the clock schedule for short, intense periods of time. For example, range staff at Camp Atterbury, Indiana, and Camp Shelby, Mississippi, have doubled the number of range personnel to accommodate expanded training schedules. Funding to operate ranges under these conditions has become increasingly difficult for the Army, with Commanders having to use OCO funds to supplement range operations above peacetime levels.

Currently, many of the Army's range facilities have not been modernized to meet new weapons systems requirements or satisfy changes in training standards and doctrinal requirements. This strains the ability of existing range facilities to support current and near-term future requirements. To address this challenge, the Army is assessing its range assets and constructing new ranges in a continuous and integrated management approach through the Sustainable Range Program (SRP) modernization planning process. This process integrates mission support, environmental stewardship, and economic feasibility at the installation, Army Command, Installation Management Command, and the Headquarters Department of the Army (HQDA) levels to effectively support current and future range and training land requirements.

The modernization planning process begins at the installation level with an analysis that calculates and compares doctrinal and other requirements derived from Army standards, training strategies, and individual unit Mission Essential Tasks (METs). This analysis process assesses ranges and training land against current assets, utilization rates, environmental conditions and requirements, and infrastructure to determine shortages and overages of ranges and training lands. The Army Range and Training Land Program requirements model automates the analysis process and provides the installation and HQDA with a report identifying facility shortages and excesses, as well as the number and type of ranges and the associated maneuver acres necessary to support live training. Based on this analysis, installations submit to their Commands a prioritized list of range projects needed to correct shortages and modernize existing range facilities.

Commands review and consolidate each installation's project list using the Live Fire Training Investment Strategy (LFTIS). Commands forward their LFTIS to the Requirements Review

Prioritization Board (RRPB), which validates requirements and prioritizes projects by fiscal year for funding. Approved projects are incorporated into the Army Master Range Plan, a database for all approved range projects. At the installation level, the planning process results in the creation of a Range Complex Master Plan (RCMP). The RCMP is a sustainable range operations tool that supports long-range planning and day-to-day integrated decision-making. Installations have started using the tool to initiate an integrated decision making process for sustainable range planning and the Army is continuing to refine the RCMP Tool for installations.

The Army continues to work towards modernization goals to best match range capabilities with Army training requirements. The overarching ACP provides a focus for range investments to meet unit stationing and transforming capabilities. Achieving range and training land capabilities that enable digitally linked forces to train for a wide spectrum of missions remains a top Army priority. Large instrumented live-fire ranges, such as Digital Multipurpose Range Complexes (DMPRCs) and Battle Area Complexes (BAXs), provide centerpiece capabilities that enable full spectrum training events.

The Army also seeks to improve training capability through targeted and prioritized training land acquisition when specific feasibility criteria are met. Feasibility criteria include large, contiguous land holdings, low population density, minimal environmental restrictions, and low land cost. The Army will enter the marketplace and purchase training land only when these factors exist and the acquisition is feasible from both fiscal and community relations perspectives. This strategic approach helps the Army offset anticipated encroachment by moving training away from more densely populated areas. Candidate parcels must provide a significant solution to an existing installation deficit before being considered for purchase. Training land is one of the Army's most critical assets. The Army is dedicated to sustaining and optimizing training land use to ensure soldier readiness now and into the future.

Additional Army Information on Expansion Initiatives

The Army's strategy for acquiring training land is based on an assessment of Army Campaign Plan requirements against current land assets by installation. Based on further demographic, geographic, and environmental analysis, the Army identifies which installations have potential for expansion. Installation specific requirements and proposals are captured locally in the installation Range Complex Master Plan (RCMP). The RCMP is reviewed, updated, and approved annually. The following is an update of the Army's ongoing land expansion projects that have been approved by OSD.

- Fort Polk—OSD initially approved the Fort Polk expansion proposal in July 2008 and final approval to proceed with land purchase was granted in April 2010. The National Environmental Policy Act (NEPA) process began in April 2009 and the final environmental impact statement and record of decision were completed in the summer of 2010. The Army Corps of Engineers made the first offer to purchase in February 2011. Negotiations are on-going and the Corps is continuing to conduct property appraisals on additional land parcels.
- Fort Benning—OSD initially approved the Fort Benning expansion proposal in January 2010. The NEPA process began in August 2010 and the final environmental impact statement and record of decision are anticipated to be complete in late 2011. The Army Corps of Engineers is currently completing the real estate planning report.
- Texas Army National Guard—OSD approved the South Texas Training Site (approximately 85 miles due south of San Antonio) expansion proposal in March 2008. The U.S. Army Corps of Engineers has completed the real estate planning report and the National Environmental Policy Act (NEPA) process was initiated in December 2010.
- Fort Irwin, National Training Center (NTC)—NTC land acquisition is nearing completion. The Army Corps of Engineers is currently negotiating the purchase of the final acres of mitigation land using prior year funds. These actions are expected to be completed in 2011. The final expansion areas are expected to be opened for training in 2013.
- Fort Carson, Pinon Canyon Maneuver Site (PCMS)— OSD approved the Fort Carson, PCMS expansion proposal in February 2007. The Army currently has no plans to expand PCMS and accordingly has not requested any funds be programmed in the Department of Army budget (FY2012–2016) for the acquisition of land at PCMS over the next five years. In addition, the Army will consult with the Colorado Congressional delegation, Senate and House defense committees, and local communities, before taking any action to request funding for land acquisition at PCMS.

Mission Areas

Current and future range requirements are based upon the ability of a range to support Army operational functions or mission areas. Mission areas are groups of tasks and systems (people, organizations, information, and processes) united by a common purpose that commanders use to accomplish mission and training objectives. These mission areas are listed in Table 2-3, and defined in Appendix B.

Effective live training is the cornerstone of operational success. The training of critical tasks that individual, crew, platoon, and companies have to accomplish to be combat ready is directly related to the availability and capability of live fire ranges and maneuver areas. The continued improvement of live fire ranges and facilities remains the key to Army readiness. Live fire ranges and facilities are expected to be even more important as the Army implements the ARFORGEN

Table 2-3 Army Mission Areas

Mission Areas	
Movement and Maneuver	Sustainment
Fire Support	Command and Control (C2)
Intelligence	Protection

strategy. ARFORGEN will place all units continuously in a rest, train/ready, or available status, incurring greater cumulative training demand on ranges and training areas.

Army doctrine requires combined arms training based on teamwork and synchronization among units as they prepare for wartime combined arms operations. Combined arms proficiency results from regular practice of combat missions and tasks in the live domain. It starts with the development of individual skills. Individual skills, when combined and practiced, build unit proficiency from crew through brigade task force. The modernization of Army ranges under the SRP, supported by the Range Modernization Requirements Planning Process, supports this doctrine.

A key component of the Army's overall modernization process is the construction of the next generation of Army ranges—digital ranges. These ranges will provide soldiers and units with the capability to exercise digital command and control in a live-fire training environment, as well as provide unprecedented situational awareness, tailored scenarios, and immediate feedback required to prepare for multiple threat environments. Next generation Army digital ranges are identified and described in Table 2-4.

To meet evolving training challenges, the Army is modernizing its inventory of ranges to more effectively support training for multiple purposes, weapons, and combined arms through the incorporation of new capabilities, instrumentation, and digital technologies into standard range designs. The Army has 39 types of modernized ranges. The capabilities and standard configurations for these ranges are found in Training Circular 25-8 (TC 25-8), which is currently being updated to include changes in ranges to meet new doctrinal requirements, new weapons systems, and new training standards. The ranges described in the circular represent the inventory of standard and modernized Army range facilities categorized into major subgroups as small arms ranges, urban operations training facilities, and collective training ranges.

New ranges have been added to the inventory of modernized ranges as a result of new doctrinal changes: the Convoy Live Fire Course and the Digital Air-Ground Integration Range (DAGIR). Changes in existing range designs have been made to increase range capabilities, add technology, and increase throughput capacity to match new training standards and support new weapons systems qualifications. The new family of modernized ranges will replace older types still in the Army's inventory that cannot accommodate new training or weapons systems requirements.

Table 2-4 Next Generation Army Digital Ranges

Range Type	Description
Digital Air Ground Integration Range (DAGIR)	The DAGIR is replacing Digital Aviation Gunnery Ranges. The DAGIR is designed to train and qualify Army Aviation (helicopter) crews, teams/platoons, and companies/troops. It will support aerial operations, reconnaissance, and target engagements, such as joint tactical engagements and convoy live fire training. The DAGIR will include open and urban terrain, and targets supporting simultaneous, integrated air and ground operations. The DAGIR will be included in the updated version of TC 25-8, Training Ranges.
Battle Area Complex (BAX)	The BAX provides a collective live fire training facility for all elements in the Stryker Brigade Combat Team (SBCT). SBCT crews and dismounted soldiers train to detect, identify, engage, and defeat stationary and moving combined arms targets in both open and urban terrain environments. The BAX supports live fire operations independently of, or simultaneously with, supporting vehicles in free maneuver. All targets are fully automated, utilizing event-specific, computer-driven target scenarios and scoring.
Digital Multi-Purpose Range Complex (DMPRC)	The DMPRC complex is used to train armor, infantry, and aviation crews, sections, squads, and platoons to detect, identify, engage, and defeat stationary and moving infantry and armor targets. Combined Arms Live Fire Exercises may be conducted on this facility. The DMPRC supports dismounted infantry platoon live fire operations independently of, or simultaneously with, supporting vehicles. All targets are fully automated, utilizing event-specific, computer-driven target scenarios and scoring.
Digital Multi-Purpose Training Range (DMPTR)	The DMPTR complex is used to train crews and dismounted infantry squads to detect, identify, engage, and defeat stationary and moving infantry and armor targets. The complex is specifically designed to meet the training and crew qualification requirements for armor, infantry and aviation crews, and sections. The DMPTR supports dismounted infantry squad live fire operations independently of, or simultaneously with, supporting vehicles. All targets are fully automated, utilizing event-specific, computer-driven target scenarios and scoring.

2.3.2 Marine Corps Requirements

Overview

Marines, Marine units, and Marine Air-Ground Task Forces (MAGTFs) require operational ranges that meet the training demands of modern warfare, including sufficient land area, airspace, seaspace, frequency spectrum, and training range infrastructure to safely and effectively accomplish the full spectrum of mission-essential training.

The Marine Corps' Mission Capable Ranges Initiative, executed by the Training and Education Command, guides Marine Corps range planning and investment. The objective of this initiative is to develop and sustain a comprehensive portfolio of modern ranges and controlled airspace that supports the entire training continuum, from the individual training level to large-scale exercises of the MAGTF. Live-fire training events are a hallmark of, and critical to, the Marine Corps' approach to preparing for combat, and its range modernization and transformation programs reflect this focus.

Identifying operational range requirements is a dynamic process because range requirements depend on training needs and are determined by changing operational requirements. Marine Corps ranges must support training cycles for wartime deployments, which is of immediate concern. Furthermore, range capabilities must be enhanced to support both current and future training with mission-capable ranges.

Continued analysis and the fielding of new systems may cause other requirements to surface in the future; however, the current gaps in training capability include:

- The inability to exercise a large scale MAGTF in a "live" training scenario, including expeditionary maneuver from the sea and distributed operations
- The lack of a capable East coast aviation training range to accommodate the increased airspace and weapons requirements of precision guided munitions and the joint strike fighter
- Inadequate training opportunities for the Marine units stationed in the Western Pacific

The Marine Corps is actively addressing these gaps through proposed land acquisition and airspace expansion at Marine Corps Air-Ground Combat Center (MCAGCC) Twentynine Palms; assessment of the feasibility of expanding existing aviation range capabilities in the eastern United States; and investment in long-term planning for enhanced training capabilities in the Western Pacific.

The Marine Corps' planned reorganization will generate additional requirements that will impact range planning and utilization throughout the Marine Corps. A significant force relocation issue is the inter-governmental agreement between the U.S. and Japan to relocate some existing Marine Corps forces from Okinawa to Guam. The Marine Corps Range and Training Area Management (RTAM) office is heavily engaged in providing the necessary planning support to the Joint Guam Program Office and the Commanding General, Marine Forces Pacific.

Marine Corps installations are managed to maximize efficient use of training land and resources; however, internal and external limitations can constrain the ability to meet training requirements. Encroachment into the vicinity of Marine Corps installations, operational ranges, and training areas can create resource (land, air, water, frequency spectrum) uses that are incompatible with current and future military training and general mission activities.

No operational range in the Marine Corps inventory currently includes or is projected to include surplus land; deficits currently exist at many of the Marine Corps' operational ranges as described in the detailed analysis later in Chapter 3. The Marine Corps has initiated a strategic assessment of its land requirements; however, geographical and fiscal constraints will prevent the Marine Corps from addressing all shortfalls. The Marine Corps will continue to rely on its current resources and use other Military Services' ranges to meet most of its training needs. It will aggressively invest in range modernization and transformation to address as many shortfalls as possible using its available resources.

The Marine Corps' planning is centered on six cornerstone objectives:

- Preserving and enhancing live-fire combined arms training, including the capability to support large-scale exercises
- Recapturing littoral training capabilities at Camp Lejeune and Camp Pendleton
- Leveraging technology to provide feedback for better training
- Lessening encroachment
- Facilitating cross-service utilization
- Supporting the Joint National Training Capability

The Marine Corps is confident that it will continue to receive the support and resources necessary to provide the range capabilities required to fully train Marines, sailors, units, and MAGTFs.

Current and Future Requirements

Mission Capable Ranges support the Commandant of the Marine Corps' Vision and Strategy 2025 Initiative. Vision and Strategy 2025 advances a modernization strategy, focused on range requirements of future ground and aviation weapon systems. It includes required linkages between the Marine Corps installations and other-Service ranges and the execution of training in live, virtual, and constructive environments. Vision and Strategy 2025 also advances the Marine Corps encroachment control program, focusing on initiatives that optimize access to training ranges, airspace, and frequency spectrum required for training.

Identifying future operational range requirements is an inherently dynamic process, in that range requirements depend on training needs determined by changing operational requirements. Marine Corps ranges must support training cycles necessary to prepare individual Marines and Marine Corps units for current wartime deployments, which is an immediate concern. Furthermore, range capabilities must be continuously enhanced to support current, emerging, and future training requirements with modern ranges that are relevant to the full spectrum of conflict. Several factors affect operational range requirements, both Service-wide and at a particular installation, including:

- Developing operational doctrine
- Evolution of tactics, techniques, and procedures (TTPs)
- Fielding of new weapons and systems

- Evolving missions of the training ranges
- Training load (throughput)

The Mission Capable Ranges program is structured to identify and address future range requirements that arise in this dynamic framework. It is both forward-looking and responsive, in that it anticipates possible emerging and future range requirements, while maintaining the flexibility to address immediate range needs to support current training of the operating forces. The Mission Capable Ranges program implements a detailed planning process for determining range requirements and investment priorities. One foundation of this program is Marine Corps Reference Publication (MCRP) 3-0C, Marine Corps Operational Training Ranges Required Capabilities. This MCRP describes training land, airspace, and required range facilities necessary to execute the training continuum. Based on the MCRP, installation-specific Range Complex Management Plans (RCMP) are developed to guide execution of range transformation. The Marine Corps has completed RCMPs for its major training bases, except Marine Corps Base Japan and Marine Corps Base Quantico, for which the RCMP is in development (completion in FY2011). In addition, regional RCMPs have been initiated or are planned for Marine Corps Installations (MCI) West (in progress) and MCI East (planned FY2011).

The Marine Corps is aggressively investing in range modernization and transformation. Since 2004, the Marine Corps has invested (or is in the process of investing) over $500 million in ranges. Lines of operation for range modernization under the Mission Capable Ranges program consist of: (1) sustainment of ranges to maintain capabilities and protect range investments; (2) re-capitalization to upgrade or replace existing ranges and range resources; and (3) investment in new ranges that leverage advanced range instrumentation, targets, and training systems. The objective is to develop and sustain a comprehensive portfolio of modern ranges including airspace that supports the entire training continuum today and well into the future, from training of the individual Marine to large-scale exercises of the Marine Air Ground Task Force (MAGTF). Specific range capabilities that will complement this comprehensive portfolio of modern ranges include three ongoing Marine Corps efforts at MCAGCC Twentynine Palms, Guam, and Townsend Bombing Ranges. A more detailed discussion of the seriousness of these present and future range requirements is included in the Chapter 3 Marine Corps Special Interest Section and the Goals and Milestones section of Chapter 4.

Mission Areas

Marine Corps forces are organized, trained, and equipped to deploy as MAGTFs. MAGTFs are scalable, task-organized force consisting of these elements: Ground Combat Element, Aviation Combat Element, Logistics Combat Element, and Command Element. The size and composition of a MAGTF depends on its mission. The Marine Expeditionary Force (MEF) is the largest MAGTF. While the Marine Expeditionary Brigade (MEB) is a large-scale MAGTF, it is smaller than an MEF. and the smallest standing MAGTF is a Marine Expeditionary unit (MEU). Special task-organized MAGTFs can be built as missions and requirements dictate, to include training and exercises. Each MAGTF trains to execute six warfighting functions, (e.g., Maneuver, Fires, Intelligence, Command and Control, Logistics, and Force Protection). Training of the MAGTF proceeds on a continuum of individual skills training, unit training for MAGTF elements, MEU-level training, and MEB / large-scale MAGTF training. The Marine Corps organizes its range classes or range mission areas to align with the stages of the training continuum. These mission areas are identified in Table 2-5 and defined in Appendix B.

Table 2-5 Marine Corps Mission Areas

Level of Training	Training Environment and Range Requirements
Individual Warfighting Skills	▸ programmed instruction ▸ fixed ranges / individual movement areas / Special Use Airspace (SUA) ▸ specialized ranges such as small Military Operations in Urban Terrain (MOUT) facilities
Unit Training (smaller units)	▸ scenario-based training ▸ fixed ranges / fire and movement ranges / small maneuver areas / SUA ▸ specialized ranges such as small MOUT facilities
Unit Training (larger units/ MAGTF elements)	▸ dynamic decision-making in event driven training exercises ▸ fire and maneuver ranges / large maneuver areas / SUA ▸ specialized ranges such as large MOUT facilities
MEU Training Exercises	▸ fully integrated, multi-dimensional training ▸ extended fire and maneuver areas for multi-day training events ▸ extensive SUA ▸ specialized ranges such as large MOUT facilities
Large-scale MAGTF / MEB Training	▸ fully integrated, multi-dimensional training ▸ extended fire and maneuver areas for multi-day training events ▸ extensive SUA ▸ specialized ranges such as very large MOUT facilities

2.3.3 Navy Requirements

Overview

Today's high performance aircraft and ships employ weapons of significant capability and complexity with unique training and delivery characteristics that require a robust training range/operating area infrastructure. The Navy accomplishes most of its training on ranges and operating areas located near concentrations of forces in the United States and its territories. These areas enable high fidelity training facilitated by exercise coordinators. For safety purposes, these areas also provide a training space with reduced or restricted civilian traffic. Additionally, Naval forces train on Army-, Air Force-, and Marine Corps-controlled ranges. Shared and joint use of ranges, both in the U.S. and abroad helps to economize time and resources spent on travel while simultaneously exposing Naval forces to the joint environment.

The Navy's Range Complexes allow for training in support of the Composite Warfare Commander (CWC) concept. Each Carrier Strike Group and Amphibious Ready Group must master multiple mission areas enabling the aviation, surface, and submarine forces to work in an integrated manner. This CWC construct presents unique challenges for the Navy Range Complexes, which must offer realistic training across diverse and complex mission areas to meet Navy readiness and deployment requirements.

Generation and validation of requirements for Navy training ranges in the United States and its territories falls under the purview of U.S. Fleet Forces (USFF). Type Commanders (TYCOMs) and various lower echelon commands control the ranges that are tenant commands on Navy installations. For example, the ranges in the San Diego area are grouped into the Southern California (SOCAL) Range Complex. SOCAL contains several land, water, and air ranges managed by the Commander Pacific Fleet (CPF).

While CPF and subordinate elements, such as the Southern California Off Shore Range (SCORE), control the day-to-day training operations on the ranges, the Regional Environmental Coordinator on the staff of Navy Region Southwest manages the environmental issues for all ranges within its region. Due to the common administrative requirements influenced by the geographic proximity of the range components, the Navy manages its ranges as range complexes. For inventory and budgeting purposes, the Navy groups ranges, and sometimes sets of small complexes, to provide efficiencies.

Current and Future Requirements

Training requirements, as opposed to training range requirements, are defined by the Numbered Fleet Commanders (NFCs) and TYCOMs. Each is responsible for establishing the training requirements in Navy Warfare Areas for the various air, surface, and sub-surface forces. To prepare for the Planning, Programming, Budgeting, and Execution (PPBE) process, the TYCOMs obtain input from their subordinate commands to determine what training range capabilities and space are needed. Those requirements are forwarded to the fleet level, USFF and Pacific Fleet, for validation. USFF forwards the requirements to the Chief of Naval Operations for assessment as input to the Navy's Program Objective Memorandum (POM) submission process.

The Navy's highest level range requirement is to provide forces with the land, air, sea-space, and frequency spectrum necessary to support the Fleet Response Plan (FRP). To meet the requirements of the FRP, the Navy has developed a Fleet Response Training Plan (FRTP). To meet the milestones in the FRTP, the Navy has a geographically dispersed set of training complexes on each coast, Hawaii, and in the Western Pacific that provide the areas necessary to conduct controlled and safe training scenarios that are representative of the conditions Navy personnel will face in meeting their assigned tasks, either in peacetime operations or armed conflict. Table 2-6 summarizes the four FRTP training phases.

All Navy range complexes have developed individual RCMPs to ensure codification of requirements and capabilities of the various range complexes.

Navy training ranges will play a critical role in supporting training for the operational forces well into the 21st Century. The Navy anticipates that through 2025, the continuing requirement will be to support all phases of the FRP. Strategic planning for Navy complexes will include support for future training operations, as well as improvements to infrastructure to support the JNTC. Range capabilities will be addressed in individual RCMPs. The Navy will use these plans to implement Navy and DoD sustainable ranges policies, and to assist in evaluating new requirements throughout the PPBE process.

Mission Areas

The Navy defines range functions as the ability to support training in mission-essential Naval warfare areas. These mission areas are provided in Table 2-7 and defined in Appendix B.

Table 2-6 Navy Fleet Response Training Plan Phases

Training Plan Phase	Description
Maintenance	Maintenance is the preferred period during the entire FRP in which major shipyard or depot level repairs, upgrades, and modernization will occur. In addition to completion of maintenance requirements, units continue to focus on individual/team training and achieving unit level readiness. To better accommodate TYCOM unit maintenance and training schedules, the basic phase may precede maintenance in part or in whole.
Basic (Unit Level Training)	The basic phase focuses on completion of TYCOM[5] unit level training (ULT) requirements—team training both onboard and ashore, unit level exercises both in port and at sea, unit qualifications, assessments, qualifications, and certifications. During the basic phase, a unit will maximize the use of both distance learning options for individual skills development, and in port synthetic training. Successful completion of the basic phase ensures units are proficient in all required Navy Mission Essential Task capabilities, meet TYCOM certification criteria, and are ready for more complex integrated training events. ULT follows a cyclical "assess, train, and certify" process which has been instituted by the TYCOMs.
Integrated	The goal of integrated phase training is to synthesize unit/staff actions into coordinated strike group operations in a challenging, multi-warfare operational environment. This phase provides an opportunity for strike group decision makers and watch-standers to complete staff planning and warfare commanders courses; conduct multi-unit in-port and at-sea training; and to build on individual skill proficiencies attained in their respective basic phase. The integrated phase is adaptable in order to provide training for Major Combat Operations, Surge certification, Ready certification, and/or tailored training to support emergent Combatant Commander requirements.
Sustainment	The sustainment phase begins upon completion of the integrated phase, continues throughout the post deployment period, and ends with the commencement of the maintenance phase. Sustainment consists of a variety of training evolutions designed to sustain operation readiness as a group, multi-unit, or unit, until and following deployment. Sustainment phase training exercises units and staffs in multi-mission planning and execution, and to interoperate in a joint/coalition environment. In-port and at-sea sustainment training allows forces to demonstrate proficiency in operating as part of a joint and coalition combined force and ensures that proficiency is maintained in all Navy METs in order to maintain Major Combat Operations Ready status. The extent of training will vary depending on the unit's anticipated task and length of time in an MCO Ready status. During sustainment, units/groups maintain an Major Combat Operations Ready status until the commencement of the maintenance phase unless otherwise directed by Navy Fleet Commanders. Unit/group integrity during this period is vital to ensure integrated proficiency is maintained, particularly for strike groups. Deployments in support of Combatant Commander Global Force Management requirements may occur within the Sustainment Phase after numbered Fleet Commanders re-certify groups and units.

Table 2-7 Navy Mission Areas

Mission Areas	
Strike Warfare	Mine Warfare
Electronic Combat	Amphibious Warfare
Anti-Air Warfare	Anti-Submarine Warfare
Anti-Surface	Naval Special Warfare (NSW)

2.3.4 Air Force Requirements

Overview

DoD readiness is impacted by limitations on the use of military lands, marine areas, and airspace. To address and further understand these impacts, the Air Force Air Combat Command (ACC) partnered with the RAND Corporation in 2001 to investigate a requirements-based approach for determining its range and airspace infrastructure needs. The goal of the study was to develop an analytical structure for translating ACC operational requirements into training requirements, and then into infrastructure requirements. It sought to establish a comprehensive, objective statement of ACC range and airspace requirements linked to national interests, and a corresponding approach to compare the adequacy of existing infrastructure with those requirements. A relational database was created to serve as an information repository and allow for analysis of the relationships among the three different elements. This process is described in the following paragraphs.

Prior to 2001, alternative range and airspace resource determinations were based primarily on statements of apparent gaps between requirements and existing capabilities. The Air Force determined that more effective decisions could be made if both the requirements and current asset capabilities were stated more explicitly, with resource decisions based on rigorously derived gap assessments. To be defensible, range infrastructure and resource requirements must be linked firmly to training requirements, which in turn must be linked directly to the operational requirements of the Air Force in the conduct of its individual and joint national security missions. Additionally, for a requirements-based approach to succeed, an efficient means of comparing existing infrastructure capabilities with these vetted requirements would be needed. Figure 2-3 illustrates the framework at the core of the Air Force requirements translation process.

5 TYCOMs are responsible for the aircraft, ships and submarines that make up the Navy's operational numbered fleets. Numbered fleets (e.g., 2nd Fleet, 5th Fleet, 6th Fleet, etc.) are immediately subordinate to major fleet commands (e.g. Atlantic and Pacific Fleets). They are comprised of various task forces, elements, groups, and units organized for the purpose of prosecuting specific naval operations.

Figure 2-3 Framework for Developing Air Force Infrastructure Requirements

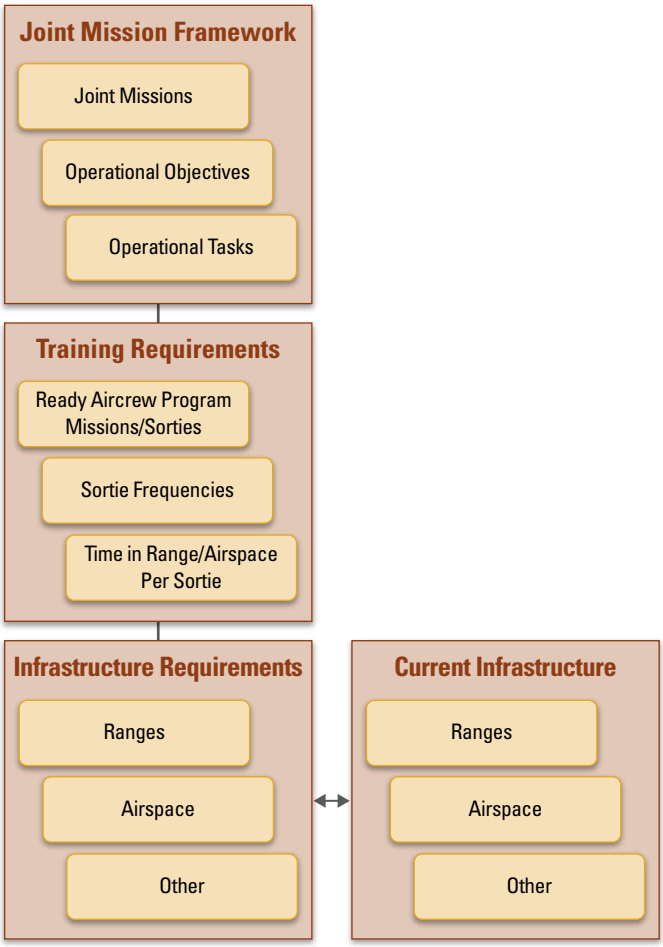


Figure 2-4 Linking Training Activities to Air Force Range Infrastructure Requirements

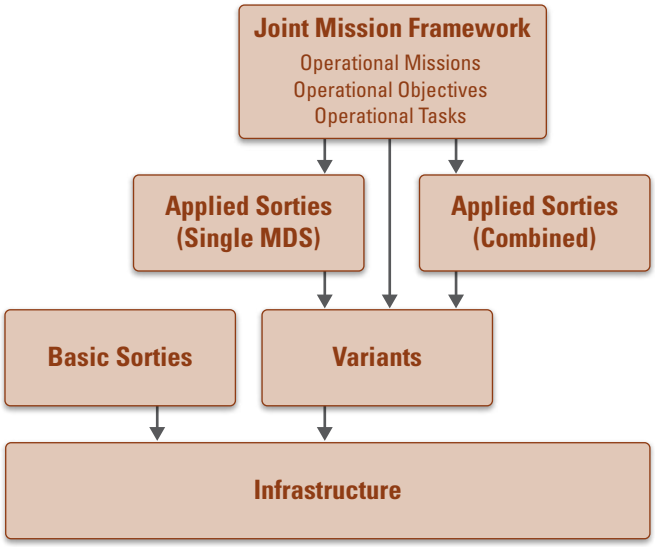


Table 2-8 Air Force Mission Areas

Mission Areas	
Strategic Attack	Command and Control (C2)
Counterair	Air Drop
Counterspace	Air Refueling
Counterland	Spacelift
Countersea	Special Operations
Information Operations	Intelligence, Surveillance, and Reconnaissance
Electronic Combat Support	

Current and Future Requirements

The first step in this requirements identification and translation process starts with the development of a Joint Mission Framework. This framework focuses on effects to be achieved for a joint commander without regard to how those needs might be met. This framework was developed because existing statements of operational requirements did not readily lend themselves to a strategies-to-task linkage to training requirements because they were too detailed, too context-specific, and classified at a level impractical for open communication with the public. The UJTL and its derivatives, the JMETL, and Air Force Task List support the strategy-to-task approach.

The second step in this process is to relate training activities to operational requirements as detailed in the Joint Mission Framework, and also to training resource needs, specifically range and airspace infrastructure requirements. In doing this, the Air Force focused on applied and combined sorties, as derived from the Ready Aircrew Program.

The third and final step in the Air Force range requirements development process is to evaluate operational and training requirements, and translate them into required range and airspace infrastructure. This is accomplished by grouping and dividing range and airspace infrastructure based on geographic, quantitative, and qualitative characteristics. From a geographic perspective, the required range infrastructure must be reasonably close to base operating locations. The available training time on nearby ranges and airspace must be sufficient to support the training requirements of an operating base. For a given Mission Design Series (MDS)/sortie-type combination, the requirements are translated into capacity, or the amount of operating time required on ranges and in airspace, by multiplying the required number of sorties by the time required for an individual sortie on a range and/or in an airspace. Qualitative characteristics (and corresponding information on existing assets) must satisfy certain requirements, such as minimum dimensional requirements, availability of required range equipment, and authorized operation of aircraft and

systems in specific ways. Qualitative characteristics were captured for six infrastructure types: ranges, low-level routes, maneuver areas, threats, orbits, and other.

Based upon the initial success of the study, the Air Force has decided to undertake a follow-on project to provide a better foundation for ongoing and future analyses, and expand the preliminary relational database to include training other than continuation training, training for newer combat air force (CAF) MDS and weapons, and training for non-CAF MDS. The relational database will be expanded to capture and document emerging requirements and changes to the range and airspace infrastructure. The existing Air Force process for translating operational requirements into training and infrastructure requirements shall remain the Air Force standard until the follow-on study is completed.

Operating Space Considerations in Basing Decisions

The Air Force is continually involved in making basing decisions for the bed-down of new aircraft and/or redistribution of current force structure. Air Force senior leadership recognizes the need to define and establish a framework for making decisions on where, and in what order, to locate these aircraft to best meet Air Force fleet-wide requirements. This framework requires all basing actions to be conducted in a strategic manner rather than follow the individual step-wise process that has been used in the past.

The Air Force strategic basing process considerations fall into two basic categories. The first category addresses whether or not the aircraft can physically be located at a particular site. The second category addresses whether or not a weapon system should be based at a particular location. The first category lends itself to quantitative analysis, while the second depends on less quantifiable factors that senior Air Force leaders are uniquely experienced and qualified to judge and use in making final decisions on the most appropriate location for a particular set of aircraft.

The first consideration addresses whether or not a particular installation can or can be made to accommodate the aircraft and enable it to operate from the location, conduct the necessary training and be able to deploy or conduct operations directly in support of a combatant commander, or combatant command (COCOM). This consideration is quantifiable in terms of facilities nature, size, overall capacity, availability of and proximity to required airspace and ranges, compatibility with aircraft operating characteristics, environmental constraints and costs associated with introducing the weapon system. These factors are measured against specific standards and identify the possible options within the existing set of potential installations. The Air Force has made a great effort to quantify the factors beyond runway length, ramp size, and hanger space to include quantifiable factor for ranges, airspace, and environmental. While the specific weighting of these factors may change depending on the weapons system being addressed, all current and future Air Force basing actions will address these factors.

The second consideration takes the quantifiable score from above and uses it with other non-quantifiable factors to determine whether or not a weapon system should be based at a particular location even if the "capability" exists. These factors can be described as military judgment and take into account military dynamics such as Air Force strategic planning, joint training opportunities, homeland defense, and Total Force Integration (TFI). These factors also take into account non-military aspects such as but not limited to; population distribution, demographic/cultural factors, air quality, endangered species, and State and local zoning issues. This new repeatable and defendable process has been established to develop the most sustainable deployment of all Air Force assets worldwide.

Corporate Operating Space Management Construct

This initiative seeks to increase the effectiveness and efficiency of AF Operating Space (physical or virtual space used for operations, test, or training) management and utilization by leveraging and integrating the efforts of existing bodies and processes. This effort will apply across the live, virtual and constructive domains of air, space, cyber, information operations (IO), Distributed Mission Operations (DMO), operational, test, and training communities to provide timely information to decision makers within the Air Force Corporate Structure (AFCS).

The objective of this Construct is to increase effectiveness and efficiency of operating space management across the live, virtual and constructive (LVC) domains of air, space, cyber, information operations (IO), distributed missions (DM), operational, test, and training communities by:

- Leveraging resources
- Specifying range configurations for common investment areas
- Reinvigorating the previously chartered AFRIC and CTR sharing the relevant proceedings of the OTICC, modifying and utilizing the ARC to communicate actions across the communities
- Aligning actions to the Air Force corporate structure timelines to gain timely shared advocacy throughout the Air Force corporate structure

This Construct will:

1. Reinvigorate the Air Force Range Investment Council (AFRIC) and Combat Training Range (CTR)
2. Outline organizational participation in and directs crosstalk between the AFRIC, CTR, OSD Test Investment Coordinating Committee (OTICC), and the Airspace and Range Council (ARC)
3. Reiterate the use of only existing Planning, Programming, Budgeting and Execution (PPBE) practices, constructs, and procedures as they apply to the ten common investment areas as defined by Air Force Instruction (AFI) 13-212

   Note: This Construct does not involve transfer of funds, responsibility, manpower (leveling), or workload between or among MAJCOMs, beyond what is currently established by AFI, Charter, or other existing guidance. Missions or mission requirements unique to a MAJCOM (e.g. space launch and special operations) are likewise, beyond the scope of this Construct.

Mission Areas

The Air Force classifies ranges based upon their ability to support thirteen specific types of air warfare training.

These training events, or mission areas, are listed in Table 2-8, and defined in Appendix B.

3 Adequacy of Existing Range Resources to Meet Training Requirements

NDAA Section 366(a)(2)(B) requires DoD to evaluate the adequacy of current range resources. Additionally, NDAA Sections 366(c)(1)(B) and (C) require DoD to identify training capabilities and existing constraints. In response, DoD has further developed its annual assessment process to evaluate the adequacy of ranges to provide the required training support and the current impacts of encroachment in terms of risk to the assigned training missions conducted at each range.

In 2007, DoD began assessing the adequacy of ranges to support required training as well as the actual impacts of encroachment. In 2008, DoD and the Military Services worked together to build a common set of capability attributes and encroachment factors, and standard criteria to evaluate them against for the purposes of this report. The common attributes and factors, as well as the standard evaluation criteria lead to a consistent assessment and analysis across the Military Services. A discussion of the assessments and the results of the standardization efforts are discussed in the following sections.

3.1 Assessment Methodology and Examples

As part of the evolving assessment process, DoD coordinated a more streamlined approach for assessing the impact of range capabilities and encroachment (constraints/restrictions that inhibit accomplishment of training in support of mission readiness) on Service-defined mission areas, which are presented in Chapter 2, and defined in Appendix B. The result was detailed guidance and definitions for 13 common capability attributes and 12 common encroachment factors to ensure consistency and standardization in the assessment variables. The assessment process is reviewed annually by the Services and OSD and adjustments are made as necessary to refine the accuracy and value of the resulting assessments. The Military Services have the responsibility for identifying the ranges for assessment and then conducting and providing the assessments to the SRR.

3.1.1 Capability Assessment

Beginning in 2008, the following 13 common capability attributes were developed and identified by the Military Services for assessment and reporting processes:

- Landspace—Physical land area that has the necessary features such as topography, vegetative cover, configuration, proximity, capacity, usability, acreage, etc.
- Airspace—Physical volume of airspace that has the necessary features such as types of use, configuration, proximity, capacity, amount, etc.
- Seaspace—Physical sea-surface area that has the necessary features such as types of use, configuration, proximity, capacity, amount, etc.
- Underseaspace—Physical volume of underseaspace that has the necessary features such as ocean bottom type, depth, types of use, configuration, proximity, capacity, amount, etc.
- Targets—Various land, air, sea, and undersea presentations designed for live or simulated weapons engagement.

- Threats—Various physical and simulated threat presentations such as emitters, opposing adversary forces, battlefield affect simulators, etc.
- Scoring and Feedback Systems—Equipment that provides information for training event reconstruction, debriefing, and replay, whether virtual or live, through the collection and storage of time and space position information (TSPI), weapons accuracy, systems and operator accuracy, assessment and monitoring of operator performance, and C4I network information flow.
- Infrastructure—Buildings, structures, or linear structures (e.g., roads, rail lines, pipelines, fences, pavement).
- Range Support—Personnel, software, and hardware that support daily range operations, maintenance (including range clearance), and communication networks for command and control, scheduling, and range safety as examples. Communications networks include: inter- and intra-range systems point-to-point; range support networks; fiber optic and microwave backbones; information protection systems such as encryption, radio, and data link; and instrumentation frequency management systems.
- Small Arms Ranges—Small arms refer to ranges that accommodate weapons systems that fire rounds up through 40mm and produce duds.
- Collective Ranges—Collective refers to ranges that provide proficiency at the team or unit level for battlefield operations.
- Military Operations in Urban Terrain (MOUT) Facilities—MOUT facilities refer to terrain complexes that replicate urban environments.
- Suite of Ranges—The suite of ranges is a nominal make-up of range attributes and is intended to provide the baseline requirement for each level of training. The elements include various types of ranges such as maneuver/training area, impact areas, live-fire ranges, aviation ranges, and MOUT complexes that must be coordinated to conduct required training events.

Military Service-specific mission areas (as listed in Chapter 2, and defined in Appendix B) were assessed and evaluated against the 13 capability attributes using a color rating scheme. These assessments were based on range usage with regards to accessibility and usability during normal operations using the following rating scale:

- Red—The range is not mission capable. It is unable to support required training tasks for a given mission area to prescribed doctrinal standards and conditions.
- Yellow—The range is partially mission capable. It can partially support required training tasks for a given mission area to prescribed doctrinal standards and conditions, resulting in marginalized training for the range users.
- Green—The range is fully mission capable. It can support required training tasks for a given mission area to prescribed doctrinal standards and conditions.
- White (Blank)—White (blank) represents the situation where an assessment for a given mission area is not performed against a particular attribute. If a complete mission area is "white," there is no requirement for the range to provide training in this area. When conducting the encroachment assessment for this same range no encroachment factors will be assessed for this mission area.

3.1.2 Encroachment Assessment

The impact to mission readiness from encroachment is difficult to assess. It is important to understand that encroachment causes range users to find workarounds to complete their training and increases mission risk. Over time, this can result in a specific mission failure. While some adaptation by the Services' operational forces can be expected, workarounds resulting from encroachment have the potential to increase mission risk due to unrealistic, segmented, or irrelevant training, and can possibly result in a deterioration of training content and/or quality. Therefore, as part of DoD's efforts to standardize the assessment of encroachment on training ranges, the Military Services were tasked to assess the current impacts of the following 12 encroachment factors, against their Service mission areas (as listed in Chapter 2, and defined in Appendix B).

- Threatened & Endangered Species/Critical Habitat—Constraints placed on training due to regulatory requirements and/or Military Service guidance to manage at risk, threatened, or endangered species or associated habitat.
- Munitions Restrictions—Constraints placed on training due to regulatory requirements and/or Military Service guidance on munitions use, munitions constituents, or residue to include range clearance. Restrictions placed on munitions use due to weapon safety footprint requirements are assessed as capability attributes under Landspace, Airspace, Seaspace, and Underseaspace. Other constraints from munitions use that have an encroachment factor available such as Noise, Air Quality, Water Quality, and Transients are assessed under those factors.
- Spectrum—Constraints placed on training due to unavailability of or interference with required electromagnetic spectrum.
- Maritime Sustainability—Constraints placed on training due to regulatory requirements and/or Military Service guidance to protect and sustain the maritime environment. This includes marine mammals and sonar issues.

- Airspace—Constraints placed on training due to the availability of airspace. These constraints may be spatial or temporal.
- Air Quality—Constraints placed on training due to regulatory requirements and/or Military Service guidance to maintain air quality.
- Noise Restrictions—Constraints placed on training as a result of mitigation measures for unwanted sound generated from the operation of military weapons or weapon systems. These restrictions affect people, animals (domestic or wild), and structures on or in proximity to military training areas. Noise restrictions do not include occupational noise exposure or underwater sound.
- Adjacent Land Use—Constraints placed on training due to incompatible development in proximity to military training areas.
- Cultural Resources—Constraints placed on training due to legal and/or regulatory requirements and/or Military Service guidance to manage and maintain cultural resources.
- Water Quality/Supply—Constraints placed on training due to legal and/or regulatory requirements and/or Military Service guidance to manage water quality and supply.
- Wetlands—Constraints placed on training due to legal and/or regulatory requirements and/or Military Service guidance to manage wetlands.
- Range Transients—Constraints placed on training due to the unannounced or unauthorized presence of individuals, livestock, aircraft, or watercraft transiting ranges.

Military Services assessed the ranges and range complexes against the impact from each of the factors on their range/range complexes' abilities to support its assigned training missions. These assessments were based on availability and use of the range using the following rating scale:

- Red—The encroachment factor has a severe effect or high risk to the range's ability to support its assigned mission training and would likely cause the training mission to fail. Mitigating the encroachment would involve prohibitive costs or actions for the range.
- Yellow—The encroachment factor has a moderate impact or medium risk on the range's ability to support its assigned mission training. Workarounds have a moderate impact on training content, procedure, or outcome. Addressing the encroachment results in additional burdens or requires additional actions by the range to mitigate the impact of the encroachment.
- Green—The encroachment factor has minimal impact or low risk on the range's ability to support its assigned mission training. Workarounds detract minimally or not at all from training content, procedure, or outcome. Costs are not incurred by the range or range users to address the encroachment factor.
- White (Blank)—White (blank) represents the situation where an encroachment factor does not exist for a given mission area.

3.1.3 Explanation of Individual Range Assessment Details and Observations

Each Military Service's individual ranges/range complexes were assessed for their ability to support their assigned training missions using the 13 common capability attributes and 12 common encroachment factors using the red, yellow, and green rating scales discussed above. The display of individual range assessments has changed this year to improve the context, clarity, and flow of the report. Both the capability and encroachment assessments for each range are still displayed side-by-side. To improve the readers understanding of the range being assessed a brief description of the range's mission has been added above the assessments. Next, charts are provided showing both the capability and encroachment assessment. An explanation for how to read and interpret these charts is discussed below. Pie charts depicting the overall distribution of red, yellow, and green ratings are presented with calculated rating scores on a scale of 0 to 10. The overall rating scores for both capability and encroachment assessments are weighted average scores with 0 assigned for each red rating, 5 for each yellow rating, and 10 for each green rating. Below the chart and scores are summary observations. The summary observations provide information on what encroachment factors and capability attributes are most impacting the range's ability to perform its assigned mission along with those mission areas most severely impacted. The section on historical information, results, and future projections provides a more qualitative assessment with several pieces of information. Overall rating scores from prior years are presented along with comments as to whether the range complex's capabilities or encroachment pressures have been improving or degrading over the years and the outlook for the future. Following the assessment details are detailed comments for each range grouped by capability observations and encroachment observations. The observations consist of comments for red and yellow assessment ratings that explain the problem or shortfall, how it is impacting training, and any planned actions to remedy the situation.

Figure 3-1 Example Assessment and Analysis

Range Name: Range A

Range Mission Description

Range A is the Army's premier armored training facility supporting 199,541 acres of training area, including a 63,000-acre impact area for live-fire training and a 134,600-acre maneuver area capable of accommodating a combat- heavy brigade consisting of 300 tracked and 900 wheeled vehicles. It also operates the 15,900-square-mile Helo Training Area designated for aviation training.

Capability Data

Mission Areas	Capability Attributes												
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Mission Area #1	●	●			●	●	●	●	●	●	●	●	●
Mission Area #2	●	●			●	●	●	●	●	●	●	●	●
Mission Area #3	●	●			●	●	●	●	●	●	●	●	●
Mission Area #4	●	●			●	●	●	●	●	●	●	●	●
Mission Area #5	●	●			●	●	●	●	●	●	●	●	●

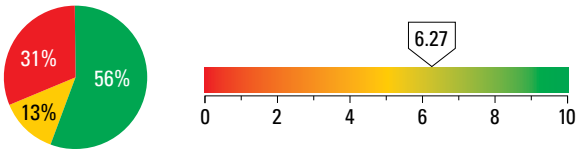
Legend: FMC ● PMC ● NMC ●

Encroachment Data

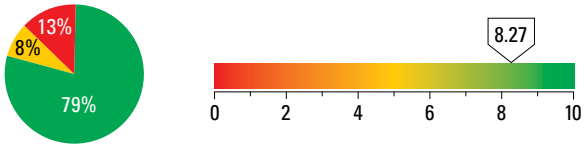
Mission Areas	Encroachment Factors											
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Mission Area #1	●	●			●	●	●		●	●	●	●
Mission Area #2	●	●			●	●	●	●	●	●	●	●
Mission Area #3	●	●	●		●	●	●	●	●	●	●	●
Mission Area #4	●	●	●		●	●	●	●	●	●	●	●
Mission Area #5	●	●	●		●	●	●	●	●	●	●	●

Legend: Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

31% of Range A's mission areas are NOT mission capable (NMC)

13% of Range A's mission areas are partially mission capable (PMC)

56% of the Range A's mission areas are fully mission capable (FMC)

Small Arms Ranges, Airspace, Suites of Ranges, and MOUT Facilities Attributes are impacting Range A's overall capabilities.

Mission Area #5 is the mission area that is most impacted.

Summary Observations

13% of Range A's mission Ares are severely impacted (severe risk)

8% of Range A's mission Areas are moderately impacted (moderate risk)

79% of Range A's mission Areas are minimally impacted (minimal risk)

At Range A, Wetlands, Adjacent Land Use, Air Quality and Airspace are impacting the over all mission risk.

Mission Area #3 is the mission area that is most impacted.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Capability Scores	5.51	5.87	6.10

The increase in capability scores over the past three years are due to improvements in internal data collection and reporting processes. During the course of the next 3-5 years, Range A's capability score is expected to show improvement as additional small arms ranges are constructed and plans for a Military Operating Area are finalized.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Encroachment Scores	6.53	6.75	7.91

The steady increase in encroachment scores is attributed to REPI initiatives and funding to reduce the encroachment pressures at Range A. However, in the coming years, urbanization trends and associated impacts will result in encroachment due to eastward sprawl and an anticipated increasing population of Red Cockaded Woodpeckers (endangered spices) due to habitat destruction off range. This will most likely result in complete and seasonal training restrictions in some areas decreasing the range's throughput capacity. Range A is seeking to address these impacts through the use of the Compatible Land Use Buffer Program and a translocation program in cooperation with the Fish and Wildlife Service.

3.1.3.1 Example Capability Assessment and Analysis

The following discussion details an example Capability Assessment and Analysis. Figure 3-1 illustrates the format DoD used to collect, evaluate, and analyze range capability data.

This example shows that Range A is being assessed against its ability to support training for its five mission areas. As seen above, the red ratings for Airspace in Mission Areas 2 through 5 indicate that the airspace is insufficient to support prescribed doctrinal standards or conditions for one or more of the training tasks associated with Mission Areas 2 through 5. Other red ratings, indicating capability attribute shortfalls that are severely impacting mission areas are: Targets for Mission Areas 2 and 5, Scoring and Feedback Systems for Mission Areas 1 and 5, Small Arms Ranges for all five mission areas, and Suite of Ranges for Mission Areas 2, 4, and 5.

Less severe impacts can be seen in the yellow ratings, such as those for Threats and Range Support in Mission Area 4, Scoring and Feedback Systems for Mission Area 3, and MOUT facilities in Mission Areas 2 through 5. For yellow ratings, there are shortfalls in prescribed doctrinal standards or conditions such that training for a certain task(s) in a mission area will be degraded. Limited or no impact describes the majority of attributes for Range A, as indicated by the green ratings. These attributes are sufficient to provide training in the five mission areas according to the doctrinal conditions and standards for the training tasks assigned to the users.

Where a capability is assessed against a mission area, a red, yellow, or green rating is assigned. Where capabilities are not required at a given range, or not assessed, the blocks are rated white. Where training for a mission area does not apply to a given range, all capabilities are assessed white and encroachment for that mission area is not assessed as well. The completed table provides the information used to generate the pie-chart and overall rating on the 0 to 10 scale for the capabilities Range A provides in the five different mission areas. This data represents a snapshot in time for a given reporting cycle and does not provide trend information. To assess changing conditions over time at an individual range, individual range assessments must be viewed across the years with understanding of all the factors that can change an assessment from one year to the next.

To represent the overall distribution of red, yellow, and green ratings, the pie chart shows that of the 55 ratings 56 percent (31 ratings) are green, 13 percent (7 ratings) are yellow, and 31 percent (17 ratings) are red. This means, for example, that of all the capability factors necessary to provide assigned training for Range A, 31 percent are so severely degraded that some facet of training cannot be accomplished to even a marginal level.

In this example, the weighted average score provides the overall rating on a 0 to 10 scale as previously described. The Capability Score of 6.27 was calculated from 31 green, 7 yellow, and 17 red responses. Additionally, two attributes were not assessed, giving white ratings, for two complete Mission Areas (10 blank boxes). Using the number of ratings for each color and the weighting of 0 for red, 5 for yellow, and 10 for green, the total weighted score for this example is 345. The weighted average is determined by dividing the weighted score (345) by the total number of responses (55).

3.1.3.2 Example Encroachment Assessment and Analysis

The following discussion details an example Encroachment Assessment and Analysis. Figure 3-1 illustrates the format DoD used to collect, evaluate, and analyze range encroachment information.

This example shows that Range A is being assessed against its ability to support training for its five mission areas. As seen in Figure 3-1, the red ratings for Adjacent Land Use in Mission Areas 3 and 5 indicate that there are some sort of incompatible developments in proximity to the range that are severely affecting or putting at risk the range's ability to support training for those two mission areas. This signifies that the ability to mitigate the encroachment situation would involve prohibitive costs or actions for the range. Other red ratings indicating that severe encroachment situations exist are: Spectrum, Airspace and Air Quality for Mission Area 3, and Wetlands for Mission Areas 4 and 5. Moderate encroachment impacts can be seen in the yellow ratings, such as those for Adjacent Land Use in Mission Area 2 and Noise Restrictions, Water Quality/Supply with Mission Area 3, and Wetlands for Mission Area 1. The number of green assessments indicates that most of the encroachment factors are having minimal to no impact; or present a low risk, on the range's ability to support its assigned mission training. Whatever workarounds are being employed detract minimally or not at all from training content, procedure, or outcome.

Where an encroachment factor is assessed against a mission area, a red, yellow, or green rating is assigned. Where an encroachment factor does not exist for a mission area at a given range, the blocks are rated white as previously defined. The completed table provides the basic information used to generate the pie-chart and overall rating on the 0 to 10 scale, of the impact encroachment is currently having on Range A's ability to provide training for five different mission areas. This data represents a snapshot in time for a given reporting cycle and does not provide trend information. To assess changing conditions over time at an individual range, individual range assessments must be viewed across the years with understanding of all the factors that can change an assessment from one year to the next.

To represent the overall distribution of red, yellow, and green ratings the pie chart shows that of the 52 ratings, 79 percent (41 ratings) are green, 8 percent (4 ratings) are yellow, and 13 percent (7 ratings) are red. This means, for example, that

although the range may be fairly unencumbered by encroachment, there are some factors (13 percent, 7 red ratings) that so severely encroach on the performance of that range's training mission that the range is at risk of failing to support that training.

In this example, the weighted average score provides the overall rating on a 0 to 10 scale, as previously described. The Encroachment Score 8.27 was calculated from 41 green, 4 yellow, and 7 red responses. Additionally, three factors were not assessed (white (blank)) across three Mission Areas (eight blank boxes). Using the number of ratings for each color and the weighting of 0 for red, 5 for yellow, and 10 for green, the total weighted score for this example is 430. The weighted average is determined by dividing the weighted score (430) by the total number of responses (52).

3.2 Assessment Results and Discussions

This chapter is divided into four parallel sections, one for each of the Military Services. The sections provide different views of the assessment data to help eliminate any shortcomings that might result from a singular approach to describing the assessment and technique for viewing the information. After a brief statement on the assessments being presented, a footnote is provided that reconciles any differences between the ranges/range complexes located in the Service's inventory in Appendix C and those assessed in this chapter. Summary information is presented at the start of each Service section drawing on the results of the individual range/range complex assessments.

The information provided includes:

- Assessment Data Summaries—A composite of the capability and encroachment responses (red/yellow/green) are presented for each range in table format and scores calculated using the previously described methodology.
- Pie Charts and Scores—The Assessment Data Summary results from above are aggregated and presented as pie charts with corresponding composite rating scores presented on a sliding scale, using the weighted average methodology previously described.
- Summary Observations—Observations on how the scores and ratings changed from the previous year.
- Historical Information, Results, and Future Projections—The composite scores from prior years are presented along with the top three capability attributes/encroachment factors and associated mission areas rated yellow and red for the current year. General observations are provided by the Service which can be applicable to future capabilities and encroachment issues related to the Service's ability to support training.
- Assessments by Range—Use horizontal bar charts to show the overall distribution of responses by color ratings for each range.
- Assessments by Attributes/Factors—Horizontal bar charts show the aggregated responses by color ratings for each capability attribute/encroachment factor across all ranges and mission areas.
- Assessments by Mission Areas—Horizontal bar charts show the aggregated responses by color ratings for each mission area across all capability attributes/encroachment factors and ranges.

Following the summary data, each Service is provided the opportunity to provide additional information and perspectives on any areas of special interest that impact or may impact their Service's training capabilities and encroachment situation.

While considering these assessments, it is important to keep in mind that although they reflect a long-term enterprise view of a broad DoD training range program, each year's assessments are a snapshot in time. The magnitude of specific changes to any individual capability or encroachment factor due to discrete actions, at a specific range complex from year-to-year need to be considered by comparing reported assessments for that specific range and capability or factor across the years. Additionally, the impact of a capability attribute or encroachment factor differs throughout all of the Services and their ranges. While two ranges (even within a Service) may have severe encroachment concerns from the same encroachment factor, synergistic effects with other factors may be experienced at one range, but not at the other. Accordingly, the data must be carefully considered in order to fully understand the encroachment effects and capabilities degradations on each range. The encroachment and capability scores for a Service's ranges in total should be considered against the backdrop of each range's individual capability and encroachment scores. The capability and encroachment ratings merely evaluate effects on current operations. They do not predict how future operations may be affected by encroachment. Changes in assessment ratings due to changes in doctrine and equipment are not captured by the assessments. Such insights may, however, be seen in the historical information and future projection write-ups provided for each range.

3.2.1 Army[6]

Army Training Range Capability Assessment Analysis Results

The Army Range Capability Assessment data from 15 Army range complexes are summarized and presented in Table 3-1.

The Army Range Capability Chart and Scores are presented in Figure 3-2 and assessments by Range, Attributes, and Mission Areas are shown in Figures 3-4, 3-6, and 3-8.

The Army's 15 individual range capability assessments along with comments for red and yellow ratings are included at the end of this section (Figure 3-11).

Army Training Range Encroachment Assessment Analysis Results

Army Range Encroachment Assessment data from the 15 Army ranges complexes are summarized in Table 3-2.

The Army Range Encroachment Chart and Scores are presented in Figure 3-3 and assessments by Range, Factors, and Mission Areas are shown in Figures 3-5, 3-7, and 3-9.

The Army's 15 individual range encroachment assessments along with comments for red and yellow ratings are included at the end of this section (Figure 3-11).

The Army Range Capability and Encroachment assessment comparisons are presented in Table 3-5.

6 Of the 556 ranges identified in the Army's range inventory in Appendix C, there are a total of 102 that are resourced and fall under the Army's Sustainable Range Program. These 102 ranges comprise three tiers that were established using mission value, to include: unit stationing, institutional schools/other mission support, land asset size, and level of training (individual, crew, collective). Training sites that are not part of the 102 supported sites are typically small individual training ranges that are managed through local Army National Guard (ARNG)/State agreements and policies; the Army only maintains inventory level data for these sites. Although the Army continually evaluates all ranges, only the 21 ranges that represent Tier I sites are included in the assessments due to the impracticality of compiling the information for every range. There are seven ranges inventoried separately in Hawaii that are grouped together for the assessment because they represent a single training complex for management purposes. The Tier I installations represent 88 percent of the training load on Army active duty ranges.

Table 3-1 Army Capability Assessment Data Summary

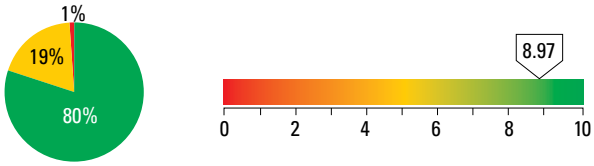
Range	NMC	PMC	FMC	Capability Scores
Fort Benning	5	3	33	8.41
Fort Bliss	0	7	35	9.17
Fort Bragg	0	10	33	8.84
Fort Campbell	0	8	34	9.05
Fort Carson & PCMs	0	6	36	9.29
Fort Drum	0	7	36	9.19
USAG Hawaii	0	11	30	8.66
Fort Hood	0	7	38	9.22
Fort Irwin	0	14	40	8.70
Fort Lewis	0	14	28	8.33
Fort Polk	0	6	39	9.33
Fort Riley	0	7	35	9.17
Fort Stewart	0	10	32	8.81
Fort Wainwright	0	9	33	8.93
Yakima TC	0	4	38	9.52
HQ Army	**5**	**123**	**520**	**8.97**

Table 3-2 Army Encroachment Assessment Data Summary

Range	Severe	Moderate	Minimal	Encroachment Scores
Fort Benning	1	8	30	8.72
Fort Bliss	0	3	38	9.63
Fort Bragg	0	5	36	9.39
Fort Campbell	0	1	40	9.88
Fort Carson/Pinyon Canyon	1	1	50	9.71
Fort Drum	0	0	39	10.00
USAG Hawaii	0	12	33	8.67
Fort Hood	0	4	38	9.52
Fort Irwin	0	15	39	8.61
Fort Lewis	0	12	30	8.57
Fort Polk	0	4	37	9.51
Fort Riley	0	3	30	9.55
Fort Stewart	0	21	25	7.72
Fort Wainwright	0	6	40	9.35
Yakima TC	0	7	34	9.15
HQ Army	**2**	**102**	**539**	**9.18**

Figure 3-2 Army's Capability Chart and Scores

2011



Summary Observations

1. Army's overall capability score increased from 7.61 in 2010 to 8.97 in 2011
2. Army's Fully Mission Capable (FMC) assessments (green) increased from 70% to 80%
3. Partially Mission Capable (PMC) assessments (yellow) increased from 12% to 19%
4. Not Mission Capable (NMC) assessments (red) decreased from 18% to 1%

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Capability Scores	6.49	6.49	7.61

The top three capability attributes with the greatest number of red and yellow assessments are (Figure 3-6):

- Range Support (0+36)
- Small Arms Range (2+26)
- Collective Range (2+14)

The top three Mission Areas with the greatest number of red and yellow assessment are (Figure 3-8):

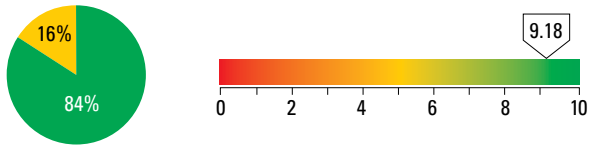
- Movement and Maneuver (3+54)
- Sustainment (2+42)
- Fire Support (0+17)

Army range capabilities in the future must support the operating force (Contingency Expeditionary Force (CEF) strategy and Full Spectrum Operations (FSO) training). The Army is in a transition period to a 1:2 (AC)/1:4(RC) BOD/Dwell near term, with a vision to achieve a 1:3/1:5 in the out-years while moving to more CEFs than Deployable Expeditionary Forces (DEF). This will require more home station range capabilities than the Army has seen over the last seven years. The level of TSS funding needs to be balanced between products, services, facilities, sustainment, and management. Funding levels need to be consistent with critical requirements to address Commanders' needs in the operational and institutional training domains. (See Army Special Interest Section for more details).

Refer to the Army's 15 individual range assessments for comments and additional information (Figure 3-11).

Figure 3-3 Army's Encroachment Chart and Scores

2011



Summary Observations

1. Army's overall encroachment score marginally decreased from 9.22 in 2010 to 9.18 in 2011
2. Army's minimal risk assessments (green) decreased from 85% to 84%
3. Moderate risk assessment (yellow) increased from 15% to 16%
4. Severe risk assessments (red) increased from 0.2 % to 0.3%

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Encroachment Scores	9.23	9.23	9.22

The three encroachment factors with the greatest number of red and yellow assessment are (Figure 3-7).

- Threatened & Endangered Species and Critical Habitat (1+27)
- Cultural Resources (1+18)
- Airspace (0+18)

The top three Mission Areas with the greatest number of red and yellow assessments are (Figure 3-9):

- Movement and Maneuver (2+35)
- Fire Support (0+28)
- Sustainment (0+17)

Encroachment remains a challenge for the Army. The capacity of and accessibility to Army lands is decreasing while the requirement for training land grows. There are significant challenges that must continue to be addressed in order to sustain training on Army land. The Army is competing with its neighbors for access to land, airspace, and frequency spectrum. Urbanization and sprawl are encroaching on military lands. Urbanization has concentrated endangered species and their habitats on areas traditionally used for military training. Environmental restrictions tend to translate into reduced accessibility to training land. (See Army Special Interest Section for more details).

Refer to the Army's 15 individual range assessments for comments and additional information (Figure 3-11).

Figure 3-4 Army Capability Assessments by Range

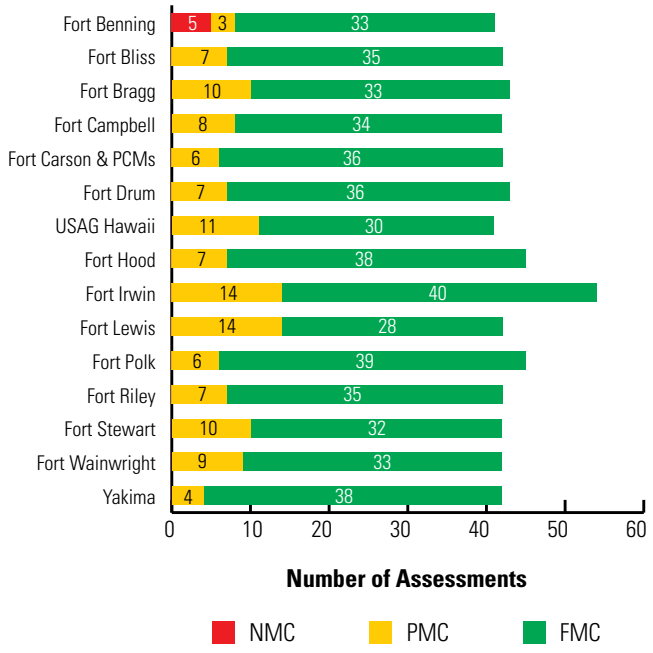


Figure 3-5 Army Encroachment Assessments by Range

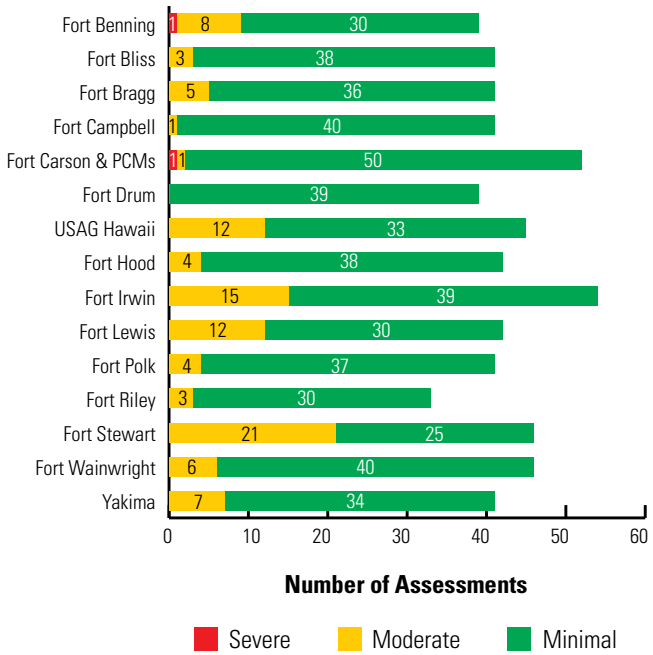


Figure 3-6 Army Capability Assessment by Attributes

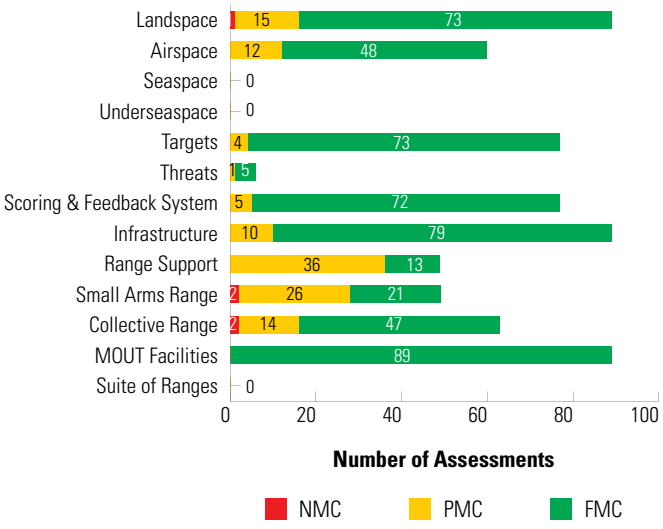


Figure 3-7 Army Encroachment Assessment by Factors

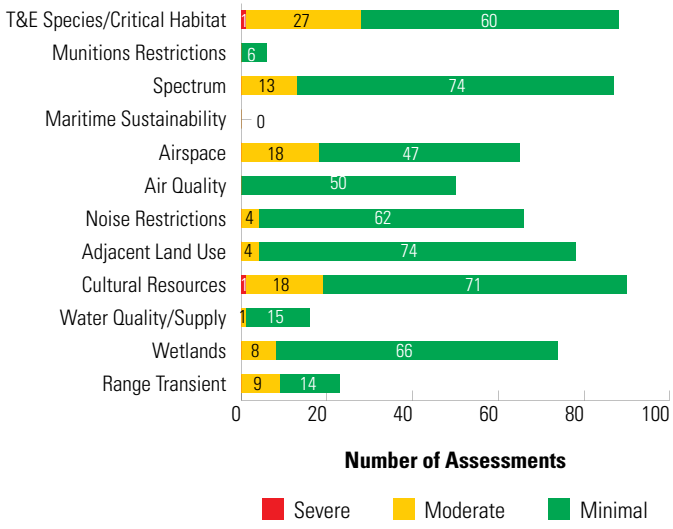


Figure 3-8 Army Capability Assessment by Mission Areas

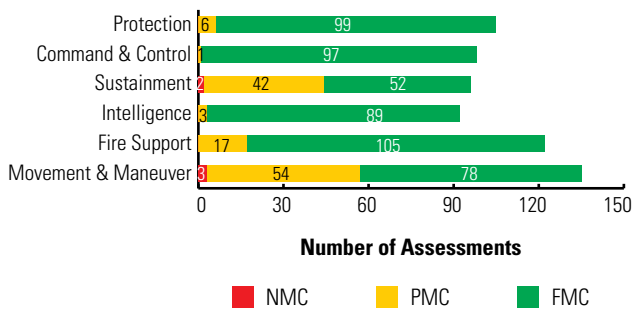
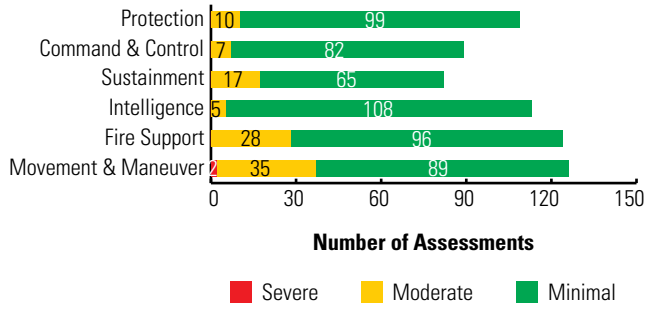


Figure 3-9 Army Encroachment Assessment by Mission Areas



Army Special Interest Section

General Issues

The Army Campaign Plan (ACP) provides direction for detailed planning, preparation, and execution of the full range of tasks necessary to provide relevant and ready land power to the Nation while maintaining the quality of the all-volunteer force. The Army is pursuing the most comprehensive transformation of its forces since the early years of World War II, but the soldier remains the centerpiece of the Army's combat systems and formations. Support for Soldiers, civilians, and their families is a critical part of the Army's ability to defend our Nation.

Army transformation and implementation of the ACP significantly increased the Army's requirement for training land while urban and environmental encroachment simultaneously are decreasing the amount of training land available for use by Army units and soldiers. The Army needs large, doctrinally sound training areas to support the ACP and the National Military Strategy. The Army Range and Training Land Strategy provides a strategic framework for the acquisition of training land. During testimony to the House Armed Services Committee (HASC) Readiness Sub-committee in February 2009, the Army informed Congress of an Army-wide training land shortfall of over four million acres. The Army has taken several steps to reduce its training land shortfall.

As the Army transforms, units at all levels are required by doctrine to operate across a significantly larger battle space. The result of an increased doctrinal battle space requirement is that the Army is facing greater needs for training land. Technological advances such as Unmanned Aerial Systems Vehicles, Stryker Infantry Combat Vehicles, and Battle Command Systems create the capability to detect targets and conduct operations over more terrain than ever before. The Army must exploit these technological advantages by training soldiers, leaders, and units to exercise their equipment and logistics to the fullest capabilities, while operating across large areas in a unified and decisive manner.

Stationing changes directed by BRAC 2005 will concentrate Army units and service schools at key installations in the United States. Recent changes in the Army's global posture and readiness cycles have increased the pressure on Army land assets. The Global Defense Posture and Realignment (GDPR) is moving units from overseas locations to the United States. This movement adds to the need for training land because there are no new Army installations being created in the United States. In addition, the ARFORGEN requires units to train to a higher level at home station because Army units must meet readiness measures at a faster pace than ever before. ARFORGEN-based training increases the emphasis on home-station collective training. This, in turn, increases installation training land requirements because collective training events are large in order to replicate actual operations.

While the Army's requirement for training land grows the capacity of and accessibility to Army lands is decreasing. There are significant challenges that must be actively addressed to sustain training on Army land. The Army is competing with its neighbors for access to land, airspace, and frequency spectrum. Urbanization and sprawl have reduced the amount of available habitat for many species. Accordingly, much of the remaining habitat for listed and at-risk species now remains on installation lands. Installation lands are thus becoming "islands of biodiversity." Environmental restrictions tend to translate into reduced accessibility to training land.

Stationing changes directed by BRAC 2005 will concentrate Army units and service schools at key installations in the United States. Table 3-3 shows the BRAC authorized actions that will significantly affect training requirements.

Table 3-3 Stationing Changes Directed by BRAC that Affect Army Training Land Requirements

Installation Impacted	BRAC Action Affecting Training Requirements
Eglin AFB	Special Forces Group moved from Fort Bragg to Eglin AFB
Fort Bragg	1 Infantry Brigade Combat Team (IBCT) activated at Fort Bragg
Fort Carson	DIV HQ moved from Fort Hood to Fort Carson
Fort Carson	1 Heavy Brigade Combat Team (HBCT) moved from Fort Hood to Fort Carson
Fort Benning	Armor School moved from Fort Knox to Fort Benning
Fort Jackson	Drill Sergeant School moved from Fort Benning to Fort Jackson
Fort Jackson	Drill Sergeant School moved from Fort Leonard Wood to Fort Jackson
Fort Sill	Air Defense School moved from Fort Bliss to Fort Sill
Fort Lee	Transportation Center moved from Fort Eustis to Fort Lee
Fort Lee	Ordnance Center moved from Aberdeen Proving Ground to Fort Lee
Fort Lee	Missile and Munitions Center moved from Redstone Arsenal to Fort Lee

The GDPR, previously referred to as the Integrated Global Presence and Basing Strategy (IGPBS), is the blueprint of recommendations outlining the size, character, and location of long-term overseas force presence. GDPR recommendations were developed before the initiation of formal BRAC 2005 activities, as part of an inter-agency assessment of DoD's long-term overseas force projection and basing needs. The GDPR involves moving units from overseas locations to new locations in the United States as shown in Table 3-4 below.

Table 3-4 Units Relocated Under the GDPR Initiative

Installation Impacted	GDPR Action Affecting Training Requirements
Fort Sill	Air Defense Artillery Brigade (ADA BDE) moved from Fort Bliss to Fort Sill
Fort Bliss	1st AD moved from Germany to Fort Bliss
Fort Bliss	Fires BDE moved from Fort Sill to Fort Bliss
Fort Carson	1 IBCT moved from Korea to Fort Carson
Fort Riley	1 IBCT activated
Fort Riley	1st Infantry Division (ID) moved from Germany to Fort Riley

Critical Issues: Range Capabilities

Army Force Generation (ARFORGEN)

Army range capabilities in the future must support the operating force (Contingency Expeditionary Force (CEF) strategy and Full Spectrum Operations (FSO) training). The Army is in a transition period to a 1:2 (Active Component)/1:4(Reserve Component) Boots On Ground/ Dwell near term, with a vision to achieve a 1:3/1:5 (Year Deployed: Years Home) in the out-years while moving to more CEFs than Deployable Expeditionary Forces (DEF). This will require more home station range capabilities than the Army has seen over the last seven years.

Unmanned Aerial Systems (UASs)

Currently, there are more than 328 Army UAS deployed in theater, which have flown in excess of one million hours in support of combat operations. To keep pace with the prolific UAS growth, the Army will train more than 2,100 UAS operators, maintainers, and leaders in FY2012, which is an 800 percent increase compared to the FY2003 training quota. Designation of controlled airspace, and development of support facilities, ranges and training areas to support UAS training requirements in the near and long term remain a major challenge facing the Army. The emerging UAS support requirements will impact home-station range and infrastructure requirements, increase the need for frequency deconfliction, and necessitate integration of UAS training into the Live-Virtual Constructive training domains. The Army recently published the U.S. Army UAS Roadmap (2010-2035). The purpose of this document is to provide a broad vision for how the Army will develop, organize, and employ UAS across the full spectrum of operations.

Funding Challenges

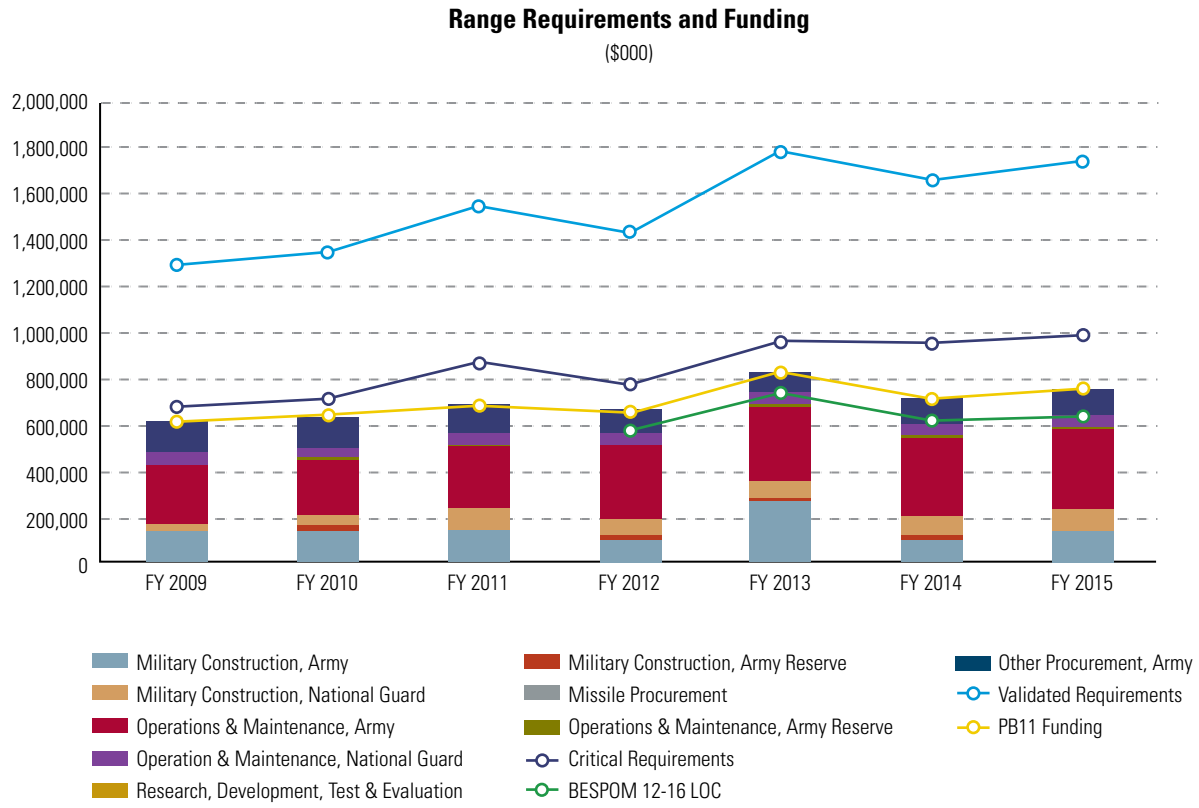
The Office of the Deputy Chief of Staff, G-3/5/7, Training Directorate, Training Support System (TSS) Division provides training support products, services, facilities, sustainment, and management that are critical to execution of operational and institutional training. Although funding for TSS grew in the last Program Objective Memorandum (POM), some areas (e.g., Combat Training Center modernization) have seen a considerable reduction in funding to well below critical levels. In addition, management and services funding have not been sustained at a pace to operate the products the Army will deliver and the facilities the Army will build. The Army's funding for range modernization, operation, and sustainable land management, Integrated Training Area Management (ITAM), for the repair and sustainment of over 11 million acres of training land, worldwide, is not at a level consistent with the rate of growth in validated and critical training requirements that reflect Commanders' needs.

The Office of the Chief of Staff for Installation Management, Installation Services Directorate, Environmental Division provides support for range access and use by reducing environmental regulatory constraints, particularly from cultural sites and endangered species. Because of Transformation and Grow the Army, environmental funding is limited to priority projects.

Historically, programmed resource increases have been decremented as the year of execution approaches. Figure 3-10 depicts Army Range Requirements and Funding trends from FY2009 to FY2015. While funding levels for operation and maintenance, Army civilian pay, contractor services and day-to-day operating budgets are starting to recover in FY2011 from significant cuts in FY2010, funding is at 86 percent of critical requirements across FY2012–2016. Funding for range modernization; however, has been decremented significantly. At the end of POM 12-16, funding levels were reduced from 79 percent of critical requirements to 67 percent of critical requirements. This represents a $365.9M reduction, specifically impacting range systems and targetry modernization and critical installation range construction and modernization projects. These funding cuts result in a significant loss of range capability at a time when critical requirements already represent a level of capability well below that required to support Commanders.

The level of TSS funding needs to be balanced between products, services, facilities, sustainment, and management. Funding levels need to be consistent with critical requirements

Figure 3-10 Army Range Requirements and Funding



to address Commanders' needs in the operational and institutional training domains.

Critical Issues: Encroachment

Competition for Range Space

Encroachment remains a challenge for the Army. The capacity of and accessibility to Army lands is decreasing while the requirement for training land grows. There are significant challenges that must continue to be addressed in order to sustain training on Army land. The Army is competing with its neighbors for access to land, airspace, and frequency spectrum. Urbanization and sprawl have reduced the amount of available habitat for many species. Accordingly, much of the remaining habitat for listed and at-risk species now remains on installation lands. Installation lands are thus becoming "islands of biodiversity." Environmental restrictions tend to translate into reduced accessibility to training land.

Alternative Energy Projects

The current Administration's emphasis on energy security and renewable energy sources has increased the number of energy infrastructure projects that have the potential to impact Army training and testing. These energy initiatives include wind turbines, new energy corridors for gas/oil pipelines and high capacity transmission lines, solar arrays, and geothermal projects. The projects are being driven internally by the Army as sponsored projects on its installations; and externally, by other Federal agencies, such as the Bureau of Land Management (BLM), and private developers wishing to capitalize on Federal government incentives. The initiatives have the potential to impact Army missions depending on where they are sited and the type of infrastructure or technology being introduced.

Figure 3-11 Army Capability and Encroachment Assessment Detail

Fort Benning Assessment Details

Range Mission Description

Fort Benning and the Maneuver Center of Excellence (MCoE) provide trained and adaptive Soldiers and leaders for an Army at War, while developing future requirements for the individual Soldier and the Maneuver Force and providing a world class quality of life for our Soldiers and Army families. The MCoE Command priorities are : (1) Fully Support an Army at War; (2) Prepare for the Future; (3) Enhance Quality of Life for Soldiers and Army Families; (4) Operate in a Command Climate of Teamwork, Discipline and Standards and Safety; (5) Fully Transition to the Maneuver Center of Excellence; and (6) Demonstrate Inspired Leadership. (See full Mission Description in Table 3-6.)

Capability Data

Mission Areas	Capability Attributes												
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Movement and Maneuver	NMC	FMC			FMC		FMC	FMC	PMC	NMC	NMC	FMC	
Fire Support	FMC	FMC			FMC		FMC	FMC	FMC		FMC	FMC	
Intelligence	FMC	FMC			FMC								
Sustainment	PMC							FMC	PMC	NMC	NMC	FMC	
Command Control	FMC	FMC			FMC		FMC	FMC		FMC	FMC	FMC	
Protection	FMC				FMC		FMC	FMC		FMC	FMC	FMC	

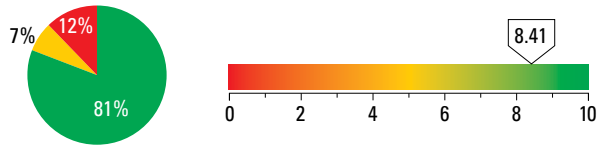
Legend: FMC PMC NMC

Encroachment Data

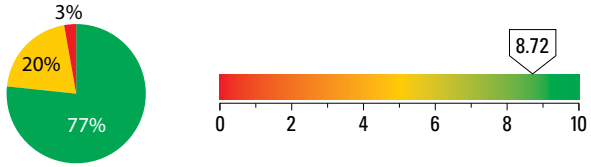
Mission Areas	Encroachment Factors											
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Movement and Maneuver	Severe		Minimal		Moderate	Minimal	Minimal	Minimal	Moderate		Moderate	
Fire Support	Moderate		Minimal		Minimal	Minimal	Moderate	Moderate	Moderate		Minimal	
Intelligence	Minimal		Minimal		Minimal		Minimal	Minimal	Minimal		Minimal	
Sustainment	Moderate		Minimal						Minimal		Minimal	
Command Control	Minimal		Minimal		Minimal				Minimal		Minimal	
Protection	Minimal		Minimal			Minimal	Minimal	Minimal	Minimal		Minimal	

Legend: Minimal Moderate Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

The most severe impact to mission is caused by a shortfall of small arms and collective ranges. While several Mission Areas are more moderately impacted by capability shortfalls, Movement and Maneuver is most severely impacted due to a shortfall of maneuver training land, range support funding shortfalls, and a shortage of smalls arms and collective ranges.

Summary Observations

There is a moderate impact to the Mission Areas due to Encroachment Factors. The presence of threatened and endangered species on the installation has a significant impact on the Movement and Maneuver Mission. Fort Benning is one of 13 primary core locations selected by the USFWS to manage for a Red-Cockaded Woodpecker (RCW) recovery population. The Fort Benning RCW population has steadily increased since 2003, however on-going construction and other proposed actions associated with the development of the Maneuver Center of Excellence will result in significant impacts on the long-term recovery goals for the RCW. Fort Benning has completed consultation with USFWS and received a Biological Opinion. Fort Benning is identifying and implementing appropriate mitigation strategies to minimize training restrictions and shortfalls associated with the action.

Fort Benning Assessment Details

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	6.33	6.33	7.56	**Encroachment Scores**	8.25	8.25	8.72
Capabilities have generally improved at Fort Benning over the past several years, primarily due to increases in range support funding levels. A shortfall of maneuver training land and small arms and collective ranges continues to impact mission capability, however, Fort Benning has been granted permission to study the purchase of 82,800 acres of additional training land to help alleviate the maneuver training land shortfall and additional ranges are programmed in the out-years to address current range shortfalls.				Encroachment factors have historically had a moderate impact on the mission at Fort Benning. While the installation has been able to manage and mitigate many encroachment impacts, it is anticipated that increased growth around the installation is going to continue and will result in more significant encroachment impacts in the future. Increased development and population growth in the region impacts water access, increases wildlife habitat fragmentation, and increases the likelihood of noise/dust complaints. Additionally, the Maneuver Center of Excellence will stand up over the next year and result in significantly increased training throughput and construction of new ranges, further exacerbating existing threatened and endangered species issues and concerns, erosion, and noise/dust issues for the public. Electromagnetic interference is also becoming a challenge for the installation. As Fort Benning tries to cope with this encroachment by limiting the type and amount of training in the vicinity of the installation boundary, it limits the ability to maintain its ecosystem. A reduction of available training area reduces the opportunities to rotate training areas to minimize the effects of training activities and increases the amount of training in areas with fragile habitat. This encroachment is minimizing Fort Benning's options and ability to balance mission and stewardship requirements. Fort Benning has permission to study the purchase of 82,800 acres of additional training land to help alleviate this problem.			

Fort Benning Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Movement and Maneuver	🔴	Fort Benning has a doctrinal training land shortfall that has been documented in accordance with AR 350-19. There is not enough training land to accommodate the Armored Reconnaissance Course (ARC), Ranger Training Brigade (RTB), or the additional training space needed to support a heavy maneuver battalion and the other TRADOC, FORSCOM, and USASOC tenant units. Funding is being programmed in support of a training land purchase at Fort Benning starting in FY2011. Fort Benning is also pursuing other strategies including partnerships with the Tri-County governments in the ACUB/JLUS programs and has begun funding opportunities for these programs.
	Sustainment	🟡	Same as above.
Range Support	Movement and Maneuver	🟡	Non-salary range operations is funded at 89% of the Army critical requirement. Limits installation support for short term training requests such as range reconfiguration projects to support emerging tactics, techniques, procedures, and preventative maintenance. Fort Benning is not able to accommodate unscheduled training events, limiting training flexibility. Fort Benning will continue to work with units to support both institutional and tactical unit training, to the greatest extent possible.
	Sustainment	🟡	Same as above.
Small Arms Ranges	Movement and Maneuver	🔴	The installation has seventeen small arms ranges being built to support MCOE/Armor School BRAC requirements. Construction in the range complex limits capability of existing ranges. The ranges will not be completed in FY2011. Fort Benning is not able to accommodate unscheduled training events, limiting training flexibility. Fort Benning will continue to prioritize training requests to ensure all students receive required training. Maximum use of portable targetry has enabled short time fixes for reconfiguration requests. This issue will be resolved upon completion of the 17 small arms ranges.
	Sustainment	🔴	Same as above.
Collective Ranges	Movement and Maneuver	🔴	The installation has four collective gunnery ranges and other projects being built to support MCOE/Armor School BRAC requirements. Construction in the range complex limits capability of existing ranges. The construction will not be completed in FY2011. Fort Benning is not able to accommodate unscheduled training events, limiting training flexibility. Fort Benning will continue to work with the U.S. Army Corps of Engineers to take advantage of lulls in the construction time line for the execution of required training events. This problem will be resolved upon completion of ranges under construction.
	Sustainment	🔴	Same as above.

Figure 3-11 Army Capability and Encroachment Assessment Detail (continued)

Fort Benning Detailed Comments

Encroachment Observations

Attributes	Assigned Training Mission	Score	Comments
Threatened & Endangered Species/ Critical Habitat	Movement and Maneuver		There are five Threatened and Endangered Species and 96 species of "conservation concern" on Fort Benning. Persistent restrictions deny access to 450+ acres and the buffer areas on Fort Benning. Numerous definitions of restrictions have placed unusually difficult conditions on five ranges and resulted in a loss of capability to conduct live-fire platoon movements-to contact tasks just in 2010. The MCoE construction efforts have resulted in a Jeopardy Biological Opinion for the installation. The Army is implementing appropriate mitigation strategies in order to avoid training shortfalls; however, the Army anticipates an increase in restrictions when the Maneuver Center of Excellence move to Fort Benning is complete.
	Fire Support		Same as above.
	Sustainment		Same as above.
Airspace	Movement and Maneuver		Current airspace limitations restrict participation of high performance fixed wing aircraft in joint training exercises. Current spatial capability attributes make it difficult to contain high performance aircraft during joint training exercises involving Close Air Support. The proposed Training Land Expansion will enable the follow-on expansion of airspace to ease restrictions by FY2015.
Noise Restrictions	Fire Support		Firing of weapons .50 caliber or greater is restricted. Units must notify the installation public affairs office of any firing during restricted hours; information is then distributed through the local news media and local governments. This reduces unit training flexibility and impacts range scheduling. The Army Compatible Use Buffer (ACUB) program proactively addresses encroachment while achieving conservation objectives through the purchase of conservation easements or land from willing owners. These efforts have lessened the problem and combined with public outreach has mollified the affected general public. This problem will continue to lessen due to the collaborative efforts of the Fort Benning PAO and the Nature Conservancy.
Adjacent Land Use	Fire Support		Residential and commercial development is increasing along the western and northwestern boundaries of the installation. Live-fire activities increase perceived noise pollution and tracked vehicle movement increases the perceived air pollution and erosion potential to surrounding property. These perceptions minimize the installation's efforts, options and therefore ability to balance mission requirements and stewardship success. The Army Compatible Use Buffer (ACUB) program proactively addresses encroachment while achieving conservation objectives through the purchase of conservation easements or land from willing owners. The easements prohibit incompatible development in perpetuity, yet still accommodate low impact uses such as farming and forestry. The Nature Conservancy, Fort Benning's partner in coordinating habitat conservation planning, has initially acquired 4,000 acres of buffer primarily along the installation's eastern and northeastern perimeter. The buffer was created through a combination of conservation easements and conservation focused land acquisitions. These actions will lessen the impact of developmental encroachment. It is expected that the issue will remain; however, for the western and northwestern boundaries for the foreseeable future.
Cultural Resources	Movement and Maneuver		There are 3,974 cultural resource sites encompassing 7,420 acres on post. 3,995 acres are currently restricted from use for any ground disturbing activity and an additional 2,747 acres are expected to be restricted from use for ground disturbing activity. Additionally, 726 acres are expected to be included in the National Register of Historic Places. Training activities are limited or completely restricted on this acreage due to the potential for generation of conditions that may affect sensitive cultural resource sites. This is an ongoing issue; however, integrated planning and management at the installation helps to balance mission training requirements with Federal, State, and local environmental compliance laws, restrictions, and regulations.
	Fire Support		Same as above.
Wetlands	Movement and Maneuver		There are 16,926 acres of wetlands within the installation boundary that impose training restrictions. Wetland areas are off limits to heavy maneuver training and result in a loss of maneuver training land. Floodplains are distributed fairly evenly throughout the installation and present development constraints resulting in the loss of available maneuver land. Additionally, wetlands require the construction of crossing sites which artificially channel training and hinders realistic maneuver. This is an ongoing issue; however, the Fort Benning Integrated Training Area Management (ITAM) program is continually working to provide the policy and program guidance to balance mission training requirements with Federal, State, and local environmental compliance laws, restrictions, and regulations.

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Figure 3-11 Army Capability and Encroachment Assessment Detail (continued)

Fort Bliss Assessment Details

Range Mission Description

Fort Bliss provides major training facilities for the 1st Armored Division, Mobilization Platform, and mobilization and deployment training in support of First Army. Ranges and training areas also support daily air-to-ground sorties from Holloman AFB and other regional Air Force installations. Ranges and training areas further support the Foreign Military Sales cases for the Japanese, Germans, Dutch, Canadians and others requesting exercises at the installation.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Movement and Maneuver	FMC	FMC			FMC		FMC	PMC	PMC	PMC	PMC	FMC	
Fire Support	FMC	FMC			FMC		FMC	FMC	FMC		PMC	FMC	
Intelligence	FMC	FMC			FMC		FMC	FMC				FMC	
Sustainment	FMC							FMC	PMC	PMC	FMC	FMC	
Command Control	FMC	FMC			FMC		FMC	FMC				FMC	
Protection	FMC				FMC		FMC	FMC		FMC	FMC	FMC	

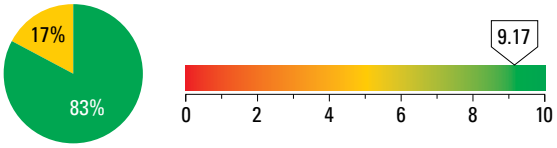
Legend: FMC PMC NMC

Encroachment Data

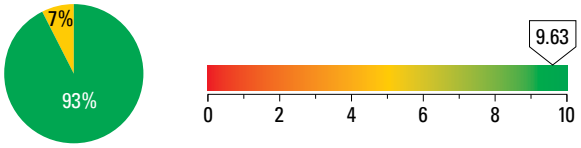
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Movement and Maneuver	Minimal		Moderate		Minimal	Minimal	Minimal	Minimal	Minimal		Minimal	
Fire Support	Minimal		Minimal		Minimal	Minimal	Minimal	Minimal	Minimal		Minimal	
Intelligence	Minimal		Minimal		Minimal	Minimal	Minimal	Minimal	Minimal		Minimal	
Sustainment	Minimal		Moderate						Minimal		Minimal	
Command Control	Minimal		Moderate		Minimal				Minimal		Minimal	
Protection	Minimal		Minimal		Minimal	Minimal	Minimal	Minimal	Minimal		Minimal	

Legend: Minimal Moderate Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

The most adverse impact to mission is due to the current lack of Collective Range capability. While several mission areas are impacted by capability shortfalls, Movement and Maneuver is most severely impacted due to infrastructure shortfalls at Oro Grande Base Camp, range support funding shortfalls, and lack of small arms and collective range capability during construction.

Summary Observations

There is minimal impact to the Mission Areas due to Encroachment Factors. Spectrum interference has a moderate impact on the Movement and Maneuver, Sustainment and Command and Control Missions, due to a reduction in the number of voice channels available for emergency services, range control, and other users.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Capability Scores	4.78	4.78	7.33

Capabilities have generally improved at Fort Bliss over the past several years. Range support funding levels have increased and additional funding is programmed in the FY2012–2016 POM, likely resulting in increased range capability in the out-years. Fort Bliss has some current capability and throughput shortfalls due to construction activities that close down smalls arms and collective ranges, however, these impacts are being addressed and mitigated. Small arms and collective range capability will improve when current construction is complete.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Encroachment Scores	10.00	10.00	9.02

Encroachment Factors have not historically impacted the mission at Fort Bliss. Moderate impacts resulting from Spectrum interference have developed over the past year. These impacts are being managed and mitigated at the installation level and are expected to improve in the future.

Fort Bliss Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Infrastructure	Movement and Maneuver		Oro Grande Base Camp lacks sufficient facilities to accommodate unit training densities (Billets, DFAC). Units incur additional travel days to transport from home station due to lack of facilities. Installation has submitted a proposal for a Military Construction project for inclusion into next POM, recommended purchasing prefabricated buildings.
Range Support	Movement and Maneuver		Non-salary range operations are funded at 89% of the Army critical requirement. Limits installation support for short term training requests,limits range reconfiguration projects to support emerging tactics, techniques, procedures, and limits preventative maintenance. Additional funding has been allocated in FY2011 to start; however, expected to need more in FY2012 as training days on ranges significantly increase.
	Sustainment		Same as above.
Small Arms Ranges	Movement and Maneuver		The projected build-up of small arms ranges will block six currently active ranges once construction starts (expected FY2010, not yet started). The development of future projected ranges will close down 25% of the current small range capability until projects are completed, reducing training throughput capability. Fort Bliss constructed 3 temporary flat ranges (in 2010) to support mission requirements until projected ranges are completed.
	Sustainment		Same as above.
Collective Ranges	Movement and Maneuver		Collective gunnery ranges will be under construction during FY2010–2015. Limited ranges reduce throughput capability to support annual gunnery requirements. A temporary Muti-Purpose Training Range (MPTR) was built to support current unit requirements. Plan to complete an additional MPTR in 2011 to sustain mission support until future projected ranges are completed.
	Fire Support		Collective gunnery ranges will be under construction during FY2010–2015. Limited ranges reduce throughput capability to support annual gunnery requirements. Altered prescribed construct of 6 firing groups into 23 separate firing boxes in order to increase maneuverability and flexibility in facilitating fire support missions for fire support events.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Spectrum	Movement and Maneuver		The currently allocated spectrum is approximately 70% of the future operationally required spectrum. Additionally, the frequency spectrum must be shared with Mexico. Interference from Mexico on the UHF band sometimes interferes with the trunked land mobile radio (LMR) system at Fort Bliss, which reduces the number of voice channels available for emergency services, range control, and other users. The mitigation strategy is to share frequencies and deconflict available spectrum. The DoD Area Frequency Coordinator (AFC) is working to issue single Radio Frequency Authorizations (RFA's) that include frequency assignments for operations at Bliss, WSMR, and/or Holloman. All frequencies will be scheduled and deconflicted in the Integrated Frequency Deconfliction System (IFDS) database. Spectrum Managers at each installation will submit requests for new permanent frequency assignments as required.
	Sustainment		Same as above.
	Command & Control		Same as above.

Figure 3-11 Army Capability and Encroachment Assessment Detail (continued)

Fort Bragg Assessment Details

Range Mission Description

Fort Bragg provides major training facilities, to include ranges and training areas, non-firing activities, airborne/air operations, and training land/airspace use on Camp MacKall in support of DoD organizations, the mission of the USASOC/XVIII ABN Corps and 82nd Airborne Division, their operational forces, mobilization and force modernization.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Movement and Maneuver	NMC	NMC			FMC		FMC	FMC	NMC	NMC	FMC	FMC	
Fire Support	FMC	FMC			FMC		FMC	FMC	FMC		NMC	FMC	
Intelligence	FMC	NMC			FMC		FMC	FMC				FMC	
Sustainment	NMC						FMC	FMC	NMC	NMC	NMC	FMC	
Command Control	FMC	FMC			FMC		FMC	FMC				FMC	
Protection	FMC				FMC		FMC	FMC		FMC	FMC	FMC	

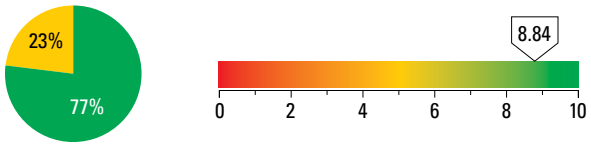
Legend: FMC PMC NMC

Encroachment Data

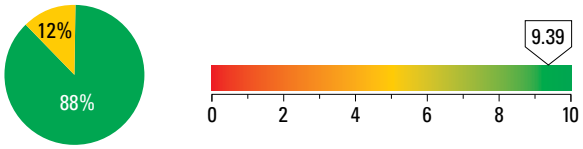
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Movement and Maneuver	Minimal		Minimal		Minimal	Minimal	Minimal	Minimal	Moderate		Minimal	
Fire Support	Minimal		Minimal		Minimal	Minimal	Minimal	Minimal	Minimal		Minimal	
Intelligence	Minimal		Minimal		Moderate		Minimal	Minimal	Minimal		Minimal	
Sustainment	Minimal		Minimal					Minimal	Minimal		Minimal	
Command Control	Minimal		Moderate		Moderate			Minimal	Minimal		Minimal	
Protection	Minimal		Minimal			Minimal	Minimal	Minimal	Minimal		Minimal	

Legend: Minimal Moderate Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

The most adverse impact to mission is caused by a shortfall of training land, airspace, and small arms and collective ranges. While several mission areas are impacted by capability shortfalls, Movement and Maneuver and Sustainment are most severely impacted, due to a training land shortfall, lack of restricted airspace to support UAS training, and a shortfall of a Multi-Purpose Machine Gun range and an Aerial Gunnery Range.

Summary Observations

There is very little impact to the Mission Areas due to Encroachment Factors. Spectrum and Airspace limitations have a moderate impact on the Command and Control Mission, due to scheduling conflicts and radio bleedover issues.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Capability Scores	6.33	6.33	7.56

Capability has improved at Fort Bragg over the past several years. Impacts resulting from the shortfall of training land have become more significant and can no longer be fully mitigated by the installation. Additionally, as more Unmanned Aerial System (UAS) are fielded and restricted airspace remains the same, the installation's ability to fully support all aviation training is reduced. It is anticipated that additional UAS fielding will continue to be a challenge for the installation into the future.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Encroachment Scores	10.00	10.00	9.02

Encroachment impacts have generally improved at Fort Bragg over the last several years. Previous encroachment impacts caused by noise restrictions and adjacent land use have been adequately managed through installation mitigation measures and no longer cause significant impacts to the training mission. The need for additional fielding of UAS in the out-years will likely increase impacts felt by the installation due to the lack of spectrum and restricted airspace. The Army Compatible Use Buffer (ACUB) Program is a key component of working to protect vital Army aviation and small unit training areas/training activities, as well as preserving intact longleaf pine forest habitat for foraging and nesting of the endangered RCW. Development of adjacent property would sever connections between existing training areas, destroy RCW corridor habitat, and threaten fire management of the surrounding lands which provide critical Soldier training for Fort Bragg.

Fort Bragg Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Movement and Maneuver		Fort Bragg has a 100,000+ acre shortfall of training land, based on Army doctrine. Lack of training land results in units having to conduct maneuver training events off of the installation. This results in reduced training time and increased OPTEMPO costs. No planned mitigation at this time, will allow units to continue to train off post.
	Sustainment		Fort Bragg has a 100,000+ acre shortfall of training land, based on Army doctrine. The shortfall of training land does not give units the ability to stretch lines of support and train individual drivers and crews. Additionally, the shortfall causes units to look off the installation for additional training lands. Allow units to continue to train off post and incorporate live/virtual training.
Airspace	Movement and Maneuver		Fixed wing operations conflict with live fire maneuver operations. Congested airspace bleed over creates check fires for maneuver elements conducting live fire operations until the aircraft is clear from the airspace. The installation is mitigating this by deconflicting maneuvers and aviation training with time/space separation.
	Intelligence		Shortfall of restricted airspace to support increased UAV/UAS training, while also supporting manned aircraft. Scheduling conflicts exist between UAV/UAS an other aircraft in the vicinity. The installation is mitigating this by using more vertical/lateral separation, and installing additional delays in other aircraft entering the restricted area.
Range Support	Movement and Maneuver		Non-salary range operations are funded at 89% of the Army critical requirement. Limits installation support for short-term training requests, limits range reconfiguration projects to support emerging tactics, techniques, procedures, and limits preventative maintenance. Additional funding allocated in FY2011 is a start; Expected to need more in FY2012 as training days on ranges significantly increase.
	Sustainment		Same as above.
Small Arms Range	Movement and Maneuver		Fort Bragg has a shortfall of one Multi-purpose Machine Gun (MPMG) range. Units are not able to qualify with machine guns on Fort Bragg to Army standard. Construction on an MPMG range will commence in 2011.
	Sustainment		Same as above.
Collective Ranges	Fire Support		Fort Bragg has a shortfall of one Aerial Gunnery Range (AGR). Units are not able to conduct aerial gunnery to Army standard. Construction on an AGR will commence in 2015.
	Sustainment		Same as above.

Encroachment Observations

Attributes	Assigned Training Mission	Score	Comments
Threatened & Endangered Species/ Critical Habitat	Movement and Maneuver		Endangered species restrictions limit maneuver areas. Units have a smaller area to conduct maneuvers and operational training. Maneuver restrictions due to RCW are tentatively scheduled to be lifted in 2012. Currently units must consider endangered species when planning training and operational movements.
Spectrum	Command & Control		Inadequate frequency spectrum to support increased UAV/UAS in the airspace. Any increase in UAS employment increases demand for frequency ranges (No bleedover). Use lateral separation to prohibit radio bleedover.
Airspace	Intelligence		Intelligence, Surveillance and Reconnaissance (ISR) assets cannot enter or maneuver in congested airspace as desired. Airspace is already congested with multiple customers, causing lack of maneuverable airspace for ISR platforms. Deconflict remaining airspace using time/space.
	Command & Control		Command and Control assets cannot enter or maneuver in congested airspace as desired. Airspace is already congested with multiple customers. Deconflict remaining airspace using time/space.
Cultural Resources	Movement and Maneuver		Cultural resources and historic sites restrict maneuver areas. Each selected site requires a survey before any earth disturbing activity occurs. Units have reduced operating space to conduct maneuver and operational training in a restricted maneuver area, thus reducing training scenarios and training realism. No current plan to lift restrictions. Units must consider cultural resources and historic sites when planning training and operational movements.

Figure 3-11 Army Capability and Encroachment Assessment Detail (continued)

Fort Campbell Assessment Details

Range Mission Description

Fort Campbell is a power projection platform, strategically located on the Tennessee/Kentucky State line. Fort Campbell possesses the capability to deploy mission-ready contingency forces by air, rail, highway, and inland waterway. Fort Campbell develops and maintains Live Fire Maneuver Ranges and Training Areas that support the Senior Commander's Mission Essential Training Tasks List (METTL). Fort Campbell is the home of the 101st Airborne Division (Air Assault) and two Special Operations Command units, the 5th Special Forces Group and the 160th Special Operations Aviation Regiment. Additionally, Fort Campbell is home to the 86th Combat Support Hospital, the 52nd Ordnance Command, the 716th MP Battalion, and sizable Medical and Dental activities. Fort Campbell provides company level maneuver training and mobilization support for numerous Army National Guard and Army Reserve units.

Capability Data

Mission Areas	Capability Attributes												
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Movement and Maneuver	NMC	NMC			FMC		NMC	FMC	NMC	NMC	FMC	FMC	
Fire Support	FMC	FMC			FMC		FMC	FMC	NMC		FMC	FMC	
Intelligence	FMC	FMC			FMC		FMC	FMC				FMC	
Sustainment	FMC							FMC	NMC	NMC	FMC	FMC	
Command Control	FMC	FMC			FMC		FMC	FMC				FMC	
Protection	FMC				FMC		FMC	FMC		FMC	FMC	FMC	

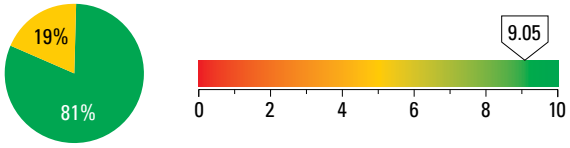
Legend: FMC PMC NMC

Encroachment Data

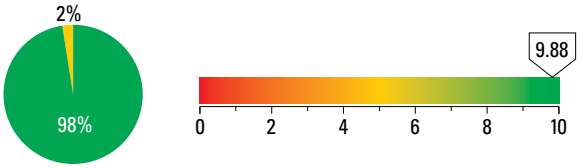
Mission Areas	Encroachment Factors											
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Movement and Maneuver	Minimal		Minimal		Minimal	Minimal	Minimal	Minimal	Minimal		Minimal	
Fire Support	Moderate		Minimal		Minimal	Minimal	Minimal	Minimal	Minimal		Minimal	
Intelligence	Minimal		Minimal		Minimal		Minimal	Minimal	Minimal		Minimal	
Sustainment	Minimal		Minimal					Minimal	Minimal		Minimal	
Command Control	Minimal		Minimal		Minimal			Minimal	Minimal		Minimal	
Protection	Minimal		Minimal			Minimal	Minimal	Minimal	Minimal		Minimal	

Legend: Minimal Moderate Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

The most severe impact to mission is caused by a shortfall of range support funding. While several Mission Areas are impacted by capability shortfalls, Movement and Maneuver is most severely impacted due to a shortfall of maneuver training land, lack of updated aviation target systems, range support funding shortfalls, and a shortage of smalls arms ranges.

Summary Observations

There is minimal impact to the Mission Areas due to Encroachment Factors. The presence of Threatened and Endangered species on the installation has a minimum impact to the Fire Support Mission, due to restrictions on mowing for fire safety and visibility on the ranges.

Fort Campbell Assessment Details

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	5.22	5.22	7.00	**Encroachment Scores**	10.00	10.00	10.00
Capabilities have generally improved at Fort Campbell over the past several years. Range support funding levels have increased and Fort Campbell has mitigated MOUT facility throughput shortfalls internally. Shoot-house construction currently meets training needs, but if lead-free slug (LFS) fielding takes place to support Home Station Training, there will likely be an impact to the installation's capability to meet requirements for MOUT Facility throughput due to concerns about use of the LFS in sandfilled shoot-houses. Lack of restricted airspace continues to be a concern and will limit the installation's ability to replicate the operational environment for Warrior UAS training in FY2012 when the system is fielded.				Encroachment Factors have not historically impacted the mission at Fort Campbell. Minimal impacts resulting from rare species habitat on the installation have developed over the past year, but are being managed successfully through coordination with the USFWS. Current impacts are expected to be resolved and future impacts are not anticipated. Fort Campbell has also worked to actively implement the Army Compatible Use Buffer (ACUB) Program, to ensure that encroachment does not impact the future mission of the installation. Current ACUB efforts are focused on protecting the flight approach of the installation's primary operational airfield, Campbell Army Airfield; and buffering the small arms impact area, to ensure long-term capability to support the training mission.			

Fort Campbell Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Movement and Maneuver		There is a shortfall of available maneuver training land to meet doctrinal maneuver training requirements. Unit maneuver training is limited and movement is constrained to short 1-3 kilometer movements, depending on which training area the unit is assigned. Simultaneous maneuvering for multiple company sized units at doctrinal distances is constrained. OPTEMPO costs are increased for units that travel to other locations to accomplish training events. Fort Campbell is partnering with Fort Knox for training allocation of their maneuver land and ranges.
Airspace	Movement and Maneuver		There is limited controlled airspace over the installation. Limited airspace restricts the ability of units to conduct air training exercises to doctrinal standards in terms of dispersion, flight techniques, and integration with other assets, such as UAS. Fort Campbell is partnering with Fort Knox and other training sites to meeting training needs.
Scoring & Feedback System	Movement and Maneuver		Installation does not have an assigned Aviation Weapon Scoring System (AWSS) to support the two Combined Aviation Brigades and the Task Force 160, Special Operations Aviation Regiment. Weapons qualification is dependent on subjective scoring (i.e. line of sight) that does not meet Army standards for qualification. Aviation units do not get consistently accurate feedback when qualifying. The Army has scheduled a rotating AWSS for temporary use at the installation.
Range Support	Movement and Maneuver		Non-salary range operations is funded at 89% of the Army critical requirement. Limits installation support for short-term training requests, limits range reconfiguration projects to support emerging tactics/techniques and procedures, and limits preventative maintenance. Range support shortfalls were programmed in FY2012-FY2016 POM.
	Fire Support		Same as above.
	Sustainment		Same as above.
Small Arms Ranges	Movement and Maneuver		Installation has a deficit of two machine gun ranges and three small arms ranges in FY2011. Unit training time is reduced and OPTEMPO costs are increased for units that have to travel to other locations to accomplish training events. Military Construction, Army (MCA) funding is programmed in FY2016 and FY2017 to construct additional ranges.
	Sustainment		Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Threatened & Endangered Species	Fire Support		The Henslow and Bachman Sparrow nesting habitat is present in the training area. During May-August, training land management actions (i.e. mowing, vegetation removal) are restricted and training use is reduced due to safety concerns (i.e. fire hazards, visibility). Installation is coordinating with regional Fish and Wildlife Service to mitigate restrictions and address training impacts. A programmatic agreement is anticipated by Fall 2010 that will help with mitigation.

Figure 3-11 Army Capability and Encroachment Assessment Detail (continued)

Fort Carson Assessment Details

Range Mission Description

Fort Carson and Pinon Canyon Maneuver Site provide major training facilities (339,000 acres of training land, 92 ranges, and the 4 layers of restricted airspace) to support and enable relevent and realistic training for Fort Carson's primary users: 4th Infantry Division (Mechanized)-1HBCT, 2HBCT, 3HBCT, 4IBCT; 43rd Sustainment Brigade; 10th Special Forces Group; 1/2 Attack Helicopter Battalion; and 71st EOD Group.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Movement and Maneuver		●			●		●	●	●	●	●	●	
Fire Support	●	●			●		●	●	●		●	●	
Intelligence	●	●			●		●	●				●	
Sustainment	●				●			●	●	●	●	●	
Command Control	●	●			●		●	●				●	
Protection	●				●		●	●		●	●	●	

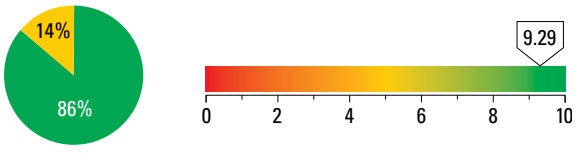
Legend: FMC ● PMC ● NMC ●

Encroachment Data

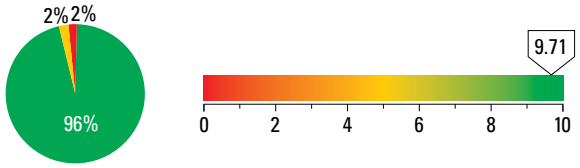
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Movement and Maneuver	●	●	●		●	●	●	●	●	●	●	●
Fire Support	●	●			●	●	●	●	●	●	●	●
Intelligence	●	●	●		●		●	●	●	●		●
Sustainment	●	●							●	●	●	●
Command Control	●	●	●		●				●	●		●
Protection	●	●				●	●	●	●	●	●	●

Legend: Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

The most adverse impacts to mission are caused by land shortfalls, inadequate range support (staffing levels), and a shortage of small arms ranges. While several mission areas are impacted by capability shortfalls, Movement and Maneuver is most adversely impacted due to excessive overtime costs associated inadequate range staffing levels, lack of restricted airspace at PCMS impacting military units ability to train with UAS systems as they would in theater, and a shortfall of small arms ranges which limits units abilities to execute required live fire tasks to Army Standard.

Summary Observations

There is minimal impact to the mission areas due to encroachment factors. Small work arounds are utilized to avoid adverse impacts from the majority of the encroachment factors. The presence of unsurveyed areas with potential cultural resources are the primary encroachment factor that adversely impacts military training at Fort Carson and Pinon Canyon Maneuver Site (PCMS), due to the fact that unsurveyed training lands are deemed "for dismounted training only" until they can be surveyed.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Capability Scores	6.67	6.67	7.22

Capabilities have generally improved at Fort Carson and Pinon Canyon Maneuver Site (PCMS) over the past several years. The use of Military Construction projects and self help assets have postured the installation at an adequate readiness level to support the training throughput requirements of current stationing levels. It is anticipated that the most critical shortfall, Range Support (personnel) will be mitigated over the FY2012–2016 POM; and the shortfall of Infantry Squad Battle Courses is expected to be reduced by the initiative to construct an in-house, self help project in FY2011. The ability to obtain restricted airspace over PCMS will be a challenge, and it is anticipated that this lack of restricted airspace will cause future capability shortfalls as additional UAS are fielded in the out-years.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Encroachment Scores	9.24	9.24	10.00

Encroachment Factors have not historically had a significant impact on the mission at Fort Carson/Pinon Canyon Maneuver Site (PCMS). Fort Carson is re-evaluating procedures for planning/implementing training events to ensure all regulatory requirements, including protection from cultural resources, are being met. The use of best management practices in sustaining the training lands have also contributed to additional lands being added back into the training inventory. Additionally, Fort Carson has been able to prevent encroachment impacts from adjacent land use, due to implementation of the Army Compatible Use Buffer (ACUB) Program. Given the fact that communities near Fort Carson are aggressively promoting development, it is vital that the ACUB Program continue to be funded to prevent incompatible development around the installation that would negatively impact the training mission.

Fort Carson Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Sustainment		Fort Carson/PCMS has a doctrinal training land shortfall documented in accordance with AR 350-19. As units re-deploy for theater, Brigade and Battalion sized elements will not have adequate training land to maneuver to doctrinal standards simultaneously. Given current deployment rotations, the training land shortfall is not causing an adverse impact to training. The 4ID Commanding General's guidance is to perform Brigade level maneuver and Batallion level live fire at the Combat Training Centers. This guidance will relieve the shortfall of required doctrinal training land.
Airspace	Movement and Maneuver		PCMS currently has no restricted airspace and cannot operate UAS training above Raven at 1500ft AGL. Units cannot use other UAS assets and therefore cannot train as they fight. The installation is executing the necessary steps and procedures to seek to obtain restricted airspace. Meanwhile, units execute UAS training at Fort Carson and simulate at PCMS.
Range Support	Movement and Maneuver		Non-salary range operations is funded at 89% of the Army critical requirement. Creates excessive overtime requirements to sustain prolonged training enabler support of mission requirements. New manpower models have increased anticipated staffing levels to meet the requirements by FY2012.
	Sustainment		Non-salary range operations is funded at 89% of the Army critical requirement. Creates excessive overtime requirements to sustain prolonged training enabler support of mission requirements. New manpower models have increased anticipated staffing levels to meet the requirements by FY2012.
Small Arms Ranges	Movement and Maneuver		Fort Carson has a shortfall of 4 Infantry Squad Battle Courses to meet stationing level requirements. Units are required to use non-standard ranges that result in degraded training or inability to train on certain required tasks. Fort Carson has identified this shortfall and a Military Construction project was created but lost funding this year due to budgetary cuts. The project is currently being carried as an unfunded requirement for potential out-year funding.
	Sustainment		Fort Carson has a shortfall of four Infantry Squad Battle Courses to meet stationing level requirements. Units are required to use non-standard ranges that result in degraded training or inability to train on certain required tasks. Fort Carson has identified this shortfall and a Military Construction project was created but lost funding this year due to budgetary cuts. The project is currently being carried as an unfunded requirement for potential out-year funding.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Cultural Resouces	Movement and Maneuver		Fort Carson and PCMS possess training lands that have not been surveyed for cultural resources and training on this land is limited to dismounted training only. Restrictions cause limitations to large scale maneuver exercises. Additionally, all efforts to utilize restricted areas for training require time and resources to work through the Section 106 consultation process. Fort Carson is slowly working towards 100% survey completion. The installation is also working towards a Programmatic Agreement with the State Historic Property Office to ease the burden and overhead of all efforts going through the Section 106 consultation process.
	Sustainment		Fort Carson and PCMS possess training lands that have not been surveyed for cultural resources and training on this land is limited to dismounted training only. Restrictions cause limitations to large scale maneuver exercises. Additionally, all efforts to utilize restricted areas for training require time and resources to work through the Section 106 consultation process. Fort Carson is slowly working towards 100% survey completion. The installation is also working towards a Programmatic Agreement with the State Historic Property Office to ease the burden and overhead of all efforts going through the Section 106 consultation process.

Figure 3-11 Army Capability and Encroachment Assessment Detail (continued)

Fort Drum Assessment Details

Range Mission Description

Fort Drum provides major training facilities to support deployment training and mobilization for active and reserve units from all services in training at Fort Drum, and planning and support for the mobilization. Primary training units include the 10th Mountain Division (LI), the 7th Engineer Battalion, the 91st Military Police Battalion, and multiple reserve component units. Fort Drum's ranges and training areas also support two institutional elements: the Light Fighters School and the NCO Academy. The NCO Academy uses the training areas to conduct Warrior Leader courses and the Light Fighters School uses the training areas to conduct field-training exercises. The numerous live-fire ranges support weapons familiarization training and qualification. The large caliber facilities can also support collective live fire training events. The capabilities available on the installation to support requirements by the Armed Forces of the United States is visible by the presence of all services that train on Fort Drum to include but not limited to the law enforcement agencies both local and Federal as well as supporting the local communities. The Installation's air to ground range provides joint training integration for Army, Marine, Air Force, SOCOM, National Guard and USAR.

Capability Data

Mission Areas	Capability Attributes												
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Movement and Maneuver	●	●			●		●	●	●	●	●	●	
Fire Support	●	●			●		●	●	●		●	●	
Intelligence	●	●			●		●	●				●	
Sustainment	●						●	●	●	●	●	●	
Command Control	●	●			●		●	●				●	
Protection	●				●		●	●		●	●	●	

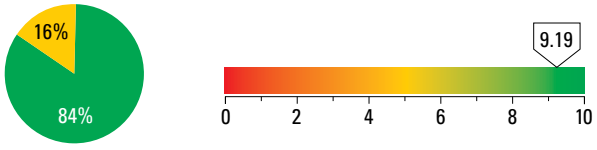
Legend: FMC ● PMC ● NMC ●

Encroachment Data

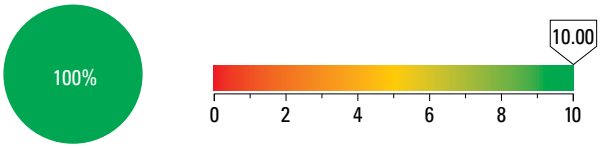
Mission Areas	Encroachment Factors												
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients	
Movement and Maneuver	●		●		●	●	●	●	●		●		
Fire Support	●		●		●	●	●	●	●		●		
Intelligence	●		●		●		●	●	●		●		
Sustainment	●		●						●		●		
Command Control	●		●		●				●		●		
Protection	●		●			●	●	●	●		●		

Legend: Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

The most severe impact to mission is caused by a shortfall of range support funding. While several Mission Areas are impacted by capability shortfalls, Movement and Maneuver and Sustainment are most severely impacted due to a shortfall of maneuver training land, lack of restricted airspace, range support funding shortfalls, and inadequate density of Multi-Purpose Machine Gun and Basic 10/25 Meter ranges. Currently the use of range dispersion and range alignment, allows Fort Drum to simultaneously support up to three separate units conducting small arms marksmanship and/or qualification training.

Summary Observations

There is minimal impact to the Mission Areas due to Encroachment Factors. The presence of Threatened and Endangered Species on the installation currently has no significant impact on the training mission, however, Fort Drum is the location of at least one maternity colony of the federally endangered Indiana Bat. In addition to this one federally-listed species, there are 28 State-listed wildlife species, and 22 State-listed rare plant species. The known Indiana Bat colony is mostly protected through the establishment of a Bat Conservation Area; 2,200 acres of relatively undeveloped land in the Cantonment Area.

Fort Drum Assessment Details

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	5.11	5.11	8.15	**Encroachment Scores**	9.10	9.10	10.00
Capabilities have generally improved at Fort Drum over the past several years. Range support funding levels have increased and additional funding is programmed in the FY2012–2016 POM, likely resulting in increased range capability in the out-years. Fort Drum training areas and ranges currently have capacity, when funded to requirements, to support ARFORGEN individual and collective live, virtual, constructive and gaming training requirements for the 10th Mountain Division and assigned Brigade Combat Teams/Brigade Headquarters, along with tenant units and aligned units.				Encroachment Factors have not historically had a significant impact on the mission at Fort Drum. Over the past several years, impacts resulting from noise restrictions and adjacent land use have been mitigated through public outreach efforts and use of the Army Compatible Use Buffer (ACUB) program. Over the next several years, however, encroachment impacts to the mission are expected if proactive actions through the ACUB program are not taken. Population growth is anticipated at Fort Drum's southwest border and section 801 housing lease agreements have ended, resulting in immediate demand for alternative housing. Three parcels targeted for ACUB easements in fiscal year 2011 will buffer Fort Drum in an area where housing stock has increased significantly. The pressure to build additional homes near Fort Drum is impacted by 48% population growth. Over 400 new homes were built near ACUB priority areas in 2008 with an additional 700 proposed. Two potential ACUB sites will reduce this development pressure on the western border. Significant development in the vicinity of Wheeler-Sack Army Airfield will pose human health and safety issues that could limit if not eliminate the use of approaches and departure procedures and severely impact the external load training of assigned rotary-wing aircraft. Fort Drum has undertaken several coordinated planning efforts to address encroachment threats. Fort Drum has established an excellent relationship with the community and is fortunate to have the Fort Drum Regional Liaison Organization (FDRLO). Established in 1990 as a community-based membership organization, the FDRLO has the mission of preserving positive inter-relationships and communication between the civilian and military communities and leaders in the tri-county region of Northern New York State. Encroachment was identified as a strategic issue and emerging threat to readiness and training in the 2009 Fort Drum Growth Management Strategy as prepared for the FDRLO and continues to be addressed by several of the installation's strategic action goals. The objectives include public outreach to neighboring communities, seeking innovative partnerships, opening lines of communication, participating in key forums such as the Fort Drum Town Hall Meetings, and various State and county forums. Fort Drum's Community Planner has a strong relationship with surrounding communities, which ensures the installation remains informed of any planned development in the vicinity of Fort Drum's boundaries. This relationship affords Fort Drum the opportunity to address concerns with local planning boards prior to the development taking place. FDRLO has backed the Fort Drum Regional Growth Management Strategy Plan project which links community with Fort Drum in making decisions that allow Fort Drum to operate unencroached while the community enjoys economic growth.						

Fort Drum Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Movement and Maneuver	●	Fort Drum has a doctrinal training land shortfall per AR 350-19. Of the 75,934 acres of maneuver training area at Fort Drum, 73,887 acres are considered suitable for training. Of the acreage that is suitable for training, 45,055 (59%) acres are classified as unrestricted mobility, 19,399 (26%) acres are classified as restricted mobility, and 9,443 (12%) acres are classified as highly restricted mobility. 2,037 (3%) acres are classified as unrated mobility and represent acreage that is constrained due to land use, environmental sensitivity, and topographic elements (soil, slope). This deficit requires that maneuver training be conducted within constrained maneuver boxes that provide the ability for training to FSO METL standards, but lack doctrinal area of responsibility maneuver space. Training scenarios are modified and timed events are planned to replicate distance and area requirements. To reduce the land deficit and expand maneuver areas the installation is working to develop a land acquisition plan in FY2011.
	Sustainment	●	Same as above.

Figure 3-11 Army Capability and Encroachment Assessment Detail (continued)

Fort Drum Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Airspace	Movement and Maneuver		The restricted airspace available does not meet the ceiling requirements for high angle weapon systems such as 155mm and Stinger. The lack of the required airspace results in the training event becoming an isolated event rather than a combined arms exercise, reducing training realism. Fort Drum Range Branch has not pursued requirements for extended airspace and will require coordination with Army Headquarters, IMCOM and FAA to determine feasibility and benefits to training in FY2011–FY2012.
	Fire Support		Same as above.
Range Support	Movement and Maneuver		Non-salary range operations is funded at 89% of the Army critical requirement. Limits installation support for short-term training requests, limits range reconfiguration projects to support emerging tactics/techniques and procedures, and limits preventative maintenance. In anticipation of fiscal year funding shortfalls, Range Support will prioritize resources and assets to the training community based on the priority established by the senior commander in support of ARFORGEN. Priorities will be determined and the essential training requirements will be supported and all other requirements will only be supported if the resources and assets are available. Currently, with the contribution of contingency operation funds to support ARFORGEN training requirements, no identified training requirements have been refused.
	Sustainment		Same as above.
Small Arms Ranges	Sustainment		The 40mm MK19 Grenade Training Round is manpower intensive to clear from facilities. The use of this training round reduces the availability of maneuver space until the rounds have been cleared and recovered. It is manpower intensive to clear and recover the land after use, thus reducing training time. This training round has been identified as a Minimal Hazard Training round, therefore, the Army will continue to recover and clear the facility to ensure a safe training environment is maintained and maneuver land is available for training.

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Figure 3-11 Army Capability and Encroachment Assessment Detail (continued)

Hawaii Assessment Details

Range Mission Description

The mission of the U.S. Army Pacific (USARPAC) is to execute continuous training and readiness oversight responsibilities for Army Force Generation in Hawaii. On order, execute Joint Force Land Component Command functions in support of Homeland Defense and Security in Hawaii. The mission of U. S. Army Garrison Hawaii (USAG-HI): (1) Plan and execute on-order deployment support, force protections, and contingency operations. (2) Plan and execute transformation of the installation garrison that supports STRYKER and other mission units. (3) Provide quality installation support and services to our customers. (4) Maintain and improve infrastructure and training areas. (5) Provide proper stewardship of all resources and the environment. (6) Sustain strong community relations. (7) Provide for the well-being of the Army Family into the 21st Century. (See full Mission Description in Table 3-6.)

Capability Data

Mission Areas	Capability Attributes												
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Movement and Maneuver	NMC	FMC			FMC		NMC	FMC	NMC	NMC	NMC	FMC	
Fire Support	FMC	FMC			FMC		FMC	FMC	NMC		NMC	FMC	
Intelligence	FMC	FMC			FMC		FMC	FMC				FMC	
Sustainment	FMC							FMC	NMC	NMC	NMC	FMC	
Command Control	FMC	FMC			FMC		FMC	FMC				FMC	
Protection	FMC				FMC		FMC	FMC		NMC		FMC	

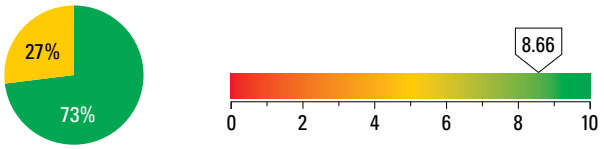
Legend: FMC PMC NMC

Encroachment Data

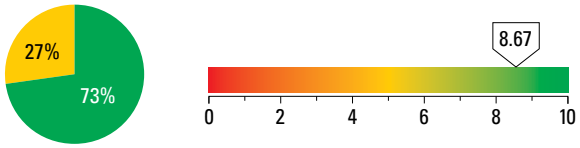
Mission Areas	Encroachment Factors												
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Movement and Maneuver	NMC		FMC		FMC	FMC	FMC	FMC	NMC		FMC	NMC
Fire Support	NMC		FMC		FMC	FMC	FMC	FMC	NMC		FMC	FMC
Intelligence	FMC		FMC		FMC		FMC	FMC	NMC		FMC	FMC
Sustainment	NMC		FMC						NMC		FMC	NMC
Command Control	FMC		FMC		FMC				NMC		FMC	FMC
Protection	NMC		FMC			FMC	FMC	FMC	NMC		FMC	FMC

Legend: Minimal Moderate Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

The most adverse impacts to mission are caused by a shortfall of range support funding and a deficit of small arms and collective ranges. While several mission areas are impacted by capability shortfalls, Movement and Maneuver is the most adversely impacted, due to a maneuver training land shortfall, lack of instrumented after action review capability, a shortage of range suport funding for manpower and operations, and a deficit of multi-purpose machine gun ranges and collective ranges to support aviation gunnery.

Summary Observations

There is a moderate impact to the Mission Areas due to encroachment factors. The most significant impacts are caused by the presence of threatened and endangered species and cultural resources on the installation. The mission areas that are most impacted are Movement and Maneuver and Sustainment, due to training restrictions and limitations resulting from endangered species, law suits related to cultural resource access, and trespassing by recreational land users.

Hawaii Assessment Details

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	N/A	N/A	7.67	**Encroachment Scores**	N/A	N/A	8.78
Capabilities have remained consistent in Hawaii over the last two years. Range support funding has improved slightly in the last year and additional funding is programmed in the FY2012–2016 POM, likely resulting in increased range capability in the out-years. A shortfall of a Multi-Purpose Machine Gun Range and Collective Range to support aviation gunnery has also continued to impact capability in Hawaii. It is anticipated that construction of a standard range to support aviation gunnery will start in FY2015, thus improving collective range capability in the out-years.				Encroachment factor impact on the mission in Hawaii has slightly increased over the past year. Impacts resulting from threatened and endangered species encroachment were not previously assessed against the Fire Support mission. In the near future the Biological Opinion will be amended so that live fire training with ball ammunition may be conducted while the burn index is in the red, thus increasing unit training capability. Two types of encroachment continue to impact Hawaii training areas and ranges. External encroachment factors, such as land development and increased housing construction will continue to increase pressure on training areas and ranges in the future. With increased development near the installation boundaries maneuver areas and impact areas are affected by restrictions on noise. Internal encroachment factors also impact the mission. Natural and cultural resource issues cause range closures and stop training. For example, when a threatened or endangered species is seen within a training area or range, all training is to stop, thus decreasing the capability associated with that range or training area.			

Hawaii Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Movement and Maneuver		Increased maneuver throughput is required due to one Stryker Brigade Combat Team (SBCT) being based in Hawaii. There is limited maneuver area on Oahu and logistically SBCTs have to move by boat to Pohakuloa Training Area (PTA) to conduct a portion of their Misssion Essential Task List training. Even with PTA, Hawaii is still short on required maneuver land because much of the area is not able to support the Stryker vehicle due to environmental no-go areas. Restrictions do not allow units to train to METL standard. Work through the constraints of the biological opinion in order to allow for additional trainings areas to become available (Expansion of PTA and Keamuku maneuver area).
Scoring & Feedback System	Movement and Maneuver		Current MOUT facility lacks instrumentation to provide quality AAR process. Unable to conduct training to Army standards. Currently installing instrumentation and waiting for power upgrade of 6 buildings. Upgrade was scheduled to be compete October 15, 2010.
Range Support	Movement and Maneuver		Non-salary range operation funding 89% below the Army critical requirement. Limits installation support for short-term training requests, limits range reconfiguration projects to support emerging tactics/techniques and procedures, and limits preventative maintenance. Waiting for approval to increase manpower support.
	Fire Support		Same as above.
	Sustainment		Same as above.
Small Arms Ranges	Movement and Maneuver		Deficit one Machine Gun range. Currently unable to conduct training to Army standards. Using alternative qualification standards (10 meter table).
	Sustainment		Same as above.
	Protection		Same as above.
Collective Ranges	Movement and Maneuver		Deficit Aviation Gunnery Capability. Currently unable to train to standard Gunnery table. Have submitted a request to construct a standard design range; anticipated start date FY2015.
	Fire Support		Same as above.
	Sustainment		Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Threatened & Endangered Species	Movement and Maneuver		Endangered species habitat limits maneuvers only to existing roads and trails. Maneuver training areas are restricted to existing roads and trails, thus limiting training scenarios and training realism. Will continue to train within the restrictions set forth by the biological opinions (BO).
	Fire Support		The burn index limits training capabilities. The burn index in conjunction with a limited impact area, causes throughput restrictions; live fire is limited to PTA and training round usage is restricted by caliber. Continue to operate within the constraints of the biological opinions for each of the training ranges; expand training options as they become available in accordance with the BO.

Figure 3-11 Army Capability and Encroachment Assessment Detail (continued)

Hawaii Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Threatened & Endangered Species	Sustainment		Endangered species restricts repairing and rehabilitating maneuver trails, firebreaks, and fuel breaks. Without an operations firebreak, the biological opinion dictates that training must cease. Installation Natural Resources is conducting surveys in the Kahuku training areas and will be formally consulted at the beginning of FY2012.
	Protection		Same as above.
Cultural Resources	Movement and Maneuver		Resuming live fire training at Makua continues to be delayed pending additional litigation over access to cultural sites. Live fire training activities are being conducted at alternate locations in Hawaii. Other training strategies are being pursued at Makua.
	Fire Support		Same as above.
	Intelligence		Same as above.
	Sustainment		Same as above.
	Command & Control		Same as above.
	Protection		Same as above.
Range Transients	Movement and Maneuver		Recreational motorcross riders enter restricted areas of the Kahuku training area. Motorcross riders are a training distraction and cause damage to the land that increases erosion and results in land repair costs. Install fencing along with no trespassing signs to protect the training area.
	Sustainment		Same as above.

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Figure 3-11 Army Capability and Encroachment Assessment Detail (continued)

Fort Hood Assessment Details

Range Mission Description

Fort Hood is focused on preparing Soldiers and units for full spectrum operations and on taking great care of Soldiers, families, and civilians. Fort Hood is the largest active duty armored post in the United States, and is the only post in the United States that is capable of supporting two full armored divisions. With 88 separate ranges, 56 numbered training areas, 4 airfields, artillery ranges, rappel towers, land navigation courses, leadership reaction courses, and several airborne and equipment drop zones, Fort Hood provides major training facilities to support deployment training and mobilization for the 1st Cavalry Division and the 3rd Armored Regimental Cavalry. Fort Hood's ranges and training areas also support the HQ Command III Corps, 4ID HQ, 1BCT 4ID , 4BCT 4ID, 4ID AVN BDE HQ, 41st Fires BDE, 4th Sustainment BDE, 7-158 AVN (-), 6-52 AVN(-), 11th MP BN, 308th MI BDE, 21st Cavalry BDE (Air Combat), TF Odin, 1st Army Division West HQ, 120 Infantry BDE, 166th AVN, 479 FA BDE, 407 AFSB, 901 SPT BN, 15th Sustainment BDE, 36th EN BDE, 89th MP BDE, 57th SIG BDE, 1st MED BDE, 48th Chem BDE, the Dental Activity (DENTAC), the Medical Support Activity (MEDDAC), Army Operational Test Command (AOTC), The NCO Academy, and various other units and tenant organizations to include joint, civilian, and coalition units.

Capability Data

Mission Areas	Capability Attributes: Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Movement and Maneuver	●	●			●		○	○	○	●	●	●	
Fire Support	●	●			●		●	●	○	●	●	●	
Intelligence	●	●			●		●	●			●	●	
Sustainment	○							○	○	●	●	●	
Command Control	●	●			●		●	●			●	●	
Protection	●				●		●	●		●	●	●	

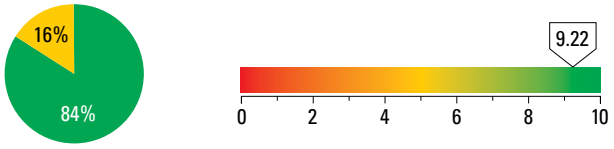
Legend: FMC ● PMC ○ NMC ●

Encroachment Data

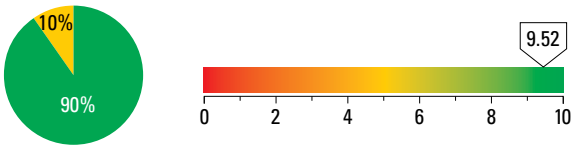
Mission Areas	Encroachment Factors: Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Movement and Maneuver	○		●		●	●	●	●	○		●	
Fire Support	○		●		●	●	●	●	●		●	
Intelligence	●		●		●	●	●	●	●		●	
Sustainment	●		●					●	○		●	
Command Control	●		●		●			●	●		●	
Protection	●		●			●	●	●	●		●	

Legend: Minimal ● Moderate ○ Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

The most adverse impact to mission is caused by a shortfall of range support funding. While several mission areas are impacted by capability shortfalls, Movement and Maneuver and Sustainment are most impacted due to training land shortfalls, lack of funding for trail repairs, and range support funding shortfalls.

Summary Observations

There is minimal impact to the mission areas due to encroachment factors. The presence of threatened and endangered species and the lack of funding to classify cultural resource sites has a minimum impact on the Movement and Maneuver Mission, due to training restrictions and a reduction of the available land base acreage for training. Fort Hood currently meets all training requirements for tenant and deploying units on the training lands.

Fort Hood Assessment Details

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	5.33	5.33	7.44	**Encroachment Scores**	7.93	7.93	9.52
Capabilities have improved at Fort Hood over the past several years. Range support funding levels have increased slightly and range modernization requirements are currently programmed. Range Operations currently meet training requirements for tenant and deploying units, although maneuver requirements must be executed to modified standards and augmented with simulations and virtual training devices. Mobilizing unit requirements can only be met with the continued availability of overseas contingency operation (OCO) funding. While the range modernization program currently addresses all deficiencies in range support facilities, there will remain the need to conduct training to modified standards with obsolete targets and operating systems due to reductions in range modernization funding through FY2016. The current transformation of the Army has not decreased the assigned strength of the installation nor the training requirements for the ranges. The current 15 Brigade equivalent fighting force assigned to Fort Hood requires modernized range support facilities and technological advances, which increase the maneuver requirement. Additionally, when Fort Hood receives Strykers in FY2012, the tank and maneuver trails will not be adequate to support their movement. Maneuver lanes and corridors require repairs and maintenance (at least 121 miles of tank trails will be need to be repaired) to support the Strykers in FY2012. Unit training requirements will only continue to be met if there is funding available to manage and maintain training areas and ranges. Maintenance and repair of training land (woody species management, gully plugs/cross country mobility, etc. and tank and maneuver trail repairs are not keeping pace with OPTEMPO and training requirements. Army training requirements continue to evolve quickly and preparation of land is required prior to training use. Although Integrated Training Area Management (ITAM) requirements are programmed there will remain the need acquire additional funds to meet land repairs to enable training through FY2016. If funding shortfalls continue through there will be significant capability impacts in the out-years.				Encroachment Factor impact to the mission at Fort Hood has been reduced over the past several years, due to installation efforts to mitigate impacts from adjacent land use. Additional reductions in encroachment impacts are the result of a revised business rule. In previous years, restrictions on the use of smoke/obscurants in training events were being captured as an air quality encroachment factor and as an endangered species encroachment factor, when the restrictions were only resulting from endangered species. Historically training usage has worked as a parity for limiting endangered species habitat expansion. The lack of full spectrum training, due to unit deployment schedules, is likely to result in increased endangered species habitat and thus, increased training restrictions in the future.			

Fort Hood Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Sustainment	●	There is a doctrinal shortfall of training land required for units to conduct maneuver training to Army standards. There are approximately 196,356 acres of unrestricted training land at Fort Hood. The training land shortfall requires units to modify doctrinal distances for training and use training land beyond normal timeframes, in order to conduct all required training events. Many training events must be conducted to modified standards, thus reducing training realism. Units are mitigating this shortfall by modifying their training with reduced distances and the use of virtual and constructive simulations. There are currently no plans to acquire additional training land to reduce the shortfall.
Scoring & Feedback System	Movement and Maneuver	●	After action review (AAR) capabilities need to be upgraded on non-instrumented ranges. An automated after action review capability is not available to support the Instrumented Force, thus units do not have the adequate capability to review/assess training events and training effectiveness is reduced. Fort Hood is pursuing a recently acquired Army Standard Automated AAR system for legacy Multi Use Ranges.
Infrastructure	Movement and Maneuver	●	Approximately 179 of 412 (43%) miles of tank trails are currently unserviceable and 113 of 120 (98%) miles of maneuver trails are unserviceable. The lack of serviceable trails degrades unit training capabilities and reduces and restricts logistic and wheeled vehicle operations. Unmaintained trails provide succession to woody species growth. Fort Hood is repairing up to 20 miles of tank trails annually. Additionally the installation is increasing partnerships with Active Duty, Reserve, and National Guard Engineer units to provide trail repair services in FY2011 and FY2012. An increase in sustainment funding for tank trails is required to support training requirements.
	Sustainment	●	Same as above.

Figure 3-11 Army Capability and Encroachment Assessment Detail (continued)

Fort Hood Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Range Support	Movement and Maneuver		Non-salary range operations funding is 89% of the Army critical requirement. Current civ pay, plus range support contract costs exceed allocated funding. Limits installation support for short-term training requests, limits range reconfiguration projects to support emerging tactics/techniques and procedures, and limits preventative maintenance. Continue to assess range support contracts to identify costs reductions (including reducing the number of ranges available for training) for the senior commander to consider. Range control has to use OCO funding to meet additional requirements for mobilization and deployment.
	Fire Support		Same as above.
	Sustainment		Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Threatened & Endangered Species	Movement and Maneuver		Core endangered species nesting seasons restrict training for 5 months of the year on 6.2% of the training areas. Core habitat (8,243 ac) is located on the east side of the installation in light training areas and results in significant restrictions during nesting season. Non Core habitat (43,952 ac) impacts both heavy and light training areas, but only restricts digging. Units are restricted in Core habitat during nesting season: no vehicles off road; no mounted training in trees; units cannot stay longer than 2 hours in habitat areas per day; no smoke/pyro within 100 meters of core habitat and no camouflage net use. Units are restricted from digging in Core and Non Core habitat areas year round. The installation has no plans to change Core habitat areas or restrictions. The Non Core habitat digging restriction is minimized thru use of a one stop, digital dig request system, which provides no dig overlays for all training areas and allows trainers to plan and establish tactical defensive training.
	Fire Support		Same as above.
Cultural Resources	Movement and Maneuver		Insufficient funding limits the ability to review and classify potential cultural resource sites. Sites cannot be classified as eligible or ineligible to support training and/or range upgrades, thus these potential sites are not currently available for training. The Army will continue to work to make appropriate classifications so that training can be maximized on the installation. Appropriate mitigation strategies to avoid training shortfalls are on-going.
	Sustainment		Same as above.

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Figure 3-11 Army Capability and Encroachment Assessment Detail (continued)

Fort Irwin Assessment Details

Range Mission Description

Fort Irwin and the National Training Center (NTC) is a world class training center for America's Military. The NTC is a key part of the Army's Combat Training Centers (CTCs), and training at the NCT is focused on joint and combined arms training in multi-national venues across the full spectrum of conflict set in a contemporary operating environment to assist Commanders in developing trained, competent leaders and Soldiers by presenting them with current problem sets to improve the force and prepare for success in the Global War on Terrorism and future joint battlefields. Fort Irwin and the NTC supports rotational, tenant (11th Armored Calvary Regiment and the 916th Support Brigade), and reserve component units.

Capability Data

Mission Areas	Capability Attributes													
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Movement and Maneuver	FMC	FMC			PMC	PMC	PMC	PMC	PMC	FMC	PMC	FMC	
Fire Support	FMC	PMC			FMC	FMC	FMC	FMC	PMC		FMC	FMC	
Intelligence	FMC	FMC			FMC	FMC	FMC	FMC		FMC	FMC	FMC	
Sustainment	FMC				PMC	FMC	PMC	PMC	FMC	FMC	PMC	FMC	
Command Control	FMC	FMC			FMC	FMC	FMC	FMC	PMC	FMC	FMC	FMC	
Protection	FMC				PMC	FMC	FMC	FMC		FMC		FMC	

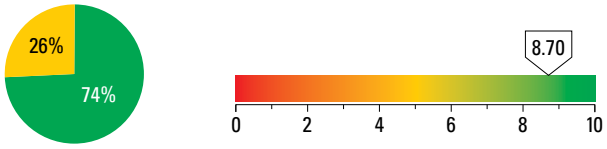
Legend: FMC PMC NMC

Encroachment Data

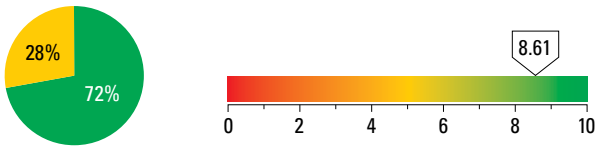
Mission Areas	Encroachment Factors											
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Movement and Maneuver	Moderate		Moderate		Moderate	Minimal	Minimal	Minimal	Moderate	Minimal		Moderate
Fire Support	Minimal		Minimal		Moderate	Minimal	Moderate	Minimal	Moderate	Minimal		Moderate
Intelligence	Minimal		Moderate		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal		Minimal
Sustainment	Moderate		Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Moderate		Moderate
Command Control	Minimal		Moderate		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal		Minimal
Protection	Minimal		Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal		Moderate

Legend: Minimal Moderate Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

The most significant impacts to mission are caused by insufficient range support funding and aging targetry. The lack of sustained funding to support the range and training land program significantly impacts unit movement while insufficient funding to resource range instrumentation modernization, including live fire targetry, impacts the quality of combined arms maneuver.

Summary Observations

There is moderate impact to the mission areas due to encroachment factors. The presence of Range Transients is the factor causing the greatest impact to mission. While several mission areas are impacted, Movement and Maneuver is most significantly impacted due to loss of maneuver space resulting from endangered species, spectrum competition from the NASA station, limited airspace, and range transients.

Fort Irwin Assessment Details

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	7.45	7.45	7.84	**Encroachment Scores**	9.75	9.75	8.50
Historically, National Training Center (NTC) training capability has improved over the past several years. Since 2004, NTC has made remarkable strides to populate the training area with MOUT training sites, emplaced to support current Overseas Contingency Operations in Iraq and Afghanistan. Other areas, such as range control and UXO clearing, have remained relatively constant in capability. Two significant areas have shown degradation—installation ranges and CTC required equipment. The installation ranges have had no significant resources applied to them for the last five years. They are inadequate for the installation mission and in need of modernization and sustainment funding. Three of the six new range requirements, that NTC submitted, were supported in POM 12–16, but were subsequently postponed out of the current POM cycle. Additionally, NTC does not receive separate funding for range sustainment as do the other CTCs, resulting in further range degradation. The Headquarters, Department of the Army, G-3 Training will assess and address critical shortfalls in POM 13–17. The other major capability degradation is in the area of CTC infrastructure and equipment to support the NTC rotation training mission. In the past, CTC modernization has been under-funded and has impacted the up-keep of instrumentation, Tactical Engagement Simulation Systems, opposing force equipment, and live fire ranges at required capability to sustain training for rotating brigades. The NTC is a member of the CTC modernization program and participates in the development and prioritization of combat training center requirements. The Headquarters, Department of the Army, G-3 Training was successful in protecting POM 12–16 CTC Modernization funding and as long as no future funding decrements occur, the program will be able to address aging targetry and instrumentation.				Fort Irwin and the National Training Center (NTC) remain capable of accomplishing the training mission despite instances of increasing encroachment. Fort Irwin's major encroachment issues center around three areas: spectrum, endangered species, and boundary issues. NTC shares the electromagnetic spectrum with NASA Goldstone. NTC must tailor its use of the spectrum to accommodate NASA's needs. This means limiting jamming training, requiring the testing of all systems before use at NTC, and limiting the areas where electronic emitters can be used. This encroachment will be most serious when the western expansion area is opened for training. Endangered species provide the second major area of concern. The NTC is affected by the Federally-threatened Desert Tortoise and the endangered Lane Mountain Milk Vetch. These species have combined to require the NTC to set aside over 40,000 acres of training land for habitat and significantly curtailed activities in several parts of the training area. Mitigation costs in the NTC land expansion have exceeded $75M and mitigation activities have added 10 years to the land expansion process—ongoing since 1993. NTC actively works with DOI, BLM, CA Fish and Game and other agencies to manage the endangered species activities. The third area of concern is the adjacent wilderness areas and occasional civilian incursion. Ongoing legislation will surround the NTC with wilderness areas on three sides, and could result in training limitations. NTC is working with Army Headquarters to minimize these effects on the training mission.			

Fort Irwin Detailed Comment

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Airspace	Fire Support		NTC must share the airspace in the eastern and western expansion areas, limiting the amount and types of training that can be done in those areas. NTC shares the eastern expansion with the FAA, limiting use above 16000 feet AGL. This limitation restricts the ability to employ high Close Air Support and strategic level UAS. The western expansion is shared with China Lake NAWC and Edwards AFB, with NTC as the third priority user. This limits the ability of the NTC to employ aviation assets when required to support maneuver training. NTC must work with the FAA and sister services to gain control of its airspace to enable training
Targets	Movement and Maneuver		The armor and infantry targets that support live fire training for rotational units are circa 1970. The ability of the targetry and range control operating system to meet HBCT gunnery standards is not possible without major workarounds. The Combat Training Center modernization program is providing some additional targetry in the current POM cycle; however, 100% life cycle replacement is not provided for at this time.
	Sustainment		Same as above.
	Protection		The armor and infantry targets that support live fire training for rotational units are circa 1970. The ability of the targetry and range control operating system to meet HBCT gunnery standards is not possible without major workarounds. The Combat Training Center modernization program is providing resources to sustain current targetry in POM 12-16 until life cycle replacement can be addressed.
Threats	Movement and Maneuver		The Battle Effects Simulators (BES) that support live fire training for rotational units are circa 1970. The ability of the targetry and range control operating system to interface with BES is not possible without major workarounds The Combat Training Center modernization program is providing resources to sustain current BES in POM 12–16 cycle until life cycle replacement can be addressed.

Figure 3-11 Army Capability and Encroachment Assessment Detail (continued)

Fort Irwin Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Scoring & Feedback System	Movement and Maneuver		The NTC instrumentation system requires modernization to account for new systems and increased demand for training feedback. Changes to the way the Army fights, modular units and increased digital battle command have generated a requirement for modernization of the instrumentation system used to assist in the training of units at NTC. Area coverage needs to be increased, data throughput needs revisions, MILES instrumentation needs to be more capable. CTC Instrumentation System (IS) funding was protected in POM 12-16 and will address NTC IS as long as funding remains. The NTC will continue to participate in the CTC Modernization program to address and present critical and other unfunded ITESS requirements for POM consideration.
	Sustainment		Same as above.
Infrastructure	Movement and Maneuver		The Main Supply Routes and tank trails within the range complex are failing. The accessibility to the range complex is compromised by the failing road network. Normal maintenance cannot bring the road network up to standards. PNs 75979, 75980, 75982 and 75983 totaling $21.8M would provide for paving of 20 miles of training area roads. These PNs have not been funded through the POM process to date. The training shortfall will continue unless funding is provided. Standard annual SRM funding for the maintenance of the MSR is inadequate based on the amount of vehicle traffic that supports each rotation.
	Sustainment		Same as above.
Range Support	Movement and Maneuver		The NTC comprises over 770,000 acres and more than 500,000 acres are used for maneuver training. The resources required to sustain the training area are not available. In order to effectively make the training area available for training, NTC needs additional personnel for range control operations, additional communications equipment and infrastructure for command and control. NTC is pursuing strategies with Headquarters Army, G-3 Training to provide additional resources to aid in the training area mission.
	Fire Support		NTC has the largest live fire training complex in the Army. Its past history as an air defense training base has littered the training area with UXO. NTC has few off limits dudded areas, most are used concurrently as maneuver training lanes. NTC requires additional resources to more adequately police the training areas of UXO to allow safe training to be accomplished. Funds are being pursued through the Combat Training Center Program.
	Command Control		The Range Communication System is at the end of its life cycle in 2010, but is repairable until 2015. The ability to communicate within the range complex is a requirement IAW AR 385-63. The requirement was presented to the Combat Training Center modernization program as a critical unfunded requirement. If funding is not available in FY2011 then POM 12-16 funding will be adjusted to address critical unfunded requirements and then realigned in POM 13-17.
Collective Ranges	Movement and Maneuver		The Multi-Purpose Training Range is outdated (circa 1987). The range does not support Heavy Brigade Combat Team gunnery standards. An updated range has not been validated or funded at this time. Training shortfalls will continue until funded.
	Sustainment		Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Threatened & Endangered Species/Critical Habitat	Movement and Maneuver		The Army continues to experience delays in opening the western expansion area, due to secondary impacts from litigation related to translocation of the Desert Tortoise. The 70,555 acres of heavy maneuver land in the western expansion area is off limits to training. The Army continues to implement required mitigation measures, based on available funding, in order to use expansion lands for training purposes. The Army will address litigation encountered during implementation of mitigation measures as it occurs.
	Sustainment		Same as above.
Spectrum	Movement and Maneuver		The NASA Goldstone Deep Space Communications Complex (33,000 acres) is located on the western side of Fort Irwin and limits the Army's ability to employ all necessary electronics equipment. The Army must limit jamming and the use of many types of communications equipment and emitters. Additionally, units must coordinate with NASA GDSCC to limit emissions on the western side of the reservation. NTC and NASA need to cooperate to minimize NASA electronic noise limiting requirements.
	Intelligence		Same as above.
	Command & Control		Same as above.

Fort Irwin Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Airspace	Movement and Maneuver	●	NTC does not control the airspace over the eastern and western expansion areas. The eastern expansion area has a 16000 foot ceiling. This limits the types of aircraft and missions that can be flown, in contrast to the installation proper that is ceiling unlimited. The western expansion area airspace is chaired with China Lake NAWC and Edwards AFB, with NTC as the 3rd priority user of its own airspace. This limits the ability of NTC to fly Army UAS and joint aircraft in support of brigade training. NTC is working with the FAA and the R2502 JPPB to minimize training restrictions.
	Fire Support	●	Same as above.
Noise Restriction	Fire Support	●	NTC live-fire operations generate noise that can be heard across the eastern boundary. NTC receives complaints about live-fire noise from residents who live in the vicinity of the eastern boundary. To mitigate, NTC does not conduct live-fire training in the eastern expansion area. NTC will continue to work with local communities on noise issues.
Cultural Resources	Movement and Maneuver	●	Fort Irwin has over 1000 identified cultural sites in the maneuver area. The large number of sites and the rules for using areas causes training to be impacted and selected critical areas to be identified as off limits to training because of cultural implications. NTC requires a significant cultural resources budget to manage these sites. NTC will continue to manage the impacts.
	Fire Support	●	Same as above.
Water Quality Supply	Sustainment	●	Fort Irwin has an estimated 40-year, non-replenishable water supply. NTC uses water wells to provide all water needs. The training area has no reliable water supply to support training needs, all water must be transported to field locations. The amount and location of training is affected by the ability to transport and supply water for training units. Fort Irwin needs to be resourced to probe for additional water sources. Additionally, a tertiary water treatment facility (estimated at $100M) needs to be constructed so that Fort Irwin can reclaim up to 60% of the one million gallons of water used daily. These measures will extend Fort Irwin's viable service life indefinitely.
Range Transients	Movement and Maneuver	●	Approximately 225 miles of Fort Irwin's boundary is contiguous to Death Valley National Park or publicly accessible areas. The ability of persons to enter Fort Irwin in an uncontrolled area causes problems for training. During maneuver and live fire training, the Army is required to pre-clear the training area of unauthorized personnel, using either ground or aerial patrols. Additionally, NTC has had many instances of "scrappers" (unauthorized metal scavengers and thieves) entering the training area and collecting (stealing) both metal scrap and training equipment (targets, solar panels, copper wire). NTC patrols have stopped trucks loaded with unexploded ordnance that was collected from the impact areas, clearly presenting a safety concern. NTC requires adequate resources to fence the installation and provide regular patrols to cover the training area to prevent unauthorized and dangerous access.
	Fire Support	●	Same as above.
	Sustainment	●	Same as above.
	Protection	●	Same as above.

Figure 3-11 Army Capability and Encroachment Assessment Detail (continued)

Fort Lewis Assessment Details

Range Mission Description

Joint Base Lewis-McChord (JBLM) provides state-of-the-art training and infrastructure and fully capable mobilization and deployment operations for Army, Navy, Air Force, and Marines. JBLM supports a myriad of tenant, non-tenant and reserve component forces and supports a Mobilization mission that trains over 15,000 mobilizing Soldiers annually. Additionally, JBLM provides support for ROTC Advanced Annual Summer Camp, "Warrior Forge." Live-fire ranges are capable of supporting individual, crew served, Stryker, and aerial gunnery (limited) as well as squad, platoon, and company maneuver live-fire exercises. JBLM has approximately 68,000 acres of maneuver land. 88% of that land is designated for heavy use, and the remaining 12% is for heavy or light use. Additionally, there are 13,000 acres of dudded and non-dudded impact areas. 1st Army Training Guidance is that all CAT II and III units participate in some form of live fire exercise. The convoy live fire meets this requirement and IED-Defeat and Base Defense Training is available for all units. Specialized training is conducted based on unit requirements. Live-fire training, heavy and light maneuver capabilities are provided for I Corps (STB), 4/2 ID (SBCT), 3/2 ID (SBCT), 4/6 ACS, 17th Fires Brigade, 5/2 ID (SBCT), 555 Engineer Brigade, 201 Military Intelligence Brigade, 42 Military Police Brigade, 593 SB, 62 Medical Brigade, 51 Signal Battalion, 8th Brigade ROTC, 1SFG, and the 2/75 Ranger Battalion, as well as numerous Reserve, Guard, and sister service units.

Capability Data

Mission Areas	Capability Attributes												
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Movement and Maneuver	NMC	NMC			FMC		FMC	NMC	NMC	NMC	NMC	FMC	
Fire Support	FMC	FMC			FMC		FMC	FMC	NMC		NMC	FMC	
Intelligence	FMC	NMC			FMC		FMC	FMC				FMC	
Sustainment	FMC							NMC	NMC	NMC	NMC	FMC	
Command Control	FMC	FMC			FMC		FMC	FMC				FMC	
Protection	FMC				FMC		FMC	FMC		NMC	FMC	FMC	

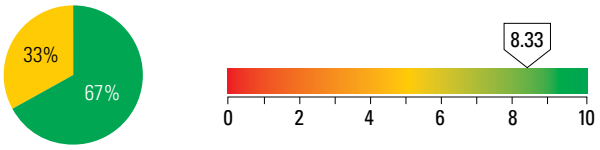
Legend: FMC, PMC, NMC

Encroachment Data

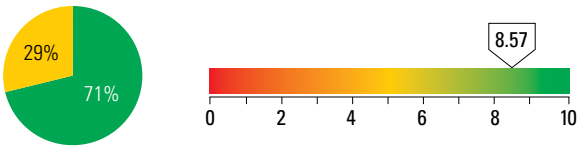
Mission Areas	Encroachment Factors												
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Movement and Maneuver	Severe		Moderate		Severe	Moderate	Moderate	Moderate	Moderate		Severe	Minimal
Fire Support	Severe		Moderate		Severe	Moderate	Severe	Moderate	Moderate		Severe	
Intelligence	Moderate		Moderate		Moderate		Moderate	Moderate	Moderate		Moderate	
Sustainment	Severe		Moderate					Moderate	Moderate		Moderate	
Command Control	Moderate		Moderate		Moderate			Moderate	Moderate		Moderate	
Protection	Severe		Moderate			Moderate	Severe	Severe	Moderate		Moderate	

Legend: Minimal, Moderate, Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

The most severe impacts to mission are caused by a shortfall in range support funding and lack of small arms and collective ranges. While several Mission Areas are impacted by capability shortfalls, Movement and Maneuver is the most severely impacted, due to a shortfall of training land and ranges to support Stryker Brigades, damaged maneuver trails and roads that limit maneuver training and unit access to maneuver compartments, and a shortfall of range staff authorizations.

Summary Observations

There is a moderate impact to the mission areas due to encroachment factors. The most significant impact is caused by the presence of threatened and endangered species on the installation. The mission areas that are most impacted are Movement and Maneuver and Fire Support due to training restrictions and limitations resulting from endangered species and wetlands, limited airspace for artillery, noise issues, and unanticipated recreational land users.

Fort Lewis Assessment Details

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	7.67	7.67	6.56	**Encroachment Scores**	8.54	8.54	9.15
Capabilities have improved at Fort Lewis over the past several years. While range support funding has improved slightly in the last year, authorizations for range staff are below Army critical requirements. This impact is being addressed and there should be significant improvement in Range Support by FY2013 when authorizations are increased to the Army critical requirement. A shortage of smalls arms and collective ranges has also continued to impact capability at Fort Lewis, however new ranges are programmed for construction in FY2016 and FY2017, thus Small Arms and Collective Range capability should improve in the out-years. Landspace and Airspace capability will continue to be a challenge into the out-years, but the installation is working with FAA to mitigate Airspace issues.				Encroachment factors have historically had a minor to moderate impact on the mission at Fort Lewis. Moderate impacts resulting from threatened and endangered species habitat on the installation have been fairly consistent for the past several years. Noise restrictions and adjacent land use impacts have caused minor to moderate impacts on the mission, and will continue to be an impact into the future due to development adjacent to the installation boundary. Range transients have not historically been an issue, but recently unpermitted recreational use of Fort Lewis land has resulted in minor training impacts. The installation is continuing to communicate and coordinate with the public to ensure proper recreational use permitting procedures are understood, in order to mitigate this encroachment impact.			

Fort Lewis Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Movement and Maneuver		There is limited land to support the requirements for the Stryker Brigades and other units stationed on JBLM. Units can only train to the Platoon level on JBLM-Main, thus larger exercises are required to go to YTC. The drop zones are restricted during night ops, which is a tactical requirement for Special Forces and Rangers. The installation will continue to implement workarounds in order to accomplish training for units on JBLM-Main.
Airspace	Movement and Maneuver		There is limited restricted airspace. UAS and special forces jump capability is limited by the lack of designated restricted airspace. The installation is coordinating updates with FAA to expand available restricted airspace.
	Intelligence		Same as above.
Infrastructure	Movement and Maneuver		The maneuver trails and roads in the training areas are in need of repair. Damaged maneuver trails and roads limit maneuver training and unit access to maneuver components. The installation is working to define trails and roads to determine responsibility. In FY2011, the Integrated Training Area Management program will begin maintaining maneuver trails.
	Sustainment		Same as above.
Range Support	Movement and Maneuver		Range operations staff authorizations are 75% below the Army critical requirement. This limits installation support for short-term training requests, limits range reconfiguration projects to support emerging tactics/techniques and procedures, and limits preventative maintenance. The budget and requirements will be re-evaluated to provide near-term contract support. Range operations shortfalls will be addressed in the FY2013–FY2017 POM and staff authorizations should increase to 100% of the critical requirement in FY2013.
	Fire Support		Same as above.
	Sustainment		Same as above.
Small Arms Range	Movement and Maneuver		There is a shortage of .50 cal qualification ranges and anti-armor ranges required to fully support tenant units. The units are not able to qualify on required weapons and gunnery. Updates and new ranges for compliance with Army requirements have been identified through the POM cycle. Military Construction funding has been programmed for a .50 cal range in FY2016 and for an anti-armor range in FY2017.
	Sustainment		Same as above.
	Protection		Same as above.
Collective Ranges	Movement and Maneuver		There is no modernized collective gunnery range. Stryker Brigade Combat teams stationed at the installation can not fully meet training requirements. Range Control will continue to identify workarounds to assist in meeting training requirements for collective gunnery events.
	Fire Support		There is no modernized collective gunnery range. Stryker Brigade Combat teams stationed at the installation can not fully meet training requirements. Range Control will continue to identify workarounds to assist in meeting training requirements for collective gunnery events. YTC is currently upgrading their Multi-Purpose Range Complex. There is not enough room at JBLM-Main to support a range of this type.
	Sustainment		Same as above.

Figure 3-11 Army Capability and Encroachment Assessment Detail (continued)

Fort Lewis Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Threatened & Endangered Species	Movement and Maneuver		Bald Eagles restrict the use of a portion of Range 87 from 1 December through 31 March annually. Portions of Range 76 are within the habitat for the Taylors Checkerspot Butterfly. Use of Range 87 is restricted 4 months of the year, thus during this period, use of smoke and target emplacements is restricted, curtailing the full capability of the range. Habitat mitigation on Range 76 restricts off road vehicular movement, thus Stryker movement formation and utilization of the terrain to move to the target is not trained. The Army is continuing to implement mitigation strategies and training workarounds to avoid training shortfalls.
	Fire Support		Same as above.
	Sustainment		Same as above.
	Protection		Same as above.
Airspace	Movement and Maneuver		Current airspace does not account for all of the ranges that fire munitions. Two of the four compartments of R6703 have a ceiling cap of 5K AGL. Within SUA R6703 D, B contains the majority of JBLMs mortar points. With the addition of 120 mm mortars it is a challenge to ensure that the 120 mm munitions do not break the ceiling cap of 5K and do not skip out of the designated impact area. The Army is working proposals to adequately cover the Range Complex vertically and horizontally.
	Fire Support		Same as above.
Noise Restrictions	Fire Support		The Installation Compatible Use Noise Zoning Study (54-34-3468-83) limits demolition poundage at the installation. Additionally, mortars and field artillery must receive prior approval to conduct late night firing (from 2200-0700 hours). The .50 cal machine gun range is located on a high bluff that overlooks the Nisqually Reservation. Units are limited to 20 pounds in any one detonation or group of simultaneous detonations. Nisqually Tribe and local communities call in frequently with noise complaints, which could have future impacts. Continue noise studies and work with local communities to notify them of military activities.
	Protection		Same as above.
Adjacent Land Use	Protection		No use of smoke 300 meters from the boundary. With the number of local roadways and highways that dissect JBLM, units are not allowed to use smoke near the installation boundary. All smoke operations must be well within the boundary which limits the locations for this type of training. The Army is continuing to implement mitigation strategies and workarounds to avoid training shortfalls.
Wetlands	Movement and Maneuver		There are 8338 acres of wetlands on the installation. Training is restricted on this acreage, with the exception of dismounted maneuver training. This restriction limits the use of heavy maneuver training on the available land. The Army is continuing to implement mitigation strategies and workarounds to avoid training shortfalls.
	Fire Support		Same as above.
Range Transients	Movement and Maneuver		Stryker training lanes and field training activities are regularly impacted by local citizens using the training areas to ride horses, train hunting dogs, hunt birds, collect vegetation, hunt wild game, and exercise. The Area Access process of obtaining a permit and MWR activities help with the people that have requested permission to recreate on JBLM. It is the people we do not know about that affect military operations. JBLM is working on providing information on the proper procedures.

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Figure 3-11 Army Capability and Encroachment Assessment Detail (continued)

Fort Polk Assessment Details

Range Mission Description

Fort Polk is a Contingency Force Generation installation that supports five brigade level headquarters and one battalion level headquarters as follows the 4TH IBCT-10th Mountain Division; The 1st Maneuver Enhancement Brigade; 162nd Infantry Training Brigade; the JRTC Operations Group; the 115th CSH and the 5th AVN BN. Home station unit AFORGEN support includes the following: individual and collective training to the Company/Battalion level simulations and live fire, mounted/dismounted MCO, COIN, and CCRF training events, and support to one of the Army's Combat Training Centers (CTCs)- the Joint Readiness Training Center (JRTC). JRTC conducts 10 major, training events annually at Fort Polk. It focuses Army, Air Force, Army National Guard, Navy, and Marine rotational units on advanced-level joint training under conditions that simulate low and mid-intensity conflicts. Additionally, 70 USAR and NG Units use Fort Polk as a regional training location for individual and collective training to the Company/Battalion level including simulations and live fire and mounted/dismounted MCO, COIN, and CCRF training events. The Range mission is to provide rigorous, relevant, realistic and safe ranges and training facilities for tenant units and the CTC, JRTC; to plan and budget for the construction, modernization and sustainment of ranges and the training complexes; to provide operations, coordination, scheduling and control of ranges, training complexes and airspace; to furnish and maintain target systems and battlefield simulation support; monitor the use of ranges and training areas; and to execute the Integrated Training Area Management Program.

Capability Data

Mission Areas	Capability Attributes												
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Movement and Maneuver	●	●			●		●	●	●	●	●	●	
Fire Support	●	●			●		●	●	●		●	●	
Intelligence	●	●			●		●	●	●			●	
Sustainment	●							●	●	●	●	●	
Command Control	●	●			●		●	●	●			●	
Protection	●				●		●	●	●	●	●	●	

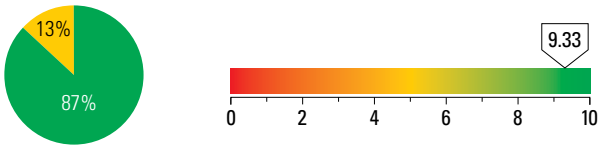
Legend FMC ● PMC ● NMC ●

Encroachment Data

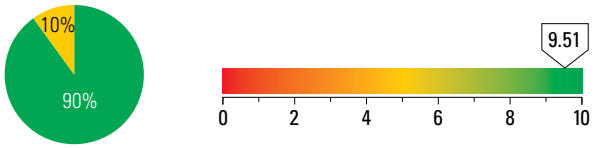
Mission Areas	Encroachment Factors											
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Movement and Maneuver	●		●		●	●	●	●	●		●	
Fire Support	●		●		●	●	●	●	●		●	
Intelligence	●		●		●		●	●	●		●	
Sustainment	●		●					●	●		●	
Command Control	●		●		●			●	●		●	
Protection	●		●			●	●	●	●		●	

Legend Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

The most adverse impact to mission is caused by a shortfall of training land. While several mission areas are impacted by capability shortfalls, Movement and Maneuver is most significantly impacted due to a maneuver training land shortfall, airspace conflicts, and antiquated smalls arms ranges.

Summary Observations

There is minimal impact the mission areas due to encroachment factors. The presence of threatened and endangered species on the installation is the factor causing the greatest impact to mission. While several mission areas are impacted, Movement and Maneuver is most significantly impacted due to maneuver restrictions resulting from endangered species and wetlands.

Fort Polk Assessment Details

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	8.73	8.73	7.94	**Encroachment Scores**	10.00	10.00	9.51
Capabilities have improved at Fort Polk since 2010. Range support funding has increased and capability shortfalls have been mitigated. A shortage of modernized small arms ranges has continued to impact capability at Fort Polk, however new range requirements have been documented and capability should improve in the out-years. Landspace continues to impact maneuver capability, but the purchase of additional training land will significantly improve this capability in the out-years. Airspace capability will likely become a greater challenge into the out-years, as requirements to field new UAS systems increase.				Encroachment factors have not historically had a significant impact on the mission at Fort Polk. Minor to moderate impacts resulting from threatened and endangered species, the presence of feral horse, and wetlands have developed over the last two years and are anticipated to result in continued impacts to maneuver training and live-fire exercises in the out-years. The installation is actively pursuing buffer initiatives through the Army Compatible Use Buffer (ACUB) Program to reduce existing impacts and prevent future impacts. Additionally, training land acquisition efforts should help to alleviate maneuver training impacts by providing additional maneuver land to meet training requirements.			

Fort Polk Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Movement and Maneuver	●	The installation has a maneuver training land shortfall per AR 350-19. The training land shortfall of 100,000 acres limits the ability of the installation to simultaneously train a Brigade Combat Team and a rotation at the Joint Readiness Training Center. Additionally, the installation can not fully accommodate range live-fire and maneuver training at the same time. Final approval for training land acquisition was granted by OSD in April 2010. Funding is programmed for land acquisition in FY2010–FY2013.
	Fire Support	●	Same as above.
	Sustainment	●	Same as above.
Airspace	Movement and Maneuver	●	Launching and recovering UASs interrupts active ranges due to proximity of airfield and a small arms range complex. UAS make it difficult to schedule other aircraft within the training area and operate small arms ranges and UAS training simultaneously. The installation is mitigating this issue through the use of more vertical/lateral separation, schedule additional delays in other aircraft entering the restricted area, and mitigate small arms range impacts through scheduling.
Small Arms Range	Movement and Maneuver	●	Many small arms ranges are WWII and/or Vietnam era and are not in compliance with current Army regulation (TC 25-8). Fort Polk cannot conduct small arms training to Army standard and must use non standard ranges to meet requirements (TC 25-8). Fort Polk has identified out-year requirements for a Multi-Purpose Machine Gun range, Infantry Platoon Battle Course, and Infantry Squad Battle Course.
	Sustainment	●	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Threatened & Endangered Species	Movement and Maneuver	●	The Red-Cockaded Woodpecker and Louisiana Pine Snake are protected species that are present on the installation. Endangered species habitat restricts, prohibits, and limits maneuver training on the installation. The Army implements on-going mitigation to avoid training impacts. The Army Compatible Use Buffer (ACUB) program is an integral component of the Army's sustainability triple bottom-line: mission, environment and community. In recent years, Army installations have experienced increasing encroachment because of population growth, change in or expansion of existing land use, and environmental requirements. The ACUB program proactively addresses encroachment while achieving conservation objectives through the purchase of conservation easements. Fort Polk's ACUB is attempting to secure easements in Bienville Parish.
	Fire Support	●	Same as above.
	Sustainment	●	Same as above.
Wetlands	Movement and Maneuver	●	There are 16,538 acres of wetlands on the installation which includes USFS permitted land. Training is restricted in wetland areas, thus reducing the availability of maneuver training land to fully meet requirements. Fort Polk continues to construct low water crossings as funding becomes available.

Figure 3-11 Army Capability and Encroachment Assessment Detail (continued)

Fort Riley Assessment Details

Range Mission Description

Fort Riley is a division-level installation and power projection platform. Fort Riley live-fire is supported by several main ranges and has maneuver space capable of supporting a Brigade Combat Team (BCT). The primary range complex is the Douthit Range Complex which supports both Heavy BCT and Infantry BCT live-fire training. The 1st Infantry Division at Fort Riley provides combat-ready forces to theater commanders through the ARFORGEN cycle, and prepares the modular division headquarters for deployment. Fort Riley constantly develops and supports realistic live-fire events to meet ARFORGEN requirements by combining ranges and opening training areas for large weapons systems when required. As a Contingency Force Generation Installation (CFGI), Fort Riley provides major training facilities to support deployment training and mobilization for the 1st Infantry Division, multiple support units, and multiple reserve component units.

Capability Data

Mission Areas	Capability Attributes												
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Movement and Maneuver	●	●			●		●	●	●	●	●	●	
Fire Support	●	●			●		●	●	●		●	●	
Intelligence	●	●			●		●	●				●	
Sustainment	●							●	●	●	●	●	
Command Control	●	●			●		●	●				●	
Protection	●				●		●	●		●	●	●	

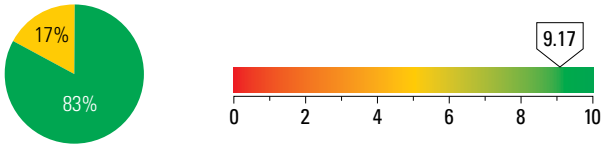
Legend: FMC ● PMC ● NMC ●

Encroachment Data

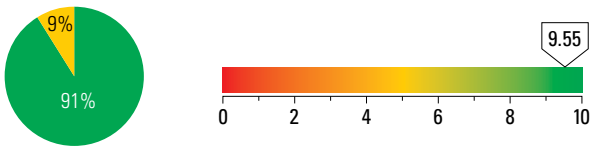
Mission Areas	Encroachment Factors											
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Movement and Maneuver	●		●		●	●	●	●	●			
Fire Support	●		●		●	●	●	●	●			
Intelligence	●		●		●		●	●	●			
Sustainment	●		●						●			
Command Control	●		●		●				●			
Protection	●		●			●	●	●	●			

Legend: Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

The most adverse impact to mission is caused by a shortfall in Range Support funding and a lack of small arms ranges. While several mission areas are impacted by capability shortfalls, Movement and Maneuver is the most severely impacted, due to a lack of restricted airspace to support large force on force exercises, a shortfall of range support funding, and a shortage of upgraded Multi-Purpose Machine Gun ranges.

Summary Observations

There is a minimal impact to the Mission Areas due to encroachment factors. The most significant impact is caused by Adjacent Land Use. The mission area that is most impacted is Movement and Maneuver, due to the fact that 9 square miles of training area is civil Class D airspace controlled by the Manhattan Municipal Airport.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Capability Scores	6.33	6.33	8.22

Capabilities have improved at Fort Riley over the past several years. Range Support funding has improved slightly in the last year and additional funding is programmed in the FY2012–2016 POM, likely resulting in increased range capability in the out-years. A shortage of upgraded Multi-Purpose Machine Gun ranges has also continued to impact capability at Fort Riley, however range upgrades are programmed in FY2011 and FY2015, thus Small Arms capability should improve in the out-years. Airspace capability will continue to be a challenge, but the installation is working with FAA to mitigate Airspace issues.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Encroachment Scores	10.00	10.00	9.55

Encroachment factors have historically had almost no impact on the mission at Fort Riley. Minimal impacts resulting from Adjacent Land Use have increased over the last two years and have had some minor impacts on the mission. The installation is currently working with the FAA to resolve issues involving UAS and rotary wing aircraft operating within the restricted area. This should help to mitigate potential impacts moving forward and prevent this encroachment factor from having increased impacts in the future.

Fort Riley Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Airspace	Movement and Maneuver	●	Approximately nine square miles of training area is civil Class D airspace controlled by the Manhattan Municipal Airport. The installation lacks the horizontal airspace necessary to support the conduct of large force on force exercises. There are several actions currently under way to reduce the shortfall. The installation is reworking the SOP with the FAA to operate more effectively with the two airfields located to the south of Fort Riley that affect a three-mile restricted area. Another step that has supported training is to conduct more air and ground training at Smoky Hill in Salina KS.
Range Support	Movement and Maneuver	●	Non-salary range operations is funded at 89% of the Army critical requirement. This limits installation support for short-term training requests, limits range reconfiguration projects to support emerging tactics/techniques and procedures, and limits preventative maintenance. The installation is working to increase staff to meet ARFORGEN requirements and realigning for greater efficiency.
	Fire Support	●	Same as above.
	Sustainment	●	Same as above.
Small Arms Range	Movement and Maneuver	●	Shortfall of upgraded Multi-Purpose Machine Gun (MPMG) range. The installation does not have upgraded MPMG capability to fully meeting training requirements. Funding has been programmed to upgrade one MPMG in 2011 and a second MPMG has been programmed for construction for in 2015.
	Sustainment	●	Same as above.
	Protection	●	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Airspace	Movement and Maneuver	●	Approximately nine square miles of training area is civil Class D airspace controlled by the Manhattan Municipal Airport. The installation lacks the horizontal airspace necessary to support the conduct of large force on force exercises. Currently working with the FAA to resolve issues involving UAS and Rotary wing aircraft operating within the restricted area. COA 1: Create an acceptable waiver exclusion area within off-limits area. COA2: Shut down military and Civilian airport during mandatory training periods. COA3: Continue operations using existing MOA agreement.
Adjacent Land Use	Movement and Maneuver	●	Approximately nine square miles of training area is civil Class D airspace controlled by the Manhattan Municipal Airport. Artillery and other live fire events are not allowed in Training Areas 25, 26, 27, 28, and 30 (4,106 acres), which comprise a Controlled Firing Area (CFA) and a Special Use Airspace zone. Firing in the CFA would shut down the airport. Currently working with the FAA to resolve issues involving UAS and Rotary wing aircraft operating within the restricted area. COA 1: Create a acceptable waiver exclusion area within off-limits area. COA2: Shut down military and Civilian airport during mandatory training periods. COA3: Continue operations using existing MOA agreement.
	Fire Support	●	Same as above.

Figure 3-11 Army Capability and Encroachment Assessment Detail (continued)

Fort Stewart Assessment Details

Range Mission Description

Fort Stewart and Hunter Army Airfield are the Army's training and military armored power projection combination on the Eastern Seaboard of the United States. This platform allows military units in the region to deploy rapidly throughout the world. The installation operates and maintains 242,000 acres available for live-fire and maneuver training and ensures Fort Stewart remains a premier force projection platform. Military readiness, training land stewardship, and environmental compliance are a priority for Fort Stewart's range operations. Live-fire ranges are capable of supporting small arms, field artillery, aerial and tank gunnery. Maneuver training adheres to the tenants of the Army Campaign Plan for Sustainability.

Major units that train at Fort Stewart are the 3rd Infantry Division, the 92nd Engineer Battalion, the 38th Explosive Ordnance Detachment, and the 385th Military Police Battalion. Other tenant units and organizations that train on Fort Stewart are the NCO Academy/Warrior Leader Course, 188th Infantry Brigade, 1st Battalion- 75th Ranger Regiment, 3rd Battalion-160th Special Operations Aviation Regiment, 95th Maintenance, Aviation and Missile Command (AMCOM) Project OLR (East), the Special Forces Recruiting Team, and multiple Air Force, Coast Guard, and reserve component units.

Capability Data

Mission Areas	Capability Attributes												
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Movement and Maneuver	NMC	FMC			FMC		FMC	FMC	NMC	NMC	NMC	FMC	
Fire Support	FMC	FMC			FMC		FMC	FMC	NMC		FMC	FMC	
Intelligence	FMC	FMC			FMC		FMC	FMC				FMC	
Sustainment	NMC							FMC	NMC	NMC	NMC	FMC	
Command Control	FMC	FMC			FMC		FMC	FMC				FMC	
Protection	FMC				FMC		FMC	FMC		NMC	FMC	FMC	

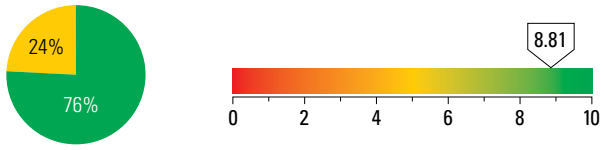
Legend: FMC, PMC, NMC

Encroachment Data

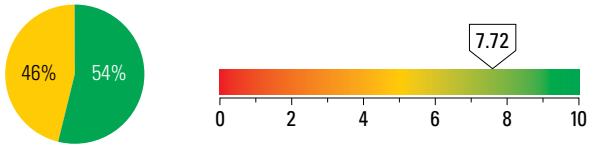
Mission Areas	Encroachment Factors											
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Movement and Maneuver	Moderate		Moderate		Moderate	Minimal	Minimal	Minimal	Moderate		Moderate	
Fire Support	Moderate		Moderate		Moderate	Minimal	Minimal	Minimal	Moderate		Moderate	
Intelligence			Moderate		Moderate	Minimal	Minimal	Minimal	Minimal		Minimal	
Sustainment	Moderate		Moderate		Moderate	Minimal	Minimal	Minimal	Minimal		Moderate	
Command Control			Moderate		Moderate	Minimal	Minimal	Minimal	Minimal		Minimal	
Protection	Moderate		Moderate		Moderate	Minimal	Minimal	Minimal	Minimal		Minimal	

Legend: Minimal, Moderate, Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

The greatest impact to mission is caused by a shortfall in small arms and collective ranges. While several mission areas are impacted by capability shortfalls, Movement and Maneuver is the most adversely impacted, due to a maneuver training land shortfall, a shortage of range support funding, and a critical shortfall of upgraded Multi-Purpose Machine Gun ranges and Collective ranges to support squad and platoon level training.

Summary Observations

There is moderate impact to the mission areas due to encroachment factors. The most significant impacts are caused by threatened and endangered species, spectrum, airspace, and wetlands. The mission areas that are most impacted are Movement and Maneuver and Fire Support, due to the presence of endangered species, spectrum competition, airspace encroachment, and wetlands. 100% of field training exercises currently require minor workarounds and a majority of training areas have vegetation concerns due to tree density and understory. Fort Stewart employs an active timber harvest and controlled burn program to address this issue. While training tasks are accomplished in conjunction with restrictions that result from encroachment factors, costs are incurred as a result of mitigating these encroachment factors.

Fort Stewart Assessment Details

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Capability Scores	6.33	6.33	6.89

Capabilities have improved at Fort Stewart over the past several years. Range Support funding has improved slightly in the last year and additional funding is programmed in the FY2012–2016 POM, likely resulting in increased range capability in the out-years. A critical shortfall of upgraded Multi-Purpose Machine Gun ranges and Collective ranges to support squad and platoon level training has also continued to impact capability at Fort Stewart. As an installation that supports heavy forces, Fort Stewart has traditionally focused its range upgrade program to Tank and Bradley ranges. The conversion of an HBCT to an IBCT has split the focus into one of supporting predeployment and mobilization preparation of all forces with a greater emphasis on basic Infantry skills; (individual and crew qualifications with small arms in support of small unit operations (squad/platoon)) while maintaining and upgrading capability to support heavy tank and Bradley gunnery. Current construction efforts will improve the range complex capabilities. Funding cuts will keep Fort Stewart in an yellow status until FY2018. Civilian encroachment upon the installation boundary could jeopardize operation of existing critical facilities, and reduce options for siting additional ranges to support future mission requirements. Establishment of a conservation buffer will reduce the risk of incompatible development near the Installation, and provide for conservation of natural resources on a regional scale. A Joint Land Use Study (JLUS) encourages cooperative land use planning between the installation and surrounding communities, balancing both military and civilian interests. Fort Stewart's buffering activities help to support current and future training requirements by addressing development sprawl, preserving habitat, improving community relations and providing benefits to the community, and generally promoting overall military readiness.

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Encroachment Scores	9.17	9.17	8.61

Encroachment factor impact on the mission at Fort Stewart has generally increased over the past several years. Moderate impacts resulting from Threatened and Endangered Species and Airspace encroachment have increased over the last two years and have had some minor to moderate impacts on the mission. Training restrictions associated with RCW will decrease once 2007 RCW guidelines are implemented in FY2011 when Fort Stewart reaches tiered recovery goals for the RCW population. Additionally, the installation is currently working with the FAA to mitigate airspace encroachment. These actions should help to mitigate potential impacts moving forward and prevent these encroachment factors from having increased impacts in the future. The potential listing of the Gopher Tortoise and the Striped Newt as endangered species would have a moderate to significant impact on training. This is unlikely to occur in the next five years, but the Army must remain actively engaged in regional conservation efforts to prevent such listing. Additionally, funds are needed for the ACUB program to purchase easements before additional development around the installation occurs and results in Adjacent Land Use impacts to the training mission.

Fort Stewart Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Movement and Maneuver	●	Fort Stewart has a doctrinal training land shortfall per AR 350-19. Fort Stewart's doctrinal shortage of light and heavy maneuver land limits the realism of training. Units are not able to train in the required "battle space" as real world missions dictate. Combat operations, command and control and logistical requirements are not realistic, thus limiting the "Train as we Fight" concept of training. Currently there are no actions or plans to increase maneuver space.
	Sustainment	●	Same as above.
Range Support	Movement and Maneuver	●	Non-salary range operations funding is 89% of the Army critical requirement. This limits installation support for short-term training requests, limits range reconfiguration projects to support emerging tactics/techniques and procedures, and limits preventative maintenance. Range support shortfalls were programmed in FY2012–FY2016 POM. Range support will be limited to repair critical range operations functions and equipment. Range Reconfiguration projects will not be completed without outside funding. Non-Army users will reimburse identifiable and incremental costs associated with the use of range facilities.
	Fire Support	●	Same as above.
	Sustainment	●	Same as above.
Small Arms Range	Movement and Maneuver	●	There is a deficit of machine gun range upgrades. Fort Stewart's machine gun range currently does not meet the training requirements as outlined in TC 25-8. Training throughput requirements (as directed by the ARRM (Army Range Requirements Model)) call for a total of five machine gun ranges. This leaves Fort Stewart with a throughput issue and an inability to meet "to standard" training requirements during deployment preparations and mobilizations. There are no plans to upgrade the current range to TC 25-8 standards. The FY2011 machine gun range is currently in the design process with an estimated completion date in FY2013. The FY2013 machine gun range programmed for construction was deferred. There are currently no plans to construct enough ranges to meet throughput requirements.
	Sustainment	●	Same as above.
	Protection	●	Same as above.

Figure 3-11 Army Capability and Encroachment Assessment Detail (continued)

Fort Stewart Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Collective Ranges	Movement and Maneuver	●	There is a deficit of Infantry platoon/squad collective ranges. Fort Stewart is authorized four Infantry Squad Battle Courses (ISBC) and two Infantry Platoon Battle Courses. There is one IPBC (that currently does not meet the training requirements as outlined in TC25-8), and one IPBC approved for construction in FY2011. The conversion of an HBCT to an IBCT, with more light Infantry Soldiers and longer dwell time between combat rotations, will increase throughput requirements for these facilities. There continues to be no Infantry Squad live fire facility for the 3rd ID, 1-75 Ranger Regiment and other Deployed and Contingency Expeditionary Forces. There are 135 Infantry Squads organic to Fort Stewart and their "to standard" training needs cannot be met. Fort Stewart has no ISBCs on the ground and none currently programmed in the out years. These training shortfalls are being addressed through the appropriate Army Command. There is no anticipated remedy prior to FY2016.
	Sustainment	●	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Threatened & Endangered Species/ Critical Habitat	Movement and Maneuver	●	There are six federally protected species on Fort Stewart. Primary training impacts include movement, maneuver, and live-fire tasks restrictions associated with RCW colonies. Additional impacts to training vary depending on species: limited flyover of marked nests during nesting season (Bald Eagle); and avoidance of burrows (Eastern Indigo Snake). Maneuver forces are able to train, with minimal to moderate workarounds dependant on location, even with the restrictions associated with the RCW and other threatened and endangered species. The restriction will decrease once 2007 RCW guidelines are implemented in FY2011 due to Fort Stewart reaching tiered recovery goals for the RCW population. In addition, an active Soldier education program is in place to educate soldiers on restrictions, thus allowing for accomplishment of training task in conjunction with the restrictions.
	Fire Support	●	Same as above.
	Intelligence	●	Same as above.
	Sustainment	●	Same as above.
	Protection	●	Same as above.
Spectrum	Movement and Maneuver	●	Electromagnetic encroachment due to Objective Force modernization and increased demand for Government and commercial wireless communications is of great concern; spectrum availability also impacts power projection support, first responders, and crisis management activities. Current spectrum challenges include the encroachment of range targetry control systems by radios used by units training in the field, and crowding and overlapping of the RF bands used by Land Mobile Radio, some Unmanned Aerial Vehicle control systems and CREW systems. The installation Network Enterprise Center/Director of Information Management is hiring and equipping a full time spectrum manager to mitigate these impacts.
	Fire Support	●	Same as above.
	Intelligence	●	Same as above.
	Sustainment	●	Same as above.
	Command & Control	●	Same as above.
	Protection	●	Same as above.
Airspace	Movement and Maneuver	●	New FAA requirements for Savannah Approach has encroached six nautical miles inside the installation boundary across the northern boundary of the installation. Affected area is a box approximately 23 KM east/ west by 12KM North/South over the northern portion of post. This affects the training of units equipped with UAS Systems. Due to the new requirements, there is NO flight of UAS systems in the affected area. Fort Stewart is working with the FAA to mitigate this loss.
	Fire Support	●	Same as above.
	Intelligence	●	Same as above.
	Sustainment	●	Same as above.
	Command & Control	●	Same as above.
	Protection	●	Same as above.
Cultural Resources	Movement and Maneuver	●	198 protected sites and cemeteries occupy 829 acres of land. This area is restricted to training and no ground disturbance or vehicles are allowed within the sites. An active Soldier education program is in place to educate Soldiers on restrictions, thus allow for accomplishment of training task in conjunction with the restrictions.
	Fire Support	●	Same as above.

Fort Stewart Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Wetlands	Movement and Maneuver		Approximately 1/3 of Fort Stewart is wetlands (≈91,000 acres). This poses maneuver and trafficability issues, however the construction of low water crossings help to mitigate these restrictions. This issue is separate from the issue of Wetland and Range Construction where wetland credits and mitigation are needed for any construction project wetland areas are being purchased to mitigate wetland impact from future range construction projects.
	Fire Support		Same as above.
	Sustainment		Same as above.

Figure 3-11 Army Capability and Encroachment Assessment Detail (continued)

Fort Wainwright Assessment Details

Range Mission Description

Fort Wainwright (FWA) supports home station individual and collective training for the 1/25th Stryker Brigade Combat Team and the 16th Combat Aviation Brigade. The Donnelly Training Area (DTA), a sub-installation of FWA, supports collective training for not only the two resident brigades, but also the 4/25th Airborne Brigade Combat Team and the 3rd Maneuver Enhancement Brigade from Fort Richardson. FWA and DTA supports a wide variety of Air Force, Allied and multi-national training during major flying exercises and sustainment training. U.S. Federal agencies, National Guard and Reserve units also use the Fort Wainwright ranges for qualification and sustainment training. Additionally, the Cold Regions Test Center uses these training areas for RDT&E test items.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Movement and Maneuver	●	●			●		●	●	●	●	●	●	
Fire Support	●	●			●		●	●	●		●	●	
Intelligence	●	●			●		●	●				●	
Sustainment	●							●	●	●	●	●	
Command Control	●	●			●		●	●				●	
Protection	●				●		●	●		●	●	●	

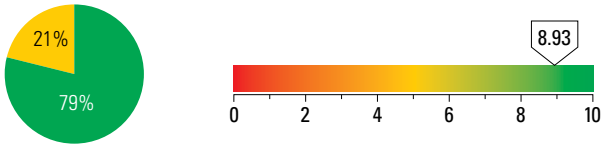
Legend: FMC ● PMC ● NMC ●

Encroachment Data

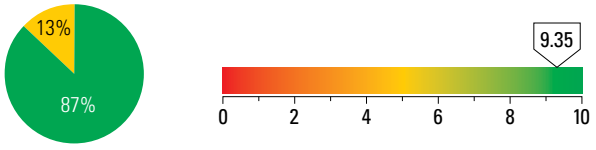
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Movement and Maneuver	●		●		●		●	●	●	●	●	●
Fire Support	●		●		●		●	●	●	●	●	●
Intelligence	●		●		●		●	●	●	●	●	●
Sustainment	●		●		●		●	●	●	●	●	●
Command Control	●		●				●	●	●			
Protection	●		●				●	●	●			

Legend: Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

The most adverse impact to mission is caused by out dated Smalls Arms ranges and Infrastructure shortfalls. While several mission areas are impacted by capability shortfalls, Movement and Maneuver and Sustainment are the most severely impacted, due to funding shortfalls for Range Support, poor training area road infrastructure, and small arms ranges at the end of their lifespan.

Summary Observations

There is a moderate impact to the mission areas due to encroachment factors. The most significant impacts are caused by Airspace encroachment and Cultural Resource restrictions. The mission areas that are most impacted are Movement and Maneuver and Fire Support, due to uncontrolled aircraft operating over Army owned training land and limited area surveyed for cultural resources. Each impact results in training delays or reduced training opportunities.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Capability Scores	8.22	8.22	8.00

The road infrastructure does not provide suitable driving conditions for modern fighting vehicles. Road infrastructure projects were submitted to address this situation. Historically, road improvement projects have been underfunded. Historically over-hires have been maintained to support the training mission; however, in FY2012 the requirements (DACs) to fully support range operations will be provided, eliminating the need for over-hires. Last, small arms ranges are currently programmed for modernization to prevent equipment failure during critical reset times. Small arms range modernization and re-vitalization projects are identified in the Range Complex Master Plan.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Encroachment Scores	8.46	8.46	9.00

Encroachment factors have historically had a moderate impact on the mission at Fort Wainwright and Donnelly Training Area, but they have decreased slightly over the past two years. The installation has been able to manage and mitigate many encroachment impacts. The installation is working to expand restricted airspace to reduce the encroachment factors on the training mission. The installation has been moving forward with the Joint Pacific Alaska Range Complex (JPARC) Environmental Impact Statement (EIS) to expand the restricted airspace. The tentative EIS approval is December 2013. The Final JPARC EIS will accompany the installation's airspace expansion request to the FAA .

Fort Wainwright Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Airspace	Intelligence		There is a lack of restricted airspace to support UAS vehicle take-off and landing. This restricts UAS operations to daylight hours only if operating over Army lands which are in the National Airspace, but not under restricted airspace. Therefore, the support UAS units can provide home station elements during consolidated training events is reduced. The installation is seeking to expand the area of restricted airspace. The Joint Pacific Alaska Range Complex (JPARC) Environmental Impact Statement (EIS) tentative approval is December 2013. The Final JPARC EIS will accompany an airspace expansion request to the Federal Aviation Administration.
Infrastructure	Movement and Maneuver		Poor training area road infrastructure is an issue based on seasonal fluctuations (freeze/thaw cycles), and creates challenging trail accessibility. Original trail construction (pre-calendar year (CY) 2000) methods did not produce suitable driving surfaces for modern fighting vehicles. Road infrastructure projects were submitted to address this situation. Historically, road improvement projects have been underfunded. This is an enduring effort.
	Fire Support		Same as above.
	Sustainment		Same as above.
Range Support	Movement and Maneuver		Non-salary range operations is funded at 89% of the Army critical requirement. This limits installation support for short-term training requests, limits range reconfiguration projects to support emerging tactics/techniques and procedures, and limits preventative maintenance. The shortfall in non-civ pay funding is due to the over hires required to support basic range support operations. In FY2012, the requirements (DACs) will be provided to fully support range operations and eliminate the need for over hires.
	Sustainment		Same as above.
Small Arms Ranges	Movement and Maneuver		Small arms ranges are reaching the end of their lifespan and are currently programmed for modernization. The timetable for modernization must be maintained or there is a risk of equipment failure at critical reset times. Training requirements have to be met using workaround solutions on aging ranges. Modernization and re-vitalization projects are identified in the Range Complex Master Plan. Projects require support and funding in order to meet training throughput requirements. This is an enduring effort.
	Sustainment		Same as above.
	Protection		Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Airspace	Movement and Maneuver		There are uncontrolled aircraft operating over Army owned training lands outside of restricted Airspace. This leads to regular cease fires for live-fire training. The installation is seeking to expand restricted airspace. The Joint Pacific Alaska Range Complex (JPARC) Environmental Impact Statement (EIS) tentative approval is December 2013. The Final JPARC EIS will accompany our airspace expansion request to the Federal Aviation Administration.
	Fire Support		Same as above.
Cultural Resources	Movement and Maneuver		A majority of withdrawn lands has yet to be surveyed for cultural resources. This increases the coordination time required for units planning training events with ground disturbing activities. This also increases the coordination time required for new range construction, upgrade, and maintenance projects that support training. Fort Wainwright will emphasize cultural resource surveys within areas classified as Potential Training and Development Zones as funding and other resources allow.
	Fire Support		Same as above.
Range Transients	Movement and Maneuver		There are uncontrolled civilian aircraft operating over Army owned training lands outside of restricted Airspace. This leads to regular cease fires for live-fire training within the Small Arms Complex and throughout the training areas. The installation is seeking to expand restricted airspace. The Joint Pacific Alaska Range Complex (JPARC) Environmental Impact Statement (EIS) tentative approval is December 2013. The Final JPARC EIS will accompany our airspace expansion request to the Federal Aviation Administration.
	Fire Support		Same as above.

Figure 3-11 Army Capability and Encroachment Assessment Detail (continued)

Yakima Training Center Assessment Details

Range Mission Description

Yakima Training Center (YTC) supports tough, realistic combined arms, joint and coalition training for U.S. and allied military units in order to enhance unit readiness by sustaining training lands, range complexes, and support facilities capable of meeting all present and future training requirements. YTC, along with Joint Base Lewis-McChord (JBLM), has been designated as a Power Generation Platform Complex for the mobilization and post mobilization of active and reserve component units. YTC is utilized by Active, Reserve, and National Guard Army units, as well as Marine Corps Reserve units, and allied forces. Most Active duty units that train at YTC are based at JBLM and are either associated with I Corps or are resident units. These units include the 2nd Infantry Division (3x SBCTs), 42nd Military Police Brigade, 62nd Medical Brigade, 142nd Signal Brigade, 555th Engineer Brigade, 201st BFSB Brigade, 593 Support Battalion, 1st Special Forces Group, 2nd Battalion, 75th Ranger Regiment, 4th Squadron, 6th US Cavalry (Air Cavalry), 64th Engineer Detachment, 4th Battalion, 160th Aviation Regiment, 3rd EOD Battalion, 17th Fires Brigade, 5-5th Air Defense Artillery, 110th CHEM, and multiple reserve component units.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Movement and Maneuver	●	●			●		●	●	●	●	●	●	
Fire Support	●	●			●		●	●	●		●	●	
Intelligence	●	●			●		●	●				●	
Sustainment	●							●	●	●	●	●	
Command Control	●	●			●		●	●				●	
Protection	●				●		●	●		●	●	●	

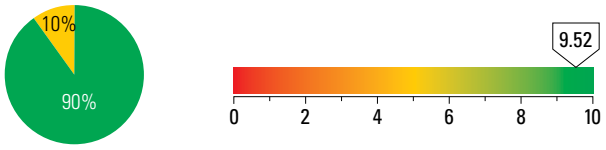
Legend: FMC ● PMC ● NMC ●

Encroachment Data

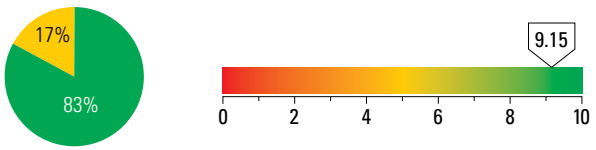
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Movement and Maneuver	●		●		●	●	●	●	●		●	
Fire Support	●		●		●	●	●	●	●		●	
Intelligence	●		●		●		●	●	●		●	
Sustainment	●		●					●	●		●	
Command Control	●		●		●			●	●		●	
Protection	●		●			●	●	●	●		●	

Legend: Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

The most adverse impact to mission is caused by a shortfall in Range Support funding. While several mission areas are impacted by capability shortfalls, Fire Support is the most impacted, due to a severe shortfall of range staff authorizations and lack of replacement targetry for the Artillery Impact Area.

Summary Observations

There is minimal to moderate impact to the mission areas due to Encroachment Factors. The presence of threatened and endangered species on the installation has the greatest impact on the Movement and Maneuver mission, due to training constraints in the Sage-Grouse protection area that result in the loss of acres available for cross country maneuver.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Capability Scores	6.89	6.89	8.22

Capabilities have generally improved at Yakima Training Center over the past several years. Infrastructure shortfalls have been addressed and resources are programmed in the out-years. While Range Support funding has improved slightly in the last year, authorizations for range staff are significantly below Army critical requirements. This impact is being addressed and there should be significant improvement in Range Support by FY2013 when authorizations are increased to the Army critical requirement. Airspace capability will likely become a greater challenge into the out-years, as requirements to field new UAS systems increase.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Encroachment Scores	8.90	8.90	9.02

Encroachment Factors have historically had a minimal to moderate impact on the mission at Yakima Training Center. Moderate impacts resulting from threatened and endangered species habitat areas and wetlands have continued to restrict land use for maneuver training. It is anticipated that these impacts will continue into the future. The installation will continue to mitigate impacts to training through training scenario workarounds and scheduling.

Yakima Training Center Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Targets	Fire Support	●	Existing armored targetry on the anti-armor range has deteriorated and there is a shortfall of replacement targetry for the Artillery Impact Area. Field Artillery units are unable to shoot at appropriate targetry. The installation is seeking procurement of funds to acquire additional targetry to enhance indirect fire training.
Range Support	Movement and Maneuver	●	Range operations staff authorizations are 75% below the Army critical requirement. This limits installation support for short-term training requests, range reconfiguration projects to support emerging tactics/techniques and procedures, and preventative maintenance. The budget and requirements will be relooked to provide near-term contract support. Range operations shortfalls will be addressed in the FY2013–FY2017 POM and staff authorizations should increase to 100% of the critical requirement in FY2013.
	Fire Support	●	Same as above.
	Sustainment	●	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Threatened & Endangered Species/ Critical Habitat	Movement and Maneuver	●	The Sage-Grouse protection area restricts use of 13% of the installation. Within the Sage-Grouse protection area, training is constrained, thus resulting in loss of acres available for cross country maneuver. The Army is continuing to implement mitigation strategies and workarounds to avoid training shortfalls.
	Fire Support	●	Same as above.
	Sustainment	●	Same as above.
	Protection	●	Same as above.
Airspace	Movement and Maneuver	●	Airspace along Interstate 90 is reserved for General Aviation Aircraft to fly. No live fire is permitted within 2000 meters of Interstate 90. The Army is continuing to mitigate this restriction through the use of training workarounds.
	Fire Support	●	Same as above.
Wetlands	Movement and Maneuver	●	There is a 100m buffer area around streams and springs, restricted to all digging and maneuver activities. This restricts the area where digging and maneuver can occur, thus reducing the available maneuver land. The Army is continuing implement mitigation strategies and workarounds to avoid training shortfalls.

Table 3-5 Army Range Capability and Encroachment Assessment Comparison

Range Name	Capability Score	Encroachment Score
Fort Benning	8.41	8.72
Fort Bliss	9.17	9.63
Fort Bragg	8.84	9.39
Fort Campbell	9.05	9.88
Fort Carson	9.29	9.71
Fort Drum	9.19	10.00
Hawaii	8.66	8.67
Fort Hood	9.22	9.52
Fort Irwin	8.70	8.61
Fort Lewis	8.33	8.57
Fort Polk	9.33	9.51
Fort Riley	9.17	9.55

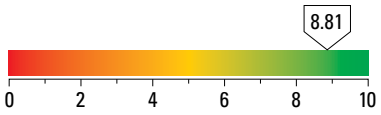
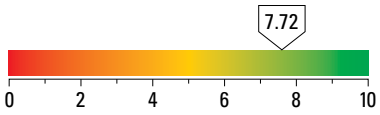
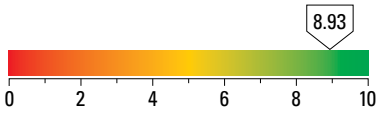
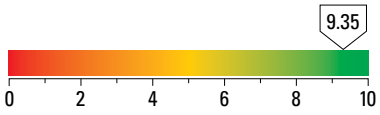
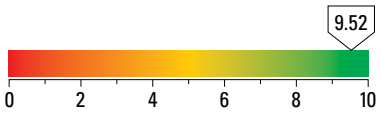
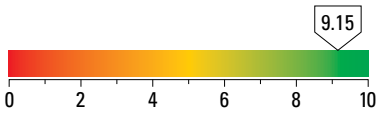
Range Name	Capability Score	Encroachment Score
Fort Stewart		
Fort Wainwright		
Yakima Training Center		

Table 3-6 Army Range Mission Description

Fort Benning
Fort Benning and the Maneuver Center of Excellence (MCoE) provides trained and adaptive Soldiers and Leaders for an Army at War, while developing future requirements for the individual Soldier and the Maneuver Force and providing a world class quality of life for our Soldiers and Army Families. The MCoE Command priorities are : (1) Fully Support an Army at War; (2) Prepare for the Future; (3) Enhance Quality of Life for Soldiers and Army Families; (4) Operate in a Command Climate of Teamwork, Discipline and Standards and Safety; (5. Fully Transition to the Maneuver Center of Excellence; and (6) Demonstrate Inspired Leadership. Implied in this is the responsibility to provide the Training and Doctrine Command (TRADOC) with a full spectrum of support in doctrine, training, capability development, and training support products for the Maneuver Force. The MCoE's function is to serve as the user representative in the development of training methodologies and products, concepts, doctrine, organizational requirements and materiel capability requirements for each functional area, as well as providing instructors to teach classes across the MCoE. Currently, Fort Benning provides the home station and training facilities for FORSCOM's 3-3rd HBCT, 11th Engineer Battalion, 13th Corps Support and Sustainment Battalion, and 14th Combat Support Hospital; Special Operations Command's (SOCOM) 75th Ranger Regiment and its 3rd Battalion, 75th Ranger Regiment and Special Troops Battalion; MEDCOM activities; DENTCOM activities; and numerous other active duty deployable units. Also, Fort Benning provides the home station and training facilities for the Western Hemisphere Institute for Security Cooperation (WHINSEC), which has the mission to train cadets, NCOs, and officers from over 25 Western Hemisphere countries. Fort Benning is the sixth largest installation in the United States with the third largest troop density. More than 120,000 service members, family members, retirees, civilian employees and contractors work, live and use services on Fort Benning. As Fort Benning transitions to the MCoE, there will be more than 11,000 new jobs on the installation for Soldiers, Civilians and Contractors and more than $3.5 billion in construction will be invested on Fort Benning through 2016. The rapid growth of Soldiers, Families, and Civilians that Fort Benning will have to provide services for will grow faster than the means to support all of their needs. Currently Fort Benning conducts 61 courses and with the MCoE transformation, it will bring 39 new courses, impacting contracted labor and services, over 200 new facilities, and 5 new maneuver training areas.
Hawaii
The mission of the U.S. Army Pacific (USARPAC) is to execute continuous training and readiness oversight responsibilities for Army Force Generation in Hawaii. On order, execute Joint Force Land Component Command functions in support of Homeland Defense and Security in Hawaii. The mission of U. S. Army Garrison Hawaii (USAG-HI): (1) Plan and execute on-order deployment support, force protections, and contingency operations. (2) Plan and execute transformation of the installation garrison that supports STRYKER and other mission units. (3) Provide quality installation support and services to our customers. (4) Maintain and improve infrastructure and training areas. (5) Provide proper stewardship of all resources and the environment. (6) Sustain strong community relations. (7) Provide for the well-being of the Army Family into the 21st Century. There are two primary installations, Schofield Barracks and Pohakuloa Training Area (PTA), and five primary training annexes within USAG-HI. USARPAC provides multiple live-fire training venues. Basic Weapons Marksmanship Ranges used to qualify or train on small arms weapons. Future Direct Fire Gunnery Ranges used to qualify and train Stryker crews on Tables I-VIII. Collective Live Fire Ranges used for collective training events, such as infantry squad and platoon battle courses (ISBCs and IPBCs), Urban Assault Courses (UAC), and aerial gunnery ranges (AGRs) used to qualify on Tables IX-XII. Indirect Fire Ranges or dedicated firing points used for the qualification and training of mortars, field artillery, or air defense artillery and OPs. Special Live Fire Ranges and training areas used for qualification and training of demolitions, live hand grenades, and claymores and test and evaluation ranges and facilities. Maneuver Training Land is used to conduct force-on-force maneuver training and STXs. Areas are classified as light and heavy depending on the type of training they can support. Based on the geographic location of Hawaii and force structures, the armed forces are poised at the center of the pacific for rapid deployment to any worldwide location and the ranges and training areas are used by the joint forces. Units that train and deploy from USARPAC are: 2nd SBCT, 3rd IBCT, 25th CAB, 25th STB, 25th ID HQ's and Div Base Elements, 8th TSC, 500th MI Group, 516th SIG BDE, 8th MP BDE, 45th Sustainment BDE, 130th ENG BDE, 10th SG, 8th STB, HIARNG, GUARNG, 9th RSC, and the USMC.

3.2.2 Marine Corps[7]

Marine Corps Training Range Capability Assessment Analysis Results

The U.S. Marine Corps (USMC) Capability Assessment data from 10 USMC range complexes are summarized and presented in Table 3-7.

The USMC Range Capability Chart and Scores are presented in Figure 3-12 and assessments by Range, Attributes, and Mission Areas are shown in Figures 3-14, 3-16, and 3-18.

The USMC's 10 individual range capability assessments along with comments for red and yellow ratings are included at the end of this section (Figure 3-20).

Marine Corps Training Range Encroachment Assessment Analysis Results

USMC Range Encroachment Assessment data from the 10 USMC ranges complexes are summarized in Table 3-8.

The USMC Range Encroachment Chart and Scores are presented in Figure 3-13 and assessments by Range, Factors, and Mission Areas are shown in Figures 3-15, 3-17, and 3-19.

The USMC's 10 individual encroachment assessments along with comments for red and yellow ratings are included at the end of this section (Figure 3-20).

The USMC Range Capability and Encroachment assessment comparisons are presented in Table 3-9.

7 Of the 14 ranges identified in the Marine Corps' range inventory in Appendix C, 4 are not assessed. For this year's report Marine Corps Base (MCB) Japan has been added which includes MCB Camp Butler from the 2010 report. Marine Corps Logistics Base (MCLB) Albany, MCLB Barstow, Marine Corps Air Station (MAS) Miramar, and Marine Corps Recruit Depot (MCRD) Parris Island contain only small arm ranges used for the limited purpose of weapons qualification training. In the case of Parris Island, the range provides entry level small arms training. These four installations are not considered "range complexes"; therefore, the Marine Corps has classified them as "other" for the purpose of this report and does not intend to formally evaluate them unless the mission changes or some encroachment factor threatens their ability to function.

Table 3-7 Marine Corps Capability Assessment Data Summary

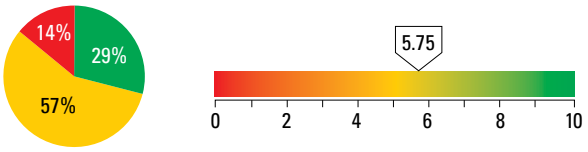
Range	NMC	PMC	FMC	Capability Scores
MCAS Beaufort/Townsend	0	6	8	7.86
MCMWTC Bridgeport	0	8	0	5.00
MCAS Cherry Point	0	8	9	7.65
MCB Hawaii	6	14	2	4.09
MCB Japan	14	13	6	3.79
MCB Camp Lejeune	3	19	8	5.83
MCB Camp Pendleton	4	17	9	5.83
MCB Quantico	0	14	4	6.11
MCAGCC Twentynine Palms	6	15	13	6.03
MCAS Yuma/Bob Stump	0	18	9	6.67
HQ USMC	**33**	**132**	**68**	**5.75**

Table 3-8 Marine Corps Encroachment Assessment Data Summary

Range	Severe	Moderate	Minimal	Encroachment Scores
MCAS Beaufort/Townsend	0	0	22	10.00
MCMWTC Bridgeport	2	16	2	5.00
MCAS Cherry Point	0	7	15	8.41
MCB Hawaii	5	6	10	6.19
MCB Japan	7	5	0	2.08
MCB Camp Lejeune	0	16	17	7.58
MCB Camp Pendleton	8	10	15	6.06
MCB Quantico	4	4	14	7.27
MCAGCC Twentynine Palms	0	7	32	9.10
MCAS Yuma/Bob Stump	5	13	12	6.17
HQ USMC	**31**	**84**	**139**	**7.13**

Figure 3-12 Marine Corps Capability Chart and Scores

2011



Summary Observations

1. USMC's overall capability score decreased from 6.34 in 2010 to 5.75 in 2011
2. USMC's Fully Mission Capable (FMC) assessments (green) decreased from 37% to 29%
3. Partially Mission Capable (PMC) assessments (yellow) increased from 53% to 57%
4. Not Mission Capable (NMC) assessments (red) increased from 10% to 14%

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Capability Scores	5.73	5.73	6.34

The top three Capability Attributes with the greatest number of red and yellow assessments are (Figure 3-16):

- Target (5+18)
- Scoring and Feedback Systems (6+16)
- Threats (7+13)

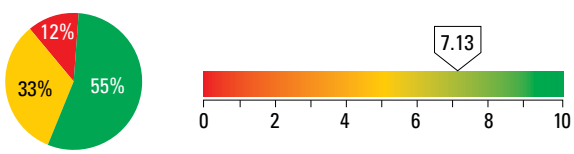
The top three Mission Areas with the greatest number of red and yellow assessment are (Figure 3-18):

- Unit Level Training (9+54)
- Individual Level Training (2+48)
- MEU Level Training (18+27)

The Marine Corps has identified Service-level deficits in its ability to train. Continued analysis and the fielding of new systems may cause other requirements to surface. Today the projected operational range requirements at the Service level focus on the following three critical deficiencies: 1) USMC ranges presently lack capability in the size of facilities to fully exercise a large Marine Air Ground Task Force (MAGTF), 2) the proximity of capability to forces stationed in the western Pacific and Hawaii, and 3) an air range on the east coast similar to the capabilities provided by the Marine Corps Air Station (MCAS) Yuma on the west coast. Refer to the USMC Special Interest Section for more details. Based on the scoring there are additional needs in the areas of Targets, Scoring and Feedback Systems, and Threats. Refer to the USMC's 10 individual range assessments for comments and additional information (Figure 3-20)

Figure 3-13 Marine Corps Encroachment Chart and Scores

2011



Summary Observations

1. USMC's overall encroachment score decreased from 7.44 in 2010 to 7.13 in 2011
2. USMC's minimal risk assessments (green) decreased from 60% to 55%
3. Moderate risk assessment (yellow) increased from 29% to 33%
4. Severe risk assessments (red) increased from 11% to 12%

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Encroachment Scores	7.90	7.90	7.44

The three Encroachment Factors with the greatest number of red and yellow assessment are (Figure 3-17):

- Adjacent Land Use (10+11)
- Munitions Restrictions (6+11)
- Noise Restrictions (2+14)

The top three Mission Areas with the greatest number of red and yellow assessments are (Figure 3-19):

- Unit Level Training (13+31)
- Individual Level Training (8+36)
- MEU Level Training (10+15)

Encroachment data must be carefully considered to fully understand its meaning at each installation. The relative impact of each encroachment factor at each Marine Corps installation has different implications to the overall Mission Capable Ranges program. While two installations may have severe encroachment concerns from the same encroachment category, synergistic effects may be experienced at one installation but not at the other. The assessment process captures encroachment for current installation readiness activities. Refer to the USMC Special Interest Section for more details. Based on the assessment scoring encroachment risks to the USMC mission areas are most notable in the encroachment factors of adjacent land use, munitions restrictions, and noise restrictions. Refer to the USMC's 10 individual range assessments for comments and additional information (Figure 3-20)

Figure 3-14 Marine Corps Capability Assessments by Range

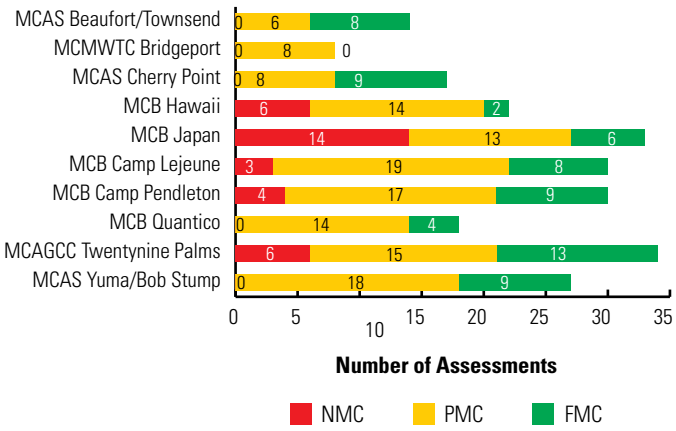


Figure 3-15 Marine Corps Encroachment Assessments by Range

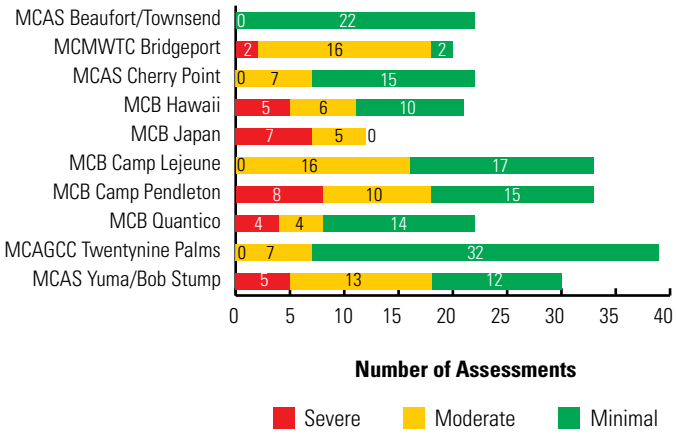


Figure 3-16 Marine Corps Capability Assessment by Attributes

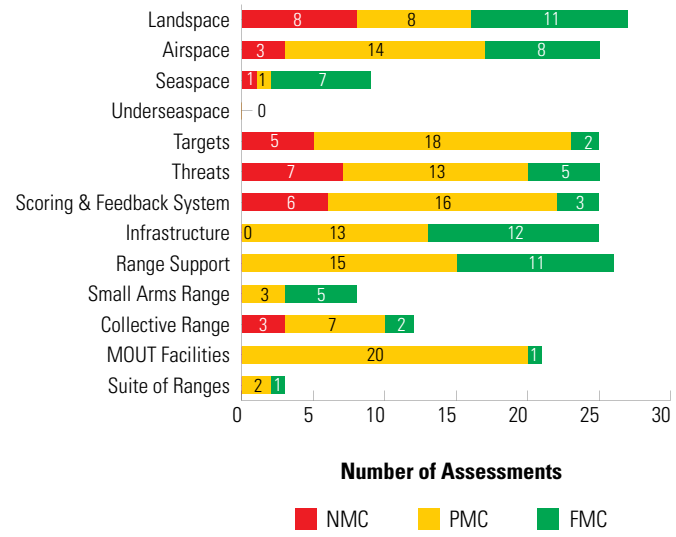


Figure 3-17 Marine Corps Encroachment Assessment by Factors

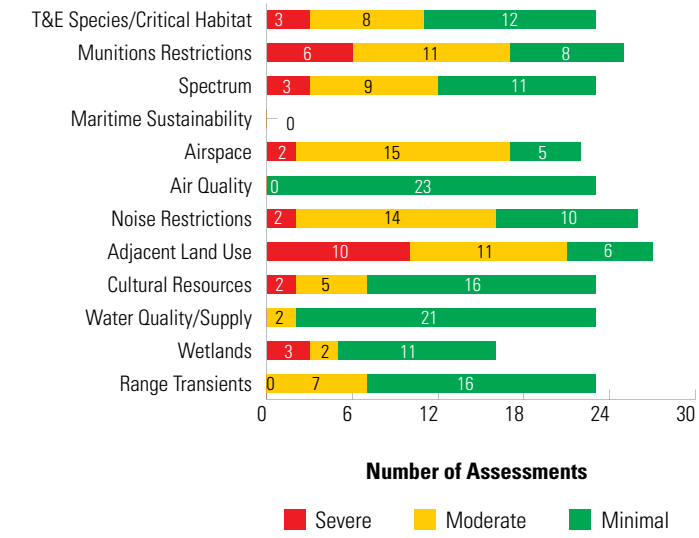


Figure 3-18 Marine Corps Capability Assessment by Mission Areas

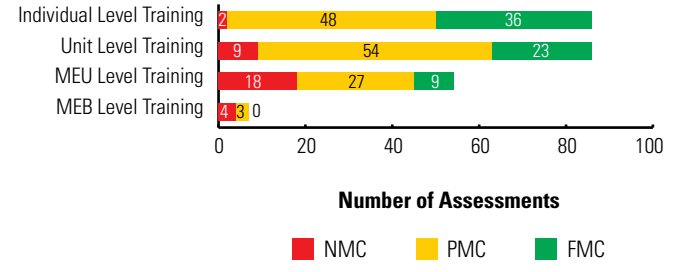
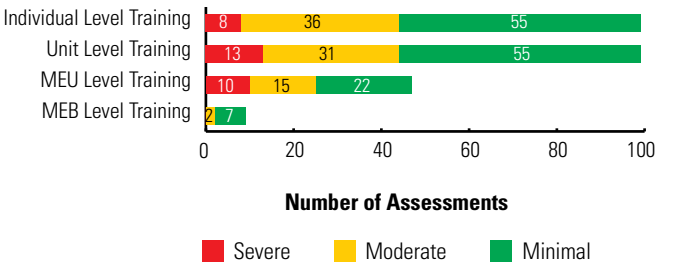


Figure 3-19 Marine Corps Encroachment Assessment by Mission Areas



Marine Corps Special Interest Section

General Issues

Mission Capable Ranges provides the Marine Corps with a comprehensive, fully-developed range program that defines current, emerging and future range requirements, and executes range modernization initiatives focused on the needs of the warfighter. Over the past decade, the Marine Corps has invested over $500 million in ranges. The cornerstone of the program is range modernization through (1) sustainment of ranges to maintain capabilities and protect range investments; (2) re-capitalization to upgrade or replace existing ranges and range resources; and (3) investment in new ranges that leverage advanced range instrumentation, targets, and training systems. Range modernization requires a substantial, ongoing commitment of resources to address each of these categories. Without sufficient commitments focused at a minimum on sustainment and re-capitalization, today's range capabilities will become tomorrow's liabilities, with adverse impacts on the ability of our installations to support required training with mission-capable ranges.

Critical Issues: Range Capabilities

The Marine Corps has identified Service-level deficits in its ability to train to the many missions that it faces. Continued analysis and the fielding of new systems may cause other requirements to surface in the future, but today the projected operational range requirements at the Service level focus on the following three critical deficiencies:

1. Marine Corps ranges presently lack the capability to fully exercise a large Marine Air Ground Task Force (MAGTF) in a realistic, doctrinally appropriate training scenario. The premiere MCAGCC at Twentynine Palms is the center of excellence for developing and executing combined arms live-fire training of the MAGTF; however, MCAGCC cannot accommodate a full-scale, live-fire MEB exercise. Expansion of MCAGCC/Marine Air-Ground Task Force Training Center (MAGTFTC) would significantly enhance the ability of the Marine Corps to continue to provide trained Marines, Marine units, and MAGTFs in furtherance of national security objectives. Having obtained necessary authorizations from the Department of Defense, the Marine Corps is proceeding with analysis and assessments in support of land expansion and establishment of additional airspace.
2. Inadequate training opportunities exist for the Marine units stationed in the western Pacific and Hawaii. Marine Corps installations in Hawaii lack sufficient range capabilities to fully support training of units stationed there. These units therefore train extensively on other-Service facilities, particularly U.S. Army ranges in Hawaii. The Marine Corps is in the process of assessing approaches to the challenging issue of mitigating range shortfalls within Hawaii. The initiative to relocate units from Okinawa to Guam and develop training ranges and infrastructure on Guam and selected islands of the Commonwealth of the Northern Mariana Islands may provide additional training opportunities for Marines stationed in Okinawa and the Hawaiian islands.
3. The Marine Corps has identified the need for an aviation training range on the East coast of the United States with range capabilities such as those provided by Marine Corps Air Station (MCAS) Yuma on the West coast. To address this requirement, the Marine Corps has assessed potential alternatives, including expansion of the Townsend Range. Based on preliminary analysis, the Marine Corps determined that expansion of Townsend is feasible, and that additional assessment and analysis is warranted. Assessment of possible courses of action including Townsend Range expansion will therefore continue in FY2011.

Mission Capable Ranges also is focused on development of aviation training on ranges and enhancing access to training airspace, in addition to expansion of Townsend and special use airspace at MCAGCC. In particular, the Marine Corps is engaged in developing airspace access, landing zones, and range support requirements to accommodate the capabilities of the MV-22 Osprey and Unmanned Aerial Systems (UAS), and in determining range and airspace needs for the Joint Strike Fighter (JSF). Mission Capable Ranges is also increasing its emphasis on supporting implementation of advanced training technologies for live, virtual, and constructive environments. Training technologies have the ability to substantially increase the training value provided by our ranges, and to enhance the realism of virtual and constructive training. Implementing advanced training technologies is a critical component of range modernization.

Critical Issues: Encroachment Factors

This Report includes assessment of encroachment at range complexes. MCAS Miramar, while not a "range complex," is identified here as an example of a Marine Corps installation that is not a range but which is subject to significant encroachment pressures. Urban growth and land uses adjacent to the installation and airspace congestion present particular concerns, with potential or actual impacts on military aviation activities. MCAS Miramar has implemented a comprehensive Encroachment Control Program. MCAS Miramar maintains an active community relations program as a core component of its encroachment strategy. The Encroachment Control Program includes monitoring local development planning for consistency with Air Installation Compatible Use Zone (AICUZ) and Airport Land Use Compatibility Plan (ALCUP) guidelines and for potential impacts on the installation mission. These efforts are intended to ensure that adequate safety and operation buffers are maintained. Given the urban land use profile of the area, costs of establishing additional buffers, if practically feasible, would be substantial.

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Figure 3-20 Marine Corps Capability and Encroachment Assessment Detail

MCAS Beaufort/Townsend Assessment Details

Range Mission Description

The primary mission of Marine Corps Air Station Beaufort and Townsend Range is to provide support as an operational base and training area for MAG-31, which conducts and supports all active duty Marine Corps F/A-18 air operations on the East Coast. The mission of MAG-31 is to conduct anti-air-warfare and offensive air support operations in support of Fleet Marine Forces from advanced bases, expeditionary airfields, or aircraft carriers.

Capability Data

Mission Areas	Capability Attributes												
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Individual Level Training	PMC	FMC			PMC	FMC	FMC	PMC	FMC				
Unit Level Training	PMC	FMC			PMC	FMC	FMC	PMC	FMC				
MEU Level Training													
MEB Level Training													

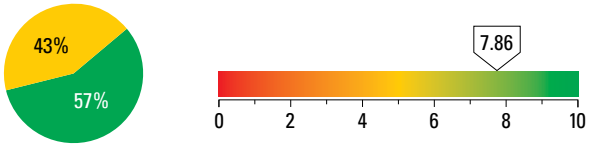
Legend: FMC, PMC, NMC

Encroachment Data

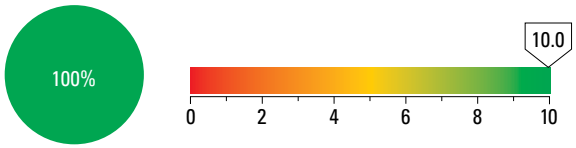
Mission Areas	Encroachment Factors											
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Individual Level Training	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Unit Level Training	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
MEU Level Training												
MEB Level Training												

Legend: Minimal, Moderate, Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Doctrinal range requirements are derived from Operational Training Ranges Required Capabilities (MCRP 3-0C). Mission and Attribute areas in "white" were not assessed, or are not applicable to this installation.
2. Townsend Range generally has the capability to support required training; however, the range lacks the land area necessary for development of Surface/Weapons Danger Zones required for certain stand-off weapons, in particular JDAM. The range lacks mobile targets. Land area and targets are the deficits with greatest impact on training mission.
3. The Marine Corps is assessing feasibility of pursuing acquisition of land adjacent to the Townsend Range to mitigate current shortfalls.

Summary Observations

1. Encroachment factors do not presently have adverse impacts on the training mission of Townsend Range. Mission and Attribute areas in "white" were not assessed, or are not applicable to this installation.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Capability Scores	8.33	8.33	8.57

Impacts from key range capability shortcomings resulted in "Partially Mission Capable" designations for this installation during FYs 2008–2010 when assessing the installation's ability to support Marine Corps Task 1.7 (Support Maneuver through the Provision of Training Areas) and Marine Corps Task 3.3 (Support Fires through the Provision of Ranges and Training Areas). Top two capabilities and/or enhancements required to facilitate transition to "Fully Mission Capable" include (1) upgraded aviation ordnance delivery training opportunities, and (2) enhanced joint forces training integration. Townsend Bombing Range expansion is currently being analyzed as a venue to address these capability requirements.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Encroachment Scores	10.00	10.00	10.00

Impacts from key encroachment factors resulted in "Partially Mission Capable" designations for this installation during FYs 2008–2010 when assessing the installation's ability to support Marine Corps Task 1.7 (Support Maneuver through the Provision of Training Areas) and Marine Corps Task 3.3 (Support Fires through the Provision of Ranges and Training Areas). Successful mitigation of key encroachment factors, including (1) airspace restrictions, (2) frequency spectrum limitations, and (3) urban growth, facilitated transition to a "Fully Mission Capable" designation.

MCAS Beaufort/Townsend Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Individual Level Training	●	Land space does not support training using modern inventory of standoff weapons, such as JDAM, in that Surface / Weapons Danger Zones for these weapons exceed boundaries of the range. Marine Corps has undertaken preliminary analysis of feasibility of range expansion in order to accommodate standoff weapons air-to-ground deliveries.
	Unit Level Training	●	Same as above.
Targets	Individual Level Training	●	The range lacks mobile targets, affecting training realism. Marine Corps Range Modernization / Transformation program is addressing shortfalls consistent with available resources.
	Unit Level Training	●	Same as above.
Infrastructure	Individual Level Training	●	Deficiencies in range maintenance and real property due to fiscal constraints.
	Unit Level Training	●	Same as above.

Figure 3-20 Marine Corps Capability and Encroachment Assessment Detail (continued)

MCMWTC Bridgeport Assessment Details

Range Mission Description

The Marine Corps Mountain Warfare Training Center (MWTC) Bridgeport provides range capabilities to support training of Marines, Marine units, and MAGTF elements in the mission essential tasks of modern expeditionary warfare, focused on the training requirements for operations in mountainous, high altitude, and cold weather environments, and to support the development and testing of specialized equipment for use in mountain and cold weather operations.

Capability Data

Mission Areas	Capability Attributes												
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Individual Level Training	PMC	PMC						PMC	PMC				
Unit Level Training	PMC	PMC						PMC	PMC				
MEU Level Training													
MEB Level Training													

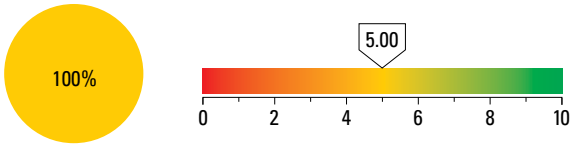
Legend: FMC, PMC, NMC

Encroachment Data

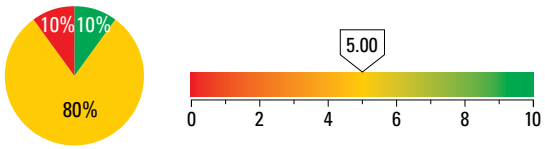
Mission Areas	Encroachment Factors												
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Individual Level Training	PMC	Severe	PMC			Minimal	PMC	PMC	PMC	PMC	PMC	PMC
Unit Level Training	PMC	Severe	PMC			Minimal	PMC	PMC	PMC	PMC	PMC	PMC
MEU Level Training												
MEB Level Training												

Legend: Minimal, Moderate, Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Doctrinal range requirements are derived from Operational Training Ranges Required Capabilities (MCRP 3-0C). MWTC Bridgeport RCMP analysis (FY2010) provides the basis for this assessment. Attribute areas in "white" were not assessed because the capability is not present at this installation.
2. MWTC Bridgeport generally has the capability to support required non-live fire training; however, limitations on munitions use, target and training infrastructure emplacement, and other land use constraints affect capability to fully support training requirements. Marines and units training at MWTC make use of other-Service ranges in the region for live-fire and maneuver training.

Summary Observations

1. 90% of the range complex mission is moderately or severely impacted by encroachment factors.
2. Adjacent Land Use, Munitions Restrictions, and Wetlands are the encroachment factors with greatest impact on training mission.
3. Range Complex Management Plan has been prepared (FY2010). Encroachment Control Plan (ECP) is planned for FY2011.
4. To mitigate encroachment impacts, units training at Bridgeport make use of other-Service ranges, particularly the live-fire training capabilities of the Army's Hawthrorne Ammunition Depot (HWAD) in Nevada.

MCMWTC Bridgeport Assessment Details

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	N/A	N/A	5.00	**Encroachment Scores**	8.00	8.00	4.50
Impacts from key range capabilities shortcomings resulted in "Partially Mission Capable" designations for this installation during FYs 2008–2010 when assessing the installation's ability to support Marine Corps Task 1.7 (Support Maneuver through the Provision of Training Areas) and Marine Corps Task 3.3 (Support Fires through the Provision of Ranges and Training Areas). Top three capabilities and/or enhancements required to facilitate transition to "Fully Mission Capable" include (1) reduction of limitations associated with tenant status on US Forest Service land, (2) fully resourced installation range program, and (3) consistent/permanent funding for range maintenance real property sustainment.				Impacts from key encroachment factors resulted in "Partially Mission Capable" designations for this installation during FYs 2008–2010 when assessing the installation's ability to support Marine Corps Task 1.7 (Support Maneuver through the Provision of Training Areas) and Marine Corps Task 3.3 (Support Fires through the Provision of Ranges and Training Areas). Successful mitigation of key encroachment factors, including (1) airspace restrictions, (2) frequency spectrum limitations, and (3) urban growth, are required to facilitate transition to a "Fully Mission Capable" designation.			

MCMWTC Bridgeport Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Individual Level Training	🟡	Training land is sufficiently extensive to support required training; however, limitations on land use affect capability of available land to fully support training. Ongoing planning and analysis is examining options to acquire in-holdings (private lands within the forest area) that would support development of permanent training structures such as MOUT facilities to mitigate limitations of USFS constraints.
	Unit Level Training	🟡	Same as above. Marines and Marine units training in mountain warfare operations make extensive use of other-Service ranges at Hawthorne Ammunition Depot (HWAD) and also use ranges at Fallon Training Range Complex (FTRC), to supplement training conducted at MWTC. HWAD and FTRC permit live-fire, but lacks ranges to support extended live-fire and maneuver training by Marine units.
Airspace	Individual Level Training	🟡	Use of MWTC by aviation assets presents challenges because no special use airspace is designated.
	Unit Level Training	🟡	Same as above.
Infrastructure	Individual Level Training	🟡	MCMWTC is responsible for road maintenance in the MCMWTC training areas. MWTC is generally not authorized to develop range infrastructure.
	Unit Level Training	🟡	Same as above.
Range Support	Individual Level Training	🟡	Communication infrastructure improvements to enhance range control and range safety have been planned, but implementation is subject to funding constraints.
	Unit Level Training	🟡	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Threatened & Endangered Species/ Critical Habitat	Individual Level Training	🟡	Presence of sensitive species seasonally restricts use of some areas of MWTC. The presence of these resources significantly constrains the ability to identify landing zones (LZs) for rotary aircraft. Intensive survey and related environmental planning efforts are underway to address these and other natural resource-based issues and training impacts.
	Unit Level Training	🟡	Same as above.
Munitions Restrictions	Individual Level Training	🔴	MWTC is situated on land owned by the U.S. Forest Service (USFS). Military training proceeds pursuant to Special Use Permits. Training lands of MWTC are also used by the public; the Marine Corps has no authority to restrict use of these lands. USFS permits strictly limit live-fire training within MWTC to limited use of small arms in designated areas. Fire danger is a significant concern, as is public safety. As a result, extensive live-fire training at MWTC is not feasible.
	Unit Level Training	🔴	Same as above.
Spectrum	Individual Level Training	🟡	Communications infrastructure does not support an adequate safety and operational vhf/hf net to cover all of the training areas. USFS permits strictly limit live-fire training within MWTC to limited use of small arms in designated areas.
	Unit Level Training	🟡	Same as above.
Noise Restrictions	Individual Level Training	🟡	Potential impacts on forest land users (e.g., domestic livestock grazing) from aircraft and ordnance noise contribute to concerns leading to restrictions on military uses of USFS lands that comprise MWTC.
	Unit Level Training	🟡	Same as above.

Figure 3-20 Marine Corps Capability and Encroachment Assessment Detail (continued)

MCMWTC Bridgeport Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Adjacent Land Use	Individual Level Training		As noted, MWTC is situated on land owned by the USFS. The entire range complex is a co-use area, contains environmentally sensitive resources, and is subject to permit-based restrictions on land use for military training. Some adjacent lands are designated as wilderness pursuant to the Wilderness Act; these lands are generally not available for training and the designation may create public expectations about appropriate noise emanating from MWTC training activities into wilderness areas. In addition, Congress designated a portion of MWTC as a National Winter Recreational Area for snowmobile use by the public.
	Unit Level Training		Same as above.
Cultural Resources	Individual Level Training		MWTC is characterized by cultural sites that must be surveyed and assessed by USFS, before USFS will permit training activities in areas with potentially significant sites. Cultural sites presently constrain ground movement and maneuver training and ability to identify suitable LZs for rotary aircraft. Analysis currently being conducted addresses these cultural sites in order to obtain clearance for training and establishment of suitable LZs.
	Unit Level Training		Same as above.
Water Quality/ Supply	Individual Level Training		Reported high nitrate levels in water supply are being investigated. Waste water treatment plant is near or at capacity during larger unit training events, limiting opportunity for expansion of training opportunities. One of the two wells that MWTC maintains is not usable for potable water due to reportedly elevated levels of manganese.
	Unit Level Training		Same as above.
Wetlands	Individual Level Training		MWTC is characterized by mountain meadows that contain wetland habitats and resources. The presence of these resources constrains training uses of these areas, including restricting avenues of movement through affected training areas. Wetlands also constrain ability to identify suitable landing zones (LZs) for rotary aircraft. Environmental analysis that is currently being conducted will address wetlands issues. Surveys and other analysis have been conducted and are ongoing to identify and obtain clearance for suitable LZ sites.
	Unit Level Training		Same as above.
Range Transients	Individual Level Training		The presence of non-military forest users significantly impacts training in that the rights of the public to use these forest lands is a factor in the limited use on most live-fire training.
	Unit Level Training		Same as above.

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Figure 3-20 Marine Corps Capability and Encroachment Assessment Detail (continued)

MCAS Cherry Point Assessment Details

Range Mission Description

MCAS Cherry Point provides range capabilities to support training of Marines, Marine Corps units, MAGTF elements, and MAGTFs in the mission essential tasks of modern expeditionary warfare, including the training requirements of the 2d Marine Air Wing (2d MAW) and other units assigned to the installation.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Individual Level Training	●	●			●	●	●	●	●	●		●	
Unit Level Training	●	●			●	●	●	●	●			●	
MEU Level Training													
MEB Level Training													

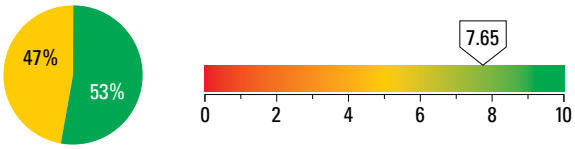
Legend: FMC ● PMC ● NMC ●

Encroachment Data

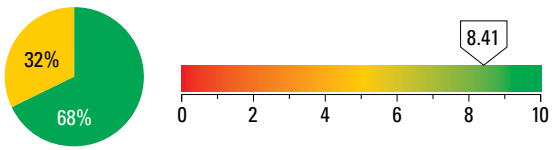
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Individual Level Training	●	●	●		●	●	●	●	●	●	●	●
Unit Level Training	●	●	●		●	●	●	●	●	●	●	●
MEU Level Training												
MEB Level Training												

Legend: Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Operational Training Ranges Required Capabilities (MCRP 3-0C) and the Range Complex Management Plan (RCMP) are the references for this assessment.
2. MEB-level training was not assessed. Attribute areas in "white" were not assessed at MCAS CP.
3. Targets and Scoring and Feedback deficits are the capability attribute most significantly impacting the overall mission.
4. Capability shortfalls affect all levels of training equally.

Summary Observations

1. 32% of the range/range complex mission is moderately impacted by encroachment factors.
2. (Munition Restrictions, Noise Restrictions, Adjacent Land Use and Range Transients are the encroachment factors moderately impacting most of the training mission.
3. Individual and Unit Level Training are the affected mission areas.
4. An Encroachment Control Plan (ECP) for this installation has been completed, and is presently being updated; execution of ECP ongoing.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Capability Scores	7.0	7.0	8.67

Impacts from key range capabilities shortcomings resulted in "Partially Mission Capable" designations for this installation during FYs 2008–2010 when assessing the installation's ability to support Marine Corps Task 1.7 (Support Maneuver through the Provision of Training Areas) and Marine Corps Task 3.3 (Support Fires through the Provision of Ranges and Training Areas). Top three capabilities and/or enhancements required to facilitate transition to "Fully Mission Capable" include (1) upgraded and enhanced range safety and exercise command and control communications systems, (2) urban training facilities including urban CAS capability and MOUT training facility, and (3) fully resourced range control facility.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Encroachment Scores	7.73	7.73	8.41

Impacts from key encroachment factors resulted in "Partially Mission Capable" designations for this installation during FYs 2008–2010 when assessing the installation's ability to support Marine Corps Task 1.7 (Support Maneuver through the Provision of Training Areas) and Marine Corps Task 3.3 (Support Fires through the Provision of Ranges and Training Areas). Successful mitigation of key encroachment factors, including (1) munitions restrictions, (2) noise restrictions, and (3) urban growth and adjacent land use, and (4) range transients, are required to facilitate transition to a "Fully Mission Capable" designation.

MCAS Cherry Point Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Targets	Individual Level Training		Targets do not meet requirements of MCRP 3-0C; ranges lack structural/urban targets. Range Modernization / Transformation program is addressing shortfalls consistent with available resources and Marine Corps priorities.
	Unit Level Training		Targets do not meet requirements of MCRP 3-0C; ranges lack structural/urban targets. Range Modernization / Transformation program is addressing shortfalls consistent with available resources and Marine Corps priorities.
Scoring & Feedback System	Individual Level Training		Scoring and Feedback systems do not meet requirements of MCRP 3-0C. Range Modernization / Transformation program is addressing shortfalls consistent with available resources and Marine Corps priorities.
	Unit Level Training		Same as above.
Infrastructure	Individual Level Training		Range control facility resourcing has been addressed with addition of dedicated personnel. A new microwave transmission tower at BT-11 is to be installed to enhance range control and communications. Upon completion, range control infrastructure will be Fully Mission Capable.
	Unit Level Training		Same as above.
MOUT Facilities	Individual Level Training		Identified requirement for MOUT facility is being addressed in range development program, with planned MOUT construction at Atlantic Field OLF. Development of Urban CAS capability, while required, is not feasible within current installation lands.
	Unit Level Training		Identified requirement for MOUT facility is being addressed in range development program, with planned MOUT construction at Atlantic Field OLF. Development of Urban CAS capability, while required, is not feasible within current installation lands.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Munitions Restrictions	Individual Level Training		Aerial bombing and gunnery ranges BT-9 and BT-11, situated on islands within R5306A, are surrounded by NC Public Trust Waters with the intra-coastal waterway splitting the two range areas. The area supports fisheries and recreation. Associated limitations on Surface/Weapons Danger Zone (SDZ/WDZ) restrict allowable munitions for aerial bombing and gunnery using BT-9 and BT-11. Inert ordnance only authorized up to 500 lbs at BT-11; 35 lbs TNT equivalent for BT-9; no cluster munitions. BT-9 and BT-11 range areas are also used by water-borne craft in practicing shallow water target engagements; however, the firing of primary weapons systems using .50 caliber munitions from surface platforms is restricted at BT-11. Actions to address include community liaison; however remedies remain elusive.
	Unit Level Training		Same as above.
Noise Restrictions	Individual Level Training		The installation operates a Class C Range for Explosive Ordnance Disposal. The range is capable of disposing of up to 150 lbs net explosive weight (NEW). However, the Base has self-imposed limitations of 50 lbs NEW to ensure noise from detonations does not impact the nearby communities.
Adjacent Land Use	Individual Level Training		Population increases in the region are resulting in increased construction of housing and other urban infrastructure in the vicinity of the installation and associated airspace and ranges. The changing land use increasingly impacts the Base's flexibility to execute training. ALF Bogue also has major urban encroachment. BT-9 and BT-11 are affected by civilian use of surrounding waters (see above). Examples of impacts include noise restrictions affecting munitions use and night training, increased light that conflicts with flight crew's use of night vision equipment, and alteration of flight patterns to avoid urbanizing areas, both within restricted SUA and for low-altitude routes outside restricted airspace. Explosive storage areas are negatively impacted by flight corridor civilian overflight and vehicle traffic on adjacent roads. Cellular towers constructed close to Cherry Point boundaries can negatively affect operations by raising the weather minimums required for aircraft conducting instrument approaches. Actions to address include community liaison; however remedies remain elusive.
	Unit Level Training		Same as above.
Range Transients	Individual Level Training		As noted above, the waters surrounding BT-9 and BT-11 are used extensively for civilian activities. MCOLF Atlantic is a high value 1200 acre airfield facility used for numerous supporting arms (aviation) activities. This airfield is subject to incursions by recreational off-road vehicle users. Actions to address include patrolling, reporting, and community liaison.
	Unit Level Training		Same as above.

Figure 3-20 Marine Corps Capability and Encroachment Assessment Detail (continued)

MCB Hawaii Assessment Details

Range Mission Description

MCB Hawaii provides range capabilities to support training of Marines, Marine Corps units, MAGTF elements, and MAGTFs in the mission essential tasks of modern expeditionary warfare, focused on training requirements of units assigned to the installation.

Capability Data

Mission Areas	Capability Attributes												
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Individual Level Training	PMC				PMC	PMC	PMC	PMC	FMC	PMC		PMC	
Unit Level Training	NMC	PMC			PMC	PMC	PMC	PMC	FMC		NMC	PMC	
MEU Level Training	NMC				NMC	NMC	NMC					PMC	
MEB Level Training													

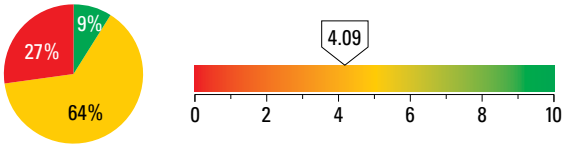
Legend: FMC PMC NMC

Encroachment Data

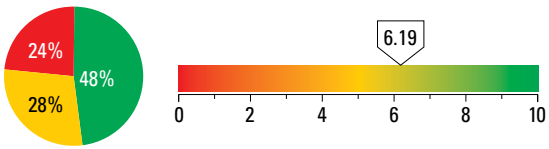
Mission Areas	Encroachment Factors											
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Individual Level Training	FMC	NMC	FMC			FMC	PMC	NMC	PMC	FMC	FMC	PMC
Unit Level Training	FMC	NMC	FMC			FMC	PMC	NMC	PMC	FMC	FMC	PMC
MEU Level Training								NMC				
MEB Level Training												

Legend: Minimal Moderate Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Doctrinal range requirements are derived from Operational Training Ranges Required Capabilities (MCRP 3-0C). MCB Hawaii RCMP provides data for this assessment. Mission and Attribute areas in "white" were not assessed or are not applicable to this installation.
2. Critical deficits have been noted in available training land and airspace, impacting the ability to conduct required training or develop sufficient ranges. Hawaii-based Marine units rely extensively, and for some training exclusively, on other-Service ranges. Other significant deficits are the lack of modern automated targets. The ability of Marine Corps Range Modernization / Transformation program to address the land and airspace deficits is marginal.
3. The capability shortfalls noted generally affect all levels of training.
4. The urbanized nature of Oahu increasingly affects MCB Hawaii's capability to support fully the training requirements of Hawaii-based, operational force units. These units accomplish required training by extensively utilizing other-Service ranges in Hawaii.

Summary Observations

1. Over 50% of the range complex mission is moderately or severely impacted by encroachment factors. Mission and Attribute areas in "white" were not assessed, or are not applicable to this installation.
2. Adjacent Land Use, Munitions Restrictions, and Noise Restrictions are the encroachment factors with greatest impact on training mission.
3. MCB Hawaii has implemented a comprehensive Encroachment Control Program, with an active community relations effort as the core element of its strategy. In support of this effort, an overarching, headquarters-level Encroachment Control Plan (ECP) is planned for FY2011.
4. The urbanized nature of Oahu with its associated impacts on range use increasingly affects Marine Corps Base Hawaii's capability to support the home-stationed, operational force units' training requirements fully. Units accomplish required training by extensively utilizing other-Service ranges in Hawaii.

MCB Hawaii Assessment Details

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	4.47	4.47	4.55	**Encroachment Scores**	7.27	7.27	6.19
Impacts from key range capabilities shortcomings resulted in "Partially Mission Capable" designations for this installation during FYs 2008–2010 when assessing the installation's ability to support Marine Corps Task 1.7 (Support Maneuver through the Provision of Training Areas) and Marine Corps Task 3.3 (Support Fires through the Provision of Ranges and Training Areas). Top three capabilities and/or enhancements required to facilitate transition to "Fully Mission Capable" include (1) sufficient land and airspace to support a MEU/BLT non live-fire maneuver in the Hawaiian Islands, (2) fully resourced range control facility, and (3) scored aviation and ground ranges.				Impacts from key encroachment factors resulted in "Partially Mission Capable" designations for this installation during FYs 2008–2010 when assessing the installation's ability to support Marine Corps Task 1.7 (Support Maneuver through the Provision of Training Areas) and Marine Corps Task 3.3 (Support Fires through the Provision of Ranges and Training Areas). Successful mitigation of key encroachment factors, including (1) airspace restrictions, (2) frequency spectrum limitations, and (3) urban growth, are required to facilitate transition to a "Fully Mission Capable" designation.			

MCB Hawaii Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Individual Level Training	🟡	MCB Hawaii (MCBH) ranges support limited live-fire training at the individual level. Live-fire training of artilllery-men and heavy mortar-men is prohibited on MCBH ranges. Convoy operations training is not feasible due to space constraints. Combat logistics training using heavy equipment is severely constrained by space limitations. Required training relies on use of other-Service ranges and airspace in Hawaii, which requires travel with associated costs and is further constrained by competition to use the ranges. The logistics, costs, and time to conduct required training increase when it is conducted off-island at an other-Service range.
	Unit Level Training	🔴	MCBH ranges support limited live-fire training at the infantry squad level and none at the platoon or company level. Live-fire training of artillery batteries and weapons companies (81 mm mortar. is prohibited on MCBH ranges. Maneuver training (non-live-fire) for platoon and company sized units is limited to Bellows training area. Training events employing multiple distributed units is not feasible. The limitations on live-fire and certain other training at MCBH ranges force units to use other-Service ranges in Hawaii to meet their training needs. The logistics, costs, and time to conduct required training increase when it is conducted off-island at an other-Service range.
	MEU Level Training	🔴	Due to a lack of sufficient training lands, battalion-level training is not feasible. Home-stationed units of 3d Marine Infantry Regiment rely on the use of other-Service ranges and airspace in Hawaii to accomplish their training. The logistics, costs, and time to conduct required training increase when it is conducted off-island at an other-Service range.
Airspace	Unit Level Training	🟡	There is no restricted airspace over MCBH ranges. There are no aviation over-land, low level training routes on Oahu. Units rely on other-Service ranges and airspace to complete their training requirements. The logistics, costs, and time to conduct required training increase when it is conducted off-island at an other-Service range.
Targets	Individual Level Training	🟡	MCBH ranges lack automated, fixed and mobile targets. This shortfall reduces training realism, effectiveness, and training assessment capability. A lack of available training space severely constrains options for range development, threat system employment, and target emplacement; consequently, this shortfall is not likely to be remedied on MCBH ranges.
	Unit Level Training	🟡	Same as above.
	MEU Level Training	🔴	Same as above. Training constraints due to lack of available training space are most severe for larger units and MAGTFs.
Threats	Individual Level Training	🟡	MCBH ranges lack realistic, modern threat representation / simulation capability. This shortfall reduces training realism, effectiveness, and training assessment capability. A lack of available training space severely constrains options for range development, threat system employment, and target emplacement; this shortfall is not likely to be remedied on MCBH ranges.
	Unit Level Training	🟡	Same as above.
	MEU Level Training	🔴	Same as above. Training constraints due to lack of available training space are most severe for larger units and MAGTFs.
Scoring & Feedback System	Individual Level Training	🟡	MCBH range complex lacks real-time training feedback systems. This shortfall reduces training realism, effectiveness, and training assessment capability. The Range Modernization / Transformation program is addressing shortfalls consistent with available resources and Service priorities. Increased use of MILES 2000-type technology and renewal of the LOMAH maintenance contract for rifle marksmanship range will help to mitigate some instrumentation shortfalls.
	Unit Level Training	🟡	Same as the preceding comment. In addition, the lack of available training space severely constrains options for range development, threat system employment, and target emplacement.
	MEU Level Training	🔴	Same as the preceding comment. In addition, the lack of available training space severely constrains options for range development, threat system employment, and target emplacement.

Figure 3-20 Marine Corps Capability and Encroachment Assessment Detail (continued)

MCB Hawaii Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Infrastructure	Individual Level Training		Range infrastructure enhancements, including communications, range control systems, and staffing requirements are being addressed through the Marine Corps range program, as consistent with programmatic priorities and subject to available funding.
	Unit Level Training		Same as above.
Small Arms Ranges	Individual Level Training		As noted above, insufficient land area for range development limits required small arms training to static ranges. The comments above regarding deficits in targets, threat systems, and scoring / feedback capabilities are also pertinent. This shortfall reduces the effectiveness of live-fire training. Units rely on other-Service, more advanced range capabilities to meet training requirements.
Collective Ranges	Unit Level Training		As noted above, insufficient land area for range development and lack of special use airspace preclude conducting collective training except at most basic levels on MCB Hawaii ranges. This shortfall limits the utility of MCBH ranges to support collective training. Units are forced to use available other-Service ranges to accomplish required training.
MOUT Ranges	Individual Level Training		MCBH MOUT facilities are insufficient to meet training needs. Consequently, competition to use these facilities is keen. Development of new MOUT facilities has received focused attention throughout the Marine Corps. At MCBH (Bellows training area), investments in state-of-the-art MOUT facilities are programmed. Further, construction of a modular MOUT at the US Army's Pohakuloa Training Area is programmed. Range Modernization/Transformation program is continuing to address shortfalls consistent with available resources and Service priorities.
	Unit Level Training		Same as above.
	MEU Level Training		Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Munitions Restrictions	Individual Level Training		Live-fire training using artillery or 81 mm mortar munitions are prohibited on MCBH ranges. This shortfall negatively impacts training for infantry weapons companies and artillery batteries. These units are forced to accomplish this training at other-Service ranges in Hawaii.
	Unit Level Training		Same as above.
Noise Restrictions	Individual Level Training		Simulated Close Air Support (SIMCAS) training that supports beach landings during RIMPAC, a multi-national exercise, have been suspended due to noise complaints received from the local community.
	Unit Level Training		Same as above.
Adjacent Land Use	Individual Level Training		Due to proximity of civilian housing and other community infrastructure, live-fire training is prohibited at Marine Corps Training Area Bellows (an amphibious and MOUT training area), and is limited at Kaneohe Bay. Encroaching development continues with, for example, construction of a health clinic adjacent to Bellows. The urbanized character of the area constrains the development of ranges. As a result, training is generally confined to non-live-fire events or the use of static positions when firing small arms. Extremely limited ship-to-shore training areas are available. Community noise concerns, as noted above, are pervasive. Light sources in surrounding communities preclude night vision training for air crews. Convoy training on public roads is not feasible due to traffic congestion. All of these constraints reduce the effectiveness of training to some extent. As a result, much of this training is forced off-island to other-Service ranges.
	Unit Level Training		Same as above.
	MEU Level Training		Same as above.
Cultural Resources	Individual Level Training		Some existing MCBH range areas are considered to be archaeologically or culturally sensitive and cannot be disturbed. In some instances, these sites restrict training or preclude expanding training facilities. Environmental impacts analyses address these issues, as appropriate.
	Unit Level Training		Same as above.
Range Transients	Individual Level Training		MCBH live-fire ranges are required to cease operations when civilian watercraft enter the confines of a range surface danger zone (SDZ), which extends into the ocean behind the impact area. These intermittent cease fire events disrupt and degrade live-fire training events. The cost to provide personnel to watch the area is approximately 3,000 man-hours per year. To mitigate these training interruptions the following measures have been adopted: placing personnel to watch for boat traffic in range's SDZ; providing the ranges with radios to communicate with boat traffic; and directing available military vessels to intercept civilian boats in SDZs. In addition, updated notices to all mariners have been published.
	Unit Level Training		Same as above.

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Figure 3-20 Marine Corps Capability and Encroachment Assessment Detail (continued)

MCB Japan Assessment Details

Range Mission Description

MCB Japan provides range capabilities to support the training of Marines, Marine Corps units, MAGTF elements, and MAGTFs in the mission-essential tasks of modern expeditionary warfare. This also includes training the Third Marine Expeditionary Force (III MEF) and other units assigned to the installation. Additionally, MCB Japan supports training the other uniformed services based in Japan and the Japanese Self-Defense Force.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Individual Level Training	🔴	🟡	🟢		🟡	🔴	🟡	🟢	🟡	🟡		🟢	🟢
Unit Level Training	🔴	🔴	🟡		🔴	🔴	🟡	🟢	🟡		🔴	🟡	🟡
MEU Level Training	🔴	🔴	🔴		🔴	🔴	🔴	🟢	🟡		🔴	🟡	🟡
MEB Level Training													

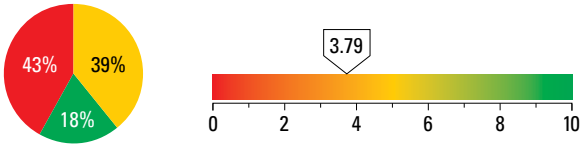
Legend: FMC 🟢 PMC 🟡 NMC 🔴

Encroachment Data

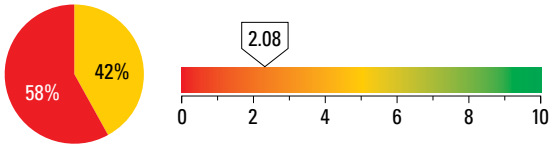
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Individual Level Training		🟡			🟡		🟡	🔴				
Unit Level Training		🔴			🔴		🟡	🔴				
MEU Level Training		🔴			🔴		🟡	🔴				
MEB Level Training												

Legend: Minimal 🟢 Moderate 🟡 Severe 🔴

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. MCB Japan includes Camp Smedley D. Butler, Okinawa, Japan, and Combined Arms Training Center (CATC) Camp Fuji, Japan. The Marine Corps initiated development of a Range Complex Management Plan for MCB Japan late in FY2009, with completion anticipated in FY2011. The RCMP will include both encroachment assessments and detailed assessments of range capabilities. Complete assessments will also be included in the FY2012 Sustainable Ranges Report and will be based on information from the in-progress RCMP.
2. Deficits noted in available land and airspace are the most critical shortfalls. The Lack of targets and threat capability are additional critical shortfalls.
3. While CATC Camp Fuji Japan, on mainland Japan, provides additional range capabilities, the bulk of the Third Marine Expeditionary Force (III MEF) units based in WestPac are located in Okinawa. Consequently, the bulk of the training requirements for Okinawa-based units must be accomplished in Okinawa because of the time, cost, and range availability associated with training at CATC.

Summary Observations

1. MCB Japan includes Camp Smedley D. Butler, Okinawa, Japan, and Combined Arms Training Center (CATC) Camp Fuji, Japan. The Marine Corps initiated development of a Range Complex Management Plan for MCB Japan late in FY2009, with completion anticipated in FY2011. The RCMP will include both encroachment assessments and detailed assessment of range capabilities. Complete assessments will be included for the FY2012 Sustainable Ranges Report, based on information from the in-progress RCMP.
2. The greatest encroachment challenges facing MCB Japan ranges in Okinawa are Munitions Restrictions, Adjacent Land Use, and Airspace.

MCB Japan Assessment Details

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	N/A	N/A	N/A	**Encroachment Scores**	N/A	N/A	N/A
When assessing the installation's ability to support Marine Corps Task 1.7 (Support Maneuver through the Provision of Training Areas) and Marine Corps Task 3.3 (Support Fires through the Provision of Ranges and Training Areas), impacts from key range capabilities shortcomings resulted in "Partially Mission Capable" designations for this installation between FY2008 and FY2010. The top three capabilities and/or enhancements required to facilitate transition to "Fully Mission Capable" include: (1) enhanced/scored ground combat element direct and indirect fire ranges, (2) MAGTF combined arms live fire and maneuver training capability, and (3) scored aviation ranges (rotary and fixed wing).				When assessing the installation's ability to support Marine Corps Task 1.7 (Support Maneuver through the Provision of Training Areas) and Marine Corps task Task 3.3 (Support Fires through the Provision of Ranges and Training Areas), impacts from key range capabilities shortcomings resulted in "Partially Mission Capable" designations for this installation between FY2008 and FY2010 . The top three capabilities and/or enhancements required to facilitate transition to "Fully Mission Capable" include: (1) enhanced/scored ground combat element direct and indirect fire ranges, (2) MAGTF combined arms live fire and maneuver training capability, and (3) scored aviation ranges (rotary and fixed wing).			

MCB Japan Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Individual Level Training	🔴	Effective training is possible on Okinawa; however, it will take imagination, creativity, and a continuously-aggressive outreach program to comply with the physical limitations of being located on a small island. The Central Training Area (CTA) comprises MCB Camp Butler's training facilities. Public roads trisect and surround CTA. Two impact areas occupy a significant portion of the south and north CTA. The largest section of maneuver area is approximately 7.5 km x 3 km, but it is a heavily vegetated terrain full of ravines and therefore can restrict mobility. As such, this small area limits the types of training that can be conducted and the types of weapons that can be fired. Conversely, all weapons systems organic to the MEU can be fired within the CTA, with limitations. For example, not-fired and wire-guided munitions are excluded due to environmental limitations and political agreements on Okinawa. The Defense Policy Review Initiative (DPRI) is a U.S. Government/Government of Japan agreement signed at the Secretary of State/Secretary of Defense level that reduces the impact and scope of U.S. Marine training on Okinawa. Any expansion of training space or capability will need robust support from the State and DoD level through the U.S./GoJ Joint Committee.
	Unit Level Training	🔴	Same as above.
	MEU Level Training	🔴	Same as above.
Airspace	Individual Level Training	🟡	The dimensions of the special use airspace (SUA) is limited over CTA, especially vertically. Its ceiling varies from 1,000' MSL to 3,000' MSL. Some of the instrument approaches into Kadena Air Base and overlies this SUA. Additionally, the relatively low ceilings for this SUA are minimally adequate to support individual weapons firing; however, expanding this SUA vertically is not likely to happen.
	Unit Level Training	🔴	With SUA over CTA capped at either 1,000' or 3,000' MSL. Mortars must fire at a minimum charge to preclude exiting the airspace. Fixed wing aircraft cannot support training operations within the CTA. The limitations imposed on mortar fires limit combined-arms fires to platoon level. Fixed wing aircraft cannot operate within the CTA to support ground training, but CAS is available at nearby US Air Force ranges just off Okinawa. Expanding this SUA vertically is being explored with US Air Force and the Japanese Civil Aeronautics Bureau.
	MEU Level Training	🔴	Same as above.
Seaspace	Unit Level Training	🟡	Per agreement with the Government of Japan, there are several water surface areas available for training 120 days per year. Two small training beach areas, Kin Red and Kin Blue, provide access to the sea and land, but traveling from them requires the use of public roads. Available beaches are not contiguous with the available training space within the CTA or at CATC Fuji and no beach training areas exist on le Shima island currently. The limited beach areas for landings precludes conducting large-scale amphibious assaults or raids. The Defense Policy Review Initiative (DPRI) is a U.S. Government/Government of Japan agreement signed at the Secretary of State/Secretary of Defense level which agrees to reduce the impact and scope of US Marine training on Okinawa. Any expansion of training space or capability will need robust support from State/DoD level through the U.S./Government of Japan Joint Committee.
	MEU Level Training	🔴	Same as above.
Targets	Individual Level Training	🟡	Twenty-five vehicle type steel targets have been recently added across five ranges within the CTA as party of the operational range clearance program. The lack of adequate targets makes it difficult to improve weapons skills.
	Unit Level Training	🔴	Same as above.
	MEU Level Training	🔴	Same as above.

Figure 3-20 Marine Corps Capability and Encroachment Assessment Detail (continued)

MCB Japan Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Threats	Individual Level Training	🔴	There are no EW threats for aviation on Okinawa or mainland Japan. There is no standing OpFor to support ground training. Aviators are unable to familiarize themselves with EW threat systems or practice tactics against them. Ground OpFor normally comes from a sister unit, which is not trained to execute threat tactics, and thus, provides a less effective training experience. Approaches to mitigating these shortfalls are being analyzed in the ongoing RCMP process.
	Unit Level Training	🔴	Same as above.
	MEU Level Training	🔴	Same as above.
Scoring & Feedback System	Individual Level Training	🟡	There are a limited number of ranges that have targets that are automated or scored. Targets that do not provide scoring are less effective for improving weapons skills. The Range Modernization/Transformation program provides upgrades within its available resources.
	Unit Level Training	🟡	Same as above. In addition, there are currently two ranges that provide an after action review capability (R18 and R16 Shoot House). A MILCON project for 2015 was recently submitted for Range 18 to expand the capability for Individual and Unit level training.
	MEU Level Training	🔴	Same as above, but even more aggravated in proportion to the size of the unit.
Range Support	Individual Level Training	🟡	There is limited communications capability with units in the field. Also, there is currently no capability to monitor air traffic in the training areas. Communications outages interrupt training events and there is no means to monitor air traffic situational awareness until the situation is fixed. The Range Modernization/Transformation program is upgrading communications capabilities and installing IRSS to provide an air picture. These improvements are planned for 2011.
	Unit Level Training	🟡	Same as above.
	MEU Level Training	🟡	Same as above.
Small Arms Ranges	Individual Level Training	🟡	The targetry on existing ranges is very limited, which degrades its utility. Without adequate targets to fire at, individual weapons skills are degraded. There is an initiative to place additional targets in the impact area.
Collective Ranges	Unit Level Training	🔴	There are two ranges in Okinawa that support live-fire and maneuver (LFAM) training to the platoon level, and none for live-fire convoy operations. International agreements, such as DPRI impacts any significant attempt at expansion to develop LFAM or convoy ranges. Integrating supporting arms is limited to restricted mortar fires. This lack of LFAM and convoy ranges limits opportunities for ground units to train in an LFAM or combined-arms environment. Range Operations is working to expand the capabilities of the existing LFAM ranges.
	MEU Level Training	🔴	Same as above.
MOUT Facilities	Unit Level Training	🟡	There are three non-live-fire, MOUT facilities in Okinawa. The largest is an 11-building facility made up of shipping containers. The largest could support training up to a company level, but there is not enough capacity to support all of the units that need it. MOUT facilities have tripled over the past two years, as a result of the Range Modernization/ Transformation program, which continues to address shortfalls consistent with available assets.
	MEU Level Training	🟡	Same as above.
Suite of Ranges	Unit Level Training	🟡	Currently, CTA only has two maneuver ranges that are capable of supporting limited maneuver up to the squad-platoon level. Company-level maneuver operations are available on Ie Shima island, but that facility offers no live fire opportunities based on existing political agreements. Large-scale live-fire training with maneuver is currently conducted on a limited basis at CATC Camp Fuji for both MEU and UDP units.
	MEU Level Training	🟡	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Munitions Restrictions	Individual Level Training	🟡	Munitions restrictions in the Central Training Area on Okinawa are driven primarily by three factors working in consonance: geographic constraints, political constraints, and virtually unimpeded encroachment by local communities. Per agreement with the Government of Japan, artillery live-fire training is no longer conducted on Okinawa. Instead, it takes place at five Japanese Ground Self Defense Force ranges. Okinawa has two ranges where .50cal machine guns may be fired. At one range, the gun's barrel must be placed into a physical restraint to prevent its movement; while guns must be bore sighted and have restraining devices added to ensure no rounds impact outside of a concrete tunnel approximately 20m wide and 15m high on the other. Land and airspace are also not large enough to allow for close air support training on Okinawa. CAS is conducted on Air Force ranges just off of Okinawa by both Marine rotary-wing and fixed-wing units. These restrictions limit the conduct of basic and combined-arms live-fire training operations to the platoon level. The Defense Policy Review Initiative (DPRI), an agreement between the U.S. and Japanese governments, reduces the impact and scope of U.S. Marine training on Okinawa. Expanding training space or capability on Okinawa requires robust support from both the Departments of Defense through the U.S. Government/Government of Japan Joint Committee.
	Unit Level Training	🔴	Same as above, but even more aggravated in proportion to the size of the unit.
	MEU Level Training	🔴	Same as above, but even more aggravated in proportion to the size of the unit.
Airspace	Individual Level Training	🟡	MCB Camp Butler SUA's dimensions are very limited, particularly vertically. Its ceiling varies from 1,000' MSL to 3,000' MSL and some of the instrument approaches into Kadena Air Base overly this SUA. Additionally, the relatively low ceilings for this SUA are minimally adequate to support individual weapons firing. Expanding this SUA vertically is being explored with the U.S. Air Force and Japanese Civil Aeronautics Bureau.
	Unit Level Training	🔴	Same as above. In addition, the relatively low ceilings for this SUA limit live-fire operations like mortar employment and restrict fixed-wing aircraft from providing training support for ground units, such as simulated close air support. Expanding this SUA vertically is being explored with the U.S. Air Force and Japanese Civil Aeronautics Bureau; however, simulated RW/FW SIMCAS remain unlikely because of the size and geographic constraints of the training area and existing political constraints and noise concerns. Accordingly, FW/RW SIMCAS and Fire Support Team/ FAC training occur at an island location off the west coast of the main island of Okinawa, well clear of the CTA. Work-around for mortar firing currently exist by putting someone from Range Control in the Naha Approach Control to provide positive communications between the firing party and the control tower, calling a cease-fire when aircraft are in the airspace.
	MEU Level Training	🔴	Same as above.
Noise Restrictions	Individual Level Training	🟡	Small villages and municipalities surround the Central Training Area (CTA), particularly the Hansen impact area, located on the southwest end of CTA. Japan has no zoning laws. Thus, there is no buffer between these towns and CTA. Noise from training, especially live-fire operations, migrates off-base. As a result of having to operate in such a compact, urbanized area, training operations may be limited. Although the U.S. Marine Corps respects its surrounding communities, it must continue to train locally and conduct live-fire operations. Therefore, through its aggressive outreach program, MCB Japan works to minimize this impact. During certain times of the year, training operations may be limited or suspended as a courtesy during school testing.
	Unit Level Training	🟡	Same as above.
	MEU Level Training	🟡	Same as above.
Adjacent Land Use	Individual Level Training	🔴	Public roads trisect the CTA and small towns surround it. This is particularly evident near the Hansen impact area, located on the southwest end of CTA. In addition, tacit farms occupy a few areas within the border of CTA. Since there is no buffer between these towns and CTA, noise from training such as that from live-fire operations migrates off-base. During certain times of the year, training operations may be limited or suspended to prevent fires. Developing additional ranges in such a compact, urbanized area is also very challenging. As a result of these constraints, training operations have been limited in the past, and expanding ranges is very difficult. These limitations require flexibility and creative training to realize effective training support. Furthermore, the Defense Policy Review Initiative (DPRI) reduces the impact and scope of U.S. Marine training on Okinawa. Expanding training space or capability requires support from the Departments of State and Defense through the U.S. Government/Government of Japan Joint Committee.
	Unit Level Training	🔴	Same as above.
	MEU Level Training	🔴	Same as above.

Figure 3-20 Marine Corps Capability and Encroachment Assessment Detail (continued)

MCB Camp Lejeune Assessment Details

Range Mission Description

MCB Camp Lejeune provides range capabilities to support training of Marines, Marine Corps units, MAGTF elements, and MAGTFs in the mission essential tasks of modern expeditionary warfare, including the training requirements of the Second Marine Expeditionary Force (II MEF) and other units assigned to the installation.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Individual Level Training	FMC	FMC	FMC		PMC	PMC	PMC	PMC	FMC	FMC		PMC	
Unit Level Training	PMC	PMC	FMC		PMC	NMC	PMC	PMC	FMC		PMC	PMC	
MEU Level Training	NMC	PMC	FMC		PMC	NMC	PMC	PMC	FMC		PMC	PMC	
MEB Level Training													

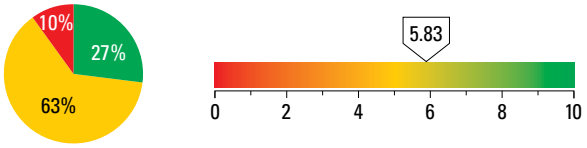
Legend: FMC PMC NMC

Encroachment Data

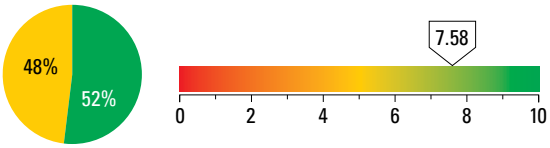
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Individual Level Training	Moderate	Moderate	Minimal		Moderate	Minimal	Moderate	Moderate	Minimal	Minimal	Minimal	Minimal
Unit Level Training	Moderate	Moderate	Minimal		Moderate	Minimal	Moderate	Moderate	Minimal	Minimal	Minimal	Minimal
MEU Level Training	Moderate	Moderate	Minimal		Moderate	Minimal	Moderate	Moderate	Minimal	Minimal	Minimal	Moderate
MEB Level Training												

Legend: Minimal Moderate Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Doctrinal range requirements are derived from Operational Training Ranges Required Capabilities (MCRP 3-0C). MCB Camp Lejeune provides data for this assessment. Mission and Attribute areas in "white" were not assessed, or are not applicable to this installation.
2. Critical deficits noted in available training land and airspace, that are impacting ability to conduct required training or develop sufficient ranges. Other significant deficits are lack of modern automated targets and threat systems.
3. Capability shortfalls generally affect all levels of training.

Summary Observations

1. The references for this assessment are Operational Training Ranges Required Capabilities (Marine Corps Reference Publication [MCRP] 3-0C) and Range Complex Management Plan (RCMP). Mission and Attribute areas in "white" were not assessed, or are not applicable to this installation.
2. 48% of the training mission is moderately affected by encroachment. Camp Lejeune has considerable encroachment at all levels of training. MEU-level training is most severely constrained.
3. Development of Encroachment Control Plan is ongoing (expected completion FY2010).

MCB Camp Lejeune Assessment Details

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	5.24	5.24	6.33	**Encroachment Scores**	7.58	7.58	7.58
Impacts from key range capabilities shortcomings resulted in "Partially Mission Capable" designations for this installation during FYs 2008–2010 when assessing the installation's ability to support Marine Corps Task 1.7 (Support Maneuver through the Provision of Training Areas) and Marine Corps Task 3.3 (Support Fires through the Provision of Ranges and Training Areas). Top capabilities and/or enhancements required to facilitate transition to "Fully Mission Capable" include (1) off-base MV-22 tactical training areas/landing zones, (2) MAGTF level instrumented MOUT capabilities, (3) upgraded and enhanced range safety and exercise command and control communications systems, (4) upgrade and modernize targets, (5) a combined arms maneuver course for individual, collective, and MEU level training, and (6) small arms ranges are generally 1970 vintage designs. These deficiencies have or will be addressed by Urgent Needs Statement (off base Tactical Training Areas supporting flight ops), PMC funded training system projects, ELMR fielding and MILCON.				Impacts from key encroachment factors resulted in "Partially Mission Capable" designations for this installation during FYs 2008–2010 when assessing the installation's ability to support Marine Corps Task 1.7 (Support Maneuver through the Provision of Training Areas) and Marine Corps Task 3.3 (Support Fires through the Provision of Ranges and Training Areas). Successful mitigation of key encroachment factors, including (1) airspace restrictions, (2) frequency spectrum limitations, and (3) urban growth, are required to facilitate transition to a "Fully Mission Capable" designation.			

MCB Camp Lejeune Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Unit Level Training	🟡	Limited available land training area limits options for siting/development of new ranges. Range planning seeks to maximize efficient use of available land for training. Expansion is not feasible. Landspace requirements include off-installation areas for dedicated landing zone use by MV-22 aircraft.
	MEU Level Training	🔴	Land training area does not meet MCRP 3-0C requirements. Range planning seeks to maximize efficient use of available land for training. Expansion is not feasible.
Airspace	Individual Level Training	🟡	Airspace extends from surface to only 17,999 feet; does not extend 10NM beyond land area as necessary to avoid "spill outs" by military aircraft and incursions over ranges by civilian aircraft; supersonic flight is not authorized; fixed-wing flight operations restricted. Urbanization issues (e.g., noise and light) limit use of training airspace that is not SUA (e.g., TERF), including extended range airspace areas required for MV-22 tactical training.
	Unit Level Training	🟡	Same as above.
	MEU Level Training	🟡	Same as above.
Targets	Individual Level Training	🟡	Not all ranges and targets meet T&R/ITS training requirements for weapon systems - specifically for Infantry, EFV, and engineering systems; range area, distance, and feedback are limited; EFV waterborne requirement is not met; minimal urban/structural targets. Range Modernization / Transformation program is addressing shortfalls consistent with available resources and Service priorities.
	Unit Level Training	🟡	Targets do not meet full T&R training requirements. A-G bombs limited to inert only. Range Modernization / Transformation program is addressing shortfalls consistent with available resources and Service priorities.
	MEU Level Training	🟡	Targets not all set to T&R/ITS standards; A-G bombs limited to inert only. Range Modernization / Transformation program is addressing shortfalls consistent with available resources and Service priorities.
Threats	Individual Level Training	🟡	Limited to MILES 2000 equipment during tactical operations. Range Modernization / Transformation program is addressing shortfalls consistent with available resources and Service priorities.
	Unit Level Training	🔴	OPFOR are provided by contracted Iraqi or Afghan Role Players who are not formally instructed on enemy tactics, techniques and procedures; however, Role Players provide a second best alternative.
	MEU Level Training	🔴	No dedicated OPFOR, normally makeshift and controlled by handlers and not trained to enemy tactics or techniques.
Scoring & Feedback System	Individual Level Training	🟡	Tracking—Radar Inputs Only; RC—2-D Capability Only; EC&C—Operational Unit Owned and Operated; M&S—Only S-S Scenarios; Scoring—At least 1 range to Training Standard; Debrief/AAR—Primarily Observers/Hit-or-Miss Targets. Range Modernization / Transformation program is addressing shortfalls consistent with available resources and Service priorities.
	Unit Level Training	🟡	Same as above.
	MEU Level Training	🟡	Same as above.
Infrastructure	Individual Level Training	🟡	Range communication systems do not support full spectrum of range control functions. This deficiency is being addressed through fielding of the Enterprise Land Mobile Radio system.
	Unit Level Training	🟡	Same as above.
	MEU Level Training	🟡	Same as above.
Collective Ranges	Unit Level Training	🟡	See comments above regarding land, airspace, range control, and target deficits. Range Modernization / Transformation program is addressing shortfalls consistent with available resources and Service priorities.
	MEU Level Training	🟡	See comments above regarding land, airspace, range control, and target deficits. Range Modernization / Transformation program is addressing shortfalls consistent with available resources and Service priorities.

Figure 3-20 Marine Corps Capability and Encroachment Assessment Detail (continued)

MCB Camp Lejeune Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
MOUT Facilities	Individual Level Training		Development of new MOUT facilities has received focused attention throughout the Marine Corps, resulting in significant improvements; however deficiencies remain. Range Modernization / Transformation program is continuing to address shortfalls consistent with available resources and Service priorities.
	Unit Level Training		Same as above.
	MEU Level Training		Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Threatened & Endangered Species/ Critical Habitat	Individual Level Training		Constraints on training due to presence of ESA-listed red-cockaded woodpecker (RCW), especially within the High Value Training Areas. These constraints are addressed with the Environmental Division and the USFWS as range development and maneuver training requirements are identified. Bombing operations are restricted to inert ordnance. Bombing with live ordnance has been shifted to other bases. Consultations with USFWS are ongoing concerning impacts of vegetation clearing within the G-10 impact area regarding RCW sites surrounding impact area.
	Unit Level Training		Same as above. Additionally, habitat and other environmental concerns have made range enhancements and site selection for new ranges difficult, and, in some instances, have forced Base to choose less desirable alternatives or limit range size/capability.
	MEU Level Training		Constraints on training due to presence on beaches of ESA-listed sea turtles during breeding season (May–Oct). Use of much of the beach is restricted for amphibious and other types of training during this time. Dunes are "out of bounds" and must be maneuvered around. Remedy is elusive.
Munitions Restrictions	Individual Level Training		Bombing operations at Camp Lejeune are restricted to inert ordnance, due in part to concerns about the noise levels from use of explosive ordnance. Additional constraints are due to restrictions associated with presence of ESA-listed RCW in the impact area and range areas; consultations ongoing with USFWS.
	Unit Level Training		Tank operations at SR-7 Range have been suspended since 1998 due to noise complaints from the nearby community (although noise levels were within DoD standards).
	MEU Level Training		The use of smoke at Camp Johnson is prohibited except when the wind blows to the south, to ensure smoke does not drift over Highway 17, which, due to recent construction is now quite close to the training areas at Camp Johnson. (CLUS App. D. Part II. 1 and 2)
Airspace	Individual Level Training		No fixed wing operations are allowed in R5303 and R5304. Ranges that the SUA supports cannot be active unless the area has aviation radar coverage. R5306D cannot be expanded due to civilian use of local beaches and Hwy 17 corridor. Ship to shore movements require aircraft to utilize airspace other than restricted areas to complete scenario based training. Increased civilian density in nearby areas leads to increase in noise complaints about aircraft flying tactical profiles during the day and night. As encroachment continues, airspace and operating hours will become more restrictive. (MCAS New River adjacent to MCB Camp Lejeune)
	Unit Level Training		Same as above.
	MEU Level Training		Same as above.
Noise Restrictions	Individual Level Training		Off-base noise concerns have resulted in the reloacation of certain training venues such as the Tank live-fire range and steel cutting pit to more centralized areas of the installation which further reduces available training lands for none, noise producing training venues. Base's flexibility to absorb the requirements of future force structure and weapons training needs may be hampered by noise constraints. Remedies include ongoing community liaison.
	Unit Level Training		Same as above.
	MEU Level Training		Same as above.
Adjacent Land Use	Individual Level Training		From 1990 to 2000, the population of the region of Camp Lejeune (Onslow County, NC) was essentially stable (1990 pop-149,838; 2000 pop.-150,335 [U.S. Census Bureau]). Between 2000 and 2008, the population surged, with an increase of over 10%. This trend continues, resulting in increased construction of housing and other urban infrastructure in the vicinity of the Base and associated training areas and airspace. The changing land use increasingly impacts the Base's flexibility to execute training. Examples of impacts include noise restrictions affecting munitions use and night training, increased light that conflicts with flight crew's use of night vision equipment, and alteration of flight pattern to avoid new housing areas. Actions to address include aggressive community liaison; however remedies remain elusive.
	Unit Level Training		Same as above.
	MEU Level Training		Same as above.
Range Transients	MEU Level Training		Silting in the Intra-coastal Waterway causes civilian vessels (usually recreational) to sometimes run aground in inlets adjacent to or within the Base (Browns and New River), leading to training disruptions . Remedies include ongoing activities with community liaison.

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Figure 3-20 Marine Corps Capability and Encroachment Assessment Detail (continued)

MCB Camp Pendleton Assessment Details

Range Mission Description

MCB Camp Pendleton provides range capabilities to support training of Marines, Marine Corps units, MAGTF elements, and MAGTFs in the mission essential tasks of modern expeditionary warfare, including the training requirements of the First Marine Expeditionary Force (I MEF) and other units assigned to the installation.

Capability Data

Mission Areas	Capability Attributes												
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Individual Level Training	FMC	PMC	FMC		FMC	PMC	PMC	FMC	PMC	FMC		PMC	
Unit Level Training	PMC	PMC	FMC		PMC	PMC	NMC	FMC	PMC		PMC	PMC	
MEU Level Training	NMC	PMC	FMC		PMC	NMC	NMC	FMC	PMC		PMC	PMC	
MEB Level Training													

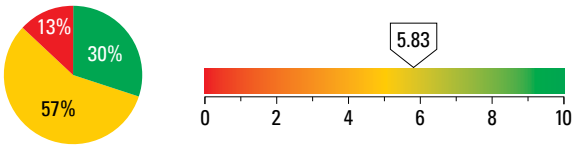
Legend: FMC (Fully Mission Capable) PMC (Partially Mission Capable) NMC (Not Mission Capable)

Encroachment Data

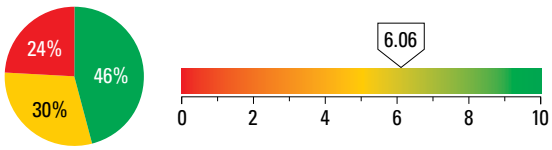
Mission Areas	Encroachment Factors											
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Individual Level Training	Moderate	Minimal	Moderate		Moderate	Minimal	Minimal	Moderate	Moderate	Minimal	Severe	Minimal
Unit Level Training	Moderate	Minimal	Moderate		Moderate	Minimal	Minimal	Severe	Severe	Minimal	Severe	Minimal
MEU Level Training	Severe	Minimal	Moderate		Moderate	Minimal	Minimal	Severe	Severe	Minimal	Severe	Minimal
MEB Level Training												

Legend: Minimal Moderate Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Doctrinal range requirements are derived from Operational Training Ranges Required Capabilities (MCRP 3-0C). MCB Camp Pendleton RCMP provides data for this assessment. Attribute areas in "white" were not assessed, or are not applicable to this installation.
2. Deficits noted in available training land and airspace, and lack of threat capabilities, automated targets, and scoring and feedback systems.
3. Capability shortfalls generally affect all levels of training.

Summary Observations

1. The references for this assessment are Operational Training Ranges Required Capabilities (Marine Corps Reference Publication [MCRP] 3-0C) and the Camp Pendleton Range Complex Management Plan (RCMP).
2. Mission and Attribute areas in "white" were not assessed, or are not applicable to this installation.
3. 21% of the training mission is severely affected by encroachment, and 15% is moderately affected. Urbanization trends in region will continue to exert ever-increasing pressure on training capabilities.
4. Development of Encroachment Control Plan is planned for FY2010/2011.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Capability Scores	4.52	4.52	5.67

Impacts from key range capabilities shortcomings resulted in "Partially Mission Capable" designations for this installation during FYs 2008–2010 when assessing the installation's ability to support Marine Corps Task 1.7 (Support Maneuver through the Provision of Training Areas) and Marine Corps Task 3.3 (Support Fires through the Provision of Ranges and Training Areas). Top three capabilities and/or enhancements required to facilitate transition to "Fully Mission Capable" include (1) completion of approved range modernization projects, (2) consistent/permanent funding for range maintenance real property sustainment, and (3) upgrade of target systems and shoot houses.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Encroachment Scores	6.67	6.67	6.82

Impacts from key encroachment factors resulted in "Partially Mission Capable" designations for this installation during FYs 2008–2010 when assessing the installation's ability to support Marine Corps Task 1.7 (Support Maneuver through the Provision of Training Areas) and Marine Corps Task 3.3 (Support Fires through the Provision of Ranges and Training Areas). Successful mitigation of key encroachment factors, including (1) urban growth and adjacent land use, (2) threatened and endangered species, (3) wetlands, and (4) cultural resources, are required to facilitate transition to a "Fully Mission Capable" designation.

MCB Camp Pendleton Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Unit Level Training	🟡	Land training area does not meet MCRP 3-0C requirements. Range planning seeks to maximize efficient use of available land for training. Expansion is not feasible.
	MEU Level Training	🔴	Same as above.
Airspace	Individual Level Training	🟡	Lateral airspace does not extend 10NM beyond land area as necessary to avoid "spill outs" by military aircraft and incursions over ranges by civilian aircraft; insufficient lateral air space for combined arms training in accordance with MCRP 3-0C. Urbanization and encroachment issues (e.g., noise and light) limit use of training airspace that is not SUA (e.g., TERF).
	Unit Level Training	🟡	Same as above.
	MEU Level Training	🟡	Same as above.
Targets	Unit Level Training	🟡	There are a number of required ranges and target areas that need modernization to meet USMC training requirements. These shortfalls span all levels of unit training. Shortfalls include infantry and mechanized automated ranges and targets, battle-course ranges and targets, assault/breaching/demolition ranges, and others. The Marine Corps Range Modernization and Transformation program is addressing these shortfalls through range investments consistent with available resources. Range Modernization / Transformation program is addressing shortfalls consistent with available resources and Service priorities.
	MEU Level Training	🟡	Same as above.
Threats	Individual Level Training	🟡	Camp Pendleton requires a comprehensive electronic training environment supporting basic through advanced collective training. The capability must simulate neutral, hostile, and non-hostile ground, air defense, and airborne weapons systems; OPFOR command and control; neutral, hostile, and non-hostile cryptologic systems; and hostile jamming. There are efforts underway to study OPFOR capability alternatives and to develop shortfall strategies. Role player program (not a program-of-record) is a significant training enhancement.
	Unit Level Training	🟡	See preceding comment.
	MEU Level Training	🔴	Same as above. Shortfalls in threat capabilities have most significant impact on more complex training events.
Scoring & Feedback System	Individual Level Training	🟡	Many existing ranges lack modern scoring and feedback systems. The Marine Corps Range Modernization / Transformation program is addressing these shortfalls through range investments consistent with available resources.
	Unit Level Training	🔴	Unit and MEU-level training requires enhanced instrumentation for training event reconstruction, debriefing, and replay. Camp Pendleton generally lacks such capabilities. The Marine Corps Range Modernization / Transformation program continues to analyze and address these shortfalls through range investments consistent with available resources. Construction of a state-of-the-art large instrumented MOUT facility has mitigated the issue, but an extensive number of ranges still do not have scoring and feedback systems.
	MEU Level Training	🔴	Same as above.
Range Support	Individual Level Training	🟡	Range radio communication system failures at times have caused the cessation of training. Not all of the ranges have telephone capability. The installation does not have exercise command and control circuits or secure communications capable for range control. The Marine Corps Range Modernization / Transformation program continues to analyze and address these shortfalls through range investments consistent with available resources.
	Unit Level Training	🟡	Same as above.
	MEU Level Training	🟡	Camp Pendleton lacks comprehensive exercise control capabilities integrated with range control functions. The Marine Corps Range Modernization / Transformation program continues to analyze and address these shortfalls through range investments consistent with available resources.
Collective Ranges	Unit Level Training	🟡	See comments above regarding land, airspace, range control, target, and scoring deficits. The Marine Corps Range Modernization / Transformation program continues to analyze and address these shortfalls through range investments consistent with available resources.
	MEU Level Training	🟡	See comments above regarding land, airspace, range control, target, and scoring deficits. The Marine Corps Range Modernization / Transformation program continues to analyze and address these shortfalls through range investments consistent with available resources.
MOUT Facilities	Individual Level Training	🟡	Development of new MOUT facilities has received focused attention throughout the Marine Corps, resulting in significant improvements; however deficiencies remain. Range Modernization / Transformation program is continuing to analyze and address shortfalls through range investments consistent with available resources.
	Unit Level Training	🟡	Same as above.
	MEU Level Training	🟡	Same as above.

Figure 3-20 Marine Corps Capability and Encroachment Assessment Detail (continued)

MCB Camp Pendleton Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Threatened & Endangered Species/ Critical Habitat	Individual Level Training		Constraints on training due to presence of multiple ESA-listed species include inability to conduct training that requires digging / earth moving; limitations on use of military vehicles in some training areas; limitations on training use of beaches; of 17 miles of coast, 6,000 yards are available for training use, and only approximately 1,500 linear yards of beach is currently available for non-restricted amphibious operations due to ESA and other regulatory constraints, and encumbrances such as long-term leases. Base coordinates and consults extensively with U.S. Fish and Wildlife Service, with objective of reducing constraints on training resulting from application of ESA.
	Unit Level Training		Same as above.
	MEU Level Training		Same as above.
Spectrum	Individual Level Training		Competition for access to and use of frequency spectrum has resulted in moderate to severe impacts on some training activities, including training requiring use of satellite communications frequencies, and training with UAS.
	Unit Level Training		Same as above.
	MEU Level Training		Same as above.
Airspace	Individual Level Training		Intense competition and pressure from commercial and general aviation for access to and use of airspace in the critically overcrowded coastal airspace corridors threatens to impact military aviation operations in ranges and training areas. These concerns are addressed in inter-agency dialogue with the FAA.
	Unit Level Training		Same as above.
	MEU Level Training		Same as above.
Adjacent Land Use	Individual Level Training		High density urban infrastructure contiguous to the base inhibits the ability to train with NVGs and constrains training in some areas due to noise considerations. Urbanization of the region puts pressure on off-installation natural resources (including sensitive and ESA-listed species), potentially increasing the base's share of remaining regional resources with increased management constraints affecting training. Regional growth affects access to off-installation lands for training, and inhibits NVG training by aircraft crews when transiting from offshore littoral areas or base to other training areas or installations within the region. Base lands are encumbered by long-term leasing outgrants to the State of CA, a nuclear power plant facility, and agriculture field operations. Initiatives to reclaim training land formerly used for agricultural leases have been executed. Buffer-lands acquisition program is being executed. Expansion is not feasible.
	Unit Level Training		Same as above. Location of Interstate 5 precludes NSFS training or external load ship-to-shore aviation support training.
	MEU Level Training		Same as above. Location of Interstate 5 precludes NSFS training or external load ship-to-shore aviation support training.
Cultural Resources	Individual Level Training		Constraints on training due to the presence of cultural resources include inability to conduct training that requires digging / earth moving in some training areas; cultural resources on beaches result in limitations on use, which are cumulative with other limitations such as ESA-based restrictions. The base coordinates and consults with the State Historic Preservation Office, with the objective of reducing constraints on training.
	Unit Level Training		Same as above. Impacts on training from cultural resource constraints are more severe for complex unit-level and MEU-level training.
	MEU Level Training		Same as above. Impacts on training from cultural resource constraints are more severe for complex unit-level and MEU-level training.
Wetlands	Individual Level Training		Regulatory constraints on use of wetlands for training impose limitations on uses of riverine areas, some watershed areas, and areas that contain vernal pools. The base coordinates and consults with the U.S. Army Corps of Engineers, with the objective of reducing constraints on training.
	Unit Level Training		Same as above.
	MEU Level Training		Same as above.

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Figure 3-20 Marine Corps Capability and Encroachment Assessment Detail (continued)

MCB Quantico Assessment Details

Range Mission Description

The MCB Quantico Training Range Complex mission is to provide Individual level training support to TECOM formal schools. As a secondary priority, the Quantico Range Complex supports unit level training conducted by Marine Reserve units. Other training includes operations by the Marine Corps Embassy Security Group, non Department of Defense (DoD) tenants (FBI, DEA), and other Federal and law enforcement agencies and university ROTC programs.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Individual Level Training	●	●			●	●	●	●	●	●		●	
Unit Level Training	●	●			●	●	●	●	●		●	●	
MEU Level Training													
MEB Level Training													

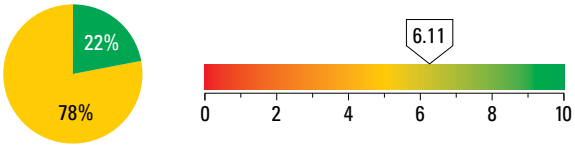
Legend: FMC ● PMC ● NMC ●

Encroachment Data

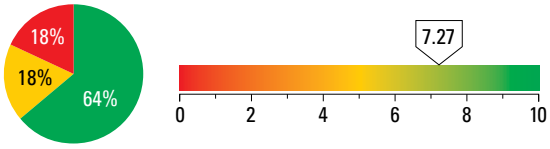
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Individual Level Training	●	●	●		●	●	●	●	●	●	●	●
Unit Level Training	●	●	●		●	●	●	●	●	●	●	●
MEU Level Training												
MEB Level Training												

Legend: Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Doctrinal range requirements are derived from Operational Training Ranges Required Capabilities (MCRP 3-0C). MCB Quantico is finalizing its RCMP analysis in 4th Qtr FY2010. Observations made in the course of RCMP development are the basis for this assessment. Mission and Attribute areas in "white" were not assessed, or are not applicable to this installation.
2. MCB Quantico generally has the capability to support required training; however, unit-level training capability is limited to platoon-sized and smaller units.
3. The lack of modern, automated infantry targets and scoring / feedback systems are the deficits with greatest impact on training mission.

Summary Observations

1. 18% of the range complex mission is moderately impacted by encroachment factors.
2. Adjacent Land Use, Munitions Restrictions, and Noise Restrictions are the encroachment factors with greatest impact on training mission.
3. Urbanization trend and associated impacts on range uses increasingly affect capability of installations to fully support initial Officer training at The Basic School, and the Infantry Officer Course MOS training.
4. Growth pressures from cantonment reducing utility of some range areas.
5. Encroachment Control Plan (ECP) has been completed, and is being executed.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Capability Scores	6.43	6.43	6.67

Impacts from key range capabilities shortcomings resulted in "Partially Mission Capable" designations for this installation during FYs 2008–2010 when assessing the installation's ability to support Marine Corps Task 1.7 (Support Maneuver through the Provision of Training Areas) and Marine Corps Task 3.3 (Support Fires through the Provision of Ranges and Training Areas). Top three capabilities and/or enhancements required to facilitate transition to "Fully Mission Capable" include (1) instrumented MOUT capabilities, (2) fully resourced range control facility, and (3) upgraded and modernized targets.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Encroachment Scores	9.09	9.09	7.27

Impacts from key encroachment factors resulted in "Partially Mission Capable" designations for this installation during FYs 2008–2010 when assessing the installation's ability to support Marine Corps Task 1.7 (Support Maneuver through the Provision of Training Areas) and Marine Corps Task 3.3 (Support Fires through the Provision of Ranges and Training Areas). Successful mitigation of key encroachment factors, including (1) airspace restrictions, and (2) urban growth, are required to facilitate transition to a "Fully Mission Capable" designation.

MCB Quantico Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Targets	Individual Level Training		Ranges lack automated, fixed and mobile targets.Lack of adequate targetry reduces training realism and effectiveness, and training assessment capability. Range Modernization / Transformation program is addressing shortfalls consistent with available resources.
	Unit Level Training		Same as above.
Threats	Individual Level Training		Ranges lack realistic, modern threat representation / simulation capability. Lack of modern threat representation reduces training realism and effectiveness, and training assessment capability. Range Modernization / Transformation program is addressing shortfalls consistent with available resources.
	Unit Level Training		Same as above.
Scoring & Feedback System	Individual Level Training		Range complex lacks real-time training feedback systems and position-location systems. Lack of real-time feedback reduces training realism and effectiveness, and training assessment capability. Range Modernization / Transformation program is addressing shortfalls consistent with available resources. Current projects include an audio-visual feedback system and additional tracking systems for personnel and vehicles.
	Unit Level Training		Same as above.
Infrastructure	Individual Level Training		Condition of unimproved roadways and tank trails have at times limited the use of transportation assets to the ranges.
	Unit Level Training		Same as above.
Range Support	Individual Level Training		Limited command and control communications capability for exercise and training support. Limited C2 reduces exercise monitoring and management control. Range Modernization / Transformation program is addressing shortfalls consistent with available resources.
	Unit Level Training		Same as above.
Small Arms Ranges	Individual Level Training		MCB Quantico ranges lack optimal targets and training feedback systems. Limited targetry reduces training realism and effectiveness, and training assessment capability. Range Modernization / Transformation program is addressing shortfalls consistent with available resources.
Collective Ranges	Unit Level Training		MCB Quantico has a single live-fire and maneuver range capable of supporting platoon level training. The base is incapable of supporting company-level live-fire training. Platoon range, and squad-level ranges lack optimal targets and training feedback systems. These limitations reduce training realism and effectiveness, and training assessment capability. Range Modernization / Transformation program is addressing shortfalls consistent with available resources.
MOUT Facilities	Individual Level Training		Development of new MOUT facilities has received focused attention throughout the Marine Corps, resulting in improvements at Quantico; however deficiencies remain. MOUT limitations reduce training realism and limit training feedback. Range Modernization / Transformation program is continuing to address shortfalls consistent with available resources and Service priorities.
	Unit Level Training		Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Munitions Restrictions	Individual Level Training		Use of explosive ordnance is limited by noise concerns. MCB Quantico has come under increasing pressure to reduce use of demolition ordnance for training. Constraints affect ability of EOD teams to conduct range clearance activities, resulting in pressures to reduce use of dud-producing ordnance on ranges. ECP completed. Development of new MOUT facilities has received focused attention throughout the Marine Corps, resulting in improvements at Quantico; however deficiencies remain.
	Unit Level Training		Same as above.
Airspace	Individual Level Training		From 2000 to 2008, the population of the region of MCB Quantico-Prince William County, VA-has increased by 30% (U.S. Census Bureau). Burgeoning population exerts significant encroachment pressure on the Base including airspace limitations due to noise concerns and safety concerns with regard training by to fixed-wing military aircraft. Satisfactory remedies are elusive.
	Unit Level Training		Same as above.

Figure 3-20 Marine Corps Capability and Encroachment Assessment Detail (continued)

MCB Quantico Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Noise Restrictions	Individual Level Training	●	From 2000 to 2008, the population of the region of MCB Quantico-Prince William County, VA-has increased by 30% (U.S. Census Bureau). Burgeoning population exerts significant encroachment pressure on the Base, including restrictions on land uses for live fire training due to noise concerns. EOD demolition activity is prohibited after 2220 hrs. Encroachment pressures have significantly reduced the capability of the installation to support unit training and increasingly effect its capability to support individual training of newly commissioned lieutenants at The Basic School. ECP completed.
	Unit Level Training	●	From 2000 to 2008, the population of the region of MCB Quantico-Prince William County, VA-has increased by 30% (U.S. Census Bureau). Burgeoning population exerts significant encroachment pressure on the Base, including restrictions on land uses for live fire training due to noise concerns. EOD demolition activity is prohibited after 2220 hrs. Encroachment pressures have significantly reduced the capability of the installation to support unit training and increasingly effect its capability to support individual training of newly commissioned lieutenants at The Basic School. As with individual training, noise constraints affect unit-level training. ÉCP completed.
Adjacent Land Use	Individual Level Training	●	From 2000 to 2008, the population of the region of MCB Quantico-Prince William County, VA-has increased by 30% (U.S. Census Bureau). Burgeoning population exerts significant encroachment pressure on the Base, resulting in airspace use limitations, munitions constraints, and restrictions on land uses for live fire training due to noise concerns. Encroachment pressures have significantly reduced the capability of the installation to support unit training, and increasingly effect its capability to fully support individual training of newly commissioned lieutenants at The Basic School and MOS training of infantry officers. Growth pressures from non-DoD tenants (e.g., FBI, DEA) reduce the utility of some range areas. ECP completed; however, satisfactory remedies remain elusive.
	Unit Level Training	●	Same as above.

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Figure 3-20 Marine Corps Capability and Encroachment Assessment Detail (continued)

MCAGCC Twentynine Palms Assessment Details

Range Mission Description

The Marine Corps Air Ground Combat Center (MCAGCC) provides range capabilities to support training of Marines, Marine Corps units, MAGTF elements, and MAGTFs in the mission essential tasks of modern expeditionary warfare, including Service-directed pre-deployment training exercises and training of units of the First Marine Expeditionary Force (I MEF) that are assigned to the installation. The Marine Air Ground Task Force Training Command (MAGTFTC) maintains its headquarters at MCAGCC.

Capability Data

Mission Areas	Capability Attributes												
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Individual Level Training	FMC	FMC			FMC	FMC	FMC	FMC	FMC	FMC		PMC	
Unit Level Training	FMC	FMC			PMC	PMC	PMC	FMC	FMC		PMC	PMC	
MEU Level Training	PMC	PMC			NMC	PMC	NMC	FMC	PMC		PMC	PMC	
MEB Level Training	NMC	NMC			NMC	PMC	NMC		PMC			PMC	

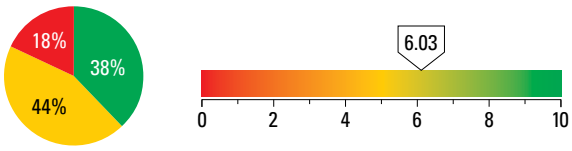
Legend: FMC, PMC, NMC

Encroachment Data

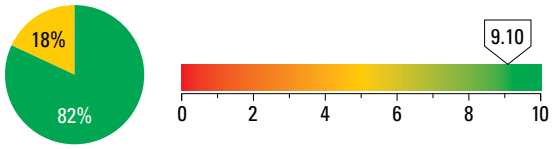
Mission Areas	Encroachment Factors												
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Individual Level Training	Minimal	Minimal	Moderate		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal		Minimal
Unit Level Training	Minimal	Minimal	Moderate		Moderate	Minimal	Minimal	Minimal	Minimal	Minimal		Minimal
MEU Level Training	Minimal	Minimal	Moderate		Moderate	Minimal	Minimal	Minimal	Minimal	Minimal		Minimal
MEB Level Training	Minimal		Moderate		Moderate	Minimal	Minimal	Minimal	Minimal	Minimal		Minimal

Legend: Minimal, Moderate, Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Doctrinal range requirements are derived from Operational Training Ranges Required Capabilities (MCRP 3-0C). MCAGCC RCMP provides data for this assessment. Mission and Attribute areas in "white" were not assessed, or are not applicable to this installation.
2. Deficits noted in available training land and airspace, impacting ability to conduct required Service-level training of large Marine Air Ground Task Forces (MAGTFs). Other significant deficits are lack of modern automated targets, threat systems, and scoring/feedback systems.
3. Land and Airspace expansion Initiative expected to significantly enhance range complex for MAGTF training.

Summary Observations

1. The references for this assessment are Operational Training Ranges Required Capabilities (Marine Corps Reference Publication [MCRP] 3-0C) and Range Complex Management Plan (RCMP).
2. 18% of the range/range complex mission is moderately impacted by encroachment factors.
3. Spectrum and Airspace are the encroachment factors moderately impacting the training mission; impacts affect all levels of training.
4. Encroachment Control Plan (ECP) has been completed and is being executed.

MCAGCC Twentynine Palms Assessment Details

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	5.63	5.63	6.03	**Encroachment Scores**	9.00	9.00	9.10
Impacts from key range capabilities shortcomings resulted in "Partially Mission Capable" designations for this installation during FYs 2008–2010 when assessing the installation's ability to support Marine Corps Task 1.7 (Support Maneuver through the Provision of Training Areas) and Marine Corps Task 3.3 (Support Fires through the Provision of Ranges and Training Areas). Top three capabilities and/or enhancements required to facilitate transition to "Fully Mission Capable" include (1) MEB level combined arms live fire and maneuver training capability, (2) exercise command and control battle staff training capability, and (3) enhancement and upgrade of large scale urban training capability.				Impacts from key encroachment factors resulted in "Partially Mission Capable" designations for this installation during FYs 2008–2010 when assessing the installation's ability to support Marine Corps Task 1.7 (Support Maneuver through the Provision of Training Areas) and Marine Corps Task 3.3 (Support Fires through the Provision of Ranges and Training Areas). Successful mitigation of key encroachment factors, including (1) airspace restrictions, and (2) frequency spectrum limitations, are required to facilitate transition to a "Fully Mission Capable" designation.			

MCAGCC Twentynine Palms Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	MEU Level Training	🟡	There is insufficient land and air space to meet USMC doctrinal range capabilities requirements (MCRP 3-0C) and to conduct large-scale MAGTF and Joint exercises that involve all elements of combined arms training. Land and airspace expansion planning is underway, including preparation of an Environmental Impact Statement addressing proposed alternatives to meet requirements.
	MEB Level Training	🔴	There is insufficient land and air space to meet USMC doctrinal range capabilities requirements (MCRP 3-0C) and to conduct large-scale MAGTF and Joint exercises that involve all elements of combined arms training. Land and airspace expansion planning is underway, including preparation of an Environmental Impact Statement addressing proposed alternatives to meet requirements.
Airspace	MEU Level Training	🟡	There is insufficient land and air space to meet USMC doctrinal range capabilities requirements (MCRP 3-0C) and to conduct large-scale MAGTF and Joint exercises that involve all elements of combined arms training. Land and airspace expansion planning is underway, including preparation of an Environmental Impact Statement addressing proposed alternatives to meet requirements.
	MEB Level Training	🔴	Same as above.
Targets	Unit Level Training	🟡	There are a number of required ranges and target areas that either don't exist or need modernization to meet USMC training requirements. These shortfalls span all levels of unit training. Shortfalls include infantry and mechanized automated ranges and targets, battle-course ranges and targets, assault/breaching/demolition ranges, and others. The Marine Corps Range Modernization and Transformation program is addressing these shortfalls through range investments consistent with available resources.
	MEU Level Training	🔴	Target shortfalls affect realism of MAGTF training. Due to the nature and size of the training area (i.e., an open, live fire impact area covering hundreds of square miles), target systems for large exercises are generally not automated. The Marine Corps Range Modernization and Transformation program is analyzing approaches to addressing these shortfalls through range investments consistent with available resources.
	MEB Level Training	🔴	Same as above.
Threats	Unit Level Training	🟡	MCAGCC requires a comprehensive electronic training environment supporting basic through advanced collective training. The capability must simulate neutral, hostile, and non-hostile ground, air defense, and airborne weapons systems; OPFOR command and control; neutral, hostile, and non-hostile cryptologic systems; and hostile jamming. There are efforts underway to study OPFOR capability alternatives and to develop shortfall strategies. Role player program (not a program-of-record) is significant training enhancement.
	MEU Level Training	🟡	Same as above.
	MEB Level Training	🟡	MCAGCC requires a comprehensive electronic training environment supporting basic through advanced collective training. The capability must simulate neutral, hostile, and non-hostile ground, air defense, and airborne weapons systems; OPFOR command and control; neutral, hostile, and non-hostile cryptologic systems; and hostile jamming. Through the Range Modernization and Transformation program efforts are underway to study OPFOR capability alternatives and to develop shortfall strategies. Role player program (not a program-of-record) is significant training enhancement.

Figure 3-20 Marine Corps Capability and Encroachment Assessment Detail (continued)

MCAGCC Twentynine Palms Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Scoring & Feedback System	Unit Level Training	🟡	Some existing ranges lack modern scoring and feedback systems. The Marine Corps Range Modernization and Transformation program is addressing these shortfalls through range investments consistent with available resources.
	MEU Level Training	🔴	MAGTF-level training requires enhanced instrumentation for training event reconstruction, debriefing, and replay. MCAGCC currently lacks such capabilities. The Marine Corps Range Modernization and Transformation program continues to analyze and address these shortfalls through range investments consistent with available resources. Current initiative to construct state-of-the-art MAGTF-level MOUT facility will mitigate some issues. Expected completion 2012.
	MEB Level Training	🔴	Same as above.
Range Support	MEU Level Training	🟡	Exercise Control facilities are insufficient for large-scale MAGTF and Joint exercises. MCAGCC has an effort for a design study and DD 1391s to construct and equip a C22/Exercise Control facility for large-scale exercises. C4 infrastructure requires expansion to accommodate MAGTF- level training.
	MEB Level Training	🟡	Same as above.
Collective Ranges	Unit Level Training	🟡	See comments above regarding target deficits.
	MEU Level Training	🟡	See comments above regarding land, airspace, range control, and target deficits.
MOUT Facilities	Individual Level Training	🟡	Development of new MOUT facilities has received focused attention throughout the Marine Corps, resulting in significant improvements; however deficiencies remain. Range Modernization / Transformation program is continuing to address shortfalls consistent with available resources and Service priorities.
	Unit Level Training	🟡	Same as above.
	MEU Level Training	🟡	Current initiative to construct state-of-the-art MAGTF-level MOUT facility will mitigate shortfall. Expected completion 2012.
	MEB Level Training	🟡	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Spectrum	Individual Level Training	🟡	Congested frequency spectrum limits frequency availability/deconfliction. Affects all levels of training through frequency spectrum interference. Assessment and mitigation planning actions and milestones being implemented.
	Unit Level Training	🟡	Same as above.
	MEU Level Training	🟡	Same as above.
	MEB Level Training	🟡	Same as above.
Airspace	Unit Level Training	🟡	Congested regional airspace surrounds Special Use Airspace (SUA) supporting MCAGCC ranges, resulting in FAA pressure for access to SUA. Interruptions and modifications of training result in capabilities of fixed wing aviation assets to ingress/egress in tactical profiles over range areas. Initiative to expand airspace access is ongoing, USMC in coordination with FAA in context of land expansion.
	MEU Level Training	🟡	Same as above.
	MEB Level Training	🟡	Same as above.

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Figure 3-20 Marine Corps Capability and Encroachment Assessment Detail (continued)

MCAS Yuma/Bob Stump Assessment Details

Range Mission Description

MCAS Yuma / Bob Stump Training Range Complex provides range capabilities to support training of Marines, Marine Corps units, MAGTF elements, and MAGTFs in the mission essential tasks of modern expeditionary warfare, including Service-directed aerial weapons training exercises and training of units of the Third Marine Air Wing (3d MAW) that are assigned to or extensively utilize the installation.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Individual Level Training	FMC	PMC			PMC	PMC	PMC	FMC	PMC	FMC		PMC	
Unit Level Training	FMC	PMC			PMC	PMC	PMC	FMC	PMC		FMC	PMC	
MEU Level Training	FMC	PMC			PMC	PMC	PMC	FMC	PMC		FMC	PMC	
MEB Level Training													

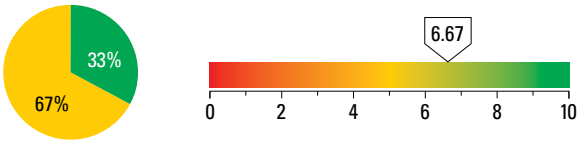
Legend: FMC, PMC, NMC

Encroachment Data

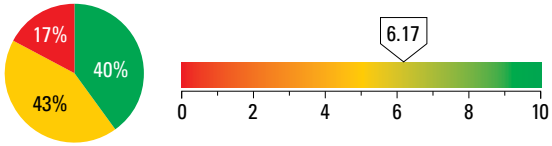
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Individual Level Training	PMC	PMC	NMC		PMC	FMC	PMC	PMC	FMC	FMC		FMC
Unit Level Training	NMC	PMC	NMC		PMC	FMC	PMC	PMC	FMC	FMC		FMC
MEU Level Training	NMC	PMC	NMC		PMC	FMC	PMC	PMC	FMC	FMC		FMC
MEB Level Training												

Legend: Minimal, Moderate, Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Doctrinal range requirements are derived from Operational Training Ranges Required Capabilities (MCRP 3-0C). Bob Stump Training Range Complex RCMP provides data for this assessment. Mission and Attribute areas in "white" were not assessed, or are not applicable to this installation.
2. The Yuma Range Complex includes the Barry M. Goldwater Range (West), the Chocolate Mountains Aerial Gunnery Range (CMAGR) and additional designated airspace areas. In addition to supporting Marine Corps-specific training, Marine Corps ranges in the CMAGR are used extensively by Naval Special Warfare (NSW) commands.
3. Significant deficits are noted in available airspace, impacting ability to conduct required training or develop sufficient ranges. Other significant deficits are lack of modern automated targets, threat systems, and scoring and feedback systems.
4. Capability shortfalls generally affect all levels of training.

Summary Observations

1. 60% of the range/range complex mission is moderately or severely impacted by encroachment factors.
2. Encroachment factors with greatest impact on training mission are frequency spectrum and threatened and endangered species. Noise concerns and airspace availability also are significant encroachment impacts on training.
3. Encroachment Control Plan (ECP) has been completed and is being executed. The references for this assessment are Operational Training Ranges Required Capabilities (Marine Corps Reference Publication [MCRP] 3-0C) and Range Complex Management Plan (RCMP). Mission and Attribute areas in "white" were not assessed, or are not applicable to this installation.

MCAS Yuma/Bob Stump Assessment Details

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	5.28	5.28	6.67	**Encroachment Scores**	5.25	5.25	6.17
Impacts from key range capabilities shortcomings resulted in "Partially Mission Capable" designations for this installation during FYs 2008–2010 when assessing the installation's ability to support Marine Corps Task 1.7 (Support Maneuver through the Provision of Training Areas) and Marine Corps Task 3.3 (Support Fires through the Provision of Ranges and Training Areas). Top three capabilities and/or enhancements required to facilitate transition to "Fully Mission Capable" include (1) available airspace, (2) modern automated targets, and (3) scoring and feedback systems.				Impacts from key encroachment factors resulted in "Partially Mission Capable" designations for this installation during FYs 2008–2010 when assessing the installation's ability to support Marine Corps Task 1.7 (Support Maneuver through the Provision of Training Areas) and Marine Corps Task 3.3 (Support Fires through the Provision of Ranges and Training Areas). Successful mitigation of key encroachment factors, including (1) airspace restrictions, (2) frequency spectrum limitations, and (3) urban growth, are required to facilitate transition to a "Fully Mission Capable" designation.			

MCAS Yuma/Bob Stump Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Airspace	Individual Level Training		Airspace requirements for individual training are fully met within the range complex with the exception of the objective requirement of 30 nm x 60 nm for EW ranges.
	Unit Level Training		The objective requirement for a 40 nm x 60 nm AAW and 30 nm x 60 nm EW range is not met within the range complex. The altitude blocks are not consistent causing the airspace to be fragmented. Airspace has limited availability to non-participating units during WTI, other Service-level pre-deployment training exercises, and unit detachments to MCAS Yuma. Efforts ongoing to improve airspace scheduling and management to optimize airspace availability and utilization. Marine Corps is coordinating with FAA to provide enhanced airspace for larger training events. Also evaluating potential of MOA with Luke AFB regarding use of R-2301E.
	MEU Level Training		Same as above.
Targets	Individual Level Training		The fidelity and quality of tactical targets are limited for training of aviation ground support units; however. Range Modernization / Transformation program is addressing shortfalls consistent with available resources. Planned upgrades include investment in welded and pop-up targets; buildings for convoy operations and enhanced marksmanship program (EMP) training.
	Unit Level Training		The type, quality, fidelity, and quantity of targets are inadequate. There is a limited number of JDAM targets. No targets with IR signature capability. Urban Close Air Support range (Yodaville) does not provide a realistic urban training environment for helicopter gunnery operations. Range Modernization / Transformation program is addressing shortfalls consistent with available resources.
	MEU Level Training		Same as above.
Threats	Individual Level Training		Shortfalls in threat aircraft include: no rotary-wing threat aircraft, no aircraft with A-A radar missile presentations, and radar capability is limited on the F-5. Solutions or workarounds include units-in-training providing own OPFOR and joint training with USAF using F-15/16. Other shortfalls: Threat Level 3 and 4 EC signature equipment, and limited coverage of EW threat systems and OPFOR simulators beyond R-2301W. Range Modernization / Transformation program is addressing shortfalls consistent with available resources.
	Unit Level Training		Same as above.
	MEU Level Training		Same as above.
Scoring & Feedback System	Individual Level Training		TACTS and EC&C coverage is limited to R-2301W. S-A threat simulations are limited. Tactical targets are not scored and there is no scoring feedback in R-2507. Debrief capability is limited to MCAS Yuma, MCAS Miramar, and NAF El Centro. Low altitude communication is limited. EC&C is limited to R-2301W. There are no secure EC&C circuits. Range Modernization / Transformation program is addressing shortfalls consistent with available resources; initiatives include: invest in JNTC compliant tracking and EC&C equipment to cover entire range complex; provide staffing support for Range Operational Control Center (ROCC); upgrade S-A simulations; provide scoring for tactical targets in R-2507N/S; upgrade TACTS to TCTS; and communications upgrade to resolve low altitude shortfall and shortage of secure communication circuits.
	Unit Level Training		Same as above.
	MEU Level Training		Same as above.
Range Support	Individual Level Training		Range support shortfalls include lack of remote weather sensors on the range. Range Operational Control Center (ROCC) is currently not functional; hardware is in place but there is no trained staff.
	Unit Level Training		Same as above.
	MEU Level Training		Same as above.

Figure 3-20 Marine Corps Capability and Encroachment Assessment Detail (continued)

MCAS Yuma/Bob Stump Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
MOUT Facilities	Individual Level Training	🟡	Development of new MOUT facilities has received focused attention throughout the Marine Corps, resulting in significant improvements; however deficiencies remain. Range Modernization / Transformation program is continuing to address shortfalls consistent with available resources and Service priorities.
	Unit Level Training	🟡	Same as above.
	MEU Level Training	🟡	Same as above.

Encroachment Observations

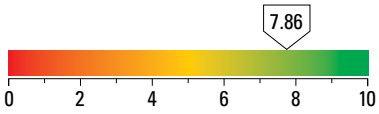
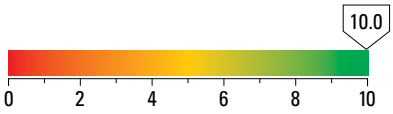
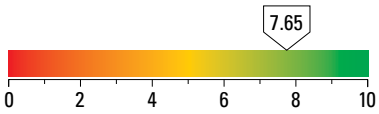
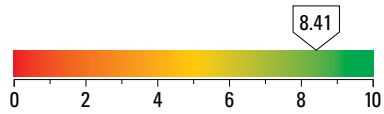
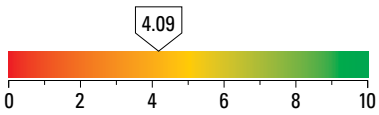
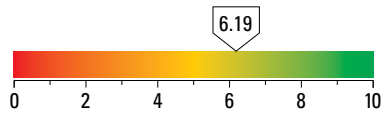
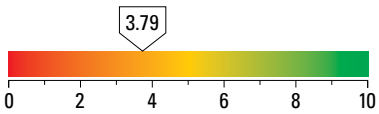
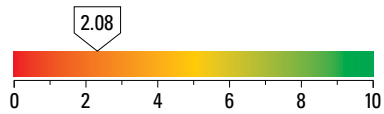
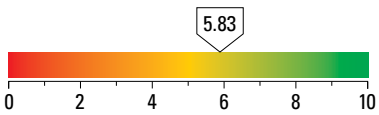
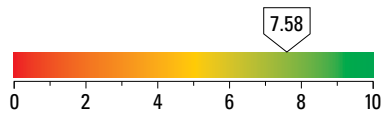
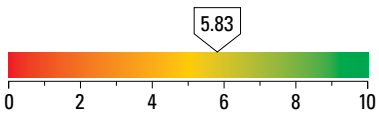
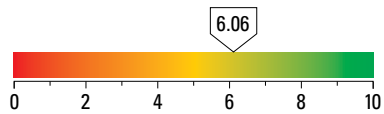
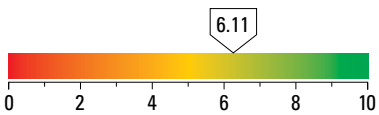
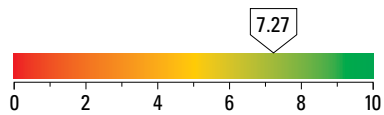
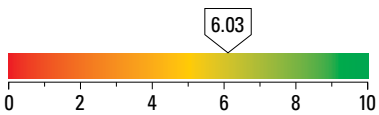
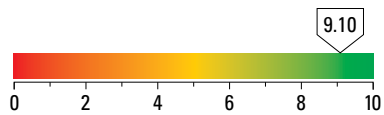
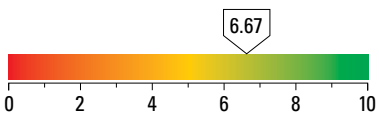
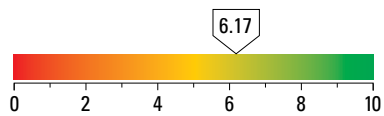
Factors	Assigned Training Mission	Score	Comments
Threatened & Endangered Species/ Critical Habitat	Individual Level Training	🟡	Endangered species and habitat protection requirements result in significant challenges to effective training involving earthwork or heavy equipment operations. Range delays are encountered for some training activities involving high explosive ordnance due to requirement to physically inspect the ranges to ensure that no endangered wildlife species are occupying the area. MCAS Yuma maintains close coordination with USFWS to address ESA-based constraints on training.
	Unit Level Training	🔴	Same as above. Impacts are more significant for unit- and MEU-level training.
	MEU Level Training	🔴	Same as above. Impacts are more significant for unit- and MEU-level training.
Munitions Restrictions	Individual Level Training	🟡	Due to UXO presence, convoy security elements are not authorized to depart existing roads or trails which limits the realism of required training. Range clearance procedures mitigate impacts.
	Unit Level Training	🟡	Same as above.
	MEU Level Training	🟡	Same as above.
Spectrum	Individual Level Training	🔴	MCAS Yuma is a joint military-civilian use airfield; significant civilian aircraft operations often crowd tower and approach frequencies. Civilian and military frequencies are separate; however, ATC's response is often delayed to military aircraft due to communications with civilian traffic. Growth in regional communications infrastructure, including south of the border with Mexico, and new commercial cell phone towers increase noise floor levels and some of the systems operate in the same frequency bands as the equipment used by MCAS Yuma or tenant units. The ability to use the full spectrum of L-Band (D-Band) for AN/TPS-59 (V)3 radar system to include secondary radar (Identification Friend or Foe, specifically Mode-4 and Mode 5) is adversely effected. To date, Mode-4/5 cannot be used. Current impacts are manageable; however trends, including proposed broadband allocation initiatives, threaten to significantly impact training and daily airfield operations.
	Unit Level Training	🔴	Same as above.
	MEU Level Training	🔴	Same as above.
Airspace	Individual Level Training	🟡	When FFA (LA Center) experiences significant enroute weather issues, commercial air traffic sometimes is re-routed around (or through MCAS controlled restricted airspace). Typically, through Letter of Agreement (LOA) the use of MCAS airspace is granted by MCAS if not being utilized by scheduled military training, but emergent cases have led to LA Center assuming the airspace, affecting military training. (CLUS App. D. Part II. 1 and 3). Aircraft (a/c) ordnance takeoffs and recoveries are restricted to certain runways. As a shared use airfield, significant civilian a/c ops often delay military a/c takeoffs and require military a/c to extend traffic pattern for proper spacing to land. Quiet hours on a few occasions. Crop dusters operating within the tower's airspace are mitigated by flying normal course rules into and out of airfield for helos and are distracting. Power lines planned around base underlying Class D airspace impact instrument approach procedures.
	Unit Level Training	🟡	Same as above.
	MEU Level Training	🟡	Same as above.
Noise Restrictions	Individual Level Training	🟡	Supersonic flight restricted to a corridor located in the R2301W and is restricted to only one direction inhibiting realistic training. Noise complaints stem from aircraft aligning to use targets in restricted areas that may be close to the borders of the area (R2301W/BMGR). Residential expansion towards the boundary of the range areas contribute to this. Low-level aircraft (helos) transiting to and from these areas have resulted in noise complaint issues as housing grows in the Foothills area. (JLUS App. D. Part II. 1 and 3). MCAS Yuma's community liaison and outreach program seeks to influence community understanding of training and operational concerns.
	Unit Level Training	🟡	Same as above.
	MEU Level Training	🟡	Same as above.

MCAS Yuma/Bob Stump Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Adjacent Land Use	Individual Level Training		The population of the region of MCAS Yuma (Yuma County, AZ) increased 20% between 2000-2008 (U.S. Census Bureau). This trend is expected to continue, increasing urbanization in the vicinity of the Air Station and Yuma ranges, raising concerns about encroachment. Communications and electrical transmission infrastructure threatens to interfere with flight patterns and military use of critical bands of the frequency spectrum. Light sources associated with urban growth around the airfield currently are impacting aircrews' ability to train with Night Vision Devices (NVD's). Noise concerns have resulted in alteration of flight corridors to mitigate community impacts. MCAS Yuma's community liaison and outreach program seeks to influence community understanding of training and operational concerns.
	Unit Level Training		Same as above.
	MEU Level Training		Same as above.

Table 3-9 Marine Corps Capability and Encroachment Assessment Comparison

Range Name	Capability Score	Encroachment Score
MCAS Beaufort/ Townsend		
MCMWTC Bridgeport		
MCAS Cherry Point		
MCB Hawaii		
MCB Japan		
MCB Camp Lejeune		
MCB Camp Pendleton		
MCB Quantico		
MCAGCC Twentynine Palms		
MCAS Yuma/Bob Stump		

3.2.3 Navy[8]

Navy Training Range Capability Assessment Analysis Results

The Range Capability Assessment data from 21 Navy range complexes are summarized and presented in Table 3-10.

The Navy Range Capability Chart and Scores are presented in Figure 3-21 and assessments by Range, Attributes, and Mission Areas are shown in Figures 3-23, 3-25, and 3-27.

The Navy's 21 individual range capability assessments along with comments for red and yellow ratings are included at the end of this section (Figure 3-29).

Navy Training Range Encroachment Assessment Analysis Results

Navy Range Encroachment Assessment data from the 21 Navy ranges complexes are summarized in Table 3-11.

The Navy Range Encroachment Chart and Scores are presented in Figure 3-22 and assessments by Range, Factors, and Mission Areas are shown in Figures 3-24, 3-26, and 3-28.

The Navy's 21 individual encroachment assessments along with comments for red and yellow ratings are included at the end of this section (Figure 3-29).

The Navy Range Capability and Encroachment assessment comparisons are presented in Table 3-12.

8 Of the 23 Range Complexes identified in the Navy's range inventory in Appendix C, the Guantanamo and Diego Garcia Range Complexes have been removed from consideration for assessment in the 2011 report. The decision to exclude the range complexes in the report is based on changes in the Navy's near-term fleet training patterns, which no longer include either geographic location, as well as a lack of permanent training range infrastructure to support either location. The limited utilization and capability of the range space associated with these complexes is in no way related to the role of their associated installations for supporting naval operations. As a part of developing future Sustainable Ranges Reports, the Navy will re-evaluate potential reinstitution of capability and encroachment assessments for both range complexes.

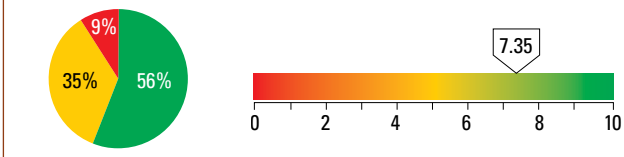
Table 3-10 Navy Capability Assessment Data Summary

Range	NMC	PMC	FMC	Capability Scores
Atlantic City	0	3	11	8.93
Atlantic Test Ranges	0	17	24	7.93
Atlantic Undersea Test and Evaluation Center (AUTEC)	0	1	35	9.86
Boston	0	2	12	9.29
China Lake Land Ranges	0	1	27	9.82
El Centro	0	1	4	9.00
Fallon Range Training Complex	0	18	5	6.09
Gulf of Mexico (GOMEX)	0	4	25	9.31
Hawaii	2	21	35	7.84
Jacksonville	1	17	24	7.74
Japan	9	22	13	5.45
Key West	0	3	4	7.86
Mariana Islands	37	11	11	2.80
Narragansett Bay	0	3	4	7.86
Navy Cherry Point	1	22	28	7.65
Northern California (NOCAL)	4	8	18	7.33
Northwest Training Range Complex	0	23	29	7.79
Okinawa	9	31	10	5.10
Point Mugu Sea Range	0	4	47	9.61
Southern California (SOCAL)	3	31	26	6.92
Virginia Capes (VACAPES)	1	18	24	7.67
HQ Navy	**67**	**261**	**416**	**7.35**

Table 3-11 Navy Encroachment Assessment Data Summary

Range	Severe	Moderate	Minimal	Encroachment Scores
Atlantic City	0	4	8	8.33
Atlantic Test Ranges	0	20	40	8.33
Atlantic Undersea Test and Evaluation Center (AUTEC)	0	9	18	8.33
Boston	0	4	6	8.00
China Lake Land Ranges	0	15	25	8.13
El Centro	0	0	11	10.00
Fallon Range Training Complex	0	13	26	8.33
Gulf of Mexico (GOMEX)	0	7	18	8.60
Hawaii	1	18	42	8.36
Jacksonville	3	15	22	7.38
Japan	2	7	20	8.10
Key West	0	2	4	8.33
Mariana Islands	1	29	33	7.54
Narragansett Bay	0	2	3	8.00
Navy Cherry Point	0	11	25	8.47
Northern California (NOCAL)	0	2	22	9.58
Northwest Training Range Complex	2	11	40	8.58
Okinawa	2	14	33	8.16
Point Mugu Sea Range	0	18	56	8.78
Southern California (SOCAL)	2	32	32	7.27
Virginia Capes (VACAPES)	0	14	26	8.25
HQ Navy	**13**	**247**	**510**	**8.23**

Figure 3-21 Navy Capability Chart and Scores



Summary Observations

Navy's overall capability score decreased from 7.37 in 2010 to 7.35 in 2011

- Navy's Fully Mission Capable (FMC) assessments (green) decreased slightly from 57% to 56%
- Partially Mission Capable (PMC) assessments (yellow) increased slightly from 34% to 35%
- Not Mission Capable (NMC) assessments (red) stayed constant at 9%

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Capability Scores	7.37	7.28	7.37

The top three Capability Attributes with the greatest number of red and yellow assessments are (Figure 3-25):

- Range Support (0+83)
- Threats (14+45)
- Scoring and Feedback Systems (19+36)

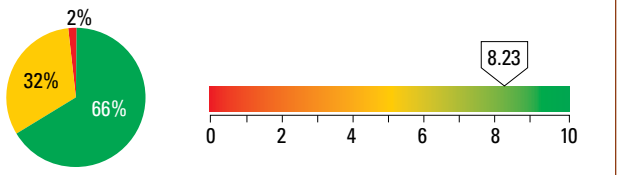
The top three Mission Areas with the greatest number of red and yellow assessment are (Figure 3-27):

- Strike Warfare (16+51)
- Anti-Air Warfare (7+51)
- Electronic Combat (13+32)

Training to threat representative scenarios with ground truth recording and instructor feedback supports a quality of readiness training that ultimately improves the survivability of our forces. Degraded range capabilities cause operators to adapt and innovate to maintain proficiency. This often causes readiness to remain high despite degradations at one specific location. While these training adaptations are unlikely to erode overall unit readiness in the short-term, the slow erosion of capability across a system of ranges will degrade readiness as alternative training solutions do not meet the necessary quality levels. For the period of this report, the top three capability limitations are: Mariana Islands training range infrastructure, underwater scoring and feedback at Jacksonville, and mine warfare scoring and feedback at Southern California (SOCAL), Virginia Capes (VACAPES), and Navy Cherry Point. These specific range equities compete for the same limited resources which ultimately erodes the quality of training support provided to the fleet.

Refer to the Navy's 21 individual range assessments for comments and additional information (Figure 3-29)

Figure 3-22 Navy Encroachment Chart and Scores



Summary Observations

Navy's overall encroachment score decreased from 8.41 in 2010 to 8.23 in 2011

- Navy's minimal risk assessments (green) decreased from 70% to 66%
- Moderate risk assessment (yellow) increased from 29% to 32%
- Severe risk assessments (red) stayed constant at 2%

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Encroachment Scores	9.08	8.49	8.41

The three Encroachment Factors with the greatest number of red and yellow assessment are (Figure 3-26):

- Spectrum (4+67)
- Maritime Sustainability (4+38)
- Range Transients (0+38)

The top three Mission Areas with the greatest number of red and yellow assessments are (Figure 3-28):

- Strike Warfare (0+47)
- Anti-surface Warfare (1+37)
- Anti-air Warfare (4+33)

Encroachment has remained relatively constant for the period of this report and as assessed in the 2010 SRR. Three encroachment factors received severe/moderate ratings due to their adverse impact or potential impact to training range support. These encroachment factors included Airspace and Adjacent Land Use, Frequency Spectrum Competition, and Cultural Resources. Maritime Sustainability and Threatened & Endangered Species were also assessed as significant. Restrictions resulting from electromagnetic spectrum encroachment include prohibitions from performing GPS jamming, authorization to radiate VHF early warning threat radar system, and restricted use of the Track While Scan Simulator. Maritime protective and mitigation measures undertaken in compliance with regulatory requirements have resulted in training restrictions that reduce training flexibility, force segmented training, and ultimately reduce training realism. A preponderance of potential archaeological sites identified on San Clemente Island (SCI) that lack definitive eligibility determination has decremented SOCAL's Cultural Resources encroachment assessment from minimal to severe.

Refer to the Navy's 21 individual range assessments for comments and additional information (Figure 3-29)

Figure 3-23 Navy Capability Assessments by Range

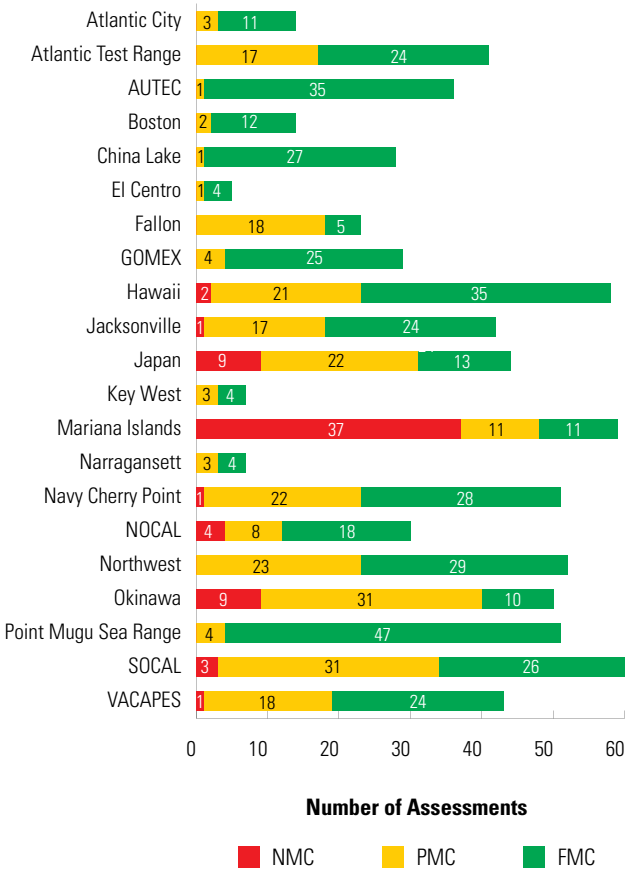


Figure 3-24 Navy Encroachment Assessments by Range

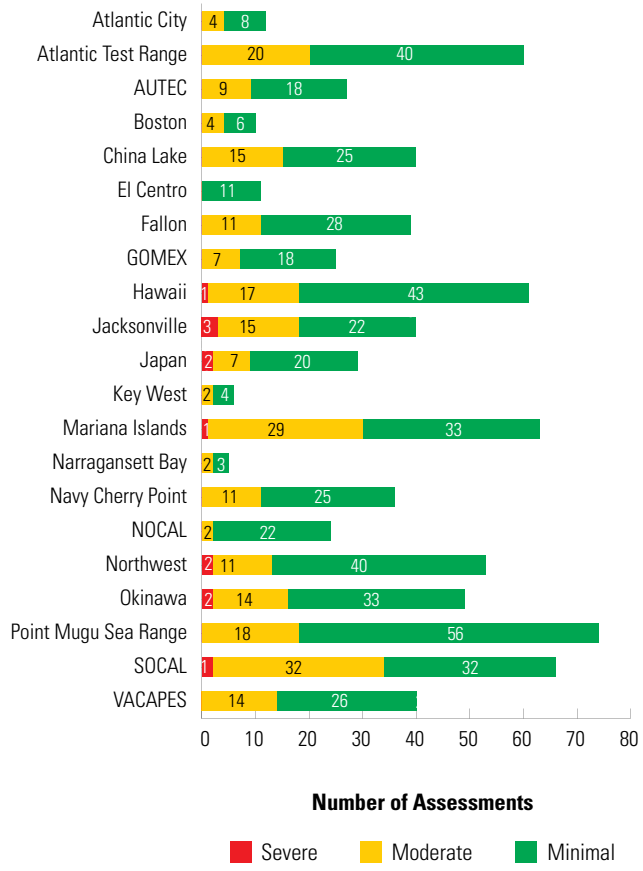


Figure 3-25 Navy Capability Assessment by Attributes

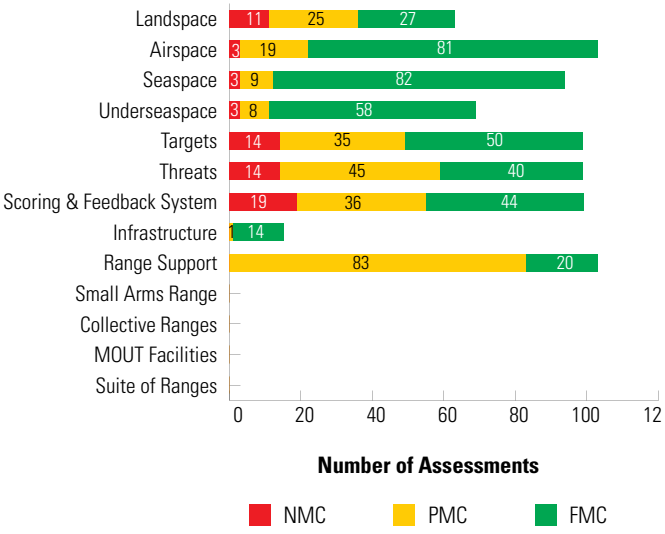


Figure 3-26 Navy Encroachment Assessment by Factors

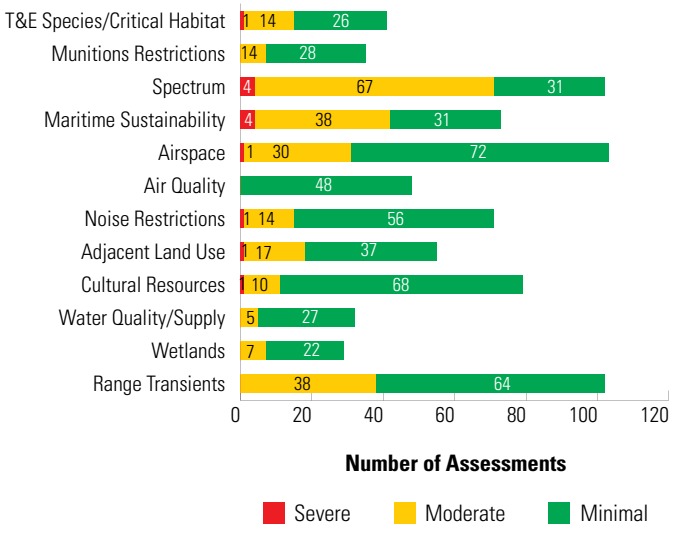


Figure 3-27 Navy Capability Assessment by Mission Areas

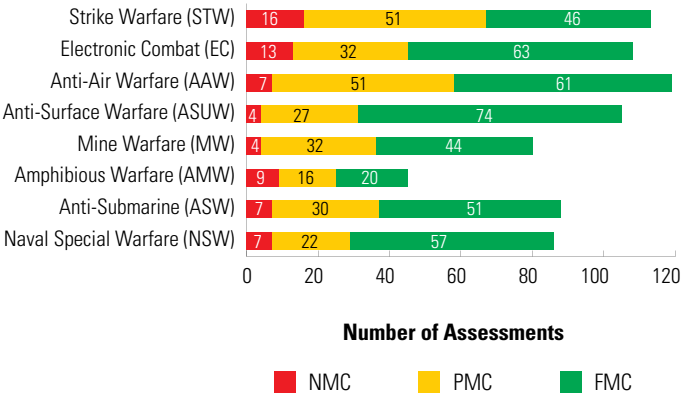
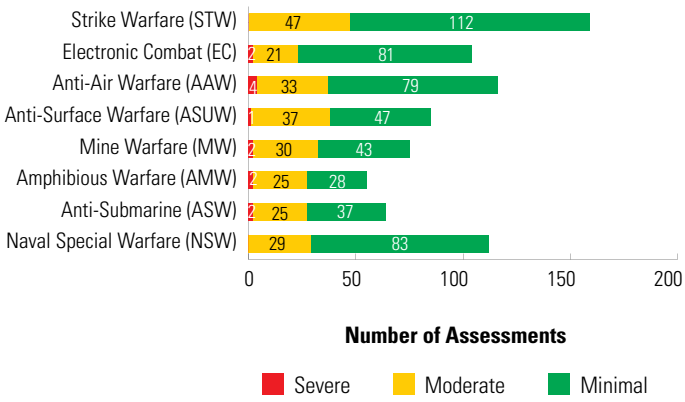


Figure 3-28 Navy Encroachment Assessment by Mission Areas



Navy Special Interest Section

General Issues

Since publication of the 2010 SRR, Navy training range management effort has focused on the mitigation of energy development encroachment issues impacting range sustainment. While the Navy is committed to the Nation's energy goals, conventional and renewable energy development projects have increased pressure on training space availability. Separately, the Federal Communication Commission's initiatives to re-allocate military frequency bands for civilian and commercial use in support of the National Broadband Plan directly restricts the Navy's use of the frequency spectrum to test, train, and operate. When these forms of encroachment prevent, or merely degrade, training they affect military forces' ability to successfully prevail in combat.

The remainder of the Special Interest Section will identify significant range capability shortfalls and range impacts from encroachment factors. Most frequently these external influences result in a more controlled, restrained, or restrictive training environment and shape how the Navy trains to achieve combat readiness. When appropriate, each of these issues will be assessed in the POM-13 budget planning cycle.

Alternative Energy Development, Wind Farms

The Navy's energy strategy is centered on mission assurance, energy security, energy efficiency and environmental stewardship while retaining the ability to sustain military readiness and remain the pre-eminent maritime power. As commercial development proposals are formally presented, The Department of Navy supports the Office of the Secretary of Defense (OSD) to analyze, assess, and communicate potential impacts to naval training. The Navy supports current OSD initiatives to establish a single Department of Defense point of contact for all civil or non-governmental entities to establish wind farm impacts to service interests. A win-win situation for DoD as well as civil/commercial interests relies upon detailed proposal descriptions and open discussions of specific military operational limitations in an iterative process with energy stakeholders so actionable feedback is generated for both claimants.

In the case of offshore wind energy project proposals, close coordination with the Department of the Interior's Bureau of Ocean Energy Management remains critical to the preservation of range space and maneuver areas that support essential fleet training operations and present minimal impact to stringent test events. This dependency is interrelated. The more detailed and complete the energy proposal from commercial developers, the more accurate and comprehensive the Navy's impact assessment on service interests such as installations, ranges, and specific capabilities will be.

Often it is impracticable to discuss measurable impacts to training in the absence of planning details such as turbine height and placement density of wind farms projects. In locations near surface ship training and aviation-related operations, wind farms can interfere with older ground radars, shipboard navigation radars or airborne weapon system radars. Demanding flight operations such as low altitude terrain clearance training or precision weapon delivery events require unfettered safety-of-flight radar support to minimize hazards to civilian personnel.

Adverse weather and/or a high volume of commercial aviation exacerbates the tracking challenges posed to older, less capable military air traffic control systems where wind towers populate airspace inside the radar's field of view. Shipboard radars can also be affected during key training events such as airborne target tracking and engagement.

Naval Air Warfare Center (NAWC) China Lake remains actively engaged with local government and regional leaders to site wind farms near military airspace in ways that mitigate the adverse effects upon safety-of-flight radars. The electromagnetic effects of a single wind turbine upon legacy radars are far less than that of a dense wind farm grid. As wind farm populations increase within military airspace, the radar controlled range space diminishes measurably when supporting precision aerial weapon test events or high-volume, low altitude training events such as student pilot instrument approach training at NAS Kingsville. The Navy awaits the results of ongoing studies to assess potential electromagnetic interference impacts to shipboard radars during training and testing evolutions. If impacts are measured or observed, these studies may further identify technical mitigations to reduce any adverse effect.

Frequency Spectrum Use Competition – The National Broadband Plan

Demand for electromagnetic spectrum is increasing, both commercially and within DoD. In the spring of 2010, the National Telecommunications and Information Administration (NTIA) introduced specific sharing and reallocation proposals for eleven specific frequency bands to support the Federal Communications Commission plan to connect 100 million homes in the next 10 years with broadband, the National Broadband Plan. It is imperative that the Navy be engaged in the military spectrum reallocation discussions.

Employing modern combat weapon systems against an electronic threat environment is critical to enhancing Navy range capabilities and ensuring the greatest fidelity for realistic training. These systems require DoD-managed, commercially-exclusive frequency bands to support military units during live training. Numerous spectrum bands, utilized by the Navy and other defense agencies, are increasingly encroached upon for use by non-governmental organizations. Of specific concern to training ranges is the possible loss of spectrum that supports employment of the Tactical Combat Training System (TCTS). Under review is the reallocation of the TCTS frequency band

(1755-1780 MHz) to the 10-year assessment plan that supports the National Broadband Plan.

Critical Factors—Range Capability

While the Navy strives to model range capabilities versus resources versus combat readiness, an exact tipping point between "combat ready" and "not combat ready" is difficult to predictably measure. However, live training in a threat representative scenario with ground truth recording and instructor feedback contributes to a quality of readiness that improves the warrior's chance of success and survivability. Quite often, operators meet training requirements supported by a degraded range capability by modifying threat scenarios or mission profiles to fit within the confines or limitations of a range. As an example; fleet electronic warfare operators build scenarios where the operator reacts to a "notional threat" that is derived from an FCC compliant blue-force signal or from the narrow transmission of a real threat system. These training adaptations are unlikely to erode overall unit readiness unless training realism is eroded on every live training venue or when adequate alternative forms of training simulation are not available.

Three capability attributes assessed as Not Mission Capable (NMC) impact training range support to the fleet in varying degrees. For the period of this report, the top three capability limitations are: Mariana Islands training range infrastructure, underwater scoring and feedback at Jacksonville, and mine warfare scoring and feedback at Southern California (SOCAL), Virginia Capes (VACAPES), and Cherry Point. These specific range equities compete for the same limited resources which ultimately erodes the quality of training support provided to the fleet.

Mariana Islands Range Complex (MIRC) Training Space, Targets, Threats, Scoring and Feedback—The Navy is committed to sustainable development and improvement of training range capabilities in the Marianas. As the regional joint force presence increases, the overall naval and joint force demand for training range capability will continue to be a critical issue. While no improvement in range capability was achieved since the 2010 SRR, the approval of National Environmental Policy Act-related documentation has paved the way for near-term improvements. In July 2010, the MIRC Final Environmental Impact Statement/Overseas Environmental Impact Statement was signed. Range enhancements to increase existing training capabilities (especially in undersea and air warfare areas) are necessary to maintain a state of military readiness commensurate with national defense requirements. Multiple range support challenges remain unresolved—the most significant being expansion of special use airspace, installation of scoring and feedback systems, procurement of a portable undersea warfare training range, and procurement of threat systems and opposition forces for air, surface and subsurface users. A comprehensive, DoD-led approach to resourcing joint requirements in the Marianas is required for this complex to support joint training. Component Commands, along with U.S. Pacific Command, are actively engaged in this process and the development of a training range planning strategy.

Jacksonville ASW Scoring & Feedback—Program Management of East coast Atlantic Undersea Warfare Training Range (USWTR) marked a new milestone of progress toward installation of the planned construction of this important Anti-Submarine Warfare (ASW) training capability. A Request for Proposal is expected for release in mid-FY2011 with Source Selection and contract awarding in the following quarter. United States Fleet Forces HQ, Pacific Fleet HQ, Naval Air Systems Command, and Chief of Naval Operations are progressing towards finalizing the Acquisition Program Baseline Agreement that establishes the plan for procurement and installation of this important shallow water training capability. When complete, the USWTR will cover approximately 500-square-nautical miles within the water space commonly referred as the Jacksonville operating area. This new capability will add value to combat readiness training for surface and air units preparing for ASW operations.

SOCAL (PMC), Cherry Point (NMC), and VACAPES (PMC)/Mine Warfare Scoring and Feedback—The 2010 Sustainable Ranges Report identified Mine Warfare training range capability shortfalls that have been partially addressed since publication. Newly installed training mine shapes in the SOCAL complex have enabled shallow and mid-depth mine warfare training, improving the range assessment to partially mission capable (PMC). The training capability is improved, but without an instrumented mine shape capability, it has not met the objective for increased fidelity in training and tactics development. The Cherry Point mine training capability assessment remains limited by the lack of instrumented mine training shapes. In VACAPES, the re-evaluation of training requirements in combination with enhancements from the fielding of non-instrumented mine shapes has resulted in elevating the assessment from NMC to PMC. Overall, the lack of modern, simulated mine fields remains a proficiency challenge to the Mine Countermeasure crews who must complete certifications prior to rotational deployments.

Critical Factors—Encroachment Factors

The situation regarding encroachment remains essentially unchanged in this report as it existed and was described in the 2010 SRR. Four encroachment factors received severe and moderate ratings that adversely impact or have potential to impact training range support to the fleet. They are Frequency Spectrum Competition, Airspace, Adjacent Land Use, and Cultural Resources.

Spectrum Restrictions (Severe/Moderate) — Restrictions resulting from electromagnetic spectrum encroachment include prohibitions from performing global positioning

system (GPS) jamming, authorization to radiate VHF early warning threat radar system, and restricted use of the Track While Scan Simulator. Electronic combat attack platforms such as the EA-18G and EA-6B and electronic defense systems onboard other Naval platforms are constrained by numerous operational emission limitations. Additionally, employment of the SPY-1 and SPS-49 radars, IFF jamming, and the Link 16 data link are severely restricted. Electromagnetic spectrum constraints limit spectrum operations and prohibit certain training events, segment training, reduce realism, limit application of new weapon technologies, and inhibit new tactics development. Ranges such as Point Mugu, SOCAL, and VACAPES, which are located in electronically dense environments, have extremely limited abilities to support electronic combat testing and training. The Navy continues to coordinate with appropriate frequency allocation and oversight agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies. Competition for frequency spectrum will add increased pressure on available bandwidth for Naval operations.

Airspace and Adjacent Land Use (Severe)—On-going and proposed wind farm power generation projects pose an encroachment threat to established training requirements and installations. Both training space, such as the Boardman target complex in Oregon, and installations, such as Naval Air Station Kingsville, Texas, are being impacted by wind farm development. The challenges to mitigate the physical aspects of large groupings of turbines or the electromagnetic interference from moving turbine blades require sufficient time to develop and integrate technical solutions. Considerable funding resources are also required that would otherwise be invested on readiness training. In addition, each challenge requires site specific analysis often supported by technical studies to ensure a proper balance between the Navy's readiness responsibilities and overall energy generation objectives. The Navy must balance fulfilling maritime national security readiness requirements with contributing to national energy security solutions that guard local/regional economies.

SOCAL Cultural Resources (Severe)—A preponderance of potential archaeological sites identified on SOCAL's San Clemente Island (SCI) that lack definitive eligibility determination has decremented SOCAL's Cultural Resources encroachment assessment from minimal to severe. In the absence of eligibility determination, over 7,000 potential sites are treated as if eligible under the National Historic Preservation Act (NHPA) that creates a considerable number of avoidance areas throughout range maneuver space designated in the SOCAL EIS/OEIS as the USMC Assault Vehicle Maneuver Area, Artillery Firing Positions, and Assault Maneuver Positions. SCI is the ONLY maritime training area that can support Marine Expeditionary Force Battalion Landings and live fire targeting. The presence of archaeological sites restrict Naval Special Warfare tactical training at a cost of over $25M and SCI supports the only location for Basic Underwater Demolition land demolitions training that is impacted by restricted range access. Additionally, two Search and Rescue training events were cancelled due to impacts on potential cultural resources.

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Figure 3-29 Navy Capability and Encroachment Assessment Detail

Atlantic City Assessment Details

Range Mission Description

The Navy uses Atlantic City range areas for Anti-air Warfare (AAW) and Anti-surface Warfare (ASUW) training. The Atlantic City Complex is located in the waters adjacent to the coasts of New Jersey and New York. The AEGIS Combat Systems Center (ACSC) conducts operations in this area. It is controlled by the Fleet Area Control and Surveillance Facility Virginia Capes, (FACSFAC VACAPES). The complex is composed of the Warning Area 107 (W-107) non-instrumented warning area and the Atlantic City Operating Area (OPAREA).

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Strike Warfare													
Electronic Combat													
Anti-Air Warfare	FMC	FMC	FMC		FMC	PMC	FMC		PMC				
Anti-Surface Warfare		FMC	FMC	FMC	FMC	FMC	FMC		PMC				
Mine Warfare													
Amphibious Warfare													
Anti-Submarine													
Naval Special Warfare													

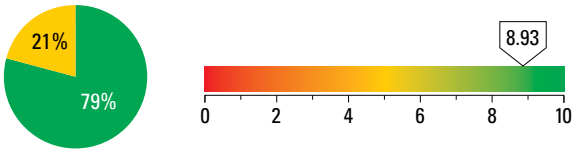
Legend: FMC, PMC, NMC

Encroachment Data

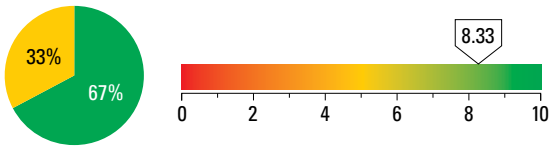
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Strike Warfare												
Electronic Combat												
Anti-Air Warfare			Moderate	Moderate	Minimal		Minimal		Minimal			Minimal
Anti-Surface Warfare			Moderate	Moderate	Minimal		Minimal		Minimal			Minimal
Mine Warfare												
Amphibious Warfare												
Anti-Submarine												
Naval Special Warfare												

Legend: Minimal, Moderate, Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Capability Attribute most impacting range mission performance: Threats.
2. Mission Area most severely impacted: AAW
3. Projected Status: No change.

Summary Observations

1. Spectrum and maritime sustainability are the encroachment factors that impact the range's ability to perform its assigned mission the most.
2. ASUW and AAW are the assigned Mission Areas that are impacted the most.

Atlantic City Assessment Details

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	8.93	8.93	8.93	**Encroachment Scores**	8.75	8.33	8.33
The capability assessment has been stable from year to year, with relatively constant overall scores for CY 2010 and 2011.				1. Encroachment assessments for CY2008 were different than for CY2009, 2010, and 2011 The algorithm for the overall assessment score for 2009–2011 was revised from the original algorithm used in 2008 to provide greater fidelity and consistency across all range complexes Based on an improved review process and revised algorithms, the assessments for CY2009, 2010, and 2011 provide a more accurate assessment of encroachment The assessments for the latter three years reveal there has been little encroachment change from year to year, with relatively constant overall scores for CY2009, 2010, and 2011. 2. The RCMP update is currently underway. 3. Dept. of Interior (DOI) & private energy interests in the Outer Continental Shelf (OCS) are increasing as domestic energy demand builds Naval offshore operating areas & training events may be affected High priority areas include training ranges & sea space in and adjacent to all Navy OPAREAs OASN (E,I&E), as DoD spokesman for military offshore use, continues to work closely with the Fleets & DOI's Bureau of Ocean Energy Management (BOEM) to resolve issues of combined use of the OCS important to both agencies Fleet review & analysis of impacts from both oil/gas & wind energy "lease sale" areas (Mission Critical Areas-MCAs) have been reviewed and forwarded to OSD DoD & DOI coordination continues.			

Atlantic City Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Threats	Anti-Air Warfare (AAW)	●	Threat air helicopter and supersonic OPFOR not available. Without threat air helicopter and supersonic OPFOR: reduces realism; inhibits tactics; increases personnel op-tempo; increases O&M costs. Recommend investment in an increased number and type of aircraft and augmentation for OPFOR through Commercial Air Services. No completion date identified.
Range Support	Anti-Air Warfare (AAW)	●	Lack of web-based scheduling system with pre-event, real-time, and post-event modules precludes most efficient scheduling and documenting of range usage. Post-event reporting is particularly critical for ordnance expenditures or active sonar usage in at-sea OPAREAs since Marine Mammal Protection Act permits require Navy to periodically report these values. Non-compliance or inaccurately reporting post-event values to regulators risks range access or prohibitions on training events that involve active sonar or high explosives at-sea. PACFLT is developing a Data Collection and Scheduling Tool (DCAST) that includes a post-event module to mitigate issues outlined above. If successful, Navy could consider adopting it at all range scheduling facilities.
	Anti-Surface Warfare (ASUW)	●	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Spectrum	Anti-Air Warfare (AAW)	●	Employment of Link 16, SPY-1 radar, SPS 49 radar, and IFF are restricted. Restrictions limit spectrum operations and prohibit certain training events, segment training/reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. The Navy continues to coordinate with appropriate frequency allocation and oversight agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies. Competition for frequency spectrum will add increased pressure on available bandwidth for Naval operations.
	Anti-Surface Warfare (ASUW)	●	Same as above.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Atlantic City Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Maritime Sustainability	Anti-Air Warfare (AAW)	●	Maritime protective and mitigation measures undertaken in compliance with regulatory requirements have resulted in training restrictions that reduce training flexibility, force segmented training, and ultimately reduce training realism. All at-sea training is impacted to some degree; impacts are most significant to integrated warfare training using active underwater acoustic sources or in-water explosive ordnance. The Navy and National Marine Fisheries Service (NMFS) have developed science based protective and mitigation measures that adequately protect marine species while accommodating military readiness activities. The Navy continues to develop Environmental Impact Statements and obtain permits and authorizations for its range complexes to ensure military training complies with applicable laws and regulations. Litigation risks remain a concern, entailing the potential to delay or further restrict training, despite the protective and mitigation measures applied by the Navy in compliance with the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA). Endangered species/critical habitat encroachment from the North Atlantic right whale has created avoidance areas that have resulted in some reduction of training days and prohibits certain training events. This area is relatively small in scope, however, if these types of restrictions were applied to other species/areas, there would be significant impacts to readiness through reduction in range access, segmentation of training/reduction in realism, limits on the application of new technologies, raised flight altitudes, reduced live fire proficiency, increased personnel tempo, and increased O&M costs. The Navy will continue to invest in marine mammal research; rely on scientifically valid empirical data results as basis of marine mammal mitigation development; factor mitigation effectiveness into permit requests and continue education of Fleet units to adhere to the maritime protective and mitigation measures and public education outreach efforts. Navy's authorizations under the MMPA and ESA include an adaptive management approach that includes continually evaluating existing mitigation measures for their potential impacts on training. If impacts on training from mitigation measures are identified and documented, Navy will raise these impacts with NMFS for resolution during an annual adaptive management review process. The Navy is currently preparing environmental compliance documentation to renew the MMPA and ESA authorizations by JAN 2014, which will consider any impacts on training stemming from existing mitigations measures and propose changes as warranted.
	Anti-Surface Warfare (ASUW)	●	Same as above.

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Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Atlantic Test Range (Patuxent River) Assessment Details

Range Mission Description

ATR is the Navy's principal RDT&E, engineering, and Fleet support center for manned and unmanned aircraft, engines, avionics, aircraft support systems and ship/ shore/ air operations. Various Fleet squadrons, primarily from the east coast, come to ATR to train when airspace or test assets are available.

Capability Data

Mission Areas	Capability Attributes												
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Strike Warfare	PMC	PMC	PMC		PMC	PMC	FMC	FMC	FMC				
Electronic Combat	PMC	PMC	PMC		FMC	FMC	FMC	FMC	FMC				
Anti-Air Warfare	FMC	PMC	FMC		FMC	FMC	FMC	FMC	FMC				
Anti-Surface Warfare													
Mine Warfare		PMC	PMC	PMC	PMC	PMC	FMC	FMC	FMC				
Amphibious Warfare													
Anti-Submarine													
Naval Special Warfare	PMC	FMC	FMC	PMC	FMC	PMC	FMC	FMC	FMC				

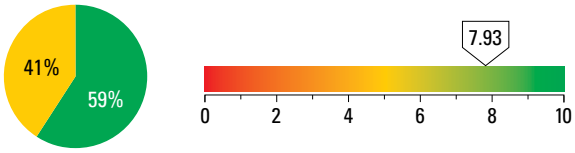
Legend: FMC PMC NMC

Encroachment Data

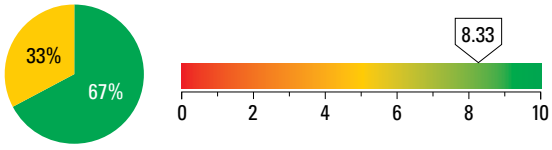
Mission Areas	Encroachment Factors											
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strike Warfare	Minimal	Minimal	Moderate	Minimal	Moderate	Minimal	Moderate	Moderate	Minimal	Minimal	Minimal	Minimal
Electronic Combat	Minimal	Minimal	Moderate	Minimal	Moderate	Minimal	Moderate	Moderate	Minimal	Minimal	Minimal	Minimal
Anti-Air Warfare	Minimal	Minimal	Moderate	Minimal	Moderate	Minimal	Moderate	Moderate	Minimal	Minimal	Minimal	Minimal
Anti-Surface Warfare												
Mine Warfare	Minimal	Minimal	Moderate	Minimal	Moderate	Minimal	Moderate	Moderate	Minimal	Minimal	Minimal	Minimal
Amphibious Warfare												
Anti-Submarine												
Naval Special Warfare	Minimal	Minimal	Moderate	Minimal	Moderate	Minimal	Moderate	Moderate	Minimal	Minimal	Minimal	Minimal

Legend: Minimal Moderate Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Airspace is the capability attribute that most impacts the range's ability to perform its assigned mission.
2. Strike warfare and mine warfare are the mission areas that are impacted the most.
3. No change in capability is anticipated for the future.

NOTE on NSW Assessments: Assessments of Navy Special Warfare (NSW) training are based on actual NSW demand and use of training range capability and space. Actual Training range capability and space requirements are based on Fleet Readiness Training Plan demands for conventional warfare areas.

Summary Observations

1. Spectrum, air-space, noise restrictions, and adjacent land-use are the encroachment factors that impact the range's ability to perform its assigned mission.
2. STW, EC, AAW, MW, and NSW are the mission areas that are impacted the most.
3. Increased population growth will lead to additional encroachment pressures. Increased desire for additional spectrum for commercial use will lead to additional encroachment pressures. The impacts encroachment will improve only with continued national attention to increase spectrum for military use and more efficiently use the available spectrum.

NOTE on NSW Assessments: Assessments of Navy Special Warfare (NSW) training are based on actual NSW demand and use of training range capability and space. Actual Training range capability and space requirements are based on Fleet Readiness Training Plan demands for conventional warfare areas.

Atlantic Test Range (Patuxent River) Assessment Details

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	7.17	7.93	7.93	**Encroachment Scores**	8.33	8.33	8.33
Capability at the Atlantic Test Range has remained steady since 2008. It's anticipated capability will remain steady in the future.				Encroachment pressures have remained constant at the Atlantic Test Range since 2008. It's anticipated that they will remain stable in the future.			

Atlantic Test Range (Patuxent River) Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strike Warfare (STW)	●	The Pax River Complex provides the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements, though currently no longer able to use Bloodsworth Island for impact operations. Range offers land-based targets but are limited to no-drop training. This limits realistic training. No planned remedy at this time.
	Electronic Combat (EC)	●	The Pax River Complex provides the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements, often with limited realistic training. Navy plans to continue to provide the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements.
	Naval Special Warfare (NSW)	●	Same as above.
Airspace	Strike Warfare (STW)	●	The Pax River Complex and the associated SUA provides the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements, often with limited realistic training. The Navy plans to continue to provide the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements.
	Electronic Combat (EC)	●	Same as above.
	Anti-Air Warfare (AAW)	●	Same as above.
	Mine Warfare (MW)	●	The Pax River Complex and the associated SUA provides the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements. Aerial Mining exercises (F/A-18, P-3, and B-52) have been supported and mine shapes have been provided to support mine detection events, often with limited realistic training. Navy plans to continue to provide the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements.
Seaspace	Strike Warfare (STW)	●	The Pax River Complex provides the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements. We offer sea-based targets but are limited to no-drop and or limited "blue bomb" training operations, this leads to limited realistic training. Navy plans to continue to provide the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements.
	Electronic Combat (EC)	●	Specific Problem: The Pax River Complex provides the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements. The Chesapeake Bay OPAREAS limit the size of operations. Impact to Training: Limited realistic training. Planned Action to Remedy: Continue to provide the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements.
	Mine Warfare (MW)	●	The Pax River Complex and the associated SUA provides the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements. Aerial Mining exercises (F/A-18, P-3, and B-52) have been supported and mine shapes have been provided to support mine detection events. The Chesapeake Bay also has water depth limitations. This leads to limited realistic training. Navy plans to continue to provide the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements.
Undersea Space	Mine Warfare (MW)	●	The Pax River Complex and the associated SUA provides the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements. Aerial Mining exercises (F/A-18, P-3, and B-52) have been supported and mine shapes have been provided to support mine detection events. The Chesapeake Bay also has water depth limitations. This leads to limited realistic training. Navy plans to continue to provide the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Atlantic Test Range (Patuxent River) Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Undersea Space	Naval Special Warfare (NSW)		The Pax River Complex provides the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements, often with limited realistic training. Navy plans to continue to provide the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements.
Targets	Strike Warfare (STW)		The Pax River Complex provides the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements. We offer sea-based targets but are limited to no-drop and or limited "blue bomb" training operations. This leads to limited realistic training. The Navy plans to continue to provide the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements.
	Mine Warfare (MW)		The Pax River Complex and the associated SUA provides the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements. Aerial Mining exercises (F/A-18, P-3, and B-52) have been supported and mine shapes have been provided to support mine detection events. The Chesapeake Bay also has water depth limitations. This leads to limited realistic training. Navy plans to continue to provide the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements.
Threats	Strike Warfare (STW)		The Pax River Complex provides the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements. We offer sea-based targets but are limited to no-drop and or limited "blue bomb" training operations. This leads to limited realistic training. The Navy plans to continue to provide the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements.
	Mine Warfare (MW)		The Pax River Complex and the associated SUA provides the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements. Aerial Mining exercises (F/A-18, P-3, and B-52) have been supported and mine shapes have been provided to support mine detection events. The Chesapeake Bay also has water depth limitations. This leads to limited realistic training. Navy plans to continue to provide the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements.
	Naval Special Warfare (NSW)		The Pax River Complex provides the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements, often with limited realistic training. Navy plans to continue to provide the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Spectrum	Strike Warfare (STW)		The reduction of available spectrum coupled with the increase in spectrum requirements limits ability to schedule certain types of events and many concurrent activities. Navy plans to work through the Range Commanders Council to address spectrum requirements at the national level, as well as continue to pressure the availability of spectrum for use by both the community and Navy.
	Electronic Combat (EC)		Same as above.
	Anti-Air Warfare (AAW)		Same as above.
	Mine Warfare (MW)		Same as above.
	Naval Special Warfare (NSW)		Same as above.
Airspace	Strike Warfare (STW)		Pressure from the Federal Aviation Administration (FAA) to route civil air traffic into operational areas can impact flight operations during normal periods. Private and commercial flights increase volume of traffic and spill in to the Special Use Airspace (SUA). There is currently a proposed expansion of Washington Air Defense Identification Zone (ADIZ) under review. Traffic spilling into the SUA can limit or change flight operations. The proposed expansion of Washington ADIZ would force workarounds or negative impacts to operations. Navy plans to continue coordination with airport planning agencies and FAA to mitigate impacts.
	Electronic Combat (EC)		Same as above.
	Anti-Air Warfare (AAW)		Same as above.

Atlantic Test Range (Patuxent River) Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Airspace	Mine Warfare (MW)	●	Same as above.
	Naval Special Warfare (NSW)	●	Same as above.
Noise Restrictions	Strike Warfare (STW)	●	Operations pose noise impacts on communities. Sonic booms are problematic over shoreline communities, and daily operations are troublesome near OLF Webster. Noise complaints are generated around both airfields, although, primarily linked to operations at NAS Patuxent River. NAS Patuxent River is currently modifying operations to reduce noise. Increased noise complaints could compromise operations through pressure to modify or discontinue specific ops. Navy plans to continue to respond to community concerns via the noise hotline, mitigate sonic boom impacts via the sonic boom monitors and sonic boom prediction tool model. issue press releases for noisy operations, conduct awareness regarding noise issues to squadrons, and convey to the importance of the Navy's mission to the public.
	Electronic Combat (EC)	●	Same as above.
	Anti-Air Warfare (AAW)	●	Same as above.
	Mine Warfare (MW)	●	Same as above.
	Naval Special Warfare (NSW)	●	Same as above.
Adjacent Land Use	Strike Warfare (STW)	●	Development on Eastern Shore can result in reduced access to land based targets and surface operating areas at the BIR. Development in Lexington Park has the potential to impact preferred flight paths, especially in vicinity of Great Mills Road. This can lead to modifications to some operations and flight paths. Navy plans to continue its effort to monitor planned and proposed development and provide feedback to community planners and developers.
	Electronic Combat (EC)	●	Same as above.
	Anti-Air Warfare (AAW)	●	Same as above.
	Mine Warfare (MW)	●	Same as above.
	Naval Special Warfare (NSW)	●	Same as above.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Atlantic Undersea Test and Evaluation Center (AUTEC) Assessment Details

Range Mission Description

The AUTEC mission is to provide instrumented operational capabilities in a real world environment to satisfy research, development, test and evaluation requirements and operational performance assessment of warfighter readiness in support of the full spectrum of maritime warfare. The range's primary mission is Anti-submarine Warfare (ASW) across all level of training.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Strike Warfare													
Electronic Combat	●	●	●	●	●	●	●		●				
Anti-Air Warfare													
Anti-Surface Warfare		●	●	●	●	●	●		●				
Mine Warfare		●	●	●	●		●		●				
Amphibious Warfare													
Anti-Submarine		●	●	●	●	●	●		●				
Naval Special Warfare	●	●	●	●	●	●	●		●				

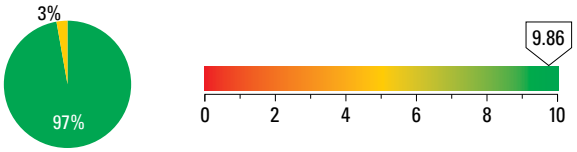
Legend: FMC ● PMC ● NMC ●

Encroachment Data

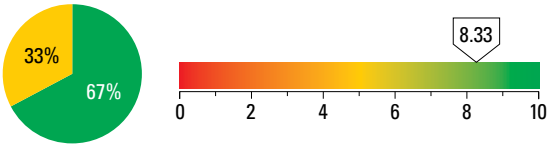
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Strike Warfare												
Electronic Combat			●		●		●					●
Anti-Air Warfare												
Anti-Surface Warfare			●	●	●		●		●			●
Mine Warfare			●	●	●		●		●			●
Amphibious Warfare												
Anti-Submarine			●	●	●				●			●
Naval Special Warfare			●	●	●		●		●			●

Legend: Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Capability Attribute most impacting range mission performance: Targets
2. Mission Area most severely impacted: ASUW
3. Projected Status: No change.

NOTE on NSW Assessments: Assessments of Navy Special Warfare (NSW) training are based on actual NSW demand and use of training range capability and space. Actual Training range capability and space requirements are based on Fleet Readiness Training Plan demands for conventional warfare areas.

Summary Observations

1. Maritime Sustainability and Range Transients are the Encroachment Factors that have greatest impact on AUTEC training.
2. ASUW, MW, and ASW are the Mission Areas most affected by encroachment.
3. The Navy continues to educate Fleet units to adhere to the maritime protective and mitigation measures. Continuing dialogue with the FAA may help to ameliorate the airspace restrictions. The Navy continues to improve its procedures to advise transient stakeholders of training activities.

NOTE on NSW Assessments: Assessments of Navy Special Warfare (NSW) training are based on actual NSW demand and use of training range capability and space. Actual Training range capability and space requirements are based on Fleet Readiness Training Plan demands for conventional warfare areas.

Atlantic Undersea Test and Evaluation Center (AUTEC) Assessment Details

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Capability Scores	9.86	9.86	9.86

The capability assessment has been stable from year to year, with relatively constant overall scores for CY 2010 and 2011.

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Encroachment Scores	9.25	8.33	8.33

1. Encroachment assessments for CY2008 were different than for CY2009, 2010, and 2011. The algorithm for the overall assessment score for 2009–2011 was revised from the original algorithm used in 2008 to provide greater fidelity and consistency across all range complexes. Based on an improved review process and revised algorithms, the assessments for CY2009, 2010, and 2011 provide a more accurate assessment of encroachment. The assessments for the latter three years reveal there has been little encroachment change from year to year, with relatively constant overall scores for CY2009, 2010, and 2011.
2. The RCMP update is scheduled to begin in AUG 2011; no EAP is planned at this time.
3. Dept. of Interior (DOI) and private energy interests in the Outer Continental Shelf (OCS) are increasing as domestic energy demand builds. Naval offshore operating areas and training events may be affected. High priority areas include training ranges and seaspace in and adjacent to all Navy OPAREAs. OASN (E,I&E), as DoD spokesman for military offshore use, continues to work closely with the Fleets & DOI's Bureau of Ocean Energy Management (BOEM) to resolve issues of combined use of the OCS important to both agencies. Fleet review and analysis of impacts from both oil/gas and wind energy "lease sale" areas (Mission Critical Areas-MCAs) have been reviewed and forwarded to OSD. DoD & DOI coordination continues.

Atlantic Undersea Test and Evaluation Center (AUTEC) Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Targets	Anti-Surface Warfare (ASUW)	●	Targets lack the required spectral threat signature and may not be engaged with live ordnance (Hellfire Missiles) due to net explosive weight (NEW) limits. Reduces realism; limits tactics Recommend investment in spectral augmentation and to investigate options to obtain inert Hellfire assets. No completion date identified.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Maritime Sustainability	Anti-Surface Warfare (ASUW)	●	Maritime protective and mitigation measures undertaken in compliance with regulatory requirements have resulted in training restrictions that reduce training flexibility, force segmented training, and ultimately reduce training realism. All at-sea training is impacted to some degree; impacts are most significant to integrated warfare training using active underwater acoustic sources or in-water explosive ordnance. The Navy and National Marine Fisheries Service (NMFS) have developed science based protective and mitigation measures that adequately protect marine species while accommodating military readiness activities. The Navy continues to develop Environmental Impact Statements and obtain permits and authorizations for its range complexes to ensure military training complies with applicable laws and regulations. Litigation risks remain a concern, entailing the potential to delay or further restrict training, despite the protective and mitigation measures applied by the Navy in compliance with the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA). Endangered species/critical habitat encroachment from the North Atlantic right whale has created avoidance areas that have resulted in some reduction of training days and prohibits certain training events. This area is relatively small in scope, however, if these types of restrictions were applied to other species/areas, there would be significant impacts to readiness through reduction in range access, segmentation of training/reduction in realism, limits on the application of new technologies, raised flight altitudes, reduced live fire proficiency, increased personnel tempo, and increased O&M costs. Continue to invest in marine mammal research; rely on scientifically valid empirical data results as basis of marine mammal mitigation development; factor mitigation effectiveness into permit requests. Continue education of Fleet units to adhere to the maritime protective and mitigation measures and public education outreach efforts. Navy's authorizations under the MMPA and ESA include an adaptive management approach that includes continually evaluating existing mitigation measures for their potential impacts on training. If impacts on training from mitigation measures are identified and documented, Navy will raise these impacts with NMFS for resolution during an annual adaptive management review process. The Navy is currently preparing environmental compliance documentation to renew the MMPA and ESA authorizations by JAN 2014, which will consider any impacts on training stemming from existing mitigations measures and propose changes as warranted.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Atlantic Undersea Test and Evaluation Center (AUTEC) Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Maritime Sustainability	Mine Warfare (MW)	●	Same as above.
	Anti-Submarine (ASW)	●	Same as above.
Airspace	Anti-Surface Warfare (ASUW)	●	Miami Center may decline NOTAMs and not release airspace in a timely manner over the Bahamas. Airspace restrictions segment training and/or reduce realism, reduce range access, and increase O&M costs. Operations may be delayed until the SUA is released. Continuing dialogue with the FAA to help ameliorate the airspace restrictions.
	Anti-Submarine (ASW)	●	Same as above.
Range Transients	Anti-Surface Warfare (ASUW)	●	Range transients, involving commercial shipping, commercial fishing, and private pleasure boating encroach on training, either by delaying events or forcing relocation to less than optimum locations. Commercial vessel and recreational vessel encroachment creates avoidance areas and segments training/reduces realism. The Navy will continue to pursue opportunities to inform industry and the public of the impact of range transient encroachment on At Sea OPAREAS and Navy readiness.
	Mine Warfare (MW)	●	Same as above.
	Anti-Submarine (ASW)	●	Same as above.
	Naval Special Warfare (NSW)	●	Same as above.

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Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Boston Assessment Details

Range Mission Description

The Boston complex mission has a secondary and tertiary requirement to support Anti-surface Warfare (ASUW)and Anti-Submarine Warfare (ASW). The Boston OPAREA is a surface and subsurface operating area off the coast of Maine, New Hampshire and Massachusetts. The Boston OPAREA is used for surface-to-air gunnery, ASW tactics, and surface/subsurface operations.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Strike Warfare													
Electronic Combat													
Anti-Air Warfare													
Anti-Surface Warfare		●	●	●	●	●	●		●				
Mine Warfare													
Amphibious Warfare													
Anti-Submarine		●	●	●	●	●	●		●				
Naval Special Warfare													

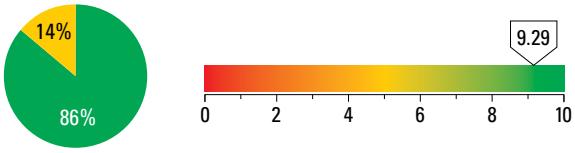
Legend: FMC ● PMC ● NMC ●

Encroachment Data

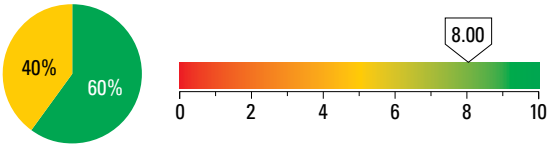
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Strike Warfare												
Electronic Combat												
Anti-Air Warfare												
Anti-Surface Warfare			●	●	●				●			●
Mine Warfare												
Amphibious Warfare												
Anti-Submarine			●	●	●				●			●
Naval Special Warfare												

Legend: Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Capability Attribute most impacting range mission performance: Range Support
2. Mission Area most severely impacted: ASUW, ASW
3. Projected Status: No change.
4. A web-based scheduling system with pre-event, real-time, and post-event modules could enhance the interaction between ranges for better usage of range assets and availability of moveable targets and OPFOR systems, thereby improving the overall system of ranges.

Summary Observations

1. Spectrum and Maritime Sustainability are the Encroachment Factors having the greatest impact on training.
2. ASUW and ASW are equally encroached.
3. The Navy continues to coordinate with appropriate frequency allocation and oversight agencies to seek spectrum relief. Competition for frequency spectrum will add increased pressure on available bandwidth for Naval operations. The Navy continues to educate Fleet units to adhere to the maritime protective and mitigation measures.

Boston Assessment Details

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Capability Scores	8.93	9.29	9.29
ASW threat requirement was re-evaluated after the 2008 report from Yellow to Green due to changes in training to be supported by the range.			

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Encroachment Scores	9.17	8.00	8.00

1. Encroachment assessments for CY2008 were different than for CY2009, 2010, and 2011. The algorithm for the overall assessment score for 2009–2011 was revised from the original algorithm used in 2008 to provide greater fidelity and consistency across all range complexes. Based on an improved review process and revised algorithms, the assessments for CY2009, 2010, and 2011 provide a more accurate assessment of encroachment. The assessments for the latter three years reveal there has been little encroachment change from year to year, with relatively constant overall scores for CY2009, 2010, and 2011.
2. The RCMP is currently being updated.
3. Dept. of Interior (DOI) & private energy interests in the Outer Continental Shelf (OCS) are increasing as domestic energy demand builds. Naval offshore operating areas & training events may be affected. High priority areas include training ranges & sea space in and adjacent to all Navy OPAREAs. OASN (E,I&E), as DoD spokesman for military offshore use, continues to work closely with the Fleets & DOI's Bureau of Ocean Energy Management (BOEM) to resolve issues of combined use of the OCS important to both agencies. Fleet review & analysis of impacts from both oil, gas & wind energy "lease sale" areas (Mission Critical Areas-MCAs) have been reviewed and forwarded to OSD. DoD & DOI coordination continues.

Boston Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Range Support	Anti-Surface Warfare (ASUW)		The lack of web-based scheduling system with pre-event, real-time, and post-event modules precludes most efficient scheduling and documenting of range usage. Post-event reporting is particularly critical for ordnance expenditures or active sonar usage in at-sea OPAREAs since Marine Mammal Protection Act permits require Navy to periodically report these values. Non-compliance or inaccurately reporting post-event values to regulators risks range access or prohibitions on training events that involve active sonar or high explosives at-sea. PACFLT is developing a Data Collection and Scheduling Tool (DCAST) that includes a post-event module to mitigate issues outlined above. If successful, Navy could consider adopting it at all range scheduling facilities.
	Anti-Submarine (ASW)		Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Spectrum	Anti-Surface Warfare (ASUW)		Employment of Link 16, SPY-1 radar, SPS 49 radar, and IFF are restricted. Restrictions limit spectrum operations and prohibit certain training events, segment training/reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. The Navy continues to coordinate with appropriate frequency allocation and oversight agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies. Competition for frequency spectrum will add increased pressure on available bandwidth for Naval operations.
	Anti-Submarine (ASW)		Same as above.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Boston Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Maritime Sustainability	Anti-Surface Warfare (ASUW)	●	Maritime protective and mitigation measures undertaken in compliance with regulatory requirements have resulted in training restrictions that reduce training flexibility, force segmented training, and ultimately reduce training realism. All at-sea training is impacted to some degree; impacts are most significant to integrated warfare training using active underwater acoustic sources or in-water explosive ordnance. The Navy and National Marine Fisheries Service (NMFS) have developed science based protective and mitigation measures that adequately protect marine species while accommodating military readiness activities. The Navy continues to develop Environmental Impact Statements and obtain permits and authorizations for its range complexes to ensure military training complies with applicable laws and regulations. Litigation risks remain a concern, entailing the potential to delay or further restrict training, despite the protective and mitigation measures applied by the Navy in compliance with the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA). Endangered species/critical habitat encroachment from the North Atlantic right whale has created avoidance areas that have resulted in some reduction of training days and prohibits certain training events. This area is relatively small in scope, however, if these types of restrictions were applied to other species/areas, there would be significant impacts to readiness through reduction in range access, segmentation of training/reduction in realism, limits on the application of new technologies, raised flight altitudes, reduced live fire proficiency, increased personnel tempo, and increased O&M costs. Continue to invest in marine mammal research; rely on scientifically valid empirical data results as basis of marine mammal mitigation development; factor mitigation effectiveness into permit requests. Continue education of Fleet units to adhere to the maritime protective and mitigation measures and public education outreach efforts. Navy's authorizations under the MMPA and ESA include an adaptive management approach that includes continually evaluating existing mitigation measures for their potential impacts on training. If impacts on training from mitigation measures are identified and documented, Navy will raise these impacts with NMFS for resolution during an annual adaptive management review process. The Navy is currently preparing environmental compliance documentation to renew the MMPA and ESA authorizations by JAN 2014, which will consider any impacts on training stemming from existing mitigations measures and propose changes as warranted.
	Anti-Submarine (ASW)	●	Same as above.

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Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

China Lake Assessment Details

Range Mission Description

China Lake Range is the premier land ranges and weapons development laboratory for the Department of the Navy. The Ranges also support PACFLT training before squadrons deploy. Most training is EW. Squadrons from Nellis AFB also use the ranges to train.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Strike Warfare	●	●			●	●	●	●	●				
Electronic Combat	●	●			●	●	●	●	●				
Anti-Air Warfare	●	●			●	●	●	●	●				
Anti-Surface Warfare													
Mine Warfare													
Amphibious Warfare													
Anti-Submarine													
Naval Special Warfare	●	●			●	●	●	●	●				

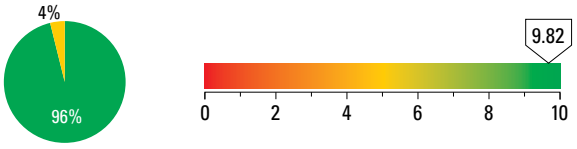
Legend: FMC ● PMC ● NMC ●

Encroachment Data

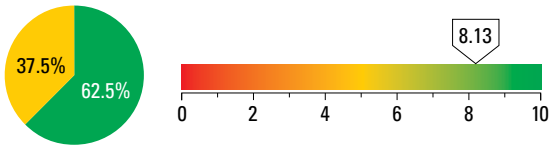
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Strike Warfare	●	●	●		●	●	●	●	●	●		●
Electronic Combat	●	●	●		●	●	●	●	●	●		●
Anti-Air Warfare	●	●	●		●	●	●	●	●	●		●
Anti-Surface Warfare												
Mine Warfare												
Amphibious Warfare												
Anti-Submarine												
Naval Special Warfare	●	●	●		●	●	●	●	●	●		●

Legend: Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Infrastructure is the capability attribute that impacts the range's ability to perform its assigned mission the most.
2. Electronic combat is the mission area that is impacted the most.
3. No change in capability is anticipated for the future.

NOTE on NSW Assessments: Assessments of Navy Special Warfare (NSW) training are based on actual NSW demand and use of training range capability and space. Actual Training range capability and space requirements are based on Fleet Readiness Training Plan demands for conventional warfare areas.

Summary Observations

1. Frequency spectrum and cultural resources are the encroachment factor that impact the range's ability to perform its assigned mission the most.
2. Strike Warfare is the mission area that is impacted the most.
3. Increased desire for additional spectrum for commercial use will lead to additional encroachment pressures. The impacts of frequency spectrum encroachment will improve only with continued national attention to increase spectrum for military use and more efficiently use the available spectrum. The impacts from cultural resources will require several actions described below and significant investment in cultural resource surveys and evaluation.

NOTE on NSW Assessments: Assessments of Navy Special Warfare (NSW) training are based on actual NSW demand and use of training range capability and space. Actual Training range capability and space requirements are based on Fleet Readiness Training Plan demands for conventional warfare areas.

China Lake Assessment Details

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	9.88	9.82	9.82	**Encroachment Scores**	9.20	8.50	8.13
Capability at the China Lake Ranges has remained steady since 2008. It's anticipated capability will remain stable in the future.				Encroachment pressures have increased at the China Lake Ranges since 2008. However, they have remained constant in 2010. Frequency spectrum and cultural resources management are the primary drivers for increased encroachment pressures. It is anticipated that encroachment pressures will remain stable in the future.			

China Lake Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Infrastructure	Electronic Combat (EC)	●	There is a lack of improved sites on the Electronic Combat Range for threat emitters. This reduces "time to target" realism achieved with diversity and quick placement the emitters, a key element of fleet Training. Navy plans to implement MILCON P-513.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Threatened & Endangered Species/ Critical Habitat	Strike Warfare (STW)	●	The presence of T&E species and critical habitat at China Lake has an impact on training. It requires significant mitigation efforts to support training activities. Navy plans to update latest INRMP (In progress; ECD 2011), continue mitigations, and update EIS (ECD: Jan. 2014).
Spectrum	Strike Warfare (STW)	●	Specific Problem: Reduction of available spectrum coupled with the increase in spectrum requirements. Impact to Training: Limits ability to schedule certain types of events and many concurrent activities. Planned Actions to Remedy: Coordination at the local level to deconflict when possible. Work through the chain of command and Range Commanders Council to address spectrum requirements at the national level.
	Electronic Combat (EC)	●	Same as above.
	Anti-Air Warfare (AAW)	●	Same as above.
	Naval Special Warfare (NSW)	●	Same as above.
Airspace	Strike Warfare (STW)	●	There is significant competition for the airspace that overlies the China Lake ranges and the R-2508 Complex. Commercial aviation is a major concern, particularly with the increasing urbanization of the Mojave Desert region and growth of the Las Vegas metropolitan area. There are three proposals for expansion of existing airports and construction of a new airport in the region, all of which would potentially have significant impacts. Crowded airspace near China lake and the R-2508 airspace affects ingress/egress and Military Operating Areas. Navy will continue coordination with airport planning agencies and FAA to mitigate impacts.
	Electronic Combat (EC)	●	Same as above.
	Anti-Air Warfare (AAW)	●	Same as above.
Adjacent Land Use	Strike Warfare (STW)	●	Although China Lake is relatively isolated, urban growth is becoming a concern. In particular, growth in the Indian Wells Valley, if not managed correctly, has the potential to impact the range mission. Growth in other areas further removed from China Lake, but still within the R-2508 Complex also negatively impact our mission. In addition, there is significant pressure for renewable energy development in the region including wind and solar energy. Wind turbines can significantly impact training and reduces access to low-level airspace. Some types of solar energy facilities can reduce access to low-level airspace. Development reduces access to low-level airspace. Navy will continue significant effort to monitor planned and proposed development and provide feedback to community planners and developers.
	Electronic Combat (EC)	●	Same as above.
	Anti-Air Warfare (AAW)	●	Same as above.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

China Lake Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Cultural Resources	Strike Warfare (STW)	●	China Lake contains a vast number of archeological sites, significant range areas that have not been surveyed/ evaluated for cultural resources, lack of a programmatic agreement with the State Historic Preservation Office (SHPO), and maintains keen interest by local Native American tribes. This requires significant mitigation and long planning lead time that, in some cases, can't meet training schedules. Navy will perform cultural resource surveys for large portions of the ranges, get a Programmatic Agreement with SHPO, and update the China Lake EIS.
	Electronic Combat (EC)	●	Same as above.
	Anti-Air Warfare (AAW)	●	Same as above.
	Naval Special Warfare (NSW)	●	Same as above.

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Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

El Centro Assessment Details

Range Mission Description

Aircrews use the many ranges at NAF El Centro to develop their skills. A remote-controlled target area allows naval aviators to practice ordinance delivery. The desert range is used for air-to-ground bombing, rocket firing, strafing, dummy drops and mobile land target training. The target complex uses the Weapons Impact Scoring System (WISS) that microwaves target images to a range master control building for immediate verification of weapons delivery accuracy. The addition of the Display and Debriefing Subsystem, known as DDS, expanded the role of NAF El Centro to include air combat training by utilizing remote television, acoustical and laser scoring systems. The DDS is linked with TACTS to provide a computerized record of the tactics employed by individual aircrews employ and to evaluate the effectiveness of each. NAF El Centro is special with its combination of unique climate, vast unobstructed desert terrain, limited non-military air traffic and its own dedicated gunnery and bomb ranges. Training for aerial combat maneuvering, air-to-air gunnery, bombing practice and electronic warfare training.

Capability Data

Mission Areas	Capability Attributes												
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Strike Warfare	●	●			●		●		●				
Electronic Combat													
Anti-Air Warfare													
Anti-Surface Warfare													
Mine Warfare													
Amphibious Warfare													
Anti-Submarine													
Naval Special Warfare													

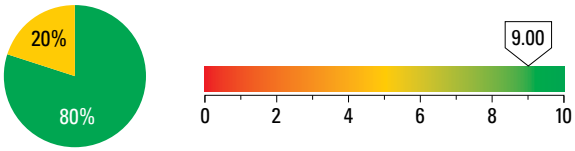
Legend: FMC ● PMC ● NMC ●

Encroachment Data

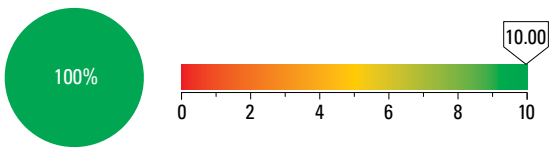
Mission Areas	Encroachment Factors											
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strike Warfare	●	●	●		●	●	●	●	●	●	●	●
Electronic Combat												
Anti-Air Warfare												
Anti-Surface Warfare												
Mine Warfare												
Amphibious Warfare												
Anti-Submarine												
Naval Special Warfare												

Legend: Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Capability Attribute most impacting range mission performance: Range Support.
2. Mission Area most severely impacted: Strike Warfare.
3. Projected Status: A new scheduling system is being investigated.
4. A web-based scheduling system with pre-event, real-time, and post-event modules could enhance the interaction between ranges for better usage of range assets and availability of moveable targets and OPFOR systems, thereby improving the overall system of ranges.
5. The establishment of a full-time El Centro range manager would ensure more efficient and effective range management.

Summary Observations

For the El Centro ranges and training areas, there is no encroachment that has a negative impact on training.

El Centro Assessment Details

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Capability Scores	6.39	6.39	9.00

1. In 2008 and 2009, this range was also evaluated for AAW and Electronic Combat. In 2010, mission areas were revised for the range to support only Strike Warfare.

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Encroachment Scores	9.86	9.80	10.00

1. Encroachment assessments for CY2008 were different than for CY2009, 2010, and 2011. The algorithm for the overall assessment score for 2009–2011 was revised from the original algorithm used in 2008 to provide greater fidelity and consistency across all range complexes. Based on an improved review process and revised algorithms, the assessments for CY2009, 2010, and 2011 provide a more accurate assessment of encroachment. The assessments for the latter three years reveal there has been little encroachment change from year to year, with relatively constant overall scores for CY2009, 2010, and 2011.
2. The change in the assessment score from CY2009 to CY2010 is based on deleting EC and AAW mission areas that previously referred to the greater Bob Stump Range Complex (BSTRC) that do not apply to El Centro. In addition there was a change in Adjacent Land Use insofar as the CY2009 assessment applied Adjacent Land Use to the BSTRC (yellow) and not to the El Centro range complex in particular. The CY2010 and CY2011 assessments apply Adjacent Land Use to El Centro only with a green rating.
3. There is potential for reinstatement of a proposed rule to list the flat-tailed horned lizard as threatened as establishment of critical habitat designation within range areas. This may invalidate the range wide management strategy that aids the conservation of the species and have impact on Strike Warfare activities. CNRSW has requested the discretion of the Secretary of Interior, when considering the potential designation of critical habitat should the Flat-Tailed Horn Lizard be listed as a threatened species, to exclude all lands at Naval Air Facility El Centro.
4. Although not yet a significant impact, there are potential encroachment pressures (Adjacent Land Use) from alternative energy initiatives on public lands adjacent to the range areas, recreation activities in the vicinity of range boundaries, and incursion of off-road vehicles into the range areas. The El Centro management is currently addressing these issues using public awareness outreach and enhanced warning and control measures.
5. The Desert Springs Oasis, Tejon Ranch-Centennial, and Tejon Mountain Village community development projects and the Frazier/Levec Specific Plan Amendment pose potential restrictions on the use of existing military training routes (MTRs) into and out of the El Centro range complex.

El Centro Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Range Support	Strike Warfare (STW)	●	Lack of web-based scheduling system with pre-event, real-time, and post-event modules precludes most efficient scheduling and documenting of range usage. Post-event reporting is particularly critical for ordnance expenditures or active sonar usage in at-sea OPAREAs since Marine Mammal Protection Act permits require Navy to periodically report these values. Non-compliance or inaccurately reporting post-event values to regulators risks range access or prohibitions on training events that involve active sonar or high explosives at-sea. PACFLT is developing a Data Collection and Scheduling Tool (DCAST) that includes a post-event module to mitigate issues outlined above. If successful, Navy could consider adopting it at all range scheduling facilities. There is no dedicated range manager position for El Centro. Duties currently assigned to Air Field Manager. Lack of a dedicated range manager precludes efficient execution of range management functions. Recommend establishment of a full time range manager position for El Centro. No completion date identified.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Fallon Range Training Complex Assessment Details

Range Mission Description

The mission of the Fallon Range Complex is to provide Naval Air Forces with airspace and bombing ranges in support Fleet aviation combat training. Fallon is Naval Aviations premier training range. All carrier deployed Naval Air Forces (except FDNF) train at the Fallon Range Complex prior to deployment. The specific mission of the Fallon Range Complex is to provide Naval Air Forces with advanced and intermediate levels of training for all over land or land based warfare. Fallon is Naval Aviation's premier training range. The Fallon Range Commander is Commander, Naval Strike & Air Warfare Center (NSAWC). NSAWC is responsible for all Naval Aviation training combat tactics, techniques, and procedures (TTP), for Naval Air Forces at the individual, unit, and integrated airwing levels. All carrier deployed Naval Air Forces (except FDNF) train at the Fallon Range Complex prior to deployment.

Capability Data

Mission Areas	Capability Attributes												
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Strike Warfare	PMC	PMC			PMC	PMC	PMC		PMC				
Electronic Combat	FMC	PMC			FMC	PMC	PMC		PMC				
Anti-Air Warfare	PMC	PMC				PMC	PMC		PMC				
Anti-Surface Warfare													
Mine Warfare													
Amphibious Warfare													
Anti-Submarine													
Naval Special Warfare	PMC	FMC			FMC	PMC	FMC		PMC				

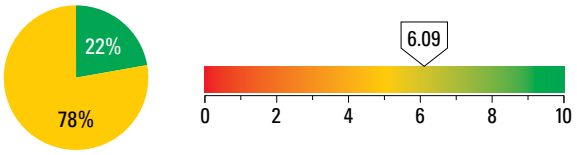
Legend: FMC PMC NMC

Encroachment Data

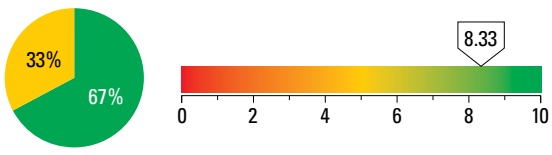
Mission Areas	Encroachment Factors											
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strike Warfare	Minimal	Minimal	Moderate		Moderate	Minimal	Moderate	Minimal	Minimal	Minimal		Moderate
Electronic Combat	Minimal	Minimal	Moderate		Minimal	Minimal	Minimal	Minimal		Minimal		Minimal
Anti-Air Warfare	Minimal	Minimal	Moderate		Moderate	Minimal	Moderate	Minimal	Minimal	Minimal		Minimal
Anti-Surface Warfare												
Mine Warfare												
Amphibious Warfare												
Anti-Submarine												
Naval Special Warfare	Minimal	Moderate	Moderate		Moderate	Minimal	Minimal	Moderate	Minimal	Minimal		Moderate

Legend: Minimal Moderate Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Capability Attribute most impacting range mission performance: Threats, Scoring & Feedback in support of EC.
2. Mission Area most severely impacted: EC; followed closely by AAW & STW.
3. Projected Status: No immediate change.

NOTE on NSW Assessments: Assessments of Navy Special Warfare (NSW) training are based on actual NSW demand and use of training range capability and space. Actual Training range capability and space requirements are based on Fleet Readiness Training Plan demands for conventional warfare areas.

Summary Observations

1. Spectrum is the Encroachment Factor having the greatest impact on training.
2. All assigned Mission Areas have encroachment.
3. The Navy has developed procedures and workarounds to accommodate spectrum encroachment. The Navy continues to discuss the various encroachment issues with the Fallon stakeholders with the expectation that the stakeholders will have clearer understanding of Navy training requirements and of strategies that can relieve training encroachment restrictions.

NOTE on NSW Assessments: Assessments of Navy Special Warfare (NSW) training are based on actual NSW demand and use of training range capability and space. Actual Training range capability and space requirements are based on Fleet Readiness Training Plan demands for conventional warfare areas.

Fallon Range Training Complex Assessment Details

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Capability Scores	5.65	5.65	6.09

1. EC threats improved from Red to Yellow. Improvement in rating from 2009 to 2010 justified by investment in IADS and threats.
2. NSW landspace training requirement re-evaluated from Red to Yellow from 2009 to 2010.

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Encroachment Scores	8.96	8.84	8.84

1. Encroachment assessments for CY2008 were different than for CY2009, 2010, and 2011. The algorithm for the overall assessment score for 2009–2011 was revised from the original algorithm used in 2008 to provide greater fidelity and consistency across all range complexes. Based on an improved review process and revised algorithms, the assessments for CY2009, 2010, and 2011 provide a more accurate assessment of encroachment. The assessments for the latter three years reveal there has been little encroachment change from year to year, with relatively constant overall scores for CY2009, 2010, and 2011. The slight decrease in the CY2011 assessment results from green to yellow assessments for NSW in Munitions Restrictions, Spectrum, Airspace, and Adjacent Land Use.
2. There is little indication encroachment pressures will change in the foreseeable future.

Fallon Range Training Complex Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strike Warfare (STW)	●	Landspace area size does not meet requirements; limits weapons type and employment tactics; use of lasers is not allowed in all directions; and N.E.W. restricted in some areas. These restrictions reduce realism; inhibits new tactics development; and reduce live fire proficiency. Currently no investment recommendation and no planned action.
	Anti-Air Warfare (AAW)	●	Flare use is restricted for flights below 2,000 Ft which impacts helicopter training. This restriction reduces realism; inhibits new tactics development; and reduces live fire proficiency. There is no investment recommendation or planned action.
	Naval Special Warfare (NSW)	●	Landspace area size does not meet requirements; limits weapons type and employment tactics; use of lasers is not allowed in all directions; and N.E.W. restricted in some areas. These restrictions reduce realism; inhibits new tactics development; and reduce live fire proficiency. Currently no investment recommendation and no planned action.
Airspace	Strike Warfare (STW)	●	Limited airspace available, limited supersonic employment, and altitude restrictions limit tactics that may be employed, especially in target areas. These restrictions reduce realism; inhibit new tactics development; limit application of new weapon technologies; and reduce live fire proficiency. There is no investment recommendation and no planned action.
	Electronic Combat (EC)	●	Range is assessed as moderate for helicopters due to restricted flare use, though minimal impact for fixed-winged aircraft. This restriction reduces realism; inhibits tactics development; and reduces live fire proficiency. There is no investment recommendation. No planned action.
	Anti-Air Warfare (AAW)	●	Limited airspace available, limited supersonic employment, and altitude restrictions limit tactics that may be employed, especially in target areas. These restrictions reduce realism; inhibit new tactics development; limit application of new weapon technologies; and reduce live fire proficiency. There is no investment recommendation and no planned action.
Targets	Strike Warfare (STW)	●	There is a limited number of tactically significant targets; no IR augmentation; no moving, structural, or urban targets, and no OPNAV funding for Navy Range targets program. This shortfall reduces realism; inhibits new tactics development; limits application of new weapon technologies; and reduces live fire proficiency. Recommend investing in upgraded scoring options; Time Sensitive Target program targets; Tactical targets; fixed and mobile EC sites; and urban complex. No completion date identified.
Threats	Strike Warfare (STW)	●	There is no live helicopter threat capability; quantity and variety of threat does not meet requirements; and EC threat above level 2 is not available. These shortfalls reduce realism; inhibit new tactics development; limit application of new weapons technologies; and reduces live fire proficiency. Recommend investing in fully mobile threat systems; simulators with TSPI integration; upgraded Integrated Air defense System; and EC threat systems through level 4. No completion date identified.
	Electronic Combat (EC)	●	EC threat level does not meet requirements; and quantity and variety of the threat does not meet requirements. EC threat above level 2 is not available. This reduces realism; inhibits new tactics development; limits application of new weapons technologies; and reduces live fire proficiency. Recommend investing in fully mobile threat systems; simulators with TSPI integration; upgraded Integrated Air defense System; EC threat systems through level 4. No completion date identified.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Fallon Range Training Complex Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Threats	Anti-Air Warfare (AAW)		There is no live helicopter threat capability; quantity and variety of threat does not meet requirements; and EC threat above level 2 is not available. These shortfalls reduce realism; inhibit new tactics development; limit application of new weapons technologies; and reduces live fire proficiency. Recommend investing in fully mobile threat systems; simulators with TSPI integration; upgraded Integrated Air defense System; and EC threat systems through level 4. No completion date identified.
	Naval Special Warfare (NSW)		Threats not sufficient for training. This reduces realism; inhibits new tactics development; limits application of new weapons technologies; and reduces live fire proficiency. Recommend investment in sufficient threats for mission. No completion date identified.
Scoring & Feedback System	Strike Warfare (STW)		The capacity of the system does not meet requirements; is not JNTC or TENA compliant; and has no automatic RTKN. This inhibits new tactics development and reduces live fire proficiency. Recommend investing in EC systems, range EC&C architecture, JNTC and TENA compatible systems. No completion date identified.
	Electronic Combat (EC)		Same as above.
	Anti-Air Warfare (AAW)		Same as above.
Range Support	Strike Warfare (STW)		The lack of web-based scheduling system with pre-event, real-time, and post-event modules precludes most efficient scheduling and documenting of range usage. Post-event reporting is particularly critical for ordnance expenditures or active sonar usage in at-sea OPAREAs since Marine Mammal Protection Act permits require Navy to periodically report these values. Non-compliance or inaccurately reporting post-event values to regulators risks range access or prohibitions on training events that involve active sonar or high explosives at-sea. PACFLT is developing a Data Collection and Scheduling Tool (DCAST) that includes a post-event module to mitigate issues outlined above. If successful, Navy could consider adopting it at all range scheduling facilities.
	Electronic Combat (EC)		Same as above.
	Anti-Air Warfare (AAW)		Same as above.
	Naval Special Warfare (NSW)		Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Munitions Restrictions	Naval Special Warfare (NSW)		Fallon range operations were designed (and are maintained) for aviation air-to-ground missions. All ranges have UXO potential. Introduction of Ground Training at Fallon ranges increases risk of a UXO incident. Impacts to training include restricted range access and areas restricted from ground use. No action planned to remedy, problem is insoluble.
Spectrum	Strike Warfare (STW)		Range maintains radar and frequency band restrictions; E-3 and EA-6B operations restrictions; EC threat emitter bandwidth restrictions; and Link-16 time slot allocations and number of aircraft restrictions which all impact FRTC training. Encroachment segments training and reduces realism, limits application of new technologies, and inhibits new tactics development. This problem is insoluble.
	Electronic Combat (EC)		Same as above.
	Anti-Air Warfare (AAW)		Same as above.
	Naval Special Warfare (NSW)		Range maintains radar and frequency band restrictions; EC threat emitter bandwidth restrictions; and Link-16 time slot allocations, all impacting NSW training. Encroachment segments training and reduces realism, limits application of new technologies, and inhibits new tactics development. This problem is insoluble.
Airspace	Strike Warfare (STW)		Encroached by FAA altitude caps; supersonic restrictions; VFR corridor interruptions; run-in heading restrictions, and helicopter restrictions. This encroachment prohibits training events, segments training/reduces realism, constrains flight altitudes, inhibits new tactics development, and complicates night/all-weather training. This problem is insoluble.
	Anti-Air Warfare (AAW)		Same as above.
	Naval Special Warfare (NSW)		Airspace is used for Fallon's primary air mission. Ground live fire training conflicts with airspace. Ground training priority at Fallon is #13 after aviation units. Airspace encroachment on NSW ground operations prohibits training events, segments training and reduces realism, constrains flight altitudes, inhibits new tactics development, and complicates night/all-weather training. This problem is insoluble.

Fallon Range Training Complex Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Noise Restrictions	Strike Warfare (STW)	●	Supersonic flight prohibition below 11,000 feet above MSL impacts tactical training. These restrictions affect training realism, tactics, and night/all-weather operations. This problem is insoluble.
	Anti-Air Warfare (AAW)	●	Same as above.
Adjacent Land Use	Naval Special Warfare (NSW)	●	Power lines and telecommunications towers impact low altitude helicopter training and tactics. Encroachment prohibits training events, segments training/reduces realism, constrains flight altitudes, inhibits new tactics development, and complicates night/all-weather training. This problem is insoluble.
Range Transients	Strike Warfare (STW)	●	Range management must provide range clearance for livestock. This livestock encroachment segments training/ reduces realism. This problem is insoluble.
	Naval Special Warfare (NSW)	●	Same as above.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Gulf of Mexico (GOMEX) Assessment Details

Range Mission Description

The Gulf of Mexico (GOMEX) mission is to provide training support in Anti-air Warfare (AAW), Anti-surface Warfare (ASUW), Mine Warfare (MW), and Naval Special Warfare (NSW) with the primary purpose being MW at the basic level, with a secondary role at the intermediate and advanced levels of training. It provides some tertiary basic level of training in AAW and ASUW.

Capability Data

Mission Areas	Capability Attributes												
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Strike Warfare													
Electronic Combat													
Anti-Air Warfare	●	●	●		●	●	●		●				
Anti-Surface Warfare		●	●	●	●	●	●		●				
Mine Warfare		●	●	●	●	●	●		●				
Amphibious Warfare													
Anti-Submarine													
Naval Special Warfare	●	●	●	●	●	●	●		●				

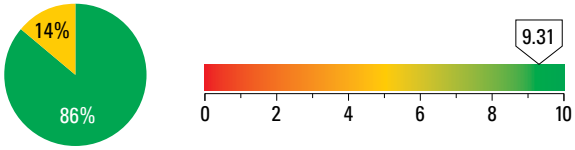
Legend: FMC ● PMC ● NMC ●

Encroachment Data

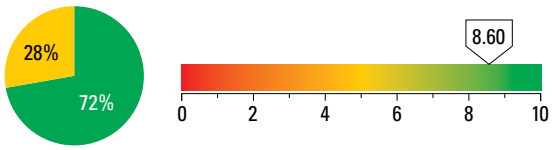
Mission Areas	Encroachment Factors												
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strike Warfare												
Electronic Combat												
Anti-Air Warfare			●		●		●	●				●
Anti-Surface Warfare			●	●	●		●		●			●
Mine Warfare			●	●	●		●	●	●			●
Amphibious Warfare												
Anti-Submarine												
Naval Special Warfare			●	●	●		●	●	●			●

Legend: Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Capability Attribute most impacting range mission performance: Range Support
2. Assigned Mission Areas most severely impacted: All
3. Projected Status: No immediate change.
4. A web-based scheduling system with pre-event, real-time, and post-event modules could enhance the interaction between ranges for better usage of range assets and availability of moveable targets and OPFOR systems, thereby improving the overall system of ranges.

NOTE on NSW Assessments: Assessments of Navy Special Warfare (NSW) training are based on actual NSW demand and use of training range capability and space. Actual Training range capability and space requirements are based on Fleet Readiness Training Plan demands for conventional warfare areas.

Summary Observations

1. Spectrum is the Encroachment Factor that has greatest impact on training, followed by Maritime Sustainability.
2. AAW and ASUW have moderate encroachment.
3. The Navy continues to coordinate with appropriate frequency allocation and oversight agencies to seek spectrum relief. Competition for frequency spectrum will add increased pressure on available bandwidth for Naval operations. The Navy will continue to educate Fleet units to adhere to the maritime protective and mitigation measures.

NOTE on NSW Assessments: Assessments of Navy Special Warfare (NSW) training are based on actual NSW demand and use of training range capability and space. Actual Training range capability and space requirements are based on Fleet Readiness Training Plan demands for conventional warfare areas.

Gulf of Mexico (GOMEX) Assessment Details

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Capability Scores	9.31	9.31	9.31

Capability at the China Lake Ranges has remained steady since 2008. Its anticipated capability will remain stable in the future.

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Encroachment Scores	9.27	8.60	8.60

1. Encroachment assessments for CY2008 were different than for CY2009, 2010, and 2011. The algorithm for the overall assessment score for 2009–2011 was revised from the original algorithm used in 2008 to provide greater fidelity and consistency across all range complexes. Based on an improved review process and revised algorithms, the assessments for CY2009, 2010, and 2011 provide a more accurate assessment of encroachment. The assessments for the latter three years reveal there has been little encroachment change from year to year, with relatively constant overall scores for CY2009, 2010, and 2011.
2. RCMP scheduled for update in July 2011; EAP to be developed during FY2013.
3. Dept. of Interior (DOI) and private energy interests in the Outer Continental Shelf (OCS) are increasing as domestic energy demand builds. Naval offshore operating areas and training events may be affected. High priority areas include training ranges and sea space in and adjacent to all Navy OPAREAs. OASN (E,I&E), as DoD spokesman for military offshore use, continues to work closely with the Fleets and DOI's Bureau of Ocean Energy Management (BOEM) to resolve issues of combined use of the OCS important to both agencies. Fleet review and analysis of impacts from both oil/gas and wind energy "lease sale" areas (Mission Critical Areas-MCAs) have been reviewed and forwarded to OSD. DoD and DOI coordination continues. Encroachment pressures have increased at the China Lake Ranges since 2008. However, they have remained constant in 2010. Frequency spectrum and cultural resources management are the primary drivers for increased encroachment pressures. It is anticipated that encroachment pressures will remain stable in the future.

Gulf of Mexico (GOMEX) Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Range Support	Anti-Air Warfare (AAW)	●	A lack of web-based scheduling system with pre-event, real-time, and post-event modules precludes most efficient scheduling and documenting of range usage. Post-event reporting is particularly critical for ordnance expenditures or active sonar usage in at-sea OPAREAs since Marine Mammal Protection Act permits require Navy to periodically report these values. Non-compliance or inaccurately reporting post-event values to regulators risks range access or prohibitions on training events that involve active sonar or high explosives at-sea. PACFLT is developing a Data Collection and Scheduling Tool (DCAST) that includes a post-event module to mitigate issues outlined above. If successful, Navy could consider adopting it at all range scheduling facilities.
	Anti-Surface Warfare (ASUW)	●	Same as above.
	Mine Warfare (MW)	●	Same as above.
	Naval Special Warfare (NSW)	●	Same as above.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Gulf of Mexico (GOMEX) Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Spectrum	Anti-Air Warfare (AAW)	●	Employment of Link 16 is restricted. These restrictions limit spectrum operations and prohibit certain training events, segment training/reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. The Navy continues to coordinate with appropriate frequency allocation and oversight agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies. Competition for frequency spectrum will add increased pressure on available bandwidth for Naval operations.
	Anti-Surface Warfare (ASUW)	●	Same as above.
	Mine Warfare (MW)	●	Same as above.
Maritime	Anti-Surface Warfare (ASUW)	●	Maritime protective and mitigation measures undertaken in compliance with regulatory requirements have resulted in training restrictions that reduce training flexibility, force segmented training, and ultimately reduce training realism. All at-sea training is impacted to some degree; impacts are most significant to integrated warfare training using active underwater acoustic sources or in-water explosive ordnance. The Navy and National Marine Fisheries Service (NMFS) have developed science based protective and mitigation measures that adequately protect marine species while accommodating military readiness activities. The Navy continues to develop Environmental Impact Statements and obtain permits and authorizations for its range complexes to ensure military training complies with applicable laws and regulations. Litigation risks remain a concern, entailing the potential to delay or further restrict training, despite the protective and mitigation measures applied by the Navy in compliance with the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA).Endangered species/critical habitat encroachment has created avoidance areas that have resulted in some reduction of training days and prohibits certain training events. This area is relatively small in scope, however, if these types of restrictions were applied to other species/areas, there would be significant impacts to readiness through reduction in range access, segmentation of training/reduction in realism, limits on the application of new technologies, raised flight altitudes, reduced live fire proficiency, increased personnel tempo, and increased O&M costs. The Navy continues to invest in marine mammal research; rely on scientifically valid empirical data results as basis of marine mammal mitigation development; factor mitigation effectiveness into permit requests. Continue education of Fleet units to adhere to the maritime protective and mitigation measures and public education outreach efforts. Navy's authorizations under the MMPA and ESA include an adaptive management approach that includes continually evaluating existing mitigation measures for their potential impacts on training. If impacts on training from mitigation measures are identified and documented, Navy will raise these impacts with NMFS for resolution during an annual adaptive management review process. The Navy is currently preparing environmental compliance documentation to renew the MMPA and ESA authorizations which will consider any impacts on training stemming from existing mitigations measures and propose changes as warranted.
	Mine Warfare (MW)	●	Same as above.
Range Transients	Anti-Surface Warfare (ASUW)	●	Range transients, involving commercial shipping, commercial fishing, and private pleasure boating encroach on training, either by delaying events or forcing relocation to less than optimum locations. Commercial vessel and recreational vessel encroachment creates avoidance areas, segments training, and reduces realism. The Navy will continue to pursue opportunities to inform industry and the public of the impact of range transient encroachment on At-Sea OPAREAS and Navy readiness.
	Mine Warfare (MW)	●	Same as above.

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Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Hawaii Assessment Details

Range Mission Description

The Mid-Pacific Ocean area ranges consists of the ranges and expansive ocean operating areas in the vicinity of the Hawaiian Islands. The complex provides a primary training capability across all warfare areas with a secondary priority in all warfare areas except Strike Warfare (STW) and Amphibious Warfare (AMW).

Capability Data

Mission Areas	Capability Attributes												
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Strike Warfare	Y	Y	G	G	Y	Y	R		Y				
Electronic Combat	G	G	G	G	G	Y	G		Y				
Anti-Air Warfare	Y	G	G		G	Y	Y		Y				
Anti-Surface Warfare		G	G	G	Y	R	G		Y				
Mine Warfare		G	G	G	Y	G	G		Y				
Amphibious Warfare	G	G	G	G			G		Y				
Anti-Submarine		G	G	G	Y	G	G		Y				
Naval Special Warfare	Y	G	G	G	Y	G	G		Y				

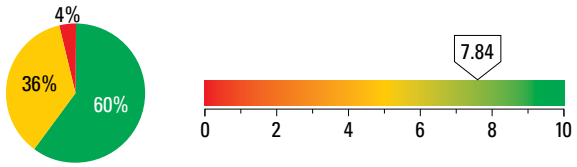
Legend: FMC (G), PMC (Y), NMC (R)

Encroachment Data

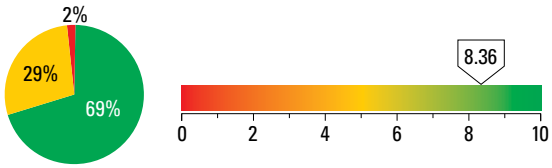
Mission Areas	Encroachment Factors											
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strike Warfare	Y	G	Y	G	Y	G	G	Y	Y	G	G	G
Electronic Combat	G		Y		G	G	G	G				G
Anti-Air Warfare			Y		Y	G	G	G				G
Anti-Surface Warfare			Y	Y	G				G			Y
Mine Warfare			Y	Y	G				G			Y
Amphibious Warfare	G		Y	Y	G		G	G	G		G	Y
Anti-Submarine			G	R	G				G			Y
Naval Special Warfare	G	G	G	G	G	G	G	G	G	G	G	G

Legend: Minimal (G), Moderate (Y), Severe (R)

Capability Chart and Scores



Encroachment Chart and Scores



Hawaii Assessment Details

Summary Observations	Summary Observations
1. Capability Attribute most impacting range mission performance: Threats and Scoring & Feedback Systems. 2. Mission Area most severely impacted: STW. 3. Projected Status: No immediate change. NOTE on NSW Assessments: Assessments of Navy Special Warfare (NSW) training are based on actual NSW demand and use of training range capability and space. Actual Training range capability and space requirements are based on Fleet Readiness Training Plan demands for conventional warfare areas.	1. Spectrum and Maritime Sustainability are the Encroachment Factors having greatest impact on training. 2. All Mission Areas, except NSW, have substantial encroachment. 3. Designation of Critical Habitat for the Hawaiian Monk Seal (E) under the provisions of the ESA, by USFWS, for the shorelines of the Main Hawaiian Islands is under consideration. Large acreage in the Kokee areas, primarily State lands, are also being considered for designation of Critical Habitat for a host of plants and some birds and insects. These regulatory activities on land as well as in marine environments will continue, and the addition of alternative energy systems based on, or located in, marine environments will compete with training uses, e.g., proposed Penguin Bank wind farm, since withdrawn. The Navy continues to coordinate with appropriate frequency allocation and oversight agencies to seek spectrum relief. Competition for frequency spectrum will add increased pressure on available bandwidth for Naval operations. The Navy will continue to education Fleet units to adhere to the maritime protective and mitigation measures. NOTE on NSW Assessments: Assessments of Navy Special Warfare (NSW) training are based on actual NSW demand and use of training range capability and space. Actual Training range capability and space requirements are based on Fleet Readiness Training Plan demands for conventional warfare areas.

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Capability Scores	7.59	7.76	7.84

1. In 2008 MIW Targets and Scoring & Feedback were assessed as Red.
2. In 2009 MIW Scoring & Feedback and targets were assessed as Yellow.
3. In 2010 MIW Scoring & Feedback was assessed as Green.
4. Above changes were based on range upgrades for MIW identified by PACFLT.

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Encroachment Scores	8.96	8.44	8.44

1. Encroachment assessments for CY2008 were different than for CY2009–CY2011. The algorithm for the overall assessment score for 2009–2011 was revised from the original algorithm used in 2008 to provide greater fidelity and consistency across all range complexes. Based on an improved review process and revised algorithms, the assessments for CY2009–CY2011 provide a more accurate assessment of encroachment. The assessments for the latter three years reveal there has been little encroachment change from year to year, with relatively constant overall scores for CY2009–CY2011.
2. There is little indication encroachment pressures will change in the foreseeable future.

Hawaii Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strike Warfare (STW)		Unable to conduct low-level ingress over land to an air-to-ground range area with a realistic strike package. Reduces realism; inhibits tactics development. No solution due to unavailability of land and airspace.
	Anti-Air Warfare (AAW)		There is no land space beneath any AAW space. Airspace over land is required for ACM training. Reduces realism by preventing detection and targeting of terrain following aircraft. No land space is available to solve this problem.
	Naval Special Warfare		Lacks maneuver space with a beachfront, live fire areas, MOUT. This segments training, thereby reducing realism; inhibits tactics; and reduces live fire proficiency. Insoluble shortfall due to lack of available land.
Airspace	Strike Warfare (STW)		Unable to conduct low-level ingress over land to an air-to-ground range area with a realistic strike package. Reduces realism and inhibits tactics development. No solution due to unavailability of land and airspace.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Hawaii Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Targets	Strike Warfare (STW)	🟡	No raked, strafe, structural, revetted, or moving targets. Does not meet requirements for live fire and realistic strike missions. No urban or moving targets. Reduces realism; reduces live fire proficiency. Recommend upgrade targets to meet training requirements. No completion date identified. Note: Does not include assessment of Army Pohakoloa Training Area Range
	Anti-Surface Warfare (ASUW)	🟡	Basic level training target requirements are GREEN, but Intermediate and Sustainment level training target requirements are not available in sufficient quantity or variety. Reduces realism. Recommend acquire additional surface targets. No completion date identified.
	Mine Warfare (MW)	🟡	Existing mine training field does not realistically portray threat environment. Reduces realism; inhibits tactics; limits application of new weapons technologies. Situation will get worse when OMCM systems are deployed if improvements are not made. Anticipate deployment of new training mine fields at TBD future date. No completion date identified.
	Anti-Submarine (ASW)	🟡	Target capabilities are downgraded by lack of target maintenance capabilities at the range, thereby reducing the quantity of available required targets. Reduces live fire proficiency; reduces realism. Recommend develop a capability to perform maintenance on ASW targets at the range complex. No completion date identified.
	Naval Special Warfare	🟡	Range targets are not available. Units typically create their own targets without the benefit of realism. Reduces realism; inhibits tactics development; reduces live fire proficiency. Fund portable targets to meet NSW training requirements.
Threats	Strike Warfare (STW)	🟡	Adequate quantity and types of threat OPFOR are not available, including EC threat levels. Reduces realism; inhibits tactics development. Recommend acquire EC systems that provide a high density, multi-threat axis capability through level. No completion date identified.
	Electronic Combat (EC)	🟡	Same as above.
	Anti-Air Warfare (AAW)	🟡	No dedicated threat OPFOR. There is a shortage of the required number and variety of threat aircraft. Reduces realism. Recommend investigate availability of Hawaii Air National Guard to serve in an OPFOR role. No completion date identified.
	Anti-Surface Warfare (ASUW)	🔴	Basic level training threat requirements are GREEN, but Intermediate and Sustainment level training threat requirements are not available in sufficient quantity or variety. Reduces realism. Recommend acquire additional threat OPFOR. No completion date identified.
Scoring & Feedback System	Strike Warfare (STW)	🔴	Instrumented scoring and debriefing capabilities are not available. Performance, scoring, and evaluation of training is required for effective training. Recommend improve targets to include TSPI, EC&C, M&S, scoring and debrief capabilities. No completion date identified.
	Anti-Air Warfare (AAW)	🟡	System lacks required capacity and needs upgrades to prevent obsolescence. Lack of adequate instrumentation reduces the overall effectiveness of flights due to lower quality debrief information. Recommend invest in additional or new equipment to upgrade current systems. No completion date identified.
Range Support	Strike Warfare (STW)	🟡	Lack of web-based scheduling system with pre-event, real-time, and post-event modules precludes most efficient scheduling and documenting of range usage. Post-event reporting is particularly critical for ordnance expenditures or active sonar usage in at-sea OPAREAs since Marine Mammal Protection Act permits require Navy to periodically report these values. Non-compliance or inaccurately reporting post-event values to regulators risks range access or prohibitions on training events that involve active sonar or high explosives at-sea. PACFLT is developing a Data Collection and Scheduling Tool (DCAST) that includes a post-event module to mitigate issues outlined above. If successful, Navy could consider adopting it at all range scheduling facilities.
	Electronic Combat (EC)	🟡	Same as above.
	Anti-Air Warfare (AAW)	🟡	Same as above.
	Anti-Surface Warfare (ASUW)	🟡	Same as above.
	Mine Warfare (MW)	🟡	Same as above.
	Amphibious Warfare (AMW)	🟡	Same as above.
	Anti-Submarine (ASW)	🟡	Same as above.
	Naval Special Warfare (NSW)	🟡	Same as above.

Hawaii Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Threatened & Endangered Species/ Critical Habitat	Strike Warfare (STW)		Restrictions center around the protection of numerous migratory birds on Kaula Rock. Rather than implement costly mitigation measures, operations have been modified to minimize impacts to protected species. These restrictions have been self-imposed by the Navy and without any direction of the regulators. Restrictions create large avoidance areas, reduce training days, prohibit certain training events, and reduce range access. To comply with the MMPA and the ESA, the Record of Decision (ROD) concluded that the Navy "will limit Kaula Rock targeting for air to surface weapons delivery to the southeast tip of the island" and only seasonally when marine mammals are not present. No remedy anticipated or planned. In addition, since finalization of HRC/PMRF FEIS/OEIS, Federal and State environmental regulators and NGOs are focusing even more on the populations and habitat, both land and marine, on/around Kaula Rock. Sea bird population surveys by vessel were conducted by USN contractors and staff week of July 20, 2009. This is the first such survey in more than 10 years and required pursuant to HRC/PMRF FEIS/OEIS. Future, potential impacts based on such studies cannot be predicted. Possible efforts to impose further restrictions on usage are uncertain.
Spectrum	Strike Warfare (STW)		Employment of Link 16 is restricted. Restrictions limit spectrum operations and prohibit certain training events, segment training/reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. The Navy continues to coordinate with appropriate frequency allocation and oversight agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies. Competition for frequency spectrum will add increased pressure on available bandwidth for Naval operations.
	Electronic Combat (EC)		Same as above.
	Anti-Air Warfare (AAW)		Same as above.
	Anti-Surface Warfare (ASUW)		Same as above.
	Mine Warfare (MW)		Same as above.
	Amphibious Warfare (AMW)		Same as above.
Maritime Sustainability	Anti-Surface Warfare (ASUW)		Maritime protective and mitigation measures undertaken in compliance with regulatory requirements have resulted in training restrictions that reduce training flexibility, force segmented training, and ultimately reduce training realism. All at-sea training is impacted to some degree; impacts are most significant to integrated warfare training using active underwater acoustic sources or in-water explosive ordnance. The Navy and National Marine Fisheries Service (NMFS) have developed science based protective and mitigation measures that adequately protect marine species while accommodating military readiness activities. The Navy continues to develop Environmental Impact Statements and obtain permits and authorizations for its range complexes to ensure military training complies with applicable laws and regulations. Litigation risks remain a concern, entailing the potential to delay or further restrict training, despite the protective and mitigation measures applied by the Navy in compliance with the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA).Endangered species/critical habitat encroachment has created avoidance areas that have resulted in some reduction of training days and prohibits certain training events. This area is relatively small in scope, however, if these types of restrictions were applied to other species/areas, there would be significant impacts to readiness through reduction in range access, segmentation of training/reduction in realism, limits on the application of new technologies, raised flight altitudes, reduced live fire proficiency, increased personnel tempo, and increased O&M costs.The Navy will continue to invest in marine mammal research; rely on scientifically valid empirical data results as basis of marine mammal mitigation development; factor mitigation effectiveness into permit requests and continue education of Fleet units to adhere to the maritime protective and mitigation measures and public education outreach efforts. Navy's authorizations under the MMPA and ESA include an adaptive management approach that includes continually evaluating existing mitigation measures for their potential impacts on training. If impacts on training from mitigation measures are identified and documented, Navy will raise these impacts with NMFS for resolution during an annual adaptive management review process. The Navy is currently preparing environmental compliance documentation to renew the MMPA and ESA authorizations which will consider any impacts on training stemming from existing mitigations measures and propose changes as warranted.
	Mine Warfare (MW)		Same as above.
	Amphibious Warfare (AMW)		Same as above.
	Anti-Submarine (ASW)		Same as above.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Hawaii Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Airspace	Strike Warfare (STW)	●	Due to competition for the same airspace and scheduling conflicts, at times, Navy P-3 usage of the airspace is limited and HIANG flights may be cancelled. In general, commercial and private aviation conflicts with Naval operations throughout the range complex. Conflict encroachment prohibits certain P-3 or HIANG training events in the area. Commercial traffic in the airspace causes delays and segments training. Coordinate scheduling of airspace with primary range users and the FAA.
	Anti-Air Warfare (AAW)	●	Same as above.
Adjacent Land Use	Strike Warfare (STW)	●	STW range is insufficient in size to support all requirements. Land withdrawal/procurement is problematic due to development/other factors.
Cultural Resources	Strike Warfare (STW)	●	There are cultural sites and resources throughout the Hawaii Range Complex. The presence of cultural resources within the training area creates large avoidance areas, prohibits certain training events, reduces range access, segments training and reduces realism, inhibits new tactics development, and greatly increases O&M costs. The Military Services have implemented training procedures to protect and conserve the cultural resources in the Hawaii Range complex.
Range Transients	Anti-Surface Warfare (ASUW)	●	Range transients, involving commercial shipping, commercial fishing, and private pleasure boating encroach on training, either by delaying events or forcing relocation to less than optimum locations. Commercial vessel and recreational vessel encroachment creates avoidance areas and segments training/ reduces realism. The Navy will continue to pursue opportunities to inform industry and the public of the impact of range transient encroachment on At Sea OPAREAS and Navy readiness.
	Mine Warfare (MW)	●	Same as above.
	Amphibious Warfare (AMW)	●	Same as above.
	Anti-Submarine (ASW)	●	Same as above.

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Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Jacksonville Assessment Details

Range Mission Description

The Jacksonville complex has a primary mission to support basic level training in all warfare areas except Amphibious Warfare (AMW) and Naval Special Warfare (NSW) training. It manages three overland ranges located approximately forty miles south of Jacksonville; the Pinecastle, Rodman and Lake George target complexes. Following the closure of NAS Cecil, and given the difficulty in hosting fighter/attack deployments at NAS Jacksonville, much of the ranges' use has come from carrier-launched strikes.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Strike Warfare	PMC	PMC	FMC	FMC	PMC	FMC	PMC		PMC				
Electronic Combat	FMC	FMC	FMC	FMC	FMC	PMC	PMC		PMC				
Anti-Air Warfare	PMC	FMC	FMC		FMC	PMC	PMC		PMC				
Anti-Surface Warfare		FMC	FMC	FMC	FMC	FMC	PMC		PMC				
Mine Warfare		FMC	FMC	FMC		FMC			PMC				
Amphibious Warfare													
Anti-Submarine		FMC	FMC	FMC	FMC	PMC	NMC		PMC				
Naval Special Warfare													

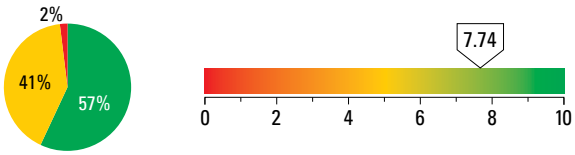
Legend: FMC, PMC, NMC

Encroachment Data

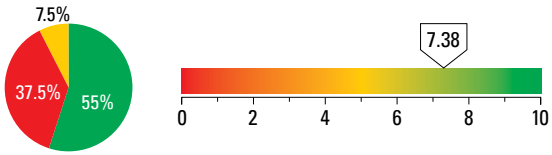
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Strike Warfare	PMC	FMC	PMC	FMC	PMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC
Electronic Combat	FMC		PMC		FMC	FMC	FMC	FMC				FMC
Anti-Air Warfare			PMC		PMC	FMC	FMC	FMC				FMC
Anti-Surface Warfare			PMC	NMC	PMC				FMC			PMC
Mine Warfare			PMC	NMC	PMC				FMC			PMC
Amphibious Warfare												
Anti-Submarine			PMC	NMC	PMC				FMC			PMC
Naval Special Warfare												

Legend: Minimal, Moderate, Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Capability Attribute most impacting range mission performance: Scoring & Feedback Systems
2. Mission Area most severely impacted: ASW
3. The OEIS/EIS for USWTR was completed on 6/26/2009, and the JAX OPAREA USWTR site was designated as the operationally preferred USWTR site alternative.

Summary Observations

1. Spectrum, Maritime Sustainability, and Airspace are the Encroachment Factors having greatest impact on training.
2. ASUW, MW, and ASW are the Mission Areas with the greatest encroachment impacts on training.
3. The Navy continues to coordinate with appropriate frequency allocation and oversight agencies to seek spectrum relief. Competition for frequency spectrum will add increased pressure on available bandwidth for Naval operations. Education of Fleet units to adhere to maritime protective and mitigation measures will continue. The Navy will continue to coordinate with the FAA to minimize space launch impacts on training activities. The Navy will continue to educate Fleet units to adhere to the maritime protective and mitigation measures.

Jacksonville Assessment Details

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Capability Scores	7.73	7.61	7.61

1. STW airspace re-evaluated from Green in 2008 to Yellow in 2009 and beyond. Was changed from green to yellow for consistency in impacts for all Atlantic ranges and was based on a review with USFF and a determination that airspace restrictions to & from Jacksonville were not significantly different than access at VACAPES & Cherry Pt.
2. MW Targets & Scoring & Feedback changed to WHITE based on USFF evaluation that TSPI Instrumented scoring data and dedicated mine target shapes are not required in the JAX OPAREA.

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Encroachment Scores	8.51	7.50	7.50

1. Encroachment assessments for CY2008 were different than for CY2009, 2010, and 2011. The algorithm for the overall assessment score for 2009–2011 was revised from the original algorithm used in 2008 to provide greater fidelity and consistency across all range complexes. Based on an improved review process and revised algorithms, the assessments for CY2009, 2010, and 2011 provide a more accurate assessment of encroachment. The assessments for the latter three years reveal there has been little encroachment change from year to year, with relatively constant overall scores for CY2009, 2010, and 2011.
2. As population growth continues in the Jacksonville areas, there will be increased competition for spectrum bandwidth as G3 and G4 telecommunications increase. Spectrum competition may add increased pressure on the Navy's ability to use radar, communications, EC, and other military systems.
3. RCMP updated will begin in OCT 2010; EAP is in progress and is expected to be completed by AUG 2011.
4. Dept. of Interior (DOI) & private energy interests in the Outer Continental Shelf (OCS) are increasing as domestic energy demand builds. Naval offshore operating areas & training events may be affected. High priority areas include training ranges & sea space in and adjacent to all Navy OPAREAs. OASN (E,I&E), as DoD spokesman for military offshore use, continues to work closely with the Fleets & DOI's Bureau of Ocean Energy Management (BOEM) to resolve issues of combined use of the OCS important to both agencies. Fleet review & analysis of impacts from both oil/gas & wind energy "lease sale" areas (Mission Critical Areas-MCAs) have been reviewed and forwarded to OSD. DoD & DOI coordination continues.

Jacksonville Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strike Warfare (STW)	●	Land space does not fully support size or topography requirements for placement of required number of targets. Use of live ordnance is not supported. Use of flares is restricted. No land area supports NSFS training or CSAR training, nor standoff PGM delivery. This prohibits certain training events; reduces realism; and increases personnel optempo. Recommend to identify east coast land areas of sufficient size to support standoff weapons training. No completion date identified.
	Anti-Air Warfare (AAW)	●	Range land space does not fully support size or topography requirements, or support surface combatant detection of aircraft over land. Use of flares is restricted. This prohibits certain training events; reduces realism; and increases personnel optempo. Overland ACM training is conducted at Fallon Range Training Complex. No additional land options available.
Airspace	Strike Warfare (STW)	●	Range land area and its associated restricted airspace areas are adjacent to JAX at-sea airspace, requiring MOA for transition between the seaspace and landspace areas. This transit reduces realism; inhibits new tactics development; and reduces live fire proficiency. OPAREAs lack characteristics for realistic tactical approaches and do not support the area size to meet minimum training requirements. There are no local options for increasing land availability. Recommend coordination and investment in new MOAs and/or restricted airspace to reduce the impact on flight operations by increasing airspace area and altitudes. No completion date identified.
Targets	Strike Warfare (STW)	●	Range urban area is too small, there are no LACM or NSFS land area targets, no moving targets, and targets lack infrared signatures. This prohibits certain training events; reduces realism; limits application of new weapon technologies; inhibits tactics development; reduces live fire proficiency, increases personnel optempo; and increases O&M costs. Navy recommends to invest in required targets. No completion date identified.
Threats	Electronic Combat (EC)	●	EC threat representation does not fully support EC threat levels 3 or 4 for required mission areas. The existing instrumentation systems are becoming obsolete and unsupportable through the FYDP. Navy recommends updating upgrade schedule to preclude severe degradation of system capability. Completion date not identified.
	Anti-Air Warfare (AAW)	●	Range has no helicopter or supersonic threat OPFOR. This reduces realism; Increases personnel optempo; and increases O&M costs. Recommend increase the number and type of commercial air services. No completion date identified.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Jacksonville Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Threats	Anti-Submarine (ASW)		Range has limited dedicated live submarines, surface ships, or aircraft to serve in the OPFOR role. This prohibits certain training events; reduces realism; inhibits tactics; increases personnel optempo; increases O&M costs. Navy recommends investing in additional threat OPFOR. Recommend increase availability of submarines through the DESI and aircraft through CAS. No completion date identified.
Scoring & Feedback	Strike Warfare (STW)		Range has incomplete TSPI & EC&C OPAREA coverage and is in need of scoring, RTKN and M&S systems. This increases personnel optempo and increases O&M costs. Recommend expanding and improving 2-D & 3-D coverage of the op-area; investing in JNTC compliant M&S equipment; and improving debrief capabilities. No completion date identified.
	Electronic Combat (EC)		Same as above.
	Anti-Air Warfare (AAW)		OPAREA coverage is not complete; Modeling & Simulation is inadequate; there is no RTKN. Existing instrumentation systems are not supportable through the FYDP. This reduces realism; inhibits tactics; increases personnel optempo, and increases O&M costs. Recommend expanding and improving 2-D & 3-D coverage of the op-area; investing in JNTC compliant M&S equipment; improving debrief capabilities. Update TACTS with TCTS replacement schedule to preclude severe degradation of system capability. No completion date identified.
	Anti-Surface Warfare (ASUW)		Range has incomplete TSPI & EC&C OPAREA coverage and is in need of scoring, RTKN and M&S systems. This increases personnel optempo and increases O&M costs. Recommend expanding and improving 2-D & 3-D coverage of the op-area; investing in JNTC compliant M&S equipment; and improving debrief capabilities. No completion date identified.
	Anti-Submarine (ASW)		There is no underwater tracking range, scoring capability, M&S, or post mission feedback. This prohibits certain training events; reduces realism; limits weapon technologies; inhibits tactics; reduces live fire proficiency; increases personnel optempo; and increases O&M costs. USWTR EIS was completed in CY09. Recommend to expand and improve 2-D & 3-D coverage of the OPAREA; invest in JNTC compliant M&S; and improve debrief capabilities.
Range Support	Strike Warfare (STW)		Lack of web-based scheduling system with pre-event, real-time, and post-event modules precludes most efficient scheduling and documenting of range usage. Post-event reporting is particularly critical for ordnance expenditures or active sonar usage in at-sea OPAREAs since Marine Mammal Protection Act permits require Navy to periodically report these values. Non-compliance or inaccurately reporting post-event values to regulators risks range access or prohibitions on training events that involve active sonar or high explosives at-sea. PACFLT is developing a Data Collection and Scheduling Tool (DCAST) that includes a post-event module to mitigate issues outlined above. If successful, Navy could consider adopting it at all range scheduling facilities.
	Electronic Combat (EC)		Same as above.
	Anti-Air Warfare (AAW)		Same as above.
	Anti-Surface Warfare (ASUW)		Same as above.
	Mine Warfare (MW)		Same as above.
	Anti-Submarine (ASW)		Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Threatened & Endangered Species/ Critical Habitat	Strike Warfare (STW)		Scrub jays, indigo snakes, and gopher tortoises at Pinecastle and Rodman; Manatees at Lake George; the flatwoods salamander on the Townsend Range; and various flora and fauna on Avon Park contribute to training restrictions in their affiliated range and training areas. Species habitat encroachment creates avoidance areas, reduces range access, and inhibits new tactics development. There is consideration of moving the Flatwoods Salamander off the Townsend Range. Avon Park mitigation recommendations are unknown.
Spectrum	Strike Warfare (STW)		Employment of Link 16 is restricted. Restrictions limit spectrum operations and prohibit certain training events, segment training/reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. The Navy continues to coordinate with appropriate frequency allocation and oversight agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies. Competition for frequency spectrum will add increased pressure on available bandwidth for Naval operations.

Jacksonville Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Spectrum	Electronic Combat (EC)	🟡	Restrictions resulting from electromagnetic spectrum encroachment include prohibitions from performing GPS jamming, authorization to radiate the Spoon Rest VHF early warning threat radar system and restricted use of the ITWSS (Track While Scan Simulator). Employment of Link 16 is restricted. Restrictions limit spectrum operations and prohibit certain training events, segment training, reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. The Navy continues to coordinate with appropriate frequency allocation and oversight agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies. Competition for frequency spectrum will add increased pressure on available bandwidth for Naval operations.
	Anti-Air Warfare (AAW)	🟡	Employment of Link 16 is restricted. Restrictions limit spectrum operations and prohibit certain training events, segment training/reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. The Navy continues to coordinate with appropriate frequency allocation and oversight agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies. Competition for frequency spectrum will add increased pressure on available bandwidth for Naval operations.
	Anti-Surface Warfare (ASUW)	🟡	Employment of Link 16, SPY-1 radar, SPS 49 radar, and IFF are restricted. Restrictions limit spectrum operations and prohibit certain training events, segment training/reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. The Navy continues to coordinate with appropriate frequency allocation and oversight agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies. Competition for frequency spectrum will add increased pressure on available bandwidth for Naval operations.
	Mine Warfare (MW)	🟡	Same as above.
	Anti-Submarine (ASW)	🟡	Same as above.
Maritime Sustainability	Anti-Surface Warfare (ASUW)	🔴	Maritime protective and mitigation measures undertaken in compliance with regulatory requirements have resulted in training restrictions that reduce training flexibility, force segmented training, and ultimately reduce training realism. All at-sea training is impacted to some degree; impacts are most significant to integrated warfare training using active underwater acoustic sources or in-water explosive ordnance. The Navy and National Marine Fisheries Service (NMFS) have developed science based protective and mitigation measures that adequately protect marine species while accommodating military readiness activities. The Navy continues to develop Environmental Impact Statements and obtain permits and authorizations for its range complexes to ensure military training complies with applicable laws and regulations. Litigation risks remain a concern, entailing the potential to delay or further restrict training, despite the protective and mitigation measures applied by the Navy in compliance with the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA). Endangered species/critical habitat encroachment from the North Atlantic right whale has created avoidance areas that have resulted in some reduction of training days and prohibits certain training events. This area is relatively small in scope, however, if these types of restrictions were applied to other species/areas, there would be significant impacts to readiness through reduction in range access, segmentation of training/reduction in realism, limits on the application of new technologies, raised flight altitudes, reduced live fire proficiency, increased personnel tempo, and increased O&M costs. The Navy will continue to invest in marine mammal research; rely on scientifically valid empirical data results as basis of marine mammal mitigation development; factor mitigation effectiveness into permit requests. Continue education of Fleet units to adhere to the maritime protective and mitigation measures and public education outreach efforts. Navy's authorizations under the MMPA and ESA include an adaptive management approach that includes continually evaluating existing mitigation measures for their potential impacts on training. If impacts on training from mitigation measures are identified and documented, Navy will raise these impacts with NMFS for resolution during an annual adaptive management review process. The Navy is currently preparing environmental compliance documentation to renew the MMPA and ESA authorizations by JAN 2014, which will consider any impacts on training stemming from existing mitigations measures and propose changes as warranted.
	Mine Warfare (MW)	🔴	Same as above.
	Anti-Submarine (ASW)	🔴	Same as above.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Jacksonville Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Airspace	Strike Warfare (STW)	●	During space launches at Cape Canaveral, the FAA closes southern portions of the Jacksonville OPAREA and associated airspace, depending on launch parameters. Closing portions of the SUA and OPAREA impacts several warfare areas that use the SUA and OPAREAs. Airspace restrictions create avoidance areas, reduce training days, reduce range access, segment training/reduce realism, increase personnel tempo, and increase O&M costs. The Navy will continue to coordinate with the FAA to minimize space launch impacts on training activities.
	Anti-Air Warfare (AAW)	●	Same as above.
	Anti-Surface Warfare (ASUW)	●	Same as above.
	Mine Warfare (MW)	●	Same as above.
	Anti-Submarine (ASW)	●	Same as above.
Range Transients	Anti-Surface Warfare (ASUW)	●	Range transients, involving commercial shipping, commercial fishing, and private pleasure boating encroach on training, either by delaying events or forcing relocation to less than optimum locations. Commercial vessel and recreational vessel encroachment creates avoidance areas and segments training/reduces realism. The Navy will continue to pursue opportunities to inform industry and the public of the impact of range transient encroachment on At Sea OPAREAS and Navy readiness.
	Mine Warfare (MW)	●	Same as above.
	Anti-Submarine (ASW)	●	Same as above.

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Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Japan Assessment Details

Range Mission Description

The Mid-Pacific Ocean area ranges consists of the ranges and expansive ocean operating areas in the vicinity of the Hawaiian Islands. The complex provides a primary training capability across all warfare areas with a secondary priority in all warfare areas except Strike Warfare (STW) and Amphibious Warfare (AMW).

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Strike Warfare	●	●	●	●	●	●	●		●				
Electronic Combat	●	●	●	●	●	●	●		●				
Anti-Air Warfare	●	●	●		●	●	●		●				
Anti-Surface Warfare		●	●	●	●	●	●		●				
Mine Warfare		●	●	●	●	●	●		●				
Amphibious Warfare													
Anti-Submarine		●	●	●	●	●	●		●				
Naval Special Warfare													

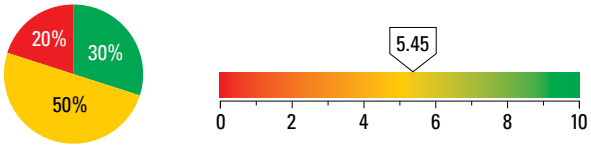
Legend: FMC ● PMC ● NMC ●

Encroachment Data

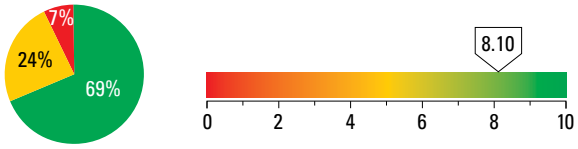
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Strike Warfare			●	●	●		●		●			●
Electronic Combat			●		●		●					●
Anti-Air Warfare			●		●		●					●
Anti-Surface Warfare			●	●	●				●			●
Mine Warfare			●	●	●				●			●
Amphibious Warfare												
Anti-Submarine			●	●	●				●			●
Naval Special Warfare												

Legend: Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Capability attribute most impacting range mission performance: Scoring & Feedback Systems
2. Assigned Mission Areas most severely impacted: All
3. Projected Status: Tactical Combat Training System (TCTS) and Portable Undersea Tracking Range (PUTR) deployment are expected to provide a modest improvement. Recommend Theater Support Vessel (TSV) deployment to provide additional improvement.

Summary Observations

1. Spectrum is the Encroachment Factor having the greatest encroachment impact on training.
2. EC and AAW are the Mission Areas having the greatest encroachment.
3. The Navy continues to coordinate with GOJ agencies to seek encroachment relief and to develop encroachment strategies that will reduce training restrictions and ensure unfettered use of training ranges and operating areas.

Japan Assessment Details

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	5.45	5.45	5.45	**Encroachment Scores**	9.40	8.28	8.28
The capability assessment has been stable from year to year, with relatively constant overall scores for CY 2010 and 2011.				Encroachment assessments for CY2008 were different than for CY2009, 2010, and 2011. The algorithm for the overall assessment score for 2009–2011 was revised from the original algorithm used in 2008 to provide greater fidelity and consistency across all range complexes. Based on an improved review process and revised algorithms, the assessments for CY2009, 2010, and 2011 provide a more accurate assessment of encroachment. The assessments for the latter three years reveal there has been little encroachment change from year to year, with relatively constant overall scores for CY2009, 2010, and 2011. There is little indication encroachment pressures will change in the foreseeable future.			

Japan Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strike Warfare (STW)	🔴	No Navy controlled range available. Prohibits certain training events; reduces realism; limits application of new technologies; inhibits tactics development; increases personnel op-tempo; increases O&M costs. Pursue opportunities with other services, countries, and in-theater ranges. No completion date identified.
	Electronic Combat (EC)	🔴	No Navy controlled range available. Prohibits certain training events; reduces realism; limits application of new technologies; inhibits tactics development; increases personnel op-tempo; increases O&M costs. Pursue Multi-purpose Range Craft (MPRC) EC capability. No completion date identified.
	Anti-Air Warfare (AAW)	🟡	No overland airspace supports AAW training. Prohibits certain training events; reduces realism; limits application of new technologies; inhibits tactics development; increases personnel op-tempo; increases O&M costs. Pursue opportunities with other services, countries, and in-theater ranges. No completion date identified.
Airspace	Strike Warfare (STW)	🟡	No Navy controlled range available, but there is some airspace and are ground targets available. Projected airwing move will downgrade training due to limited airspace at the new area. Prohibits certain training events; limits application of new technologies; inhibits new tactics development; increases personnel op-tempo, increases O&M costs. Pursue access to airspace that will support this training. No completion date identified.
	Anti-Air Warfare (AAW)	🟡	No overland airspace supports AAW training. Projected airwing move will downgrade training due to limited airspace at the new area. Prohibits certain training events; reduces realism; limits application of new technologies; inhibits tactics development; increases personnel op-tempo; increases O&M costs. Pursue opportunities with other services, countries, and in-theater ranges. No completion date identified.
Seaspace	Mine Warfare (MW)	🟡	Lack of shallow water training areas and geographic references limit MIW training. Prohibits certain training; reduces realism; limits application of new technologies; inhibits tactics development; increases personnel op-tempo; increases O&M costs. Evaluate feasibility of creating an op-area adjacent to land to support shallow water and geographic reference points. No completion date identified.
Underseaspace	Mine Warfare (MW)	🟡	No dedicated undersea space for Shock Wave Action Generator (SWAG) or mine avoidance training. Sea bottom type does not have required variance; insufficient shallow water; no permanent UTR. Prohibits certain training; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel op-tempo; increases O&M costs. Evaluate feasibility of installing a mine training range with instrumented mine shapes, false targets, bottom mines and mines for SWAG training. Evaluate the feasibility of creating an op-area with shallow water. No completion date identified.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Japan Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Targets	Strike Warfare (STW)	🔴	No Navy controlled range available. Prohibits certain training events; reduces realism; limits application of new technologies; inhibits tactics development; increases personnel op-tempo; increases O&M costs. Provide A-G targets and establish supporting SUA. No completion date identified.
	Electronic Combat (EC)	🔴	No targets exist. Limited land area. Political and frequency spectrum constraints. Prohibits certain training events; reduces realism; limits application of new technologies; inhibits tactics development; increases personnel op-tempo; increases O&M costs. Pursue MPRC EC Capability. No completion date identified.
	Anti-Air Warfare (AAW)	🟡	No supersonic targets available. No dedicated targets available. Reduces live fire proficiency; increases personnel op-tempo; increases O&M costs. Increase availability of commercial air services. Pursue a MPRC with target capabilities. No completion date identified.
	Anti-Surface Warfare (ASUW)	🟡	Quantity and types of targets are limited. Prohibits certain training events; reduces realism; reduces live fire proficiency. Increase availability of targets. Pursue MPRC capability. No completion date identified.
	Mine Warfare (MW)	🟡	No dedicated or instrumented targets available. Units will typically provide their own targets where feasible. Prohibits certain training events; reduces realism; limits application of new technologies; reduces live fire proficiency; increases O&M costs. Evaluate feasibility of installing a mine range with instrumented shapes, false targets, bottom mines and mines approved for SWAG training. No completion date identified.
	Anti-Submarine (ASW)	🟡	Live and virtual targets are not available. Expendable targets provided by the unit conducting the training are usually used. Reduces realism; limits application of new technologies; inhibits tactics development; reduces live fire proficiency; increases O&M costs. Establish an ASW targets unit. No completion date identified.
Threats	Strike Warfare (STW)	🔴	No dedicated, but limited OPFOR is available. Reduces realism; limits application of new technologies; inhibits tactics development. Improve availability of CAS and EC augmentation. Pursue MPRC with EC capabilities. New CAS contract expected to improve OPFOR support. No completion date identified.
	Electronic Combat (EC)	🔴	No dedicated, but limited OPFOR is available. Reduces realism; limits application of new technologies; inhibits tactics development. Pursue development of joint EC systems. Improve availability of CAS and EC augmentation. Pursue MPRC with EC capabilities. New CAS contract expected to improve OPFOR support. No completion date identified.
	Anti-Air Warfare (AAW)	🟡	No dedicated, but limited OPFOR is available. Reduces realism; limits application of new technologies; inhibits tactics development. Improve availability of CAS and EC augmentation. Pursue MPRC with EC capabilities. New CAS contract expected to improve OPFOR support. No completion date identified.
	Anti-Surface Warfare (ASUW)	🟡	No dedicated, but limited OPFOR is available. Reduces realism; limits application of new technologies; inhibits tactics development. Improve availability of CAS and EC augmentation. Pursue MPRC with EC capabilities. No completion date identified.
	Mine Warfare (MW)	🟡	Same as above.
	Anti-Submarine (ASW)	🟡	Same as above.
Scoring and Feedback	Strike Warfare (STW)	🔴	No permanent instrumentation exists. Reduces realism; limits application of new technologies; inhibits new tactics; complicates night and all weather training. Evaluate MPRC and TCTS potential to support training. TCTS was delivered in late FY2008, and although it is an AAW system, it is expected to marginally improve STW. No completion date identified.
	Electronic Combat (EC)	🔴	No permanent instrumentation exists. Reduces realism; limits application of new technologies; inhibits new tactics; complicates night and all weather training. Continue planned development of TCTS and evaluate potential to improve training. No completion date identified.
	Anti-Air Warfare (AAW)	🔴	No permanent instrumentation exists. Reduces realism; limits application of new technologies; inhibits new tactics; complicates night and all weather training. TCTS was delivered in late FY2008, and is expected to improve AAW feedback. No completion date identified.
	Anti-Surface Warfare (ASUW)	🟡	No permanent instrumentation exists. Reduces realism; limits application of new technologies; inhibits new tactics; complicates night and all weather training. Evaluate potential of TCTS to support ASUW. Evaluate MPRC potential to support training. No completion date identified.
	Mine Warfare (MW)	🟡	No permanent instrumentation exists. Reduces realism; limits application of new technologies; inhibits new tactics; complicates night and all weather training. Evaluate feasibility of installing a mine range with instrumented shapes, false targets, bottom mines and mines approved for SWAG training. Evaluate MPRC potential to support training. No completion date identified.
	Anti-Submarine (ASW)	🟡	No permanent instrumentation exists. Reduces realism; limits application of new technologies; inhibits new tactics; complicates night and all weather training. Evaluate potential of TCTS to support ASW. Evaluate Training Support Vessel and Portable Underwater Training Range potential to support training. Improved target support is forecast for FY2009. No completion date identified.

Japan Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Range Support	Strike Warfare (STW)	●	Lack of web-based scheduling system with pre-event, real-time, and post-event modules precludes most efficient scheduling and documenting of range usage. Post-event reporting is particularly critical for ordnance expenditures or active sonar usage in at-sea OPAREAs since Marine Mammal Protection Act permits require Navy to periodically report these values. Non-compliance or inaccurately reporting post-event values to regulators risks range access or prohibitions on training events that involve active sonar or high explosives at-sea. PACFLT is developing a Data Collection and Scheduling Tool (DCAST) that includes a post-event module to mitigate issues outlined above. If successful, Navy could consider adopting it at all range scheduling facilities.
	Electronic Combat (EC)	●	Same as above.
	Anti-Air Warfare (AAW)	●	Same as above.
	Anti-Surface Warfare (ASUW)	●	Same as above.
	Mine Warfare (MW)	●	Same as above.
	Anti-Submarine (ASW)	●	Same as above.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Japan Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Spectrum	Strike Warfare (STW)	🟡	Restrictions on RF emissions limit the use of the Tactical Combat Training System (TCTS). Restrictions limit spectrum operations and prohibit certain training events, segment training/reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. The Navy continues to coordinate with Government of Japan (GOJ) agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies.
	Electronic Combat (EC)	🔴	No EW training ranges due to RF restrictions. RF restrictions limit spectrum operations and prohibit certain training events, segment training/reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. The Navy continues to coordinate with GOJ agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies.
	Anti-Air Warfare (AAW)	🔴	Restrictions on RF emissions limit the use of the Tactical Combat Training System (TCTS). Restrictions limit spectrum operations and prohibit certain training events, segment training/reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. The Navy continues to coordinate with GOJ agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies.
	Anti-Surface Warfare (ASUW)	🟡	All units operating throughout the JORC are precluded from activating SPS-49/SPS-48E radar equipment for test or operational purposes within 12 nm of land areas of Japan or Okinawa. Presently insoluble. Restrictions limit spectrum operations and prohibit certain training events, segment training/reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. The Navy continues to coordinate with GOJ agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies.
Maritime Sustainability	Strike Warfare (STW)	🟡	Maritime protective and mitigation measures undertaken in compliance with regulatory requirements have resulted in training restrictions that reduce training flexibility, force segmented training, and ultimately reduce training realism. All at-sea training is impacted to some degree; impacts are most significant to integrated warfare training using active underwater acoustic sources or in-water explosive ordnance. The Navy and National Marine Fisheries Service (NMFS) have developed science based protective and mitigation measures that adequately protect marine species while accommodating military readiness activities. The Navy continues to develop Environmental Impact Statements and obtain permits and authorizations for its range complexes to ensure military training complies with applicable laws and regulations. Litigation risks remain a concern, entailing the potential to delay or further restrict training, despite the protective and mitigation measures applied by the Navy in compliance with the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA). Endangered species/critical habitat encroachment has created avoidance areas that have resulted in some reduction of training days and prohibits certain training events. This area is relatively small in scope, however, if these types of restrictions were applied to other species/areas, there would be significant impacts to readiness through reduction in range access, segmentation of training/ reduction in realism, limits on the application of new technologies, raised flight altitudes, reduced live fire proficiency, increased personnel tempo, and increased O&M costs. Continue to invest in marine mammal research; rely on scientifically valid empirical data results as basis of marine mammal mitigation development; factor mitigation effectiveness into permit requests. Continue education of Fleet units to adhere to the maritime protective and mitigation measures and public education outreach efforts. Navy's authorizations under the MMPA and ESA include an adaptive management approach that includes continually evaluating existing mitigation measures for their potential impacts on training. If impacts on training from mitigation measures are identified and documented, Navy will raise these impacts with NMFS for resolution during an annual adaptive management review process. The Navy is currently preparing environmental compliance documentation to renew the MMPA and ESA authorizations which will consider any impacts on training stemming from existing mitigations measures and propose changes as warranted.
	Anti-Surface Warfare (ASUW)	🟡	Same as above.
	Anti-Submarine (ASW)	🟡	Same as above.
Noise Restrictions	Strike Warfare (STW)	🟡	Unable to conduct night carrier landing practice at home base. Aircraft must travel to remote location for training. Inability to conduct training at home base location reduces air-wing readiness and impacts STW and AAW mission. Noise encroachment at Atsugi prohibits certain training events, segments training/reduces realism, reduces training days, limits application of new weapons technologies, and inhibits new tactics development. The CVW-5 move to Iwakuni moves the noise encroachment at Atsugi to Iwakuni.
	Anti-Air Warfare (AAW)	🟡	Same as above.

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Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Key West Assessment Details

Range Mission Description

The Key West complexes' primary mission is to support a basic level of training for the Anti-air Warfare (AAW) mission area. It also has a secondary mission of providing AAW training at the intermediate level with a tertiary mission requirement to provide NSW training at a basic level.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Strike Warfare													
Electronic Combat													
Anti-Air Warfare	●	●	●		●	●	●		●				
Anti-Surface Warfare													
Mine Warfare													
Amphibious Warfare													
Anti-Submarine													
Naval Special Warfare													

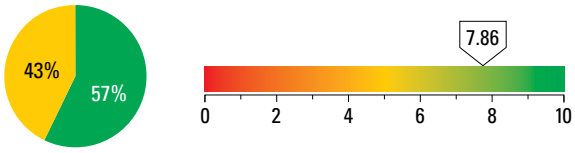
Legend: FMC ● PMC ● NMC ●

Encroachment Data

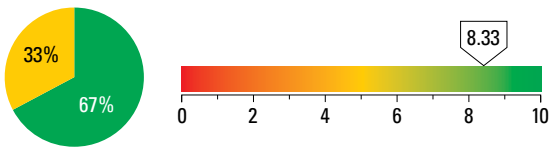
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Strike Warfare												
Electronic Combat												
Anti-Air Warfare			●		●		●	●			●	●
Anti-Surface Warfare												
Mine Warfare												
Amphibious Warfare												
Anti-Submarine												
Naval Special Warfare												

Legend: Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Capability Attribute most impacting range mission performance: Scoring & Feedback Systems
2. Mission Area most severely impacted: All
3. Projected Status: No immediate change.

Summary Observations

1. Noise Restrictions and Wetlands are the Encroachment Factors having moderate impact on training.
2. AAW is the only Mission Area with encroachments having impacts on training.
3. The Navy may have to implement actions to restore and enhance airfield clearance safety areas that have been encroached upon by wetland areas.

Key West Assessment Details

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Capability Scores	7.50	7.50	7.50

1. No change between 2008, 2009, 2010.
2. ASUW Range Mission Area deleted in 2011; assessment score increased because of that change.

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Encroachment Scores	9.86	9.55	9.09

1. Encroachment assessments for CY2008 were different than for CY2009, 2010, and 2011. The algorithm for the overall assessment score for 2009–2011 was revised from the original algorithm used in 2008 to provide greater fidelity and consistency across all range complexes. Based on an improved review process and revised algorithms, the assessments for CY2009, 2010, and 2011 provide a more accurate assessment of encroachment. The assessments for the latter three years reveal there has been little encroachment change from year to year with the exception of a small decrease in the score from CY2009 to CY2010.
2. The small change in the assessment score from CY2009 to CY2010 is based on increased encroachment from noise regarding AAW activities in the vicinity of Dry Tortugas and Fort Jefferson.
3. The ASUW Mission Area for the range complex was deleted for the 2011 assessment; the assessment dropped from 9.09 to 8.33 because the assessment for ASUW was all GREEN.
4. RCMP update is scheduled to begin in JUN 2011; the EAP for FY2014.
5. Dept. of Interior (DOI) & private energy interests in the Outer Continental Shelf (OCS) are increasing as domestic energy demand builds. Naval offshore operating areas & training events may be affected. High priority areas include training ranges & sea space in and adjacent to all Navy OPAREAs. OASN (E,I&E), as DoD spokesman for military offshore use, continues to work closely with the Fleets & DOI's Bureau of Ocean Energy Management (BOEM) to resolve issues of combined use of the OCS important to both agencies. Fleet review & analysis of impacts from both oil/gas & wind energy "lease sale" areas (Mission Critical Areas-MCAs) have been reviewed and forwarded to OSD. DoD & DOI coordination continues.

Key West Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Targets	Anti-Air Warfare (AAW)		Ranges have minimal target support. Air targets are not available unless scheduled in advance (with a long lead time). This increases personnel op-tempo and increases O&M costs. Navy recommends providing targets at the range area. No long term solution date determined. Current workaround solution: if sufficient lead time is available to schedule targets and if the required targets are available, targets may be arranged for training.
Scoring & Feedback System	Anti-Air Warfare (AAW)		Exercise Coordination & Control are not available over the entire OPAREA, especially for surface ships; Modeling & Simulation is not available; some scoring is available through TCTS; and RTKN is available by voice only. This prohibits certain training events; reduces realism; increases personnel optempo; and increases O&M costs. Recommend investing in systems to support EC&C, M&S and scoring, and debriefing. No completion date identified.
Range Support	Anti-Air Warfare (AAW)		A lack of web-based scheduling system with pre-event, real-time, and post-event modules precludes most efficient scheduling and documenting of range usage. Post-event reporting is particularly critical for ordnance expenditures or active sonar usage in at-sea OPAREAs since Marine Mammal Protection Act permits require Navy to periodically report these values. Non-compliance or inaccurately reporting post-event values to regulators risks range access or prohibitions on training events that involve active sonar or high explosives at-sea. PACFLT is developing a Data Collection and Scheduling Tool (DCAST) that includes a post-event module to mitigate issues outlined above. If successful, Navy could consider adopting it at all range scheduling facilities.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Key West Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Noise Restrictions	Anti-Air Warfare (AAW)	●	Sonic booms generated by VFA aircraft in the vicinity of the Dry Tortugas reportedly startles visitors and may affect physical deterioration of historic Fort Jefferson. Airspeed limits on Key West Complex participating aircraft prohibit certain training events, segment training, reduce realism, and inhibit new tactics development. Noise analysis to determine frequency of sonic booms, potential affects on personnel/property and minimum distance requirements to preclude future noise complaints was completed. The findings of the resulting Environmental Assessment recommended stipulating the expansion of an existing buffer zone around the Dry Tortugas by 2,000 feet, from 18,000 to 20,000 feet, to ensure natural and historic resources would not be impacted.
Wetlands	Anti-Air Warfare (AAW)	●	Wetlands vegetation encroachment obstructs air traffic controllers' lines of site with aircraft and affects radar performance. This Air traffic control obstruction could affect access to portions of the Key West range complex airspace. Navy recommends to implement actions to restore and enhance airfield clearance safety areas. No current action.

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Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Mariana Islands Assessment Details

Range Mission Description

The Mariana Islands range complex is a developing capability with the primary mission requirement to support Advanced and Intermediate training across all warfare areas. It has a tertiary requirement to support the basic level training across all warfare areas.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Strike Warfare	●	●	●	●	●	●	●		●				
Electronic Combat	●	●	●	●	●	●	●		●				
Anti-Air Warfare	●	●	●		●	●	●		●				
Anti-Surface Warfare		●	●	●	●	●	●		●				
Mine Warfare		●	●	●	●	●	●		●				
Amphibious Warfare	●	●	●		●	●	●		●				
Anti-Submarine		●	●	●	●	●	●		●				
Naval Special Warfare	●	●	●	●	●	●	●		●				

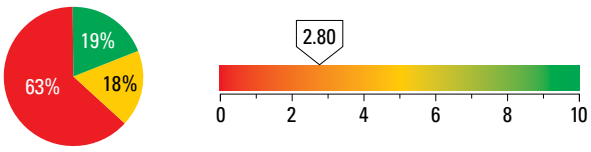
Legend: FMC ● PMC ● NMC ●

Encroachment Data

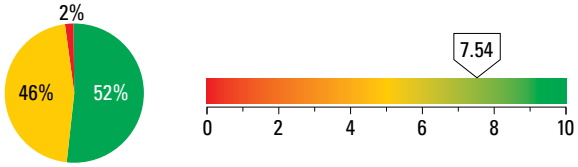
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Strike Warfare	●	●	●	●	●	●	●	●	●	●	●	●
Electronic Combat	●		●		●	●	●	●				●
Anti-Air Warfare			●		●	●	●	●				●
Anti-Surface Warfare			●	●	●				●			●
Mine Warfare			●	●	●				●	●		●
Amphibious Warfare	●		●	●	●		●	●	●		●	●
Anti-Submarine		●	●	●	●				●			●
Naval Special Warfare	●	●	●	●	●	●	●	●	●	●	●	●

Legend: Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Capability Attribute most impacting range mission performance: Targets, Threats, Scoring & Feedback Systems.
2. Mission Area most severely impacted: All
3. Projected Status: No immediate change.

NOTE on NSW Assessments: Assessments of Navy Special Warfare (NSW) training are based on actual NSW demand and use of training range capability and space. Actual Training range capability and space requirements are based on Fleet Readiness Training Plan demands for conventional warfare areas.

Summary Observations

1. T&E Species/Critical Habitat, Spectrum, and Maritime Sustainability are the Encroachment Factors with most impact on training.
2. All Mission Areas have encroachment issues that have substantial impact on training.
3. The Navy is consulting and discussing with MIRC stakeholders various issues, including encroachment, that pertain to current and future training requirements as they apply to expanded training required primarily of the move of Marine Corps forces to Guam from Okinawa. The Government of Guam is also consulting with MIRC stakeholders. The website is: *http://www.one.guam.gov/.* Additional forces will require supporting training ranges and operating areas on Guam and select islands in the CNMI. Training requirements and training ranges and operating areas are identified and assessed in the Mariana Islands Range Complex EIS and the Guam and CNMI Relocation EIS, both under development.

NOTE on NSW Assessments: Assessments of Navy Special Warfare (NSW) training are based on actual NSW demand and use of training range capability and space. Actual Training range capability and space requirements are based on Fleet Readiness Training Plan demands for conventional warfare areas.

Mariana Islands Assessment Details

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Capability Scores	2.80	2.80	2.80

In the 2010 report the range specific display incorrectly showed 3.04 as the capability score in the graphic. The actual tabulated score was 2.80.

There has been no change between 2008 thru 2011.

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Encroachment Scores	8.49	7.58	7.54

1. Encroachment assessments for CY2008 were different than for CY2009, 2010, and 2011. The algorithm for the overall assessment score for 2009–2011 was revised from the original algorithm used in 2008 to provide greater fidelity and consistency across all range complexes. Based on an improved review process and revised algorithms, the assessments for CY2009, 2010, and 2011 provide a more accurate assessment of encroachment. The assessments for the latter three years reveal there has been little encroachment change from year to year, with relatively constant overall scores for CY2009, 2010, and 2011.
2. The assessment score change from CY2009 to CY2010 is due to a change in EC for airspace of green in CY2009 to yellow in CY2010. The change is attributed to an increased encroachment pressure from commercial aviation regarding the use of chaff and flares in the vicinity of the air routes.
3. Potential growth in military training activity in the Mariana Islands will be subjected to encroachment similar to current training. As training activities spread to the various islands, indigenous encroachment will vary depending on each island's environmental and mitigation protocols. The Mariana Islands Range Complex EIS and the Guam and CNMI Relocation EIS address NEPA compliance for current and future military training in the Mariana Islands.
4. An EOD emergency open detonation area is needed on Tinian. CNMI EPA office may require permit for the detonation area.

Mariana Islands Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strike Warfare (STW)	🔴	Land area is too small, all required ordnance is not cleared for use. Size of land area detracts from all levels of training. Conduct feasibility study for establishing a high-fidelity, inert, Air to Ground range and training area with an associated Warning Area. No completion date identified.
	Electronic Combat (EC)	🔴	Land area does not meet requirements for EC training. Prevents conduct of EC training. Acquire appropriate land area to support EC assets. No completion date identified.
	Anti-Air Warfare (AAW)	🔴	No suitable land area is available under the training airspace. Prevents realistic overland detection and tracking scenarios. Establish a Warning Area over suitable land area. No completion date identified.
	Amphibious Warfare (AMW)	🔴	Minimal land area available for AMW training. Live fire not permitted; maneuver is restricted to use if roads; helicopters must land on designated airfields. Prevents conduct of AMW training. Integrate Navy AMW airspace requirements into Marine Corps amphibious feasibility study. No completion date identified.
	Naval Special Warfare	🔴	Insufficient maneuver area that supports live fire training; MOUT is too small; laser designators are not allowed. Limits NSW realistic training. Conduct study to locate land area that will support NSW training.
Airspace	Strike Warfare (STW)	🔴	Size and altitudes of airspace too small. Cannot accommodate multiple strike packages. Convert ATCAAs to Warning Areas, make air space boundaries contiguous, establish Warning Areas over suitable land areas. No completion date identified.
	Anti-Air Warfare (AAW)	🟡	No suitable land area is available under the training airspace. Prevents realistic overland detection and tracking scenarios. Negotiate with FAA to convert ATCAAs to Warning Areas and establish Warning Area over suitable land area. No completion date identified.
	Amphibious Warfare (AMW)	🔴	Minimal airspace exists over beaches that support AMW training. Prevents air support training for AMW. Integrate Navy AMW airspace requirements into Marine Corps amphibious feasibility study. No completion date identified.
	Naval Special Warfare	🟡	No special use airspace adjacent to land that supports HALO or HAHO parachute training. Prevents complete range of required parachute training. Establish SUA in required area. No completion date identified.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Mariana Islands Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Seaspace	Electronic Combat (EC)		No OPAREA exists to support EC training. Prevents EC any training. Establish an OPAREA to support EC training. No completion date identified.
	Mine Warfare (MW)		Insufficient geographic references for aerial mine laying; no designated OPAREA for mine laying. Prevents training to proper procedures for aerial mining. Designate geographic reference point and OPAREA for aerial mining. No completion date identified.
	Amphibious Warfare (AMW)		No suitable sea space supported by required beach front available. Prevents conduct of AMW training. Integrate Navy AMW sea space requirements into Marine Corps amphibious feasibility study. No completion date identified.
	Naval Special Warfare		Insufficient beachfront contiguous with sea area; coral heads prevent access to beaches from sea. NSW training is limited. Conduct study to locate area to support required training.
Underseaspace	Mine Warfare (MW)		No dedicated area for SWAG or mine avoidance training. The extreme water depth and lack of variance in sea bottom is problematic. Limits mine countermeasures training. Study feasibility of installing a mine training range with instrumented shapes, false targets, and mines for SWAG training. No completion date identified.
	Anti-Submarine (ASW)		No UTR; lack of shallow water. Prevents tracking torpedoe shots to determine hit/miss statistics. Lack of shallow water prevents Littoral training. Conduct feasibility study to install UTR. Support with Portable Underwater Tracking Range when new Multi-purpose Range Craft becomes available in estimated FY2011.
	Naval Special Warfare		Insufficient beachfront contiguous with sea area; coral heads prevent access to beaches from sea. NSW training limited. Conduct study to locate area to support required training.
Targets	Strike Warfare (STW)		There are no raked, strafe, structural, revetted, or moving targets; no urban terrain; do not support 2000 lb ordnance or cluster munitions; do not support multiple strike packages; do not have spectral signatures. Limits live fire and realistic training. Conduct feasibility study to establish high fidelity, inert, Air to Ground range and training area with associated Warning Area. No completion date identified.
	Electronic Combat (EC)		No targets are available at the Mariana Islands Range. Full range of EC training that requires target support is not available. Study feasibility of establishing target unit at the range complex. No completion date identified.
	Anti-Air Warfare (AAW)		No targets are available at the Mariana Islands Range. Full range of AAW training that requires target support is not available. Study feasibility of establishing target unit at the range complex. No completion date identified.
	Anti-Surface Warfare (ASUW)		No targets are available at the Mariana Islands Range. Full range of ASUW training that requires target support is not available. Study feasibility of establishing target unit at the range complex. No completion date identified.
	Mine Warfare (MW)		No targets available from range; users sometimes supply their own targets. Will degrade training capability for organic mine countermeasures systems (OMCM) units. Study feasibility of installing a mine range with instrumented mines, false targets, and mines for SWAG training. No completion date identified.
	Amphibious Warfare (AMW)		No targets exist for AMW training. No live fire is permitted. Prevents live fire training associated with AMW. Integrate Navy AMW target requirements into Marine Corps amphibious feasibility study. No completion date identified.
	Anti-Submarine (ASW)		No targets exist for ASW training, unless an expendable target is provided by the unit being trained. Prevents torpedo firing training associated with ASW. Study feasibility of establishing a targets division at range complex. No completion date identified.
	Naval Special Warfare		No targets exist for NSW training. MOUT facility is limited. Reduces live fire proficiency; inhibits new tactics. Study feasibility of establishing a targets division at range complex.
Threats	Strike Warfare (STW)		No OPFOR is available at the range. Full range of STW training that requires OPFOR support is not available. Study feasibility of establishing OPFOR resources at the range complex. No completion date identified.
	Electronic Combat (EC)		Same as above.
	Anti-Air Warfare (AAW)		Same as above.
	Anti-Surface Warfare (ASUW)		Same as above.
	Mine Warfare (MW)		Same as above.
	Amphibious Warfare (AMW)		Same as above.
	Anti-Submarine (ASW)		Same as above.
	Naval Special Warfare		Same as above.

Mariana Islands Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Scoring & Feedback	Strike Warfare (STW)	🔴	No instrumentation exists at the range. Full range of STW training that requires instrumentation is not available. Study feasibility of providing instrumentation to the range complex. No completion date identified.
	Electronic Combat (EC)	🔴	Same as above.
	Anti-Air Warfare (AAW)	🔴	Same as above.
	Anti-Surface Warfare (ASUW)	🔴	Same as above.
	Mine Warfare (MW)	🔴	Same as above.
	Amphibious Warfare (AMW)	🔴	Same as above.
	Anti-Submarine (ASW)	🔴	Same as above.
	Naval Special Warfare	🔴	Same as above.
Range Support	Strike Warfare (STW)	🟡	Lack of web-based scheduling system with pre-event, real-time, and post-event modules precludes most efficient scheduling and documenting of range usage. Post-event reporting is particularly critical for ordnance expenditures or active sonar usage in at-sea OPAREAs since Marine Mammal Protection Act permits require Navy to periodically report these values. Non-compliance or inaccurately reporting post-event values to regulators risks range access or prohibitions on training events that involve active sonar or high explosives at-sea. PACFLT is developing a Data Collection and Scheduling Tool (DCAST) that includes a post-event module to mitigate issues outlined above. If successful, Navy could consider adopting it at all range scheduling facilities.
	Electronic Combat (EC)	🟡	Same as above.
	Anti-Air Warfare (AAW)	🟡	Same as above.
	Anti-Surface Warfare (ASUW)	🟡	Same as above.
	Mine Warfare (MW)	🟡	Same as above.
	Amphibious Warfare (AMW)	🟡	Same as above.
	Anti-Submarine (ASW)	🟡	Same as above.
	Naval Special Warfare	🟡	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Threatened & Endangered Species/Critical Habitat	Strike Warfare (STW)	🟡	Threatened species and migratory bird habitat restricts area available for training on FDM. Creates avoidance areas, prohibits certain training events, reduces range access, segments training/reduces realism, complicates night and all-weather training, and raises flight altitudes. Comply with current regulations, attempt to negotiate a reduction in the number of restrictions throughout the complex, and designate alternate locations for STW that do not have such restrictions.
	Amphibious Warfare (AMW)	🔴	Marine Mammal Protection Act, Endangered Species Act, the EIS for Military Training in the Marianas, and the USDA Brown Tree Snake (BTS) protocol place restrictions on military training throughout the Marianas. Regulatory controls have resulted in INRMPs that place restrictions on military operations. Coral and essential fish habitat (EFH) conservation, marine mammal protection, munitions in the water, turtle nesting, and BTS protocols are some of the encroachment issues that influence training activities. Landing Craft Air Cushion (LCAC) and Amphibious Assault Vehicle (AAV) landings on the beaches in the Marianas are problematic. Amphibious landings will require compensatory coral reef mitigation efforts. Creates avoidance areas, prohibits certain training events, reduces range access, segments training/reduces realism, raises flight altitudes, complicates night and all-weather training, and raises flight altitudes. All Military Services are subject to and conform to training restrictions. The Navy should attempt to negotiate a reduction in the number of restrictions throughout the complex.
	Naval Special Warfare	🟡	Marine Mammal Protection Act, Endangered Species Act, the EIS for Military Training in the Marianas, and the USDA BTS protocol place restrictions on military training throughout the Marianas. Regulatory controls have resulted in INRMPs that place restrictions on military training. Restrictions create avoidance areas, prohibit certain training events, reduce range access, segment training/reduce realism The Navy continues to pursue regulatory relief while adhering to compliance provisions.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Mariana Islands Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Munitions Restrictions	Strike Warfare (STW)		De-vegetation and erosion on FDM caused by explosive munitions has restricted and prohibited certain munitions expenditures. FDM restrictions create avoidance areas, prohibit certain training events. FDM users are continually reminded to use only authorized munitions and to keep munitions on island. All Military Services are subject to and conform to training restrictions.
	Naval Special Warfare (NSW)		EOD permitting in the Ordnance Annex and UXO on the inactive mortar range and live coral beds on Tinian are issues that restrict EOD and training activity. Restrictions prohibit certain training events. The Navy is evaluating a RCRA designation/permit for the EOD pit in the Ordnance Annex.
Spectrum	Strike Warfare (STW)		Employment of Link 16 is restricted. Restrictions limit spectrum operations and prohibit certain training events, segment training/reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. The Navy continues to coordinate with appropriate frequency allocation and oversight agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies. Competition for frequency spectrum will add increased pressure on available bandwidth for Naval operations.
	Anti-Air Warfare (AAW)		Same as above.
	Anti-Surface Warfare (ASUW)		Employment of Link 16, SPY-1 radar, SPS 49 radar, and IFF are restricted. Restrictions limit spectrum operations and prohibit certain training events, segment training/reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. The Navy continues to coordinate with appropriate frequency allocation and oversight agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies. Competition for frequency spectrum will add increased pressure on available bandwidth for Naval operations.
	Mine Warfare (MW)		Same as above.
	Amphibious Warfare (AMW)		Same as above.
	Anti-Submarine (ASW)		Same as above.
Maritime Sustainability	Anti-Surface Warfare (ASUW)		Maritime protective and mitigation measures undertaken in compliance with regulatory requirements have resulted in training restrictions that reduce training flexibility, force segmented training, and ultimately reduce training realism. All at-sea training is impacted to some degree; impacts are most significant to integrated warfare training using active underwater acoustic sources or in-water explosive ordnance. The Navy and National Marine Fisheries Service (NMFS) have developed science based protective and mitigation measures that adequately protect marine species while accommodating military readiness activities. The Navy continues to develop Environmental Impact Statements and obtain permits and authorizations for its range complexes to ensure military training complies with applicable laws and regulations. Litigation risks remain a concern, entailing the potential to delay or further restrict training, despite the protective and mitigation measures applied by the Navy in compliance with the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA). Endangered species/critical habitat encroachment has created avoidance areas that have resulted in some reduction of training days and prohibits certain training events. This area is relatively small in scope, however, if these types of restrictions were applied to other species/areas, there would be significant impacts to readiness through reduction in range access, segmentation of training/reduction in realism, limits on the application of new technologies, raised flight altitudes, reduced live fire proficiency, increased personnel tempo, and increased O&M costs. Continue to invest in marine mammal research; rely on scientifically valid empirical data results as basis of marine mammal mitigation development; factor mitigation effectiveness into permit requests. Continue education of Fleet units to adhere to the maritime protective and mitigation measures and public education outreach efforts. Navy's authorizations under the MMPA and ESA include an adaptive management approach that includes continually evaluating existing mitigation measures for their potential impacts on training. If impacts on training from mitigation measures are identified and documented, Navy will raise these impacts with NMFS for resolution during an annual adaptive management review process. The Navy is currently preparing environmental compliance documentation to renew the MMPA and ESA authorizations which will consider any impacts on training stemming from existing mitigations measures and propose changes as warranted.
	Mine Warfare (MW)		Same as above.
	Amphibious Warfare (AMW)		Same as above.
	Anti-Submarine (ASW)		Same as above.

Mariana Islands Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Airspace	Strike Warfare (STW)	●	Marianas airspace is adequate when the ATCAAs are available; however, scheduling can be problematic as FAA is not always flexible to short notice requests. FAA in Marianas has tremendous pressure from the airlines. Warfare areas participating in combined arms training are impacted by the current lack of SUA over land areas in the Marianas. Encroachment from airspace restrictions creates avoidance areas, prohibits certain training events, reduces range access, segments training/reduces realism, inhibits new tactics development. The Navy is considering establishing Warning Areas to replace the ATCAAs. For possible range complex upgrades with live-fire ranges, there will be a requirement for additional special use airspace (SUA) over the live-fire ranges.
	Electronic Combat (EC)	●	FAA restrictions on EC/chaff operations in proximity to air routes is problematic. EC/chaff restrictions creates avoidance areas, prohibits certain training events, segments training/reduces realism, inhibits new tactics development, and limits application of new technologies. The Navy is negotiating with the FAA for relief; no pending resolution date.
	Anti-Air Warfare (AAW)	●	Marianas airspace is adequate when the ATCAAs are available; however, scheduling can be problematic as FAA is not always flexible to short notice requests. FAA in Marianas has tremendous pressure from the airlines. Warfare areas participating in combined arms training are impacted by the current lack of SUA over land areas in the Marianas. Encroachment from airspace restrictions creates avoidance areas, prohibits certain training events, reduces range access, segments training/reduces realism, inhibits new tactics development. The Navy is considering establishing Warning Areas to replace the ATCAAs. For possible range complex upgrades with live-fire ranges, there will be a requirement for additional special use airspace (SUA) over the live-fire ranges.
Noise Restrictions	Strike Warfare (STW)	●	There is a continuing concern with noise at Andersen Northwest Field due to residential areas adjoining the property. Nighttime flying activities are restricted and flight tracks are routed to avoid populated areas. Only mission essential aircraft arrivals and departures are scheduled between 2200 and 0600 hours. Noise related restrictions prohibit certain training events; complicate night training. The Air Force continues close coordination with local stakeholders to ensure military operations can proceed normally.
	Anti-Air Warfare (AAW)	●	Same as above.
Adjacent Land Use	Strike Warfare (STW)	●	There is privately owned land near the runway at Andersen Air Field Northwest falls within the clear zones for aircraft operations. Nighttime flying activities are restricted and flight tracks are routed to avoid populated areas. Only mission essential aircraft arrivals and departures are scheduled between 2200 and 0600 hours. Private owners are a source for noise complaints. Noise related restrictions prohibit certain training event and complicate night training. The Air Force continues close coordination with local stakeholders to ensure military operations can proceed normally.
	Anti-Air Warfare (AAW)	●	Same as above.
Cultural Resources	Amphibious Warfare (AMW)	●	When an LCAC lands at Chulu Beach, Tinian, it must remain on full air cushion until the entire craft is on the beach. LCAC full cushion operations on Chulu Beach are problematic as the beachfront is narrow and shallow. LCAC training restrictions create avoidance areas and prohibit certain training events. Currently insoluble. Navy should attempt to renegotiate the terms of the consultation.
	Naval Special Warfare (NSW)	●	The pervasiveness of cultural resources in the Marianas limits locations for NSW ranges and training areas where special operations forces would logically train. Restrictions create avoidance areas, prohibit certain training events, reduce range access, and segment training/reduce realism. Insoluble.
Wetlands	Amphibious Warfare (AMW)	●	There are sensitive wetlands areas in the vicinity of the Reserve Craft Beach (RCB). GovGuam has declared area a conservation area. The Navy owns the RCB, but GovGuam has restricted its use. Restrictions over wetlands reduce range access, create avoidance areas, segment training and/or reduce realism, and raise flight altitudes. The Navy should attempt to renegotiate the terms of this issue during the EIS process.
	Naval Special Warfare (NSW)	●	There are sensitive wetlands areas in the vicinity of the Reserve Craft Beach (RCB). GovGuam has declared area a conservation area. The Navy owns the RCB, but GovGuam has restricted its use. Restrictions create avoidance areas, prohibit certain training events, reduce range access, and segment training/reduce realism. The Navy may try to negotiate with GovGuam to lessen the impacts of RCB restrictions.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Mariana Islands Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Range Transients	Strike Warfare (STW)	●	Commercial and private fishing boats and dive boats frequent near-shore areas throughout the Marianas. Transient boat traffic interrupts or stops military training activity. Training interruptions reduce range access, create avoidance areas, segment training and/reduce realism, and prohibit certain training events. Navy pursues outreach to local mayors, fishermen, and tour operators to ensure better understanding of military training. The Navy is pursuing an exclusion zone around FDM for safety reasons.
	Mine Warfare (MW)	●	Commercial and private fishing boats and dive boats frequent near-shore areas throughout the Marianas. There are no enforced surface danger zones (SDZs) over the water. Transient boat traffic interrupts or stops military training activity. Transient boat activity reduces range access, creates avoidance areas, segments training and/or reduces realism, and prohibits certain training events. Active patrolling of near-shore areas may need to be implemented to avoid civilian encroachment onto hot ranges and training areas. Navy pursues outreach to local mayors, fishermen, and tour operators to ensure better understanding of military training. The Navy is pursuing an exclusion zone around FDM for safety reasons.
	Amphibious Warfare (AMW)	●	Same as above.
	Naval Special Warfare	●	Commercial and private fishing boats and dive boats frequent near-shore areas throughout the Marianas. There are no enforced surface danger zones (SDZs) over the water. Transient boat traffic interrupts or stops military training activity. Restrictions create avoidance areas, prohibit certain training events, reduce range access, segment training/reduce realism. Insoluble.

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Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Narragansett Assessment Details

Range Mission Description

The Narragansett Bay complex has a secondary mission requirement to provide ASUW training support at the basic level. It is a regional range for east coast Navy units that provides training space with off-shore warning areas but no instrumentation.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Strike Warfare													
Electronic Combat													
Anti-Air Warfare													
Anti-Surface Warfare													
Mine Warfare													
Amphibious Warfare													
Anti-Submarine		FMC	FMC	FMC	FMC	PMC	PMC		PMC				
Naval Special Warfare													

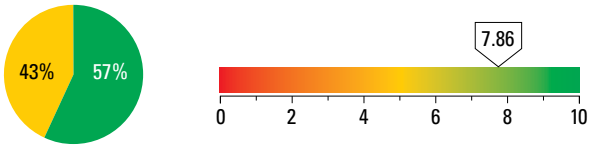
Legend: FMC, PMC, NMC

Encroachment Data

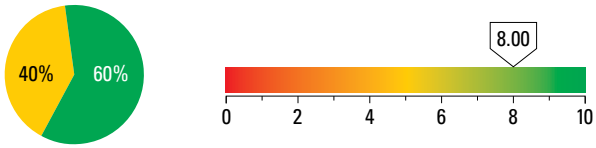
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Strike Warfare												
Electronic Combat												
Anti-Air Warfare												
Anti-Surface Warfare												
Mine Warfare												
Amphibious Warfare												
Anti-Submarine			Moderate	Moderate	Minimal				Minimal			Minimal
Naval Special Warfare												

Legend: Minimal, Moderate, Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Capability Attribute most impacting range mission performance: Scoring & Feedback System.
2. Mission Area most severely impacted: ASW
3. Projected Status: No immediate change.

Summary Observations

1. Spectrum and Maritime Sustainability are the two Encroachment Factors having the most impact on training.
2. ASW is the Mission Area most impacted my encroachment.
3. ASW forces have developed training procedures, maritime mitigation measures, and workarounds that cope with the pressures of encroachment on ASW training.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Capability Scores	7.14	7.86	7.86

1. ASW Scoring & Feedback was Red in 2008 and re-evaluated to Yellow in 2009.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Encroachment Scores	8.75	8.00	8.00

1. Spectrum and Maritime Sustainability are the two Encroachment Factors having the most impact on training.
2. ASW is the Mission Area most impacted my encroachment.
3. ASW forces have developed training procedures, maritime mitigation measures, and workarounds that cope with the pressures of encroachment on ASW training.

Narragansett Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Threats	Anti-Submarine (ASW)	●	There are limited dedicated live submarines, surface ships, or aircraft to serve in the OPFOR role. This shortfall prohibits certain training events; reduces realism; inhibits tactics; increases personnel op-tempo; increases O&M costs.Navy will invest in additional threat OPFOR. Increase availability of submarines through the Diesel Electric Submarine Initiative (DESI) and aircraft through the Contract Air Support (CAS) programs.
Scoring & Feedback Systems	Anti-Submarine (ASW)	●	There is no underwater tracking range, scoring capability, M&S, or post mission feedback. This prohibits certain training events; reduces realism; limits weapon technologies; inhibits tactics; reduces live fire proficiency; increases personnel op-tempo; increases O&M costs. Navy plans to expand and improve 2-D & 3-D coverage of the OPAREA; invest in JNTC compliant M&S; and improve debrief capabilities.
Range Support	Anti-Submarine (ASW)	●	The lack of web-based scheduling system with pre-event, real-time, and post-event modules precludes most efficient scheduling and documenting of range usage. Post-event reporting is particularly critical for ordnance expenditures or active sonar usage in at-sea OPAREAs since Marine Mammal Protection Act permits require Navy to periodically report these values.Non-compliance or inaccurately reporting post-event values to regulators risks range access or prohibitions on training events that involve active sonar or high explosives at-sea.PACFLT is developing a Data Collection and Scheduling Tool (DCAST) that includes a post-event module to mitigate issues outlined above. If successful, Navy could consider adopting it at all range scheduling facilities.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Spectrum	Anti-Submarine (ASW)	●	Employment of Link 16, SPY-1 radar, and IFF are restricted. Restrictions limit spectrum operations and prohibit certain training events, segment training/reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. The Navy continues to coordinate with appropriate frequency allocation and oversight agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies. Competition for frequency spectrum will add increased pressure on available bandwidth for Naval operations.
Maritime Sustainability	Anti-Submarine (ASW)	●	Maritime protective and mitigation measures undertaken in compliance with regulatory requirements have resulted in training restrictions that reduce training flexibility, force segmented training, and ultimately reduce training realism. All at-sea training is impacted to some degree; impacts are most significant to integrated warfare training using active underwater acoustic sources or in-water explosive ordnance. The Navy and National Marine Fisheries Service (NMFS) have developed science based protective and mitigation measures that adequately protect marine species while accommodating military readiness activities. The Navy continues to develop Environmental Impact Statements and obtain permits and authorizations for its range complexes to ensure military training complies with applicable laws and regulations. Litigation risks remain a concern, entailing the potential to delay or further restrict training, despite the protective and mitigation measures applied by the Navy in compliance with the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA).Endangered species/critical habitat encroachment from the North Atlantic right whale has created avoidance areas that have resulted in some reduction of training days and prohibits certain training events. This area is relatively small in scope, however, if these types of restrictions were applied to other species/areas, there would be significant impacts to readiness through reduction in range access, segmentation of training/reduction in realism, limits on the application of new technologies, raised flight altitudes, reduced live fire proficiency, increased personnel tempo, and increased O&M costs.The Navy will continue to invest in marine mammal research; rely on scientifically valid empirical data results as basis of marine mammal mitigation development; factor mitigation effectiveness into permit requests. Continue education of Fleet units to adhere to the maritime protective and mitigation measures and public education outreach efforts. Navy's authorizations under the MMPA and ESA include an adaptive management approach that includes continually evaluating existing mitigation measures for their potential impacts on training. If impacts on training from mitigation measures are identified and documented, Navy will raise these impacts with NMFS for resolution during an annual adaptive management review process. The Navy is currently preparing environmental compliance documentation to renew the MMPA and ESA authorizations by JAN 2014, which will consider any impacts on training stemming from existing mitigations measures and propose changes as warranted.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Navy Cherry Point Assessment Details

Range Mission Description

The Navy Cherry Point Range Complex has primary mission to provide training across all levels of training for Electronic Combat (EC), Amphibious Warfare (AMW), and Mine Warfare (MW) for the intermediate and advanced levels of training. It has a secondary mission requirement to provide Strike Warfare (STW) training at the basic and intermediate levels and a tertiary requirement at the advanced level. AAW training across all levels of training is a tertiary mission requirement for the range; as well as, ASUW training at the advanced level. It does not have a mission requirement to provide NSW training.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Strike Warfare	PMC	PMC	FMC	FMC	PMC	PMC	PMC		PMC				
Electronic Combat	FMC	FMC	FMC	FMC	PMC	PMC	FMC		PMC				
Anti-Air Warfare	PMC	FMC	FMC		FMC	PMC	PMC		PMC				
Anti-Surface Warfare		FMC	FMC	FMC	FMC	FMC	PMC		PMC				
Mine Warfare		FMC	FMC	FMC	PMC	FMC			PMC				
Amphibious Warfare	FMC	FMC	FMC	FMC	PMC	PMC	FMC		PMC				
Anti-Submarine		FMC	FMC	FMC	FMC	PMC	NMC		PMC				
Naval Special Warfare													

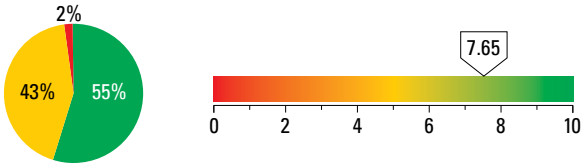
Legend: FMC, PMC, NMC

Encroachment Data

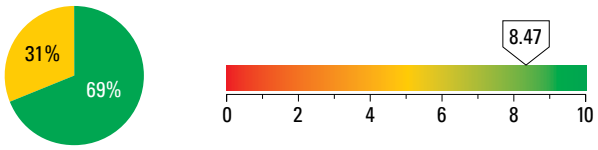
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strike Warfare		Minimal	Moderate	Minimal	Moderate		Minimal		Minimal			Minimal
Electronic Combat			Moderate		Minimal		Minimal					Minimal
Anti-Air Warfare			Moderate		Minimal		Minimal					Minimal
Anti-Surface Warfare			Moderate	Moderate	Minimal				Minimal			Moderate
Mine Warfare			Minimal	Minimal	Minimal				Minimal			Minimal
Amphibious Warfare			Moderate	Moderate	Minimal		Minimal		Minimal			Moderate
Anti-Submarine			Minimal	Minimal	Minimal				Minimal			Moderate
Naval Special Warfare												

Legend: Minimal, Moderate, Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Capability Attribute most impacting range mission performance: Scoring and Feedback Systems
2. Mission Area most severely impacted: ASW & MW
3. Projected Status: No immediate change.

Summary Observations

1. Spectrum and Maritime Sustainability are the two Encroachment Factors having the greatest impact on training.
2. ASUW and AMW are the two Mission Areas with the greatest encroachment impacts.
3. The Navy has developed procedures, maritime mitigation measures, and workarounds to accommodate encroachment impacts. The Navy continues to consult and discuss with stakeholders various strategies that can lessen encroachment impacts.

Navy Cherry Point Assessment Details

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Capability Scores	7.40	7.50	7.50

1. Airspace training requirement for STW was re-evaluated between the 2008 report and 2009. Revised impact assessment from red to yellow based on review of similar impacts at Jacksonville and VACAPES range complexes in order to achieve a consistent evaluation between ranges.
2. MW Scoring & Feedback changed from RED to WHITE based on USFF evaluation that TSPI Scoring data is not required.

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Encroachment Scores	9.29	8.33	8.33

1. Encroachment assessments for CY2008 were different than for CY2009, 2010, and 2011. The algorithm for the overall assessment score for 2009–2011 was revised from the original algorithm used in 2008 to provide greater fidelity and consistency across all range complexes. Based on an improved review process and revised algorithms, the assessments for CY2009, 2010, and 2011 provide a more accurate assessment of encroachment. The assessments for the latter three years reveal there has been little encroachment change from year to year, with relatively constant overall scores for CY2009, 2010, and 2011, except EC Spectrum prohibits use of some threat simulation equipment. ASUW & AMW maritime Sustainability re-evaluated from Red to Yellow based on affect on range capabilities.
2. RCMP update scheduled to begin in OCT 2010; EAP in FY2012.
3. Dept. of Interior (DOI) & private energy interests in the Outer Continental Shelf (OCS) are increasing as domestic energy demand builds. Naval offshore operating areas & training events may be affected. High priority areas include training ranges & sea space in and adjacent to all Navy OPAREAs. OASN (E,I&E), as DoD spokesman for military offshore use, continues to work closely with the Fleets & DOI's Bureau of Ocean Energy Management (BOEM) to resolve issues of combined use of the OCS important to both agencies. Fleet review & analysis of impacts from both oil/gas & wind energy "lease sale" areas (Mission Critical Areas-MCAs) have been reviewed and forwarded to OSD. DoD & DOI coordination continues.

Navy Cherry Point Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strike Warfare (STW)	●	There is no land in the Navy Cherry Point range. Land area in contiguous Marine Corps ranges provide some land space and contains two targets, but the land size does not meet minimum requirements. Additional land space is only available at Dare County Bombing Range. The land area does not fully support size or topography requirements for placement of required number of targets. Use of live ordnance is not supported. Area too small to support standoff PGM weapons. These shortfalls prohibit certain training events; reduces realism; reduces life fire proficiency. There are no local options for increasing land availability.
	Anti-Air Warfare (AAW)	●	Land space is only available at adjacent Marine Corps ranges and at the Dare County Bombing Range, which does not fully support size or topography requirements, or support surface combatant detection of aircraft over land. Use of flares is restricted. This prohibits certain training events; reduces realism; and increases personnel op-tempo. Overland ACM training is conducted at Fallon Range Training Complex. No additional land options are available.
Airspace	Strike Warfare (STW)	●	There is no land in the Navy Cherry Point range. Land area in contiguous Marine Corps ranges provide some land space, but the airspace configuration lacks characteristics for realistic tactical approaches and does not support the area size to meet minimum training requirements. Altitudes are limited to 17,999 ft; and the area is not cleared for supersonic operations. This reduces realism; inhibits new tactics development; reduces live fire proficiency. There are no local options for increasing land availability, but coordination and investment in new MOAs could reduce the impact on flight operations by increasing airspace area and altitudes.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Navy Cherry Point Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Targets	Strike Warfare (STW)	🟡	No targets are available in the range. Two targets are moderately supported by contiguous USMC ranges, but do not allow live ordnance. This reduces realism; prohibits certain events; increases personnel op-tempo; and increases O&M costs. Improvements are expected due to recent investment planning for targets, but additional investment in moving and urban targets located in a land area that will support STW is required.
	Electronic Combat (EC)	🟡	There is no EC support above level 2 for aircraft and no support for surface units. Contiguous USMC ranges provide some support, but lack mobile targets; lack sufficient threat emitters to cover range of threats. This prohibits certain training events; reduces realism. Navy plans to invest in upgrades to MAEWR to cover range of required threats and targets.
	Mine Warfare (MW)	🟡	There are insufficient training mines to support increased MW training requirements from MH-60 and MH-53 helicopter squadrons. This prohibits certain training events; reduces realism; inhibits tactics; increases personnel op-tempo; and increases O&M costs. Navy will procure appropriate mix of recoverable and expendable inert bottom and moored mine shapes and instrumented bottom training mines to populate a temporary mine training area for major exercises.
	Amphibious Warfare (AMW)	🟡	Portable beach obstacles are available, but are not cleared for engagement. This reduces realism for assault training, and prohibits certain training events, such as obstacle clearance.
Threats	Strike Warfare (STW)	🟡	Additional amount of live or virtual fixed winged or helicopter OPFOR required for realistic threat representation. This reduces realism; prohibits certain events. Navy plans to invest in additional Commercial Air Services to serve as OPFOR.
	Electronic Combat (EC)	🟡	EC threat representation does not fully support EC threat levels 3 or 4 for required mission areas. Existing instrumentation systems are becoming obsolete and unsupportable through the FYDP. This reduces realism; inhibits tactics development; greatly increases O&M costs. Navy plans to maintain current upgrade schedule to preclude severe degradation of system capability.
	Anti-Air Warfare (AAW)	🟡	Helicopter and supersonic threat OPFOR and required quantity of threat OPFOR is not available. This shortfall reduces realism, inhibits new tactics development; increases personnel op-tempo; and increases O&M costs. Navy plans to invest in additional Commercial Air Services to serve as OPFOR.
	Amphibious Warfare (AMW)	🟡	There is no dedicated OPFOR consisting of minefields, submarines, small high-speed boats, a battalion sized ground force, a company sized mechanized force and anti-ship cruise missiles available. This reduces realism and inhibits new tactics development. Navy will provide funding to develop a dedicated threat of live, virtual, and constructive OPFOR.
	Anti-Submarine (ASW)	🟡	There is limited dedicated live submarines, surface ships, or aircraft to serve in the OPFOR role. This prohibits certain training events; reduces realism; inhibits tactics; increases personnel optempo; and increases O&M costs. Navy plans to invest in additional threat OPFOR and increase availability of submarines through the DESI and aircraft through CAS.
Scoring & Feedback System	Strike Warfare (STW)	🟡	OPAREA lacks full TSPI and EC&C coverage; no M&S capabilities and lacks real-time kill notification. This reduces realism; prohibits certain events; increases personnel optempo; increases O&M costs. Navy plans to expand and improve 2-D & 3-D coverage of OPAREA; invest in JNTC compliant M&S; improve debrief and data collection capabilities.
	Anti-Air Warfare (AAW)	🟡	OPAREA coverage is not complete; Modeling & Simulation is inadequate; no RTKN. Existing instrumentation systems are not supportable through the FYDP. This reduces realism; inhibits tactics; increases personnel optempo, increases O&M costs. Plan to expand and improve 2-D & 3-D coverage of the OPAREA; invest in JNTC compliant M&S; improve debrief capabilities. Maintain TACTS with TCTS replacement schedule to preclude severe degradation of system capability.
	Anti-Surface Warfare (ASUW)	🟡	Range lacks full TSPI coverage, there is no M&S capabilities, and it lacks automatic scoring. This reduces realism; inhibits tactics; increases personnel optempo,and increases O&M costs. Plan to expand and improve 2-D & 3-D coverage of the OPAREA; invest in JNTC compliant M&S; improve debrief capabilities.
	Anti-Submarine (ASW)	🔴	There is no underwater tracking range, scoring capability, M&S, or post mission feedback. This prohibits certain training events; reduces realism; limits weapon technologies; inhibits tactics; reduces live fire proficiency; increases personnel optempo; and increases O&M costs. Plan to develop and fund east coast USWTR, expand and improve 2-D & 3-D coverage of the OPAREA; invest in JNTC compliant M&S; and improve debrief capabilities.

Navy Cherry Point Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Range Support	Strike Warfare (STW)	●	The lack of web-based scheduling system with pre-event, real-time, and post-event modules precludes most efficient scheduling and documenting of range usage. Post-event reporting is particularly critical for ordnance expenditures or active sonar usage in at-sea OPAREAs since Marine Mammal Protection Act permits require Navy to periodically report these values. Non-compliance or inaccurately reporting post-event values to regulators risks range access or prohibitions on training events that involve active sonar or high explosives at-sea. PACFLT is developing a Data Collection and Scheduling Tool (DCAST) that includes a post-event module to mitigate issues outlined above. If successful, Navy could consider adopting it at all range scheduling facilities.
	Electronic Combat (EC)	●	Same as above.
	Anti-Air Warfare (AAW)	●	Same as above.
	Anti-Surface Warfare (ASUW)	●	Same as above.
	Mine Warfare (MW)	●	Same as above.
	Amphibious Warfare (AMW)	●	Same as above.
	Anti-Submarine (ASW)	●	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Spectrum	Strike Warfare (STW)	●	Employment of Link 16, SPY-1 radar, SPS 49 radar, and IFF are restricted. Restrictions limit spectrum operations and prohibit certain training events, segment training/reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. The Navy continues to coordinate with appropriate frequency allocation and oversight agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies. Competition for frequency spectrum will add increased pressure on available bandwidth for Naval operations.
	Electronic Combat (EC)	●	Restrictions resulting from electromagnetic spectrum encroachment include prohibitions from performing GPS jamming, authorization to radiate the Spoon Rest VHF early warning threat radar system and restricted use of the ITWSS (Track While Scan Simulator). Employment of Link 16, SPY-1 radar, SPS 49 radar, and IFF are restricted. Restrictions limit spectrum operations and prohibit certain training events, segment training/reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. The Navy continues to coordinate with appropriate frequency allocation and oversight agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies. Competition for frequency spectrum will add increased pressure on available bandwidth for Naval operations.
	Anti-Air Warfare (AAW)	●	Employment of Link 16, SPY-1 radar, SPS 49 radar, and IFF are restricted. Restrictions limit spectrum operations and prohibit certain training events, segment training/reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. The Navy continues to coordinate with appropriate frequency allocation and oversight agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies. Competition for frequency spectrum will add increased pressure on available bandwidth for Naval operations.
	Anti-Surface Warfare (ASUW)	●	Same as above.
	Amphibious Warfare (AMW)	●	Same as above.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Navy Cherry Point Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Maritime Sustainability	Anti-Surface Warfare (ASUW)		Maritime protective and mitigation measures undertaken in compliance with regulatory requirements have resulted in training restrictions that reduce training flexibility, force segmented training, and ultimately reduce training realism. All at-sea training is impacted to some degree; impacts are most significant to integrated warfare training using active underwater acoustic sources or in-water explosive ordnance. The Navy and National Marine Fisheries Service (NMFS) have developed science based protective and mitigation measures that adequately protect marine species while accommodating military readiness activities. The Navy continues to develop Environmental Impact Statements and obtain permits and authorizations for its range complexes to ensure military training complies with applicable laws and regulations. Litigation risks remain a concern, entailing the potential to delay or further restrict training, despite the protective and mitigation measures applied by the Navy in compliance with the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA). Endangered species/critical habitat encroachment from the North Atlantic right whale has created avoidance areas that have resulted in some reduction of training days and prohibits certain training events. This area is relatively small in scope, however, if these types of restrictions were applied to other species/areas, there would be significant impacts to readiness through reduction in range access, segmentation of training/reduction in realism, limits on the application of new technologies, raised flight altitudes, reduced live fire proficiency, increased personnel tempo, and increased O&M costs. Navy will continue to invest in marine mammal research; rely on scientifically valid empirical data results as basis of marine mammal mitigation development; factor mitigation effectiveness into permit requests. Continue education of Fleet units to adhere to the maritime protective and mitigation measures and public education outreach efforts. Navy's authorizations under the MMPA and ESA include an adaptive management approach that includes continually evaluating existing mitigation measures for their potential impacts on training. If impacts on training from mitigation measures are identified and documented, Navy will raise these impacts with NMFS for resolution during an annual adaptive management review process. The Navy is currently preparing environmental compliance documentation to renew the MMPA and ESA authorizations by JAN 2014, which will consider any impacts on training stemming from existing mitigations measures and propose changes as warranted.
	Amphibious Warfare (AMW)		Same as above.
Airspace	Strike Warfare (STW)		FACSFAC and FAA communications and flight procedures in controlled airspace between W-122 and R-5306A/C/D/E (the Navy Cherry Point Range Complex to BT-9, BT-11 and G-10 impact areas) interrupt the flow of tactical flight operations from W-122 to the R-5306 airspace. Airspace restrictions encroachment segments training/reduces realism. FACSFAC VACAPES, MCAS CP, MCB CL continue to coordinate with each other and the FAA Washington Center to refine airspace procedures and alleviate airspace flight restrictions that provide better tactical aircraft movement from W-122 to the R-5306.
Range Transients	Anti-Surface Warfare (ASUW)		Range transients, involving commercial shipping, commercial fishing, and private pleasure boating encroach on training, either by delaying events or forcing relocation to less than optimum locations. Commercial vessel and recreational vessel encroachment creates avoidance areas and segments training/reduces realism. The Navy will continue to pursue opportunities to inform industry and the public of the impact of range transient encroachment on At Sea OPAREAS and Navy readiness.
	Amphibious Warfare (AMW)		Same as above.
	Anti-Submarine (ASW)		Same as above.

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Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Northern California (NOCAL) Assessment Details

Range Mission Description

The NOCAL complex primary mission is to support Navy training in Strike Warfare (STW) at the basic level and Naval Special Warfare (NSW) at the intermediate level of training. It has a tertiary mission of supporting Anti-surface Warfare Training (ASUW) at the basic level.

Capability Data

Mission Areas	Capability Attributes												
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Strike Warfare	FMC	FMC	FMC	FMC	FMC	PMC	NMC		PMC				
Electronic Combat													
Anti-Air Warfare	FMC	PMC	FMC		FMC	PMC	PMC		PMC				
Anti-Surface Warfare		FMC	FMC	FMC	FMC	FMC	FMC		PMC				
Mine Warfare													
Amphibious Warfare													
Anti-Submarine													
Naval Special Warfare	FMC	FMC	FMC	FMC	FMC	FMC	FMC		PMC				

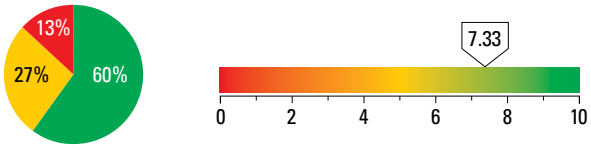
Legend: FMC PMC NMC

Encroachment Data

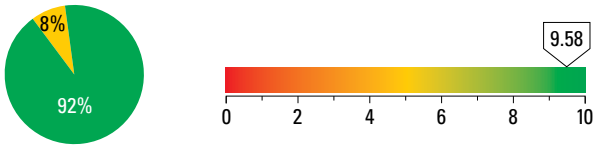
Mission Areas	Encroachment Factors												
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strike Warfare			Minimal	Minimal	Minimal	Minimal	Minimal		Minimal			Moderate
Electronic Combat												
Anti-Air Warfare			Minimal		Minimal	Minimal	Minimal					Moderate
Anti-Surface Warfare			Minimal	Minimal	Minimal				Minimal			Minimal
Mine Warfare												
Amphibious Warfare												
Anti-Submarine												
Naval Special Warfare			Minimal	Minimal	Minimal	Minimal	Minimal		Minimal			Minimal

Legend: Minimal Moderate Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Capability Attribute most impacting range mission performance: Targets and Scoring and Feedback systems.
2. Mission Area most severely impacted: STW
3. Projected Status: No immediate change.

Summary Observations

1. Range Transients is the encroachment factor with the greatest impact on training.
2. STW and AAW are the mission areas most affected.
3. The Navy may seek to enlarge the MOAs and create transit corridors for civil aircraft that are below the training altitudes for military aircraft.

Northern California (NOCAL) Assessment Details

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Capability Scores	7.33	7.33	7.33

1. The capability assessment has been stable from year to year, with relatively constant overall scores for CY 2010 and 2011.

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Encroachment Scores	9.58	9.58	9.58

1. Encroachment assessments for CY2008 were different than for CY2009, 2010, and 2011. The algorithm for the overall assessment score for 2009–2011 was revised from the original algorithm used in 2008 to provide greater fidelity and consistency across all range complexes. Based on an improved review process and revised algorithms, the assessments for CY2009, 2010, and 2011 provide a more accurate assessment of encroachment. The assessments for the latter three years reveal there has been little encroachment change from year to year, with relatively constant overall scores for CY2009, 2010, and 2011.
2. There is little indication encroachment pressures will change in the foreseeable future.

Northern California (NOCAL) Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strike Warfare (STW)	🔴	There is no Navy owned land-space. Army Fort Hunter Liggett provides support for limited helicopter training, but their support for FRS and Fleet F/A-18 squadrons strike training capability is severely limited. These units must rely on out-of-area training to fulfill basic level requirements. This prohibits training events; complicates night and all-weather training; reduces realism; limits tactics; reduces live fire proficiency; increases personnel optempo; increases O&M costs. Navy recommends to develop an instrumented air-to-ground range in NOCAL Training Area; Investigate other feasible range areas. No completion date identified.
Airspace	Strike Warfare (STW)	🔴	Same as above.
	Anti-Air Warfare (AAW)	🟡	Airspace range distance is too far from Lemoore, ocean water temperature too cold (safety issue), supersonic flight restricted to greater than 30nm from land and above 30K Ft. This increases travel time to the training area; inhibits employment of tactics; and decreases realism. navy will work with FAA to reduce limitations on SUA. No completion date identified.
Targets	Strike Warfare (STW)	🔴	Only one target site exists and there are no DMPIs or raked targets. This prohibits certain training; reduces realism; limits application of new technologies; inhibits some tactics; reduces live fire proficiency; increases personnel optempo; and increases O&M costs. Recommend to Investigate other feasible range areas. No completion date identified.
Threats	Strike Warfare (STW)	🟡	There is no Helicopter OPFOR available; Commercial OPFOR is extremely limited; there is no supersonic OPFOR; and EC OPFOR extremely limited. These shortfalls reduce realism; inhibits tactics; increase personnel op-tempo; and increase O&M costs. Navy recommends to Increase funding for commercial OPFOR and to provide for additional target vessel services to support air and EC OPFOR. No completion date identified.
	Anti-Air Warfare (AAW)	🟡	Same as above.
Scoring and Feedback System	Strike Warfare (STW)	🔴	There is no TSPI coverage of NOCAL MOAs; no M&S capability; no scoring system; and no debriefing capability. These shortfalls increase O&M costs, personnel optempo; reduce realism, and inhibit tactics. The fielding of TCTS will provide the needed upgrade. Navy needs to invest in JNTC compliant M&S.; Investigate other feasible range areas; and be proactive with public stakeholders to regain use of training areas. No completion date identified.
	Anti-Air Warfare (AAW)	🟡	Same as above.
Range Support	Strike Warfare (STW)	🟡	The lack of web-based scheduling system with pre-event, real-time, and post-event modules precludes most efficient scheduling and documenting of range usage. Post-event reporting is particularly critical for ordnance expenditures or active sonar usage in at-sea OPAREAs since Marine Mammal Protection Act permits require Navy to periodically report these values.Non-compliance or inaccurately reporting post-event values to regulators risks range access or prohibitions on training events that involve active sonar or high explosives at-sea. PACFLT is developing a Data Collection and Scheduling Tool (DCAST) that includes a post-event module to mitigate issues outlined above. If successful, Navy could consider adopting it at all range scheduling facilities.
	Anti-Air Warfare (AAW)	🟡	Same as above.
	Anti-Surface Warfare (ASUW)	🟡	Same as above.
	Naval Special Warfare	🟡	Same as above.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Northern California (NOCAL) Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Range Transients	Strike Warfare (STW)		Civil aircraft fly through the Hunter, Roberts, and Foothills MOAs when the MOAs are activated. Military aircrews must be vigilant to see and avoid small civil aircraft. This encroachment requires aircrews to direct their attention away from the mission at-hand to avoid collisions or near misses with civil aircraft. Restrictions prohibit certain training events, segment training/reduce realism, and inhibit new tactics development. The Navy may seek to enlarge the MOAs and create transit corridors for civil aircraft that are below the training altitudes for military aircraft.
	Anti-Air Warfare (AAW)		Same as above.

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Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Northwest Training Range Complex Assessment Details

Range Mission Description

The Northwest Training Range Complex offers varied littoral water conditions, bottom types, and depths with air and underwater tracking with a primary mission to support Anti-submarine Warfare (ASW), Mine Warfare (MW), Electronic Warfare (EW), and Anti-surface Warfare (ASUW). It also has a secondary and tertiary mission requirement to provide training capability at the intermediate level for these same mission areas. In ASW, the Complex has a secondary mission requirement to provide training support at the advanced level

Capability Data

Mission Areas	Capability Attributes												
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Strike Warfare	PMC	PMC	FMC	FMC	FMC	PMC	PMC		PMC				
Electronic Combat	FMC	FMC	PMC	FMC	PMC	PMC	PMC		PMC				
Anti-Air Warfare	FMC	FMC	FMC		PMC	PMC	PMC		PMC				
Anti-Surface Warfare		FMC	FMC	FMC	PMC	PMC	FMC		PMC				
Mine Warfare		FMC	FMC	FMC	FMC	FMC	FMC		PMC				
Amphibious Warfare													
Anti-Submarine		FMC	FMC	FMC	FMC	FMC	FMC		PMC				
Naval Special Warfare	PMC	FMC	FMC	PMC	PMC	FMC	FMC		PMC				

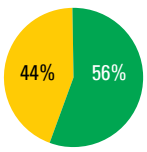
Legend: FMC, PMC, NMC

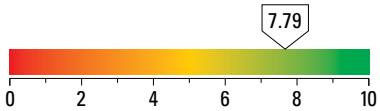
Encroachment Data

Mission Areas	Encroachment Factors											
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strike Warfare	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Electronic Combat			Moderate	Moderate	Moderate	Minimal	Minimal	Minimal				Minimal
Anti-Air Warfare			Minimal		Severe	Minimal	Minimal	Severe				Minimal
Anti-Surface Warfare			Minimal	Moderate	Minimal				Minimal			Minimal
Mine Warfare			Minimal	Moderate	Minimal				Minimal			Minimal
Amphibious Warfare												
Anti-Submarine			Minimal	Moderate	Minimal			Moderate	Minimal			Moderate
Naval Special Warfare	Minimal	Minimal	Minimal	Moderate	Minimal	Minimal	Minimal	Moderate	Minimal	Minimal	Minimal	Moderate

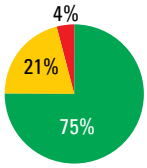
Legend: Minimal, Moderate, Severe

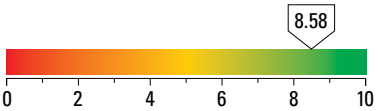
Capability Chart and Scores





Encroachment Chart and Scores





Summary Observations

1. Capability Attribute most impacting range mission performance: Scoring & Feedback Systems
2. Mission Area most severely impacted: STW
3. Projected Status: No immediate change.

NOTE on NSW Assessments: Assessments of Navy Special Warfare (NSW) training are based on actual NSW demand and use of training range capability and space. Actual Training range capability and space requirements are based on Fleet Readiness Training Plan demands for conventional warfare areas.

Summary Observations

1. Maritime Sustainability is the encroachment factor with the most impact on training. Additionally wind energy projects inside of Restricted Airspace will eliminate low altitude training capability.
2. AAW is the mission area most affected by encroachment.
3. The Navy has implemented training procedures, mitigation measures, and workarounds to accommodate encroachment. Navy efforts to mitigate encroachment are a continuing effort.

NOTE on NSW Assessments: Assessments of Navy Special Warfare (NSW) training are based on actual NSW demand and use of training range capability and space. Actual Training range capability and space requirements are based on Fleet Readiness Training Plan demands for conventional warfare areas.

Northwest Training Range Complex Assessment Details

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Capability Scores	7.98	7.88	7.88

1. ASUW threats were Green in 2008 and re-evaluated to Yellow in 2009 and beyond based on review of range capability and impacts with PACFLT.
2. EC Threats were Green in 2009; re-evaluated to Yellow in 2010 due to introduction of EA-18G within the range complex area. Mobile EW equipment has been requested to provide required EC threats.

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Encroachment Scores	9.40	9.04	9.04

1. Encroachment assessments for CY2008 were different than for CY2009, 2010, and 2011. The algorithm for the overall assessment score for 2009–2011 was revised from the original algorithm used in 2008 to provide greater fidelity and consistency across all range complexes. Based on an improved review process and revised algorithms, the assessments for CY2009, 2010, and 2011 provide a more accurate assessment of encroachment. The assessments for the latter three years reveal there has been little encroachment change from year to year, with relatively constant overall scores for CY2009, 2010, and 2011.
2. Encroachment, specifically wind farm development, is emerging as an increasing challenge to unit level training at NWSTF Boardman. There is little indication encroachment pressures will change in the foreseeable future.

Northwest Training Range Complex Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strike Warfare (STW)	●	Size does not meet requirements; live ordnance not allowed; use of inert ordnance at Basic and Intermediate level is authorized. This inhibits tactics development; limits application of new weapon technologies; increases personnel op-tempo; and increases O&M costs. Navy plans to redevelop bombing range area; establish second target complex per range required capabilities document. No completion date identified.
	Naval Special Warfare (NSW)	●	Limited maneuver area; no live fire area; no MOUT. This shortfall inhibits tactics development; limits application of new weapon technologies; increases personnel op-tempo; increases O&M costs. Navy plans to pursue development of live fire small arms training capabilities near Puget Sound.
Airspace	Strike Warfare (STW)	●	Size and altitudes do not meet requirements; supersonic operations are not allowed over land. This Inhibits tactics development; limits application of new weapon technologies; increases personnel op-tempo; increases O&M costs. Navy plans to coordinate larger areas and higher altitudes to meet requirements. No completion date identified.
Seaspace	Electronic Combat (EC)	●	Land area where EC emitter is located can not support seaspace EC. This inhibits tactics development; limits application of new weapon technologies; increases personnel op-tempo; increases O&M costs. Navy development of a mobile EW range for Okanogan, Roosevelt and Olympic MOAS is in conceptual planning.
Underseaspace	Naval Special Warfare (NSW)	●	Net Explosive Weight (NEW) is limited by local policy to no more than 2.5 lbs NEW due to potential Marine Mammal Protection Act & Endangered Species Act concerns while the range is sited for 20 lbs NEW. This restriction inhibits tactics development; limits application of new weapon technologies; increases personnel op-tempo; and increases O&M costs. Environmental studies to determine impact of explosive operations in Crescent Harbor are under way.
Targets	Electronic Combat (EC)	●	Limited threat representative fixed and mobile targets are available. This shortfall inhibits tactics development; limits application of new weapon technologies; increases personnel op-tempo; increases O&M costs. Acquisition of re-locatable EC threat emitters is under way. Acquisition of "Smart targets" (visually representative of threats) needs to be initiated. No completion date identified.
	Anti-Air Warfare (AAW)	●	There is no towed target or subscale target capability in the range complex. This reduces live fire proficiency; limits application of new weapon technologies; increases personnel op-tempo; and increases O&M costs. Navy plans to invest in commercial air services with target towing and other target capabilities. No completion date identified.
	Anti-Surface Warfare (ASUW)	●	There are no targets available or targets provided by range users. This reduces realism; inhibits tactics; limits application of new weapon technologies; reduces live fire proficiency; increases personnel op-tempo; and increases O&M costs. Navy plans to invest in required self propelled, towed, programmed or remote controlled targets. No completion date identified.
	Naval Special Warfare (NSW)	●	There are no local live firing area with realistic targets. This nhibits tactics development; limits application of new weapon technologies; increases personnel op-tempo; and increases O&M costs. Navy will pursue development of live fire capabilities near Puget Sound.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Northwest Training Range Complex Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Threats	Strike Warfare (STW)	●	The full required EC threat level does not exist at bombing range. There is no live or virtual rotary or fixed wing threat exists at the bombing range. The acquisition of re-locatable EC threat simulators has been initiated. Navy will coordinate with other range users (USAF, Oregon Air or Army Guard) to provide threat support or use Contract Air Service. No completion date identified.
	Electronic Combat (EC)	●	Realistic OPFOR responses are not available; EC threats are not available above level 2. This reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel OPTEMPO; and increases O&M costs. Navy plans to invest in enhanced EC threat capabilities. No Completion date identified.
	Anti-Air Warfare (AAW)	●	There is no dedicated OPFOR. This reduces realism; inhibits tactics development; increases personnel op-tempo; increases O&M costs. Navy plans to invest in commercial air services equipped with required threat augmentation. No completion date identified.
	Anti-Surface Warfare (ASUW)	●	There is no dedicated OPFOR. This reduces realism; inhibits tactics development; increases personnel op-tempo; and increases O&M costs. Navy plans to investigate potential to use range craft for OPFOR presentation. No completion date identified.
Scoring & Feedback System	Strike Warfare (STW)	●	Range lacks instrumentation; no real-time or debrief capability. This increases personnel op-tempo; reduces realism; increases O&M costs; and inhibits tactics development. Navy plans to invest in instrumentation that will meet requirements for an instrumented range. No completion date identified.
	Electronic Combat (EC)	●	Same as above.
	Anti-Air Warfare (AAW)	●	Same as above.
Range Support	Strike Warfare (STW)	●	The lack of web-based scheduling system with pre-event, real-time, and post-event modules precludes most efficient scheduling and documenting of range usage. Post-event reporting is particularly critical for ordnance expenditures or active sonar usage in at-sea OPAREAs since Marine Mammal Protection Act permits require Navy to periodically report these values.Non-compliance or inaccurately reporting post-event values to regulators risks range access or prohibitions on training events that involve active sonar or high explosives at-sea. PACFLT is developing a Data Collection and Scheduling Tool (DCAST) that includes a post-event module to mitigate issues outlined above. If successful, Navy could consider adopting it at all range scheduling facilities.
	Electronic Combat (EC)	●	Same as above.
	Anti-Air Warfare (AAW)	●	Same as above.
	Anti-Surface Warfare (ASUW)	●	Same as above.
	Mine Warfare (MW)	●	Same as above.
	Anti-Submarine (ASW)	●	Same as above.
	Naval Special Warfare (NSW)	●	Same as above.

Northwest Training Range Complex Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Spectrum	Electronic Combat (EC)	🟡	Jamming is severely restricted east of the Cascade Mountains due to satellite communications stations, etc. Jamming is restricted off-shore in that aircraft must face out to sea, not shoreward, due to Seattle urbanized area and interference with FAA Radars.Additional jamming target sets have developed in current combat theaters that can not be jammed for training in inhabited areas. Restrictions from the JRFL and the FAA create avoidance areas, prohibit certain training events, segment training/ reduce realism, limit application of new weapons technologies, and inhibit new tactics development. Aircrews travel to NAS Fallon to complete EC training requirements. Restrictions on Surface Combatant radar (SPS-49) limit its use within 100 NM of land. Workarounds currently permit completion of training. A study is in progress for possible mobile EW range for Okanogan and Roosevelt MOAs.
Maritime Sustainability	Electronic Combat (EC)	🟡	Maritime protective and mitigation measures undertaken in compliance with regulatory requirements have resulted in training restrictions that reduce training flexibility, force segmented training, and ultimately reduce training realism. All at-sea training is impacted to some degree; impacts are most significant to integrated warfare training using active underwater acoustic sources or in-water explosive ordnance. The Navy and National Marine Fisheries Service (NMFS) have developed science based protective and mitigation measures that adequately protect marine species while accommodating military readiness activities. The Navy continues to develop Environmental Impact Statements and obtain permits and authorizations for its range complexes to ensure military training complies with applicable laws and regulations. Litigation risks remain a concern, entailing the potential to delay or further restrict training, despite the protective and mitigation measures applied by the Navy in compliance with the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA). Endangered species/critical habitat encroachment has created avoidance areas that have resulted in some reduction of training days and prohibits certain training events. This area is relatively small in scope, however, if these types of restrictions were applied to other species/areas, there would be significant impacts to readiness through reduction in range access, segmentation of training/reduction in realism, limits on the application of new technologies, raised flight altitudes, reduced live fire proficiency, increased personnel tempo, and increased O&M costs. Navy will continue to invest in marine mammal research; rely on scientifically valid empirical data results as basis of marine mammal mitigation development; factor mitigation effectiveness into permit requests. Continue education of Fleet units to adhere to the maritime protective and mitigation measures and public education outreach efforts. Navy's authorizations under the MMPA and ESA include an adaptive management approach that includes continually evaluating existing mitigation measures for their potential impacts on training. If impacts on training from mitigation measures are identified and documented, Navy will raise these impacts with NMFS for resolution during an annual adaptive management review process. The Navy is currently preparing environmental compliance documentation to renew the MMPA and ESA authorizations which will consider any impacts on training stemming from existing mitigations measures and propose changes as warranted.
	Anti-Surface Warfare (ASUW)	🟡	Same as above.
	Mine Warfare (MW)	🟡	Same as above.
	Anti-Submarine (ASW)	🟡	Same as above.
	Naval Special Warfare (NSW)	🟡	Same as above.
Airspace	Electronic Combat (EC)	🟡	VQ Aircrews based at NAS Whidbey Island train in Electronic Reconnaissance in Darrington Op-area. They routinely experience difficulty getting clearance from Seattle ARTCC (FAA) to climb above FL 250. The aircraft are routinely vectored around by Seattle ARTCC causing delays, wasting airborne training time. These restrictions result in reduced range access. Navy is developing a mobile EW training emitter system to work in the Military Operation Areas such as Okanogan, Roosevelt and Olympic MOAS.
	Anti-Air Warfare (AAW)	🔴	Wind Energy projects in Restricted Airspace coupled with an FAA determination of no hazard to aviation has potential of eliminating low altitude tactical training in NWSTF Boardman. The presence of 450 foot tall towers with blade width of 256 feet inside Restricted Airspace would eliminate current capability of flying at 100 feet for low altitude tactical training. A determination of no hazard to aviation will encourage construction inside Restricted Airspace. Wind energy projects can reduce access to SUA, prohibit certain training events, segment training/reduce realism, and raise flight altitudes. Recommend addressing this issue with the FAA for reversal of this determination or purchase aviation easements from land owners or accept loss of training capability on an existing range.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Northwest Training Range Complex Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Adjacent Land Use	Anti-Air Warfare (AAW)		Wind Energy projects in Restricted Airspace coupled with an FAA determination of no hazard to aviation has potential of eliminating low altitude tactical training in NWSTF Boardman. The presence of 450 foot tall towers with blade width of 256 feet inside Restricted Airspace would eliminate current capability of flying at 100 feet for low altitude tactical training. A determination of no hazard to aviation will encourage construction inside Restricted Airspace. Wind energy projects can reduce access to SUA, prohibit certain training events, segment training/reduce realism, and raise flight altitudes. Recommend addressing this issue with the FAA for reversal of this determination or purchase aviation easements from land owners or accept loss of training capability on an existing range.
	Anti-Submarine (ASW)		Instruments to monitor seismic activity on the floor of the ocean have been deployed by civilian scientists, in the northwestern portion of the PACNORWEST OPAREA; U.S. Navy submarine crews are directed to remain clear of this area as a result. The exact size and location of this area is classified. Restrictions on training in the vicinity of seismic instruments create avoidance areas, prohibit certain training events, and segment training/reduce realism. No solution to issue.
	Naval Special Warfare (NSW)		EOD training in Crescent Harbor and Indian Island areas suffer occasional presence of recreational and small commercial fishing boats and SCUBA diving as the underwater detonation training areas are not restricted areas. Transient activity creates avoidance areas, prohibits certain training events, segments training, and reduces realism. NAS Whidbey Island will pursue establishing a restricted area within Crescent Harbor to restrict access to the underwater detonation range during training operations. Establishing and enforcing restricted surface areas around the underwater detonation training ranges should improve this situation. This will be initiated after signing of the ROD for the NWTRC EIS.
Range Transients	Anti-Submarine (ASW)		Commercial and private shrimp fishing boats congregate in Dabob Bay for several weeks in late April to mid June. Additionally, range transients fishing for clams & shrimp traverse across NUWC RDT&E ranges without contacting NUWC Operations, thereby interfering with ongoing events. Commercial vessel and recreational vessel encroachment creates avoidance areas, segments training and reduces realism. The Navy will continue to pursue opportunities to inform industry and the public of the impact of range transient encroachment on At Sea OPAREAS and Navy readiness.
	Naval Special Warfare (NSW)		Commercial and private shrimp fishing boats congregate in Dabob Bay for several weeks in late April to mid June. Additionally, range transients fishing for clams & shrimp traverse across NUWC RDT&E ranges without contacting NUWC Operations, thereby interfering with ongoing events. Civilian fishing boats occasionally inhibit EODMU-11 underwater detonation training in Crescent Harbor.Transient fishing activities also create avoidance areas, prohibit certain training events, and segment training/ reduce realism. The Navy continues to work with law enforcement agencies to enforce the Dabob Bay Restricted area during RDT&E and occasional NSW training activities. NAS Whidbey Island is pursuing a surface/subsurface restricted area designation in Crescent Harbor to deter range transients.

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Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Okinawa Assessment Details

Range Mission Description

The Okinawa range complex has mission requirements to provide training at all levels with a primary requirement for AMW at the advanced level, primary roles for ASW, AMW, ASUW, AAW, and STW at the intermediate training level, and STW and EC at the basic level. Its also has a secondary mission requirement spread across all levels of training and all warfare areas. It does not have a requirement for providing NSW training.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Strike Warfare	PMC	FMC	FMC		PMC	NMC	NMC		PMC				
Electronic Combat	NMC	FMC	FMC		NMC	NMC	NMC		PMC				
Anti-Air Warfare	PMC	PMC	FMC		PMC	NMC	NMC		PMC				
Anti-Surface Warfare		FMC	FMC	FMC	FMC	PMC	PMC		PMC				
Mine Warfare		FMC	PMC	PMC	PMC	PMC	PMC		PMC				
Amphibious Warfare	NMC	PMC	PMC	PMC	PMC	PMC	PMC		PMC				
Anti-Submarine		PMC	PMC	PMC	PMC	PMC	PMC		PMC				
Naval Special Warfare													

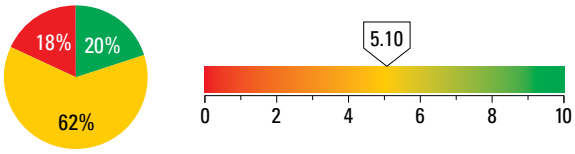
Legend: FMC, PMC, NMC

Encroachment Data

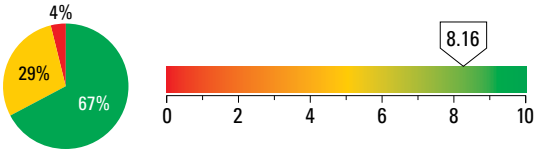
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Strike Warfare	Minimal	Minimal	Moderate	Minimal	Moderate	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Electronic Combat	Minimal		Severe		Minimal	Minimal	Minimal	Minimal				Minimal
Anti-Air Warfare			Severe		Moderate	Minimal	Minimal	Minimal				Minimal
Anti-Surface Warfare			Moderate	Moderate	Moderate				Minimal			Moderate
Mine Warfare			Minimal	Moderate	Minimal				Minimal			Moderate
Amphibious Warfare	Moderate		Minimal	Moderate	Minimal		Minimal	Minimal	Minimal		Minimal	Moderate
Anti-Submarine			Minimal	Moderate	Minimal				Minimal			Moderate
Naval Special Warfare												

Legend: Minimal, Moderate, Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Capability Attribute most impacting range mission performance: Landspace, Targets, Threats, and Scoring & Feedback Systems
2. Mission Area most severely impacted: STW, EC, AAW
3. Projected Status: No immediate change.

Summary Observations

1. Spectrum is the encroachment factor with greatest impact on training.
2. EC and AAW are the two mission areas with greatest encroachment from Spectrum.
3. The Navy continues to coordinate with GOJ agencies to seek encroachment relief and to develop strategies that will reduce encroachment while ensuring quality training operations.

Okinawa Assessment Details

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	4.90	5.00	5.10	**Encroachment Scores**	9.23	8.16	8.16
1. ASW in 2008 Tracking & Scoring was Red re-evaluated to Yellow in 2009 and forward based on the availability of the Portable Underwater Tracking System (PUTR) which provides a partial capability for ASW training. 2. STW in 2009 Targets were Red (no targets), re-evaluated to Yellow in 2010 and forward based on "limited" target availability. 3. TCTS is currently not available in Okinawa/7th Fleet due to RF restrictions.				1. Encroachment assessments for CY2008 were different than for CY2009, 2010, and 2011. The algorithm for the overall assessment score for 2009–2011 was revised from the original algorithm used in 2008 to provide greater fidelity and consistency across all range complexes. Based on an improved review process and revised algorithms, the assessments for CY2009, 2010, and 2011 provide a more accurate assessment of encroachment. The assessments for the latter three years reveal there has been little encroachment change from year to year, with relatively constant overall scores for CY2009, 2010, and 2011. 2. There is little indication encroachment pressures will change in the foreseeable future.			

Okinawa Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strike Warfare (STW)	🟡	Range land area is too small and prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; reduces live fire proficiency; increases personnel optempo; and increases O&M costs. Navy will pursue opportunities with other services. No completion date identified.
	Electronic Combat (EC)	🔴	The range has no land area that supports EC training. There are Political and frequency spectrum constraints that prohibit certain training events; reduce realism; limit application of new technologies; inhibit new tactics development; increase personnel optempo; and increase O&M costs. Navy recommends to conduct feasibility study for EC assets to be incorporated into a high fidelity, inert, A-G training range and to pursue Multi-purpose Range Craft (MPRC) with EC assets. No completion date identified.
	Anti-Air Warfare (AAW)	🟡	There is no overland airspace that supports AAW training. This prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel optempo; and increases O&M costs. Navy recommends to pursue opportunities with other services. No completion date identified.
	Amphibious Warfare (AMW)	🔴	Range is not contiguous with required size of beachfront area. The beach area is very limited; and area does not support NSFS. This prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel optempo; and increases O&M costs. Navy recommends to pursue opportunities with other services. No completion date identified.
Airspace	Anti-Air Warfare (AAW)	🟡	Range has no overland airspace supporting AAW training. This prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel optempo; and increases O&M costs. Navy recommends to pursue opportunities with other services. No completion date identified.
	Amphibious Warfare (AMW)	🟡	Range has no airspace over beaches that meet training requirements. This prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel optempo; and increases O&M costs. Navy recommends to pursue opportunities with other services. No completion date identified.
	Anti-Submarine (ASW)	🟡	Airspace is not supported by an Underwater Training Range. This prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel optempo; and increases O&M costs. Navy recommends to pursue MPRC; continue deployment of Portable Underwater Training Range (PUTR). No completion date identified.
Seaspace	Mine Warfare (MW)	🟡	Range has insufficient geographic references and water is too deep. This prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel optempo; and increases O&M costs. Navy recommends to pursue opportunities with other services. No completion date identified.
	Amphibious Warfare (AMW)	🟡	Range is not contiguous with required size of beachfront area. This prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel optempo; and increases O&M costs. Navy recommends to pursue opportunities with other services. No completion date identified.
	Anti-Submarine (ASW)	🟡	Seaspace is not supported by an Underwater Training Range. This prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel optempo; and increases O&M costs. Navy recommends to pursue MPRC; continue deployment of Portable Underwater Training Range (PUTR). No completion date identified.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Okinawa Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Undersea Space	Mine Warfare (MW)	🟡	Sufficient space exists, but bottom type does not have required characteristics; water depth is too deep; no underwater training range; no dedicated Shock Wave Action Generator (SWAG) training area; no mine avoidance area. This prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel optempo; increases O&M costs. Navy recommends to pursue opportunities with other services. Evaluate feasibility of installing a mine range with instrumented shapes, false targets, bottom mines, mines approved for SWAG training. Navy will evaluate feasibility of creating a shallow water OPAREA. No completion date identified.
	Amphibious Warfare (AMW)	🟡	Range is not contiguous with required size of beachfront area. This prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel optempo; and increases O&M costs. Navy recommends to pursue opportunities with other services. No completion date identified.
	Anti-Submarine (ASW)	🟡	Undersea space does not have significant areas with water less than 600 ft deep and it is not supported by an Underwater Training Range. This prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel optempo; increases O&M costs. Navy recommends to pursue MPRC; continue deployment of Portable Underwater Training Range (PUTR). No completion date identified.
Targets	Strike Warfare (STW)	🟡	Range has limited targets available, they were replaced early 2009. This prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; reduces live fire proficiency; increases personnel optempo; increases O&M costs. Navy recommends to pursue opportunities with other Services and to procure high fidelity targets. No completion date identified.
	Electronic Combat (EC)	🔴	Range has no dedicated EC targets available. This prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel optempo; and increases O&M costs. Navy recommends to conduct feasibility study for EC assets to be incorporated into a high fidelity, inert, A-G training range; also to pursue MPRC with EC assets. No completion date identified.
	Anti-Air Warfare (AAW)	🟡	Range has no supersonic targets available and no dedicated targets available. This reduces live fire proficiency; increases personnel optempo; and increases O&M costs. Navy recommends to increase availability of CAS and to pursue MPRC options. No completion date identified.
	Mine Warfare (MW)	🟡	While limited targets are available, there are no dedicated targets that meet full training requirements. This prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel optempo; and increases O&M costs. Navy recommends to pursue opportunities with other services, evaluate feasibility of installing a mine range with instrumented shapes, false targets, bottom mines, mines approved for SWAG training, and to evaluate feasibility of creating a shallow water OPAREA. No completion date identified.
	Amphibious Warfare (AMW)	🟡	Range has no targets available to support AMW. This prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel optempo; and increases O&M costs. Navy recommends to pursue opportunities with other services. No completion date identified.
	Anti-Submarine (ASW)	🟡	Range has no dedicated ASW targets available. Units typically supply their own expendable targets. This reduces realism; limits application of new technologies; inhibits new tactics development; reduces live fire proficiency; and increases O&M costs. Navy recommends to increase availability of ASW targets by pursuing MPRC support. No completion date identified.
Threats	Strike Warfare (STW)	🔴	Range has no dedicated OPFOR available. This reduces realism; limits application of new technologies; and inhibits new tactics development. Navy recommends to improve availability of CAS and the number and variety of threats; and to pursue MPRC with EC capability. No completion date identified.
	Electronic Combat (EC)	🔴	Same as above.
	Anti-Air Warfare (AAW)	🔴	Same as above.
	Anti-Surface Warfare (ASUW)	🟡	Same as above.
	Mine Warfare (MW)	🟡	Same as above.
	Amphibious Warfare (AMW)	🟡	Same as above.
	Anti-Submarine (ASW)	🟡	Same as above.

Okinawa Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Scoring & Feedback System	Strike Warfare (STW)	🔴	No permanent instrumentation exists for this range. This reduces realism; limits application of new technologies; and complicates night and all weather training. Navy recommends to continue planned deployment of TCTS and evaluate potential to accelerate its deployment. No completion date identified.
	Electronic Combat (EC)	🔴	Same as above.
Scoring & Feedback System	Anti-Air Warfare (AAW)	🔴	Same as above.
	Anti-Surface Warfare (ASUW)	🟡	Same as above.
	Mine Warfare (MW)	🟡	Same as above.
	Amphibious Warfare (AMW)	🟡	Same as above.
	Anti-Submarine (ASW)	🟡	Same as above.
Range Support	Strike Warfare (STW)	🟡	There is a lack of web-based scheduling system with pre-event, real-time, and post-event modules precludes most efficient scheduling and documenting of range usage. Post-event reporting is particularly critical for ordnance expenditures or active sonar usage in at-sea OPAREAs since Marine Mammal Protection Act permits require Navy to periodically report these values. Non-compliance or inaccurately reporting post-event values to regulators risks range access or prohibitions on training events that involve active sonar or high explosives at-sea. PACFLT is developing a Data Collection and Scheduling Tool (DCAST) that includes a post-event module to mitigate issues outlined above. If successful, Navy could consider adopting it at all range scheduling facilities.
	Electronic Combat (EC)	🟡	Same as above.
	Anti-Air Warfare (AAW)	🟡	Same as above.
	Mine Warfare (MW)	🟡	Same as above.
	Amphibious Warfare (AMW)	🟡	Same as above.
	Anti-Submarine (ASW)	🟡	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Threatened & Endangered Species/ Critical Habitat	Amphibious Warfare (AMW)	🟡	When the native Dugong species is spotted, the Marines change tactics to avoid interacting with the dugong. Dugong live in the near-shore waters; thus, their presence can interrupt amphibious operations. Dugong protective measures create avoidance areas, prohibit certain training events, reduce range access, and segment training. Both the Navy and Marine Corps seek to avoid operating in the near vicinity of the dugong.
Spectrum	Strike Warfare (STW)	🟡	Restrictions on RF emissions limit the use of the Tactical Combat Training System (TCTS). These restrictions limit spectrum operations and prohibit certain training events, segment training and reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. The Navy continues to coordinate with GOJ agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies.
	Electronic Combat (EC)	🔴	There are no EW training ranges due to RF restrictions. RF restrictions limit spectrum operations and prohibit certain training events, segment training and reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. The Navy continues to coordinate with GOJ agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies.
	Anti-Air Warfare (AAW)	🔴	Same as above.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Okinawa Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Spectrum	Anti-Surface Warfare (ASUW)	●	Restrictions on RF emissions limit the use of the Tactical Combat Training System (TCTS). These restrictions limit spectrum operations and prohibit certain training events, segment training and reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. The Navy continues to coordinate with GOJ agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies.
Maritime Sustainability	Anti-Surface Warfare (ASUW)	●	Maritime protective and mitigation measures undertaken in compliance with regulatory requirements have resulted in training restrictions that reduce training flexibility, force segmented training, and ultimately reduce training realism. All at-sea training is impacted to some degree; impacts are most significant to integrated warfare training using active underwater acoustic sources or in-water explosive ordnance. The Navy and National Marine Fisheries Service (NMFS) have developed science based protective and mitigation measures that adequately protect marine species while accommodating military readiness activities. The Navy continues to develop Environmental Impact Statements and obtain permits and authorizations for its range complexes to ensure military training complies with applicable laws and regulations. Litigation risks remain a concern, entailing the potential to delay or further restrict training, despite the protective and mitigation measures applied by the Navy in compliance with the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA). Endangered species/critical habitat encroachment has created avoidance areas that have resulted in some reduction of training days and prohibits certain training events. This area is relatively small in scope, however, if these types of restrictions were applied to other species/areas, there would be significant impacts to readiness through reduction in range access, segmentation of training/reduction in realism, limits on the application of new technologies, raised flight altitudes, reduced live fire proficiency, increased personnel tempo, and increased O&M costs. The Navy will continue to invest in marine mammal research; rely on scientifically valid empirical data results as basis of marine mammal mitigation development; factor mitigation effectiveness into permit requests. Continue education of Fleet units to adhere to the maritime protective and mitigation measures and public education outreach efforts. Navy's authorizations under the MMPA and ESA include an adaptive management approach that includes continually evaluating existing mitigation measures for their potential impacts on training. If impacts on training from mitigation measures are identified and documented, Navy will raise these impacts with NMFS for resolution during an annual adaptive management review process. The Navy is currently preparing environmental compliance documentation to renew the MMPA and ESA authorizations which will consider any impacts on training stemming from existing mitigations measures and propose changes as warranted.
	Mine Warfare (MW)	●	Same as above.
	Amphibious Warfare (AMW)	●	Same as above.
	Anti-Submarine (ASW)	●	Same as above.
Airspace	Strike Warfare (STW)	●	When civil or commercial air traffic is routed through or strays into SUA, the SUA is partially or fully shut down. Okinawa air operations must cease or be delayed until the range is cleared, surface to unlimited. These restrictions create avoidance areas, segment training, reduce realism, prohibit certain training events, reduce range access, reduce live-fire proficiency; and delay operations until range clears. Navy continues close coordination with Okinawa aviation controllers which helps to ameliorate the impacts of SUA incursion by non-military aircraft. Air operations in the vicinity of Area India are impacted because overflight of any nearby islands with ordnance (live or inert) is prohibited.
	Anti-Air Warfare (AAW)	●	Same as above.
	Anti-Surface Warfare (ASUW)	●	Same as above.
Range Transients	Anti-Surface Warfare (ASUW)	●	Okinawan families may claim that scheduled U.S. military training prohibits their use of their historical fishing grounds. Illegal fishing and seaweed harvesting in exclusive use areas can prohibit certain training events, reduce range access, create avoidance areas, and reduce training days. Operations are delayed until the fishermen depart the area. Utilizing established USFJ procedures, the Navy will continue to have the USFJ work through the GOJ. The GOJ notifies the Japanese Maritime Safety Agency who then coordinates with the local fishermen's associations.
	Mine Warfare (MW)	●	Same as above.
	Amphibious Warfare (AMW)	●	Same as above.
	Anti-Submarine (ASW)	●	Same as above.

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Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Point Mugu Sea Range Complex Assessment Details

Range Mission Description

The Point Mugu Sea Range is DoD's largest and most extensively instrumented over-water range. The Sea Range is uniquely situated with a highly instrumented coastline and off-shore islands; full-service military airfields; target and missile launch facilities; data collection and surveillance aircraft; and an experienced staff of technical personnel. The range supports Fleet training exercises such as JTFEX and target presentations.

Capability Data

Mission Areas	Capability Attributes												
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Strike Warfare	PMC	FMC	FMC		FMC	FMC	FMC	FMC	FMC				
Electronic Combat	FMC	FMC	FMC		FMC	FMC	FMC	FMC	FMC				
Anti-Air Warfare	FMC	FMC	FMC		FMC	FMC	FMC	FMC	FMC				
Anti-Surface Warfare		FMC	FMC		FMC	FMC	FMC	FMC	FMC				
Mine Warfare													
Amphibious Warfare	PMC	FMC	FMC		FMC	FMC	FMC	FMC	FMC				
Anti-Submarine		FMC	FMC	FMC					PMC				
Naval Special Warfare	PMC	FMC	FMC		FMC	FMC	FMC	FMC	FMC				

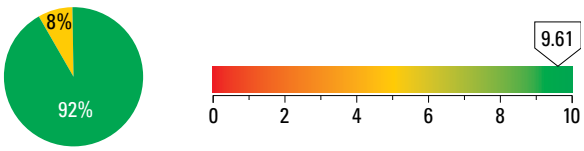
Legend: FMC, PMC, NMC

Encroachment Data

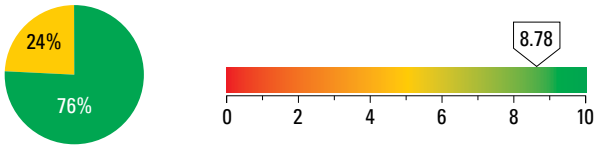
Mission Areas	Encroachment Factors											
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strike Warfare	Moderate	Minimal	Moderate	Minimal	Minimal	Minimal	Minimal	Minimal	Moderate	Moderate	Minimal	Minimal
Electronic Combat	Moderate	Minimal	Moderate	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Moderate	Minimal	Minimal
Anti-Air Warfare	Moderate	Minimal	Moderate	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Moderate	Minimal	Minimal
Anti-Surface Warfare	Moderate	Minimal	Moderate	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Moderate	Minimal	Minimal
Mine Warfare												
Amphibious Warfare	Moderate	Minimal	Moderate	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Moderate	Minimal	Minimal
Anti-Submarine				Moderate	Minimal							
Naval Special Warfare	Minimal	Minimal	Moderate	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal

Legend: Minimal, Moderate, Severe

Capability Chart and Scores



Encroachment Chart and Scores



Point Mugu Sea Range Complex Assessment Details

Summary Observations	Summary Observations
1. Landspace is the capability attribute that impacts the range's ability to perform its assigned mission the most. 2. There is no single Mission Area that is impacted the most. STW, AMW, ASW and NSW all have a single capability with a moderate impact. 3. No change in capability is anticipated for the future. NOTE on NSW Assessments: Assessments of Navy Special Warfare (NSW) training are based on actual NSW demand and use of training range capability and space. Actual Training range capability and space requirements are based on Fleet Readiness Training Plan demands for conventional warfare areas.	1. Frequency spectrum is the encroachment factor that impacts the range's ability to perform its assigned mission the most. 2. Strike Warfare is Mission Area that is impacted the most. 3. Increased desire for additional spectrum for commercial use will lead to additional encroachment pressures. The impacts of frequency spectrum encroachment will improve only with continued national attention to increase spectrum for military use and more efficiently use the available spectrum. As a direct result of California air quality regulations that went into effect on 1 July 2009, ship traffic through the Sea Range has increased from an average of 2 ships per day (1 in each direction) to 14 ships per day (7 in each direction) and continues to grow. Significant coordination effort is required to mitigate impacts on Sea Range activities and there have been several near cancellations. To date, one major missile exercise was delayed because a ship only partially complied with requests to avoid the hazard pattern. We are working with the various stakeholders on potential solutions. NOTE on NSW Assessments: Assessments of Navy Special Warfare (NSW) training are based on actual NSW demand and use of training range capability and space. Actual Training range capability and space requirements are based on Fleet Readiness Training Plan demands for conventional warfare areas.

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Capability Scores	9.68	9.32	9.61
Capability at the Point Mugu Sea Range has remained steady since 2008. It's anticipated capability will remain stable in the future.			

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Encroachment Scores	9.51	8.78	8.78
The encroachment assessment has been stable from year to year, with relatively constant overall scores for CY 2010 and 2011.			

Point Mugu Sea Range Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strike Warfare (STW)		San Nicolas Island is the only land impact area within the Sea Range. Impacts are limited to inert weapons only and in just one location. This impacts training with limited realistic training. There is no planned remedy at this time.
	Amphibious Warfare (AMW)		There are limited areas on San Nicolas Island and Point Mugu where this type of training can be conducted. This leads to limited realistic training. There is no planned remedy at this time.
	Naval Special Warfare		There are limited areas on San Nicolas Island where this type of training can be conducted and underwater detonations are not possible; limited realistic training. No planned remedy available.
Range Support	Anti-Submarine (ASW)		There are limited areas on San Nicolas Island and Point Mugu where this type of training can be conducted and underwater detonations are not possible. This leads to limited realistic training. There is no planned remedy at this time.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Point Mugu Sea Range Complex Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Threatened & Endangered Species/Critical Habitat	Strike Warfare (STW)	●	The presence of T&E species and critical habitat at Point Mugu and San Nicolas Island requires significant mitigation effort to support training activities. Navy plans to update SNI INRMP and continue mitigations.
	Electronic Combat (EC)	●	Same as above.
	Anti-Air Warfare (AAW)	●	Same as above.
	Anti-Surface Warfare (ASUW)	●	Same as above.
	Amphibious Warfare (AMW)	●	Same as above.
Spectrum	Strike Warfare (STW)	●	The reduction of available spectrum coupled with the increase in spectrum requirements limits the ability to schedule certain types of events and many concurrent activities. Navy will continue coordination at the local level to deconflict when possible and work through the chain of command and Range Commanders Council to address spectrum requirements at the national level.
	Electronic Combat (EC)	●	Same as above.
	Anti-Air Warfare (AAW)	●	Same as above.
	Anti-Surface Warfare (ASUW)	●	Same as above.
	Amphibious Warfare (AMW)	●	Same as above.
	Naval Special Warfare	●	Same as above.
Marine Sustainability	Anti-Submarine (ASW)	●	Marine mammals are present on the SR and there is no environmental coverage for ASW on the Sea Range except for the limited coverage of exercises included in the SOCAL EIS. As a result, ASW training can only be conducted in a small portion of the Sea Range. There is no planned remedy at this time.
Cultural Resources	Strike Warfare (STW)	●	There are hundreds of archeological sites on San Nicolas Island. They do not significantly impact our mission, but do require substantial management effort and financial support, primarily for surveys. Any expansion of existing target areas requires a detailed survey to identify, evaluate and treat cultural resources. This limits realistic training. Navy plans to Continue mitigation efforts.
Water Quality/ Water Supply	Strike Warfare (STW)	●	There are restrictions on discharge from the reverse osmosis water purification system that provides potable water to San Nicolas Island. The number of people that can be on San Nicolas Island to support training is limited by the water supply. Plan to continue to work with regulators to modify the discharge permit.
	Electronic Combat (EC)	●	Same as above.
	Anti-Air Warfare (AAW)	●	Same as above.
	Anti-Surface Warfare (ASUW)	●	Same as above.
	Amphibious Warfare (AMW)	●	Same as above.
	Anti-Submarine (ASW)		Same as above.

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Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Southern California (SOCAL) Assessment Details

Range Mission Description

The SOCAL mission is to support Navy training in all Navy mission areas, at all levels of training. SCORE is a state-of-the-art, multi-warfare, integrated training facility serving a wide variety of customers with primary mission requirements to provide support at all levels of training: basic, intermediate, and advanced. Under the command of the Fleet Area Control and Surveillance Facility, San Diego (FACSFACSD), SCORE conducts a multitude of operations including multi-warfare and battle group evolutions, on and around San Clemente Island (SCI). While the majority of the scenarios are designed to support the Commander of Third Fleet and Commander, Naval Air Force U.S. Pacific Fleet training and readiness requirements, other events are also conducted which facilitate the test, evaluation, and development of weapon systems and tactics. All SCORE operations are monitored, controlled, and evaluated by Range Operations Center (ROC) personnel at NAS North Island, CA.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Strike Warfare	PMC	FMC	FMC	FMC	PMC	PMC	PMC		PMC				
Electronic Combat	FMC	FMC	FMC	FMC	PMC	PMC	PMC		PMC				
Anti-Air Warfare	FMC	FMC	FMC		PMC	PMC	PMC		PMC				
Anti-Surface Warfare		FMC	FMC	FMC	FMC	PMC	PMC		PMC				
Mine Warfare		FMC	FMC	FMC	PMC	PMC	PMC		PMC				
Amphibious Warfare	NMC	FMC	FMC	FMC	NMC	PMC	PMC		PMC				
Anti-Submarine		FMC	FMC	PMC	FMC	PMC	PMC		PMC				
Naval Special Warfare	PMC	FMC	FMC	FMC	NMC	PMC	PMC		PMC				

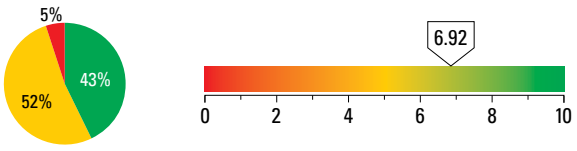
Legend: FMC PMC NMC

Encroachment Data

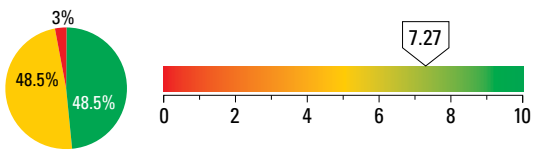
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Strike Warfare	Minimal	Moderate	Moderate	FMC	FMC	FMC	FMC	FMC	Minimal	FMC	FMC	FMC
Electronic Combat	FMC		Moderate		FMC	FMC	FMC	FMC				FMC
Anti-Air Warfare			Moderate		FMC	FMC	FMC	FMC				FMC
Anti-Surface Warfare			Moderate	Moderate	FMC				FMC			Moderate
Mine Warfare		Moderate	Moderate	Moderate	FMC		NMC	Moderate	FMC		Moderate	Moderate
Amphibious Warfare	Moderate	Moderate	Moderate	FMC	Moderate		Moderate	Moderate	NMC		Moderate	Moderate
Anti-Submarine			FMC	Moderate	FMC				FMC			FMC
Naval Special Warfare	Moderate	Moderate	FMC	FMC	Moderate	FMC	Moderate	Moderate	Moderate	FMC	Moderate	Moderate

Legend: Minimal Moderate Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Capability Attribute most impacting range mission performance: Targets and Scoring & Feedback Systems
2. Mission Areas most severely impacted: AMW, NSW, MW
3. Projected Status: No immediate change.

NOTE on NSW Assessments: Assessments of Navy Special Warfare (NSW) training are based on actual NSW demand and use of training range capability and space. Actual Training range capability and space requirements are based on Fleet Readiness Training Plan demands for conventional warfare areas. .

Summary Observations

1. Spectrum is the encroachment factor having the most affect on training.
2. All mission areas are affected by encroachment.
3. Encroachment impacts are long-standing and have been addressed through EIS actions and training procedures and protocols. The Navy continues to consult and discuss with stakeholders, with the expectation that some encroachment restrictions may be lessened.

NOTE on NSW Assessments: Assessments of Navy Special Warfare (NSW) training are based on actual NSW demand and use of training range capability and space. Actual Training range capability and space requirements are based on Fleet Readiness Training Plan demands for conventional warfare areas.

Southern California (SOCAL) Assessment Details

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Capability Scores	6.67	6.75	6.75

1. ASW Undersea space in 2008 was reassessed from Red to Yellow in 2009 and forward. Assessment of the impact was revised to more consistently reflect similar impacts in other range complexes.
2. MW Targets and Scoring & Feedback Systems changed from Red to Yellow for 20hh. Installation of fixed targets at Imperial Beach and Tanner Bank will provide rudimentary target support to MIW forces, and Instrumentation equipment has been procured for the planned MIW training range installation at Tanner Bank. The instrumentation system will primarily support submarine training.

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Encroachment Scores	9.06	8.57	8.15

1. Encroachment assessments for CY2008 were different than for CY2009, 2010, and 2011. The algorithm for the overall assessment score for 2009–2011 was revised from the original algorithm used in 2008 to provide greater fidelity and consistency across all range complexes. Based on an improved review process and revised algorithms, the assessments for CY2009, 2010, and 2011 provide a more accurate assessment of encroachment.
2. Since the CY2009 assessment, MW assessment for noise restrictions was increased from green to red; and adjacent land use was changed from green to yellow due to MW and public use concerns. In addition, SHPO has restricted placement of targets on SHOBA impact areas, changing the rating for cultural resources/STW from green to yellow. Lastly, Vernal pool fairy shrimp habitat restricts use of portions of SSTC South, changing the rating for wetlands/MW and AMW from green to yellow. These assessment changes resulted in an assessment score change from CY2009 to CY2010 to CY2011.
3. Should the proposed Federal Listing of the Rossem's gull-billed tern (GBTE) pass, there is potential of increased GBTE predation on the California least tern (LETE) and the western snowy plover (SNPL). The increased predation could hinder the recovery of the LETE and the SNPL on Naval Base Coronado beaches and could adversely affect take permits form the USFWS.
4. There is little indication encroachment pressures will change substantially in the foreseeable future

Southern California (SOCAL) Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strike Warfare (STW)	🟡	The range cannot support two separate concurrent strikes, and use of live ordnance is limited to specific areas of the range complex. This reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; and increases O&M costs. There is no solution except to use other ranges. No Completion date identified.
	Amphibious Warfare (AMW)	🔴	The required beach, terrain, and land area is not available. This reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; and increases O&M costs. There is no solution except to use other ranges. No Completion date identified.
	Naval Special Warfare (NSW)	🟡	Range has limited maneuver area and limited beach front areas. Range supports basic level training, but additional land is required for more advanced training. This reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; and increases O&M costs. navy recommends investing MOUT; road infrastructure; and firing range areas.
Undersea Space	Anti-Submarine (ASW)	🟡	Water depths and bottom topography do not provide for adequate training in shallow water and littoral; does not support EER or LFA operations. This reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; and increases O&M costs. Navy recommends to develop UTR. No Completion date identified.
Targets	Strike Warfare (STW)	🟡	Range has no moving targets; limited number of structural targets; no urban terrain targets; and inadequate Designated Mean Point of Impact at each site. This reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; and increases O&M costs. Navy recommends to invest in smart targets and upgrades to current targets. No Completion date identified.
	Electronic Combat (EC)	🟡	Range has no visually significant targets and live ordnance is not allowed. This reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; and increases O&M costs. Navy recommends to invest in smart targets and EC threat levels through level 4. No Completion date identified.
	Anti-Air Warfare (AAW)	🟡	Range has no supersonic targets or targets with jamming capability and has altitude restrictions. This reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; and increases O&M costs. Navy recommends investing in supersonic targets and additional drones with active jamming capabilities. No Completion date identified.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Southern California (SOCAL) Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Targets	Mine Warfare (MW)		A newly-installed shallow water (MH-60S and MCM Class-1 Ships) minefield off Imperial Beach and a mid-depth (and deep-water) minefield on Tanner Banks contain 28 and 30, respectively, non-instrumented, threat-representative shapes in specified field configurations in support of emergent MIW (mine hunting, influence sweeping) training. Both fields contain bottom and tethered mine shapes in accordance with MH-60S, MCM CLass-1 ships, SUBPAC and NMAWC requirements. However, due to excessive costs (i.e. VEMS), the minefields do not contain instrumented mine shapes. OPNAV N433 is the resource sponsor for MCM ranges (as of Feb 2010); investment in SOCAL MCM ranges (in accordance with SOCAL MCM POM_12 Proposal) is a fully-funded line item in the FYDP. However, the proposal did not contain specifications for instrumented targets. SOCAL Working Group prioritized establishing fixed MCM training ranges in SOCAL and retained proposals for instrumented shapes as part of out-year planning. The lack of instrumented targets inhibits new tactics development, reduces training proficiency, and limits application of new weapon technologies. Navy recommends to invest in expanding existing shallow and mid- to deep-water mine fields with instrumented mine threat composition targets. No completion date identified.
	Amphibious Warfare (AMW)		The required target types are not available to this range, including beach obstacles, beach defenses, NSFS areas, mines. This reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; and increases O&M costs. Navy recommends to install exposed and submerged targets and beach obstacles that may be engaged with live ordnance. No Completion date identified.
	Naval Special Warfare (NSW)		No range targets meet requirements. This reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; and increases O&M costs. Navy recommends to invest in a wide range of NSW required targets.
Threats	Strike Warfare (STW)		There is no dedicated threat aircraft and threats are not available in required quantity. EC threats are not available above level 2. There is no capability for virtual threat aircraft. This reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; and increases O&M costs. Navy recommends investing in enhanced EC threat capabilities. No Completion date identified.
	Electronic Combat (EC)		Realistic OPFOR responses are not available; EC threats are not available above level 2. This reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; and increases O&M costs. Navy recommends to invest in enhanced EC threat capabilities. No Completion date identified.
	Anti-Air Warfare (AAW)		Range has no dedicated threat aircraft and threats are not available in required quantity. This reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo. and increases O&M costs. Navy recommends to invest in contract air threat OPFOR with EC augmentation. No Completion date identified.
	Anti-Surface Warfare (ASUW)		There is no dedicated air or surface threat capability in required numbers; EC threats are not available above level 2; and command and control capability for OPFOR does not meet requirements. This reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; increases O&M costs. Navy recommends to invest in enhanced EC threat capabilities. No Completion date identified.
	Mine Warfare (MW)		Range has no dedicated threat aircraft or submarines. EC threats are not available above level 2. This reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; and increases O&M costs. Navy recommends to invest in enhanced EC threat capabilities. No Completion date identified.
	Amphibious Warfare (AMW)		There is no live, virtual, constructive threat ground force; EC threats are not available above level 2. This reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; and increases O&M costs. Navy recommends to invest in enhanced EC threat capabilities. No Completion date identified.
	Anti-Submarine (ASW)		The range has no dedicated threat aircraft, submarines, or surface ships; threats are not available in required quantity. EC threats not available above level 2. There is no capability for virtual threat aircraft. This reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency. and increases personnel optempo; increases O&M costs. Navy recommends to invest in enhanced EC threat capabilities. No Completion date identified.
	Naval Special Warfare (NSW)		Range has no live, virtual, or constructive threat ground force. This reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; and increases O&M costs. Navy recommends to invest in enhanced EC threat capabilities.
Scoring & Feedback System	Strike Warfare (STW)		There is no Modeling & Simulation capability; and no scoring capabilities for the range. This reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; and increases O&M costs. Navy recommends to invest in M&S systems. No Completion date identified.

Southern California (SOCAL) Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Scoring & Feedback System	Electronic Combat (EC)	●	Same as above.
Scoring & Feedback System	Anti-Air Warfare (AAW)	●	Same as above.
	Anti-Surface Warfare (ASUW)	●	Same as above.
	Mine Warfare (MW)	●	There is no modeling & simulation capability; no scoring capabilities; and no instrumented mines. This reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; an increases O&M costs. Navy recommends to invest in seeding shallow water and mid to deep water (for SUBPAC and NMAWC) mine fields (see SOCAL MCM Working Group Proposal submitted to CPF TTR and endorsed by MIWIP Training Subgroup; M&S systems.) No Completion date identified.
	Amphibious Warfare (AMW)	●	There is no Modeling & Simulation capability and little scoring capabilities. This reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; and increases O&M costs. Navy recommends to invest in M&S systems. No Completion date identified.
	Anti-Submarine (ASW)	●	There is no Modeling & Simulation capability. This reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; and increases O&M costs. Navy recommends to invest in M&S systems. No Completion date identified.
	Naval Special Warfare (NSW)	●	There is no Modeling & Simulation and no scoring capabilities. This reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; and increases O&M costs. Navy recommends to invest in M&S systems. No Completion date identified.
Range Support	Strike Warfare (STW)	●	Lack of web-based scheduling system with pre-event, real-time, and post-event modules precludes most efficient scheduling and documenting of range usage. Post-event reporting is particularly critical for ordnance expenditures or active sonar usage in at-sea OPAREAs since Marine Mammal Protection Act permits require Navy to periodically report these values.
	Electronic Combat (EC)	●	Non-compliance or inaccurately reporting post-event values to regulators risks range access or prohibitions on training events that involve active sonar or high explosives at-sea. PACFLT is developing a Data Collection and Scheduling Tool (DCAST) that includes a post-event module to mitigate issues outlined above. If successful, Navy could consider adopting it at all range scheduling facilities.
	Anti-Air Warfare (AAW)	●	Same as above.
	Anti-Surface Warfare (ASUW)	●	Same as above.
	Mine Warfare (MW)	●	Same as above.
	Amphibious Warfare (AMW)	●	Same as above.
	Anti-Submarine (ASW)	●	Same as above.
	Naval Special Warfare (NSW)	●	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Threatened & Endangered Species/ Critical Habitat	Strike Warfare (STW)	●	The presence of T&E species and critical habitat at SOCAL has an impact on training. It requires significant mitigation effort to support training activities. Navy plans to update latest INRMP (In progress; ECD 2011), continue mitigations, and update EIS (ECD: Jan. 2014).

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Southern California (SOCAL) Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Threatened & Endangered Species/ Critical Habitat	Amphibious Warfare (AMW)	●	Fire restrictions and species protection affect activities at the SCIRC. Restriction on controlled burns (Biological Opinion FWS-LA-09B0027-09F0040) limits Navy's ability to deal with island-wide cactus and exotic grasses; dense grasses and cactus prevent operational range clearance and range personnel from accessing target areas. Loggerhead Shrike and the San Clemente Sage Sparrow limit training opportunities on San Clemente Island. California Least Tern and Western Snowy Plover presence on the beaches of Silver Strand Training Complex create avoidance areas. Until thorough UXO sweeps are conducted in accordance with DoD-mandated Operational Range Clearance (ORC) guidelines, operational training areas and ranges are permanently off limits for readiness training (ref. SOCAL EIS, 2009). Species restrictions create avoidance areas, prohibit certain training events, segment training/reduce realism, limit application of new technologies, and inhibit new tactics development. SCIRC operations must be conducted during times of reduced fire potential and in areas where species are not prevalent. Draft SCI Operational Range Clearance Plan is in development; need for associated Environmental Assessment addressing island-wide, controlled burns has been identified. No completion date identified.
	Naval Special Warfare (NSW)	●	Military working dog (MWD) restrictions and species protection affect activities at the SCIRC and SSTC. USFWS designated the land areas around the ONLY maritime SOUC (Special Operations Urban Complex -MOUT) for NSW as medium to poor SCI sage sparrow habitat. SCI Biological Opinion Terms and Conditions contains restrictions on ordnance use, and insertions and extractions encircling the SOUC. The SCI Island fox is susceptible to diseases and parasites from dogs. MWD are required to meet specific kennel, working area, transport, and health certification requirements provided in SCIINST 5585. Reduces access to training ranges; inhibits new tactics development for NSW in state-of-the-art, real-world urban training environment, including IED, CQC, CQD training. Per Biological Opinion 1-6-00-F-19 (2001), NSW has paid for sage sparrow monitoring around the SOUC. The 2008 USFWS Biological Opinion extended this monitoring commitment indefinitely but to date, USFWS does not have a Recovery plan for SCI sage sparrow(listed as threatened species August 11, 1977 (42 Federal Register 40682)). MWD on SSTC are required to remain 30m outside of western snowy plover buffer areas for nests, have restricted exercise areas on SSTC-N until completion of a study to evaluate the effects of military working dogs on terns and plovers. OTB activities at SSTC-S can occur year-round with a platoon of personnel and one dog. In absence of a USFWS Recovery Plan for SCI sage sparrows, operational restrictions on NSW SOUC training (insertion and extractions) and requirement to fund monitoring activities will continue indefinitely; therefore considering requesting legislative relief for military training operations on SCI.
Munitions Restrictions	Strike Warfare (STW)	●	There are munitions restrictions on SHOBA that affect related training activity. SHOBA users must restrict munitions use to approved types, amounts, and expenditure locations. Munitions restrictions create avoidance areas, prohibit certain training events, segment training/reduce realism, limit application of new technologies, and inhibit new tactics development. Operations involving munitions must be conducted during times of reduced fire potential and in areas where species are not prevalent.
	Mine Warfare (MW)	●	There are munitions restrictions in SSTC bay training areas (max 15 grams NEW). SSTC users must restrict munitions use to approved types, amounts, and expenditure locations. Munitions restrictions create safety buffer zones, avoidance areas, prohibit certain training events, segment training/reduce realism, limit application of new technologies, and inhibit new tactics development. SSTC operations involving munitions may not be conducted in areas where marine mammals, sea birds, and sea turtles are present.
	Amphibious Warfare (AMW)	●	There are munitions restrictions on SHOBA and SSTC that affect related training activity. SHOBA users must restrict munitions use to approved types, amounts, and expenditure locations. SSTC conforms to restrictions on small arms blanks and simunitions expenditures and to prohibitions on land detonations. Munitions restrictions create avoidance areas, prohibit certain training events, segment training/reduce realism, limit application of new technologies, and inhibit new tactics development. Operations involving munitions must be conducted during times of reduced fire potential and in areas where species are not prevalent.
	Naval Special Warfare (NSW)	●	Same as above.
Spectrum	Strike Warfare (STW)	●	Employment of Link 16 is restricted. Restrictions limit spectrum operations and prohibit certain training events, segment training/reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. The Navy continues to coordinate with appropriate frequency allocation and oversight agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies. Competition for frequency spectrum will add increased pressure on available bandwidth for Naval operations.
	Electronic Combat (EC)	●	Same as above.
	Anti-Air Warfare (AAW)	●	Same as above.
	Anti-Surface Warfare (ASUW)	●	Same as above.

Southern California (SOCAL) Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Spectrum	Mine Warfare (MW)		Same as above.
	Amphibious Warfare (AMW)		Same as above.
Maritime Sustainability	Anti-Surface Warfare (ASUW)		Maritime protective and mitigation measures undertaken in compliance with regulatory requirements have resulted in training restrictions that reduce training flexibility, force segmented training, and ultimately reduce training realism. All at-sea training is impacted to some degree; impacts are most significant to integrated warfare training using active underwater acoustic sources or in-water explosive ordnance. The Navy and National Marine Fisheries Service (NMFS) have developed science based protective and mitigation measures that adequately protect marine species while accommodating military readiness activities. The Navy continues to develop Environmental Impact Statements and obtain permits and authorizations for its range complexes to ensure military training complies with applicable laws and regulations. Litigation risks remain a concern, entailing the potential to delay or further restrict training, despite the protective and mitigation measures applied by the Navy in compliance with the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA). Endangered species/critical habitat encroachment has created avoidance areas that have resulted in some reduction of training days and prohibits certain training events. This area is relatively small in scope, however, if these types of restrictions were applied to other species/areas, there would be significant impacts to readiness through reduction in range access, segmentation of training/reduction in realism, limits on the application of new technologies, raised flight altitudes, reduced live fire proficiency, increased personnel tempo, and increased O&M costs. Nav will continue to invest in marine mammal research; rely on scientifically valid empirical data results as basis of marine mammal mitigation development; factor mitigation effectiveness into permit requests. Continue education of Fleet units to adhere to the maritime protective and mitigation measures and public education outreach efforts. Navy's authorizations under the MMPA and ESA include an adaptive management approach that includes continually evaluating existing mitigation measures for their potential impacts on training. If impacts on training from mitigation measures are identified and documented, Navy will raise these impacts with NMFS for resolution during an annual adaptive management review process. The Navy is currently preparing environmental compliance documentation to renew the MMPA and ESA authorizations which will consider any impacts on training stemming from existing mitigations measures and propose changes as warranted.
	Mine Warfare (MW)		Same as above.
	Anti-Submarine (ASW)		Same as above.
Airspace	Amphibious Warfare (AMW)		Helicopters supporting SSTC amphibious operations compete with multiple airspace users on the SSTC, including military aircraft training, law enforcement, commercial, and private aircraft. Multiple airspace users and congested airspace on the SSTC prohibits certain training events, reduces range access, reduces realism, inhibits tactics development, and limits application of new technologies. The Navy continues coordination with Navy air traffic controllers and public stakeholders to educate on matters of SSTC training.
	Naval Special Warfare (NSW)		Same as above.
Noise Restrictions	Mine Warfare (MW)		Concerns with noise impacts on the Imperial Beach community from SSTC NSW and EOD MCM operations have prohibited the construction of a Demolition Pit at SSTC South. Demo pit was eliminated from the SSTC EIS Proposed Action. Although this expansion was identified by EOD and NSW as a critical backyard capability, the demolition pit was not carried forward in the DEIS. Negative impact to expanding critical Immediate Action. Encroachment from noise restrictions creates avoidance areas, prohibits certain training events, reduces range access, reduces realism, inhibits tactics development, and limits application of new technologies. Navy plans to recommend the evaluation of technologies and structures for EOD demo pit and to re-engage with the public to permit installation of an EOD pit on the SSTC.
	Amphibious Warfare (AMW)		Helicopter noise impacts SSTC amphibious operations on surrounding communities limits expansion of helicopter supported training. Multiple airspace users and congested airspace on the SSTC prohibits certain training events, reduces range access, reduces realism, inhibits tactics development, and limits application of new technologies. The Navy continues coordination with Navy air traffic controllers and public stakeholders to educate on matters of SSTC training.
	Naval Special Warfare (NSW)		Same as above.
Adjacent Land Use	Strike Warfare (STW)		Concerns about public usage of beaches adjacent to Navy training areas as well as the impact of noise on the adjacent community on Silver Strand has led to reduced intensity of training and training realism. Usage and noise concerns create avoidance areas, prohibit certain training events, reduce range access, reduce realism, inhibit tactics development, and limit application of new technologies. The Navy continues coordination with public stakeholders to educate on matters of SSTC training.
	Amphibious Warfare (AMW)		Same as above.
	Naval Special Warfare (NSW)		Same as above.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Southern California (SOCAL) Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Cultural Resources	Strike Warfare (STW)	🟡	Cultural resources on the SHOBA affect STW target placement (impact areas 1 and 2) and expansion of Adversary Village (impact area 1). Cultural resources encroachment creates avoidance areas, reduces range access, reduces realism, inhibits tactics development. There is collaboration between the Navy and ACHP/CASHPO on the development of the Integrated Cultural Resources Management Plan description of a modeling study to address sec 106 compliance in the impact areas.
	Amphibious Warfare (AMW)	🔴	Preponderance of potential archaeological sites identified on San Clemente Island lack definitive eligibility determination. As such, all sites are treated as if eligible under the NHPA. In absence of eligibility determination, over 7,000 potential sites and associated landmass create avoidance areas throughout maneuver spaces designated in the SOCAL EIS/OEIS as the USMC Assault Vehicle Maneuver Area, Artillery Firing Positions (AFP), and Assault Maneuver Positions (AMP). SCI is the ONLY maritime training area that can support I MEF Battalion Landings, tactical EFV insertions and live fire targeting; presence of archaeological sites restrict NSWG-1 and NSWC tactical training - at a cost to NSW of over $25m, SWAT 1 contains the ONLY maritime SOUC (special operations urban complex), and SCI supports the only location for BUD/S Third Phase training (i.e. land demolitions impacted by restricted range access). Recommend to assess regulatory status of cultural resource for eligibility under the National Historic Preservation Act in accordance with operationally-prioritized areas, and if eligible, annotate the historical significance and either remove representative artifacts or establish avoidance area around representative artifact outside of high value range areas designated (SOCAL EIS/OEIS) for tracked vehicle maneuvers and NSW and EOD land detonations.
	Naval Special Warfare (NSW)	🟡	Two SAR events were cancelled due to concerns to impacts on cultural resources. Cultural resources created an avoidance area that resulted in lost range access and tactical training development. Recommend to assess regulatory status of cultural resources for eligibility under the National Historic Preservation Act, and if eligible, annotate the historical significance and remove the artifact from SSTC range.
Wetlands	Mine Warfare (MW)	🟡	Vernal pool fairy shrimp habitat restricts use of portion of SSTC South for troop maneuvers, EOD and land mine detection, HRST, and IAD. Habitat encroachment creates avoidance areas, prohibits certain training events, reduces range access, reduces realism, inhibits tactics development, and limits application of new technologies. The Navy adheres to SSTC EIS/BO avoidance measures.
	Amphibious Warfare (AMW)	🟡	Same as above.
	Naval Special Warfare (NSW)	🟡	Same as above.
Range Transients	Anti-Surface Warfare (ASUW)	🟡	Range transients, involving commercial shipping, commercial fishing, and private pleasure boating encroach on training, either by delaying events or forcing relocation to less than optimum locations. Commercial vessel and recreational vessel encroachment create avoidance areas and segments training/reduces realism. The Navy will continue to pursue opportunities to inform industry and the public of the impact of range transient encroachment on At Sea OPAREAS and Navy readiness.
	Mine Warfare (MW)	🟡	Same as above.
	Amphibious Warfare (AMW)	🟡	Same as above.
Range Transients	Naval Special Warfare (NSW)	🟡	Incidents of range transients causes the delay or cancellation of operations. Four (4) NSFS activities and one (1) BOMBEX were delayed at SCI. Four (4) SAR training missions at SSTC were cancelled. Range transients, involving commercial and recreational fishing, and private pleasure boating encroach on scheduled training activities. Presence of vessels in the scheduled SHOBA offshore area delayed a CVN and associated squadrons during NSFS and BOMBEX. Transients in SSTC boat lanes created avoidance areas (concern to public and military personnel safety), whereby, reducing range availability and negatively impacting tactical skills development. Waters off SCI were designated 21 June 2010 through formal Federal rule making (Final Rule - Federal Register 20 May 2010) as a Safety Zone out to 3nm (encircles SCI). NBC and FACSFAC are working with the US Coast Guard to effectively communicate safety zone status to the public (www.island.org). USCG is the enforcement agency. Recommend to augment SCORE range management funding and personnel capabilities for round the clock Range Control personnel. SSTC ocean and some Bay side areas are open navigable waters so the Navy has no legal authority to request that boaters leave the boat lanes during scheduled operations. Navy will continue to work with U.S. Coast Guard to assess the feasibility of establishing Safety Zones in the SSTC boat lanes and undesignated Bay training areas.

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Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Virginia Capes (VACAPES) Assessment Details

Range Mission Description

The Virginia Capes Operating Area (VACAPES OPAREA / VCOA) is a surface and subsurface operating area off the Virginia and North Carolina coasts. It includes the area covered by W-386, W-387, W-72, W-50, W-108, W-110, R-6606, and the Submarine Transit Lanes. The OPAREA is used for various surface, subsurface, air-to-surface exercises. It provides range safety surveillance and control for missile firing exercises in assigned operational area; and supplying air intercept control services for Fleet Replacement Training Squadrons. Its has primary mission roles for providing Air warfare training at the basic, intermediate, and advanced levels. It also has primary to support training for ASUW, MW, and NSW at the intermediate level, and across all warfare areas except AMW, and ASW at the basic level. The range has a lower level mission requirement to provide ASW at the intermediate and basic level.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Strike Warfare	PMC	FMC	FMC	FMC	PMC	FMC	PMC		PMC				
Electronic Combat	FMC	FMC	FMC	FMC	PMC	PMC	PMC		PMC				
Anti-Air Warfare	PMC	FMC	FMC		FMC	PMC	PMC		PMC				
Anti-Surface Warfare		FMC	FMC	FMC	FMC	FMC	PMC		PMC				
Mine Warfare		FMC	FMC	FMC	PMC	FMC			PMC				
Amphibious Warfare													
Anti-Submarine		FMC	FMC	FMC	FMC	PMC	NMC		PMC				
Naval Special Warfare													

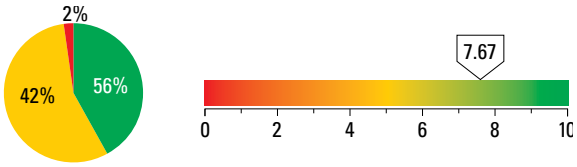
Legend: FMC, PMC, NMC

Encroachment Data

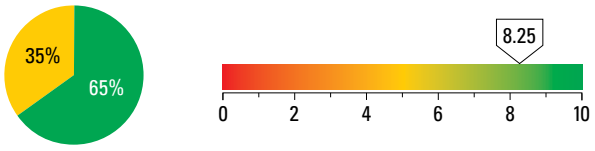
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Strike Warfare	Minimal	Minimal	Moderate	Minimal	Moderate	Moderate	Moderate	Minimal	Minimal	Minimal	Moderate	Moderate
Electronic Combat	Minimal		Moderate		Moderate	Moderate	Moderate	Moderate				Minimal
Anti-Air Warfare			Moderate		Moderate	Moderate	Moderate	Moderate				Minimal
Anti-Surface Warfare			Moderate	Moderate	Moderate				Minimal			Moderate
Mine Warfare			Moderate	Moderate	Moderate				Minimal			Moderate
Amphibious Warfare												
Anti-Submarine			Moderate	Moderate	Moderate				Minimal			Moderate
Naval Special Warfare												

Legend: Minimal, Moderate, Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Capability Attribute most impacting range mission performance: Scoring & Feedback Systems
2. Mission Area most severely impacted: ASW, EC
3. Projected Status: No immediate change.

Summary Observations

1. Spectrum encroachment has the most pervasive training impact.
2. STW, ASUW, MW, and ASW are the mission areas most affected by encroachment.
3. There are no prevailing or emerging mitigation strategies that will alter training encroachment for the foreseeable future. Most encroachment is long-standing and has been addressed through maritime mitigation measures and operations procedures.

Virginia Capes (VACAPES) Assessment Details

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Capability Scores	7.39	7.50	7.50

1. EC for Landspace was Yellow in 2008 and reassessed to Green in 2009 and forward based on an updated assessment of landspace requirement to the primary use of the range, which is for only the "basic" level training
2. MW for Scoring & Feedback changed from RED to WHITE based on USFF evaluation that TSPI Scoring data is not required.

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Encroachment Scores	8.70	8.38	8.38

1. Encroachment assessments for CY2008 were different than for CY2009, 2010, and 2011. The algorithm for the overall assessment score for 2009–2011 was revised from the original algorithm used in 2008 to provide greater fidelity and consistency across all range complexes. Based on an improved review process and revised algorithms, the assessments for CY2009, 2010, and 2011 provide a more accurate assessment of encroachment. The assessments for the latter three years reveal there has been little encroachment change from year to year, with relatively constant overall scores for CY2009, 2010, and 2011.
2. RCMP update is currently in progress; the EAP is due to be completed by JAN 2011.
3. Dept. of Interior (DOI) & private energy interests in the Outer Continental Shelf (OCS) are increasing as domestic energy demand builds. Naval offshore operating areas & training events may be affected. High priority areas include training ranges & sea space in and adjacent to all Navy OPAREAs. OASN (E,I&E), as DoD spokesman for military offshore use, continues to work closely with the Fleets & DOI's Bureau of Ocean Energy Management (BOEM) to resolve issues of combined use of the OCS important to both agencies. Fleet review & analysis of impacts from both oil/gas & wind energy "lease sale" areas (Mission Critical Areas-MCAs) have been reviewed and forwarded to OSD. DoD & DOI coordination continues.

Virginia Capes (VACAPES) Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strike Warfare (STW)	●	Landspace is only available at Dare County Bombing Range, which does not fully support size nor topography requirements for placement of required number of targets. Use of live ordnance is not supported. Use of flares is restricted. No land area supports NSFS training or CSAR training. These shortfalls prohibits certain training events; reduces realism; increases personnel optempo. Navy recommends to identify east coast land areas of sufficient size to support standoff weapons and CSAR training.
	Anti-Air Warfare (AAW)	●	Landspace is only available at Dare County Bombing Range, which does not fully support size or topography requirements, or support surface combatant detection of aircraft over land. Use of flares is restricted. These shortfalls prohibit certain training events; reduce realism; increase personnel op-tempo. Overland ACM training is conducted at Fallon Range Training Complex. No additional land options are available within VACAPES.
Targets	Strike Warfare (STW)	●	Live ordnance is not allowed; the urban area is too small; NSFS is not supported ashore; and required targets do not provide both visual and infrared signatures. These shortfalls prohibit certain training events; reduce realism; limit application of weapon technologies; reduce live fire proficiency; increase personnel optempo; and increase O&M costs. Navy recommends to Increase number and variety of targets with more realistic signatures and install no drop ordnance instrumentation where applicable.
	Electronic Combat (EC)	●	Additional targets are required to achieve required density and more a representative threat. This prohibits certain training events; reduces realism; limits application of weapon technologies; reduces live fire proficiency; increases personnel optempo; and increases O&M costs. Recommend to increase number and variety of EC threats. Install portable systems where applicable.
	Mine Warfare (MW)	●	There are Insufficient training mines and range areas to support increased MW training. VACAPES must support Navy's principal MH-60 and MH-53 MW helicopter squadrons. This prohibits certain training events; reduces realism; inhibits tactics; increases personnel optempo; increases O&M costs. Navy will investigate procurement of appropriate mix of recoverable and expendable inert bottom and moored mine shapes and instrumented bottom training mines to populate a series of permanent MW training areas.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Virginia Capes (VACAPES) Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Threats	Electronic Combat (EC)	🟡	The EC threat representation does not fully support EC threat levels 3 or 4 for required mission areas. The existing instrumentation systems are becoming obsolete and unsupportable through the FYDP. This reduces realism; inhibits tactics development; and greatly increases O&M costs. Navy recommends to maintain current upgrade schedule to preclude severe degradation of system capability.
	Anti-Air Warfare (AAW)	🟡	Helicopter threat OPFOR is not available; required number of air threat OPFOR is not available; there is no dedicated supersonic threat OPFOR available. This reduces realism; inhibits tactics; increases personnel op-tempo;and increases O&M costs. Navy recommends to increase number and types of air threat OPFOR.
	Anti-Submarine (ASW)	🟡	There are limited dedicated live submarines, surface ships, or aircraft to serve in the OPFOR role. This prohibits certain training events; reduces realism; inhibits tactics; increases personnel optempo; and increases O&M costs. Navy recommends to invest in additional threat OPFOR and increase availability of submarines through the DESI and aircraft through CAS.
Scoring & Feedback System	Strike Warfare (STW)	🟡	The OPAREA coverage is not complete; Modeling & Simulation is inadequate; there is no RTKN. This reduces realism; inhibits tactics; increases personnel optempo, and increases O&M costs.Navy recommends to expand and improve 2-D & 3-D coverage of the OPAREA; invest in JNTC compliant M&S; and improve debrief capabilities.
	Electronic Combat (EC)	🟡	Same as above.
	Anti-Air Warfare (AAW)	🟡	The OPAREA coverage is not complete; Modeling & Simulation is inadequate; there is no RTKN. This reduces realism; inhibits tactics; increases personnel optempo, and increases O&M costs. Navy recommends to expand and improve 2-D & 3-D coverage of the OPAREA; invest in JNTC compliant M&S; improve debrief capabilities and to maintain TACTS with TCTS replacement schedule to preclude severe degradation of system capability.
	Anti-Surface Warfare (ASUW)	🟡	The OPAREA coverage is not complete; Modeling & Simulation is inadequate; there is no RTKN. This reduces realism; inhibits tactics; increases personnel optempo, and increases O&M costs.Navy recommends to expand and improve 2-D & 3-D coverage of the OPAREA; invest in JNTC compliant M&S; and improve debrief capabilities.
	Anti-Submarine (ASW)	🔴	There is no underwater tracking range, scoring capability, M&S, or post mission feedback. This prohibits certain training events; reduces realism; limits weapon technologies; inhibits tactics; reduces live fire proficiency; increases personnel optempo; increases O&M costs. Navy recommends to develop and fund east coast USWTR. Expand and improve 2-D & 3-D coverage of the OPAREA; invest in JNTC compliant M&S; and improve debrief capabilities.
Range Support	Strike Warfare (STW)	🟡	There is a lack of web-based scheduling system with pre-event, real-time, and post-event modules precludes most efficient scheduling and documenting of range usage. Post-event reporting is particularly critical for ordnance expenditures or active sonar usage in at-sea OPAREAs since Marine Mammal Protection Act permits require Navy to periodically report these values. Non-compliance or inaccurately reporting post-event values to regulators risks range access or prohibitions on training events that involve active sonar or high explosives at-sea. PACFLT is developing a Data Collection and Scheduling Tool (DCAST) that includes a post-event module to mitigate issues outlined above. If successful, Navy could consider adopting it at all range scheduling facilities.
	Electronic Combat (EC)	🟡	Same as above.
	Anti-Air Warfare (AAW)	🟡	Same as above.
	Anti-Surface Warfare (ASUW)	🟡	Same as above.
	Mine Warfare (MW)	🟡	Same as above.
	Anti-Submarine (ASW)	🟡	Same as above.

Virginia Capes (VACAPES) Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Spectrum	Strike Warfare (STW)	●	Employment of Link 16 is restricted. These restrictions limit spectrum operations and prohibit certain training events, segment training/reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. The Navy continues to coordinate with appropriate frequency allocation and oversight agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies. Competition for frequency spectrum will add increased pressure on available bandwidth for Naval operations.
	Electronic Combat (EC)	●	Restrictions resulting from electromagnetic spectrum encroachment include prohibitions from performing GPS jamming, authorization to radiate the Spoon Rest VHF early warning threat radar system and restricted use of the ITWSS (Track While Scan Simulator). Additionally, employment of Link 16, SPY-1 radar, SPS 49 radar, and IFF are restricted. These restrictions limit spectrum operations and prohibit certain training events, segment training/reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. The Navy continues to coordinate with appropriate frequency allocation and oversight agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies. Competition for frequency spectrum will add increased pressure on available bandwidth for Naval operations.
	Anti-Air Warfare (AAW)	●	Employment of Link 16 is restricted. These restrictions limit spectrum operations and prohibit certain training events, segment training/reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. The Navy continues to coordinate with appropriate frequency allocation and oversight agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies. Competition for frequency spectrum will add increased pressure on available bandwidth for Naval operations.
	Anti-Surface Warfare (ASUW)	●	Employment of Link 16, SPY-1 radar, SPS 49 radar, and IFF are restricted. These restrictions limit spectrum operations and prohibit certain training events, segment training/reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. The Navy continues to coordinate with appropriate frequency allocation and oversight agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies. Competition for frequency spectrum will add increased pressure on available bandwidth for Naval operations.
	Mine Warfare (MW)	●	Same as above.
	Anti-Submarine (ASW)	●	Same as above.
Maritime Sustainability	Anti-Surface Warfare (ASUW)	●	Maritime protective and mitigation measures undertaken in compliance with regulatory requirements have resulted in training restrictions that reduce training flexibility, force segmented training, and ultimately reduce training realism. All at-sea training is impacted to some degree; impacts are most significant to integrated warfare training using active underwater acoustic sources or in-water explosive ordnance. The Navy and National Marine Fisheries Service (NMFS) have developed science based protective and mitigation measures that adequately protect marine species while accommodating military readiness activities. The Navy continues to develop Environmental Impact Statements and obtain permits and authorizations for its range complexes to ensure military training complies with applicable laws and regulations. Litigation risks remain a concern, entailing the potential to delay or further restrict training, despite the protective and mitigation measures applied by the Navy in compliance with the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA). Endangered species/critical habitat encroachment from the North Atlantic right whale has created avoidance areas that have resulted in some reduction of training days and prohibits certain training events. This area is relatively small in scope, however, if these types of restrictions were applied to other species/areas, there would be significant impacts to readiness through reduction in range access, segmentation of training/reduction in realism, limits on the application of new technologies, raised flight altitudes, reduced live fire proficiency, increased personnel tempo, and increased O&M costs. The Navy continues to invest in marine mammal research; rely on scientifically valid empirical data results as basis of marine mammal mitigation development; factor mitigation effectiveness into permit requests. Continue education of Fleet units to adhere to the maritime protective and mitigation measures and public education outreach efforts. Navy's authorizations under the MMPA and ESA include an adaptive management approach that includes continually evaluating existing mitigation measures for their potential impacts on training. If impacts on training from mitigation measures are identified and documented, Navy will raise these impacts with NMFS for resolution during an annual adaptive management review process. The Navy is currently preparing environmental compliance documentation to renew the MMPA and ESA authorizations by JAN 2014, which will consider any impacts on training stemming from existing mitigations measures and propose changes as warranted.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Virginia Capes (VACAPES) Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Maritime Sustainability	Mine Warfare (MW)	●	Maritime protective and mitigation measures undertaken in compliance with regulatory requirements have resulted in training restrictions that reduce training flexibility, force segmented training, and ultimately reduce training realism. All at-sea training is impacted to some degree; impacts are most significant to integrated warfare training using active underwater acoustic sources or in-water explosive ordnance. The Navy and National Marine Fisheries Service (NMFS) have developed science based protective and mitigation measures that adequately protect marine species while accommodating military readiness activities. The Navy continues to develop Environmental Impact Statements and obtain permits and authorizations for its range complexes to ensure military training complies with applicable laws and regulations. Litigation risks remain a concern, entailing the potential to delay or further restrict training, despite the protective and mitigation measures applied by the Navy in compliance with the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA). Endangered species/critical habitat encroachment from the North Atlantic right whale has created avoidance areas that have resulted in some reduction of training days and prohibits certain training events. This area is relatively small in scope, however, if these types of restrictions were applied to other species/areas, there would be significant impacts to readiness through reduction in range access, segmentation of training/reduction in realism, limits on the application of new technologies, raised flight altitudes, reduced live fire proficiency, increased personnel tempo, and increased O&M costs. Continue to invest in marine mammal research; rely on scientifically valid empirical data results as basis of marine mammal mitigation development; factor mitigation effectiveness into permit requests. Continue education of Fleet units to adhere to the maritime protective and mitigation measures and public education outreach efforts. Navy's authorizations under the MMPA and ESA include an adaptive management approach that includes continually evaluating existing mitigation measures for their potential impacts on training. If impacts on training from mitigation measures are identified and documented, Navy will raise these impacts with NMFS for resolution during an annual adaptive management review process. The Navy is currently preparing environmental compliance documentation to renew the MMPA and ESA authorizations by JAN 2014, which will consider any impacts on training stemming from existing mitigations measures and propose changes as warranted.
	Anti-Submarine (ASW)	●	Same as above.
Wetlands	Strike Warfare (STW)	●	Self-imposed Clean Water Act/Dare County wetlands and land use plans limit target configuration, placement, and maintenance due to many DCBR impact areas having been situated in designated wetlands. This Navy-induced encroachment affects STW by limiting targetry opportunities at DCBR. Wetlands encroachment creates avoidance areas. Consideration should be given to seeking out a wetlands delineation at DCBR and to seek wetlands 404 permits to accommodate target configuration, placement, and maintenance Assess emerging demands for upgraded or additional impact areas within or out of the wetland areas to accommodate new munitions technologies.
Range Transients	Strike Warfare (STW)	●	Range transients, involving commercial shipping, commercial fishing, and private pleasure boating encroach on training, either by delaying events or forcing relocation to less than optimum locations. Commercial vessel and recreational vessel encroachment create avoidance areas and segments training/reduces realism. The Navy will continue to pursue opportunities to inform industry and the public of the impact of range transient encroachment on At Sea OPAREAS and Navy readiness.
	Anti-Surface Warfare (ASUW)	●	Same as above.
	Mine Warfare (MW)	●	Same as above.
	Anti-Submarine (ASW)	●	Same as above.

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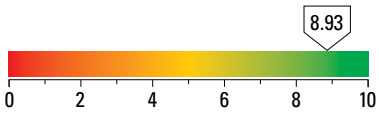
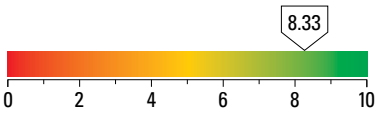
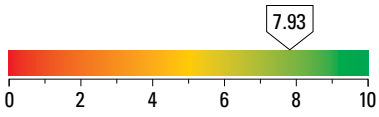
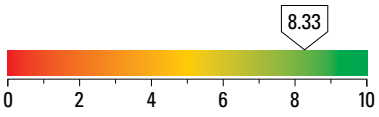
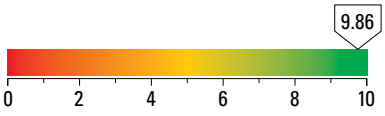
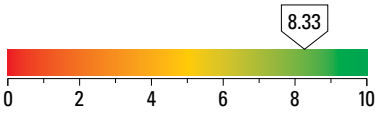
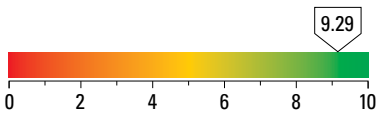
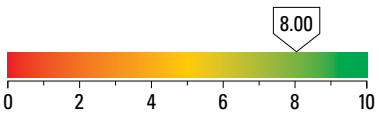
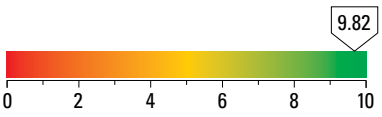
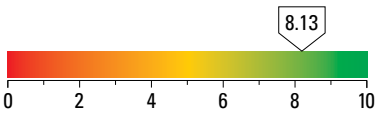
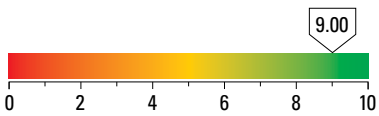
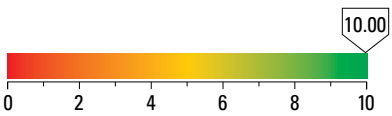
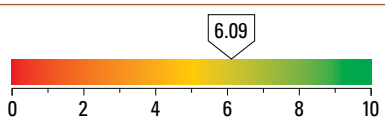
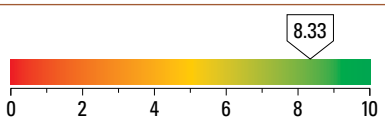
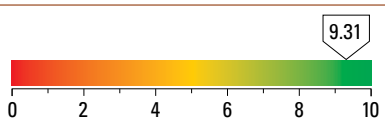
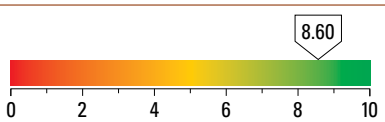
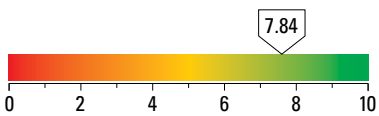
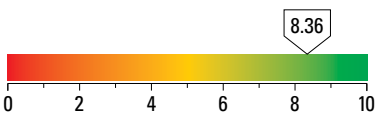
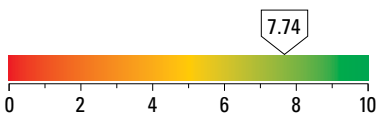
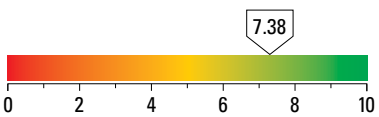
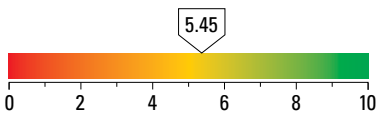
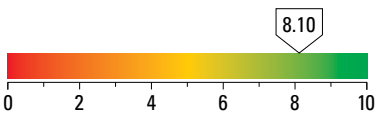
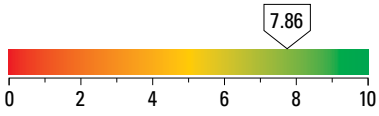
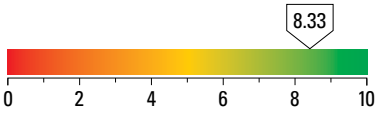
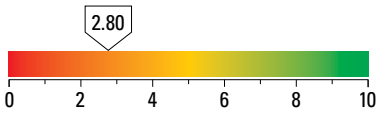
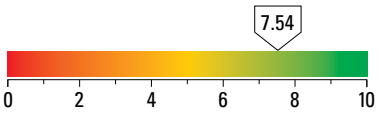
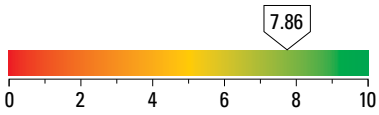
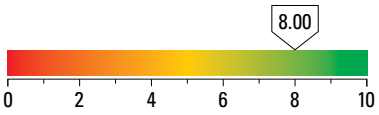
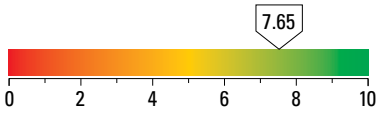
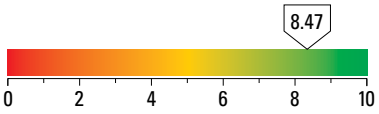
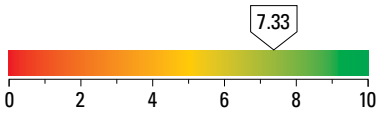
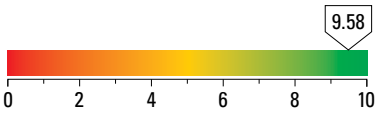
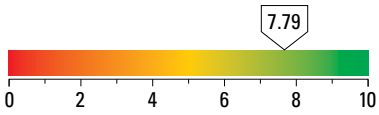
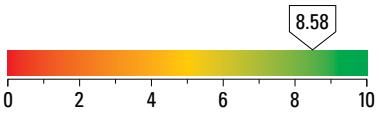
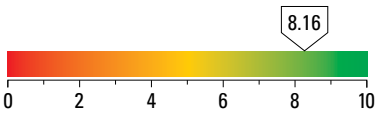
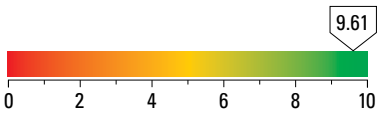
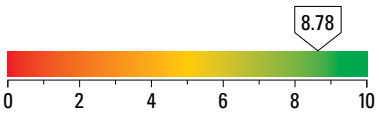
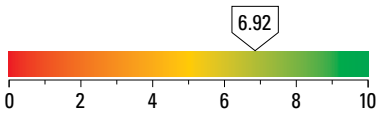
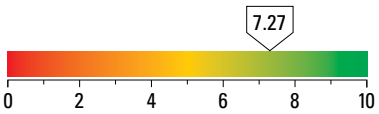
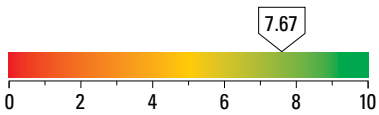
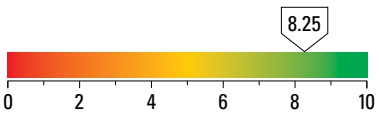
Table 3-12 Navy Range Capability and Encroachment Assessment Comparison

Range Name	Capability Score	Encroachment Score
Atlantic City		
Atlantic Test Range		
AUTEC		
Boston		
China Lake		
El Centro		
Fallon		
Gulf of Mexico		
Hawaii		
Jacksonville		
Japan		
Key West		

Range Name	Capability Score	Encroachment Score
Mariana Islands		
Narragansett		
Navy Cherry Point		
Northern California (NOCAL)		
Northwest		
Okinawa		
Point Mugu Sea Range		
Southern California (SOCAL)		
Virginia Capes (VACAPES)		

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3.2.4 Air Force[9]

Air Force Training Range Capability Assessment Results

The Air Force Range Capability Assessment data from 31 Air Force range complexes are summarized and presented in Table 3-13.

The Air Force Range Capability Chart and Scores are presented in Figure 3-30 and assessments by Range, Attributes, and Mission Areas are shown in Figures 3-32, 3-34, and 3-36.

The Air Force's 31 individual range assessments along with comments for red and yellow ratings are included at the end of this section (Figure 3-39).

Air Force Training Range Encroachment Impact Assessment Results

The Air Force Range Encroachment Assessment data from 31 Air Force range complexes are summarized and presented in Table 3-14.

The Air Force Range Encroachment Chart and Scores are presented in Figure 3-31 and assessments by Range, Factors, and Mission Areas are shown in Figures 3-33, 3-35, and 3-37.

The Air Force's 31 individual encroachment assessments along with comments for red and yellow ratings are included at the end of this section (Figure 3-39).

The Air Force Range Capability and Encroachment assessment comparisons are presented in Table 3-15.

9 Of the 41 locations in the Air Force's range inventory in Appendix C, 7 ranges and 3 electronic scoring sites (ESSs) were not assessed. Blair Lake, Edwards, Oklahoma, Pilsung, Torishima, and Yukon were last assessed in 2009 and stand by their earlier scores. Draughon and the three ESSs have not been assessed. All will be updated in the 2012 SRR with the exception of Lone Star ESS, which is no longer being used by the U.S. Air Force.

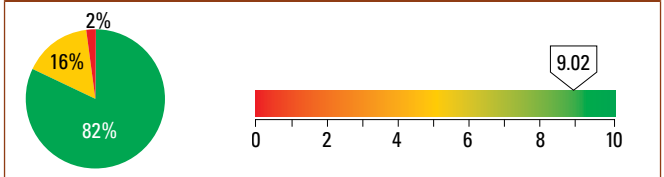
Table 3-13 Air Force Capability Assessment Data Summary

Range	NMC	PMC	FMC	Capability Scores
Adirondack	11	19	45	7.27
Airburst	2	13	62	8.90
Atterbury	0	6	36	9.29
Avon Park	0	16	51	8.81
BMGR	1	11	41	8.77
Bollen	0	19	58	8.77
Cannon	10	37	11	5.09
Claiborne	0	12	6	6.67
Dare County Ranges	0	0	72	10.00
Eglin Ranges	0	45	69	8.03
Falcon	0	3	69	9.79
Grand Bay	0	2	108	9.91
Grayling	0	10	80	9.44
Hardwood	0	9	87	9.53
Holloman	4	3	86	9.41
Jefferson	1	16	70	8.97
McMullen	0	28	40	7.94
Melrose	1	4	55	9.50
Mountain Home Ranges	0	0	72	10.00
NTTR	8	14	67	8.31
Patrick	0	1	12	9.62
Poinsett	0	6	126	9.77
Polygone	0	10	11	7.62
Razorback	1	6	76	9.52
Shelby Ranges	0	5	94	9.75
Siegenberg	0	4	2	6.67
Smoky Hill	0	0	64	10.00
Townsend	0	4	67	9.72
UTTR	0	8	80	9.55
Vandenberg	0	3	10	8.85
Warren Grove	5	22	54	8.02
HQ AF	**44**	**336**	**1,781**	**9.02**

Table 3-14 Air Force Encroachment Assessment Data Summary

Range	Severe	Moderate	Minimal	Encroachment Scores
Adirondack	0	15	56	8.94
Airburst	0	0	74	10.00
Atterbury	0	11	20	8.23
Avon Park	0	7	75	9.57
BMGR	0	8	38	9.13
Bollen	0	15	73	9.15
Cannon	0	15	69	9.11
Claiborne	0	0	20	10.00
Dare County Ranges	0	0	88	10.00
Eglin Ranges	0	48	104	8.42
Falcon	0	0	81	10.00
Grand Bay	0	2	130	9.92
Grayling	1	8	90	9.49
Hardwood	0	15	84	9.24
Holloman	0	3	118	9.88
Jefferson	1	27	66	8.46
McMullen	0	4	84	9.77
Melrose	2	3	83	9.60
Mountain Home Ranges	0	0	88	10.00
NTTR	4	30	98	8.56
Patrick	0	7	5	7.08
Poinsett	0	2	130	9.92
Polygone	0	6	14	8.50
Razorback	0	5	87	9.73
Shelby Ranges	0	1	109	9.95
Siegenberg	0	4	4	7.50
Smoky Hill	0	0	88	10.00
Townsend	0	9	90	9.55
UTTR	0	8	80	9.55
Vandenberg	0	5	17	8.86
Warren Grove	1	9	89	9.44
HQ AF	**9**	**267**	**2,252**	**9.44**

Figure 3-30 Air Force Capability Chart and Scores



Summary Observations

Air Force's overall capability score increased from 8.91 in 2010 to 9.01 in 2011

- Air Force's Fully Mission Capable (FMC) assessments (green) increased from 81% to 83%
- Partially Mission Capable (PMC) assessments (yellow) remained at 16%
- Not Mission Capable (NMC) assessments (red) decreased from 3% to 2%

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Capability Scores	8.52	8.52	8.91

The top three Capability Attributes with the greatest number of red and yellow assessments are (Figure 3-34):

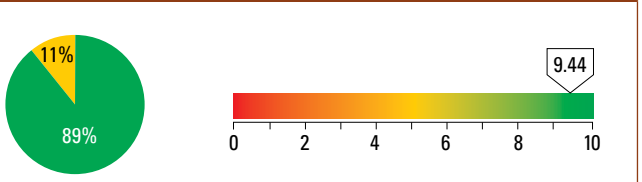
- Threats (10+63)
- Airspace (7+47)
- Range Support (7+45)

The top three Mission Areas with the greatest number of red and yellow assessment are (Figure 3-36):

- Counterland (3+64)
- Strategic Attack (3+61)
- Special Operations (2+46)

Refer to the Air Forces's 31 individual range assessments for comments and additional information (Figure 3-39).

Figure 3-31 Air Force Encroachment Chart and Scores



Summary Observations

Air Force's overall encroachment score marginally increased from 9.28 in 2010 to 9.44 in 2011

- Air Force's minimal risk assessments (green) increased from 86% to 89%
- Moderate risk assessment (yellow) decreased from 13% to 11%
- Severe risk assessments (red) marginally decreased from 0.7% to 0.4%

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Encroachment Scores	9.08	9.07	9.28

The three Encroachment Factors with the greatest number of red and yellow assessment are (Figure 3-35):

- Airspace (2+62)
- Munition Restrictions (2+37)
- Adjacent Land Use (2+32) .

The top three Mission Areas with the greatest number of red and yellow assessments are (Figure 3-37):

- Counterland (3+58)
- Strategic Attack (1+48)
- Special Operations (1+44)

Refer to the Air Forces's 31 individual range assessments for comments and additional information (Figure 3-39).

Figure 3-32 Air Force Capability Assessments by Range

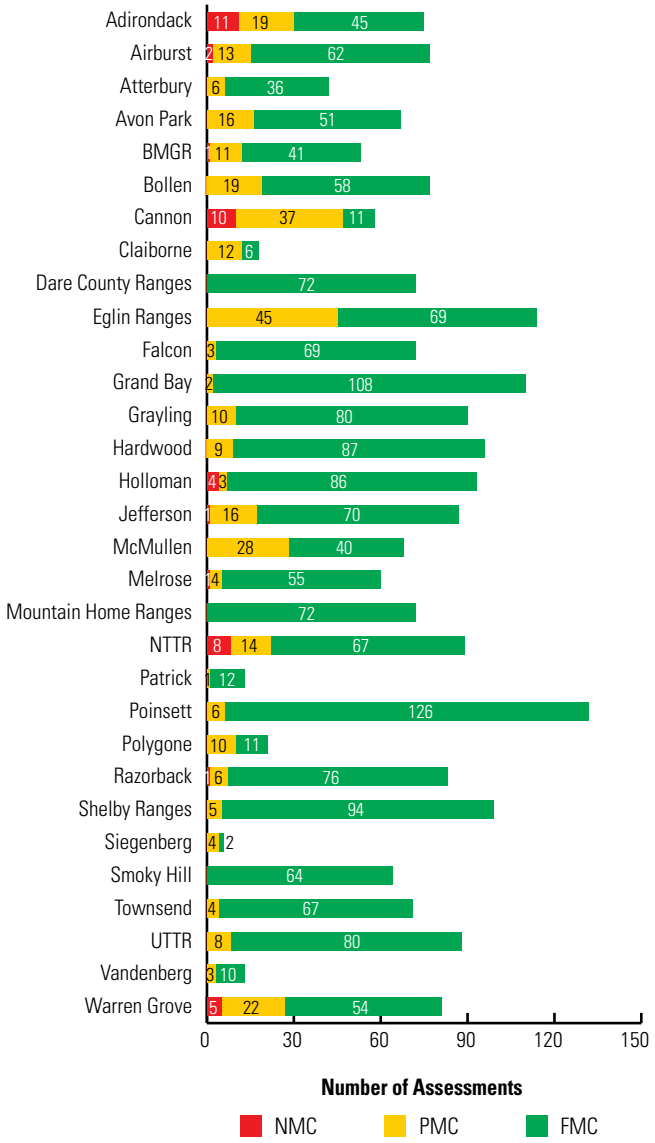


Figure 3-33 Air Force Encroachment Assessments by Range

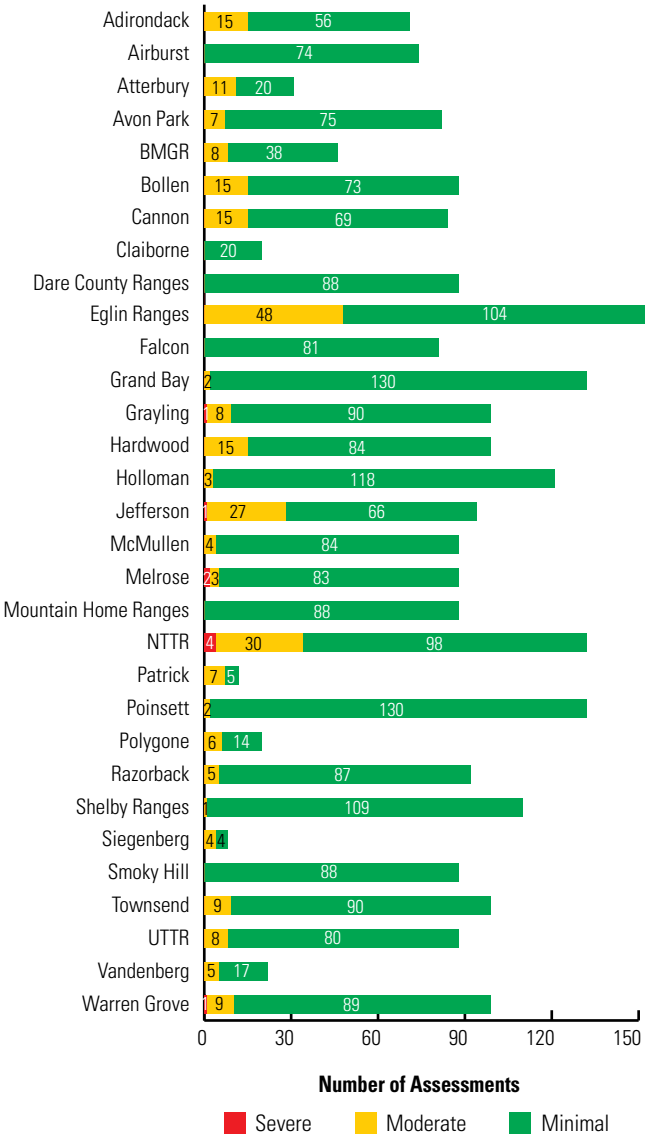


Figure 3-34 Air Force Capability Assessment by Attributes

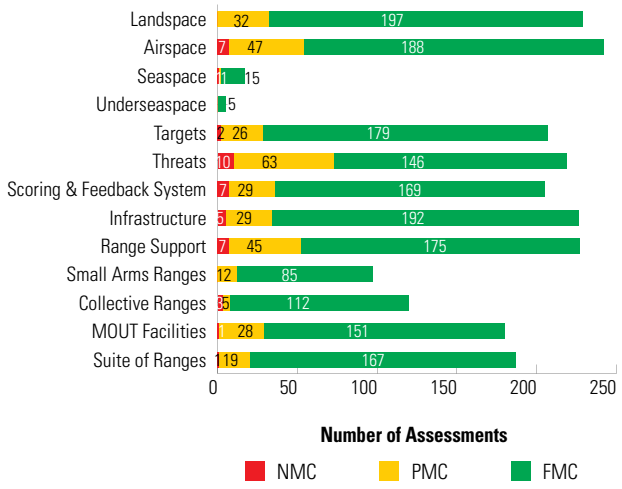


Figure 3-35 Air Force Encroachment Assessment by Factors

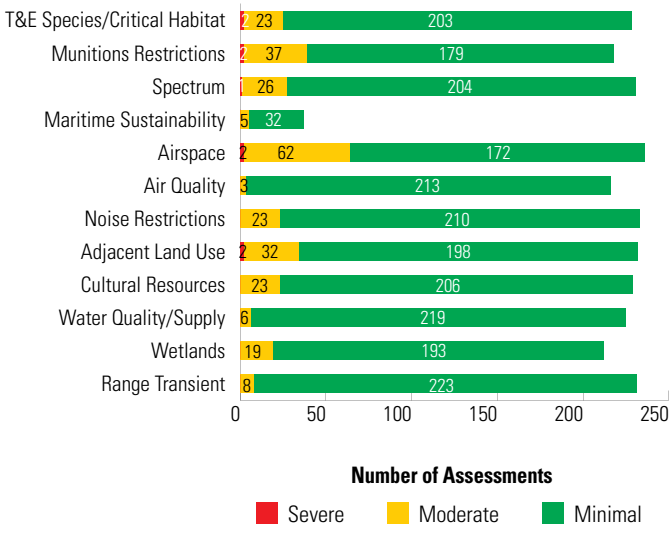


Figure 3-36 Air Force Capability Assessment by Mission Areas

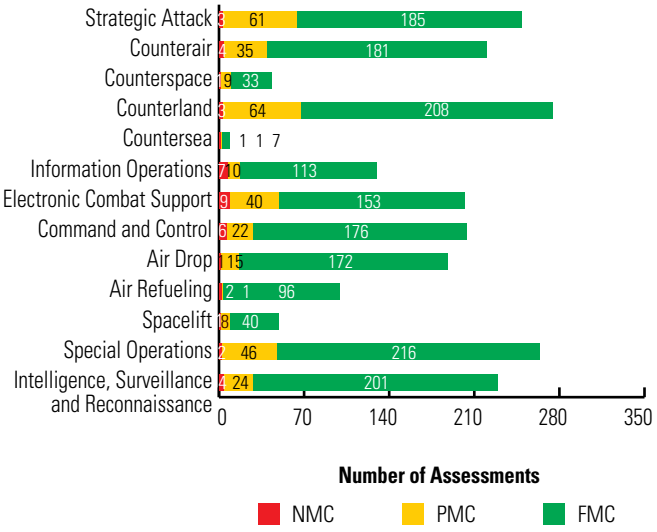
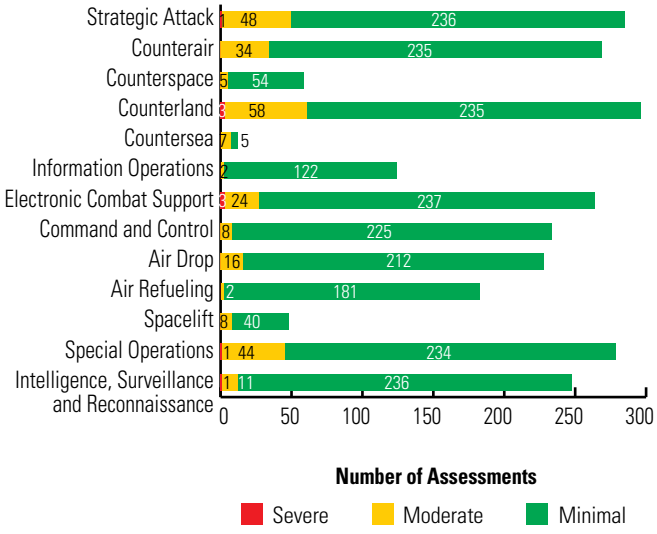


Figure 3-37 Air Force Encroachment Assessment by Mission Areas



Air Force Service Special Interest Section

General Issues

Unmanned Aerial System Integration and "See and Avoid"

Integration of UASs into the National Airspace System (NAS) is a top priority for the Air Force. As manned aircraft operations increase, rules have been developed to increase the safety of flight. The most basic method of deconfliction, when other procedures and equipment have not prevented a conflict situation, is to see and avoid other aircraft (14 CFR 91.113). See and avoid also holds the pilot as the one ultimately responsible in any visual environment. This procedure has served the Air Force well in the past and is not easily changed or replaced.

UAS support to combatant commanders may be thwarted by lack of airspace integration capability. Delays in development of rules and standards are partially due to concerns about the impact to other NAS users. The Air Force does not seek to place restrictions on civil or general aviation users of the NAS, but rather will develop policy, technologies, tactics, techniques, and procedures to integrate UAS operations into the NAS in a way that is entirely compatible with the rest of the flying public.

Every State will have UAS flying sorties in support of DoD missions by 2015. A UAS Joint Center of Excellence study estimates that it will take 1.1 million UAS flight hours annually to maintain preparedness for future conflict as our nation brings home forces deployed to Iraq and Afghanistan. Ninety-one percent of these UAS missions, including most Air National Guard (ANG) Title 32 missions, will need to transit classes of airspace UAS cannot currently access because they do not meet the most basic flight safety requirement to see and avoid. There are limited basing options with the necessary access to airspace until this issue is resolved. A combination of policy and see and avoid technology development and fielding is essential to meet this need. Some technology development has been accomplished, but delivering systems and payloads supporting immediate wartime needs have taken precedence.

In an effort to solve the See and Avoid challenge, the Air Force is working with other Military Services and the Federal Aviation Administration (FAA) to develop methods to provide a See and Avoid capability. The Military Services are focused on both ground-based and airborne-based See and Avoid solutions. Ground-based See and Avoid solutions are a near term goal; testing of various methods is ongoing at locations across the United States. Airborne-based See and Avoid is a longer-term goal and may not be practical for all classes of UAS. The combination of proven, safe ground-based See and Avoid capability will help bridge the gap until airborne see and avoid capability is matured. The Air Force strategy is to incrementally develop UAS airspace policies, procedures, and material capabilities in partnership with the FAA to improve access to the NAS.

Adaptive Airspace

The Adaptive Airspace Concept is a jointly partnered effort between the FAA and Air Force to meet Air Force training requirements while maximizing NAS efficiency. During the 2008 Fuel Summit, industry leaders discussed fuel-saving initiatives. One of the five initiatives was to allow greater access to military Special Use Airspace (SUA) and Air Traffic Control Assigned Airspace (ATCAA) for non-participating (civil) aircraft.

In order to introduce maximum efficiency of NAS usage, two proofs of concept ideas were introduced:

- Completely relocate an ATCAA while maintaining the same volume of airspace; and
- Expand an existing ATCAA with associated subdivisions that could be recalled as necessary, yet still provide the same volume of airspace to meet Air Force requirements.

These ATCAA redesigns could be a permanent change, a seasonal change to accommodate peak traffic seasons, a temporal change to accommodate peak traffic periods during the day, or a combination of seasonal and temporal.

The overall goal is to expand this concept to include airspace below FL180; however, this includes a variety of challenges and would need to properly address environmental issues as well as real-time awareness of current airspace status by all NAS users. Finally, it is imperative that there is real-time coordination between airspace users and controlling agencies.

Interim Guidance on Managing Energy Development Impacts on Air Force Operations

Units across the Air Force are dealing with renewable energy development projects impacting operations without the appropriate mechanisms in place to preserve our valuable operating space. Together SAF/IE, A4/7, and A3/5 developed the Interim Guidance on Managing Energy Development Impacts on Air Force Operations to help Air Force units seeking assistance while we work with our DoD partners to develop more comprehensive guidance.

Figure 3-38 Illustration of ATCAA Relocation.

The Interim Guidance was built on the idea that Air Force installations and operating space are valuable national resources that must be preserved in order to successfully accomplish our mission. Development of domestic energy sources is a high priority for the country and for the Air Force, however there are situations where striving to meet national energy goals may result in activities that negatively impact the Air Force's operational, testing, and training missions. The Interim Guidance was developed to help installations and Major Commands (MAJCOMs) understand, assess, and react to potential mission impacts that might occur from energy-related development. The intended audience is all encroachment stakeholders, including Commanders, MAJCOM A3 Airspace, Range and Operational Mission Management, and Installation and Mission Support personnel.

Air Force Commander's Guide to Managing Energy Development Impacts

The Air Force Commander's Guide to Managing Energy Development Impacts, based on the Jun 2010 Interim Guidance on Managing Energy Development Impacts on Air Force Operations, helps Commanders understand and respond to potential mission impacts from diverse energy technology developments. The Guide contributes to situational awareness, not just of potential energy developments (e.g., wind farms) being considered near an installation, but also of the spatial requirements (e.g., land, facilities, airspace to include ranges and military training routes) the Air Force must have for its operations, training, testing, and support functions. For successful management of energy development issues, both the Interim Guidance and this Guide reinforce the need for Commanders to reach out to and engage stakeholders, thereby helping the Air Force to become more informed and facilitating development of appropriate strategies and plans to deal with potential energy development impacts.

Accompanying the Guide is a CD containing relevant supporting documents including the Interim Guidance, data sources, Office of the Secretary of Defense (OSD) Primers, and Information Papers. Also on the CD is the Air Force Encroachment Management Flight Plan, which supports the Air Force Encroachment Management Initiative by building a cross-functional encroachment management framework that integrates existing Air Force programs into a comprehensive strategy.

Headquarters U.S. Air Force (HQ USAF) will update this Guide in 2011 as new strategies, software tools, processes, and solutions emerge. The nation's focus on renewable energy development is driving innovation and technologies not yet seen on a utility scale. The Air Force is still evaluating existing energy technologies, their effects on our operations, and in turn how we affect them.

Figure 3-39 Air Force Capability and Encroachment Assessment Detail

Adirondack Assessment Details

Range Mission Description

Joint Air to Ground Range: Intermediate training range for the ANG/AF, All purpose range for the Army, and Combined arms/Joint live fire exercise range Primary User is Vermont Air National Guard.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Strategic Attack	FMC	FMC			PMC	NMC	FMC	FMC	PMC		FMC	FMC	FMC
Counterair	FMC	FMC			PMC	NMC	PMC		NMC				
Counterspace													
Counterland	FMC	FMC			PMC	NMC	FMC	FMC	NMC	PMC	FMC	PMC	PMC
Countersea													
Information Operations													
Electronic Combat Support	FMC	FMC			FMC	NMC	PMC	FMC	NMC		NMC		
Command and Control	FMC	FMC			FMC	FMC	FMC	FMC	NMC	FMC	FMC	PMC	FMC
Air Drop	PMC	FMC				PMC	FMC	FMC	FMC				
Air Refueling		FMC											
Spacelift													
Special Operations	PMC	FMC			FMC	FMC	FMC	FMC	NMC	PMC	FMC	PMC	PMC
Intelligence, Surveillance, and Reconnaissance	FMC	FMC			FMC	FMC	FMC	FMC	NMC	PMC	FMC	PMC	PMC

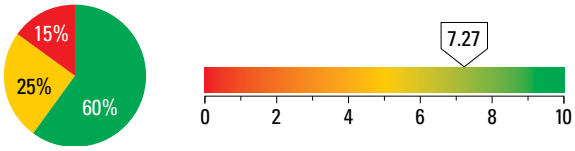
Legend: FMC, PMC, NMC

Encroachment Data

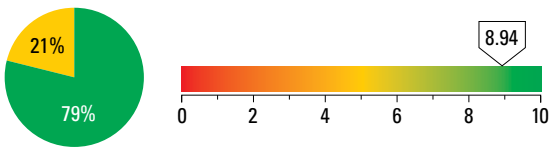
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Strategic Attack	Minimal	Moderate	Moderate		Minimal	Moderate	Moderate	Moderate	Moderate	Moderate	Minimal	Moderate
Counterair		Moderate	Moderate		Moderate	Moderate	Moderate	Moderate	Moderate			Moderate
Counterspace												
Counterland	Minimal	Minimal	Moderate		Minimal	Moderate	Moderate	Moderate	Moderate	Moderate	Minimal	Moderate
Countersea												
Information Operations												
Electronic Combat Support	Moderate		Moderate		Moderate	Moderate	Moderate	Moderate				Moderate
Command and Control	Minimal	Moderate	Moderate		Minimal	Moderate	Moderate	Moderate	Moderate	Moderate	Minimal	Moderate
Air Drop												
Air Refueling			Moderate		Moderate	Moderate		Moderate				Moderate
Spacelift												
Special Operations	Minimal	Minimal	Moderate		Minimal	Moderate	Moderate	Moderate	Moderate	Moderate	Minimal	Moderate
Intelligence, Surveillance, and Reconnaissance	Minimal		Moderate		Moderate	Moderate		Moderate		Moderate		Moderate

Legend: Minimal, Moderate, Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

Adirondack Range is located on Ft. Drum and contained within it's training areas. The range has large tracts of land that remain unusable to us due to the presence of MPPEH. The range continues to request EOD support as personnel and funds become available in an effort to open up these areas for training use. Adirondack has had numerous requests from ASOS units and flying units for a digital gateway for training use on range. The range has requisitioned most of the equipment needed for this but have not yet completed installation.

Summary Observations

Summary Observations: Wetlands and Munitions residue have restricted use of the vast majority of what would otherwise be useable training/target areas. The range has made significant progress in the past two years in clearing target areas of Material Potentially Presenting an Explosive Hazard (MPPEH) and gaining approval from Environmental to develop those areas once cleared. Adirondack will continue to request EOD support to clear areas of MPPEH and work with Ft. Drum's Environmental Division in an effort to gain access to areas near/in designated wetlands.