

CHAPTER 4.

CUMULATIVE IMPACTS

4.1 CONSISTENCY WITH CEQ CUMULATIVE EFFECTS ANALYSIS GUIDANCE

CEQ guidance on cumulative impacts analysis described in *Considering Cumulative Effects Under the National Environmental Policy Act* (CEQ 1997) and *Guidance on the Consideration of Past Actions in Cumulative Effects Analysis* (CEQ 2005). Eleven steps were identified in the guidance documents. They are grouped according to the three main components of the NEPA process: Scoping (Steps 1-4); describe the affected environment (Steps 5-7); and determination of environmental consequences (Steps 8-11).

This EIS/OEIS is consistent with the CEQ guidance. The following is a list of the CEQ steps and an indication of where the step is implemented in the EIS/OEIS:

1. **Identification of significant effects issues associated with the proposed action and definition of assessment goals.** The impacts analysis for each of the alternatives is presented in Volumes 2 through 6, under each resource. The direct and indirect and construction and operational impacts are described. Under each resource, the significance criteria and methodology for assessing significance is described. The same methodology is applied in Volumes, 2 through 6. There are exceptions in Volume 6 where the off-base roadways' impact analyses conform to federal Highways Administration requirements for impact analysis.
2. **Establishment of geographic scope for the analysis.** The geographic scope is described in the impact assessment methodology for each resource's impact assessment as a region of influence (ROI). The same methodology is applied across Volumes 2 through 6. The ROI varies by resource. In Volume 7, the discussion is expanded to island-wide (Guam and Tinian).
3. **Establishment of the time frame for analysis.** In Volumes 2 through 6, the affected environment is based on best available information, with the intent of capturing the environmental baseline conditions as of 2009. The impacts are based on two phases: construction and operation. Volume 7 considers projects that have occurred in the past, present and reasonably foreseeable projects and the timeframe begins three years before the proposed action (2004) and ends five years after the completion of construction (2019).
4. **Identification of other actions affecting the resources, ecosystems and human communities of concern.** Volume 7 Chapter 4 presents the findings of the cumulative impact analysis that includes past, present and reasonably foreseeable projects.
- 5&6. **Characterization of resources in terms of their responses to change and capacity to withstand stresses; and characterize the stresses affecting these resources, ecosystems, and human communities and regulatory thresholds.** Volume 7, Chapter 2 describes preferred alternatives impacts in the context of the trends in resource health.
7. **Definition of baseline conditions for resources, ecosystems and human communities.** The affected environment sections, primarily in Volumes 2 and 3, establishes a baseline for the resources. Volume 7, Chapter 2 describes the future without the preferred alternatives.
8. **Identify important cause and effect relationships between human activities and resources, ecosystems and human communities.** In Volumes 2 through 6, the direct and indirect impacts of the human activities of the preferred alternatives on resources are described.

9. **Determination of the magnitude and significance of cumulative effects on the resources.** Volume 7, Chapter 4 presents the findings of the cumulative impacts assessment.
10. **Modification or addition of alternatives to avoid, minimize or mitigate significant impacts.** Volumes 2 through 6 describe the alternatives screening analyses. Many alternatives were eliminated from the reasonable alternatives because of environmental impacts. Others were modified to avoid and minimize impacts. For those impacts that were unavoidable, BMPs and mitigation measures are described. They are summarized in Volume 7, Chapter 3.
11. **Monitor effects of the proposed action and adaptive management.** Volume 7, Chapter 3 describes management actions that could mitigate impacts.

4.2 CUMULATIVE IMPACT METHODOLOGY

CEQ guidance observes that “no universally accepted framework for cumulative effect analysis exists”, while noting that certain general principles have gained acceptance.

The analysis of cumulative impacts (or cumulative effects) was initiated in Chapter 3, where the impacts of the preferred alternative were assessed within the context of resource trends. The preferred alternative was compared to no-action, which is the island (Guam or Tinian) without any component of the preferred alternatives. Trends in resource health and stressors were identified. Future projects that may impact general trends were described.

Chapter 4, Cumulative Impacts, continues the analysis by assessing the preferred alternative impacts from Chapter 3, in the context of specific past, present, and reasonably foreseeable future actions. This is consistent with the objectives of the National Environmental Policy Act (NEPA) of 1969 and CEQ regulations (40 Code of Federal Regulations [CFR] §§ 1500-1508) that provide the implementing procedures for NEPA. The CEQ regulations define “cumulative effects” as:

“ . . . the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.” (40 CFR 1508.7).

The following approach was used in assessing cumulative impacts:

1. Develop a list of past, present, and reasonably foreseeable future actions, referred to as “cumulative projects”, within a designated timeframe beginning three years before the proposed action and ending five years after the completion of construction (see Tables 4.3-1 and 4.3-2).
2. Screen the projects to develop a list of cumulative projects to be used in the assessment of cumulative impacts. Projects were eliminated from the analysis if:
 - a. They are located outside the geographic boundary of Guam and Tinian (e.g., undersea cables and the Marianas Trench Monument designation)
 - b. They are proposed beyond the cumulative project timeline (2019)
 - c. There is insufficient readily available data on project, magnitude, location, or description
 - d. The project was categorically excluded (CATEX) under NEPA

- e. The project would have *de minimus* impact on the environment (e.g., maintenance and repair of existing facilities or construction of minor or accessory structures within a built environment)
 - f. The project is a plan or policy not a physical development
 - g. Project impacts would be localized and geographically distinct from preferred alternatives and unlikely to have cumulative impacts
3. Based on the short-list of cumulative projects, identify the resources that would potentially experience an additive effect when combined with the operational (long-term) preferred alternative (Section 4.4).
 4. If an additive effect is determined, assess the level of impact (Section 4.4).

4.3 PAST, PRESENT, AND REASONABLY FORESEEABLE ACTIONS

The Past, Present, and Reasonably Foreseeable Actions herein referred to as the cumulative projects list was developed from Navy and Air Force planners and the Guam Land Use Commission (GLUC) database. Tables 4.3-1 and 4.3-2 list projects that were identified on Guam and Tinian, respectively, based on readily available information. The status these would change and proposals for new projects would continue to be developed. Both tables are divided by region and not all projects listed are discussed in detail. Project locations (if readily available) for the four regions on Guam are shown in Figure 4.3-1, Figure 4.4-2, and Figure 4.4-3 and Figure 4.3-4. Project locations on Tinian are shown in Figure 4.3-5.

Sizeable projects on Guam include the planned Port Authority of Guam commercial harbor improvements, the Establishment and Operation of an Intelligence, Surveillance, Reconnaissance, and Strike (ISR/Strike) Capability Project on Andersen Air Force Base (AFB), Guam and the Marianas Islands Range Complex (MIRC) improvements, all of which have either had master plans or NEPA documents prepared describing the proposed actions. A brief description of these projects is described before the cumulative project tables and figures.

4.3.1 Commercial Port Improvements

The commercial port improvements were identified in Volume 6 as a non-DoD decision point action. Please see Volume 6 for a more detailed description.

4.3.2 Intelligence, Surveillance, Reconnaissance, and Strike (ISR/Strike) Capability

The proposed action would establish an ISR/Strike operational capability in four phases over an approximate 16-year period in the western Pacific, beginning in fiscal year 2007. The ISR/Strike capability would consist of fighter, aerial refueling, bomber, unmanned aerial vehicle aircraft, and support personnel. The EIS was finalized and a Record of Decision (ROD) was issued January 2007 (PACAF 2007).

Andersen AFB was identified as the installation best suited to host the ISR/Strike capability. The average daily airfield operations would increase from 235 to 297. The increase in aircraft events out of and into Andersen AFB requires improved range infrastructure to accommodate this increased training tempo, newer aircraft, and weapon systems commensurate with ISR/Strike force structure. There would be increased activity on all the current training areas supporting Air Force activities. No land acquisition is proposed.

There would be construction to support approximately 3,000 additional personnel, including 190 family housing units. The Air Force would beddown and operate two squadrons and three training programs at Northwest Field concurrent with ISR/Strike capability (addressed in separate environmental assessment).

As part of the ISR/Strike mitigation plan, a new Habitat Management Unit of 148 ac (60 ha) would be established as mitigation for impacts to biological resources. An ungulate control plan would be developed and ungulate exclusion fencing is proposed. A full time wildlife management specialist position would be funded. Trees that are important to the Mariana Fruit Bat or the Marianna Crow would be planted. A noise study would be conducted.

At the time of the ISR/Strike EIS preparation there was insufficient project description on the project addressed in this draft Guam and CNMI Military Relocation EIS/OEIS to include the Air Force cumulative impact project list. The Air Force was able to address the cumulative impacts of establishing an ISR/Strike Capacity in their EIS (PACAF 2006) relative to a host of other cumulative projects identified.

4.3.3 MIRC

The MIRC EIS has not been finalized nor has a ROD been issued. The Draft EIS proposed action is ongoing and proposed military training activities within the Mariana Islands (Navy 2009). The MIRC consists of the ranges, airspace, and ocean areas surrounding the ranges that make up the Study Area. The study area described in the EIS does not include the sovereign territory (including waters out to 12 nautical miles [nm]) of the Federated States of Micronesia.

The proposed action would result in critical enhancements to increase training capabilities (especially in the undersea and air warfare areas) that are necessary if the military services are to maintain a state of military readiness commensurate with the national defense mission. The proposed action does not involve extensive changes to the MIRC facilities, activities, or training capabilities, nor does it involve an expansion of the existing MIRC property or airspace requirements. The proposed action does not involve the redeployment of Marine Corps, Air Force personnel or assets, carrier berthing capability, or deployment of strategic missile defense assets to the Marianas. The proposed action focuses on the development and improvement of existing training capabilities in the MIRC and would not include any military construction projects. Because new ranges are not being proposed the project location is not shown in Table 4.3-1.

Governing procedures for the use of training areas, ranges and airspace operated and controlled by the Commander U.S. Naval Forces, Marianas including instructions and procedures for the use of Guam, Saipan, Tinian, Rota and Farallon de Medinilla are included in Commander Navy Region Marianas Instruction 3500.4 (Marianas Training Handbook). This guidance identifies specific land use constraints to enable protection of environmental resources during military training in the MIRC. These procedures would continue to be followed. Modification and augmentations of these procedures are being discussed among stakeholders. No new types of training are required that would warrant new procedures in the MIRC.

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Table 4.3-1. Past, Present and Reasonably Foreseeable Projects on Guam

#	Lead Agency or Proponent	Point of Contact at Lead Agency	Project Name/ Location	Area of Interest	Construction Year(s)	Status	Description (include purpose, scope, known issues)	Timeframe	Reason for Dismissal
GUAM									
Guam – General Actions (not mapped)									
1	Core Tech	Ironwood Estates	Residential construction, Machanao (private)	Guam	2007-2008	Construction complete	Ironwood Estates, 108-lot subdivision, low income rentals.	Past	Retain
2	Commander Navy Region Marianas (CNM)	Navy	Joint Basing	Guam	2009	In progress	Consolidation of support services at the Navy and Air Force base under the Dept of the Navy effective Oct 1, 2009.	Present	No cumulative impacts are anticipated.
3	Secretary of Commerce, Secretary of Interior, National Oceanic and Atmospheric Administration	unknown	Marianas Trench National Marine Monument	Guam, CNMI	2009	Established	Establishment of the Marianas Trench Marine National Monument by proclamation of the President of the United States on January 6, 2009	95,222 square miles (mi ²) for both Guam and the CNMI	Outside the geographical region of influence
4	Commander Navy Region (COMNAV) Pacific	Nora Macariola-See Naval Facilities Engineering Command (NAVFAC) Pacific	MIRC EIS	Guam/CNMI	2011	Pending Record of Decision (ROD) in March 2010	Covers proposed action and alternatives for continued use of the Marianas Islands Range Complex	Future	Retain
5	Department of Public Works (DPW)	GovGuam	2030 Guam Transportation Plan	Guam	To Be Determined (TBD)	The plan guides federally-funded transportation projects from 2010 - 2030.	The plan involves significant repairs and upgrades of Guam’s transportation network. The project would be funded through grants from the U.S. Department of Transportation, Federal Highway Administration and other funding sources.	Future	Retain
6	DPW	GovGuam	Territorial Transportation Improvement Plan TTIP)	Guam	2008-2011	In place	Short-term federally-funded transportation projects (65).	Present	FONSI or Categorical Exclusion anticipated with no significant impacts.
7	Guam Department of Corrections	Guam Department of Corrections	Territorial Prison	Guam	TBD	Organizing funding	New Territorial prison to house 1,000 inmates. Site to be determined.	Future	Retain
8	unknown	unknown	CAME Alternative Energy	Guam	TBD	Unknown	To develop an energy supply for the CAME that is renewable, sustainable, environmental-friendly and economical. To evaluate the potential for development of a geothermal power system within the CAME based on the scientific findings of exploitable geothermal formations and the economics of distributing the energy generating. - Comprehensive Economic Development Study (January 2009)	Unknown	Too speculative.
9*	CNM	Navy	Marianas Communications Backbone, Guam/CNMI various locations	Guam, CNMI	TBD	Unknown	Data backbone (microwave and data link backbone, electronic warfare (portable) staging site	Unknown	FONSI or Categorical Exclusion anticipated with no significant impacts.
10	U.S. Fish and Wildlife Service (USFWS)	USFWS	Five year review of species under the federal Endangered Species Act	Guam, CNMI	TBD	Public Comment ended June 30, 2008	The Pacific Region of the USFWS is initiating 5-year reviews of 70 species protected under the federal Endangered Species Act. One of the species under review is the Micronesian Megapode (<i>Megapodius laperouse</i>) which is endangered with a current range of the Mariana Islands.	Unknown	Plan or policy
Guam - Offshore (not mapped)									
11	PIPE Networks	Bevan Slattery, CEO	“Project Runway” Australia – Guam submarine cable (private)	Guam-Offshore	2009-2010	Pending	Submarine cable link from Australia to Guam.	Past	Outside the geographical region of influence
12	USEPA	USEPA	Designation of Ocean Dredged Material Disposal Site EIS, Guam (offshore)	11-nautical miles west of Apra Harbor	2010	Notice of Availability of Draft EIS published in August 2009	USEPA designation of offshore disposal site for dredged materials.	Present	Outside the geographical region of influence

#	Lead Agency or Proponent	Point of Contact at Lead Agency	Project Name/ Location	Area of Interest	Construction Year(s)	Status	Description (include purpose, scope, known issues)	Timeframe	Reason for Dismissal
Guam - North									
N-1	Guam Air National Guard	unknown	GUANG Operations and Training Facility	Guam-North	2003	Unknown	254 th Air Base Group, Guam Air National Guard at Andersen Air Force Base. The project would involve the construction of a 10,400-ft ² Operations & Training facility and the associated 97-stall parking lot within the existing Guam Air National Guard installation.	Past	Impacts are included in <u>EIS/OEIS affected environment</u> .
N-2	Air Force	Air Force	Shopette Construction	Guam-North	2004	Unknown	The AAFES shopette is located, together with the existing gas station, a store, administrative area, an automated car wash building, additional 35 parking spaces and site access roads encompassing 79,000 ft ² of pavement surrounding the building, within an approximately 2.4 ac site.	Past	Impacts are included in <u>EIS/OEIS affected environment</u>
N-3	Air Force/GEPA	Air Force	Urunao Dump Clean Up	Guam-North	2005	Unknown	The U.S. Air Force is ongoing remediation project to clean-up the two-year-long job of removing waste from the Urunao Dumpsite 1 & 2, a private property. West of Andersen AFB, Northwest Field (NWF), Guam.	Present	Retain
N-4	unknown	Air Force	unknown	Guam-North	2007	Unknown	Removal and Control of Vegetation at Runway, in accordance with AICUZ Program	Past	<i>De minimus</i> impacts
N-5*	Fleet Area Control and Surveillance Facility (FACSFAC) Range Control	Navy	FACSFAC, Andersen AFB	Guam-North	2010	Unknown	Training Operations Center (FACSFAC/Range Control), CVW-5 liaison office.	Future	<i>De minimus</i> impacts
N-6	36 WG of the Pacific Air Forces (PACAF)	Air Force	Beddown of Training and Support Initiatives at NWF	Guam-North	2006 to 2011	Finding of No Significant Impact (FONSI) (signed 6-20-06)	Relocate a Rapid Engineer Deployable Heavy Operations Repair Squadron Engineer (REDHORSE) of mobile engineering forces, the PACAF Commando Warrior training program, and a Combat Communication squadron and its training program at the same location. This includes an additional 400 personnel, utility and infrastructure improvements, and construction of field training areas, offices, classrooms, and warehouses to be based at Northwest Field, Andersen AFB.	Present	Retain
N-7	36 WG of the Pacific Air Forces (PACAF)	Air Force	ISR Strike Capability, Andersen AFB	Guam-North	2007 to 2016	ROD (signed 01-12-07)	Base four unmanned aerial reconnaissance aircraft and 12 refueling aircraft at Andersen AFB and accommodate 48 fighter and six bomber aircraft on a rotational basis. An additional 2,400 personnel would be based at Andersen AFB.	Present	Retain
N-8	Base Corp.	Unknown	Paradise Estates, Yigo	Guam-North	2007-2008	Phase III Under construction	Paradise Estates residential homes, 400-lot subdivision. Villa Pacita residential homes, near AAFB back gate.	Present	Retain
N-9	Air Force	Air Force	Andersen AFB water supply system construction	Guam-North	Unknown	Unknown	Construction of an on-base water supply system on the Andersen AFB.	Future	Retain
N-10	36 WG of the PACAF	Air Force/ Navy	Unknown	Guam-North	TBD	Unknown	Additional FY10-FY15 MILCON Projects: Antiterrorism/Force Protection (AT/FP) Perimeter Fence/Road, relocate Main Gate, War Readiness Materials Storage Warehouse, Education/Library Complex, Permanent Party Enlisted Dorm, Consolidate Youth Programs, Postal Service Center	Future	Retain.
N-11	36 WG of the PACAF	Air Force	Unknown	Guam-North	TBD	Unknown	Repair AEF FOL South Runway (Phase 1) Additional FY12 Projects: repair AEF FOL South Runway (Phase 2).	Past	<i>De minimus</i> impacts.
N-12	Air Force/U.S. Army Corps of Engineers (USACE)	Air Force	Enhancement of Tarague and Sirena Beaches	Guam-North	TBD	Unknown	Air Force, USACE File No. POH-2007-45, to install 31 anchors for marker buoys to serve as a perimeter safe zone for swimming and reef walking activities, in accordance with Wing Command, 36 SVS, and Wing Safety, and enhancement of passive recreational opportunities at Tarague Beach and installation of two navigation poles at the Tarague and Sirena Beaches, Andersen Air Force Base, Guam,	Past	<i>De minimus</i> impacts.
N-13	36 WG of the PACAF	Air Force	Munitions Storage Igloos Andersen AFB Guam	Guam-North		Two phases: Phase 1 operational since 2008	New munitions igloos are required to enable the 36 WG's existing mission and ongoing military operations. Phase 1 to construct 12	Present	Retain

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						and Phase 2 NEPA EA prepared. FNOSI pending.	munitions igloos is complete at Munitions Storage Area 1 (MSA 1). Phase II would construct 48 additional munitions igloos to meet the same purpose and need.		
N-14	GLUC ^{2,3}	Terry Perez, Guam Coastal Management Program, Bureau of Statistics and Plans	Conditional Use Request	Guam-North	TBD	Conditionally Approved by the GLUC	Conditional Use Permits for a variety of commercial, retail and residential projects.	Future	Insufficient information, but retain because is in the north, in proximity to preferred alternatives
N-15	GLUC ^{2,3}	Terry Perez, Guam Coastal Management Program, Bureau of Statistics and Plans	Subdivision Variance Request	Guam-North	TBD	Pending Approval by the GLUC	Subdivision Variance Requests for a variety of residential, commercial, and light industrial projects. Variances include deletion or reduction of easements.	Future	
N-16	GLUC ^{2,3}	Terry Perez, Guam Coastal Management Program, Bureau of Statistics and Plans	Tentative Subdivision Approval	Guam-North	TBD	Pending Approval by the GLUC	Tentative Subdivision Approvals for a combined 131 subdivision lots.	Future	
N-17	GLUC ^{2,3}	Terry Perez, Guam Coastal Management Program, Bureau of Statistics and Plans	Wetland Permit	Guam-North	TBD	Conditionally Approved by the GLUC	Permits to impact wetlands.	Future	Retain
N-18	GLUC ^{2,3}	Terry Perez, Guam Coastal Management Program, Bureau of Statistics and Plans	Zone Change Request	Guam-North	TBD	Conditionally Approved or Pending Approval by the GLUC	A wide variety of zone change requests that are conditionally approved or pending approval by the GLUC. Proposed uses include residential, commercial, recreational, and one landfill.	Future	Insufficient data
N-19	Private Development	Vantage Group	Villa Pacita Estates	Guam-North	TBD	Under construction	Private housing division along Rt. 15 in Yigo on the west side of Mt. Santa Rosa	Present	Retain
N-20	Archdiocese of Guam	Unknown	Catholic High School	Guam-North	TBD	Task force assessing prospect as of Nov. 2008	New construction of private Catholic high school on the north side of Guam.		Insufficient data.
Guam - Central									
C-1	Federal Highway Administration (FHWA)	Unknown	Route 15 Construction	Guam-Central	2005	Unknown	Reconstruction/rehabilitation of the Route 15 existing two-lane roadway and construction of roadway appurtenances for a complete and useable safe facility, in the municipalities of Mangilao and Yigo.	Past	May not be required after EIS/OEIS implemented.
C-2	Home Depot	Various	Home Depot and Garden Center (private), Tamuning (Airport Road)	Guam-Central	2007	Operational.	New Home Depot and Garden Center on Airport Road (Tamuning).	Past	Geographically and localized impacts.
C-3	Private Development	Access Development Company	Talo Verde Estates	Guam-Central	2007-2009	Operational	Luxury housing community; Single family dwellings (62) and Townhouses (82).	Past	Geographically and localized impacts.
C-4	TBD	Unknown	Residential construction, Tamuning (private)	Guam-Central	2007-2009	Unknown	700-unit condominium (Near Nikko Hotel), units to be complete by 2010.	Present	Retain
C-5	Private Development	Access Development Company	Talo Vista Tower	Guam-Central	2010-2012	Construction pending	236 unit condominium; Obtained GLUC approval (Nov 2007).	Present	Retain
C-6	Core Tech		Workforce housing	Guam-Central	2008-2010	Completed	Facility at Tinian that is to include housing for up to 1,600 workers; currently Core Tech in discussions with GovGuam for possible temporary use of facility for John F. Kennedy High School students.	Present	Retain
C-7	Private Development	Access Development	Ypao Resort	Guam-Central	2010-2012	Pending	700 units full-service resort condominium; Under GLUC review.	Future	Retain

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		Company							
C-8	Private Development	Younex International Corp	Emerald Ocean View Park	Guam-Central	2008-2011	Under construction	260 luxury condo unit - 20 villas, two 18-story towers and two 15-story towers.	Present	Retain
C-9	Unknown	Unknown	Veterans Clinic	Guam-Central	2009	Under construction	The Veterans Clinic would be located just outside of the Naval Hospital along Route 7.	Present	Retain
C-10	CNM	Navy	Defense Access Road	Guam-Central	2010	U.S. Gov is committing \$1B per U.S./Japan pact signed by Secretary of State Hillary Clinton on February 17, 2009	The proposed highway would cut across largely undeveloped hills and valleys of Chalan Pago, Yona and Piti, starting from the area in Chalan Pago where Routes 10 and 4 meet.	Future	Retain
C-11	CNM	Navy	Joint Region Headquarters & Operations Center (P-572)	Guam-Central	2010	Contract awarded	Renovate and adapt existing Buildings 200, 202, and 205 currently used as DoDEA high schools for joint use by Navy and JGPO.	Present	<i>De minimus</i> impacts.
C-12	Private Development	Tanota Partners (Ysrael family)	Hotel Construction Bayview 5 Luxury Project, Tumon Bay	Guam-Central	2010	Under construction	Construction of 400-room 28-story hotel in Tumon Bay.	Present	Retain
C-13	BUMED	unknown	Bureau of Medicine Naval Replacement Hospital Project	Guam-Central	2010-2012	Environmental Assessment (EA) under review	Naval Replacement Hospital at Nimitz Hill. The existing one would be demolished. The site of the new hospital is located within the Naval Hospital Complex at Agana Heights.	Present	Retain.
C-14	Private Development	Access Development Company	Hemlani Apartments	Guam-Central	TBD	Planning	300 unit apartments (behind Acanta Mall, Tumon Bay).	Future	Retain
C-15	Guam International Airport Authority (GIAA)	GovGuam	Guam International Airport Improvements	Guam-Central	TBD	TBD	Various upgrades to airport property, main terminal, industrial park, airfield, and south ramp.	Future	Retain
C-16	GovGuam and the U.S. Navy	GovGuam	Reforestation of Masso Reservoir	Guam-Central	TBD	completed within 3 years (by 2012)	The reforestation plan was developed as a mitigation project for coral reef loss in Apra Harbor.	Future	Retain
C-17	Private Development	Ino Corp. Development	Ino Corp Development	Guam-Central	TBD	Pending	396 unit resort condo and commercial spaces; Approved Mar 2008 by GLUC.	Future	Retain
C-18	GLUC ^{2,3}	Terry Perez, Guam Coastal Management Program, Bureau of Statistics and Plans	Conditional Use Request	Guam-Central	TBD	Conditionally Approved or Pending Approval by the GLUC	Conditional Use Permits for a variety of commercial, retail and residential projects.	Future	Retain
C-19	GLUC ^{2,3}	Terry Perez, Guam Coastal Management Program, Bureau of Statistics and Plans	PUD - Amendment	Guam-Central	TBD	Approved by the GLUC in 2005	A PUD Amendment for a project in Agana with civic, commercial and recreational use.	Future	Retain
C-20	GLUC ^{2,3}	Terry Perez, Guam Coastal Management Program, Bureau of Statistics and Plans	Seashore Clearance Request	Guam-Central	TBD	Conditionally Approved or Pending Approval by the GLUC	Seashore Clearance Requests for a variety of commercial, residential and recreational projects.	Future	Retain
C-21	GLUC ^{2,3}	Terry Perez, Guam Coastal Management Program, Bureau of Statistics and Plans	Subdivision Variance Request	Guam-Central	TBD	Approved, Conditionally Approved or Pending Approval by the GLUC	Subdivision Variance Requests for a variety of residential, commercial, and light industrial projects. Variances include deletion or reduction of easements.	Future	Retain

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C-22	GLUC ^{2,3}	Terry Perez, Guam Coastal Management Program, Bureau of Statistics and Plans	Tentative Development Plan Application	Guam-Central	TBD	Conditionally Approved or Pending Approval by the GLUC	Tentative Development Plans for a variety of residential, commercial and recreational projects that are conditionally approved or pending approval by the GLUC. Combined totals: 43 apartments, 960 condos, and 1 single family dwelling.	Future	Retain
C-23	GLUC ^{2,3}	Terry Perez, Guam Coastal Management Program, Bureau of Statistics and Plans	Tentative Subdivision Approval	Guam-Central	TBD	Conditionally Approved or Pending Approval by the GLUC	Tentative Subdivision Approvals for a combined 417 subdivision lots.	Future	Retain
C-24	GLUC ^{2,3}	Terry Perez, Guam Coastal Management Program, Bureau of Statistics and Plans	Wetland Permit	Guam-Central	TBD	Pending Approval by the GLUC	Permits to impact wetlands.	Future	Retain
C-25	GLUC ^{2,3}	Terry Perez, Guam Coastal Management Program, Bureau of Statistics and Plans	Zone Change Request	Guam-Central	TBD	Approved, Conditionally Approved or Pending Approval by the GLUC	A wide variety of zone change requests that are conditionally approved or pending approval by the GLUC. Proposed uses include residential, commercial, recreational, and one landfill.	Future	Retain
C-26	unknown	unknown	Guam Greyhound Casino	Guam-Central	TBD	Unknown	Approved on the Nov. 2008 voting ballot and failed. Guam Greyhound is currently closed.		No longer viable.
C-27	unknown	unknown	unknown	Guam-Central	TBD	Unknown	Subdivision on Ypao Road, in construction.	Future	Insufficient data, but in proximity to proposed firing ranges. Retain
C-28	PACAF A7P (Air Force)	Navy	Upgrade JP-8 Receipt Pipeline	Guam-Central	2013	Planning and Programming Phase	Infrastructure improvements to fuel pumps and pipelines that extend from the SasaValley Fuel Farm to Andersen AFB. Project includes a new 15.7 mile pipeline that is parallel and adjacent to existing pipeline and located within an existing 10-foot wide easement.	Future	<i>De minimus</i> impacts.
Guam - Apra Harbor									
AH-1	CNM	Navy	Kilo Wharf Improvements (P-451)	Guam-Apra Harbor	2005	Operational	Construct concrete ordnance container handling pad for handling, loading, and unloading of containerized ordnance on Orote Plateau, with an access road from Orote Point road to the container holding yard and the new facilities proposed under P-425 and P-447. Replace fenders, renovate Gate House and service buildings, upgrade fire protection, lighting, and steam utilities at Kilo Wharf.	Past	Geographically distinct and included in affected environment of EIS/OEIS.
AH-2	CNM	Navy	Alpha/Bravo Wharves Improvements (P-431)	Guam-Apra Harbor	2008	Operational	Extension of Bravo Wharf and construction dredging to meet requirements for new class of submarines. Project includes utility upgrades at Alpha and Bravo Wharves.	Past	Included in affected environment of EIS/OEIS..
AH-3	CNM	Navy	Open Ammo Storage, Orote Point (P-447)	Guam-Apra Harbor	2007	Draft EA currently in progress as of May 2008	Construct eight open ammunition storage pads for temporary storage of one million pounds net explosive weight (NEW) C/D 1.1 on Orote Plateau. Each pad can accommodate 20 standard shipping containers stacked two high. Includes paved access, earthen berms, lightning protection, security fencing, and video surveillance.	9,350 ft ² pads (8)	Included in AH-4.
AH-4	CNM	Navy	Orote Magazines (P-425)	Guam-Apra Harbor	2012	Draft EA currently in progress as of May 2008	Construct 17 non-propagation wall magazines for storage of 2M lbs NEW C/D 1.1 on Orote Plateau. Provides sufficient capacity for one full cargo ship. Includes security fencing, utility extensions, access road, and vegetation clearing.	Future	Retain
AH-5	CNM	Navy	Electrical Distribution System Hardening, Main Base (P-494) Phase 4	Guam-Apra Harbor	2008	FONSI	Improve Navy's power infrastructure by increasing capacity of Orote Substation to increase backup generation capacity and placing two miles of overhead power lines underground.	Past	<i>De minimus</i> impacts.

#	Lead Agency or Proponent	Point of Contact at Lead Agency	Project Name/ Location	Area of Interest	Construction Year(s)	Status	Description (include purpose, scope, known issues)	Timeframe	Reason for Dismissal
AH-6	CNM	Navy	Potable Water System Recapitalization, Phase 1 (P-532), multiple locations	Guam-Apra Harbor	2008	Under construction	Replace existing water lines with larger size lines, provide miscellaneous water mains and line connections, construction of a concrete enclosure for the Fena Lake Pump Station, and install pressure reducing valves for waterlines feeding Sasa Valley, X-Ray Wharf, and Polaris Point.	Present	Categorical exclusion (CATEX).
AH-7	CNM	Navy	Construct New BEQ, Main Base (P-469R/P-484)	Guam-Apra Harbor	2009-2010	EA FONSI Prepared	Construct new Bachelor Enlisted Quarters (BEQ) at Guam Naval Base for enlisted personnel; includes three and four story buildings with reinforced concrete walls, flooring and foundation, containing 376 modules.	Present	Adverse impacts (explosive safety) were mitigated through design. No cumulative impacts
AH-8	Port Authority of Guam (PAG)	GovGuam	Guam Port	Guam-Apra Harbor	2009-2013	Request for Proposal issued, proposals reviewed and in process of awarding	Owners/agent for construction at the Guam Commercial Port.	Future	Retain
AH-9	PAG	MARAD/GovGuam	Guam Port	Guam-Apra Harbor	2009-2013	Request for Proposal issued and proposals have been submitted	Construction and commissioning of the facilities, equipment and amenities (\$195 million) that are required to implement the preferred concept "Break-Bulk West" in order to meet minimum requirements of the military buildup construction logistics requirements.	Future	Retain
AH-10	CNM	Navy	Kilo Wharf Extension (P-502)	Guam-Apra Harbor	2010	Construction completion anticipated by summer of 2010.	Construct new facilities at Kilo Wharf to meet DoD technical design standards to ensure safe and efficient ordnance loading/offloading for the Auxiliary Dry Cargo/Ammunition Ship (T-AKE). Project involves extension of wharf and construction of associated facilities.	Present	Retain
AH-11	CNM	Navy	X-Ray Wharf Improvements (P-518)	Guam-Apra Harbor	2013	Programmed, unfunded	Waterfront improvements to accommodate the new T-AKE supply ship and utility upgrades to meet wharf requirements. Includes construction and dredging at the southern portion of Inner Apra harbor to -35 ft.	Future	Retain
AH-12	CNM	Navy	Consolidated Port and Harbor Security Operations Facility (P-473), Polaris Point	Guam-Apra Harbor	2010	Pending approval, EA required	A new consolidated waterfront operations complex at Sumay Cove, equipment storage facility at Polaris Point, and installation of two surface approach radar systems.	37,900 ft ²	Cancelled.
AH-13	CNM	Navy	Harden Electrical System – Phase 2 (P-495)	Guam-Apra Harbor	2010	Un-programmed	Project would harden Navy's electrical distribution system by replacing the existing overhead primary and secondary electrical distribution with an underground installation for increased system reliability during frequent typhoons.	Future	CATEX completed.
AH-14	CNM	Navy	Consolidated Submarine Learning Center (SLC) and Commander Submarine Squadron (CSS) Headquarters Facility	Guam-Apra Harbor	2010	Pending site Approval	Construct a new two-story consolidated SLC and CCS headquarters facility. The SLC would house valuable equipment that would allow multiple undersea warfare training scenarios. The CSS facility would include administrative spaces, conference room, emergency control center and classified material storage. Built on fill.	Future	CATEX completed.
AH-15	CNM	Navy	Construct Torpedo Exercise Support Building (P-528)	Guam-Apra Harbor	2010	Pending site approval	Construct one-story torpedo exercise support facility (8,000 ft ²) on fill.	Future	CATEX completed.
AH-16*	MARFORPAC	Marine Corps	Amphibious Training, Dadi Beach (Marine Corps Proj. 10)	Guam-Apra Harbor	2014+	Unknown	Amphibious Assault Vehicle (AAV) training. Beach improvements: one concrete revetment at each beach, remove non-native vegetation, no in-water improvements.	Future	Retain
AH-17*	MARFORPAC	Marine Corps	Amphibious Training, Titalao Beach (Marine Corps Proj. 11)	Guam-Apra Harbor	2014+	Unknown	AAV training. Beach improvements: one concrete revetment at each beach, remove non-native vegetation, no in-water improvements.	Future	Retain

#	Lead Agency or Proponent	Point of Contact at Lead Agency	Project Name/ Location	Area of Interest	Construction Year(s)	Status	Description (include purpose, scope, known issues)	Timeframe	Reason for Dismissal
AH-18*	MARFORPAC	Marine Corps	Amphibious Training, Boat Ramp and Overland Route	Guam-Aprra Harbor	2014+	Unknown	One concrete boat ramp in southern end of Inner Apra Harbor, for one AAV craft at a time, overland paved route to Tupalao includes steep descent to Tupalao Beach. Site improvements associated with amphibious training include a new ramp at the southernmost point of Inner Apra Harbor. Overland route would be along the wetland area between the inner harbor and Dadi Beach.	Future	Retain
AH-19	PAG	GovGuam	Commercial Port Improvements	Guam-Aprra Harbor	2021-2025	Draft EIS (Notice of Availability [NOA] published in <i>Federal Register</i> on 8-10-07)	Construct new wharf east of Hotel Wharf to accommodate deep-draft container vessels and cruise ships. Dredging and filling of GovGuam submerged lands required.	Unknown	Beyond the timeframe for the cumulative impact analysis.
AH-20*	CNM	Navy	Target Support Building and TSV Wharf Upgrades, Navy Base	Guam-Aprra Harbor	TBD	Unknown	Surface, sub-surface and aerial target facility, underwater tracking range (portable acoustic range), TSV.	Unknown	Cancelled.
AH-21	CNM	Navy	Mitigation for Kilo Wharf Extension	Guam-Aprra Harbor	TBD	Unknown	Mitigation to provide 188-376 acre-years of coral services.	Present	Retain
Guam - South									
S-1	USFWS	USFWS	Draft Safe Harbor Agreement, Cocos Island	Guam-South	2008	The draft agreement and proposed permit was published in the <i>Federal Register</i> on January 10, 2008	Cocos Island Resort and the Guam Department of Agriculture have applied for an enhancement of survival permit and a proposed Safe Harbor Agreement for the benefit of the ko'ko'. Implementation of the proposed agreement would provide for voluntary habitat restoration, maintenance, and activities to enhance the habitat and recovery of the Guam rail on 83.1 ac of Cocos Island partly owned by Cocos Island Resort, and the Guam Department of Parks and Recreation.	Present	Retain
S-2	DPW	GovGuam	New Landfill, Dandan	Guam-South	TBD	Design complete	Development of a municipal solid waste landfill facility. Project involves construction and operation of integrated solid waste facility and transfer stations. It would provide for waste management through diversion, recycling, composting, and processing.	Future	Retain
S-3	GLUC ^{2,3}	Terry Perez, Guam Coastal Management Program, Bureau of Statistics and Plans	Conditional Use Request	Guam-South	TBD	Pending or Conditionally Approved by the GLUC	Conditional Use Permits for a variety of commercial, retail and residential projects.	Future	Insufficient information on location or magnitude
S-4	GLUC ^{2,3}	Terry Perez, Guam Coastal Management Program, Bureau of Statistics and Plans	Seashore Clearance Request	Guam-South	TBD	Conditionally Approved or Pending Approval by the GLUC	Seashore Clearance Requests for a variety of commercial, residential and recreational projects.	Future	Insufficient information on location or magnitude
S-5	GLUC ^{2,3}	Terry Perez, Guam Coastal Management Program, Bureau of Statistics and Plans	Seashore Permit Application	Guam-South	TBD	Application was entertained by the ARC on 2/2/2006	Seashore permit for the construction of a rock revetment.	Future	Insufficient information on location or magnitude
S-6	GLUC ^{2,3}	Terry Perez, Guam Coastal Management Program, Bureau of Statistics and Plans	Tentative Subdivision Approval	Guam-South	TBD	Conditionally Approved or Pending Approval by the GLUC	Tentative subdivision approvals for a combined 98 subdivision lots.	Future	Insufficient information on location or magnitude

#	Lead Agency or Proponent	Point of Contact at Lead Agency	Project Name/ Location	Area of Interest	Construction Year(s)	Status	Description (include purpose, scope, known issues)	Timeframe	Reason for Dismissal
S-7	GLUC ^{2,3}	Terry Perez, Guam Coastal Management Program, Bureau of Statistics and Plans	Wetland Permit	Guam-South	TBD	Conditionally Approved by the GLUC	Permits to impact wetlands.	Future	Retain.
S-8	GLUC ^{2,3}	Terry Perez, Guam Coastal Management Program, Bureau of Statistics and Plans	Zone Change Request	Guam-South	TBD	Conditionally Approved or Pending Approval by the GLUC	A wide variety of zone change requests that are conditionally approved or pending approval by the GLUC. Proposed uses include residential, commercial, recreational, and one landfill.	Future	Insufficient information on location or magnitude

Notes:

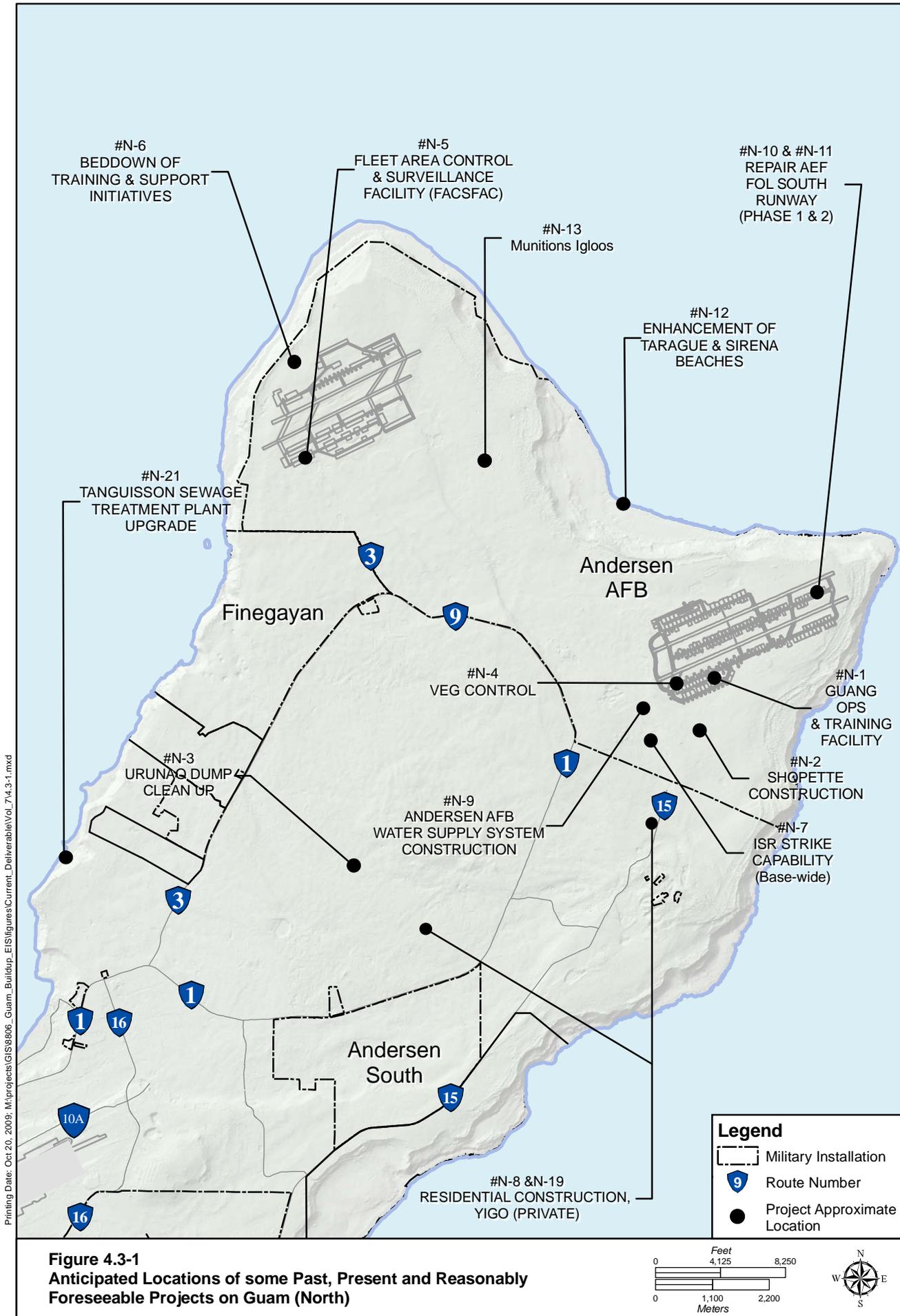
¹ Projects included in this list were/would be constructed between 2005 and 2017.

² Projects included from the GLUC database by GLUC Request Type (e.g. Zone Variance, Seashore Clearance, Tentative Development Plan, etc.) were/would be permitted between 2000 and 2015.

³ Projects from the GLUC database by GLUC Request Type (provided in column D) prior to inclusion in this Cumulative Project List. The native file of GLUC projects is available and can be queried by project location, if necessary. Navy projects last updated 9/09; Air Force Projects updated 10/09

Bold: projects are shown on Guam figures

* Identified in the Training Concept Plan (Marine Forces Pacific 2009), but siting would need to be revisited after the Record of Decision (ROD) is issued for this EIS/OEIS.



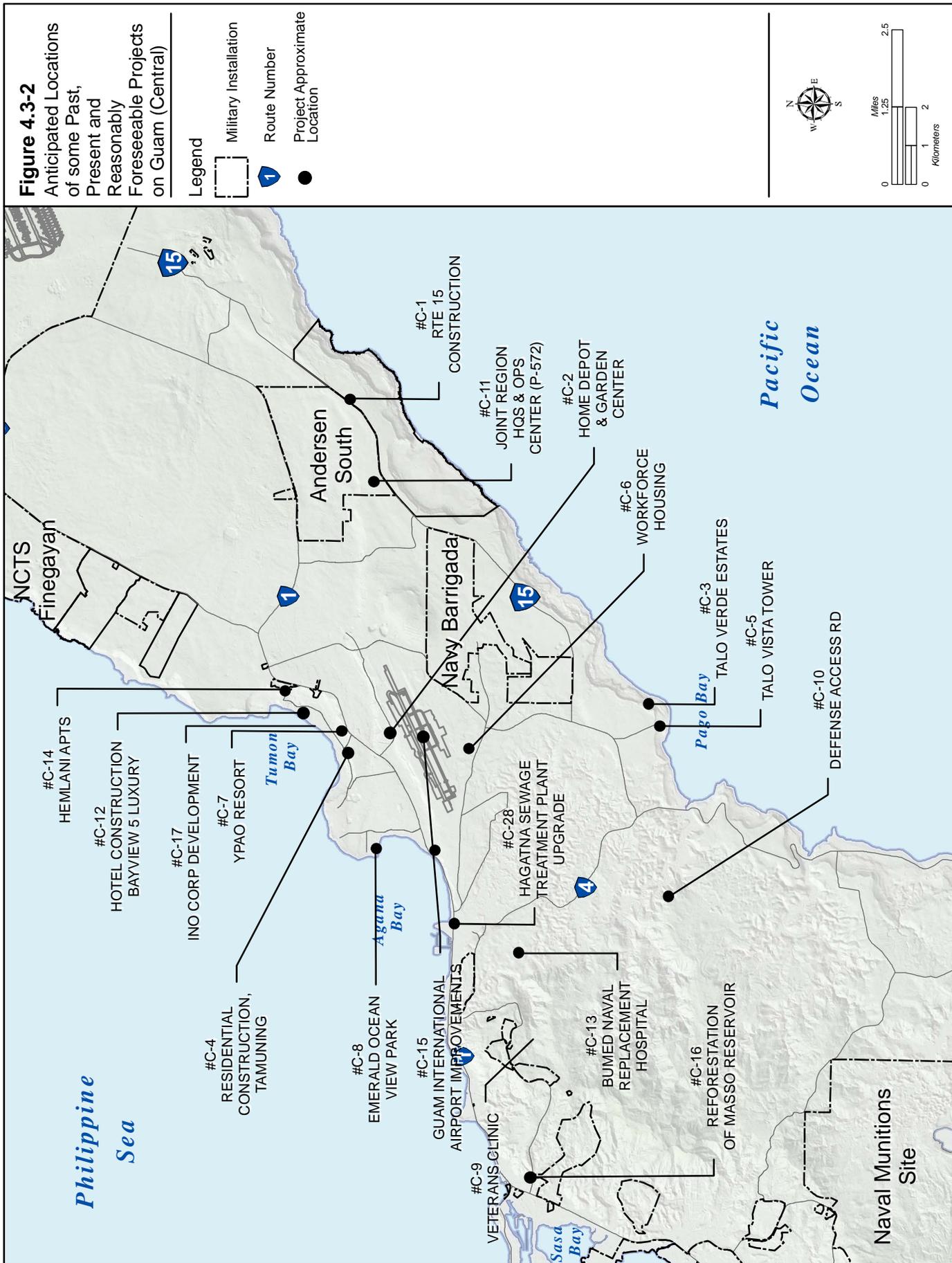
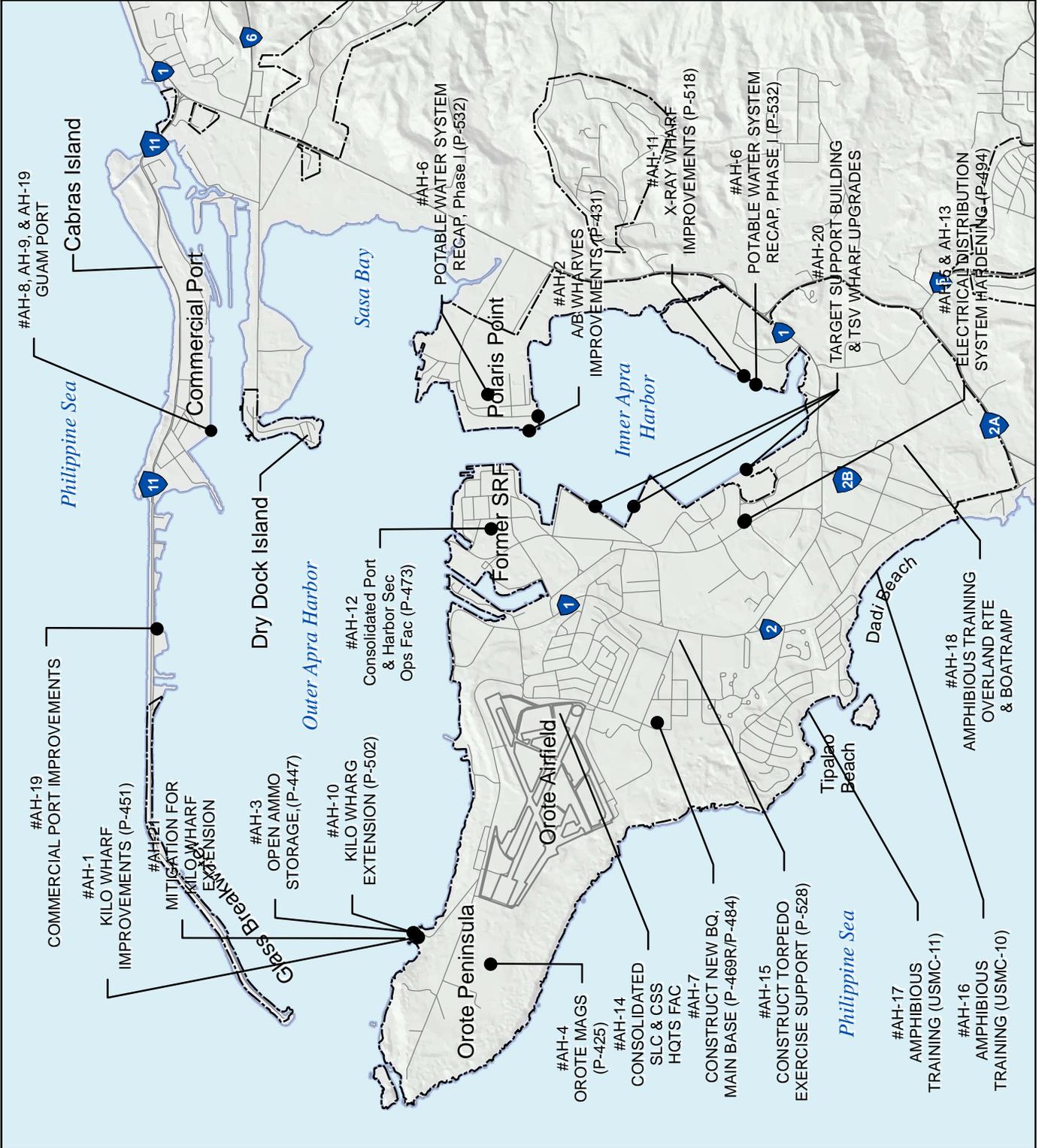
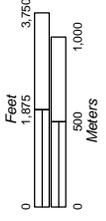


Figure 4.3-3

Anticipated Locations of some Past, Present and Reasonably Foreseeable Projects on Guam (Apra)

Legend

-  Military Installation
-  Route Number
-  Project Approximate Location



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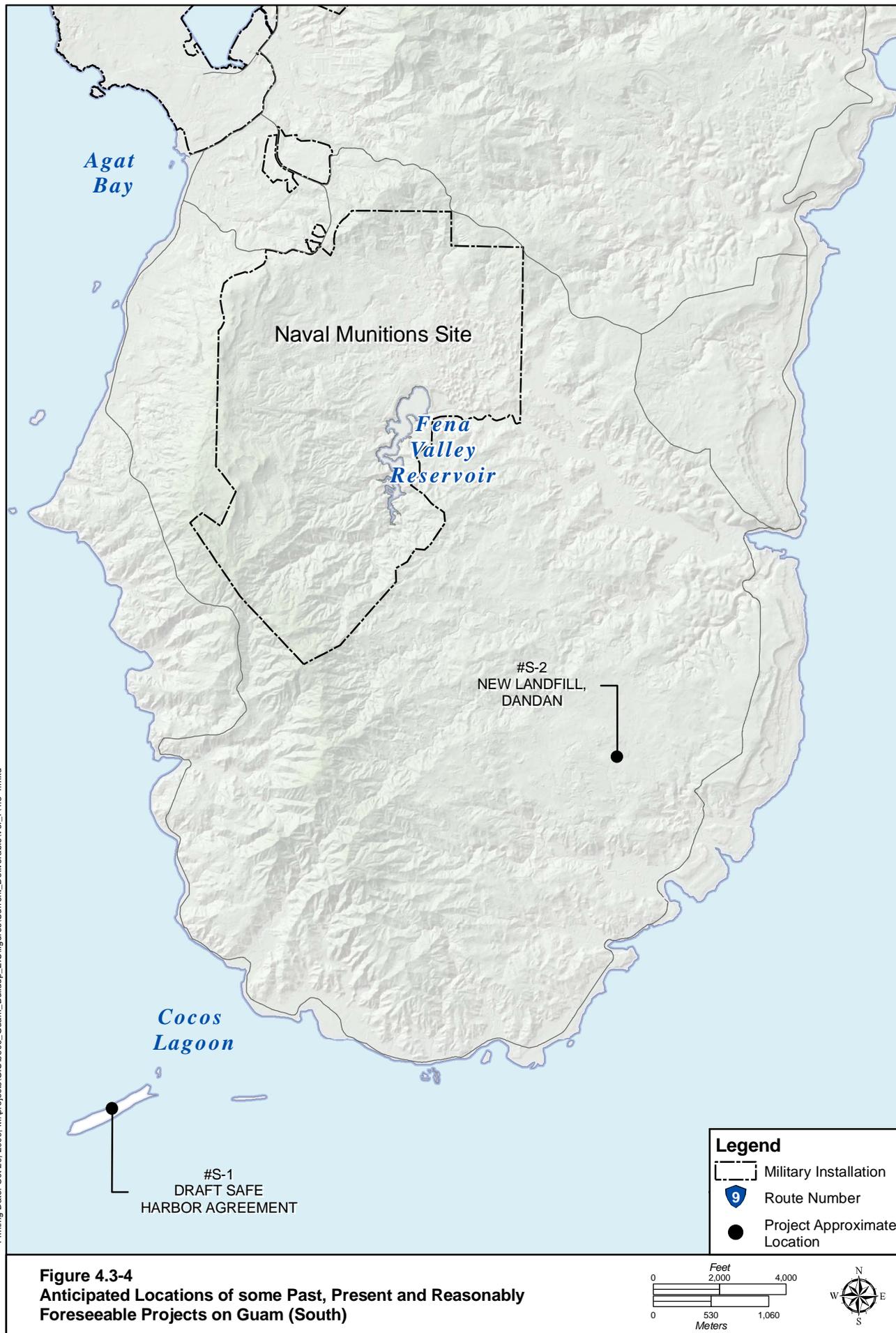


Figure 4.3-4
Anticipated Locations of some Past, Present and Reasonably Foreseeable Projects on Guam (South)

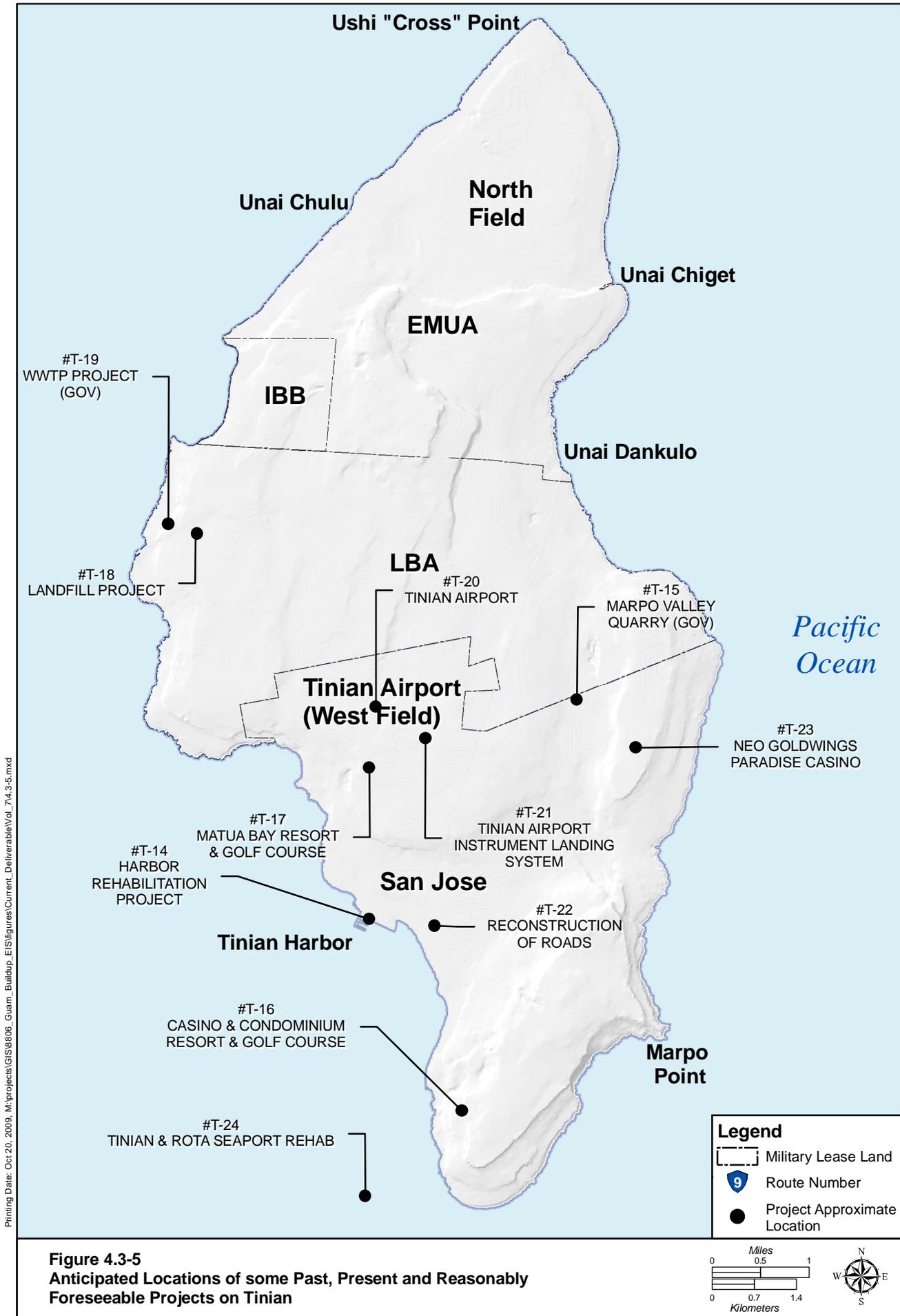
Table 4.3-2. Past, Present and Reasonably Foreseeable Projects in the CNMI

#	Lead Agency or Proponent	Point of Contact at Lead Agency	Project Name/ Location	Area of Interest	Construction Year(s)	Status	Description (include purpose, scope, known issues)	Timeframe	Potential Impacts
CNMI-Tinian									
T-2*	Marine Corps Proj. 13B	Marine Corps	1,500/3,000 Man Base Camp, Phase 2 (Marine Corps Proj. 13B)	CNMI-Tinian	2014+	unknown	Additional construction to accommodate up to 3,000 personnel.	Future	Retain
T-3*	Marine Corps Proj. 14	Marine Corps	Ammunition Storage (Marine Corps Proj. 14)	CNMI-Tinian	2014+	unknown	Ammunition storage facility. Includes six igloo magazines, a segregation facility, operations building, security systems, and a road network.	Future	
T-4*	Marine Corps Proj. 15	Marine Corps	Automated Multipurpose Range (Marine Corps Proj. 15)	CNMI-Tinian	2014+	unknown	Automated multipurpose range. Includes range support building, ammunitions storage, range observations tower, general instruction building, covered mess, covered bleachers, field range latrines, and 788 target emplacements.	Future	
T-5*	Marine Corps Proj. 16	Marine Corps	Combined Arms Live Fire Training Area (Marine Corps Proj. 16)	CNMI-Tinian	2014+	unknown	1.5 x 3 mile area for live-fire and maneuver training, including stationary and automated targets. Supports up to .50 caliber ammunition.	Future	
T-6*	Marine Corps Proj. 17	Marine Corps	Company Level Live-Fire and Movement Range (Marine Corps Proj. 17)	CNMI-Tinian	2014+	unknown	2,000 x 4,000-ft area for live-fire and movement training. Supports up to 7.62-mm infantry weapons.	Future	
T-7*	Marine Corps Proj. 18	Marine Corps	Mortar and Artillery Ranges (Marine Corps Proj. 18)	CNMI-Tinian	2014+	unknown	Areas for mortar and artillery firing points.	Future	
T-8*	Marine Corps Proj. 19	Marine Corps	North Field Helicopter Operations (Marine Corps Proj. 19)	CNMI-Tinian	2014+	unknown	Paved area at North Field for helicopter landings, weekly aviation training. Includes fire protection and bermed area for fuel bladder.	Future	
T-9*	Marine Corps Proj. 20	Marine Corps	Small Arms and Machine Gun Ranges (Marine Corps Proj. 20)	CNMI-Tinian	2014+	unknown	6 pistol and rifle firing ranges, including stationary/automated targets, standard set of range support facilities.	Future	
T-10*	Marine Corps Proj. 21	Marine Corps	Stationary Target Range (Marine Corps Proj. 21)	CNMI-Tinian	2014+	unknown	100 x 300-foot area for tank/fighting vehicle training. one firing point, central dubbed impact area.	Future	
T-11*	Marine Corps Proj. 22	Marine Corps	Waterfront Upgrades (Marine Corps Proj. 22)	CNMI-Tinian	2014+	unknown	Breakwater repair, pier face structures repair, loading ramp, holding yard for customs, storage/transfer area, harbor dredging. Includes demolishing finger pier.	Future	
T-12*	Marine Corps Proj. 23	Marine Corps	Infrastructure Upgrades (Marine Corps Proj. 23)	CNMI-Tinian	2014+	unknown	Roadway improvements, electrical distribution changes, fire protection facilities, and access to Unai Dankulo.	Future	
T-13*	Marine Corps Proj. 24	Marine Corps	Voice of America Relocation (Marine Corps Proj. 24)	CNMI-Saipan and Tinian	2014+	unknown	Relocate Voice of America facility to northern portion of Saipan.	115	
T-14	Commonwealth Ports Authority (CPA)	unknown	Harbor Rehabilitation Project	CNMI-Tinian	Ongoing	Ongoing	Power Builders International is presently upgrading dock surfaces, bulkheads, and bollards.	Present	<i>De minimus</i> impacts
T-15	DPW	unknown	Marpo Valley Quarry (government)	CNMI-Tinian	2008 (FY)	CRMO application ongoing. CRM permit issued December 2008	Existing quarry operated by Power Builders International has to be relocated due to land lease to developers.	Present	Retain
T-16	Bridge Investment Group	Bridge Investment Group Mr. Phillip Long	Tinian Oceanview Resort	CNMI-Tinian	2009 (FY)	CRM permit issued January 2008; construction has been	This would be the second casino for Tinian and the first condominium project for the CNMI. It would also include 396 rooms and an 18-hole golf course. Construction to begin in 2009.	Present	Retain

#	Lead Agency or Proponent	Point of Contact at Lead Agency	Project Name/ Location	Area of Interest	Construction Year(s)	Status	Description (include purpose, scope, known issues)	Timeframe	Potential Impacts
						initiated			
T-17	Marianas Resort Development Group	MRDG, Mr. David Choi 670.235.0020	Matua Bay Resort and Golf Course	CNMI-Tinian	2009 for golf course; hotel and casino in later phase	CRM Permit issued December 2008; golf course under design	A 1,000-room hotel that would feature a golf course and a casino. The first phase of the doubled phased project will involve the construction of a 500-room hotel and an 18-hole golf course at an estimated cost of U.S. \$179 million. The second phase will include the completion of the facility.	Present	Retain
T-18	DPW	unknown	Landfill Project, western Tinian	CNMI-Tinian	TBD	NEPA final	Relocation of current landfill was pending DoD approval. As of November 2008, DoD was not taking action and CNMI was researching other potential locations.	Future	Retain
T-19	CUC	unknown	WWTP Project (government) , western Tinian	CNMI-Tinian	TBD	Awaiting final NEPA	Proposed Tinian WWTP to be co-located with proposed landfill.	Future	Retain
T-20	CPA	unknown	Tinian Airport	CNMI-Tinian	TBD	Ongoing	Project and construction specifics TBD.	unknown	Too speculative
T-21	CPA	unknown	Tinian Airport Instrument Landing System	CNMI-Tinian	TBD	unknown	ILS is necessary to attract tourists to the island and remove a level of danger for large aircraft. The bigger planes require the ILS. The funds are there. Need to expedite the process.	Future	There are no anticipated cumulative impacts
T-22		unknown	Reconstruction of Roads	CNMI-Tinian	TBD	Ongoing	Reconstruction of Broadway and 8 th Avenues along existing alignments	Past	<i>De minimus</i> impacts
T-23	Neo Goldwings Paradise	unknown	Neo Goldwings Paradise Casino on Tinian	CNMI-Tinian	TBD	Provisional lease signed by Governor and submitted to Legislature in Dec. '08	To be located on public land at the north end of Tinian. Plans include a 1,000-room hotel, casino, observatory, sauna and fitness center, indoor ice skating rink, outdoor concert hall, amusement park, water park, 36-hole golf link, horse riding ground, yacht basin, hot air balloon area, and a Chamorro cultural village.	Future	Retain
T-24	unknown	unknown	Tinian and Rota Seaport Rehabilitation	CNMI-Tinian and Rota	TBD	unknown	Critical to help improve the port. Although these projects require a plethora of planning, environmental studies and have a level of high costs, these are critical to every aspect of these islands economy. A continuing decline in their condition will cause economic damage to these islands. Tinian - \$45,000,000 Rota - \$20,000,000 Comprehensive Economic Development Study (January 2009)	unknown	Too speculative
T-25	CNMI DPW	GovGuam	2030 CNMI Transportation Plan	Tinian	TBD	This plan guides federally - funded transportation projects from 2010 to 2030	This plan involves repairs and upgrades of Tinian transportation network. Projects are funded by FHWA and other sources.	Future	There are no anticipated cumulative impacts
T-26	CNMI DPW	GovTinian	Territorial Transportation Improvement Plan (TTIP)	Tinian	2008-2011	In place	Short-term federally-funded transportation projects (two projects).	Present	Both projects are CATEX. There are no cumulative impacts

Notes:

* Identified in the *Training Concept Plan (Marine Forces Pacific 2009)*, but siting of the projects would need to be revisited after the ROD is issued for this EIS/OEIS. The project locations are too conceptual to site on a figure but they generally would be within the Military Lease Area
Bold: project identified on Figure 4.3-5.



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4.3.4 Cumulative Impact Assessment

The projects identified on Guam and Tinian as cumulative projects have some impacts or are likely to have some level of impact on virtually all of the resource areas identified in the EIS. Guam Cumulative Impacts

4.3.4.1 Guam Cumulative Impacts Assessment

The cumulative projects that were retained following the screening of the total cumulative project list (Table 4.3-1) for relevance are listed in Table 4.4-3. Based on the limited information available on the cumulative projects, a qualitative assessment was made regarding the potential impacts of the cumulative projects on resources. No attempt was made to distinguish between less than significant and significant adverse impacts. Beneficial impacts are indicated by “B” and adverse impacts are indicated by “X”. The number of projects that potentially have an adverse impact on each resource is totaled at the bottom of the cumulative project list. This number of projects with potential impacts may be an indicator of the magnitude of the cumulative project impact on that resource. The next line is the significant impact findings from Chapter 3 that summarized the preferred alternatives’ impacts. The final two lines of the table indicate if an additive impact on the resource is anticipated and whether the additive impact due to the preferred alternative is strong, moderate or low.

The preferred alternatives are likely to have an additive adverse cumulative impact to five resources: noise, land use/ownership, terrestrial biology, utilities and roadways, and socio-economics. The preferred alternatives noise impacts are due to roadways primarily but there are also localized nuisance noise impacts associated with the training ranges on the east coast. The additive impact is low because noise impacts are by nature localized. The cumulative projects and preferred alternatives are geographically distinct.

The preferred alternatives significant impacts were largely due to the forced sale of private land to the federal government there are also some land use inconsistencies notably around the proposed east coast firing ranges. None of the cumulative projects listed involved acquisition of land by a government entity; therefore cumulative impact is low. The assumption is that new land development projects are being approved and developed in accordance with local master plans and zoning; therefore the preferred alternatives would have low additive impact on cumulative projects’ impacts.

Without site specific terrestrial biology data for all the proposed development areas, the assumption is that all projects would adversely impact terrestrial biological resources. The preferred alternatives would have an additive cumulative impact that is considered strong because of the magnitude of area disturbed.

Most developments would increase demand on utilities and use of specific roadways. The preferred alternatives would have an additive adverse impact on utilities and roadways. The additive impact would be strong due to the large population increase on island. The cumulative project subdivisions would shift the location of existing island population and not necessarily be due to new populations. An exception is new hotels that would support an increased transient population.

The socioeconomic impacts of the preferred alternatives would have a strong additive impact on the cumulative projects impact. As described under the utilities and roadways discussion it is the influx of population to support the preferred alternatives that triggers the socioeconomic impacts. Most of the cumulative projects are not growth-inducing.

Table 4.3-3. Summary of Potential Impacts to Resource Area – Guam Projects

#	Lead Agency or Proponent	Project Name/ Location	Potential Impacts to Resources														
			Water / Wetlands	Air Quality	Noise	Air Space	Land Use/Ownership	Recreation	Terrestrial Biology	Marine Biology	Cultural	Visual	Marine Transportation	Utilities/Roadways	Socio-economics	Hazardous Materials	Public Health & Safety
Guam – General Actions																	
1	Core Tech	Ironwood Estates (affordable housing)	X				X		X		X	X		X	B		B
4	Commander Navy Region (COMNAV) Pacific	MIRC EIS	X	X	X				X	X	X				X		
5	Department of Public Works (DPW)	2030 Guam Transportation Plan	X	X	X				X	X	X				X		
7	Guam Department of Corrections	Territorial Prison							X		X			X	X		B
Guam - North																	
N-3	Air Force/GEPA	Urunao Dump Clean Up	B				B					B				B	B
N-6	36 WG of the Pacific Air Forces (PACAF)	Beddown of Training and Support Initiatives at NWF		X					X		X			X	X		
N-7	36 WG of the Pacific Air Forces (PACAF)	ISR Strike Capability, Andersen AFB	X	X	X				X	X	X				X		
N-8	Base Corp.	Paradise Estates, Yigo					X		X		X		X	X			
N-10	36 WG of the PACAF	Various small scale- projects at Andersen AFB					X		X		X		X	X			
N-14	GLUC ^{2,3}	Conditional Use Request	X				X		X		X		X	X			
N-15	GLUC ^{2,3}	Subdivision Variance Request	X				X		X		X		X	X			
N-16	GLUC ^{2,3}	Tentative Subdivision Approval	X				X		X		X		X	X			
N-17	GLUC ^{2,3}	Wetland Permit	X							X							
N-19	Private	Villa Pacita Estates	X				X		X		X		X	X			

#	Lead Agency or Proponent	Project Name/ Location	Potential Impacts to Resources															
			Water / Wetlands	Air Quality	Noise	Air Space	Land Use/Ownership	Recreation	Terrestrial Biology	Marine Biology	Cultural	Visual	Marine Transportation	Utilities/Roadways	Socio-economics	Hazardous Materials	Public Health & Safety	Environmental Justice & Protection of Children
	Development																	
Guam - Central																		
C-4	TBD	Residential construction, Tamuning (private)	X				X	X	X		X	X	X	X	X			
C-5	Private Development	Talo Vista Tower					X	X	X		X	X	X	X	X			
C-6	Core Tech	Workforce housing					X		X		X	X	X	X	X			
C-7	Private Development	Ypao Resort	X				X		X		X	X	X	X	X	X		
C-8	Private Development	Emerald Ocean View Park	X				X		X		X	X	X	X	X			
C-9	Unknown	Veterans Clinic					X		X		X		X	X	B	X	B	B
C-10	Navy	Defense Access Road	X	X			X		X		X		X					
C-12	Private Development	Hotel Construction Bayview 5 Luxury Project, Tumon Bay	X				X	X	X		X	X	X	X	X	X		
C-13	BUMED	Bureau of Medicine Naval Replacement Hospital Project					X				X			X		X	B	
C-14	Private Development	Hemlani Apartments					X		X		X		X	X	X			
C-15	Guam International Airport Authority (GIAA)	Guam International Airport Improvements	X		X									B				
C-16	GovGuam and the U.S. Navy	Reforestation of Masso Reservoir	B						B	B								
C-17	Private Development	Ino Corp Development	X				X		X		X		X	X	X			
C-18	GLUC ^{2,3}	Conditional Use Request	X	X		X	X		X		X		X	X	X			

#	Lead Agency or Proponent	Project Name/ Location	Potential Impacts to Resources															
			Water / Wetlands	Air Quality	Noise	Air Space	Land Use/Ownership	Recreation	Terrestrial Biology	Marine Biology	Cultural	Visual	Marine Transportation	Utilities/Roadways	Socio-economics	Hazardous Materials	Public Health & Safety	Environmental Justice & Protection of Children
C-19	GLUC ^{2,3}	PUD - Amendment	X	X		X	X	B	X		X		X	X	X			
C-20	GLUC ^{2,3}	Seashore Clearance Request	X					B		X	X		X	X	X			
C-21	GLUC ^{2,3}	Subdivision Variance Request	X	X		X	X		X		X		X	X	X			
C-22	GLUC ^{2,3}	Tentative Development Plan Application	X	X		X	X		X		X		X	X	X			
C-23	GLUC ^{2,3}	Tentative Subdivision Approval	X	X		X	X		X		X		X	X	X			
C-24	GLUC ^{2,3}	Wetland Permit	X						X									
C-25	GLUC ^{2,3}	Zone Change Request	X			X	X	B	X		X		X	X	X			
C-27	unknown	Subdivision	X			X		X	X		X		X	X	X			
Guam - Apra Harbor																		
AH-4	CNM	Orote Magazines (P-425)					X		X							B	X	
AH-8	Port Authority of Guam (PAG)	Guam Port	X	X		X	X			X			B	X	B	X		
AH-9	PAG	Guam Port	X	X		X	X			X			B	X	B	X		
AH-10	CNM	Kilo Wharf Extension (P-502)	X				X			X			B	X			X	
AH-11	CNM	X-Ray Wharf Improvements (P-518)	X				X			X			B					
AH-16*	MARFORPAC	Amphibious Training, Dadi Beach (Marine Corps Proj. 10)	X		X		X	X		X		X						
AH-17*	MARFORPAC	Amphibious Training, Tiplao Beach (Marine Corps Proj. 11)	X		X		X	X		X		X						
AH-18*	MARFORPAC	Amphibious Training, Boat Ramp and Overland Route	X		X		X	X	X	X		X						
AH-21	CNM	Mitigation for Kilo Wharf Extension	B						B	B								
Guam - South																		
S-1	USFWS	Draft Safe Harbor Agreement, Cocos Island							B									
S-2	DPW	New Landfill, Dandan	X		X		X		X			X		X			B	

#	Lead Agency or Proponent	Project Name/ Location	Potential Impacts to Resources															
			Water / Wetlands	Air Quality	Noise	Air Space	Land Use/Ownership	Recreation	Terrestrial Biology	Marine Biology	Cultural	Visual	Marine Transportation	Utilities/Roadways	Socio-economics	Hazardous Materials	Public Health & Safety	Environmental Justice & Protection of Children
S-7	GLUC ^{2,3}	Wetland Permit	X						X									
Number of Cumulative Projects potentially adversely impacting resources island-wide			35	12	8	9	32	7	34	12	31	11	23	31	21	6	2	0
Summary Impacts: Preferred Alternatives significant impacts (from Chapter 3)					SI		SI		SI-M					SI-M	SI-M			SI-M
Preferred Alternatives impacts may be additive to cumulative project impacts? yes[Y]/no[N]			N	N	Y	N	Y	N	Y	N	N	N	N	Y	Y	N	N	N
Degree of additive impact? S-strong; M-moderate; L= low					L		L		S					S	S			

Legend: B= Beneficial impact, X= Adverse impact; blank cell = no or minimal impact anticipated SI = Significant impact; SI-M = significant and mitigable to less than significant

4.3.4.2 Tinian Cumulative Impacts Assessment

The cumulative projects that were retained following the screening for relevance are listed in Table 4.4-4. The criteria for dismissal are listed in Section 4.2. Based on the limited information available on the cumulative projects, a qualitative assessment was made regarding potential impacts of the cumulative projects on resources. Beneficial impacts are indicated by “B” and adverse impacts are indicated by “X”. No attempt was made to distinguish between less than significant and significant adverse impacts. The number of cumulative projects that potentially have an adverse impact on each resource is totaled at the bottom of the cumulative project list. This number of projects with potential impacts may be an indicator of the magnitude of the cumulative project impact on that resource. The next line is the significant impact findings from Chapter 3 that summarized the preferred alternatives’ impacts. The final two lines of the table indicate if the preferred alternative would have an additive impact on the resource and whether the additive impact due to the preferred alternative is strong, moderate or low.

Four resources on Tinian would be subject to additive impacts due to preferred alternatives. The impacts identified to land use in the preferred alternatives is related to the potential loss of agricultural leases and decline in agricultural lands available. The resorts’ development would remove additional land from potential agricultural use.

Any ground disturbance could potentially result in terrestrial biological impacts and the preferred alternatives could be moderately additive to the impacts from the cumulative projects, which disturb far greater land area than the preferred alternative.

Visual impacts under the preferred are limited to the view from Mt Lasso. The planned resorts would have a much more substantial impact on visual resources than the preferred alternatives; therefore the additive impact of the preferred alternatives on the cumulative project impact on visual resources would be minor.

The socioeconomic impacts of the preferred alternatives would be additive to the cumulative projects’ impacts. The impact would be strong due to restricted public access to key tourist sites on Tinian, while the cumulative projects would have largely beneficial impacts on socioeconomics.

The impact to wetlands under the preferred alternatives would be a significant mitigable impact, but the cumulative projects may not impact wetlands. There would be no additive impact.

The preferred alternatives would have a significant impact on environmental justice issues. The proposed action would have disproportionate impacts to racial minorities on the island of Tinian in terms of recreational and cultural resources, socioeconomics, and terrestrial biology. People with low incomes are likely to be adversely affected by restricted access to historic and cultural sites in the currently leased areas of the island. Further, Tinian ranchers and locals who pick and sell wild chili-peppers from the leased land would be restricted from accessing the land needed to perform their work. The cumulative projects would not likely impact environmental justice; therefore there is no additive cumulative impact.

Environmental justice significant mitigable impacts were identified under the preferred alternatives related to traffic and limited access to cultural and recreational resources. The cumulative projects did not have obvious environmental justice issues; therefore, the cumulative impacts are not additive.

Table 4.3-4. Summary of Potential Impacts to Resource Area – Tinian Projects

#	Lead Agency or Proponent	Project Name/ Location	Potential Impacts to Resources																
			Geology and Soils	Water / Wetlands	Air Quality	Noise	Air Space	Land/submerged land Use	Recreation	Terrestrial Biology	Marine Biology	Cultural	Visual	Marine Transportation	Utilities / Roadways	Socio-economics	Hazardous Materials	Public Health & Safety	Environmental Justice & Protection of Children
CNMI-Tinian																			
T-2 to T-13	Marine Corps	Various training ranges	X	X		X	X	X	X	X	X	X	X	X	X	X	X		
T-15	DPW	Marpo Valley Quarry (government)	X		X	X		X		X		X							
T-16	Bridge Investment Group	Tinian Oceanview Resort	X						B	X			X	X	X	B	X		
T-17	Marianas Resort Development Group	Matua Bay Resort and Golf Course	X					X	B	X			X	X	X	B	X		
T-18	DPW	Landfill Project, western Tinian	X	X	X			X		X		X					X	B	
T-23	Neo Goldwings Paradise	Neo Goldwings Paradise Casino on Tinian	X	X	X	X		X	X	X	X	X	X	X	X	B	X		
Number of Cumulative Projects potentially adversely impacting resources island-wide			6	3	3	3	1	5	2	6	2	4	4	4	4	1	5	1	0
Summary Impacts: Preferred Alternatives significant impacts (from Chapter 3)				SI-M				SI-M		SI-M			SI-M			SI-M			SI
Preferred Alternatives impacts additive to cumulative project impacts? yes[Y]/no[N]			N	N	N	N	N	Y.	N	Y	N	N	Y	N	N	Y	N	N	N
Degree of additive impact? S-strong; M-moderate; L= low								S		S			L			S			

Legend: X= potential adverse impact; B= potential beneficial impact; blank cell = no or minimal impact