



2014

REPORT TO CONGRESS ON SUSTAINABLE RANGES

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EXECUTIVE SUMMARY

This is the eleventh Sustainable Ranges Report (SRR) to Congress, which summarizes the Department of Defense's (DoD's) actions to ensure the long-term sustainability of its training ranges. The SRR responds to Section 366 of the fiscal year (FY) 2003 National Defense Authorization Act (NDAA), which requires DoD to develop and submit to Congress a comprehensive plan to address training constraints caused by limitations on the use of available military lands, marine areas, and airspace in the United States and overseas. Section 311 of the FY2013 NDAA extended the reporting requirement through FY2018.

Although this report focuses on DoD training ranges only, it also touches on test and evaluation (T&E) ranges to the extent that these ranges support training activities in the broader perspective of DoD's overall Sustainable Ranges Initiative (SRI). The DoD test community separately reports on encroachment factors impacting research, development, test, and evaluation activities in their Strategic Plan for T&E Resources.

While DoD has been proactively addressing the many challenges related to range capabilities and encroachment, those challenges continue to grow, new ones emerge, and dynamic conditions and events exacerbate the original challenges. These challenges are common themes that resonate across the Department in its ability to implement the SRI.

Most notable is the implementation of the Budget Control Act of 2011, which required DoD and the Military Services to reduce the Department's discretionary spending budget across the Future Years Defense Program (FYDP). The decrease in total obligation authority necessitated changes to force structure and significant reductions in funding for operations and maintenance, military construction, research and development investments, as well as acquisition programs in order to effectively balance competing requirements across the Department and within each Military Service. In the 2014 SRR, all four Military Services have highlighted specific impacts these funding reductions are causing, or will cause, to range modernization and overall range capabilities.

The Department also anticipates these funding reductions to impact its ability to respond to encroachment challenges moving into the future.

Continuing encroachment challenges faced by the Military Services include impacts related to endangered species management and species at risk; incompatible development, to include renewable energy siting; offshore operational security concerns; and impacts related to the reallocation of electromagnetic spectrum. This year's report discusses the impacts of these encroachment challenges in greater detail.

The 2014 SRR provides Congress with an update to the DoD 2013 SRR to include the following:

- Revalidates the 2012 SRR current and future range requirements
- Revalidates the 2012 SRR individual range capability and encroachment assessments
- Addresses critical range and training issues identified by the Military Services
- Updates Congress on DoD's comprehensive training range sustainment plan
- Provides updates to the 2013 Range Inventory

Past SRRs have included individual assessments with detailed data on encroachment and range capability factors affecting DoD ranges. Analysis of the range assessment supporting data over the last eleven years confirmed range capability and encroachment do not change significantly from year to year. In light of this fact, the Military Services were again asked to validate the 2012 range assessment data and report on significant changes, if any, for this year's report. DoD intends to conduct a full evaluation of range capabilities and their adequacy to support required training as well as current impacts of encroachment every three years. The next full range assessment will be conducted during FY2014 and reported as part of the 2015 SRR to Congress.

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MILITARY SERVICE UPDATES

1.1 ARMY:

GENERAL ISSUES RELATED TO RANGE CAPABILITY ENCROACHMENT

The Army's 2012 Range Capability and Encroachment range assessments are valid as current with the exception of the issues highlighted in this section. The Army's range capabilities have not changed substantially since the 2013 SRR. Likewise, the Army's encroachment challenges related to competition for range space, airspace, and alternative energy projects presented in the 2013 SRR remain current in 2014. Therefore, the focus of this section is how the Army is restructuring to meet challenges into the future.

While capabilities are currently at an acceptable level to support readiness, there are still numerous challenges the Army is working to address related both to capability and encroachment:

- ▶ Reductions and reorganization of the Army's Active Component force
- ▶ Endangered and candidate species management and its impact to the Army training mission
- ▶ Alternative energy project impacts

The following subsections discuss these challenges in greater detail.

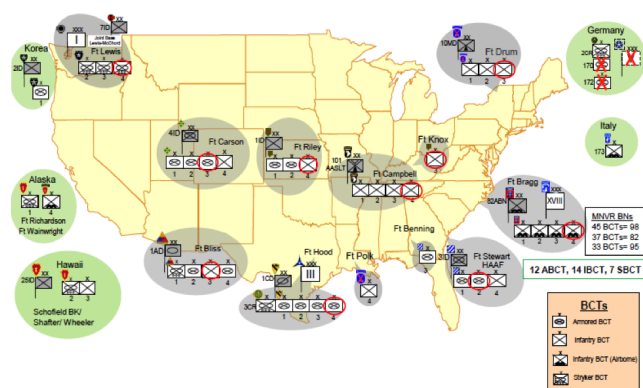
CRITICAL ISSUES: RANGE CAPABILITY

The Army is reducing and reorganizing the active component (AC) force structure to 490,000—a reduction of 80,000 Soldiers—based on Army Strategy and fiscal reductions required by the Budget Control Act of 2011 (note: these numbers are as of publication of this report). With this reorganized force structure, the Army will retain the ability and flexibility to provide regionally aligned and mission-tailored forces in support of national defense requirements.

The Army is reducing its AC Brigade Combat Teams (BCTs) from 45 to 33 by FY2017 as part of the drawdown to 490,000. In addition to BCT reduction, the Army plans to reorganize Infantry and Armor BCTs by adding a third maneuver battalion and additional engineer and firing capability. The Army also plans to reduce or reorganize numerous non-BCT units as part of the drawdown.

BCTs at the following installations will be inactivated by 2017: Fort Bliss, Fort Bragg, Fort Campbell, Fort Carson, Fort Drum, Fort Hood, Fort Knox, Fort Riley, Fort Stewart, and Joint Base Lewis-McChord. Two BCTs stationed at Baumholder and Grafenwoehr, Germany completed their inactivation in FY2013, leaving two BCTs in Europe to fulfill strategic commitments. Figure 1-1 illustrates the Army's BCT reorganization plan as of June 2013.

Figure 1-1: BCT Reorganization Structure



This significant reduction in the AC force structure requires a slowdown on range modernization efforts and a reduced capacity within range operations. This reduced capacity will include a smaller range operations workforce and prioritizing available resources to units that require a higher state of readiness. The planned reductions should be completed by FY2017, resulting in stable resources thereafter.

Any further reductions in Active or Reserve Component (AC/RC) end strength will require additional slowing in range modernization and reduction of range operations capacity. This reduced capacity will require a smaller range operations workforce and an update to the regional collective training capability strategy to ensure force structure training requirements can be met.

The Army measures training capability of installations using the following five training attributes in its Military Value Analysis (MVA):

- ▶ **Maneuver Land** measures the ability of an installation to support additional requirements for maneuver land.
- ▶ **Range Sustainability** measures the ability of an installation to sustain training ranges based on several established encroachment factors.
- ▶ **Training Facilities** categorically assesses facilities based on existing and planned capability as well as regional support responsibilities.
- ▶ **Airspace** evaluates the largest single restricted area against the total of all restricted areas to show an installation's available airspace.
- ▶ **Indirect Fire** measures a range's capability to support direct fire and non-line-of-sight weapons training based on parameters such as impact area.

SUMMARY OF MAJOR CHANGES IN RANGE CAPABILITY

The Army currently plans to cancel an Urban Assault Course MILCON project at Fort Irwin, CA. These training requirements will be met with existing facilities at Fort Irwin until this urban training facility can be programmed and will have little impact to the readiness of the units stationed there.

FUTURE CAPABILITY OUTLOOK

The Army bases its strategy for its Sustainable Ranges Program on four principles: sustain required facilities, dispose of excess facilities, improve facility quality, and build-out critical facility shortfalls. These principles are evaluated using the Army's Installation Status Report (ISR) Program, which employs a color-coded rating scheme of green, amber, red, or black. The principles, and their future outlook, are as follows.

- ▶ **Sustain Required Facilities.** The Army's goal is for range facilities to maintain a green or amber mission support rating within the ISR Program.

- ▶ **Dispose of Excess Facilities.** Range facilities that are no longer required or do not meet training requirements will either be reconfigured to meet training requirements or included in the installation disposal plan.
- ▶ **Improve Existing Facility Quality.** The Real Property Planning and Analysis System (RPLANS) estimates the cost of improving Training Support System (TSS) facilities, currently rated with an ISR-Infrastructure quality rating of red or black at \$105M. TSS has programmed approximately \$14M per year to invest in these improvements. Additionally, the Enhanced Performance Round (EPR), which requires an increased surface danger zone, may require military construction (MILCON) to mitigate impacts.
- ▶ **Build-out Critical Facility Shortfalls.** RPLANS estimates the cost of fulfilling 80 percent of TSS facility quantity shortfalls in RPLANS at \$1.5B. The Army utilizes several mechanisms (e.g., program reviews) to review and validate all training support projects. These projects and their requirements are also coordinated with the MILCON Integrated Product Team (IPT) co-chaired by the Deputy Chief of Staff G-3/5/7 and the Assistant Chief of Staff for Installation Management. Tenant Command requirements and changes are coordinated with land holding commands within the Army.

CRITICAL ISSUES: ENCROACHMENT

Endangered Species Act (ESA) Compliance

DoD has a greater density of endangered and threatened species than any other federal agency, and the Army has the greatest density of endangered species within DoD. The Army is currently responsible for addressing 184 threatened and endangered species listed under the ESA on 79 installations. Over the 10-year period from FY2003 to FY2013, the Army expended over \$365M to implement ESA compliance. This amount does not account for resource expenditures for manpower, purchase of conservation easements off the installation, or the costs associated with workarounds to facilitate maneuver and live fire training.

Endangered Species Act Compliance Impacts to the Army Mission.

In general, listing species and their critical habitat under the ESA affects the Army's readiness by preventing Army units from achieving training proficiency levels due to limits on ranges, maneuver

space, live fire, and impact areas. This also results in higher costs related to training, either by forcing units to train away from home station (transportation costs), or by compressing the maneuver training load on smaller tracts of land, thus increasing the costs to repair those lands. Army installation staffs are continuously working to lessen or eliminate ESA compliance restrictions. The following are types of impacts to the Army mission resulting from ESA compliance:

- ▶ Restricting, seasonally or permanently, the availability of areas for unit training
- ▶ Restricting or eliminating the use of certain weapons, ammunition, pyrotechnics, or smoke
- ▶ Managing training areas for species conservation rather than military training requirements
- ▶ Expending resources (monetary and manpower) for species-specific studies, conducting of field monitoring, and mitigation actions
- ▶ Expending resources (monetary and manpower) to purchase conservation easements on private lands to support ESA efforts
- ▶ Changing existing infrastructure to accommodate species requirement

Candidate Species Management

Candidate species are those for which the U.S. Fish and Wildlife Service (USFWS) has sufficient information on their biological status and threats to propose them as endangered or threatened under the ESA, but development of a proposed listing regulation is precluded by other higher priority listing activities. In 2011, the USFWS entered in to a settlement agreement with several non-governmental organizations (NGOs) that stipulated the USFWS will complete listing determinations for 251 candidate species by September 2017.

Of the 251 Candidate Species under USFWS listing determination review, the Army has 68 candidate species on 44 installations that will have some degree of impact to mission. Of those 68 species, there are five located on three different Army installations with the potential to significantly impact Army training:

- ▶ Greater Sage Grouse at Yakima Training Center (YTC), WA, and Hawthorne Army Depot, NV
- ▶ Roy Prairie Pocket Gopher at Joint Base Lewis-McChord (JBLM), WA
- ▶ Streaked Horned Lark at JBLM
- ▶ Taylor's Checkerspot Butterfly at JBLM
- ▶ Louisiana Pine Snake at Fort Polk, LA

SUMMARY OF MAJOR CHANGES IN ENCROACHMENT LIMITATIONS

Individual Ranges with Major Change.

While it is difficult to predict the specific impacts to training from candidate species that are not yet listed under the ESA, the Army anticipates the following impacts resulting from listing candidate species:

- ▶ **JBLM and YTC:** There are three BCTs and seven functional/multi-functional brigades assigned to JBLM. They accomplish their training mission on both JBLM and at YTC. JBLM and YTC together contain four of the five candidate species that could significantly and negatively impact training. If the candidate species are listed, large maneuver areas, maneuver live-fire ranges, and drop zones at JBLM and YTC could be off-limits both permanently and seasonally (from April to August due to breeding seasons) each year. This will greatly reduce the Army's ability to train these units to their requirements. Additional expenditure of resources is also likely due to mitigation, monitoring, and new range procedures to ensure compliance.
- ▶ **Fort Polk:** As one of only two Combat Training Centers in the U.S., Fort Polk hosts a number of visiting BCTs and supports extensive, large-scale live fire training events. Listing the Louisiana Pine Snake could require Fort Polk to limit the amount of existing property for off-road maneuver training, which would impact Army's ability to train and prepare home station and visiting BCTs for deployment. Additional expenditure of resources is also likely due to mitigation, monitoring, and new range procedures to ensure compliance.

Listing candidate species will cause the Army to implement new mitigation and monitoring strategies and procedures that will likely diminish the training mission, affecting the Army's ability to continue to produce a ready operational force.

SUMMARY OF EMERGING ENCROACHMENT ISSUES

Alternative Energy Projects

The nation's increasing emphasis on energy security and renewable energy sources has increased the number of energy infrastructure projects with 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. Some of these projects are being driven internally by the Army as sponsored projects on its installations, and others are externally by other federal agencies and private developers. To date, relatively few alternative energy projects have had a negative impact on Army range capabilities; however, a small number of projects have had the potential for significant impact. Continued diligence is necessary to ensure that energy infrastructure projects receive a thorough review for their potential to have serious negative impacts on Army missions and training capability.

1.2 MARINE CORPS

GENERAL ISSUES RELATED TO RANGE CAPABILITY AND ENCROACHMENT

The Marine Corps' 2012 range capability and encroachment range assessments are valid and current with the exception of those issues highlighted in this section.

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 \$800M in ranges. The cornerstone of the program is range modernization through (1) sustainment of ranges to retain 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 instrumentation, targets, and training systems. Range modernization requires a substantial, ongoing commitment of resources to address each of these categories. In the FY2014 FYDP, funding will shift from investment in new ranges and systems to ensure the adequate sustainment of current capability.

Mission Capable Ranges supports the Commandant of the Marine Corps' Vision and Strategy 2025 Initiative. Vision and Strategy 2025 advances the post-Operation Enduring Freedom requirement to train scalable Marine Air Ground Task Forces (MAGTFs) and their component units in an expanding number of essential missions. The expanding spectrum of training requirements and greater capability of weapons systems will increase demand for ranges to support multiple training missions, leading to more intensive use of Marine Corps installations (MCIs) for individual and unit-level training, as well as concentrated maneuver and live-fire engagement areas for MAGTF-level training.

At the same time, the reality that a 21st century battlespace is measured in vast distances covered rapidly by highly capable forces increases the demand for extensive training areas and airspace that exceed the limitations of a single installation. Moreover, as Marine Corps forces are permanently re-deployed from contingency operations to home stations, the training load on bases will increase. More intensive and extensive training demands on MCIs, other DoD installations, and non-DoD lands and airspace used for training are to be expected, notwithstanding reductions in the size of the force. Any decrease in range demands due to force reductions will be more than offset by expansion in the spectrum of training requirements and the increase in overall training area necessary to execute them. In summary, MCIs will be required to support training of Marines and Marine Corps units in an expanding array of mission-essential tasks that require ever-increasing amounts of training space and increasingly sophisticated range resources. To that end, the Marine Corps views ranges and training area resources not as disparate isolated locations, but as an interdependent system of Marine Corps, DoD, and non-DoD resources, with MCIs providing core ranges for live-fire and maneuver training.

CRITICAL ISSUES: RANGE CAPABILITIES

The Marine Corps has previously identified Service-level deficits in its ability to train for the many missions it prepares to execute. 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 critical deficiencies:

- ▶ Marine Corps ranges presently lack the capability to fully exercise a large MAGTF in a realistic, doctrinally appropriate training scenario. The Marine Corps Air Ground Combat Center (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 Marine Expeditionary Brigade (MEB) exercise. Expansion of MCAGCC would correct this training and readiness deficiency and significantly enhance the Marine Corps' ability to continue providing trained Marines, Marine units, and MAGTFs in furtherance of national security objectives. On February 11, 2013, the Secretary of the Navy issued the Record of Decision (ROD) identifying Twentynine Palms as

the only range capable of expansion to accommodate MEB-level training. The ROD selects the alternative that best balances mission needs with recreational use by proposing to withdraw approximately 91,000 acres of the Johnson Valley for exclusive military use and 41,000 for joint military and recreational use. Having completed the National Environmental Policy Act (NEPA) process and obtained the necessary authorizations from DoD and initial funding from Congress, the Department of the Navy and the Marine Corps, in conjunction with the Bureau of Land Management (BLM), pursued land withdrawal legislation from Congress. Congress authorized the land withdrawal as part of the 2014 NDAA. Once the land has been withdrawn, the Marine Corps can pursue establishing the additional airspace needed for MEB-level exercises.

- ▶ Inadequate training opportunities exist for the Marine units stationed in the Western Pacific and Hawaii. MCIs in Hawaii lack sufficient range capabilities to fully support training of units stationed there. These units therefore attempt to satisfy their training requirements on other-Military Service facilities, particularly U.S. Army ranges in Hawaii. Relying on other Military Service facilities, however, presents challenges in accommodating multiple Service missions and requirements while working to ensure Marines receive adequate training. The Marine Corps is in the process of assessing approaches to the challenging issue of mitigating range shortfalls within Hawaii. In coming years, some forces in Okinawa will relocate to Hawaii as part of the Defense Policy Review Initiative (DPRI), further exacerbating this challenge. DPRI also includes relocation of units from Okinawa to Guam and developing training ranges and infrastructure on Guam. Ranges that support training of individual skills are part of the Guam Supplemental Environmental Impact Statement (EIS). U.S. Pacific Command (USPACOM), with the Marine Corps as executive agent, is also undertaking an environmental and planning effort to develop new unit and combined arms training range capability and capacity in the Commonwealth of the Northern Mariana Islands (CNMI) as part of a separate action to address existing and future training deficiencies in the Western Pacific, specifically the Mariana Islands. These ranges will provide additional training opportunities for Marines stationed in Okinawa and the Hawaiian Islands. Finally, efforts to
- establish training opportunities in Australia are also underway to address Western Pacific units' training area shortfalls.
- ▶ 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. Currently, there is no Marine Corps range on the East Coast where pilots can train using precision guided munitions. To address this requirement and training shortfall, the Marine Corps has assessed potential alternatives, including expanding the Townsend Bombing Range in GA. Based on thorough assessment of area capabilities, a Final EIS for the Proposed Modernization and Expansion of Townsend Bombing Range was publicly distributed in March 2013 identifying the expansion of Townsend Bombing Range from 5,183 acres to 33,619 acres through the purchase of 28,436 acres of privately-owned land as the best alternative for securing this east coast capability. An ROD to proceed with the expansion was signed January 17, 2014.
- ▶ MCAS Yuma manages the Chocolate Mountains Aerial Gunnery Range (CMAGR) which is a part of the Bob Stump Training Complex and is located in southern California. CMAGR is the premier Marine Corps aviation range and is used by all the Military Services and allied nations. This range consists of about 460,000 acres. Prior to the FY2014 NDAA, approximately half of the land was under the jurisdiction of the Department of the Navy and half under the Department of Interior (DOI). The FY2014 NDAA transferred the administrative jurisdiction of the DOI lands to the Department of the Navy. This Congressional action resulted in the retention of this premier air and ground range, one of the few ranges within the Department of the Navy capable of supporting the use of all aviation-related ordnance, including precision guided munitions.
- ▶ As affirmed in Vision and Strategy 2025, the capability to fight from the sea and to operate within the littorals is a core Marine Corps competency. The Marine Corps is committed to preserving and enhancing the capabilities of its primary amphibious training bases at Camp Pendleton and Camp Lejeune, and to developing opportunities for increased littoral training in Hawaii. These installations lack fully developed maneuver corridors, training areas, and airspace to adequately support ground and air maneuver

inland from landing beaches. Addressing these deficits is a priority.

EMERGING ISSUES: RANGE CAPABILITIES

Fiscal constraints impact the ability of the Marine Corps to invest in required training infrastructure, and to effectively manage its required existing resources in support of training.

Fiscal constraints likely will severely restrict investment in new ranges. For example, Mission Capable Ranges is focused on developing aviation training on ranges and enhancing access to training airspace, in addition to expanding Townsend Bombing Range and special use airspace (SUA) at MCAGCC Twentynine Palms. In particular, the Marine Corps is engaged in developing airspace access, landing zones, and range support requirements to accommodate MV-22 Osprey and Unmanned Aircraft Systems (UAS) capabilities, 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, Constructive (LVC) environments, to the extent feasible given fiscal constraints. Training technologies have the capability to substantially increase the training value provided by ranges, and to enhance the realism of virtual and constructive training. Implementing advanced training technologies is a critical component of range modernization.

As noted above, the Marine Corps has made substantial investments in range capabilities over the past decade. Future programming for procurement of new range-related investments is substantially reduced. Funding priority is instead allocated to sustainment and recapitalization of existing capabilities. The FY2014 level of operations and maintenance funding will meet the basic requirements of sustaining current capabilities. Future fiscal reductions may adversely impact the Marine Corps' ability to maintain range resources. Without sufficient commitments focused at a minimum on maintenance and re-capitalization, today's range capabilities will become tomorrow's liabilities, with adverse impacts on the ability of MCIs to support required training with mission-capable ranges.

SUMMARY OF MAJOR CHANGES IN RANGE CAPABILITY

Changes in range capabilities tend to be incremental; therefore, any year-to-year changes in capability are

generally minor. Major changes are likely to be apparent only in trends measured over multi-year periods or at the completion of major initiatives, such as the range expansions at the MCAGCC Twentynine Palms and proposed range expansion of Townsend Bombing Range. No range complex in the Marine Corps inventory has experienced major changes in range capability since the 2012 SRR. Detailed assessments to be completed as part of the 2015 SRR, and will provide a basis for assessing capability trends and identifying significant changes to range capabilities.

FUTURE CAPABILITY OUTLOOK

The Marine Corps expects its range capabilities to continue to adequately support the needs of the Operating Forces and the Service assuming reliable and steady funding for range maintenance and critical expansion to correct for known training and readiness deficiencies. However, failure to realize the objectives of key initiatives, including the expansion of MCAGCC Twentynine Palms, Townsend Bombing Range, and Guam/CNMI, and the reduction of constraints on amphibious landing beaches, would introduce risks to the training enterprise that would require reevaluation of the adequacy of range capabilities.

CRITICAL ISSUES: ENCROACHMENT

Encroachment that constrains the use of MCIs for realistic military training remains a significant concern. Continued population growth, increased levels of environmental regulation, and expanding development in the regions that are home to MCIs generate pressure on scarce resources (land, airspace, water space, radio frequency spectrum) critical to current and future military training, testing, and general mission activities. The Marine Corps programmatically assesses and addresses encroachment issues.

The primary encroachment at Marine Corps range complexes includes impacts on training from the presence of species listed under the Endangered Species Act (ESA), restrictions on allowed munitions, degraded access to the frequency spectrum, noise-based restrictions on training, and incompatible adjacent land uses. Encroachment also impacts MCIs that do not provide significant range resources, but which are home to operational forces that utilize nearby training areas. Encroachment at these installations also affects training and mission readiness.

Managing significant sources of encroachment to minimize impacts on training while complying with applicable regulations, requires a substantial commitment of resources. The Marine Corps continues to address all areas of encroachment aggressively with focused programs that have achieved notable successes. Nevertheless, the Marine Corps remains concerned that encroachment continues to present a substantial threat to the capability of our installations to perform their military missions.

SUMMARY OF MAJOR CHANGES IN ENCROACHMENT LIMITATIONS

Changes in encroachment impacts tend to be incremental. Major changes are likely to be apparent only in trends measured over multi-year periods or as the result of new regulatory initiatives, such as listing of species as threatened or endangered, or designation of critical habitat. No range complex in the Marine Corps inventory experienced major changes in encroachment impacts since the 2012 SRR. Detailed assessments will be completed as part of the 2015 SRR, and will provide a basis for assessing encroachment trends and identifying significant changes in encroachment limitations.

SUMMARY OF EMERGING ENCROACHMENT ISSUES

Within Marine Corps Installations Command (MCICOM), the G-7, Government and External Affairs Directorate, is responsible for encroachment planning and management. This role is critical to Marine Corps operations and training as ongoing and emerging types of encroachment continue to challenge the capability of MCIs to accomplish their mission. Among these emerging encroachment issues is the increasing rate of renewable energy development in the vicinity of installations and training space. Development of wind, solar, and geothermal power and associated transmission infrastructure both on- and off-shore will require close attention to ensure the Marine Corps' access to training areas in the air, on land, and within the electromagnetic spectrum is not degraded. Climate change has potentially wide-ranging effects, especially in the coastal areas where the Marine Corps trains and operates. The Marine Corps is concerned that such effects could alter the capabilities of installations over time; therefore, these risks must be analyzed, monitored, and addressed in installation planning.

Emerging encroachment issues have the potential to be exacerbated as new weapon systems enter the inventory and/or re-deploy from combat. For example, the F-35 JSF, MV-22 Osprey, KC-130J Harvest Hawk, and UAS bring new capabilities to the Marine Corps that require greatly expanded training areas. Encroachment not only impacts access to existing training space, but also affects the ability of the Marine Corps to access the extended training areas and airspace necessary to train to standards using new systems and associated tactics and procedures.

1.3 NAVY

Capability and encroachment issues detailed in the 2013 SRR remain valid except where updated or specific issues are added for inclusion in the 2014 report. Range capability data assessments last presented in the 2012 SRR remain valid. Encroachment data and issues remain essentially the same but are updated in this year's report, including foreign acquisition of resources or land assets in the vicinity of Navy ranges as a new and significant encroachment issue.

GENERAL ISSUES RELATED TO RANGE CAPABILITY AND ENCROACHMENT

Multiple issues and concerns combine to impact range infrastructure operations and maneuver space for all warfare areas, and degrade the security of information and tactics exercised. Encroachment mitigation, as well as the loss of training support capabilities, impinge on training realism and substantially degrade training quality. The unforeseen impact of cumulative encroachment activity is a growing concern.

Navy leadership is focused on several range capability and encroachment issues that may impact future readiness training:

- ▶ Federal Communication Commission (FCC) initiatives to re-allocate military frequency spectrum bands for civilian and commercial use in support of the National Broadband Plan directly impact the Navy's use of the frequency spectrum to test, train, and operate.
- ▶ Mitigating energy development issues that potentially degrade training quality, reduce testing capabilities, or limit tactical maneuver. While the Navy's commitment to the nation's conventional and renewable energy goals remains the same, commercial energy interests are exerting sustained pressure on training and testing space availability and utility.

- ▶ Proposed renewable energy development near Naval Air Weapons Center (NAWC) Patuxent River, MD; the Relocatable Over the Horizon Radar (ROTHR) facility located at Chesapeake, VA; Naval Weapons Systems Training Facility (NWSTF) Boardman; offshore wind development proposed south of Pearl Harbor, HI, NAWC China Lake, CA/Nevada Test and Training Range, Searchlight, NV. The Navy has identified these areas as being high risk to degrade national security from wind projects.
- ▶ Foreign owned or controlled companies acquiring assets in locations near Navy training and testing ranges. In some cases this has provided an opportunity for persistent surveillance of Navy activities.
- ▶ The proliferation of ocean observing systems may significantly impact the security of training and operations on sea ranges.
- ▶ Increased maritime commercial activity and large vessel deep-water requirements negatively impact offshore range access and tactical maneuvering capabilities due to port access re-routing, traffic separation schemes, and navigation safety issues.

These challenges are discussed in greater detail in the following subsections.

CRITICAL ISSUES: RANGE CAPABILITIES

The Navy is focused on preserving training range capabilities that depend on continued use of viable portions of the frequency spectrum. Specifically, the FCC initiatives to re-allocate military frequency bands for civilian and commercial use in support of the National Broadband Plan directly impact the Navy's use of the frequency spectrum to test, train, and operate.

Frequency Spectrum Use Competition—The National Broadband Plan

Demand for use of the electromagnetic spectrum is increasing, both commercially and within DoD. In March 2010, the FCC introduced the National Broadband Plan to Congress. In June 2010, the Administration released a memorandum, "Unleashing the Wireless Broadband Revolution," directing the identification of 500 MHz of new spectrum for this expansion, without impacting existing and planned federal capabilities. Soon after, the National Telecommunications and Information Administration (NTIA) introduced specific reallocation proposals for 11 federal frequency

bands to support the FCC plan to connect 100 million homes in the next 10 years with broadband under the National Broadband Plan. In June 2013, the White House followed up its June 2010 Executive Memorandum with another titled, "Expanding America's Leadership in Wireless Innovation.. The portion of the electromagnetic spectrum targeted by the commercial wireless industry (below 3 GHz) is heavily encumbered with existing users, including many military subscribers. Relocating these users to other portions of the spectrum is a complicated, expensive, and time-consuming process. It is imperative that the Navy remain fully engaged in the military spectrum reallocation discussions.

To date, the Navy has completed three assessments:

- ▶ Fast Track Report (1675–1710 MHz, 1755–1780 MHz, 3500–3650 MHz, and 4200–4220 MHz, 4380–4400 MHz), dated 15 November 2010
- ▶ An Assessment of the Viability of Accommodating Wireless Broadband in the 1755–1850 MHz Band, dated 27 March 2012
- ▶ U.S. Navy Initial Response on the 5 GHz National Broadband Plan Assessment, dated 16 May 2012

These studies indicate there could be significant operational impacts to Navy systems. One of the consolidated studies from NTIA concluded it will take almost \$18B and more than 10 years to vacate most (not all) federal operations from 1755–1850 MHz (http://www.ntia.doc.gov/files/ntia/publications/ntia_1755_1850_mhz_report_march2012.pdf).

Several critical Navy range capabilities are directly challenged by the broadband initiative. The first is the employment of modern combat weapon systems within an electronic warfare (EW) threat representative environment. Today's military frequency band allocation supports training with weapon sensors and targeting systems, instrumented range monitoring and recording systems, and threat replicating EW defense systems (e.g., surface-to-air missile radars, communication jammers). Training within a robust EW environment saturated with offensive and defensive weapon systems poses unique weapon system deconfliction challenges similar to what is experienced in modern conflict and ensures the greatest fidelity for realistic training. These systems require DoD managed and controlled frequency bands to support military units during live training. Numerous spectrum bands, utilized by the Navy

and other defense agencies, are increasingly encroached upon by non-DoD organizations.

Another critical capability concern at Navy instrumented training range complexes is the proposed loss of spectrum that supports employment of the Tactical Combat Training System (TCTS), an instrumented aerial and surface tracking system needed for minute-by-minute operation, playback, and assessment of recorded multi-participant training evolutions. The reallocation of the TCTS frequency band (1755–1850 MHz) is in the NTIA 10-year assessment plan that supports the National Broadband Plan.

Aeronautical mobile telemetry (AMT) is the third capability potentially impaired at ranges from spectrum repurposing. AMT systems operate from manned aircraft, unmanned vehicles, aerostats, missiles, or other platforms to provide real-time flight characteristics from the airborne vehicles to the ground, real-time video of cockpit or project information, real-time monitoring of flight research or test parameters, and real-time command and control of the vehicle.

The use of UAS has grown significantly with deployment of more sophisticated payloads for expanded functions of law enforcement, communications relay, firefighting, science observation, and search and rescue. The specific UAS under study in the 1755–1850 MHz band are small, some of which are small enough to carry in a backpack and for a single person to launch and operate. Many of these systems require wide bandwidths.

The potential for harmful interference exists for several satellite systems. Interference to meteorological satellites (METSAT) is being assessed across the 1675–1710 MHz band, and the potential for harmful interference to and from DoD's Space Ground Link Subsystem satellite command and control links is being assessed across the entire 1755–1850 MHz band.

If the 1755–1850 MHz band is not protected or properly funded for replacement in technically equivalent spectrum, existing enabling capabilities as discussed above as well as emerging capabilities such as secure LVC (sensor stimulation) will be lost. This loss would seriously impact the Navy's training superiority established through instrumented training.

On July 17, 2013, the DoD Chief Information Officer (CIO) sent a memorandum to the NTIA, FCC, and

Office of Management and Budget (OMB) laying out a DoD alternative proposal for the 1755–1850 MHz band. The alternative proposal lays out a hybrid approach (stay, share, and relocate) to the future use of the 1755–1850 MHz band that includes the following key tenets:

- ▶ DoD will retain indefinite sole primary access to 1780–1850 MHz.
- ▶ FCC will auction 1755–1780 MHz as part of their AWS-3 action.
- ▶ DoD will share 2025–2110 MHz on a co-primary basis with FCC users.
- ▶ DoD systems will share spectrum with commercial users in the 1755–1780 MHz band as follows: satellite operations, EW, Air Combat Training System (where required), and Joint Tactical Radio System at six sites

DoD estimates the cost to execute this plan to be \$3.5B, but more detailed cost analyses will be conducted during the transition planning process. The DoD alternative proposal has to date been largely accepted by NTIA, FCC, and OMB. If implemented fully, it will provide the necessary reallocation compensation and comparable spectrum to ensure no loss of critical U.S. military warfighting capability and no loss of collective training superiority established through instrumented training.

SUMMARY OF MAJOR CHANGES IN RANGE CAPABILITY

There are no major changes to range instrumentation capabilities or physical range spaces planned for FY2014. In FY2013, however, the Navy reassessed and reclassified range complexes for SRR consideration based on whether resources are dedicated to range capabilities and whether designated complex range space was required routinely. As a result, the Diego Garcia, Guantanamo, and Northern California Range Complexes will no longer be assessed as part of the SRR.

The Atlantic Test Range, Atlantic Underwater Test and Evaluation Center, China Lake, and Point Mugu Sea Range are T&E assets, but will continue to be assessed for the SRR because they are routinely used for Fleet readiness training. Boston, Narragansett Bay, and Atlantic City are retained because that range space is routinely used for independent training operations.

Under the planning and fiscal responsibilities of U.S. Special Operations Command, Naval Special Warfare Command (NSWC) is establishing ground impact

ranges in conjunction with the National Aeronautical and Space Administration (NASA). Initial and full operational capability will not take place until beyond FY 2014.

FUTURE CAPABILITY OUTLOOK

The Navy expects its range capabilities to continue to support future readiness training. Risk induced from additional fiscal constraints is unpredictable; however, there are multiple budgeting cycles in motion.

CRITICAL ISSUES: ENCROACHMENT

Alternative Energy Development: Wind Farms

The Navy is working to mitigate the effects of renewable energy exploration and its impacts on training. The Navy will continue to participate in the DoD Siting Clearinghouse, which serves as a single DoD point of contact for all civil or non-governmental entities to determine renewable energy project impacts to Navy readiness interests. In the case of offshore wind energy project proposals, close coordination with the Under Secretary of Defense for Personnel and Readiness (USD(P&R)), the Bureau of Ocean Energy Management (BOEM), and individual state offshore energy task forces continue to pay dividends in establishing compatibility between range training requirements and energy interests.

The Navy's successful engagement with civil and commercial interests relies on detailed proposal descriptions, open discussions of specific military operational limitations, and an iterative process with energy stakeholders such that actionable feedback is generated for both parties. The more detailed and complete the energy proposal from commercial developers, the more accurate and comprehensive the Navy's impact assessment. While the Navy has had success with wind farm developers near Naval Air Station (NAS) Kingsville and NAS Corpus Christi, mitigation of the effects to readiness may not always be possible. Proposed renewable energy development near Navy facilities at Patuxent River, MD; Chesapeake, VA; Boardman, OR; Pearl Harbor, HI, and China Lake, CA/Searchlight, NV could cause significant degradation to the Navy mission, and it is unclear if mitigation efforts will eliminate the potential impacts to Navy readiness.

Foreign Investment in the United States

The Navy, along with OSD, is becoming increasingly aware of foreign acquisition or ownership of assets near training and testing areas in the United States.

For example, a foreign company began to develop wind farms within the restricted airspace that supports NWSTF Boardman in Oregon in 2012, and a foreign firm acquired a closed gold mine adjacent to the Fallon Range Training Complex in 2010. The number of such transactions is growing and Navy ability to staff and oversee appropriate solutions is decreasing. The development of additional statutory and regulatory mechanisms is being considered to address the problem of security encroachment.

Proliferation of Ocean Observing Systems

The motivation for the majority of Ocean Observing Systems (OOS) is marine mammal and weather research, climate research, tsunami warning/verification, and seismic/earthquake monitoring. The littoral nature of Navy training ranges and the unique activities that occur there make the ranges valuable for data gathering in each of those categories. The open nature of the high seas makes it possible for data to be gathered under innocent circumstances, but ultimately be exploited as an operational vulnerability.

Where Navy range complexes are encroached by OOS, Navy and national security interests are negatively impacted. The three training ranges of immediate concern are (1) the Northwest Training Range Complex, (2) the Southern California Offshore Range Complex (SOCAL), and (3) the Hawaii Range Complex. In the future, the east coast Shallow Water Training Range will be vulnerable to the same challenges.

Legitimate protection of all Navy national security interests would require controlling access to all marine monitoring, the majority of which is funded by non-DoD or international entities. This universal approach is not practicable. However, the Navy has created an OOS Notification Office and Situational Awareness Office to improve knowledge about systems entering the water. Through these efforts, the Navy will continue cooperation and consultation with civilian agencies, foreign navies, academic institutions, and industry to build on current agreements and allow for additional negotiated agreements as appropriate on the placement of sensors and shared data management.

The Navy's priority is to build and sustain combat skills and readiness. The Navy's objective via training range capabilities is to sustain realistic training environments and space for freedom of tactical maneuver. When faced with challenges in achieving either of those objectives, the Navy will work to achieve a mitigated solution that preserves security of operations and

training capabilities, but will not compromise the ability to survive and prevail in combat.

Seaspace Encroachment/Port Access Routing

In the Atlantic area of responsibility, impacts from offshore energy development and anticipated increases in vessel traffic and ship size from Panama Canal improvements may affect continued access to traditionally scheduled seaspace adjacent to fleet concentration areas.

Local maritime agencies recommended re-routing a traffic separation scheme through the eastern portion of the Naval Sea Systems Command's (NAVSEA's) Norfolk Shipboard Electronic Systems Evaluation Facility (SESEF) range, affecting military testing and training. Located in the vicinity of Chesapeake Light, SESEF supports both U.S. Navy and U.S. Coast Guard requirements. Standoff distance and freedom of movement are critical to safely navigate and accurately complete SESEF instrumented events. In nearby seaspace, efforts are underway to modify a portion of the surface danger zone frequented by U. S. Fleet Forces units east of Dam Neck, VA as a result of local port authority requests for navigation routing improvements. Both of these scenarios highlight the primary and second-order effects posed by the changes to maritime activities, and measures either into or adjacent to seaspace required for combat test and training.

To anticipate potential impacts to mission, the Navy must remain an active participant in consultations and planning related to potential changes to transit routes and shipping corridors. The fleet continues to work closely with BOEM, U.S. Coast Guard, and maritime agencies to help mitigate impacts to test and training activities as evidenced by Navy input and participation in the U.S. Coast Guard's Atlantic Coast Port Access Route Study.

Candidate Species Management

In FY2013, the Navy entered into an ESA "Conference" pursuant to Section 7(a)(4) for the Washington ground squirrel with the USFWS in order to lessen or obviate future impacts to military readiness activities proposed for the Navy's Boardman Range in Oregon should the species ultimately become listed under the ESA. While not currently protected by the ESA, the Washington ground squirrel has been identified by USFWS as a candidate for listing. The Washington ground squirrel has been added to the USFWS's "Multiple District Litigation" Plan (MDLP) to address the listing needs of many candidate species as part of a court-

ordered settlement agreement. Some of the best remaining habitat of the squirrel is located on the Navy's Boardman range and non-government organizations expressed concerns that any increase in ground-disturbing activities on the range will cause adverse effects to the squirrel. The Navy's conference with the USFWS on this candidate species is a unique approach to ensuring all conservation needs for this species are identified early so the Navy has some prior knowledge of what can be done to lessen impacts on training should the species ultimately be listed. The MDLP target date for a listing proposal is February 2014.

SUMMARY OF MAJOR CHANGES IN ENCROACHMENT LIMITATIONS

The Navy noted no major changes in encroachment factor impacts on individual ranges for the 2014 SRR and will evaluate the full suite of ranges again as part of the 2015 SRR effort.

EMERGING ENCROACHMENT ISSUES

Conventional Energy Development: Geothermal

The Navy is working in cooperation with the DOI as the DoD lead to explore the feasibility of geothermal development on testing and training ranges in the southwestern United States. Geothermal development presents unique challenges in that geothermal plants generate light and heat signatures that affect the use of night vision devices and infrared weapons systems, including aircraft defensive systems. Additionally, the ability of the Navy and DOI to find mutually suitable locations is challenging due to the limited availability of suitable locations with the right geothermal heat resource characteristics. The Navy has started exploring how to mitigate the adverse impact on readiness while maintaining the ability to develop this resource.

1.4 AIR FORCE

The Air Force's 2012 range capability and encroachment assessments remain valid with the exception of those issues highlighted in this section.

GENERAL ISSUES RELATED TO RANGE CAPABILITY AND ENCROACHMENT

The Air Force's focus for 2014 is on areas that are critical to ensuring the viability of Air Force range infrastructure.

- ▶ Posturing for the new Defense Strategy
- ▶ Enhancing capabilities to support 5th Generation Aircraft and associated weapons

- ▶ Addressing incompatible development near Air Force training areas
- ▶ Addressing the issue of foreign business interests through appropriate federal channels

CRITICAL ISSUES: RANGE CAPABILITY

Posturing for the New Defense Strategy

For more than 20 years, the Air Force conducted combat and combat support missions in the U.S. Central Command (USCENTCOM) area of responsibility. For the last decade, the Air Force has been heavily engaged in Operation Iraqi Freedom and Operation Enduring Freedom. The Air Force range enterprise adapted to the demands of these conflicts and evolved rapidly to supply a training environment consistent with the demands of operations in Iraq and Afghanistan. The Air Force enterprise also focused on desert and mountainous terrain, the creation of urban terrain complexes, and the incorporation of low-tech targets and simulated threats.

The new Defense Strategy requires re-focusing for operations against a more technologically advanced adversary. These potential adversaries possess complex air defenses and highly sophisticated electronic countermeasures, including Global Positioning System (GPS) and radar jamming capabilities. To provide the realistic training required for combat-ready aircrews, Air Force test and training ranges must upgrade range infrastructure to accurately reflect the complex, dense combat environment crews will likely encounter operationally. These upgrades include realistic integrated air defenses, high-fidelity moving targets, and the ability to conduct operations in a contested/degraded environment.

Enhancing Capabilities to Support 5th Generation Aircraft and Associated Weapon.

The technological advances incorporated in 5th generation aircraft and associated weapons represent an unprecedented leap in combat capability. These advances allow crews to identify and engage multiple targets from greater distances with improved accuracy. The technology of precision-guided munitions has generally shifted the focus of training from weapon employment to target identification, subsequently increasing the complexity of the targets required to accomplish realistic training. The greater employment distances of these weapon systems add another stressor to range management as individual sorties require larger portions of the range to train safely and

effectively. Additionally, the low observable qualities of the 5th Generation Aircraft require a different set of feedback mechanisms in support of electronic attack and defense.

A SUMMARY OF MAJOR CHANGES IN RANGE CAPABILITY

The Air Force noted no major changes in individual range capability for the 2014 SRR and will evaluate the full suite of ranges again as part of the 2015 SRR effort.

FUTURE CAPABILITY OUTLOOK

Without additional financial investment, Air Force test and training ranges will not improve to meet the demands of the current defense strategy and 5th generation training requirements. The 2025 Air Test and Training Range Enhancement Plan details the Air Force's investment priorities to ensure future test and training range capabilities in support of its focus areas.

CRITICAL ISSUES: ENCROACHMENT

The competing national priorities of energy independence, nationwide broadband, and a strong defense often manifest themselves on Air Force ranges. The geographic boundaries of these ranges were defined decades ago and designed to place hazardous activity in locations with little impact to the general populace. As the U.S. seeks energy independence, these once isolated test and training ranges are often in the midst of prime development areas for renewable energy. The traits which make them ideally suited for Air Force test and training are also valued by solar and wind energy developers. The resulting development outside of range boundaries can degrade the capability to effectively test and train inside the range boundaries. This is particularly evident when the Doppler Effect from wind turbines off the range affects the accuracy and reliability of radar systems used on the range, by ground-based air defense radars and airborne search and targeting radars. The Air Force is working with OSD and other Military Services to determine areas around test and training ranges with potential adverse impacts from wind turbine installation. These "High Risk of Adverse Impact Zones" will provide developers with advance information on expected Air Force inputs to proposed wind turbine projects.

A rapidly growing challenge on ranges is the increased competition for frequency spectrum. Air Force ranges and the weapon systems that operate on them are equipped with a vast array of advanced electronic equipment. These devices rely on the availability of specific, pristine frequency bands to

relay test data, monitor training, and facilitate digital communication between airborne assets and ground stations. Some of these systems are assigned to frequencies located in bands currently under consideration for auction to commercial entities, potentially impacting testing and training capability.

A SUMMARY OF MAJOR CHANGES IN ENCROACHMENT LIMITATIONS

The Air Force noted no major changes in encroachment factor impacts on individual ranges for the 2014 SRR and will evaluate the full suite of ranges again as part of the 2015 SRR effort. The Air Force is actively involved with OSD and the other Military Services in addressing impacts and mitigation options for development-related encroachment issues near both Air Force and joint use ranges. Current Air Force collaborative discussions include proposed energy development near the Naval Air Weapons Station China Lake, CA and the White Sands Missile Range, NM.

A SUMMARY OF EMERGING ENCROACHMENT ISSUES

An emerging encroachment challenge is the increasing presence of foreign business interests in the vicinity of Air Force training ranges. When foreign companies build or acquire energy and mining projects near Air Force ranges, they gain the ability to maintain a permanent presence near areas vital to national security and potential access to sensitive information regarding national defense programs. For example, a company with Southwest Asia ties obtained an oil and gas lease near the Nevada Test and Training Range in 2011. The Air Force will continue to work through appropriate federal channels to address the issue of foreign investment near its ranges.

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DOD'S COMPREHENSIVE TRAINING RANGE SUSTAINMENT PLAN

NDAA Section 366(a)(1) required DoD to develop a comprehensive training range sustainment plan. DoD has established a complete range planning and management program under its SRI addressing this requirement. The SRI provides a flexible and adaptive planning framework that guides continuing, cooperative, and coordinated range sustainment efforts between the Office of the Secretary of Defense (OSD) and the Military Services, as well as mechanisms that facilitate cooperation with local, state, regional, other federal agencies and NGOs. The program includes policy, programming, outreach, legislative, and related efforts to address training requirements and long-term access to ranges, airspace, and seaspace.

This chapter builds upon the information from the 2013 SRR and highlights key aspects to meet NDAA Sections 366(a)(4)(c) requirements to report on SRI.

2.1 GOALS AND MILESTONES

DoD has used a set of shared goals and milestones since the 2006 SRR which have been revalidated and are applicable for this report. Using these goals as a common framework, each Military Service developed a set of milestones and actions to achieve common objectives. Tables 2-1 through 2-7 show the current status of each milestone. Based on annual assessment data, programmatic goals and milestones are reviewed and updated annually to ensure the SRI continues to effectively address potential future training requirements and constraints.

Table 2-1: Encroachment Actions and Milestones

(Goal: Mitigate Encroachment Pressures on Training Activities from Competing Operating Space [landspace, airspace, seaspace, and cyber issues])

ARMY

ACTIONS	MILESTONES	STATUS	ADDITIONAL SERVICE COMMENT
Review and maintain Installation Range Complex Master Plans (RCMPs).	Review and update RCMPs annually for required installations.	Updated; ongoing	100% of required installation RCMPs were updated and approved in 4th Quarter FY2013.
Execute the Army Compatible Use Buffer (ACUB) Zone Program to protect the military mission and offset training restrictions.	Implement ACUBs at installations to protect training, testing, and operations from encroachment effects, permanently protecting acreage of land from incompatible land uses. Continue programming validated environmental requirements to support ACUBs during Program Objective Memorandum (POM) 2016–2020.	Updated; ongoing	As of 2013, ACUBs have been implemented at 30 locations and more than 160,000 acres of land have been protected from incompatible use.
	Continue development of a consistent and clearly defined ACUB strategy, including metrics for program success and prioritization measures that build from the ACUB Implementation Guidance issued in FY2012.	Updated; ongoing	The ACUB strategy is a continuous follow-on effort to ensure synchronization with Army strategies and mission priorities.
Implement a focused community research process to provide the Army with a research-based understanding of community views regarding operational and perceived impacts of Army installations and training activities; and demonstrate an interest in public opinions, making the public part of the decision-making process.	Complete two additional installation community research efforts by 4th Quarter FY2012.	Partially completed	Due to resource reductions, no additional community research efforts were conducted in 2013.
	Draft and implement an ongoing strategy to continually update community research findings at major training installations by 3rd Quarter FY2013.	Partially completed	Due to resource reductions, no additional community research efforts were conducted in 2013.
Execute State Legislative Initiatives.	Conduct reviews with stakeholders, through the Army's Regional Environmental Coordinators to discuss adverse impacts of incompatible land uses near military installations and gain their support to address these issues.	Ongoing	

Table 2-1: Encroachment Actions and Milestones

(Goal: Mitigate Encroachment Pressures on Training Activities from Competing Operating Space [landscape, airspace, seaspace, and cyber issues])

MARINE CORPS

ACTIONS	MILESTONES	STATUS	ADDITIONAL SERVICE COMMENT
Continue to analyze and assess encroachment, quantitatively and qualitatively, at the installation, regional, and Service levels.	Include encroachment analysis in Regional RCMPs.	Ongoing	Details are included by region.
	▶ MCI—East	Ongoing	Initiated FY2012, to be completed FY2014. Regional encroachment assessments executed primarily through the ongoing Encroachment Control Plan (ECP) Program.
	▶ MCI—West	Complete	Completed FY2012.
	▶ MCI—PAC	Planned	Initiation of an MCI—PAC RCMP is dependent on developments in planning for the region including potential re-basing initiatives (Okinawa-Guam-Hawaii).
	▶ Execute ECPs	Ongoing	See below for ECP status.
	ECPs completed: ▶ MCAS Yuma ▶ MCAGCC Twentynine Palms ▶ Marine Corps Base (MCB) Quantico ▶ MCAS Cherry Point ▶ MCAS Beaufort/Townsend Range ▶ MCB Camp Lejeune/MCAS New River ▶ Blount Island Command ▶ Marine Corps Logistics Base (MCLB) Albany ▶ Combined ECP for Southern California installations (MCB Camp Pendleton, MCAS Camp Pendleton, MCAS Miramar, Marine Corps Recruit Depot [MCRD] San Diego) ▶ Joint (Navy/Marine Corps) Guam ▶ MCB Hawaii	Complete	
	ECPs ongoing: ▶ Marine Corps Mountain Warfare Training Center (MCMWTC) Bridgeport ▶ MCLB Barstow	Ongoing	MCLB Barstow and MCMWTC ECPs initiated FY2012; expected completion in FY2014.
	Facilitate/support regional inter-agency and inter-governmental partnerships: ▶ Western Regional Partnership (WRP) ▶ Southeast Regional Partnership for Planning (SERPPAS)	Ongoing	

Table 2-1: Encroachment Actions and Milestones

(Goal: Mitigate Encroachment Pressures on Training Activities from Competing Operating Space [landspace, airspace, seaspace, and cyber issues])

MARINE CORPS

ACTIONS	MILESTONES	STATUS	ADDITIONAL SERVICE COMMENT
Continue to evaluate, plan for, and execute encroachment partnering opportunities per 10 U.S.C. § 2684a.	▶ Execute buffer lands acquisition.		Partnership participation continues in ongoing regional inter-agency coordination, in furtherance of the objectives of the REPI program, and in coordination with the WRP and SERPPAS initiative.
	MCI-National Capital Region ▶ Quantico (416 acres [ac.]) MCI-EAST ▶ MCAS Beaufort (3,128 ac) ▶ Townsend Bombing Range (29,118 ac) ▶ MCAS Cherry Point (5,830 ac) ▶ Camp Lejeune (2,796 ac) MCI-WEST ▶ Camp Pendleton (1,681 ac) ▶ Twentynine Palms (1,582 ac)	Complete	Continuing to identify additional opportunities to execute encroachment-partnering projects in support of installation missions.
	MCI-National Capital Region ▶ Quantico (406 acres [ac.]) MCI-EAST ▶ Townsend Bombing Range (375 ac) ▶ MCAS Cherry Point (107 ac) ▶ Piney Island Range (750 ac) ▶ MCB Camp Lejeune (2,599 ac) MCI-WEST ▶ Camp Pendleton (482 ac) ▶ MCAGCC Twentynine Palms (3,779 ac)	Planned FY2013	
	MCI-National Capital Region ▶ Quantico (2,716 acres [ac.]) MCI - EAST ▶ MCAS Cherry Point/Piney Island Range (17,983 ac) ▶ MCB Camp Lejeune (18,251 ac) ▶ MCAS Beaufort (10,941 ac) ▶ Townsend Bombing Range (54,065 ac) MCI - WEST ▶ MCAGCC Twentynine Palms (3,727 ac) ▶ MCB Camp Pendleton (6,466 ac)	Projected FY2014- FY2018	
	▶ Initiated partnership with USFWS and State of North Carolina to manage endangered species on acquired buffer land to increase species population off-base to reduce training restrictions on-base.	Ongoing	
	▶ Evaluate opportunities in all Continental United States (CONUS) MCI regions.	Ongoing	

Table 2-1: Encroachment Actions and Milestones

(Goal: Mitigate Encroachment Pressures on Training Activities from Competing Operating Space [landspace, airspace, seaspace, and cyber issues])

NAVY

ACTIONS	MILESTONES	STATUS	ADDITIONAL SERVICE COMMENT
Employ proactive interaction with all Services to sustain installation and range capabilities.	▶ Continue NSWC and TECOM collaboration and exploit expanding training opportunities in Chocolate Mountain Aerial Gunnery Range Special Warfare live-fire ranges as agreed with USMC. Maintain progress toward associated Environmental Assessments.	Ongoing	MCAS Yuma notified Navy Special Warfare Command (NSWC) that 24-hour Range Operations Control support for SEAL Final Training Exercises was available beginning in September 2013. MILCON P-771, the Desert Training Facility, is on track for FY2016 completion.
	▶ Continue NSWC and TECOM collaboration and support for establishment of Special Use Airspace over Navy Special Warfare training space. Expected completion in FY2015.	Expected completion in FY2015; FAA approval required	
Continue to analyze and assess encroachment, quantitatively and qualitatively at the installation and regional levels.	▶ Update Encroachment Action Plans (EAPs) as required. As updated, EAPs are to be published electronically for review by all Navy stakeholders.	Ongoing	
	▶ Utilize the Navy Community Liaison and Plans Officers to continuously engage communities where the potential encroachment of installations and ranges may arise.	Ongoing	
Continue to evaluate, plan for, and execute partnering opportunities per 10 U.S.C. Section 2684a	▶ Use existing parallel processes to update applicable EAPs and identify all encroachment partnering opportunities for associated Navy training ranges.	Ongoing	

AIR FORCE

ACTIONS	MILESTONES	STATUS	ADDITIONAL SERVICE COMMENT
Develop the Center Scheduling Enterprise (CSE) system and integrate flight-scheduling systems with other scheduling systems.	▶ Modify utilization reports to provide a complete and accurate account of airspace and range usage (FY2011–FY2014).	Ongoing	Progress continuing into FY2014.
	▶ Use enterprise architecture to institute a streamlined version of CSE (FY2009–FY2014).	Ongoing	
	▶ Deploy CSE system throughout the Air Force.	Ongoing	
	▶ Provide a quantitative basis for defending current requirements and developing future needs.	Ongoing	
	▶ Develop an interface between CSE and the Army/ Marine Corps Range Facility Management Support System (RFMSS) (FY2011–FY2014).	Ongoing	

Table 2-2: Frequency Spectrum Actions and Milestones
(Goal: Mitigate Frequency Spectrum Competition)

ARMY

ACTIONS	MILESTONES	STATUS	ADDITIONAL SERVICE COMMENT
Execute an ACUB to protect spectrum at Fort Huachuca, home of the Electronic Proving Ground.	▶ Continue implementing the Fort Huachuca ACUB proposal.	Updated, ongoing	Ongoing subject to the availability of funding.
	▶ Monitor and assess the ACUB at Fort Huachuca through the biennial review process.	Ongoing	The next biennial review is targeted for 2015.
Design new ranges to minimize spectrum competition.	▶ Complete the installation of fiber optic cabling to support a wireless network and control targetry in order to minimize spectrum and interference on ranges by FY2017.	Partially complete, ongoing	Fiber optic cabling was included in the FY2014 range construction projects.

MARINE CORPS

ACTIONS	MILESTONES	STATUS	ADDITIONAL SERVICE COMMENT
Analyze and assess frequency spectrum issues potentially impacting training capabilities at range complexes.	▶ Assess operational impacts of frequency encroachment at the range complex level.	Ongoing	Frequency spectrum issues are being incorporated into the MCI-West and MCI-East RCMPs in range communications studies and addressed in terms of encroachment in ECPs.
	▶ Incorporate frequency spectrum encroachment analysis and potential mitigation measures into planned ECPs; incorporate updates to existing ECPs.	Ongoing	Frequency spectrum issues are being incorporated into the MCI-West and MCI-East Range Complex Management Plans (RCMPs) in range communications studies, and in terms of encroachment in ECP.

NAVY

ACTIONS	MILESTONES	STATUS	ADDITIONAL SERVICE COMMENT
Analyze and assess frequency spectrum issues potentially impacting training capabilities at range complex and regional level.	▶ Update the RCMPs and EAPs to identify and assess frequency spectrum conflicts, shortfalls, and the impacts on Navy training as the documents undergo periodic updates.	Ongoing	
	▶ Advocate for the protection of military frequencies used by range capabilities that could be affected by frequency re-allocation and/or the National Broadband Plan.	Ongoing	The Navy's efforts to maintain ranges' access to spectrum as part of Navy-wide action is led by OPNAV N2/N6. A summary of action in relation to the Broadband Plan is in the Navy's update in Chapter 1 of this report.

AIR FORCE

ACTIONS	MILESTONES	STATUS	ADDITIONAL SERVICE COMMENT
Improve frequency/spectrum considerations in Air Force basing decision-making.	▶ Incorporate frequency/spectrum as a key and quantifiable factor in the Air Force corporate basing process.	Ongoing	Progress continuing into 2014.

Table 2-3: Airspace Actions and Milestones
(Goal—Meet Military Airspace Challenges)

ARMY

ACTIONS	MILESTONES	STATUS	ADDITIONAL SERVICE COMMENT
Develop a UAS Army Strategy and define Army use of UAS through 2035.	▶ Program additional facility upgrades of UAS training facilities at 28 locations in POM FY2013–FY2017.	Updated; ongoing	Due to resource reductions, no additional facility upgrades of UAS training facilities were conducted in 2013.
	▶ Initiate two pilot project EAs to adjust SUA in support of UAS training at major training and testing installations.	Partially completed	Due to resource reductions, no additional EAs to adjust SUA efforts were conducted in 2013.
Develop an Environmental Assessment (EA) process to facilitate increased access to restricted airspace in support of UAS training.	▶ Coordinate with the Federal Aviation Administration (FAA) to complete EAs at Forts Bliss and Polk, and refine the Army's process for training airspace adjustment by 4th Quarter FY2012.	Updated; ongoing	The Army will continue working with FAA on training airspace adjustments on a case-by-case basis.
	▶ Complete an EIS at Fort Campbell that includes adjustment of airspace to increase military designated airspace off the western side of the installation to provide an aviation "step-down" area; coordinate this effort with FAA.	Not started	Due to resource reductions, this EIS was not started.

MARINE CORPS

ACTIONS	MILESTONES	STATUS	ADDITIONAL SERVICE COMMENT
Define future requirements for military airspace, current and projected airspace shortfalls, and possible courses of action to mitigate shortfalls at installation, range complex, regional, and Service levels.	▶ Include airspace analysis in RCMPs.	Ongoing	See Table 2-1 for schedule.
	▶ Assess airspace requirements and shortfalls in preparation of and submission for Regional Airspace Plans (FY2013).	Ongoing	Preparing the Regional Airspace Plans is an annual requirement (Office of the Chief of Naval Operations [OPNAV] INST 3770.2K) for Marine Corps Regional Airspace Coordinators.
	▶ Continue Airspace expansion planning for MCAGCC Twentynine Palms.	Ongoing	Publication of Final EIS is complete and the ROD was signed on 20 Feb 2013. Further assessment by FAA of airspace alternatives is expected.
	▶ Continue to track airspace issues and FAA initiatives potentially affecting military activities.	Ongoing	

Table 2-3: Airspace Actions and Milestones
(Goal—Meet Military Airspace Challenges)

NAVY

ACTIONS	MILESTONES	STATUS	ADDITIONAL SERVICE COMMENT
Define future requirements for military airspace, current and projected airspace shortfalls, and possible courses of action to mitigate shortfalls at installation, range complex, and regional and service levels.	▶ Use RCMPs and EAPs to assess future Navy special use airspace requirements based on projected force structure changes/positioning and new weapon systems and missions; recommend possible courses of action range capabilities consistent with Regional Airspace Plans; identify requirements for complementary airspace for land and sea training space for each Navy range complex during the POM process.	Ongoing	
	▶ Ensure the common aspects of this goal and the goal of addressing "Impacts from New Energy Infrastructure and Renewable Energy Impacts" coordinate with and complement each other.	Ongoing	
	▶ Employ annual Planning, Programming, Budgeting, and Execution (PPBE) requirements generation cycle to survey Pacific Fleet, United States Fleet Forces, and range managers to determine airspace needs and initiate action to meet requirements.	Ongoing	

AIR FORCE

ACTIONS	MILESTONES	STATUS	ADDITIONAL SERVICE COMMENT
Improve airspace considerations on Air Force basing decision-making.	▶ Incorporate airspace as a key and quantifiable factor in the Air Force corporate basing process.	Completed	Completed in FY2013.

Table 2-4: Range Space Actions and Milestones
(Goal: Manage Increasing Military Demand for Range Space)

ARMY

ACTIONS	MILESTONES	STATUS	ADDITIONAL SERVICE COMMENT
Field LVC-Integrating Architecture (LVC-IA) to enable the Integrated Training Environment (ITE).	► Field LVC-IA to 15 AC installations supporting the Operational Domain.	Ongoing	LVC-IA has been fielded at four locations.
Re-validate the RCTC sites.	► Review and re-validate the RCTC sites (installations) following stationing announcements anticipated in 2nd Quarter FY2013.	Ongoing	Following the stationing announcements in June 2013, a working group was established to re-validate the RCTC sites. The group is expected to make a recommendation in the 3rd quarter of FY2014.
Enable Joint Pacific Multinational Readiness Capability (JPMRC).	► Relocate Exportable Training Capability—Instrumentation System (ETC-IS) to U.S. Army Pacific (USARPAC) to enable enhanced home station training in the Pacific by 4th Quarter FY2013.	Complete	
Implement the Range and Training Land Strategy (RTLS) to prioritize Army training land investments and provide a framework to address training land shortfalls through land acquisition, compatible use buffering, sustainable management, and use of other federal land.	► Finalize review and revision of the RTLS by 4th Quarter FY2011.	Complete	Progress on revising the RTLS was previously delayed due to staffing shortfalls and hiring delays in FY2011. Completed 4th Quarter FY2013.
	► Implement a two-year review and update process for the RTLS once complete.	Updated; ongoing	Progress on revising the RTLS was previously delayed due to staffing shortfalls and hiring delays in FY2011. Completed 4th Quarter FY2013.
Execute Training Land Acquisitions to offset the nearly 5 million-acre shortfall in training land assets.	► Fort Irwin/National Training Center (NTC), CA—Open the Western and Southern Expansion Areas (WEA and SEA) for training.	Partially completed	Opening of the WEA is on hold (possibly indefinitely) due to significant ongoing delays and costs related to endangered species (desert tortoise) management and mitigation.
	► Fort Polk/Joint Readiness Training Center (JRTC), LA—U.S. Army Corps of Engineers (USACE) complete title work and appraisals of property located in priority expansion areas and initiate formal negotiations with landowners.	Partially completed	USACE continues to complete necessary title work and appraisals. Total acquired is now 22,926 acres.
	► South Texas Training Site, TX—Complete the EIS to study proposed areas for training land acquisition by 2nd Quarter FY2012.	On hold	Public scoping was completed in the 2nd Quarter FY2011. Publication of the Draft EIS was anticipated by the 4th Quarter FY2012; however, completion of the EIS and training land acquisition has been put on hold (possibly indefinitely) due to funding constraints.
	► Fort Benning, GA—Complete the EIS to study proposed areas for training land acquisition by 4th Quarter FY2011.	On hold	Completion of the Final EIS and ROD continues to be delayed due to pending Army force structure decisions; a decision on land acquisition will not be made until Army force structure decisions are announced. USACE real estate planning studies completed 4th Quarter FY2011. USACE to complete title work and appraisals pending ROD to proceed.

Table 2-4: Range Space Actions and Milestones
(Goal: Manage Increasing Military Demand for Range Space)

MARINE CORPS

ACTIONS	MILESTONES	STATUS	ADDITIONAL SERVICE COMMENT
Define future requirements for land ranges and other areas to support training, current and projected land shortfalls, and possible courses of action to mitigate shortfalls at range complex, regional and Service levels.	▶ Include range requirements analysis in regional RCMPs.	Ongoing	See Table 2-1 for schedule.
	▶ Facilitate enhanced cross-service utilization of range areas in Regional RCMPs.	Ongoing	
	▶ Initiate strategic-level assessment of range requirements and shortfalls regarding training land and airspace (initiated FY2010).	Ongoing	Preliminary assessment prepared in FY2011. Additional studies in furthering strategic assessment objectives are ongoing, including OSD-directed Pacific Training Analysis, and Marine Corps assessments of training land requirements in the Pacific region.
	▶ Continue range expansion planning for MCAGCC Twentynine Palms.	Ongoing	Publication of Final EIS is complete and the ROD was signed on 20 Feb 2013. Further assessment by FAA of airspace alternative is expected.
	▶ Continue range expansion planning for Townsend Bombing Range.	Ongoing	Final EIS published for public review in March 2013. FEIS identified acquisition of about 28K acres as preferred alternative for range modernization.

NAVY

ACTIONS	MILESTONES	STATUS	ADDITIONAL SERVICE COMMENT
Define future requirements for land ranges and other areas to support training, current and projected land shortfalls, and possible courses of action to mitigate shortfalls at Navy range complexes.	▶ Use the RCMP update cycle to document and assess future requirements for Navy air, sea, and land ranges based on force structure change, changes in Training and Readiness standards, and new weapon systems and missions; Compete new range requirements in Navy service-level PPBE process.	Ongoing	Rewrite of RCMPs is underway on a staggered basis. Validated shortfalls in range capabilities will be assessed and competed for resources during each POM development.

AIR FORCE

ACTIONS	MILESTONES	STATUS	ADDITIONAL SERVICE COMMENT
Improve range space considerations on Air Force basing decision-making.	▶ Incorporate range space as a key and quantifiable factor in the Air Force corporate basing process.	Completed	Completed in FY2013.
Develop range configuration to support urban training.	▶ Completed Phases 1 (Mountainside Village) and 2 (Hillside Tunnels) of four-phase urban training complex plan.	Ongoing	Progress continuing into 2014.

Table 2-5: Energy Actions and Milestones

(Goal: Address Impacts from New Energy Infrastructure and Renewable Energy Impacts)

ARMY

ACTIONS	MILESTONES	STATUS	ADDITIONAL SERVICE COMMENT
Assess on-going Army energy security projects for impact on mission.	Participate on the DoD Energy Subcommittee and assess strategic implications of infrastructure policy on Army training equities.	Ongoing	DoD Energy Siting Clearinghouse has been established; Army coordination is ongoing.

MARINE CORPS

ACTIONS	MILESTONES	STATUS	ADDITIONAL SERVICE COMMENT
Support OSD-directed climate change policy and assessments.	Support OSD initiatives to assess supportability of renewable energy development projects in vicinity of military installation, per NDAA 2011..	Ongoing	
Implement Marine Corps Interim Policy on Conduct of Compatibility Assessments for Off-Installation Renewable Energy Projects.	- Establish criteria for assessing potential impacts of renewable energy development on military training ranges and airspace. - Fully support renewable energy development to the extent compatible with military training. - Establish Renewable Energy Working Groups at MCI commands to monitor proposed energy infrastructure development in vicinity of MCIs and military training airspace. - Execute formal outreach and engagement programs with all governmental, non-governmental, and private and commercial stakeholders of renewable energy programs relevant to Marine Corps activities. - Implement formal renewable energy compatibility assessment program at installation, MCI, and Headquarters levels.	Ongoing	
Implement the Marine Corps Expeditionary Energy Strategy (2011).	- Marine Corps Expeditionary Energy Office (E2O) (established 2009). - Plan and execute strategy to substantially reduce energy footprint of operational forces (e.g., 50% reduction in fossil fuel use by operating forces by 2025).	Ongoing	
Implement MCI Energy Conservation Strategy.	Implement MCI Energy Conservation Strategy.	Ongoing	

Table 2-5: Energy Actions and Milestones

(Goal: Address Impacts from New Energy Infrastructure and Renewable Energy Impacts)

NAVY

ACTIONS	MILESTONES	STATUS	ADDITIONAL SERVICE COMMENT
Engage renewable energy proponents to mitigate or minimize impacts on naval training.	▶ Continuously respond to requests for analysis on potential impacts to range capabilities and range space from proposed energy infrastructure on range capabilities.	Ongoing	
	▶ Continue to interact with BOEM state renewable energy task forces to support an iterative assessment of wind energy development proposals to minimize impacts to Navy/DoD readiness requirements in federal waters.	Ongoing	
	▶ Continue to support the DoD Siting Clearinghouse in assessing renewable energy development proposal impacts.	Ongoing	

AIRFORCE

ACTIONS	MILESTONES	STATUS	ADDITIONAL SERVICE COMMENT
Engage renewable energy proponents in order to collaborate on site selections.	▶ Continue to coordinate with Department of Energy (DOE) and AWEA to share data from development screening tools.	Ongoing	Air Force coordinates through Siting Clearinghouse process.
Study potential impacts and mitigation techniques.	▶ Expand Radar Toolbox for prediction of impacts on ASR-11 radar from wind turbines.	Ongoing	Radar Toolbox predictive analysis module completed (2012). Validation underway in DoD/DOE Interagency Field T&E. Potential development of false-track prediction model under investigation.
Incorporate Energy Action into official guidance on encroachment.	▶ Develop Air Force Instruction (AFI) that includes energy encroachment initiatives.	Ongoing	AFI 90-2001, Encroachment Management, in coordination, publication expected early FY2014.
Prepare for increased renewable energy priority and development.	▶ Participate in the White House Task Force on Wind Turbine Impacts on Radar.	Ongoing	
	▶ Engage U.S. BLM to improve siting process.	Ongoing	

Table 2-6: Climate Actions and Milestones (Goal: Anticipate Climate Change Impacts)

ARMY

ACTIONS	MILESTONES	STATUS	ADDITIONAL SERVICE COMMENT
Assess Global Climate Change risks and vulnerabilities.	▶ Develop and validate a climate change vulnerability assessment and adaptation-planning framework for installation assessments by 4th Quarter FY2012.	On Hold	Due to resource reductions, these assessments are not complete.
	▶ Assess Global climate change risks and vulnerabilities.	On Hold	Due to resource reductions, these assessments are not complete.
	▶ Incorporate Global Climate Change adaptation measures in existing Army plans.	Complete	
	▶ Track changes in range Sustainment, Restoration, and Modernization and Integrated Training Area Management Programs resulting from unexpected weather patterns.	Ongoing	Events tracked at Forts Bliss, Carson, and Irwin.

MARINE CORPS

ACTIONS	MILESTONES	STATUS	ADDITIONAL SERVICE COMMENT
Support OSD-directed climate change policy and assessments.	▶ Continue to respond to requests for data and analysis on potential impacts of range operations on climate change, and climate change impacts on range capabilities (as directed by OSD).	Ongoing	
	▶ Continue leadership role at Headquarters level in DoD Clean Air Act Services' Steering Committee, Subcommittee for Global Climate Change.	Ongoing	Marine Corps representative is currently the Subcommittee chair.

NAVY

ACTIONS	MILESTONES	STATUS	ADDITIONAL SERVICE COMMENT
Support OSD-directed climate change policy and assessment.	▶ Implement DoD Quadrennial Defense Report Global Climate Change directives.	Ongoing	
	▶ Observe and assess climate change impacts and include in POM planning the specific applied climate change trends and vulnerabilities to range capabilities identified by DoD.	Ongoing	

AIRFORCE

ACTIONS	MILESTONES	STATUS	ADDITIONAL SERVICE COMMENT
Assess Global Climate Change risks and vulnerabilities.	▶ Assess Global Climate Change risks and vulnerabilities.	Ongoing	

Table 2-7: Environmental Stewardship Actions and Milestones
(Goal: Sustain Excellence in Environmental Stewardship)**ARMY**

ACTIONS	MILESTONES	STATUS	ADDITIONAL SERVICE COMMENT
Execute the Army Range Assessment Program.	Complete Phase II assessments, where required, by 4th Quarter FY2014.	Complete	
Review, update, and promulgate environmental management and stewardship policy and regulation to support sustainment of ranges and training lands.	Review and update Army Regulation 200-1, Environmental Protection and Enhancement by 3rd Quarter FY2012.	Updated; delayed, ongoing	Continuing to work with environmental stakeholders to resolve critical issues and move the publication process forward as directed by Army leadership; anticipate update being completed by 4th Quarter FY2014.
	Promulgate the compliance policy statement for the Army's Ecosystem Services by 4th Quarter FY2012.	Updated; on hold	Army policy for Ecosystem Services is continuing to be worked internally, pending issuance of OSD Ecosystem Services policy.
	Promulgate Army Native American Alaska Native Policy and implementing guidance by 4th Quarter FY2013.	Ongoing	Army Native American Alaska Native Policy Memorandum was signed 1st Quarter FY2012; policy and implementing guidance development is underway.

MARINE CORPS

ACTIONS	MILESTONES	STATUS	ADDITIONAL SERVICE COMMENT
Maintain Service-wide environmental management and range sustainability programs in accordance with applicable laws and regulations.	Engage in national regulatory and legislative processes on issues that may potentially impact range sustainability or range readiness in coordination with the OSD.	Ongoing	The Marine Corps has worked cooperatively with the USFWS and the National Marine Fisheries Service (NMFS) to provide information related to proposed listing of species and/or designations of critical habitat under the ESA. Through effective implementation of Integrated Natural Resource Management Plans (INRMPs), the Marine Corps has provided benefit to numerous species that precluded the need to designate critical habitat at MCB Camp Pendleton, MCAS Miramar, and MCB Camp Lejeune. The Marine Corps has also provided input into recent proposed regulatory changes clarifying the process for designating critical habitat to ensure conservation benefits and military readiness continue to be adequately considered as part of any proposed designation.
	Continue to engage local, regional, and state regulatory agencies on issues that may affect range sustainability or range readiness.	Ongoing	
	Explore broader, landscape-level approaches and partnerships to meet regulatory and stewardship responsibilities for natural resources (e.g., wetland and Endangered Species banks) at the regional and national levels in coordination with the other branches of service, the DOI, USACE, and the Environmental Protection Agency	Updated; ongoing	The Marine Corps has initiated an effort called the Red-cockaded Woodpecker Recovery and Sustainment Program to promote recovery of the species on non-military lands, and support increased flexibility to utilize and enhance high-use training areas at MCB Camp Lejeune, particularly those areas used for amphibious operations. This program was developed cooperatively with the USFWS and is being implemented in partnership with the National Fish and Wildlife Foundation. A similar initiative is also being developed for MCB Camp Pendleton.
	Encourage NGOs and local communities to work on regional solutions for land use conflicts (e.g., SERPPAS and WRP).	Ongoing	

Table 2-7: Environmental Stewardship Actions and Milestones
(Goal: Sustain Excellence in Environmental Stewardship)

NAVY

ACTIONS	MILESTONES	STATUS	ADDITIONAL SERVICE COMMENT
Execute Service-wide environmental management and range sustainability programs as required by law/regulation.	▶ Evaluate the implementation and effectiveness of INRMPs at the end of each FY.	Ongoing	
	▶ Continue NEPA, Marine Mammal Protection Act (MMPA), and ESA compliance requirements for at-sea operational areas and range complexes.	Ongoing	

AIR FORCE

ACTIONS	MILESTONES	STATUS	ADDITIONAL SERVICE COMMENT
Continue environmental management and range sustainability programs.	▶ Maintain active participation in Range Sustainment Initiatives (e.g., SERPPAS and WRP).	Ongoing	

2.2 FUNDING

NDAA Section 366(a)(3)(C) requires DoD and the Military Services to report on funding requirements associated with implementing range sustainability initiatives. Four categories are used as a frame of reference for reporting training range sustainability requirements. Descriptions and examples of the funding categories are found in Table 2-8 below.

Table 2-8: DoD SRI Funding Requirements Categories

FUNDING CATEGORY	DESCRIPTION	SPECIFIC EXAMPLES
Modernization & Investment	Research, development, acquisition, and capital investments in ranges and range infrastructure. It includes related items such as real property purchases, construction, and procurement of instrumentation, communication systems, and targets.	▶ Construction of new Multi-Purpose Training Ranges at Army installations ▶ Construction of Improvised Explosive Device (IED) Defeat Lanes ▶ Upgrades to Small Arms Ranges
Operations & Maintenance	Funds allocated for recurring activities associated with operating and managing a range and its associated infrastructure, including funds dedicated to range clearance, real property maintenance, and range sustainment plan development.	▶ Clearance of unexploded ordnance prior to range construction ▶ CivPay for Range Operators at Army installations
Environmental	Funds dedicated to environmental management of ranges, including range assessments, response actions, and natural and cultural resource management planning and implementation.	▶ Conservation funding for INRMPS and ICRMPs ▶ Environmental mitigation costs associated with range modernization and range construction ▶ Conducting Range Assessments
Encroachment	Funds dedicated to actions to optimize accessibility to ranges by minimizing restrictions that do or could limit ranges activities, including outreach and buffer projects.	▶ Administration and support of the Army Compatible Use Buffer (ACUB) program ▶ Encroachment plans

Table 2-9 presents the funding data for FY2013 – FY2018. FY2013 actual funded levels are provided as a reference point. Data for FY2014 – FY2018 represents the requested Military Service requirements submitted for the FY2014 Presidential Budget, and should not be confused with actual funded levels for those years.

Table 2-9: Service Training Range Sustainment Funding (\$M)

SERVICE*	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018
ARMY	ACTUAL	REQUESTED	REQUESTED	REQUESTED	REQUESTED	REQUESTED
Modernization & Investment	\$247.0	\$116.7	\$19.0	\$39.1	\$79.6	\$22.3
Operations & Maintenance	\$355.3	\$322.1	\$282.0	\$260.4	\$257.2	\$261.3
Environmental	\$223.2	\$193.3	\$182.8	\$184.2	\$205.3	\$209.1
Encroachment	\$8.5	\$8.5	\$8.5	\$8.6	\$8.4	\$8.6
ARMY TOTAL	\$834.0	\$640.6	\$493.3	\$492.3	\$550.5	\$501.3
MARINE CORPS						
Modernization & Investment	\$47.7	\$3.5	\$3.8	\$4.9	\$6.9	\$7.2
Operations & Maintenance	\$56.3	\$68.8	\$70.8	\$71.2	\$72.7	\$73.8
Environmental	\$24.3	\$14.7	\$13.1	\$7.9	\$12.8	\$12.7
Encroachment	\$8.8	\$8.8	\$4.4	\$3.3	\$3.3	\$7.7
MARINE CORPS TOTAL	\$129.1	\$87.8	\$88.1	\$84.3	\$92.7	\$94.4
NAVY						
Modernization & Investment	\$86.0	\$75.5	\$76.1	\$73.4	\$74.9	\$75.9
Operations & Maintenance	\$172.1	\$181.5	\$183.2	\$188.0	\$191.4	\$194.8
Environmental	\$28.7	\$42.0	\$45.0	\$18.0	\$45.0	\$42.0
Encroachment	\$20.8	\$19.3	\$21.1	\$21.5	\$22.0	\$22.9
NAVY TOTAL	\$307.6	\$318.3	\$325.5	\$330.9	\$333.4	\$335.5
AIR FORCE						
Modernization & Investment	\$98.2	\$75.1	\$59.1	\$40.6	\$36.8	\$61.6
Operations & Maintenance	\$174.7	\$226.2	\$216.5	\$232.7	\$244.7	\$249.9
Environmental	\$27.7	\$26.1	\$25.6	\$26.2	\$26.6	\$27.1
Encroachment**	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
AIR FORCE TOTAL	\$300.6	\$327.5	\$301.3	\$299.5	\$308.2	\$338.5
OSD						
REPI Program	\$50.6	\$50.4	\$34.1	\$34.4	\$35.7	\$36.4
DoD						
DoD Total	\$1,621.9	\$1,424.6	\$1,242.2	\$1,241.3	\$1,320.4	\$1,306.2
* Range sustainability programs are fully represented in the Military Services' programming and budgeting processes. Program fluctuations generally reflect the best alignment of resources across competing Military Service priorities based on programming guidance and validated by the Service Chiefs and Department Secretaries. **The Air Force tracks SRI-related funding through two channels (A3/5 and A4/7) and do not precisely sync with how the SRR defines the four categories. As a result, the Air Force is unable to report on Encroachment funds, as defined in the SRR.						

Starting with the 2010 SRR, REPI program funds, which are centrally managed by OSD, have been broken out separately from Military Service encroachment funding for more accurate reporting. REPI funds support buffer initiatives across the Military Services and are allocated by OSD to the Military Services based on a competitive selection process that considers an assessment of threats, needs, and military priorities. Any Military Service funds budgeted for buffer projects are captured in that Military Services' encroachment lines.

Table 2-10 outlines Military Service explanations for fluctuations of 10 percent or greater from one year to the next. Funding requirements for range sustainability efforts are fully represented in the Military Services' programming and budgeting processes. Starting with the 2010 SRR, REPI program funds, which are centrally managed by OSD, have been broken out separately from Military Service encroachment funding for more accurate reporting. REPI funds support buffer initiatives across the Military Services and are allocated by OSD to the Military Services based on a competitive selection

process that considers an assessment of threats, needs, and military priorities. Any Military Service funds budgeted for buffer projects are captured in that Military Services' encroachment lines.

Table 2-10 outlines Military Service explanations for fluctuations of 10 percent or greater from one year to the next. Funding requirements for range sustainability efforts are fully represented in the Military Services' programming and budgeting

processes. Program fluctuations often reflect the choices Military Service Chiefs and Department Secretaries have to make in accepting risk and balancing their total portfolios across competing priorities in a fiscal environment that continues to increase in austerity. Significant funding reductions have been noted from last year's SRR due to substantial cuts to the individual Military Service budgets. The reasons for those reductions and their impacts are highlighted in the table below.

Table 2-10: Funding Fluctuation Explanation

MILITARY SERVICE	MODERNIZATION & INVESTMENT	OPERATIONS AND MAINTENANCE	ENVIRONMENTAL	ENCROACHMENT
Army	Because of planned force structure reductions, range modernization plans are being updated and a significant reduction in funding will be required to meet the needs of the force. Any further reductions in of AC/RC end strength imposed due to the Budget Control Act of 2011 may require the reprogramming of existing range modernization to updated plans but an emphasis in the continuous technology refreshing of existing capabilities will take precedence over new capability.	Because of planned force structure reductions, range operations resourcing has been reduced proportionally and results in a smaller capacity on Army ranges. This reduced capacity will include a smaller range operations workforce and prioritizing available resources to units that require a higher state of readiness. The planned reductions should be completed by FY2017 resulting in stable resources beyond FY2017.	Increases in program funding should enable better environmental management of the Army's ranges.	Minimal decrease in encroachment funding.
Marine Corps	Reductions to the overall program were taken between FY2013 and FY2014 by reducing the modernization and investment lines in favor of sustaining the currently fielded capabilities on ranges. No new capabilities are supportable with this funding profile but some minimal level recapitalization/ refurbishment is retained to ensure high-use live fire systems can be kept safe and operational.	The FY2014 level of operations and maintenance funding will meet the basic requirements of sustaining current capabilities and capacities with minimal disruption. Further reductions to this profile, as currently being discussed to accommodate the impacts of sequestration, will necessitate reductions in range or system availability and will result in decrements to range readiness.	The Marine Corps has updated the data counted in this category to include the Operational Ranges Assessment Program. FY2013 identifies a budgeted number and includes a \$13M Congress authorized increase for Conservation of Ranges in addition to baseline funding. There is no indication for a similar plus-up in FY2014 or beyond.	Funding relatively stable.
Navy	Resource programming reflects the best alignment of available resources across competing Navy priorities based on programming guidance. Dollar amounts are in flux and dependent on future decisions.	Dollar amounts are in flux and dependent on future decisions.	Funding is relatively stable; however, given continued assessment of sequestration impacts, potential reductions may be required in out-years.	Funding is relatively stable.
Air Force	Increase from FY2013 to FY2014 reflects increase in P-5 Air Combat Maneuver Instrumentation (pod and threat emitter) procurement. FY2014-FY2015 decrease due to reduced threat emitter and P-5 pod procurement. FY2015-FY2016 decrease due to reduced RDT&E as well as reduced P-5 pod procurement.	Decrease based on overall funding reductions.	Funding relatively stable.	Not applicable; actual numbers reported via OSD.

2.3 DEFENSE READINESS REPORTING SYSTEM-RANGE ASSESSMENT MODULE

The Defense Readiness Reporting System – Range Assessment Module (DRRS RAM) provides the means to manage and report on the readiness and capability of military ranges by providing a link between range assessments, installations, and range complexes. The DRRS RAM will be used to support next year's range assessments.

2.4 TRAINING RANGE VISIBILITY TOOL

In 2012, OSD initiated an effort to address the need for greater visibility of training resources across all Military Services at all levels due to increased competition for home station training ranges. This increased competition is due to decreased deployments and budget constraints, both of which necessitate more efficient use of existing training capabilities. OSD funded the development of the Training Range Visibility Tool as an add-on query capability to the existing RFMSS database used by the Army, Navy, and the Marine Corps to schedule ranges. The add-on capability has been in use since early 2013 and allows users to query the system for availability of ranges by entering type of range, weapon system, desired proximity of the range, address, and/or the zip code closest to their unit. The system then displays a list of ranges within a specified area, their availability, a map and driving directions, and scheduling information. To date, the tool has been used more than 2,500 times by over 1,300 individual users in order to locate and schedule available training ranges.

2.5 THE READINESS AND ENVIRONMENTAL PROTECTION INTEGRATION PROGRAM

The Readiness and Environmental Protection Integration (REPI) program protects military value and maximizes installation Commander's flexibility to accomplish the mission by preventing, removing, or mitigating restrictions to testing, training and operations. The REPI program specifically supports cost-sharing partnerships authorized by Congress (10 U.S.C. § 2684a) between the Military Services, private conservation groups, and state and local governments to protect military test and training capabilities and conserve land. These win-win partnerships acquire easements or other interests in land from willing sellers to preserve compatible land

uses and sustain wildlife habitat near installations and ranges where the military tests, trains and operates.

The OSD created the REPI program to organize and administer congressional funding for authorized projects. OSD provides DoD policies and standards, stakeholder engagement and regional partnerships, and integration of various tools to enhance mission-supporting partnerships. It is a critical component of DoD's SRI to prevent or reduce encroachment by protecting installation capability, accessibility, and availability for training and testing.

The REPI program is DoD's core effort aimed at using the authority provided by Congress to protect military readiness by preventing incompatible development and preserving habitat through buffer partnership projects, supportive education, engagement, and regional planning.

2013 REPI CHALLENGE

In its second year, the 2013 REPI Challenge revealed over \$117M in new partner funding and included over 158,000 total acres of land with viable REPI project opportunities around 19 installations in 16 states. As the 2013 proposals showed, the REPI Challenge is helping to change the scale and practices of land conservation supported by the REPI program.

The REPI program will continue to look for ways to take advantage of the exciting opportunities and innovations submitted by all the REPI Challenge proposal locations. Some examples of focus areas include, but are not limited to the following:

- ▶ **Large Scale Projects:** In addition to the 20,850-acre parcel at Eglin Air Force Base, other opportunities include 12,836 acres around Avon Park Air Force Range, FL, and 6,400 acres near Fort Benning, GA.
- ▶ **New Partners:** The projects bring a variety of new partners, such as the Walton Family Foundation and Arizona Land and Water Trust, interested in supporting new approaches to protecting water in Arizona.
- ▶ **High Priority Locations:** All proposals covered high priority military installations for test and training missions located in high priority landscapes, including opportunities to expand the Navy's efforts in the Chesapeake Bay region within Maryland and now Delaware.
- ▶ **Innovative Funding Sources:** The projects offer new funding sources such as corporate donations and an opportunity to pilot an effort at creating

carbon credits with investment from EKO Asset Management Partners and Compatible Lands Foundation at Camp Shelby, MS.

- ▶ **Efficiencies:** Opportunities exist for collaboration among DoD, Natural Resources Conservation Service (NRCS), and USFWS to provide financial and technical assistance to landowners of first-ever designated "Sentinel Landscapes"—lands that enhance national defense, working lands, local economies, and conservation priorities.
- ▶ **Natural Resources Management:** USFWS is working with DoD at multiple locations on alleviating restrictions and providing regulatory certainty through conservation credits, including Camp Pendleton, CA, and its partner Escondido Creek Conservancy.

In short, the REPI Challenge has revealed a high level of interest and capacity from our partners to find funding to conserve land quickly and at scale. With greater levels of funding available, our partners have shown an appetite for increasing the capabilities of the REPI program to innovate and deliver multiple high priority benefits.

2.6 REGIONAL PARTNERSHIPS

DoD is a partner in two multi-state, multiagency regional partnerships in rapidly growing areas of the country with significant DoD land presence: the Southeast Regional Partnership for Planning and Sustainability (SERPPAS) and the Western Regional Partnership (WRP). DoD engages in these partnerships to help advance understanding of stakeholder missions. Increasing mutual understanding makes it easier for partners to expand and coordinate efforts and activities that sustain military readiness in the form of landscape-scale initiatives. By promoting cross-boundary collaboration on planning and land use issues, DoD's regional partnerships can protect military testing and training operations of a broader scale and scope.

2.7 OFFICE OF ECONOMIC ADJUSTMENT COMPATIBLE USE PROGRAM

The Office of Economic Adjustment's (OEA) Compatible Use Program is the only program of direct federal assistance to help states and communities work with the Military Services to prevent and mitigate impacts where encroachment of the civilian community impairs the use of our

ranges and installations. Technical and financial assistance is available through a Joint Land Use Study (JLUS) to partner with the local military to plan and carry out strategies promoting compatible civilian use adjacent to installations and related ranges, and special use airspace, including military training routes and military operating areas.

More than 80 JLUS projects currently are underway across the country to remedy encroachment and promote compatible civilian development. Although local government sponsors most JLUS projects, some states have led the cooperative planning process, including Arizona, California, Idaho, and North Carolina, particularly when the military operational footprint affects multiple jurisdictions. Regional coordination among local governments is another approach to address a broad geographic area and promote a comprehensive assessment of the issues, develop a strategic action plan, and carry out the JLUS recommendations in a unified manner, including establishment of conservation buffers. The following highlights present characteristics of some of these JLUS projects.

- ▶ **Statewide JLUS.** The State of California Governor's Office of Planning and Research (OPR) sponsored a comprehensive JLUS for five military assets, including the Joint Service R-2508 Special Use Airspace Complex. The planning effort resulted in the California Advisory Handbook for Community and Military Compatibility Planning and the Military Planning Supplement to the General Plan Guidelines, both providing collaboration guidance and a menu of tools and strategies to help maintain compatibility between community development and military missions. OPR maintains an online mapping tool to place proposed community development projects in relation to military bases and airspace. It also established the California Strategic Coordination and Engagement Program to provide assistance, in partnership with the Military Services, to local governments with special use airspace areas and military training routes. The state effort also helped Kern County introduce the "red, yellow, green" map and enact zoning with height restrictions to minimize alternative energy development impacts on R-2508 military operations.
- ▶ **Regional Coordination.** The ongoing Naval Air Station Patuxent River and White Sands Missile Range/Holloman Air Force Base/Fort Bliss JLUS projects include expansive geographic areas

involving multiple states and communities. The Patuxent River regional JLUS includes participation of nine counties and two municipalities, covering Maryland's Eastern Shore and Virginia's Northern Neck, to address Navy concerns about urban and wind energy development, particularly within the Atlantic Test Range Inner Range. White Sands Missile Range, Holloman Air Force Base, and Fort Bliss encompass more than 3.3 million acres and nearly 10,000 square miles of restricted airspace in southern New Mexico and western Texas. Interdependent missions and assets abound across the installations, requiring coordination of airspace, range usage, and frequency spectrum for multiple users. To promote compatible civilian development across this broad region, the State of New Mexico Office of Military Base Planning and Support formed a regional planning organization to undertake the Southern New Mexico-El Paso Joint Land Use Study with participation from five New Mexico counties and two cities; City of El Paso and El Paso County, Texas; New Mexico State Land Office; U.S. Bureau of Land Management; and the three military installations. A Memorandum of Agreement established the partnership among the governments, with the three military installations as concurring parties.

- ▶ Permanent Military Sustainability Partnership. The Eglin Air Force Base JLUS resulted in the establishment of the Northwest Florida Military Sustainability Partnership, representing 22 local jurisdictions tasked to adopt and carry out the JLUS recommendations concurrent with those from the 2005 Base Realignment and Closure (BRAC) Growth Management Plan. The BRAC action included establishment of the single-site Joint Strike Fighter training center. During the JLUS and BRAC planning process, concern was raised about development within the Northwest Florida Region's Major Natural Conservation Corridors. In response, the State approved purchase of the 20,850 acres in partnership with conservation entities, the private landowner, and DoD's REPI Challenge to protect Eglin's test and training range operations.

2.8 DOD NATURAL RESOURCE CONSERVATION COMPLIANCE PROGRAM

DoD's Natural Resource Conservation Compliance Program supports the military's mission-critical

training and readiness activities by ensuring continued access to realistic habitat conditions, while simultaneously working to ensure the long-term sustainability of the nation's natural resources. It does this by providing policy, guidance, oversight and, through the DoD Legacy Resource Management Program, funding for management of natural resources on approximately 28 million acres of military land, air, and water resources owned or operated by DoD. DoD lands are currently home to more threatened, endangered, and at-risk species per acre than any other federal land management agency, including 440 listed as threatened or endangered, nearly 520 at-risk of being listed, and approximately 75 found only on DoD lands.

In FY2004, Congress amended the ESA to recognize the significant contributions INRMPs make to promote the recovery of threatened or endangered species. The amendment provides that where the USFWS or the NMFS determines that an INRMP provides a benefit to a species for which critical habitat has been proposed, the USFWS or NMFS need not designate critical habitat on the military lands encompassed by that INRMP. Since then, having approved INMRPs has obviated the need to designate critical habitat on 71 different installations—including proposed designations for multiple species on 20 installations.

In FY2009, Congress amended Section 103a of the Sikes Act to authorize cooperative agreements to maintain and improve natural resources located off military installations where doing so may relieve or eliminate current or anticipated restrictions on military activities. This provision gives installation commanders the flexibility to address some portion of their conservation responsibilities—especially those related to ESA-listed and candidate species—by supporting natural resources projects off their installations, resulting in preservation of installation lands to support military training and testing. Specific examples of this in practice include the following:

- ▶ Marine Corps Red-Cockaded Woodpecker Recovery and Sustainment Program at Camp Lejeune, NC
- ▶ JBLM, WA pilot effort to create new off-installation populations of three south Puget Sound prairie species (e.g., Greater Sage Grouse)
- ▶ REPI and ACUB projects surrounding DoD installations to prevent further restrictions.

Evolving statutory and regulatory drivers, combined with increasingly dynamic natural resource conditions, such as habitat loss/species decline, wildlife disease, wildland fire, drought, storm surge, and factors exacerbated by climate change, can and do impact the military's training and testing missions. The DoD Natural Resource Conservation Compliance Program has worked closely for many years with state, federal, and non-governmental partners to achieve mutual goals. For example, DoD's efforts to restore and create habitat for bald eagles across dozens of military installations led to the eagle's recovery and subsequent removal from the federal threatened or endangered species list in August 2007.

3

EVOLVING SRI CHALLENGES

As DoD's SRI has continued to mature over the last 11 years, range capabilities and encroachment challenges evolve. The following subsections highlight the areas of continuing challenges.

3.1 BUDGET REDUCTIONS IMPACTING RANGE CAPABILITY

The implementation of the Budget Control Act of 2011 required DoD and the Military Services to reduce the department's discretionary spending budget across the FYDP. The decrease in total obligation authority necessitated changes to force structure, current and future readiness, operations and maintenance, research and development investments, as well as acquisition programs in competition for DoD appropriations in order to effectively balance competing requirements across the Department as well as within each Military Service. Coupled with this are congressionally mandated procurement and expenses that further pressurize fiscal constraints. Each Service weighs current versus future readiness in an attempt to achieve an executable long-term strategy. The readiness accounts for each of the Military Services are the training enablers which ensure forces are proficient and prepared to deploy for contingencies across the range of military operations, including major combat operations. Continual decrements to these readiness-funding accounts are delaying range modernization plans and negatively impacting range capacity and throughput as range operations support functions are reduced.

3.2 RENEWABLE ENERGY

Competition for land, airspace, and seaspace for siting of renewable energy infrastructure to meet national energy objectives is a growing concern in relation to DoD's capability and capacity to train and maintain readiness. In 2013, DoD completed and issued a primer on renewable energy siting considerations in partnership with the National

Resources Defense Council (NRDC). This primer, along with the DoD and BLM wind energy siting protocol for projects on government lands, helps provide information and procedures that address compatibility with military training and test requirements.

Over the last year, DoD has continued to work with BOEM and the coastal states through a collaborative task force process to ensure renewable energy infrastructure siting on the Outer Continental Shelf is compatible with DoD's offshore activities. In this collaborative process, an additional 4,000 lease blocks were assessed from the 2,000 reported the 2013 SRR, as additional coastal states requested or expanded interagency reviews of the outer continental shelf. The assessment determined that three quarters of these are potentially suitable for utility-scale offshore wind energy projects without harming the DoD mission. As additional coastal areas are considered for offshore renewable energy development, DoD will remain engaged through the task force process to provide military mission compatibility assessments to BOEM and the affected states. Additionally, DoD continues to seek proactive engagement with stakeholders to develop compatible siting solutions through the DoD Siting Clearinghouse.

3.3 THREATENED AND ENDANGERED SPECIES

Endangered species management issues remain a significant challenge to DoD. Urbanization and sprawl surrounding installations continue to restrict the available habitat for many species. As a result, much of the remaining habitat for a number of listed and at-risk species exists on military installations. DoD continues to work with the USFWS to address the 251 multi-district litigation candidate species for which USFWS is required by court order to make listing determinations by September 2017. Of the

251 species, 110 are found on at least one military installation. DoD has identified which of these could have a minor, moderate, or significant impact on military testing and training; what the nature of the impact would be; what monitoring and other information we have produced for these species; and whether the potentially affected installations have approved INRMPs in place. This information will help ensure that military installations can use the FY2004 provisions of the ESA to preclude critical habitat designation, and continue readiness activities.

DoD continues to work collaboratively with the USFWS and other partners to develop policy and guidance. Specifically, the Department, the USFWS, and the Association of Fish and Wildlife Agencies recently signed an updated Memorandum of Understanding (MOU), "A Cooperative Integrated Natural Resource Management Program on Military Installations." The Department is also working to develop Sikes Act Guidance, streamlined INRMP procedures, and updated migratory bird guidance.

3.4 DEMAND FOR ELECTROMAGNETIC SPECTRUM

Electromagnetic spectrum is a prerequisite for modern military training and is considered as crucial a range resource as land and airspace. Access to this critical resource is challenged by increasing consumer demand for broadband mobile services. A 2010 Presidential Memorandum issued to the department secretaries, "Unleashing the Wireless Broadband Revolution," established the goal of making 500 MHz of federal and non-federal spectrum available to the FCC for auctioning and subsequent licensing by broadband wireless service providers. Negotiations continue between the DoD and the NTIA on how the DoD could, in part, support the President's goal.

3.5 DOD'S LONG-TERM SRI OUTLOOK

Effective training is the cornerstone for success in carrying out DoD's missions. Ensuring effective training will continue to challenge the Department through this period of constrained budgets, rapidly evolving military capabilities, competition for the land, sea, air, and frequency spectrum that training requires, and evolving threats. DoD ranges must provide the capacity and capabilities needed for effective training. Ranges give our nation's military personnel the ability to train as they will operate which maximizes the probability of mission success and reduces the risk of casualties. Through the SRI and related efforts, DoD is working to sustain the capability to train on its ranges.

APPENDIX

A

RANGE INVENTORY SUMMARY

NDAA Section 366(c) specifically details the requirement for DoD and the Military Services to develop and maintain an inventory of operational ranges. DoD maintains an inventory of its ranges, range complexes, military training routes, and special use areas and has reported this inventory annually in previous SRRs. For this year's SRR, DoD is again providing Congress with only that inventory information that has changed from the last year's report. The Army is the only Military Service with changes to its inventory and these are due primarily to their implementation of new systems to capture and track inventory data.

For the Army, several updates and corrections to acreage were made to improve the overall accuracy of the information reported. Those Army ranges with acreage changes are presented in Table A-1.

USD(P&R) will ensure the Military Services review and update their inventories annually and report any necessary changes to Congress.

Table A-1: Army Training and Testing Range Complex Inventory

RANGE COMPLEX	UNITED STATES (US) OR OVER-SEAS (OS)	STATE OR COUNTRY	COMMAND/ COMPONENT	LAND AREA FOR RANGES (ACRES)
8th Army Korea	OS	Korea	EUSA	8,613
Aberdeen Proving Ground	US	MD	AMC	49,061
Bamberg TA G	OS	Germany	USAREUR	65
Baumholder	OS	Germany	USAREUR	42,643
Biak Training Center	US	OR	ARNG	43,885
Breitenwald	OS	Germany	USAREUR	192
Camp Atterbury	US	IN	ARNG	32,815
Camp Beauregard	US	LA	ARNG	12,579
Camp Blanding	US	FL	ARNG	69,036
Camp Clark	US	MO	ARNG	1,006
Camp Crowder	US	MO	ARNG	4,141
Camp Dawson	US	WV	ARNG	8,154
Camp Grafton	US	ND	TRADOC	9,851
Camp Grayling	US	MI	ARNG	139,255
Camp Rilea	US	OR	ARNG	4,233
Camp Shelby	US	MS	ARNG	126,136
Camp Villere	US	LA	ARNG	1,454
Dugway Proving Ground	US	UT	ATEC	358,556
Florence Training Site	US	AZ	ARNG	18,855
Fort A.P. Hill	US	VA	MDW	72,556
Fort Benning	US	GA	TRADOC	165,742

RANGE COMPLEX	UNITED STATES (US) OR OVER-SEAS (OS)	STATE OR COUNTRY	COMMAND/ COMPONENT	LAND AREA FOR RANGES (ACRES)
Fort Bliss	US	TX	TRADOC	1,083,449
Fort Bragg	US	NC	FORSCOM	196,202
Fort Campbell	US	KY, TN	FORSCOM	94,488
Fort Carson	US	CO	FORSCOM	124,912
Fort Chaffee	US	AR	ARNG	64,241
Fort Custer Training Center	US	MI	ARNG	7,499
Fort Gordon	US	GA	TRADOC	51,153
Fort Greely/Donnelly Training Area	US	AK	USARPAC	631,277
Fort Hood	US	TX	FORSCOM	196,834
Fort Huachuca	US	AZ	TRADOC	80,855
Fort Hunter Liggett	US	CA	USARC	160,846
Fort Irwin	US	CA	FORSCOM	634,605
Fort Knox	US	KY	TRADOC	98,453
Fort Lee	US	VA	TRADOC	2,305
Fort Leonard Wood	US	MO	TRADOC	56,056
Fort Lewis	US	WA	FORSCOM	77,836
Fort McCoy	US	WI	USARC	126,284
Fort Polk	US	LA	FORSCOM	182,779
Fort Richardson	US	AK	USARPAC	53,396
Fort Riley	US	KS	FORSCOM	92,269
Fort Rucker	US	AL	TRADOC	60,525
Fort Sam Houston/Camp Bullis	US	TX	MEDCOM	27,308
Fort Sill	US	OK	TRADOC	85,920
Fort Stewart	US	GA	FORSCOM	271,568
Fort Wainwright	US	AK	USARPAC	911,693
Fort William Henry Harrison	US	MT	ARNG	6,435
Fort Wolters	US	TX	ARNG	4,017
Grafenwoehr	OS	Germany	USAREUR	31,226
Hofenfels	OS	Germany	USAREUR	40,029
Kahuku Training Area	US	HI	USARPAC	15,699
Kansas Regional Training Site (Smoky Hill)	US	KS	ARNG	17,064
Kawaiiloa Training Area	US	HI	USARPAC	23,531
Macon Training Site	US	MO	ARNG	3,093
Monte Romano	OS	Italy	USAREUR	10,039

RANGE COMPLEX	UNITED STATES (US) OR OVER-SEAS (OS)	STATE OR COUNTRY	COMMAND/ COMPONENT	LAND AREA FOR RANGES (ACRES)
Offersheim Small Arms Range	OS	Germany	USAREUR	1
Orchard (Gowen Field) Training Area	US	ID	ARNG	138,914
Pinon Canyon Maneuver Site	US	CO	FORSCOM	235,422
Pohakuloa Training Area	US	HI	USARPAC	128,774
Ravenna Training and Logistics Site	US	OH	ARNG	6,615
Redstone Arsenal	US	AL	AMC	7,740
Reese Range Complex	OS	Germany	USAREUR	15
San Giorg	OS	Italy	USAREUR	26
Scholfield Barracks MIL RES	US	HI	USARPAC	47,281
Schwetzingen LTA	OS	Germany	USAREUR	265
Tulahoma MIL RES	US	TN	ARNG	6,498
Wackernheim Small Arms Ranges	OS	Germany	USAREUR	14
White Sands Missile Range	US	NM	ATEC	2,187,595
Yakima Training Center	US	WA	FORSCOM	323,828
Yuma Proving Ground	US	AZ	ATEC	146,781

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APPENDIX

B

ACRONYM LIST

Table B-1: Acronym List

ACRONYM	DESCRIPTION
AC	Active Component
AC/RC	Active Component/ Reserve Component
ACUB	Army Compatible Use Buffer
AFB	Air Force Base
AFI	Air Force Instruction
AMC	Army Material Command
AMT	Aeronautical Mobile Telemetry
ARNG	Army National Guard
ASN	Assistant Secretary of the Navy
ATEC	Army Test and Evaluation Command
AWEA	American Wind Energy Association
BCT	Brigade Combat Team
BLM	Bureau of Land Management
BOEM	Bureau of Ocean Energy Management
BRAC	Base Realignment and Closure
CIO	Chief Information Officer
CMAGR	Chocolate Mountains Aerial Gunnery Range
CNMI	Commonwealth of the Northern Mariana Islands
CONUS	Continental United States
CSE	Center Scheduling Enterprise
DoD	Department of Defense
DOE	Department of Energy
DOI	Department of the Interior
DPRI	Defense Policy Review Initiative
DRRS RAM	Defense Readiness Reporting System – Range Assessment Module
E2O	Expeditionary Energy Office
EA	Environmental Assessment
EAP	Encroachment Action Plan
ECP	Encroachment Control Plan
EIS	Environmental Impact Statement
EPR	Enhanced Performance Round
ESA	Endangered Species Act
ETC-IS	Exportable Training Capability – Instrumentation System

ACRONYM	DESCRIPTION
EUSA	Eighth United States Army
EW	Electronic Warfare
FAA	Federal Aviation Administration
FCC	Federal Communication Commission
FORSCOM	Forces Command
FY	Fiscal Year
FYDP	Future Years Defense Program
GPS	Global Positioning System
ICRMP	Integrated Cultural Resources Management Plan
IED	Improvised Explosive Device
INRMP	Integrated Natural Resources Management Plan
IPT	Integrated Product Team
IS	Instrumentation System
ISR	Installation Status Report
ITE	Integrated Training Environment
JBLM	Joint Base Lewis-McChord
JLUS	Joint Land Use Study
JPMRC	Joint Pacific Multinational Readiness Capability
JRTC	Joint Readiness Training Center
JSF	Joint Strike Fighter
LVC	Live, Virtual, Constructive
LVC-IA	LVC-Integrating Architecture
MAGTF	Marine Air Ground Task Force
MCAGCC	Marine Corps Air Ground Combat Center
MCAS	Marine Corps Air Station
MCB	Marine Corps Base
MCI	Marine Corps Installation
MCICOM	Marine Corps Installations Command
MCLB	Marine Corps Logistics Base
MCMWTC	Marine Corps Mountain Warfare Training Center
MCRD	Marine Corps Recruit Depot
MDLP	Multiple District Litigation Plan
MDW	Military District of Washington
MEB	Marine Expeditionary Brigade
MEDCOM	Medical Command
METSAT	Meteorological Satellite
MILCON	Military Construction
MMPA	Marine Mammal Protection Act
MOU	Memorandum of Understanding
MVA	Military Value Analysis
NAS	Naval Air Station
NAVSEA	Naval Sea Systems Command
NAWC	Naval Air Weapons Center
NDAA	National Defense Authorization Act

ACRONYM	DESCRIPTION
NEPA	National Environmental Policy Act
NGO	Non-governmental Organization
NMFS	National Marine Fisheries Service
NRCS	Natural Resources Conservation Service
NRDC	National Resources Defense Council
NSWC	Naval Special Warfare Command
NTC	National Training Center
NTIA	National Telecommunications and Information Administration
NWSTF	Naval Weapons Systems Training Facility
OEA	Office of Economic Adjustment
OLF	Outlying Field
OMB	Office of Management and Budget
OOS	Ocean Observing System
OPNAV	Office of the Chief of Naval Operations
OSD	Office of the Secretary of Defense
POM	Program Objective Memorandum
PPBE	Planning, Programming, Budgeting, and Execution
R&D	Research and Development
RCMP	Range Complex Management Plan (Navy/Marine Corps)
RCMP	Range Complex Master Plan (Army)
RCTC	Regional Collective Training Capability
RDT&E	Research Development Test & Evaluation
REPI	Readiness Environmental Protection Integration Program
RFMSS	Range Facility Management Support System
ROD	Record of Decision
ROTHR	Relocatable Over the Horizon Radar
RPLANS	Real Property Planning and Analysis System
RTLS	Range and Training Land Strategy
SEA	Southern Expansion Area
SERPPAS	Southeast Regional Partnership for Planning and Sustainability
SESEF	Shipboard Electronic Systems Evaluation Facility
SOCAL	Southern California Offshore Range Complex
SRI	Sustainable Ranges Initiative
SRR	Sustainable Ranges Report
SUA	Special Use Airspace
T&E	Test and Evaluation
TCTS	Tactical Combat Training System
TECOM	Training and Education Command
TRADOC	Training and Doctrine Command
TSS	Training Support System
U.S.C.	United States Code
UAS	Unmanned Aircraft System
USACE	U.S. Army Corps of Engineers
USAREUR	U.S. Army Europe
USARPAC	U.S. Army Pacific

ACRONYM	DESCRIPTION
USCENTCOM	U.S. Central Command
USD(P&R)	Under Secretary of Defense for Personnel and Readiness
USFWS	U.S. Fish and Wildlife Service
USPACOM	U.S. Pacific Command
WEA	Western Expansion Areas
WIPT	Working Integrated Product Team
WRP	Western Regional Partnership
YTC	Yakima Training Center

