4 Department of Defense's Comprehensive Training Range Sustainment Plan

NDAA Section 366(a)(1) requires DoD to develop a comprehensive training range sustainment plan. DoD has established a complete range planning and management program under its SRI, which addresses this requirement.

The SRI is a multi-faceted program that has reorganized the way DoD identifies and responds to increasing constraints on realistic training.[13] The SRI focuses directly on training, policy, people, and resource needs by employing the concept of sustainability as a guiding principle. DoD reinvigorated existing relationships and initiated new collaborative partnering and outreach efforts with a wide array of stakeholders, including communities surrounding its ranges and installations; state and federal regulatory, planning, and infrastructure agencies; Native American tribes; and non-governmental organizations (NGOs).

The SRI provides a flexible and adaptive planning framework that guides continuing, cooperative, and coordinated range sustainment efforts between DoD and the Military Services, as well as mechanisms that facilitate interaction with local, state, regional, and other federal agencies and NGOs. The program includes an array of policy, organizational, programming, outreach, legislative, and related efforts to address near-term training requirements and long-term range and installation sustainability. This broad-based framework:

▸ Describes individual and joint range requirements and needs

▸ Identifies Military Service-specific and DoD-wide encroachment and range sustainability issues

▸ Evaluates the availability, accessibility, and usability of existing range resources

▸ Develops overarching program goals, articulates the actions and activities necessary to achieve them, and establishes milestones to validate progress

▸ Initiates legislative, regulatory, and outreach program activities, as required

This chapter of the FY2012 Sustainable Ranges Report (SRR) addresses FY2003 NDAA Sections 366(a)(4)(c) to report on such sustainable range initiatives.

4.1 Management Structure

Both OSD and the Military Services have key roles in implementing the SRI to create a comprehensive approach to training range sustainability. Those key roles, framed in large part by the requirements of U.S.C. Title 10, are described in Sections 4.1.1 and 4.1.2 of this report.

4.1.1 Office of the Secretary of Defense (OSD)

ODUSD(P&R) has lead responsibility for developing and overseeing implementation of DoD's comprehensive training range sustainment plan. To ensure that the full spectrum of readiness issues are considered, ODUSD(P&R) works with the Senior Readiness Oversight Council (SROC). This is the DoD decision-making body and advisory board for matters pertaining to readiness. The SROC's responsibilities include reviewing range sustainment policies and issues, overseeing readiness-

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13 Although this report only focuses on the training aspects of test ranges, the SRI is concerned with both training and test aspects of all ranges.

related activities, providing recommendations to the Secretary of Defense on readiness policy matters, and providing reports on current and projected readiness issues.[14]

The Sustainable Ranges Overarching Integrated Product Team (OIPT) reports to the SROC on range sustainment issues. This OIPT operates on two levels: The OIPT and Working IPT (WIPT). The OIPT coordinates and helps develop range sustainment strategies. The WIPT, co-chaired by the Office of the Deputy Assistant Secretary of Defense for Readiness (ODASD(R)), the Office of the Deputy Under Secretary of Defense for Installations and Environment (ODUSD(I&E)), and the Office of the Director, Operational Test and Evaluation (DOT&E), meets regularly to discuss relevant issues, develop actions, and report to the OIPT. Both the OIPT and WIPT work collaboratively with other DoD and Military Service organizations on range sustainability issues.

4.1.2 The Military Services

While the DUSD(P&R) is responsible for establishing fundamental training policy and oversight of DoD-wide training range sustainment activities, the Military Services implement most sustainable range initiatives. Each Military Service has one (or more) headquarters-level office responsible for overseeing the development and operational implementation of Military Service-specific range sustainment policies and programs. Table 4-1[15,16] lists the offices responsible for training ranges within OSD and the Military Services.

4.2 Goals, Actions, and Milestones

DoD has used a set of shared goals and milestones since the 2006 SRR. These goals and milestones were, at the time, intended to guide range sustainability activities through FY2011. By using a common framework, DoD and the Military Services were able to make meaningful comparisons and measurements of past performance and progress towards achieving their training and range sustainability objectives. DoD determined during FY2009 that many of the goals and milestones used in previous reports had either been overcome by other events or outlived their relevance.

The 2010 SRR established new goals that are measurable, attainable, and more closely aligned to the seven sustainable ranges IPT focus areas. The following graphic reflects the new goals.

Using these goals as a common framework, each Military Service developed a set of milestones and actions to achieve common objectives. Tables 4-2 through 4-8 show the current status of the milestones. Based on annual assessment data,

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2012 Goals

Goal 1—Mitigate encroachment pressures on training activities from competing operating space (land, air, sea, space, and cyber) uses.

Goal 2—Mitigate frequency spectrum competition.

Goal 3—Meet military airspace challenges.

Goal 4—Manage increasing military demand for range space.

Goal 5—Address impacts from new energy infrastructure and renewable energy impacts.

Goal 6—Anticipate climate change impacts.

Goal 7—Sustain excellence in environmental stewardship.

Table 4-1 Responsible Training Range Offices within OSD and the Military Departments

Milestones	Actions Taken to Achieve the Milestone

Office of the Secretary of Defense (OSD)	**Office of the Under Secretary of Defense for Personnel and Readiness**
	     Deputy Assistant Secretary of Defense (Readiness)
	     Director, Training Readiness and Strategy

Army	**Office of the Deputy Chief of Staff, G-3/5/7,**
	     Training Directorate
	     Training Support Systems Division (DAMO-TRS)
	
	Assistant Chief of Staff for Installation Management (ACSIM)

Marine Corps	**Commanding General, Training, and Education Command**
	     Range and Training Area Management Division[14]
	     Range Modernization and Investment
	     Range Operation and Maintenance
	
	     Deputy Commandant for Installations and Logistics
	     Facilities and Services Division[15]
	     Environmental
	     Encroachment

Navy	**Office of the Chief of Naval Operations, Materiel Readiness, and Logistics (N4)**
	     Fleet Readiness Division (N43)
	     Range Modernization and Investment (N433) and Range Operation and Maintenance (N433)
	
	     Environmental Readiness Division (N45)
	     Operational Environmental Readiness Planning Branch (N456)
	
	     Commander, Naval Installations Command (CNIC)/
	     Ashore Readiness Division (N46)

Air Force	**Deputy Chief of Staff for Operations, Plans, and Requirements** HQ USAF Bases, Ranges and Airspace/A3O-BAR

programmatic goals and milestones will be reviewed and updated annually to ensure the SRI continues to effectively address potential future training requirements and constraints.

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14   Guidance for FY2006 – FY2011 Sustainable Ranges Programs, memorandum from the Under Secretary of Defense for Personnel and Readiness, 26 June 2003.

15   Executive Agent for Marine Corps Ranges

16   Executive Agent for Marine Corps Installations

Table 4-2 Encroachment Actions and Milestones

Goal Mitigate Encroachment Pressures on Training Activities from Competing Operating Space
(land, air, sea, space, and cyber issues)

Actions	Milestones	Status	Additional Service Comments
Army			
Review and maintain Installation Range Complex Master Plans (RCMPs)	▸ Finalize 100% of RCMPs for required installations by 4th Quarter FY2011	Completed	Completed in 2011
	▸ Review and update RCMPs annually for required installations	Ongoing	100% of installation RCMPs were updated and approved in 4th Quarter FY2011.
Execute the Army Compatible Use Buffer 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. Transition management of the ACUB program from environmental to operations by 2nd Quarter FY2012 ▸ Continue programming validated environmental requirements to support ACUBs during POM 14-18	Ongoing	As of 2011, ACUBs have been implemented at 30 locations and more than 130,000 acres of land have been protected from incompatible use
	▸ Document a consistent and clearly defined ACUB strategy, including metrics for program success and prioritization measures by 4th Quarter FY11	Ongoing	The HQDA ACUB Coordinator position was filled 2nd quarter FY2011; the timeline for developing this strategy is dependent upon finalization of an Army Audit Agency (AAA) audit and to date the AAA audit has not been finalized
	▸ Program validated environmental requirements to support ACUBs during POM 2013-2017	Completed	
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 FY2011	Completed	Community research efforts were conducted at Fort Sill, OK and Fort Stewart, GA in 2011
	▸ Complete two additional installation community research efforts by 4th Quarter FY2012	Ongoing	
	▸ Draft and implement an on-going strategy to continually update community research findings at major training installations by 3rd Quarter FY2012	Slipped	The timeline for drafting and implementing this strategy slipped due to lack of funding for strategy development
Execute State Legislative Initiatives	▸ Conduct reviews with stakeholders, through the Army Office of Environmental and Government Affairs to discuss adverse impacts of incompatible land uses near military installations and gain their support to address these issues	Ongoing	
Marine Corps			
Continue to analyze and assess encroachment, quantitatively and qualitatively, at the installation, regional, and Service levels	▸ Include encroachment analysis in Regional Range Complex Management Plans (RCMPs)	Ongoing	One of three RCMPs have been completed. One has slipped, and another is presently being planned. Details are included by region
	▸ Marine Corps Installations (MCI) -West	Ongoing	
	▸ MCI-East (planned FY 2012)	Slipped	Factors influencing re-scheduled plan to initiate regional RCMP include pending institutional reorganizations, pending development of modified metrics for range assessment, and funding priorities
	▸ MCI-PAC (planned FY2012)	Ongoing	
	▸ Execute Encroachment Control Plans (ECPs)	Ongoing	Eight of 15 ECPs have been completed. Five ECPs are ongoing and two are in the planning stages

Table 4-2 Encroachment Actions and Milestones (continued)

Goal Mitigate Encroachment Pressures on Training Activities from Competing Operating Space
(land, air, sea, space, and cyber issues)

Actions	Milestones	Status	Additional Service Comments
Marine Corps (continued)			
Continue to analyze and assess encroachment, quantitatively and qualitatively, at the installation, regional, and Service levels (continued)	ECPs completed: ▸ Marine Corps Air Station (MCAS) Yuma ▸ Marine Corps Air Ground Combat Center (MCAGCC) Twentynine Palms ▸ Marine Corps Base (MCB) Quantico ▸ MCAS Cherry Point ▸ MCAS Beaufort/Townsend Range ▸ MCB Camp Lejeune/MCAS New River ▸ Blount Island Command ▸ MCLB Albany	Complete	
	ECP in progress: ▸ Joint (Navy/Marine Corps) Guam ▸ MCB Camp Pendleton ▸ MCAS Miramar ▸ MCI-WEST ▸ MCB Hawaii	Ongoing	In progress during FY2012
	ECPs planned: ▸ Marine Corps Mountain Warfare Training Center Bridgeport ▸ MCLB Barstow	Planned	Planned for FY2012
	Facilitate/support regional inter-agency and inter-governmental partnerships: ▸ Western Regional Partnership ▸ Southeast Regional Partnership for Planning and Sustainability	Ongoing	
Continue to evaluate, plan for, and execute encroachment partnering opportunities per 10 U.S.C. § 2684a	▸ Execute buffer lands acquisition		Partnership identified in the updated information is result of ongoing regional inter-agency coordination, in furtherance of the objectives of the REPI program, and in coordination with the SERPAS initiative
	MCI—National Capital Region ▸ Quantico (302 acres [ac]) MCI—EAST ▸ MCAS Beaufort (1,622 ac) ▸ Townsend Range (22,841 ac) ▸ MCAS Cherry Point (1,495 ac) ▸ Camp Lejeune (1,793 ac) ▸ Piney Island Range (3,185 ac) MCI—WEST ▸ Camp Pendleton (1,291 ac) ▸ Twentynine Palms (958 ac)	Complete	32 Total complete to date
	▸ Initiated partnership with U.S. Fish and Wildlife Service 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	Updated	
	▸ Evaluate opportunities in all Continental United States MCI regions	Ongoing	

Table 4-2 Encroachment Actions and Milestones (continued)

Goal Mitigate Encroachment Pressures on Training Activities from Competing Operating Space
(land, air, sea, space, and cyber issues)

Actions	Milestones	Status	Additional Service Comments
Navy			
Employ proactive interaction with all Services to sustain installation and range capabilities	▸ Interact with other Service to identify long-term solutions for range support to Naval Special Warfare training. Identify near-term solution to USMC Chocolate Mountain Aerial Gunnery Range support to Naval Special Warfare Group One by FY2013	Updated	
Continue to analyze and assess encroachment, quantitatively and qualitatively at the installation and regional levels	▸ Update six (recently awarded) Encroachment Action Plans (EAPs) and complete an assessment of encroachment pressures and their impacts on the same Navy training ranges using parallel processes by FY2013 ▸ Utilize and develop the Navy Community Liaison and Plans Officer program 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 parallel processes to update applicable EAPs and identify all encroachment partnering opportunities for associated Navy training ranges	Ongoing	Jacksonville EAP completed in 2011
Air Force			
Develop the Center Scheduling Enterprise (CSE) system and integrate flight scheduling systems with other scheduling systems	▸ Created a modified range and airspace utilization reporting process to make it more effective	Complete	Completed in FY2010
	▸ Developed modified information operations activities for consistent application for standard open air range operations	Complete	Completed in FY2010
	▸ Modify utilization reports to provide a complete and accurate account of airspace and range usage (FY2011-2012)	Slipped	Progress continuing into 2012
	▸ Use enterprise architecture to institute a streamlined version of CSE (FY2009-FY2012):	Ongoing	
	▸ Developed a common system for units to schedule Air Force assets; BETA (FY2009); Version 1.0	Complete	Completed in FY2010
	▸ Established CSE architecture	Complete	Completed in FY2010
	▸ Deploy CSE system throughout the Air Force (FY2010—FY2012)	Ongoing	
	▸ Standardize terms, practices, and procedures used for scheduling and utilization reporting at all Air Force ranges to ensure true comparison of assets (FY2012)	Ongoing	
	▸ Provide a quantitative basis for defending current requirements and developing future needs (FY2011— FY2012)	Ongoing	
	▸ Integrate CSE with Federal Aviation Administration system to allow seamless machine-to-machine data transfer of airspace schedules, activations, and release	Complete	Completed in FY2011
	▸ Develop and interface between CSE and the Army/Marine Corps Range Facility Management Support System (FY2011- FY2012)	Ongoing	

Overall Trend Analysis

The Military Services continue to make progress towards achieving this goal and great strides have been made in preventing and/or mitigating incompatibilities. Institutional challenges to overall goal achievement remain, however, such as evolving organizational structures and competing priorities.

Table 4-3 Frequency Spectrum Actions and Milestones

Goal Mitigate Frequency Spectrum Competition

Actions	Milestones	Status	Additional Service Comments
Army			
Execute an ACUB to protect spectrum at Fort Huachuca, home of the Electronic Proving Ground.	▸ Complete Phase III and IV of the Fort Huachuca ACUB proposal	Ongoing	Ongoing subject to the availability of funding. To date 20,700 acres have been conserved and over $8M in funding has been executed
	▸ Monitor and assess the ACUB at Fort Huachuca through the biennial review process	Ongoing	A biennial review was conducted in Summer 2011; the next biennial review is targeted for 2013
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	Ongoing	
Marine Corps			
Analyze and assess frequency spectrum issues potentially impacting training capabilities at range complexes	▸ Assess operational impacts of frequency encroachment at the range complex level (planned FY2012)	Slipped	Frequency spectrum encroachment analysis is being incorporated into the Range Complex Management plan and the Encroachment Control Plan processes, as RCMPs and ECPs are prepared, reviewed and/or revised
	▸ Incorporate frequency spectrum encroachment analysis and potential mitigation measures into planned ECPs; incorporate updates to existing ECPs	Ongoing	See Table 4-2 for schedule
Navy			
Analyze and assess frequency spectrum issues potentially impacting training capabilities at the range complex and regional level	▸ Update the RCMPs and EAPs to identify and assess frequency spectrum conflicts, shortfalls, and the impacts on Navy training, by end of FY2012	Updated	
	▸ Advocate for the protection of military frequencies that could be affected by frequency re-allocation and/or the National Broadband Plan	Ongoing	Military frequency band 1755-1850 Khz has been assessed for migration costs in terms of time and resources required
Air Force			
Improve frequency/spectrum considerations in AF basing decision-making	▸ Incorporate frequency/spectrum as a key and quantifiable factor in the AF corporate basing process	Slipped	Progress continuing into 2012

Overall Trend Analysis

Military Service methods to mitigate spectrum completion have varied over the past few fiscal years. Some Military Services have approached the problem by attempting to establish physical buffers between themselves and the incompatibility, while others have been studying the extent of the problem and including mitigation measures in ECPs and other planning documents.

Table 4-4 Airspace Actions and Milestones

Goal Meet Military Airspace Challenges

Actions	Milestones	Status	Additional Service Comments
Army			
Develop an Unmanned Aircraft System (UAS) Army Strategy and define Army use of UAS through 2035.	‣ Publish the Army's Roadmap for UAS through 2035	Completed	
	‣ Program sustainment of UAS training facilities at 28 locations in POM FY2012-2016	Completed	Programmed and resourced facility sustainment
	‣ Program additional facility upgrades of UAS training facilities at 28 locations in POM FY2013-2017	Ongoing	Programmed facility upgrade requirements were accepted as valid, but not resourced due to funding constraints
	‣ Initiate 2 pilot project environmental assessments to adjust special use airspace in support of UAS training at major training and testing installations	New	New action and milestone; environmental assessments are underway at Fort Bliss (initiated 3rd Quarter FY2011) and Fort Polk (initiated 4th Quarter FY2011)
	‣ Coordinate with the FAA to complete environmental assessments at Forts Bliss and Polk; and refine the Army's process for training airspace adjustment by 4th Quarter FY2012	New	New action and milestone
Marine Corps			
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 Regional Range Complex Management Plans (RCMPs)	Ongoing	See Table 4-2 for schedule
	‣ Assess airspace requirements and shortfalls in preparation of and submission for Regional Airspace Plans (FY2012)	Ongoing	Preparing the Regional Airspace Plans is an annual requirement (OPNAV INST 3770.2K) for Marine Corps Regional Airspace Coordinators; the change in date from 2011 to 2012 simply reflects the fact that these documents are prepared annually
	‣ Complete strategic-level assessment of range requirements and shortfalls regarding training land and airspace	Ongoing	Presently at 4-Star decision level
	‣ Continue airspace expansion planning for Marine Corps Air-Ground Combat Center Twentynine Palms (Final EIS 2nd Qtr FY2012)	Slipped	Preparation of the EIS continued in FY2011, with modifications of scheduled based to further accommodate review and comment of complex NEPA documentation. Status of EIS for Land and Airspace Expansion at MCAGCC (per DON-approved schedule): Draft EIS-June 2011; Final EIS-January 2012; Record of Decision-April 2012
	‣ Continue to track airspace issues and FAA initiatives potentially affecting military activities	Ongoing	

Table 4-4 Airspace Actions and Milestones (continued)

Goal Meet Military Airspace Challenges

Actions	Milestones	Status	Additional Service Comments
Navy			
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	‣ Use RCMPs and EAPs to assess future Navy special use airspace requirements based on projected force structure changes and new weapon systems and missions; recommend possible courses of action consistent with Regional Airspace Plans; identify potential shortfalls in land and sea space for each Navy range complex level (by end of FY2012)	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 compliment each other	Ongoing	
Air Force			
Improve airspace considerations on AF basing decision-making	‣ Incorporate airspace as a key and quantifiable factor in the AF corporate basing process	Slipped	Progress continuing into 2012

Overall Trend Analysis

The Military Services' approaches to countering the effects of airspace incompatibilities continues to mature.

Table 4-5 Range Space Actions and Milestones

Goal Manage Increasing Military Demand for Range Space

Actions	Milestones	Status	Additional Service Comments
Army			
Assess overall range capabilities in support of Army Force Generation (ARFORGEN), as part of the Army Training Support System Assessment	‣ Canvass four Continental United States (CONUS) installations to ensure Mission Essential Requirements (MERs) are met for ranges by 1st Quarter FY2011	Complete	Completed as part of the Army Training Summit I (2nd Quarter FY2011). Three case-studies of Training Support System (TSS) capabilities, including ranges and training land were conducted to inform the MER - Fort Lewis, WA (Active Component), East-Central Region (Army National Guard), and Fort McCoy, WI (US Army Reserve)
Execute "Theater In-Process Reviews (IPRs)" to review range capabilities against Mission Essential Requirements (MER).	‣ Conduct Theater IPR in Europe, CONUS, and Pacific to assess range capabilities to support ARFORGEN during 3rd-4th Quarter FY2011	Complete	Pacific IPR was conducted 4th Quarter FY2011; Europe IPR was conducted 1st Quarter FY2012; CONUS IPR was cancelled due to constrained resources
	‣ Apply results from the Theater IPRs to POM 14-18	Ongoing	
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	Ongoing	Progress on revising the RTLS has been delayed due to staffing shortfalls and hiring delays in FY2011; revision will be completed in FY2012 (pending availability of staff and resources)
	‣ Implement a two-year review and update process for the RTLS by 4th Quarter FY2011	Ongoing	Progress on revising the RTLS has been delayed due to staffing shortfalls and hiring delays in FY2011; revision will be completed in FY2012 (pending availability of staff and resources)

Table 4-5 Range Space Actions and Milestones (continued)

Goal Manage Increasing Military Demand for Range Space

Actions	Milestones	Status	Additional Service Comments
Army (continued)			
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	Updated	Opening of the WEA has been put on hold (possibly indefinitely) due to significant on-going delays and costs related to endangered species (desert tortoise) management and mitigation. Progress to open the SEA is pending the completion of these outstanding actions: ‣ USFWS Biological Opinion (BO) ‣ Translocation of Desert Tortoise in the SEA. USFWS completed an initial Draft BO for Army review 4th Quarter FY2011; NTC is currently consulting with USFWS on a final BO with anticipated completion 2nd Quarter FY2012; completion of SEA Desert Tortoise translocation anticipated in 3rd Quarter FY2012; anticipate SEA open for training by 2nd Quarter FY2013 (assuming no additional legal challenges or delays)
	‣ 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 land owners by 2nd Quarter FY2011	Updated	USACE has completed necessary title work and appraisals; negotiations for the first acquisition parcel started in 2nd Quarter FY2011; closed on the purchase of first acquisition parcel in 2nd Quarter FY2012; negotiations to acquire additional parcels started in 1st Quarter FY2012 and are ongoing
Execute Training Land Acquisitions to offset the nearly 5 million acre shortfall in training land assets. (continued)	‣ South Texas Training Site, TX — Complete the Environmental Impact Statement (EIS) to study proposed areas for training land acquisition by 2nd Quarter FY2012	Updated	Public scoping was completed 2nd Quarter FY11 and Draft EIS is anticipated to be published by 4th Quarter FY2012
	‣ Fort Benning, GA — Complete the Environmental Impact Statement (EIS) to study proposed areas for training land acquisition by 4th Quarter FY2011	Updated	Completion of the Final EIS and Record of Decision (ROD) has been delayed due to pending Army force structure decisions, revisions to institutional training requirements, and the need to conduct additional analysis to address significant community and Congressional concerns related to socio-economic and environmental impacts from the land acquisition; decision to proceed with land acquisition will be made following announcement of army force structure decisions; USACE real estate planning studies completed 4th Quarter FY2011; USACE to complete title work and appraisals pending ROD to proceed
Use non-DoD sites for Army Training (Savannah River Site)	‣ Complete the draft Environmental Assessment (EA) to facilitate full training use of Savannah River Site by 2nd Quarter FY2011	Complete	Draft EA to support training use of Savannah River site published in 4th Quarter FY2011; public meetings conducted 4th Quarter FY2011; final EA was signed 1st Quarter FY2012

Table 4-5 Range Space Actions and Milestones (continued)

Goal Manage Increasing Military Demand for Range Space

Actions	Milestones	Status	Additional Service Comments
Marine Corps			
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 Range Complex Management Plans (RCMPs)	Ongoing	See Table 4-2 for schedule
	▸ Facilitate enhanced cross-service utilization of range areas in Regional RCMPs	Ongoing	
	▸ Initiate strategic-level assessment of range requirements and shortfalls re: training land and airspace (initiate FY2010)	Ongoing	Preliminary assessment prepared in FY 2011; additional studies in furtherance of 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 (Final EIS 2nd Qtr FY2012)	Slipped	Preparation of the EIS continued in FY2011, with modifications of scheduled based to father accommodate review and comment of complex NEPA documentation. Status of EIS for Land and Airspace Expansion at MCAGCC (per DON-approved schedule): Draft EIS-June 2011; Final EIS-January 2012; Record of Decision-April 2012
	▸ Continue range expansion planning for Townsend Bombing Range	Updated	Draft EIS is expected in 3rd Qtr FY2012
	▸ Conduct strategic land requirements analysis	Ongoing	Currently at 4-Star decision level
Navy			
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	▸ Update and complete RCMPs to assess future requirements for Navy air, sea, and land ranges based on force structure change, and new weapon systems and missions by FY2012; Complete range requirements in Navy service-level Planning, Programming, Budgeting, and Execution	Slipped	Review of RCMPs are currently in review, initial assessments were not supportable by POM2013. Validated shortfalls in range capabilities will be adjudicated in POM2014 and POM2015
Air Force			
Improve range space considerations on AF basing decision-making	▸ Incorporate range space as a key and quantifiable factor in the AF corporate basing process	Slipped	Progress continuing into 2012
Develop range configuration to support urban training	▸ Develop Melrose Range, an urban training complex with a mountainside village and a target complex with hillside tunnels; transform Cannon Air Force Base (AFB), NM to support the Air Force Special Operations Command mission (FY2011-2012)	Slipped	Progress continuing into 2012

Overall Trend Analysis

The Military Services' approach to addressing the increased need for range space continues to evolve.

Table 4-6 Energy Actions and Milestones

Goal Address Impacts from New Energy Infrastructure and Renewable Energy Impacts

Actions	Milestones	Status	Additional Service Comments
Army			
Assess on-going Army energy security projects for impact on mission	▸ Issue Army policy on review and coordination process for internal energy projects to ensure projects do not impact on the training/testing mission	Complete	Continuing coordination with Army G-3/5/7 to minimize and mitigate impacts on the training/testing mission
	▸ Identify central Army portal for all external energy projects having a potential training or environmental impact at Army installations	Complete	Deputy Assistant Secretary of the Army for Energy and Sustainability is the central Army point of contact; Army G-3/5/7 provides training assessment for all projects; coordination is ongoing
	▸ 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			
Support Office of the Secretary of Defense (OSD)-directed energy infrastructure 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 Energy Infrastructure Development	▸ Establish criteria for assessing potential impacts of energy infrastructure development on military training ranges and airspace ▸ Fully support energy infrastructure development to the extent compatible with military training ▸ Establish Mission Compatibility Working Groups at MCI commands to monitor proposed energy infrastructure development in vicinity of Marine Corps installations and military training airspace ▸ Execute formal outreach and engagement programs with all governmental, non-governmental, and private and commercial stakeholders of energy development programs relevant to Marine Corps activities ▸ Implement formal energy infrastructure compatibility assessment program at installation, MCI, and Headquarters levels	New	New action and milestone
Implement the Marine Corps Expeditionary Energy Strategy (2011)	▸ USMC 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)	New	New action and milestone
Implement Marine Corps Installations Energy Conservation Strategy	▸ Implement Marine Corps Installations Energy Conservation Strategy	New	New action and milestone
Navy			
Engage renewable energy proponents to mitigate or minimize impacts on naval training	▸ Define and codify organizational roles and responsibilities to streamline Navy assessments of renewable energy proposals by the end of FY2011	Complete	Completed in 2011
	▸ Continuously respond to requests for analysis on potential impacts on range capabilities and range space from proposed energy infrastructure on range capabilities. ▸ Complete development of the Geographic Information System assessment tool in Environmental Information Management System (EIMS) to expedite OSD-directed assessments by the end of FY2012	Ongoing	

Table 4-6 Energy Actions and Milestones (continued)

Goal Address Impacts from New Energy Infrastructure and Renewable Energy Impacts

Actions	Milestones	Status	Additional Service Comments
Navy (continued)			
Coordinate and contribute to the on-going OSD effort to assess energy infrastructure proposals are accomplished at the appropriate level	‣ Continue to interact with Bureau of Ocean Energy Management 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 ‣ Continue to support the DoD Siting Clearinghouse in assessing renewable energy development proposal impacts	Ongoing	
	‣ Support and participate in the initiative to establish a single DoD point of contact to receive and assess wind farm proposals	Complete	Completed in 2011
Air Force			
Engage renewable energy proponents in order to collaborate on site selections	‣ Implement a DoD preliminary screening tool	Complete	Completed October 2008
	‣ Conduct a Nellis Energy Summit	Complete	Completed February 2009
	‣ Establish the Air Mobility Command Wind Resource Area Task Force	Complete	Completed Spring 2009
	‣ Contribute to the American Wind Energy Association National Conference, Governmental Listening Session and Presentation	Complete	Completed April 2009
	‣ Attend the FAA Conference on Competition for the Sky	Complete	Completed September 2008
	‣ Manager training on engaging energy developers	Complete	Completed January–April 2009
	‣ USAF Nevada Energy Forum sponsored by USecAF and SAF/IE where government and industry collaborated on process development	Complete	Completed in Aug 2010
	‣ Coordinate with DOE and AWEA to share data from development screening tools (FY2012)	New	New milestone
Study Potential impacts and mitigation techniques	‣ Study wind turbine impacts and mitigation techniques	Complete	Phase 1 was completed in April 2010; Phase 2 was completed in FY2011
	‣ Develop Tracking and/Decision making tool	Complete	Completed in FY2011
	‣ Expand Radar Toolbox for prediction of impacts on ASR-11 radar from wind turbines (FY2012)	Slipped	Progress continuing into 2012
Create and field a DoD tracking and visualization tool for energy proposals	‣ Develop Mission Compatibility Analysis Tool (FY2012)	Slipped	Progress continuing into 2012. Initial development of the tool was released in 2011 but will undergo additional functionality and improvement during 2012

Overall Trend Analysis

Overall, the Military Services' approach to addressing the impacts from new energy infrastructure and renewable energy projects continues to mature.

Table 4-7 Climate Actions and Milestones

Goal Anticipate Climate Change Impacts

Actions	Milestones	Status	Additional Service Comments
Army			
Assess Global Climate Change risks and vulnerabilities	▸ Implement Global Climate Change planning and programming solutions that address the risks and commitments described in the 2010 DoD Quadrennial Defense Report	Ongoing	
	▸ Assess Global climate change risks and vulnerabilities	Ongoing	
	▸ Program Global Climate Change adaptation and mitigation measures in POM FY2013-2017	Updated	This milestone has been adjusted to focus efforts on incorporating climate change measures into existing Army plans, rather than seeking dedicated funding streams due to budget constraints
	▸ Incorporate global climate change adaptation and mitigation measures in existing Army plans	Ongoing	
	▸ Develop and validate a climate change vulnerability assessment and adaptation planning framework for installation assessments by 4th Quarter FY2012	Ongoing	
	▸ Execute climate change vulnerability assessment and adaptation planning at Army installations through the next scheduled (recurring) updates of installation-level plans	Ongoing	Plans include: Installation Strategic Plans, Master Plans, Integrated Natural Resources Management Plans
Marine Corps			
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	USMC representative is currently the Subcommittee chair
Navy			
Support OSD-directed climate change policy and assessments	▸ Implement DoD Quadrennial Defense Report Global Climate Change directives. ▸ Assess climate change risks and vulnerabilities.	Ongoing	
Air Force			
Assess global climate change risks and vulnerabilities	▸ Implement DoD Quadrennial Defense Report Global Climate Change directives	Complete	Completed in FY2011
	▸ Assess climate change risks and vulnerabilities.	Ongoing	
Prepare for increased renewable energy priority and development	▸ Participate in White House Task Force on Wind Turbine Impacts on Radar	Ongoing	
	▸ Engage U.S. Bureau of Land Management to improve siting process	Ongoing	

Overall Trend Analysis
Overall, the Services' continue to gain situational understanding of the potential effects of climate change.

Table 4-8 Environmental Stewardship Actions and Milestones

Goal Sustain Excellence in Environmental Stewardship

Actions	Milestones	Status	Additional Service Comments
Army			
Execute the Army Range Assessment Program.	▸ Review and finalize all range assessment data from Phase I reports	Complete	
	▸ Complete Phase II assessments, where required, by 4th Quarter FY2014	Ongoing	

Table 4-8 Environmental Stewardship Actions and Milestones (continued)

Goal Sustain Excellence in Environmental Stewardship

Actions	Milestones	Status	Additional Service Comments
Army (continued)			
Execute environmental management and stewardship program to support sustainment of ranges and training lands.	▸ Finalize the Army Sustainability Campaign Plan	Complete	
	▸ Start implementing tasks and objectives identified in the Army Sustainability Campaign Plan by 3rd Quarter FY2011	Slipped	Implementation memorandum was signed 2nd Quarter of FY2011 and implementation is ongoing throughout the Army
	▸ Implement a process to integrate natural resource and conservation management plans into the Range Complex Master Plan (RCMP) template by 4th Quarter FY2011	Cancelled	It was determined that the procedural challenges and costs to implement these management plans into the RCMP outweighed the benefits after further review and internal coordination
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	New	New action and milestone. Formal staffing to the Army Staff began 1st Quarter FY2012
	▸ Promulgate the compliance policy statement for the Army's Ecosystem Services by 4th Quarter FY2012	New	New action and milestone. Current draft policy is being reviewed internally
Marine Corps			
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 with that may potentially impact range sustainability or range readiness in coordination with the Office of the Secretary of Defense	Ongoing	
	▸ 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 Department of the Interior, U.S. Army Corps of Engineers and the Environmental Protection Agency	Updated	
	▸ Encourage non-governmental organizations and local communities to work on regional solutions for land use conflicts (e.g., Southeast Regional Partnership for Planning and Sustainability and Western Regional Partnership)	Ongoing	
Navy			
Execute Service-wide environmental management and range sustainability programs as required by law/regulation	▸ Renew annually-expiring Marine Mammal Protection Act authorizations, as needed ▸ Evaluate the implementation and effectiveness of Integrated Natural Resources Management Plans at the end of each fiscal year ▸ Complete ongoing environmental planning for at-sea operational areas and range complexes by the end of FY2012	Ongoing	
Air Force			
Provide for more accurate, more flexible risk assessment and weapons footprint creation	▸ Implemented the Weapons Danger Zone tool (FY2010–FY2011)	Complete	Completed in 2011
	▸ Reduced the landscape/airspace requirements for employing guided bomb units known as GBU-38s	Complete	Completed in 2011
	▸ Implementation at Dare County Range in North Carolina and Draughon Range in Japan	Complete	Completed in 2011
Develop range configuration to support urban training	▸ Expand the Air Force Special Operations Command Emerald Warrior exercise to include urban training over additional airspace and Gulf Coast communities	Complete	Completed in 2011
Continue environmental management and range sustainability programs	▸ Maintain active participation in Range Sustainment Initiatives e.g., Southeast Partnership for Planning and Sustainability and Western Regional Partnership	Ongoing	

Overall Trend Analysis

The Military Services' environmental stewardship programs continue to make progress as their environmental management programs mature.

4.3 Funding Requirements

NDAA Section 366(a)(3)(C) requires DoD and the Military Services to report on funding requirements associated with implementing range sustainability initiatives. DoD has stated in previous submissions of this report that it faces several challenges in meeting this requirement. These challenges are discussed in the following paragraphs.

Each Military Service manages its range program in a manner that bests suits the way their ranges operate to meet their specific missions. Therefore, each Military Service is responsible for identifying the requirements and accounting for funds to support their ranges. While processes and programs differ to some degree among the Military Services based upon their particular command structures, missions, and financial processes, each of the Military Services face challenges in developing comprehensive data regarding range funding. These challenges exist because funding for range sustainability is spread across and embedded within different appropriations (e.g., operation & maintenance [O&M], military personnel, procurement, MILCON) and program elements (e.g., manpower, training, ranges, environmental, real property, utilities).

While each of the categories of funding that affect range sustainability is accurately tracked by the Military Services, the Military Services experience challenges in separately tracking the extent to which different appropriations or programs are allocated to range sustainability. Funding of environmental initiatives or civilian personnel expenses that benefit ranges, for example, may be attributed to an installation in general, without being further categorized as supporting range sustainability. The cross-cutting scope of range management programs leads to

challenges in the tracking and reporting of range sustainability funding in a consolidated manner at the OSD level.

In an attempt to develop a common framework across the Military Services for consistently and accurately tracking and reporting range sustainability funding, a Sustainable Ranges Funding Subgroup was formed under the WIPT. The subgroup examined funding strategies and categorizations used by the Military Services for their training range sustainability efforts.

The group developed four main categories as a common starting point from which to report training range sustainability funding data. The categories, their descriptions, and specific examples for each category are included in Table 4-9.[17]

These categories serve as a framework for OSD and the Military Services to track, report, and project the need for future range sustainability fiscal resources in the context of the SRR. The ability to compare side-by-side the status of resources against the results of the range encroachment and capabilities assessments described in Section 3 will give DoD increased capability to address progress on resolving range sustainability issues. Taken together, this ability represents an important management tool that supports informed decisions about both the adequacy of existing resources, and the need for additional investment of sustainability dollars. Future funding will necessarily be subject to change, and is presented for planning purposes only. Military Service-wide range sustainability funding levels for FY2012 through FY2016 are provided in Table 4-10.[18]

In an attempt to increase accuracy of reporting, the Military Services were asked to report based on their FY2012 President's Budget submissions. Starting with the 2010 SRR, REPI program funds, which are centrally managed by OSD, have been broken out separately from Military Service encroachment

Table 4-9 DoD Sustainable Ranges Initiative Funding Categories

Funding Category	Description	Specific Examples
Modernization and 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

[17] These funding categories should not be confused with appropriation categories.

[18] The funding categories in this table should not be confused with appropriation categories.

Table 4-10 DoD Training Range Sustainment Funding ($M)

Service*	Fiscal Year				
Army	**FY2012**	**FY2013**	**FY2014**	**FY2015**	**FY2016**
Modernization & Investment	$203.5	$339.4	$209.4	$224.7	$261.9
Operation & Maintenance	$374.9	$387.3	$393.1	$396.0	$402.6
Environmental	$182.5	$185.2	$165.6	$159.4	$156.1
Encroachment	$6.4	$6.4	$6.4	$6.4	$6.4
Army Total	**$767.3**	**$918.3**	**$774.5**	**$786.5**	**$827.0**
Marine Corps**	**FY2012**	**FY2013**	**FY2014**	**FY2015**	**FY2016**
Modernization & Investment	$5.1	$44.1	$34.6	$34.3	$35.3
Operation & Maintenance	$44.6	$41.5	$42.2	$42.9	$43.1
Environmental	$13.0	$12.0	$6.3	$6.4	$6.2
Encroachment	$3.0	$3.0	$3.0	$3.0	$3.0
Marine Corps Total	**$65.7**	**$100.6**	**$86.1**	**$86.6**	**$86.8**
Navy	**FY2012**	**FY2013**	**FY2014**	**FY2015**	**FY2016**
Modernization & Investment	$76.0	$82.2	$80.1	$79.7	$82.2
Operation & Maintenance	$171.4	$172.0	$174.1	$177.3	$180.4
Environmental	$39.4	$38.2	$31.2	$37.4	$39.4
Encroachment	$19.0	$19.4	$19.9	$20.3	$20.8
Navy Total	**$305.80**	**$311.80**	**$305.30**	**$314.70**	**$322.80**
Air Force	**FY2012**	**FY2013**	**FY2014**	**FY2015**	**FY2016**
Modernization & Investment	$98.2	$96.0	$98.7	$86.8	$89.0
Operation & Maintenance	$174.7	$146.5	$150.5	$149.1	$150.1
Environmental	$27.7	$26.1	$25.6	$26.2	$26.6
Encroachment	$0.0	$0.0	$0.0	$0.0	$0.0
Air Force Total	**$300.6**	**$268.6**	**$274.8**	**$262.1**	**$265.7**
OSD	**FY2012**	**FY2013**	**FY2014**	**FY2015**	**FY2016**
REPI Program	**$54.2**	**$50.6**	**$34.1**	**$34.2**	**$34.4**
DoD	**FY2012**	**FY2013**	**FY2014**	**FY2015**	**FY2016**
DoD Total	**$1,493.6**	**$1,649.9**	**$1,474.8**	**$1,484.1**	**$1,537.5**

* *Range sustainability programs are fully represented in the Services' programming and budgeting processes. Program fluctuations generally reflect best alignment of available resources across competing Military Service priorities based on programming guidance and validated by the Service Chiefs and Department Secretaries.*

** *Marine Corps FY2012 figures represent actual allocations, and FY2013 through FY2016 numbers reflect the most current figures available as of 26 March 2012.*

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 an assessment of need (For a more thorough discussion of the REPI program see Section 4.4.1.). Any Military Service funds budgeted for buffer projects are captured in that Military Services' encroachment lines.

The following is a summary of significant funding fluctuations observed across the reporting years and between the 2011 and 2012 SRR. Funding for range sustainability efforts are fully represented in the Military Services' programming and budgeting processes. Program fluctuations often reflect the tough 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.

Army

As previously stated, in the 2011 SRR, Army Modernization and Investment funding varies widely across the reporting years, both within a given report and between reports. This is common because of the nature and purpose of these funds. Cumulatively, small changes in MILCON and procurement projects across several hundred ranges have accelerated, delayed, and caused changes in the scope and design of individual projects. As a result, there have been significant fluctuations when funds are aggregated into a single funding category. Due to their nature and purpose, changes in Modernization and Investment funding levels do not generally impact the op-tempo of a range. Rather, these changes impact the Army's ability to add or improve capability.

Although Encroachment funding remains relatively constant across the reporting years, this year's SRR shows a significant increase in Encroachment funding from the 2011 SRR. The increase is brought about by two factors. The first factor is the attribution of manpower for centralized Army Compatible Use Buffer (ACUB) administration and management. The second factor is the successful attempt to program funds for ACUBs that provide environmental mitigation, instead of relying solely on end of year funds from other programs for the execution of these types of buffer projects.

Army O&M and Environmental funding continues to remain relatively stable.

Marine Corps

As previously stated in the 2011 SRR, the Marine Corp's Modernization and Investment, O&M, and Environmental funding projections for range sustainability show some significant fluctuations across the reporting years and between reports in the case of the environmental funding projection. These fluctuations are driven by prioritization and acceptance of certain levels of risk among competing priorities within the overall Marine Corps portfolio. As the Marine Corps is still assessing the spectrum of potential courses of action in a changing fiscal environment, the exact impacts on future range capabilities and capacities are unknown at this time.

The Marine Corps O&M line identifies funds centrally managed by TECOM, Range and Training Area Management Division, which manages an estimated 80 percent to 90 percent of all Marine Corps range funding. Funds for real property maintenance and Base Operating Support are managed at the installation-level to provide responsive support for various installation requirements, including local range sustainability initiatives. These installation-managed funding lines are not included in the O&M line because breakouts to range-specific expenditures were not available. FY2012 amounts reflected are based upon FY2012 actual amounts. FY2013 through FY2016 amounts reflected are accurate as of 26 March 2012. Information provided does not include reductions experienced during the Department of the Navy Comptroller (NAVCOMP) Budget Cycle.

Navy

Fluctuations in Navy projections for range sustainability funding supporting O&M and Modernization and Investment are fairly minor across the reporting years and from the 2011 SRR to this year's report. In general, the decrease in O&M funding and increase in Modernization and Investment funding

projections from 2011 to this year's SRR are due to overall Navy priorities justified by Chief of Naval Operations (CNO) programming guidance.

Increases in FY2012 through FY2016 projections for Environmental funding as compared to that reported in the 2011 SRR are meant to bring Navy training events on the high seas into compliance with applicable environmental regulations (MMPA, ESA, EO 13089, and EO12114).

Increases in funding projections for Encroachment across the reporting years as compared to the 2011 SRR are attributable to an increase in installation Community Plans and Liaison Officers and funding for Encroachment Partnering acquisitions.

Air Force

Funding for Air Force training ranges, as defined and categorized by ODUSD(P&R), is tracked through two discrete channels. The first channel, which reflects the main source of funding for ranges, is through the Air Force A3/5 chain of command. The second channel is through the Air Force A4/7 chain of command. Within these two funding channels, the Air Force's reporting framework does not precisely sync with the SRI's funding categories and definitions. Under the SRI categories and definitions, the Air Force is able to report on Modernization and Investment, O&M, and Environmental. The Air Force is unable to report on Encroachment funds, as that category is defined in the SRR.

When compared to the 2011 SRR, large fluctuations can be seen between the same fiscal years in the Air Force's funding projected for Modernization & Investment and O&M range sustainability support. Although there are some fluctuations, the magnitudes of these are not as large as they appear. This is because an error was made in reporting funding in these categories in the 2011 SRR; the Air Force inadvertently omitted funds for one of their program elements. The corrected Air Force funding projections for these categories that were reported in the 2011 SRR can be seen in Table 4-11.

As can be seen with the revised figures, there were no significant fluctuations in any of the funding categories from the 2011 to the 2012 SRR with the exception of Modernization and Investment in FY2013. The decrease in projected Modernization and Investment funding beginning in FY2013 reflects a reduction in threat emitter procurement. The decrease in O&M funding projections beginning in FY2013 is due to conversion from contracted to civilian operations of Air Force range operations and maintenance functions. Projected figures for Environmental funding are estimates as the Air Force does not

Table 4-11 Corrected 2011 Air Force funding projections ($M)

Corrected 2011 Air Force funding projections ($M)	FY2011	FY2012	FY2013	FY2014	FY2015
Modernization & Investment	$60.40	$98.20	$88.90	$96.30	$88.00
Operations & Maintenance	$175.10	$174.70	$146.50	$150.50	$149.20

maintain a separate "range sustainability" program for environmental issues. Range environmental needs compete with other compliance, conservation, and pollution prevention projects based on a prioritization process across other Air Force environmental needs.

REPI

REPI Program fluctuations reflect the difficult decisions made in accepting risk and balancing total portfolios across competing priorities in a fiscal environment that continues to increase austerity.

4.4 Partnering and Outreach Initiatives

Congress has entrusted nearly 30 million acres of land – 1.1 percent of the total United States land area – to support the DoD mission. However, much of this land, as well as air and sea space, as well as the nation's electromagnetic spectrum, must be shared with a broad array of stakeholders. To fulfill its training mission and maintain force readiness, DoD is fully committed to stakeholder engagement that supports environmental stewardship, sustainable resource management, as well as access to the test and training areas needed to ensure readiness both now and into the future.

Recognizing the importance of open communication and close coordination with neighboring stakeholder communities in land-use planning and decision making, the SRI has institutionalized a "toolbox" of programs and efforts that enable and support extensive partnerships focused on common needs and issues. The SRI toolbox incorporates REPI, the Office of Economic Adjustment's (OEA) Compatible Use Program, Education and Engagement (supporting outreach as well as in-reach within DoD), and Regional Partnering among DoD, state, federal, tribal, and NGO agencies. Collectively, these efforts educate both internal and external stakeholders, engage other federal, tribal, state and local governments and NGOs, and implement collaborative efforts outside installation and range fence lines to sustain DoD's training and testing missions and associated resources. Success across the nation has proved the toolbox's effectiveness and strengthened DoD's ability to sustain training and testing space and capabilities well into the future. Such efforts allow partners to use DoD and other public and private sector funds to acquire property or property interests, such as conservation easements from willing sellers who preserve critical buffers and habitat areas near installations and ranges where the military operates, tests, and trains.

This toolbox continues to expand and evolve through innovations that solve complex problems, leverage funding, and incorporate additional and diverse stakeholders.

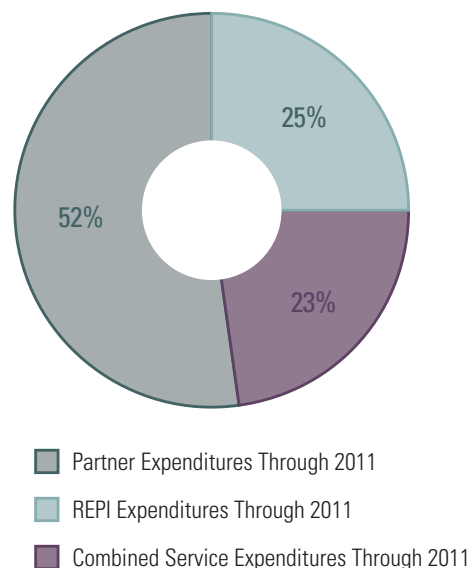### 4.4.1 The Readiness and Environmental Protection Initiative

REPI supports DoD-compatible land use and conservation partnering initiatives and projects at ranges and installations across the country. 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.

10 U.S.C. § 2684a, authorized by Congress in 2002, provides DoD funding to the Military Services to enter into agreements with state and local governments and private conservation organizations under the REPI program. Such agreements allow partners to use DoD and other public and private sector funds to acquire property, or property interests such as conservation easements, from willing sellers that preserve critical buffers and habitat areas near installations and ranges where the military operates, tests, and trains.

Through REPI, DoD works collaboratively with stakeholders and landowners outside installation and range boundaries to preserve habitat and support the broader objective of limiting incompatible development. REPI has supported Military Service partnerships with state and local governments and NGO advocates for private landowners to protect more than 215,000 acres of non-DoD land around installation and range lands across the nation since FY2005. REPI funding has supported projects at 60 installations and ranges in 24 states across the country since 2005. Partner resources account for more than half of the cost of preserving compatible land use and habitat through REPI partnership (See Figure 4-1).

Continued REPI success will require thoughtful planning with operators and range managers at the installation level. In a climate of transformation and resetting, it is critical to ensure

Figure 4-1 REPI Funds Leveraged through 2011

- Partner Expenditures Through 2011
- REPI Expenditures Through 2011
- Combined Service Expenditures Through 2011

REPI planners understand the current and future operational mission footprint and are planning protection measures to ensure continued access to those capabilities. Regular communication and planning across directorates will also help REPI planners find areas for additional leveraging or benefits to include:

- Land exchange authority

- Ecosystem services such as wetlands credits or species or habitat conservation credits

- Cultural resource mitigation

- Revenue generation or working lands protection

- Compatible renewable energy planning

- Landscape-level linkages/regional partnerships

REPI will continue to encourage innovation, best practices, and additional benefits. These activities will serve as a way to accelerate the rate of protection, so that the greatest flexibility and capabilities can be maintained across DoD for the current and future mission.

Please refer to DoD's 2011 REPI Report to Congress *(http://www.repi.mil)* for additional information on REPI and DoD's efforts to reduce encroachment through use of the 10 U.S.C. § 2684a authority.

4.4.2 Office of Economic Adjustment Compatible Use Program

OEA's Compatible Use Program is the only federal government program that provides direct assistance to communities to help them work with the military to prevent and mitigate encroachment. Technical and financial assistance is available for state and local governments through the JLUS process to partner with the local military to plan and carry out strategies promoting compatible civilian use adjacent to installations, ranges, and military flight corridors. This program is further supported through Executive Order 12788, as amended, which provides direction for other federal agencies to assist state and local governments, through the Defense Economic Adjustment Program, to prevent civilian growth and development from impairing the military mission.

A JLUS is undertaken by state or local government to address local civilian and military activity that may adversely impact the military mission and local quality of life. The state or local government works with the military, federal, state, and local officials, residents, businesses, and landowners. A JLUS results in a strategic plan and specific implementation actions to ensure civilian growth and development are compatible with vital training, testing, and other military missions. Some examples of implementation actions include establishment of military overlay districts with specific land use and zoning requirements, unified development ordinances, amendments to capital improvement plans, transfer of development rights, building code sound attenuation measures, real estate disclosure, lighting ordinances, and local development review procedures to ensure input from the military. The JLUS process promotes and enhances civilian and military communication and collaboration, serves as a catalyst to sustain the military mission, and promotes public health, safety, quality of life, and economic viability of a region. More than 70 JLUS projects are currently underway across the country.

JLUS and REPI are complementary to one another. Military and stakeholder communities may identify an issue for which a REPI project may provide resolution through the JLUS process. The JLUS process is a powerful tool for bringing communities and the military together to address compatible use issues, develop a set of compatibility guidelines, and identify specific implementation measures for both the community and military to ensure the long-term viability of the military mission.

4.4.3 Education and Engagement

The incorporation of both internal (DoD and Military Services) and external stakeholders into a collaborative process for the sustainment of military training and testing lies at the core of the SRI. Using coalition building, in-reach, and an easy-access educational toolbox, DoD is planning for the future with a progressive and collaborative mindset.

Coalition building with internal and external stakeholders enhances both ongoing partnerships and the potential for new partnerships that build trust and effectively support the longevity of DoD's test and training missions. To effectively address compatible land use and mission sustainability in our communities, the coalition building process requires knowledge of the issues, interactive communication, and cooperative partnerships to gain support. To this end, the SRI uses conferences, informal forums, and range tours to educate its stakeholder network to clearly understand the DoD mission. This sets the stage for partnership and collaborative planning, and helps to educate stakeholders on what DoD has to offer as a partner. Interactive outreach events proactively:

- Raise awareness about DoD's mission sustainability needs and initiatives

- Educate policy makers and NGO policy staffs about policies favorable to installation and range mission sustainability

- Build relationships among stakeholders that can ultimately advance sustainability efforts at local, state and national levels

- Identify partners who can serve as opinion leaders for both national sustainability messaging and building internal support among DoD leadership

Today, DoD enjoys effective partnerships with state and local government groups, conservation and environmental NGOs, and stakeholder groups within DoD. The following sections depict the outcomes of some of the partnerships that demonstrate DoD's visibility, support, and greater sustainability outside installation and range fence lines.

4.4.4 Regional Partnerships

Regional partnering, incorporated into DoD's engagement strategy, has enabled DoD to work successfully with multi-state, multi-agency teams to address substantial sustainability issues. At the regional level, DoD is currently involved with two partnerships that address sustainability issues: Southeastern Regional Partnership for Planning and Sustainability (SERPPAS) and the Western Regional Partnership (WRP). These two partnerships address sustainability, compatible land use issues relating to shared airspace and natural resources, urban sprawl, and renewable energy development. SERPPAS was formally endorsed by state and DoD entities via signed charter, and both partnerships are committed to working collaboratively through information sharing. The partnerships explore Geographic Information System (GIS) data, land use planning, and renewable energy endeavors that cross installation boundaries, metropolitan areas, and state lines. Similar partnerships are being considered for other regions where DoD has a large footprint.

4.4.5 Engagement for Energy Infrastructure Compatibility

New and expanding energy infrastructure can have an adverse effect on DoD's use of airspace, seaspace, land, and frequency spectrum for training, testing, and operations. DoD must coordinate internally to protect military readiness while enhancing facility energy security, and meeting energy efficiency and emissions targets. DoD must also engage federal, tribal, state, and local governments, the energy industry, NGOs, and other stakeholders to identify and address potentially incompatible energy proposals. The ODASD(R) is working closely with other OSD and Military Service training, testing, operations, installation, and environmental interests on a cooperative process to better analyze energy proposals and articulate a single departmental position. This includes working with the recently established DoD Siting Clearinghouse.

Large-scale energy development is underway or planned in many regions of the United States. Solar, wind, geothermal, and other renewable energy resources are attracting increasing public and private investments, often near vital test and training assets. At the same time, emphasis has been placed on domestic oil and gas production, (particularly on the Outer Continental Shelf [OCS]) to reduce U.S. dependence on foreign sources. DoD is increasingly involved in identifying and evaluating the impacts of energy proposals on our existing and planned activities. In the Western U.S., numerous large and small wind and solar projects are being proposed and approved to supply renewable energy to the national energy grid. Energy production or transmission facilities can obstruct military aircraft near DoD training ranges and OPAREAs, or under military training routes. Additionally, wind turbines create a Doppler effect and other interference that can degrade the performance of radars and other electronic systems. Specific examples of issues now being worked include concerns over the safety of pilot training at Naval Air Station Kingsville, TX, due to a proliferation of nearby wind farms; potential training and testing impacts from a high-voltage transmission line being planned in southern New Mexico and Arizona; and the deconfliction of military activities with planning for offshore wind farms and expanded oil and gas leasing in the Gulf of Mexico.

In addition to the potential impacts of wind energy development noted above, a variety of other energy generation and transmission technologies pose mission compatibility issues for DoD that were not anticipated just a few years ago. Solar tower technology may present safety of flight concerns due to obstruction. The geothermal generation plant on Naval Air Station Fallon, CA creates ice fog conditions in winter months that increase the need to deice the helicopters operating from the airfield. The Army is currently studying the potential impacts of the electromagnetic corona of high-voltage transmission lines on its ability to test new technologies at the Electronic Proving Ground in Yuma, AZ.

DoD is working closely with the Military Services to develop consistent, transparent (within national security limits) and responsive processes that can inform the energy industry of DoD interests and evaluate energy projects to support effective decision-making. DoD typically works with agencies responsible for developing energy resources, such as the BLM and BOEM, or those with a regulatory oversight role (like FAA), to convey concerns and to work cooperatively on enabling energy development that does not degrade readiness activities.

DoD has a protocol in place with BLM regarding siting of wind energy projects on BLM lands, and this agreement has protected DoD equities in the western states. Efforts are underway to update and expand this protocol to other forms of renewable energy, and possibly to include additional federal agencies as well. In addition, DoD is actively supporting a new Rapid Response Team led by the Council on Environmental Quality (CEQ) to address issues and expedite approvals for construction of electrical transmission infrastructure. DoD is also working with the Department of Homeland Security (DHS), Federal Aviation Administration (FAA), National Oceanic and Atmospheric Administration (NOAA) and Department of Energy (DOE) to conduct a series of field tests and evaluations of technologies that promise to mitigate the doppler and other electromagnetic effects of wind turbines on radar and other sensors mentioned above.

In July 2010 DoD established the DoD Siting Clearinghouse, and expanded its activities in compliance of Section 358 of the FY2011 NDAA. The function of the Clearinghouse is to help identify, review, and facilitate fully coordinated DoD positions on the compatibility of proposed projects for energy developers, government agencies, and other concerned parties. In September 2011, DoD published an Interim Rule in the Federal Register that governs the activities of the DoD Siting Clearinghouse and informs energy developers, other government agencies and tribal concerns, and the general public about interaction with the Clearinghouse (32 CFR 211).

Renewable Energy Collaboration Successes

Terrestrial Renewable Energy Development

The extensive efforts noted above to fully understand impacts and engage with all interests to promote mission compatibility are already bearing fruit. At Naval Air Station Kingsville, TX an agreement is now in place between the Navy and a wind developer to share the costs of mitigating wind turbine impacts on radars. DoD has been gratified with the generally positive responses from industry and state and local government when concerns have been raised about the impacts of a wind farm on a military training route or OPAREA, with a number of development plans changing siting or completely eliminating turbines which cause conflicts. At the same time, the Sitting Clearinghouse has been busy reviewing proposed projects. Of the 506 projects the Clearinghouse has reviewed to date, 486 projects have been cleared. This 96 percent clearance rate includes 32 solar projects, 2 geothermal projects, and 13,439 turbines, totaling approximately 24 gigawatts of renewable generation capacity (this figure assumes 13,439 turbines x the national average of 1.77MW/turbine = 23,787 megawatts, plus and allowance for solar and geothermal capacity, which we do not directly track).

Offshore Wind Energy Development

In December 2009, the Minerals Management Service (now BOEM) requested a DoD review of a proposed offshore wind energy development area on the outer continental shelf off the Virginia Capes. The DoD responded by conducting a thorough examination of potential impacts to military training, testing, and operational activities. The result was that these potential impacts were taken into account in the determination of lease blocks to be opened for offshore wind development. DoD's experience with Virginia's offshore wind effort served as a springboard for further requests from other coastal states for DoD to participate in the BOEM task force process. DoD now works with Virginia, North Carolina, Maryland, Delaware, New Jersey, Rhode Island, Massachusetts, and Maine to help shape the future of OCS wind energy development in a manner that will meet military training, testing, and operational objectives as well as energy security objectives for the nation.

4.4.6 Military Service-Specific Stakeholder Engagement

The Military Services are in varying phases of developing and implementing Military Service-specific outreach and communication programs to support range sustainment and compatible land use issues. The following are examples of current Military Service outreach initiatives.

Army: Training Support Systems Division

The Army has developed a focused community research concept based on conducting both primary and secondary research efforts. Primary research activities include community stakeholder interviews, roundtable sessions, and community surveys; while secondary research activities include news media analysis, demographic analysis, and elected official background analysis. The goals of this research are to:

▸ Demonstrate to the community that the installation cares and values its relationships with the community and its input

▸ Identify areas of strength and areas for improvement in installation-community interaction

▸ Facilitate identification of actions that can support long-term mission sustainment and minimize future conflict

▸ Summarize findings and recommendations based on research for installations to use in decision making

▸ Provide a baseline to compare future research efforts to demonstrate how, or if, a community's views change

Since 2007, the Army has implemented this concept at eight major installations around the country. Additional community research efforts are currently underway for 2011 and 2012, and the Army is in the process of developing an ongoing strategy to continually update community research findings at all major training installations.

Marine Corps: Continuing Its Tradition of Community Engagement

Encroachment Control Plan (ECP) program—Preparation and execution of ECPs at the installation and regional levels is a cornerstone to the Marine Corps encroachment control program. An ECP for each installation and for each region is now required by Marine Corps Order 11011.2B, *Policies and Procedures for Encroachment Control Management.*[19] Accordingly, ECPs have been or are being developed to

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19 Marine Corps Order 11011.2B, Policies and Procedures for Encroachment Control Management, dated July 27, 2010.

provide thorough assessment of encroachment issues affecting the installation or region. ECPs document all encroachment issues into one action plan that identifies and analyzes potential and actual sources of encroachment, promotes actions for compatible land development and regulatory compliance, assigns responsibilities for encroachment outreach and control initiatives, and facilitates allocation of programmed resources for encroachment control.

Encroachment Partnering (EP) program—The Marine Corps continues to partner with state, local community, and conservation organizations to maintain operations assurance through the coordinated implementation of restrictive easements. Through July 2011, the Navy, on behalf of the Marine Corps, had acquired 30,452 acres of restrictive easements using $47M in OSD REPI funds and Marine Corps operation and maintenance funds, while partners contributed $53M. Projects have been completed at eight different ranges and installations. In the case of Townsend Bombing Range in Georgia, the restrictive easement acreage acquired thus far exceeds the size of the range by 400 percent. In the case of MCAS Beaufort in South Carolina, restrictive easements equal about 30 percent of the installation acreage.

Community Plans and Liaison Office (CPLO) Program—Marine Corps Order 11011.22B also directs installations to actively engage the local communities to develop encroachment solutions and articulates the duties of CPLOs.

CPLOs actively manage compatible land use issues through the identification of potential encroachment challenges affecting installations, ranges, and white space. They monitor encroachment concerns and local conditions in and around the installation/range and conduct community outreach to ensure mission sustainability and protect operational capability. CPLOs proactively maintain contact and visibility with local governments to acquire a working knowledge of local land use plans; zoning and development regulations; development trends; environmental issues; and local, state, and regional plans and programs that have the potential to impede the mission of the installation or range. Further, CPLOs establish working relationships with local, state, and regional governments and agencies; NGOs; and other groups engaged in any aspect of land use planning, development, conservation, and preservation that could impact operational assurance at the installation or range. CPLOs are employed at every Marine Corps installation and region, as well as at Headquarters Marine Corps.

Natural and Cultural Resource Conservation Program—The purpose of the Marine Corps Natural and Cultural Resource Conservation Program is to sustain and enhance the availability of range and training areas while complying with a variety of federal laws and regulations. Natural and cultural resource professionals at every installation establish working relationships with various federal and state regulatory agencies, as well as a variety of NGOs, to achieve this purpose. The Marine Corps is also exploring the congruency between

natural resource conservation requirements and priorities, and land conservation activities under the Encroachment Partnering Program.

Navy: Ongoing Community Outreach and Partnering Efforts

Encroachment Action Plans (EAPs)—The Navy continues to develop EAPs, which focus on systematic encroachment identification, quantification, and mitigation/prevention at ranges, installations and OPAREAs. These EAPs support existing as well as future mission requirements and ensure effective training and testing capabilities are maintained. Through 2011, the Navy has completed 42 EAPs while continuing work on 14 additional plans (6 new EAP awards in FY2011) and 6 EAPs were being refreshed. The Navy EAP program includes Range Complexes and Target Areas such as: VACAPES, Dare County Bombing Range, Pinecastle Range Complex, R-2508 Range Complex, Atlantic Test Range, McMullen Target Area, Pt. Mugu Sea Range, San Clemente Island, Northwest Range Complex, PMRF Kauai, El Centro Range Complex, and the Fallon Training Range Complex.

Encroachment Partnering (EP) program—The Navy continues to partner with state, local community, and conservation organizations to maintain operations assurance through the coordinated implementation of restrictive easements. Through September 2011, the Navy has acquired 10,818 acres of restrictive easements using $68M in OSD REPI, Navy EP, and partner funds to prevent incompatible development. The Navy has 17 multi-year Encroachment Protection Agreements with partners at 14 installations and ranges, including the following:

- R-2508 China Lake Range Complex to protect the Black Mountain Supersonic Corridor

- NAS Fallon in support of the Fallon Training Range Complex

- Naval Base Coronado Assault and Tactical Weapons Training Complex (La Posta) in support of SPECWARCOM

- Naval Base Kitsap in support of submarine acoustical testing

- NAS Oceana/NALF Fentress, NB Ventura County, and NAS Jacksonville/OLF Whitehouse in support of Field Carrier Landing Practice training

- Atlantic Test Range/NAS Patuxent River in support of NAVAIR testing

- NAS Whiting Field in support of initial naval aviator training

Projects have also been completed at NAS Pensacola, NAS Whidbey Island, OLF Coupeville, Meridian Sea Ray Target Range, former NAES Lakehurst, and NS Everett.

Community Plans and Liaison Officer (CPLO) Program—
CPLOs actively manage compatible land use issues through the identification of potential encroachment challenges affecting installations and ranges (including military training routes [MTRs], SUA, and OPAREAs). They monitor encroachment concerns and local conditions in and around the installation/range and conduct community outreach to ensure mission sustainability and protect operational capability. CPLOs proactively maintain contact and visibility with local governments to acquire a working knowledge of local land use plans; zoning and development regulations; development trends; environmental issues; and local, state, and regional plans and programs that have the potential to impede the mission of the installation or range. Further, CPLOs establish working relationships with local, state, and regional governments and agencies; NGOs; and other groups engaged in any aspect of land use planning, development, conservation, and preservation that could impact operational assurance at the installation or range.

To date, there are eight regional CPLOs and approximately 30 official installation CPLOs in place, with more growth expected in FY2012.

Air Force: Transformation of Stakeholder Engagement

The Air Force is transforming its stakeholder engagement in an effort to prevent and manage encroachment. The new framework is designed to integrate existing programs, not to replace them, and to develop strategies that address areas not already covered by existing programs. An Installation Complex Encroachment Management Action Plan (ICEMAP) will be developed for each installation complex, and will include an assessment of encroachment and mission sustainability issues, as well as community issues and concerns. An installation complex is composed of a main installation and its non-contiguous properties (auxiliary airfields, annexes, missile fields, ranges, MTRs, airspace, landing/drop zones) that provide direct support to or are managed or scheduled by the main installation.

An ICEMAP also considers the mission footprint. This includes airspace (routes, MOAs) and ranges that are used by the installation or its tenants but that are not controlled/owned or managed by the main installation. By taking this systems approach, the individual components are highlighted in terms of the contribution to the entire "readiness system."

An action plan detailing actions for the installation level, as well as higher headquarters and the community, will be developed. A detailed outreach and communication strategy will also be created for each installation complex to assist them in implementing the plan. Building and sustaining relationships with local communities is a key component to successful encroachment prevention and management.

In addition to the larger overarching encroachment management initiative, the Air Force has also embarked on an effort to develop a Range Compatible Use program. Similar to the successful Air Installation Compatible Use Program, this initiative strives to develop similar compatible zones for the Air Force ranges. The concept has had several beta version documents created to help support Joint Land Use Study efforts at Air National Guard ranges. A prototype Range Compatible Use Analysis has been developed for both Hardwood Range in Wisconsin, and Warren Grove Range in New Jersey. These two efforts build upon the initial 2008 prototype analysis prepared for Avon Park Bombing Range in Florida. The Air Force is working to finalize how operational and compatibility zones will be developed so they can finalize a program that will assist range commanders in their outreach and engagement with local communities.

4.5 Overview of Legislative and Regulatory Initiatives

In 2010 Senator Ensign, Nevada -R, put forth a legislative initiative for consideration relevant to the Air Force and sustainable ranges. The bill, titled "Study on Air Force Test and Training Range Infrastructure", crafted by Senator Ensign, requires the Air Force to study threats to and sustainability of the air, test, and training range infrastructure. The bill was ultimately enacted as Section 343 of the FY 2012 NDAA. Specifically, Section 343 (A) Part 1 states:

"(1) IN GENERAL.—The Secretary of the Air Force shall conduct a study on the ability of the major air test and training range infrastructure, including major military operating area airspace and special use airspace, to support the full spectrum of Air Force operations. The Secretary shall incorporate the results of the study into a master plan for requirements and proposed investments to meet Air Force training and test needs through 2025. The study and the master plan shall be known as the "2025 Air Test and Training Range Enhancement Plan".

DoD will continue to follow the processes and procedures prescribed by the Office of Management and Budget (OMB) for introducing and socializing such initiatives in the future.

4.6 Readiness Reporting Improvements

As robust encroachment and capabilities assessments are conducted under the SRI, DoD is working within the Department of Defense Readiness Reporting System (DRRS) construct to establish a Range Assessment Module (RAM) and strategy for reporting range resource and readiness issues. DoD actions, to better integrate range readiness issues into the DRRS, are consistent with the Section 366(b) requirement to improve readiness reporting by seeking to reflect the training and readiness impacts caused by constraints on the use of military lands, marine areas, and airspace.

4.6.1 The Defense Readiness Reporting System Enterprise

The overseas contingency operations (OCO) and U.S. Military involvement in Iraq and Afghanistan have reinforced the urgent need for a robust readiness reporting system that can provide accurate, relevant, and timely information to support the full range of operational planning. It is also essential to military operations that such a system should offer risk assessments of multiple simultaneous contingencies in the context of Defense Strategy. DoD Directive (DoDD) 7730.65, Department of Defense Readiness Reporting System Enterprise, authorized the establishment of a readiness assessment Enterprise System to calculate the capabilities and preparedness of military units to conduct wartime missions and other contingencies.

The DRRS Enterprise provides the means to manage and report on the readiness of DoD and the Military Services by building upon existing processes and readiness assessment tools to establish a capabilities-based, adaptive, near real-time readiness reporting system. The system is currently capable of reporting on the availability of resources needed to support a mission in six resource areas: Personnel, Equipment, Military Services, Training, Ordnance, and Facilities. It establishes a mission-focused, capabilities-based, common framework that provides the Combatant Commanders, Military Services, Joint Chiefs of Staff, and other key DoD users with a data-driven collaborative environment. The system allows users to evaluate, in near real-time, the readiness and capability of U.S. Armed Forces to carry out their national security missions.

The DRRS Enterprise enables commanders and force managers to look across DoD for required capabilities, identify organizations with those capabilities, and then determine the readiness of the organizations to provide the capability. Readiness to provide needed capabilities for missions is established based upon available resources and the ability of an organization to execute its assigned METs and METLs, and used to support the Joint Force Commander's JMETL.

4.6.2 Relationship with Other Readiness Systems

The DRRS Enterprise also links to broader DoD transformation initiatives, such as training, logistics, and personnel systems. Additionally, the METs considered in the DRRS Enterprise provide the building blocks to support existing readiness processes, including the request for forces, force management, joint readiness, and adaptive planning tools. Effectively linking the DRRS with other existing and planned systems and decision support tools will further enable the emerging DoD requirement of on-demand creation and revision of executable plans, with up-to-date options, in near real time, as circumstances require.

The Military Services have developed Service-specific readiness reporting systems (e.g., DRRS-Army, MC, and Navy; the AF-DRRS Input Tool), which are designed to interface within

Figure 4-2 Planned RAM Cross Domain Solution in DRRS
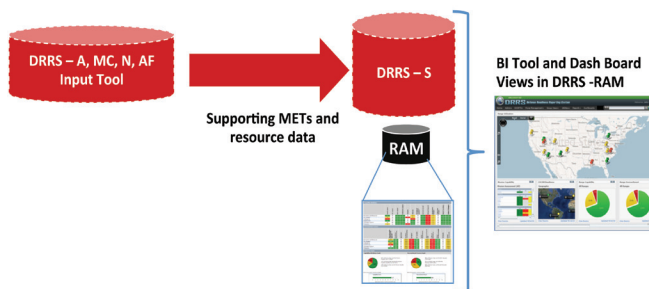
the DRRS Enterprise. These ongoing readiness initiatives are currently focused on providing a robust organizational readiness view using information contained in the relevant authoritative databases and made available through Enhanced Status of Resources and Training Systems (ESORTS). Schematics of the DRRS Enterprise, and associated readiness reporting are shown in Figure 4-2.

4.6.3 Range Assessment as a Component of DRRS

During 2009, a Congressional reporting requirement contained in House Report (H.R.) 5658 (Duncan Hunter NDAA for FY2009) directed DoD to report on:

- Plans to pilot test a new functionality for training range encroachment assessment during CY2008

- How encroachment affects the training and readiness levels of tactical units of the Military Services

As discussed in Chapter 3 of this report, DoD has determined a common set of 13 Capability Attributes, 12 Encroachment Factors, and Military Service-specific Training Mission Areas assigned to ranges. The assessment results have shown that the process of collecting and reporting assessments in this "cause and effect" manner is understandable, repeatable, and efficient. This capability and encroachment-based assessment methodology provide DoD with a starting point for performing "what-if" analysis of potential range issues as they relate encroachment and capability concerns to unit readiness.

Based on the results and feedback from SRR 2008 and 2009 data collections, a decision was made to automate the manual reporting methodology and the SRR business rule as a baseline for development of a distributed on-line capability for a RAM.

DoD began a phased concept development in January 2009 for a RAM in DRRS. The Phase I development focused on reflecting the existing SRR assessment methods as potential component within the DRRS business process.

Following Phase I, a Phase II effort began in mid-2009 focused on using the existing DRRS framework and functionality with range assessments to build associations with operational readiness reporting processes. This effort, in turn, would facilitate the linkages between ranges and the operational tasks

Figure 4-3 Title 10 and Policy Drivers for Range Readiness Reporting
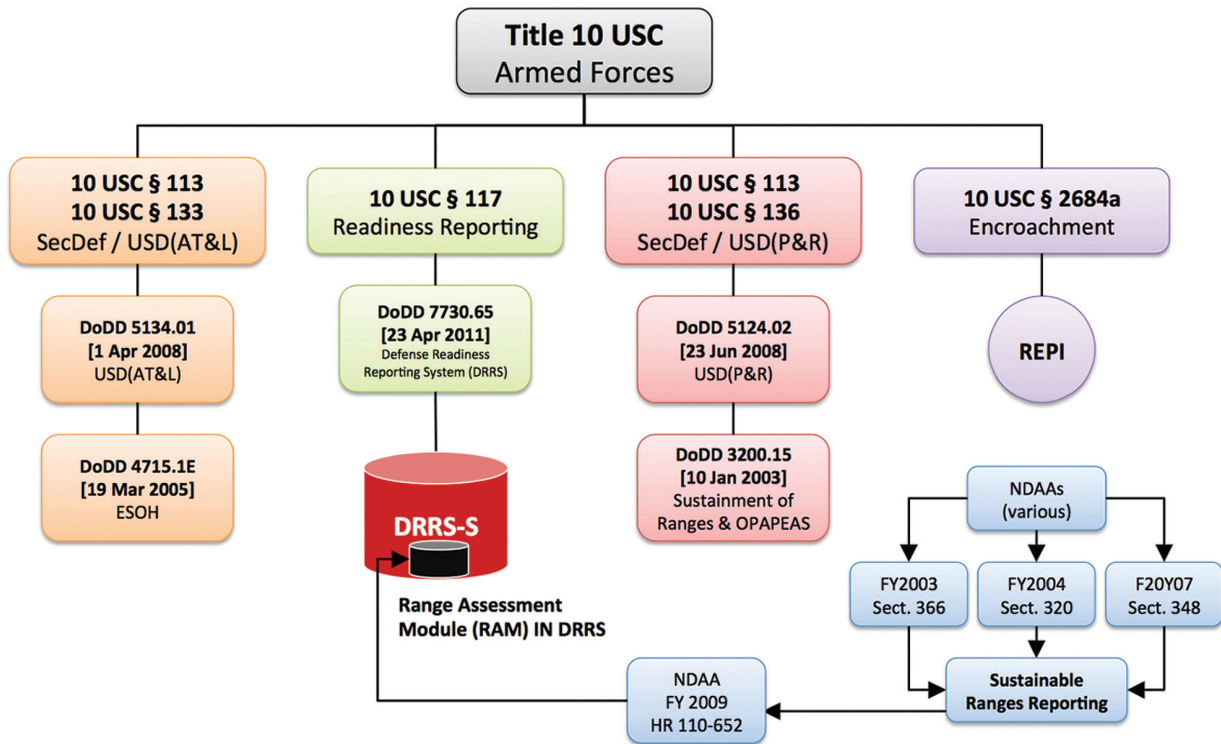
assigned to the units using these ranges. It is aimed at addressing how encroachment affects the training and readiness levels of the tactical units of the Military Services. While understanding this process is the goal, the challenge in identifying the relationships between operational readiness and the supporting training infrastructure cannot be understated and must described in terms of each of the Military Services' unique organizational constructs and training process.

Due to recent action to restrict access to DRRS in an unclassified environment, a cross-domain solution was not pursued for Phase II development. Initial Phase II prototype validation and development were based on knowledge of existing DRRS-Strategic (DRRS-S) functionality. The DRRS RAM functionality is now available within classified DRRS-S. Range assessment data will be organized for DRRS RAM functions on the SIPRNet. Under Phase II, the RAM module within classified DRRS-S contains SRR historical data, and has the ability to enter current and projected assessment data, and manage associated comments as appropriate. The system calculates Encroachment and Capability scores, and depicts pie charts per the SRR methodology. The system can record comments as an assessment is being coordinated. The data and assessment comments can be exported as an Excel spreadsheet for other reporting. Phase II was completed in June 2010.

Under Phase III development (in progress), SRR assessments will be associated with installations or range complexes, through their Unit Identification Codes (UICs). This information will be

viewable within the module with readiness already being reported by operational forces known to use range capability. The alignment between DoD and Military Services range assessment and readiness reporting is through the standard criteria and definitions set forth in the 2008 and subsequent SRRs, which were based, in part, on other Military Service-specific range systems and input to RAM.

DoD will continue to coordinate with the Military Services to develop systems and processes that can view range readiness from within the DRRS-Enterprise and other associated systems. Military Service representatives from the readiness community, the installation community, and the DRRS Implementation Office (DIO) will need to coordinate strategies. The requirements of individual systems within DRRS-Enterprise are sufficiently consistent for the needs of DoD and the Military Services. As part of the annual process improvement for the SRR, opportunities for increased interoperability of data and metrics DoD and Military Service systems and processes are constantly evaluated for use and implementation. The target date for completion of Phase III system functionality is the end of June 2012.

As measures are implemented, DoD is exploring the development of a Business Intelligence (BI) tool to collect operational readiness information in DRRS. This information could then be related to range availability and capability, and could be made available to installation or range complex managers to help build the encroachment relationships with

operational readiness. A conceptual Phase III implementation is presented in Figure 4-3.

With full RAM implementation, end-user (range operator) participation, dedicated system sustainment and additional user training, RAM could serve as an important decision support tool for both OSD and the Military Services.

If implemented as anticipated, the RAM application could allow DoD and the Military Services to understand and visualize the relationship among range encroachment and capability by assigned mission area, and training tasks associated with operational mission areas.

4.7 Shared Information Enterprise

As SRI continues to mature, the need to maintain, access, analyze, and share range-specific data to support reporting requirements and to inform decision makers is also maturing. DoD continues to encourage the Military Services to develop information system solutions that both satisfy Military Service and range needs, as well as share summary data and support specific information requests from OSD and other users. The system should be able to support:

- Congressional reporting
- Range inventories, capacity, and capabilities reporting
- Range assessment reporting
- Investment planning
- Budget management
- Range sustainability initiatives
- Asset management

Information management efforts will be based upon a strategy aligned to DoD and federal information sharing goals and policies (e.g., Net-Centric Data Strategy). All efforts will contribute to the development of a shared data environment that will support range management decision-making and reporting.

4.8 Range Inventory Summary

The requirement for DoD and the Military Services to develop and maintain an inventory of operational ranges is specifically detailed in NDAA Section 366(c).

This section represents a summary of the Military Service inventories and provides current inventory information. DoD believes an accurate inventory is necessary to support range management and planning processes. In addition to the requirement to maintain a training range inventory as set forth in NDAA Section 366(c), DoD has issued specific policy directives that require the Military Services to develop and utilize sound GIS-based range inventories and scientific data as the basis for decision-making that supports training and testing

mission activities. Specific inventory details for each Military Service are provided in Appendix C, which contains maps and an inventory of the ranges, range complexes, and special use areas. Appendix E contains summaries of DoD and Military Service range sustainment policies.

The SRR Inventory is organized into the following components:

- **Regional Range and SUA Maps**—These maps display the location of DoD training and testing ranges and SUAs around the world. The data is drawn from the Military Services and the National Geospatial Intelligence Agency (NGA). Each Military Service maintains geospatial information on its training and testing ranges.

- **Tabular Range Inventory**—This component of the inventory provides a list of range complexes, range descriptions, and available range types. The Military Services maintain more detailed inventories that are used to support their specific range management and sustainment processes.

- **Military Training Route (MTR) Inventory**—The MTR inventory includes a listing of the three types of routes: visual routes, instrument routes, and slow routes. The inventory provides information on each MTR, including the originating agency, scheduling agency, effective times, and route length.

- **SUA Inventory**—This portion of the inventory provides a list of SUA and includes information relating to the controlling agency, associated range complex or installation, altitudes, users (Military Service), and area.

The SRR Inventory is built on Military Service inventories and information pulled from Military Service-supporting information management systems. When compiled, this inventory provides a comprehensive picture of DoD training and testing assets. In order to provide a Military Service-level perspective on range inventories, the following highlights some of the key components of the Military Service range inventories.

4.8.1 Army Range Inventory Description

Background
The Army has complied with the requirements set forth in DoDD 3200.15 by providing a comprehensive GIS-based inventory of all operational ranges with the Army operational range inventory. The operational range inventory was initiated in June 2004 and completed in April 2008. This inventory was based on an initial effort, evaluating the Army active/inactive range inventory of installations and training sites having operational ranges.

The Deputy Chief of Staff for G-3/5/7 and the Assistant Chief of Staff for Installation Management issued guidance for U.S.

Army Installation Geospatial Information and Services (IGI&S) data preponency, Common Installation Picture, and Quality Assurance Plans (QAPs) in August 2008 to improve consistency and coordination of all installation geospatial data. All Army installations are required to maintain geospatial common installation picture data and metadata for their sites, and updating of the operational range inventory has now transitioned from a centralized data collection effort to a decentralized effort based on this guidance. Updates of range data for installations under the Army's Sustainable Range Program (SRP) are now being compiled by Army SRP GIS professionals per the HQDA G-37/TRS SRP GIS Program Data Development Strategy guidance was issued in November 2008 and updated in May 2011. SRP-supported installations that lack on-site SRP GIS assistance are alternately provided support from the SRP Geospatial Support Center. The geospatial data layers that represent operational ranges are required to be validated annually.

Data Elements and Sources

The range data elements created and maintained by installation SRP GIS staff (or the Army's SRP Geospatial Support Center) are defined in each layer's geospatial data QAP. QAPs provide the definition, information about the functional and organizational proponent(s), policies and regulations, formatting and naming convention requirements, geometry used, database storage requirements, data update frequency, acceptable source data and methods, data quality requirements, attribute definitions and requirements, and metadata requirements for each of the data layers. QAPs are living documents and are maintained by the HQDA proponent with input from the installation data stewards and other stakeholders. QAPs are reviewed, updated (as required), and published annually.

Databases and Applications

The Army Mapper is the Army's database of record for installation geospatial data. All geospatial data relating to operational ranges is stored in the Army Mapper. Geospatial range data for installations supported by the Army's SRP is required to be validated by the installation Garrison Commander, or equivalent/delegated approval authority, prior to submission to the Army Mapper database of record.

4.8.2 Marine Corps Range Inventory Description

The Marine Corps Training and Education Command's Range and Training Area Management Division (TECOM/RTAM) is responsible for managing the Marine Corps range complex inventory. The Marine Corps range complexes refer to a collection of training areas and ranges, airspace areas, and other designated attributes for training. The inventory provides a detailed list of Marine Corps range complexes, including land, air, sea, and underseaspace. The intent of the range inventory is to support Marine Corps range management and sustainment

processes, including capabilities assessment, investment strategy, encroachment management, operational planning, and environmental management.

The Marine Corps first developed the inventory for the 2004 SRR, based on information available in the Marine Corps RTAM system (MCRTAMS). MCRTAMS is a Web-enabled, institutional-level, centrally-managed system. It provides commanders, operating units, range managers, and all cross-Military Service users with a single source access for all range-related capabilities and resources. MCRTAMS uses established and developing data metrics and software. The range complex information available in MCRTAMS was the primary source for the initial range complex inventory. The 2012 Marine Corps inventory follows previous review processes and uses the MCRTAMS database and the RCMPs as primary data sources.

The Marine Corps range complex inventory is currently maintained on MCRTAMS, as well as in a spreadsheet format. It uses a number of data fields (e.g., name, claimant organization, location, size, range type) and provides GIS data with numerous data layers. The inventory is updated annually and has been significantly improved upon during the last few years , due to the initiation of RCMPs, which catalogue range complex baseline attributes and capabilities, and include a comprehensive inventory of ranges and SUA.

The MCRTAMS inventory review process is led by TECOM/ RTAM, using a QA/QC process to ensure inventory consistency and accuracy.

4.8.3 Navy Range Inventory Description

The Navy range complex inventory is a detailed list of land, air, sea, and underseaspace that comprise the Navy range complexes. It encompasses major fleet training ranges, OPAREAs, SUA, and major range and test facility base (MRTFB) sites (also referred to as range complexes). The inventory does not capture individual ranges and training areas not associated with a range complex. The intent of the range inventory is to support Navy range management and sustainment processes, including capabilities assessment, investment strategy, encroachment management, operational planning, and environmental management.

The Navy inventory has improved over the years , due to the implementation of the Tactical Training Theater Assessment Planning (TAP) Program, which included the preparation of RCMPs. RCMPs catalog range complex baseline assets and capabilities and include a comprehensive inventory of ranges, OPAREAs, and SUA.

The Office of the Chief of Naval Operations (OPNAV) N43 first developed the inventory for the 2004 SRR, based on multiple sources that included the Navy's Ranges to Readiness Study, active/inactive range survey (2000), Fleet Training Area/ Range Directory (Naval Warfare Assessment Station, Corona,

2003), Fleet OPAREA Instruction, and Fleet Area Control and Surveillance Facility Instructions. The inventory is currently maintained in a relational database, as part of the Tactical Training and Testing Ranges Repository and Management System (TRAMS), and in a spreadsheet format. As the inventory spreadsheet is updated, the TAP Repository (TAPR) database will be updated. Additional detail on the range complex inventory is provided as part of the RCMPs to include scheduling, operations, encroachment, and capabilities information. In the future, the inventory and associated information will be integrated into the TAPR.

The inventory is updated annually using the best available sources of information. The RCMP is the primary source of information for the updates. Beginning in FY2009, the RCMP has been updated biennially to coincide with the POM development cycle. The updates will include an assessment of each range complex's inventory and capabilities. For the remaining range complexes, range instructions and manuals will be used to update the inventory.

The inventory review process involves a review by the United States Pacific Fleet (PACFLT) and the United States Fleet Forces Command (USFF) to ensure the most current information is reflected in the inventory. Additionally, the Navy has a quality assurance/quality control (QA/QC) process that ensures consistency and accuracy of the inventory.

USFF will use the inventory as the basis for the Navy training area geospatial library now under development in the TRAMS/Environmental Information Management System (TRAMS/EIMS) project. Space and Warfare Systems Center (SPAWAR) Charleston and Naval Facilities Engineering Command (NFEC) developed EIMS to meet a fleet requirement for "a single, comprehensive Navy GIS-based information management system and databases for operational and environmental planning to support operational requirements, at sea environmental issues, and range/OPAREAs compliance and encroachment concerns." (TRAMS was originally developed as the TAPR with the goal of hosting all TAP-generated training area data, much of which is geospatial. However, the TAPR became TRAMS as the program moved beyond hosting only TAP data.)

The fleets have recognized the need for a single authoritative geospatial library in EIMS, based on a comprehensive Navy training area inventory and built on maps provided by the NGA, DoD's mapping authority. The foundational maps from NGA will include training area boundaries, with all other geospatial information developed by TAP and other authoritative sources layered on top. NGA will provide Web-based geospatial information so that EIMS foundational maps will be updated when training area boundaries are

updated. Complete, foundational maps for all fleet range complexes are currently being worked on, with the schedule dependent upon RCMP completion.

4.8.4 Air Force Range Inventory Description

The Air Force training and testing range inventory is managed and administered by the Headquarters United States Air Force Ranges and Airspace Division. The inventory is composed of four parts:

- U.S. air-to-ground ranges
- Overseas air-to-ground ranges operated by the Air Force
- Detailed SUA information
- Detailed MTR information

The Air Force inventory does not include all operational ranges and training areas. The intent of the Air Force inventory is to address, manage, and sustain air-to-ground training resources.

The inventory is based on data elements from a variety of sources, and is in GIS format. The format allows the inventory to be searched, filtered, and displayed on a map for quick analysis. Inventory elements are stored in a variety of formats, from tabular data to geographic information sources. Major Command reports are also used to update capabilities. Every 56 days, the airspace tables are updated with information from the NGA, while range information is continuously updated. The entire inventory receives an annual review.