

CHAPTER 1.

PURPOSE OF AND NEED FOR ACTIONS

Volume 6 of the Guam and Commonwealth of the Northern Mariana Islands (CNMI) Military Relocation Environmental Impact Statement (EIS) evaluates proposed utilities and roadway improvements on Guam.

The proposed military relocation on Guam for the United States (U.S.) Marine Corps (Marine Corps), the Navy aircraft carrier berthing, and the Army Air and Missile Defense Task Force (AMDTF) would increase the demand for power, potable water, and wastewater utilities. The military relocation would also affect the remaining life of existing solid waste facilities and the demand for the new Government of Guam (GovGuam) Layon Landfill in Dandan. The proposed actions would also require roadway improvements.

For utilities, the Navy conducted several studies to identify the Guam utility improvements required to accommodate the proposed action. These studies were for power, potable water, wastewater, and solid waste and sought to quantify the increased Department of Defense (DoD) demand that would result from the military relocation and to develop utility solutions to meet those projected demands. The populations on which these utility studies were based are summarized in the individual utility studies (Naval Facilities Engineering Command (NAVFAC) Pacific 2008, 2010a, b, c, d). These studies accounted for projected increases in DoD personnel and their dependents, increases in the on base civilian workforce required to support the military relocation, construction worker demands, induced civilian growth, and expected normal civilian population growth from the socioeconomic studies cited within this EIS. These studies were updated since issuing the Draft EIS, thus the supplementary analysis letter reports (as referenced in the Draft EIS as NAVFAC Pacific 2009a, b, c) cited in the Draft EIS are no longer necessary or pertinent. Those supplementary analysis letter reports were prepared to document the changes between the power, potable water, and wastewater utility discussions presented in the Draft EIS and the original studies. Therefore, only the updated utility studies are referenced in this Final EIS.

The utility and roadway alternatives are tied to the alternatives for the main NEPA actions: the Marine Corps Relocation, the Marine Corps Relocation CNMI, the Aircraft Carrier Berthing, and the Army Air & Missile Defense Task Force. The utility and roadway alternatives are evaluated as options for the best approach considering their impacts to the various resource categories, but are not independent alternatives themselves. Since the utilities are related actions, the “no action” alternative is not really pertinent to their analyses and presentation. Thus, in Volume 6, “no action” is not evaluated for utilities. However, Volume 6, Chapters 3 and Chapter 4, Affected Environment, characterize the existing utility and roadway conditions that would likely continue in the absence of the proposed Marine Corps, Navy, and Army actions.

During production of the EIS and on a continuing basis, DoD representatives have been meeting regularly with Guam Power Authority (GPA) and Guam Waterworks Authority (GWA) to discuss the utility needs both on and off base related to the proposed military relocation. Discussions have centered on defining needed utility upgrades, identifying the best technical solutions for these upgrades, and developing business options to implement the technical solutions and lead toward viable utility solutions both on base and off base. These meetings have resulted in significant progress. Draft Memoranda of Understandings (MOUs) have been developed to solidify cooperative arrangements discussed for the future utility needs of DoD and to address GWA utility shortfalls related to the proposed military relocation. The following summarizes the discussions to date.

Power:

- Concurrence has been obtained from GPA on the proposed reconditioning of existing GPA generating facilities for reliability/reserve power, capacity, and upgrades to the GPA transmission and distribution system to meet increased power demand from the proposed military relocation. This was accompanied by a reassessment of current power demands on the GPA system and estimated new power demand associated with the proposed military relocation.
- Discussions continue on the best business approach to facilitate the required power system upgrades. The approach could involve a Special Purpose Entity (SPE), which would likely be a private business entity formed to finance and refurbish and upgrade the GPA utility systems. It is anticipated that this SPE would utilize Government of Japan (GoJ) financing provided in accordance with the Realignment Roadmap (see Volume 1 Executive Summary for more details on the Realignment Roadmap and GoJ funding). Alternatively, GoJ financing could be provided to GPA to conduct the refurbishment and upgrades. The precise manner in which these SPE business entities would operate is under development, and therefore is not known at this time.
- The power facilities associated with the military relocation may be operated by the SPE or by GPA. Fees generated through utilities service contracts could be used to repay financing costs. The DoD rate structure would reflect current rates adjusted for inflation.
- It is anticipated that a transient aircraft carrier and its escort ships would rely on shoreside utility infrastructure for water, wastewater, and solid waste after 2015. Electric power would be provided in accordance with customer service agreements between GPA and the U.S. Navy. Any GPA commitments for additional power to support the aircraft carrier and its escort ships will be determined by future CSA modifications. Any required changes in the shoreside power infrastructure or their operations to meet the requirements for the aircraft carrier and its escort ships may require additional NEPA review.

Water:

- GWA and DoD have agreed to develop a joint management team to manage the use of the Northern Guam Lens aquifer (NGLA). This team would include experts from DoD, GWA, GEPA, USEPA Region 9, the U.S. Geological Service, and the University of Guam Water and Environmental Research Institute. The draft MOU between DoD and GWA includes provisions related to this joint management team and the cooperative management of the NGLA.
- Discussions continue on the best business approach to facilitate the required water system upgrades. This approach could involve an SPE, which would likely be a private business entity formed to finance, develop, upgrade, operate and manage on and off base potable water infrastructure associated with the military relocation. It is anticipated that this SPE would utilize GoJ financing provided in accordance with the Realignment Roadmap. The precise manner in which these SPE business entities would operate is under development, and therefore is not known at this time.
- DoD is proposing to transfer currently available excess water capacity and additional excess water capacity from newly developed wells, from DoD-operated systems to GWA. This action would alleviate water shortages in the GWA system during the construction phase of the proposed military relocation that may result from civilian population growth and the

construction workforce accompanying the military relocation. The draft MOU between DoD and GWA includes provisions related to the cooperative use of water resources on Guam.

- DoD is proposing to expedite the installation of new DoD water extraction wells to assist GWA in alleviating water shortages in the GWA system during the construction phase of the proposed military relocation.

Wastewater:

- Discussions continue on the best business approach to facilitate the required wastewater system upgrades. This approach could involve an SPE, which would likely be a private business entity formed to finance, operate, manage, upgrade, or develop wastewater infrastructure. It is anticipated that this SPE would utilize GoJ financing provided in accordance with the Realignment Roadmap. Alternatively, GoJ financing could be provided to GWA to conduct the upgrades. The precise manner in which these SPE business entities would operate is under development, and therefore is not known at this time.
- The Northern District Wastewater Treatment Plant (NDWWTP) may be operated by the SPE and fees generated through utilities service contracts could be used to repay financing costs. The DoD rate structure would reflect current rates adjusted for inflation.
- Although the U.S. Government has not yet ordered the implementation of secondary treatment for Guam's wastewater treatment plants, DoD, USEPA Region 9, and GWA have agreed in principle to the upgrades required at the NDWWTP to achieve secondary treatment standards. Discussions regarding technical solutions and financing for other GWA wastewater treatment plants requiring secondary treatment and collection system upgrades, including the Hagatna WWTP, are on-going.

DoD will continue to coordinate with relevant GoJ agencies, Guam Consolidated Commission on Utilities, and other local authorities who are involved in the process of finalizing business structures and technical solutions to meet these program requirements.

The roadway improvements sections have been prepared jointly by the Federal Highway Administration (FHWA) as a federal cooperating agency, the Navy's Joint Guam Program Office as the federal lead agency for the Guam and CNMI military relocation, and the Guam Department of Public Works (GDPW) as a participating agency.

The utilities and off base roadway improvements are considered "related actions," in that they would be implemented only to satisfy the increased demand directly caused by the overall proposed actions. Therefore, the purpose of and need for the utilities and roadway improvements support the purpose of and need for each of the three major action components described in the following Volumes:

- Volume 2 (Marine Corps Relocation Guam)
- Volume 4 (Aircraft Carrier Berthing)
- Volume 5 (Army AMDTF)

The purpose of and need for each major action component is described in Chapter 1 of each of those Volumes. The purpose of and need for the utilities are to provide for the essential increased utility demands from the military relocation and induced growth. The purpose of and need for roadway improvements is described later in this chapter.

1.1 PURPOSE OF AND NEED FOR ROADWAY IMPROVEMENTS

1.1.1 Introduction

The Guam Road Network (GRN) is proposed to become Guam’s nonmilitary roadway system. Construction of the GRN is required to provide mission-critical transportation infrastructure as part of the planned construction, training, and operations associated with the three proposed military actions (Figure 1.1-1). First, the GRN must accommodate increased traffic from the island’s military relocation of approximately 8,600 Marines from the III Marine Expeditionary Force and their dependents from Okinawa by 2014. Aviation and waterfront operations; training; construction of the main cantonment, family housing, and associated utilities; and infrastructure improvements represent the scope of activities to be conducted in support of Marine Corps projects on the island. Roadway improvements are needed to support both construction of the facilities and the ensuing traffic related to the military relocation on Guam. Roadway improvements are also related to construction of operational facilities, the main cantonment, and family housing on Guam, and training to support the Marine Corps’ defensive mission.

Second, the roadway improvements are related to Navy initiatives associated with an increase in aircraft carrier presence to support engagement and deterrence consistent with the global shift of trade and transport. A new deep-water wharf at Apra Harbor is needed to support the increased Navy presence and port visits associated with a carrier support group.

Third, the roadway improvements are related to construction of operational facilities, training, and construction of the main cantonment and family housing on Guam, and training to support the AMDTF and its defensive mission.

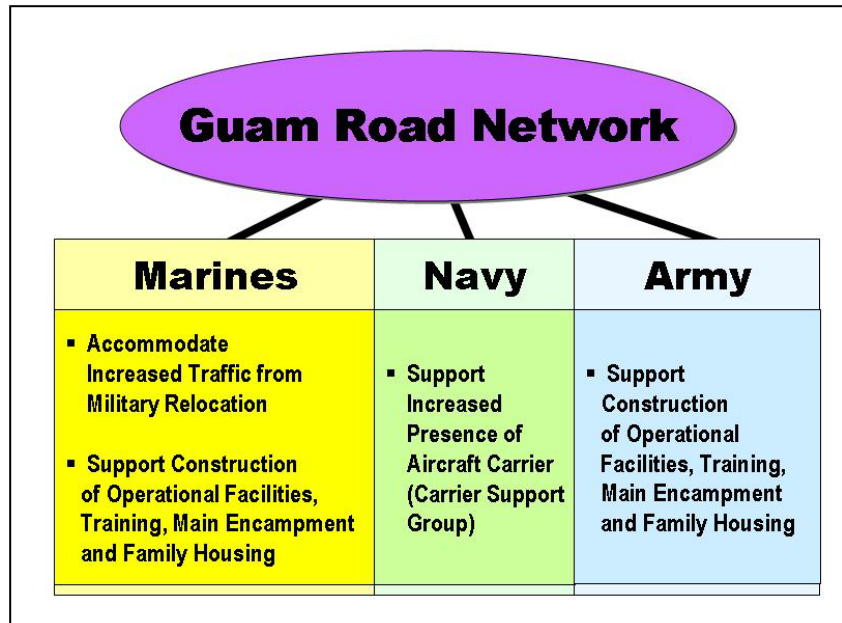


Figure 1.1-1. Connectivity of the Guam Road Network

1.1.2 Project Purpose

The purpose of the proposed construction of the GRN is to improve the existing network through the Defense Access Road (DAR) program, or other funds, and provide mission-critical transportation infrastructure as part of the planned military relocation. The improvements proposed for the GRN would result in strengthened roadways, bridge replacements, increased roadway capacity, roadway realignment (Route 15), new access, and enhanced roadway safety on Guam as a response to construction for the military relocation and growth.

1.1.3 Project Need

An improved network of roads on Guam is needed as part of the mission-critical infrastructure to support planned relocation of Marines and their dependents, as well as to accommodate ongoing growth on the island. The island of Guam is experiencing a variety of roadway problems: inadequate bridges; flooding roads; poor lane visibility as a result of tight corners; poor lane striping, lighting, and lane geometry; locations with a significant number of accidents; landslides; eroding embankments; and inadequate intersection traffic control. The existing roadways connecting the population centers and DoD lands on Guam are shown in Figure 1.1-2.

Because the existing roadway network is deficient, traffic problems on Guam would be worsened and traffic impacts would occur as a result of the planned relocation of Marines and their dependents. Without improved roads and bridges, the movement of people, materials, equipment, and waste associated with construction and operations would result in severe congestion in many locations. If these roadway and bridge projects are not implemented, the resultant wear and tear on existing roads could severely limit the construction schedule.

To meet these needs, the proposed GRN improvements would include roadway widening, intersection improvements, bridge replacements, and pavement strengthening at specific locations islandwide, as well as the realignment of Route 15. These improvements are needed to reduce traffic congestion during the construction period from 2010 through 2016, with peak construction and peak population in 2014, and the ensuing traffic increase from full military relocation combined with projected organic growth. The transportation network should become an integral component for fulfilling the U.S. defense strategy and alliance requirements. The network would also enhance the ability of the AMDTF to defend critical military assets on Guam. The need for the proposed action is explained in further detail in Section 2.5.1.

1.1.4 Project Location, Funding, and Setting

The locations of the GRN projects are islandwide as shown in Figure 2.5-6. The off base roadway projects may be funded through the DAR program and annual allocations through the U.S. Department of Transportation FHWA and/or other DoD/FHWA special funding allotments. The DAR program provides the means for the DoD to pay a fair share for public highway improvements required as a result of a sudden or unusual defense-generated traffic impact or unique defense-related public highway requirement¹.

For the DoD to obtain funding of off base roadway improvements, any of the following DAR criteria must be met:

- A new access road to a facility is needed.
- A defense action would cause traffic to double.
- A new or improved access road is needed to accommodate a temporary surge in traffic associated with a defense action.
- A new or improved road is needed to accommodate special military vehicles.
- A road is needed to replace one closed for defense needs.

¹ An unusual impact could be a significant increase in personnel at a military installation, relocation of an access gate, or the deployment of an oversized or overweight military vehicle or transporter unit.

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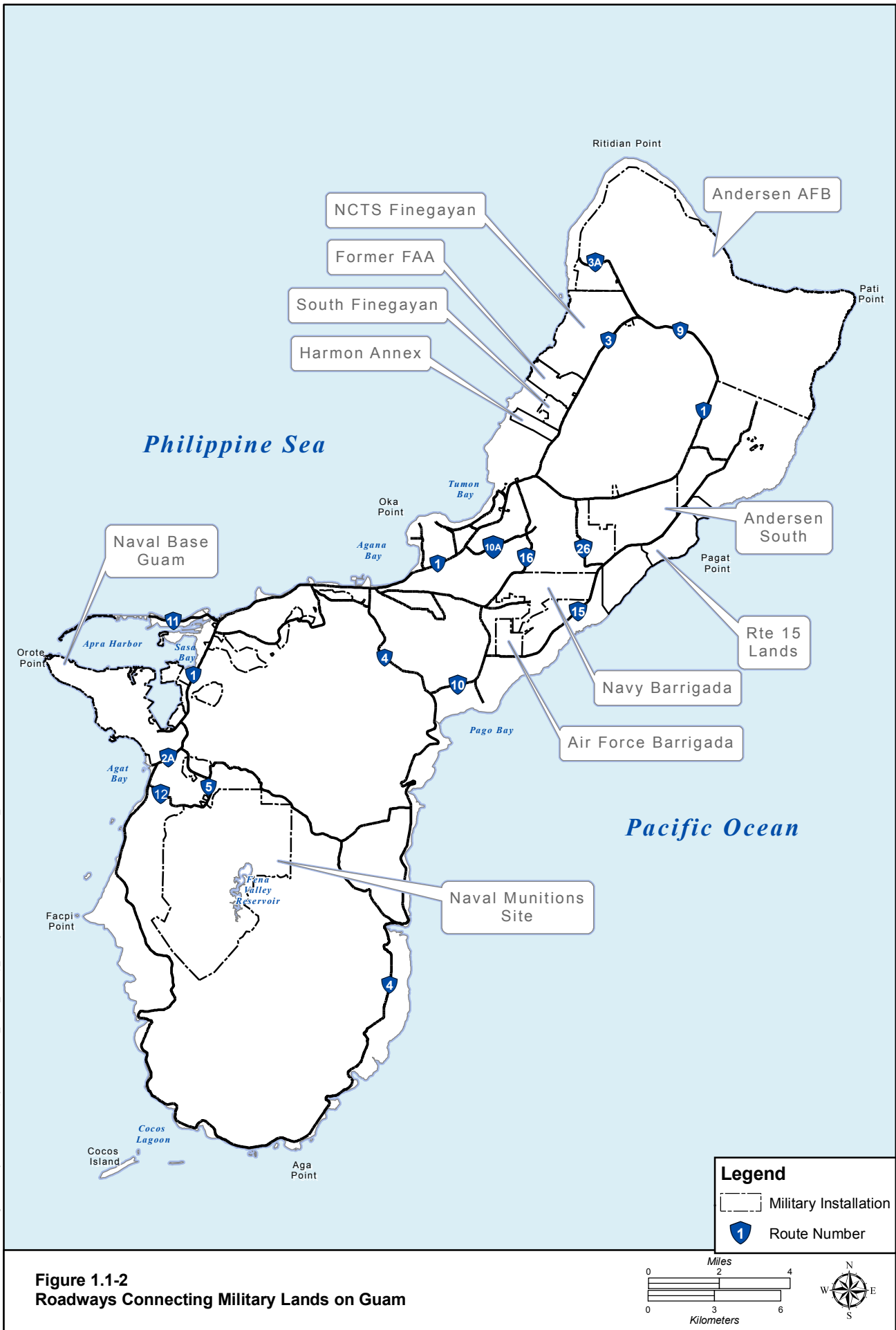


Figure 1.1-2
Roadways Connecting Military Lands on Guam

To initiate a DAR project, the local military base identifies the access or mobility needs and brings these deficiencies to the attention of the Military Surface Deployment and Distribution Command. The Surface Deployment and Distribution Command determines whether the proposed work/project/improvements are eligible for DAR funds and can certify the road as important to the national defense. Then, the military service requests funds for the project through their normal budgeting processes. Once the funds are provided by Congress, they are transferred to FHWA and allocated to the agency administering the project. Title 23 federal-aid procedures are followed in the design and construction of the project.

At this time, 58 individual off base roadway projects have been identified and proposed as part of the GRN as discussed in Volume 6, Chapter 2, Section 2.5.1.7. These 58 projects have been evaluated for DAR eligibility and eight have been DAR-certified. Eight additional projects were DAR-eligible. A summary of the funding status of these GRN projects is provided on Table 1.1-1.

The DoD is assisting the GDPW in its development of a capacity improvement project list for the off base roads under their jurisdiction to justify increasing the FHWA annual allocation for Guam.

The DoD would participate in a working group with the GovGuam to coordinate and manage the transportation system. The DoD, together with the GovGuam, would utilize a Pavement Management System², managed by GDPW, to prioritize and justify DAR funding for strengthening projects that would preserve and maintain the off base roadway infrastructure.

The setting for the project encompasses the primary roadway network for the entire island of Guam, composed of 20 federal-aid roadways and one local road totaling approximately 66 miles (106 kilometers) in length.

1.1.5 Governing Laws, Regulations, and Standards

Governing laws, regulations, and standards include the Council on Environmental Quality's Regulations for Implementing NEPA (40 Code of Federal Regulations [CFR] 1500-1508); FHWA environmental regulations (23 CFR 771); FHWA Technical Advisory T6640.8A (Guidance for Preparing and Processing Environmental and Section 4(f) Documents) (FHWA 1987); FHWA Section 4(f) Regulations (23 CFR 774—Parks, Recreation Areas, Wildlife and Waterfowl Refuges, and Historic Sites (Section 4(f))); and the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) (23 U.S. Code 139).

² Pavement Management System is a term that relates to a system that utilizes the condition coding of roadways coupled with the identification of strategies to determine maintenance or re-construction activities. The system involves identification of optimum strategies at various management levels to maintain pavements at an adequate level of serviceability. These include, but are not limited to, systematic procedures for scheduling maintenance and rehabilitation activities based on optimization of benefits and minimization of costs. A pavement management system is a planning tool that is able to model pavement and surface deterioration due to the effects of traffic and environmental ageing, and contains a series of decision units used to determine how and when to repair the roads surface based on various tests. It can be used to determine long-term maintenance funding requirements and to examine the consequences on network condition if insufficient funding is available. Pavement management systems are now used in all 50 states as well as other countries worldwide in order to efficiently manage the maintenance of paved roadway surfaces (Wikipedia 2010).

Table 1.1-1. Funding Status of GRN Construction Projects

<i>Fiscal Year</i>	<i>GRN Projects¹</i>	<i>Funding Status</i>
FY 2010	Intersection improvements at Route 1/8 (GRN #1)	These five high priority projects have been DAR-certified, authorized and appropriated.
	Intersection improvements at Route 1/3 (GRN #2)	
	Replacement of Agana Bridge on Route 1 east of Route 4 (GRN #3)	
	Pavement strengthening along Route 11 from Port to intersection with Route 1 (GRN #4)	
	Intersection improvements at Route 1/11(GRN #5)	
FY 2011	Pavement strengthening and widening (from 2 to 4 lanes) on Route 3 from NCTS Finegayan to Route 28; add median and shoulders. At the Route 3/28 intersection, add an additional southbound left-turn lane and add northbound right-turn lane. (GRN #9)	These three projects have been DAR-certified and are awaiting authorization and appropriation.
	MAP 2 on Route 3 at NCTS Finegayan Commercial Gate (GRN #38)	
	MAP 3 on Route 3 at NCTS Finegayan Main Gate (GRN #39)	
(TBD)	Relocation of Route 15 onto DoD land (GRN #36)	These eight projects have been determined to be DAR-eligible.
	MAP 8 on Route 1 at Andersen South Main Gate (GRN #44)	
	MAP 10 on Route 1 at Andersen South Secondary Gate (GRN #46)	
	Replace Atantano, Laguas, Sasa, and Fonte bridges. Replace box culvert at Asan #1 bridge (GRN #35) ²	
	MAP 16 on Route 12 at Naval Munitions Site – relocation to Harmon Road (GRN #52)	
	Pavement strengthening and widening on Route 3 from NCTS Finegayan to Route 9 (GRN #10)	
	Pavement strengthening (2 lanes) on Chalan Lujuna from Route 1 to Route 15 (GRN #11)	
	Pavement strengthening and widening on Route 9 from Route 3 to Andersen AFB North Gate (GRN #22)	

*Notes:*¹Refer to Volume 6, Figure 2.5-8 for GRN project locations.²For GRN #35, replacement of box culverts at Aguada and Asan #1 bridges would be funded by Department of Public Works in the future.*Legend:* AFB = Air Force Base; DAR = Defense Access Road; DoD = Department of Defense; FY = Fiscal Year; GRN = Guam Road Network; MAP = Military Access Point; NCTS = Naval Computer and Telecommunications Station; TBD = To Be Determined.

1.1.5.1 Least Environmentally Damaging Practicable Alternative

Volume 2, Chapter 4 contains an analysis of the Least Environmentally Damaging Practicable Alternative, which is required under the Section 404(b)(1) guidelines of the CWA. Specifically, Section 404(b)(1) of the CWA stipulates that no discharge of dredged or fill material into waters of the U.S., which include wetlands, shall be permitted if there is a practicable alternative (Least Environmentally Damaging Practicable Alternative) which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant environmental consequences. Furthermore, an alternative is considered practicable if it is available and capable of being implemented after taking into consideration cost, existing technology, and logistics in light of overall project purposes. The Section 404 (b)(1) guidelines are applicable to proposed actions that are analyzed in Volume 6.

1.2 DIRECT AND INDIRECT IMPACTS

The DoD's proposed action to relocate about 8,600 Marines to Guam and the Navy and Army actions covered by this EIS would create ripple impacts affecting Guam. Impacts can be identified as direct impacts or indirect (or induced) impacts. Direct and indirect impacts are defined by the Council on Environmental Quality in the CFR, Title 40 Part 1508. As described in Volume 1, Chapter 4, a direct impact is an effect caused by the proposed action and occurs at the same time and place.

1.2.1 Direct Impacts for Utilities and Roadways

For utilities and roadways, direct impacts generally relate to the demand for utility services and roadways by the military population and facilities. For the military relocation, direct impacts are under the control of the DoD. An indirect impact can be caused by the proposed action at a later time or further away from the proposed action, such as changes in population or land use. For utilities and roadways, indirect impacts generally relate to population growth outside of the base and the demand that this off base population would have on existing utilities and roads. Direct impacts related to utilities and roads are analyzed and discussed in detail in this Volume. Indirect impacts related to utilities and roads are also analyzed and discussed in this Volume, but their analysis is more general and qualitative in nature using readily available information from owners and operators of these systems, and from regulatory agencies.

1.2.2 Indirect Impacts for Utilities and Roadways

For utilities and roadways, indirect impacts generally relate to the increased demand for utility services and roadways by increases in the civilian population and facilities. There are two main contributors to the indirect impacts for utilities and roadways: the construction workforce that would come to Guam and induced civilian population growth from increased economic activity, both related to the proposed military relocation. Anticipated civilian population growth in absence of the military relocation has been considered in the forecast of future demand for utility services and roadways, but is not a major contributor.

In accordance with CEQ regulations (i.e. 40 CFR §1502.22), incomplete or unavailable information exists to enable a comprehensive understanding and assessment of the functionality, capacity, and condition of off-base water and wastewater systems owned and operated by GWA. As such, it is not possible to fully assess or determine the full significance of the indirect and cumulative impacts of the proposed action associated with induced civilian population growth and workforce housing and logistics. Because these off-base systems are owned and operated by GWA and regulated by USEPA and GEPA, DoD has no authority to conduct required surveys and assessments. Therefore, the DoD must rely on the information provided by these entities outlining the current conditions of these systems. Further, efforts to accurately survey, map, and assess the conditions of these systems would involve exorbitant costs and necessitate extensive excavation of neighborhoods and key roadways. Based on the best available information, which is presented in the following sections, DoD has identified, to the extent possible, the indirect and cumulative impacts of the proposed action associated with induced civilian population growth and workforce housing and logistics and their significance. In making these assessments, DoD employed industry and regulatory standards to make its determinations of impacts and significance.

1.2.2.1 Construction Workforce

Construction of facilities for the relocation is expected to bring a temporary population of off-island workers to Guam between the years 2010-2016. Housing would be provided for most of these workers by

the construction contractors. The DoD would not provide workforce housing. Navy-issued contracts would require construction contractors to provide housing for their workforce that meet Guam building codes and standards, which would include providing necessary utilities and associated permits.

Various proposals are being developed by potential contractors in anticipation of winning construction contracts. At this time, specific details about the timing and location for construction and/or renovation of housing to accommodate the construction workforce are incomplete, but one of the workforce housing projects has already commenced construction. As of March 2010, there were nine applications submitted to the Guam Department of Land Management, Division of Land Planning for temporary workforce housing facilities, which are in various stages of the approval process. The applications are for facilities that range in size from 30 living units to 18,000 (recently reduced to 14,000) living units in locations in the central and northern portions of Guam. The DoD has no decision-making authority related to these proposed construction workforce housing facilities, including which facilities should be approved and where they should be located. Approval of these facilities is the purview of GovGuam under its land use and zoning authorities. Additionally, the Record of Decision for the Marine Corps relocation would not cite or endorse specific proposals for workforce housing.

Utilities needed for workforce housing, including power, water, wastewater, and solid waste disposal, would be the responsibility of the individual construction contractors who provide the housing units. Coordination with Guam utility providers, including obtaining approvals and permits for connections to power, water, and sewer services, is the responsibility of the construction contractors and is not within DoD's control.

Environmental and public health impacts that could result from these facilities and their connection to off base Guam utilities are considered indirect impacts under this Final EIS. These indirect impacts are analyzed in the Final EIS using readily available information from GovGuam agencies and from USEPA Region 9. Because detailed information about the size, type, and location of these construction workforce housing units is undetermined at this time, and because it is unknown which facilities would be approved, the impact assessment in this Final EIS for these facilities as they relate to water, power, sewer, and solid waste demands has been based on these assumptions: two-thirds of the construction workforce would be housed in northern Guam and one-third in central Guam. This assumption is most important to the wastewater utility as the wastewater treatment plants serve certain geographic areas, while potable water, power, and solid waste are islandwide systems.

Construction workers that are working on the job site where DoD facilities would be built would be using utilities provided by the DoD at the work site, if available. But for a currently remote worksite, such utilities would be provided by the construction contractors who would likely obtain utility services from Guam civilian utilities.

1.2.2.2 Induced Civilian Population

In addition to construction workers, the relocation is expected to result in an influx of off-island people beginning in the year 2010. This population is referred to as an "induced population" and includes dependants of construction workers, and people who migrate to Guam in response to the economic growth that would be brought about as a result of the DoD relocation. This induced population would live and work off base, and obtain utilities services from existing GovGuam agencies. The DoD would not provide housing or utilities services for this induced population and has no authority to control where this population would live, work, or obtain services from the GovGuam.

Environmental and public health impacts that could result from these facilities and their connection to off base Guam utilities are considered indirect impacts under this Final EIS. These indirect impacts are analyzed in the Final EIS using readily available information from GovGuam agencies and from USEPA Region 9. Because detailed information about where this induced population would live and work is undetermined and would evolve over time, the impact assessment in this Final EIS for these facilities as they relate to water, power, wastewater, and solid waste demands is general and qualitative in nature.

Nonetheless, there has been a continuous dialogue in the last year between the DoD, USEPA Region 9, Guam Environmental Protection Agency, and Guam utility providers (e.g., GWA, GPA, and the Consolidated Commission for Utilities) to cooperatively identify strategies and solutions for on and off base utilities issues related to the relocation. The goal of these discussions is to improve the overall quality reliability of utilities on Guam for the benefit for all of Guam and working together to identify funding sources to implement these solutions. This Volume discusses these cooperative efforts in later chapters, particularly for potable water and wastewater issues.

1.2.2.3 Ability of Guam Utilities to Manage Indirect Impacts

The DoD acknowledges the current problems Guam has with some of their infrastructure, including utilities. These infrastructure issues are most pronounced in the areas of water, wastewater, and social services. The ability of Guam utilities to meet additional demands is questionable. The USEPA Region 9, working with the GovGuam has identified the need for an estimated \$1.3 billion (B) in funding to implement necessary water and wastewater infrastructure improvements that must be accomplished in the first five years to accommodate the military relocation.

GovGuam has an \$842M outstanding debt balance (164% of FY 2008 General Fund revenues) and pays \$76.2M in annual interest costs on that debt (15% of FY 2008 General Fund revenues). GovGuam, over the years, has used long-term debt financing to fund current operations and reduce annual budget deficits. As of 2009, these deficits have accrued to \$416M. Furthermore, GovGuam also has substantial unfunded pension liabilities (\$193M).

Strictly speaking, GovGuam does have \$34.7M remaining under its debt ceiling (a limit to governmental debt arranged in the Organic Act) but, for all intents and purposes, GovGuam would be better served by reducing debt rather than increasing it. The Guam Office of Public Accountability recommends that “Our government should strive to contain its spending and increase its revenues in order to have cash to pay down the deficit.”

Financial indicators published in 2010 state that GovGuam’s ratio of current assets to current liabilities is 0.28 to 1 (when an adequate ratio is 2 to 1) and GovGuam’s ratio of total cash to current liabilities is 0.08 to 1 (when a desirable ratio is 1 to 2). Furthermore, private sector analysis of GovGuam’s fiscal situation concluded that, based on data that show over 120% of GovGuam’s assets are funded with debt or other obligations, GovGuam’s fiscal condition is currently in the worst shape it has been in since, at least, 2003.

In addition to the financial problems of GovGuam, “component units” of GovGuam such as the GPA, GWA, and A.B. Won Pat Airport hold steep debt balances and are in poor fiscal health. As of the end of FY 2008, “component units” of GovGuam held a principle balance on bonds payable of \$767 million. If these bond obligations were to be paid off under current schedules it would cost these agencies, including interest, over \$1.3B. It is likely that this level of debt can never be repaid. For instance GPA has received two notices of default since March, 2009 with the defaults due, in large part, to lack of payment by other GovGuam component units. (Sources):

- Basic Financial Statements, Additional Information and Independent Auditors' Report (GovGuam 2008:80)
- Guam Economic Development Authority Fiscal Year 2009 (Guam Office of Public Accountability 2010a)
- Guam Economic Development Authority FY 2009 Financial Highlights (Guam Office of Public Accountability 2010b)
- Office of Public Accountability Annual Report Calendar Year 2009 (Guam Office of Public Accountability 2010d)
- Guam Power Authority FY 2009 Financial Highlights (Guam Office of Public Accountability 2010c)

Recent changes on Guam now allow utilities to levy a fee on new developments to assist in providing utility services to those new developments. That would enhance available funds to the Guam utilities, but may not be sufficient or timely.

DoD recognizes the constraints on GovGuam to be able to address these indirect impacts of the proposed military relocation. DoD is seeking financing from the Government of Japan (GoJ) for water and wastewater improvement projects that would support the U.S. Marine Corps move pursuant to the terms of the Realignment Roadmap Agreement between the U.S. Government and the GoJ. The Realignment Roadmap and more specifics on the financing being sought is described in the Executive Summary of Volume 1.

In addition to DoD's efforts to secure funding with GoJ, the Council on Environmental Quality has also facilitated interagency discussions with DoD and appropriate federal agencies to identify the specific projects, the of level of funding, and source of funding for necessary water and wastewater infrastructure improvements that must be accomplished in the first five years of the military relocation effort. Although no validated estimates are yet available, a preliminary estimate has these various projects totaling approximately \$1.3B over the five year period. These estimates are based on a conceptual cost analysis conducted by USEPA Region 9, and continue to be refined.

The Economic Adjustment Committee (EAC) is evaluating overall Guam civilian hard (e.g., facilities) and soft (e.g., manpower, operations & management) infrastructure needs, including those associated with the proposed DoD relocation. As part of this evaluation the EAC is specifically examining federal funding options for the remaining portion of the estimated \$1.3B water and wastewater improvements that may not be provided by GoJ financing.

In addition, the DoD could utilize force flow reduction and/or adaptive program management of construction to reduce population growth rates and when the peak growth would occur to reduce these indirect impacts. These concepts are presented in Volume 7.

1.3 NON-DECISION POINT ACTIONS

The DoD's proposed action to relocate about 8,600 Marines and their dependents to Guam and the Navy and Army actions covered by this Final EIS would create ripple impacts affecting Guam. Effects on some resource areas could occur but may not be discernable as direct and indirect impacts. This section discusses planned Port Authority of Guam facilities and potential impacts on the A.B. Won Pat International Airport that are related to the proposed action, but are not in the DoD's control.

1.3.1 Port of Guam

The Jose D. Leon Guerrero Commercial Port (also known as the Port of Guam [Port]) is located in the northern portion of Outer Apra Harbor. It is the only port on Guam and more than 90% of all imported goods and materials come through the Port. This makes the Port an essential facility that supports the entire population of Guam. The proposed military relocation on Guam would create an increased demand for imported goods and materials (especially construction supplies, equipment, and materials) that would be shipped to Guam. Also, during the peak years of construction, goods and other supplies would be required to support the estimated off-island construction workers and induced population. Long-term operational impacts include importing supplies, goods, and materials that would support the additional permanent population created by the proposed action.

The Port is administered by the Port Authority of Guam and operates as a semipublic organization.

Since its construction in 1969 the Port has remained largely unchanged. With many areas near capacity or unusable, expanding the Port's facilities and equipment upgrades would create operational efficiencies and maximize Port capacity. Before the news of the proposed military relocation, Port improvements and expansion were under consideration. However, the proposed military relocation created an additional impetus to implement planning studies and improvements to service the anticipated construction work and additional population.

In August 2007, work began to update the Port's master plan. The recommendations and updates address future expansion and development based on typical commercial growth, as well as the impending military relocation. Needs assessments for the proposed military relocation on Guam were based on preliminary information about cargo volumes and personnel relocation provided by the Joint Guam Program Office. A final draft Port master plan was completed in April 2008, which updated the master plan and set the road map for upgrading the facilities. The master plan for the Port calls for nearly \$200M in capital improvement upgrades to the Port facilities to support the military relocation. The modernization program, which was granted conditional approval from the Guam Legislature in December 2008 would address both Guam's expected growth without the proposed action and the anticipated increase in cargo volume resulting from the proposed action.

There are three phases to the Port modernization program: IA, IB, and II (Rosenthal 2010), as follows:

- Phase IA: The focus is on productivity and efficiency improvements, such as new equipment, systems, and buildings, and terminal modernization and new yard capacity. Elements include demolition of buildings; installation of utilities; terminal yard paving and upgrade of pavement; installation of high mast lighting; installation of water, sewer, stormwater, and fire protection systems including installation of new stormwater outfalls into Apra Harbor; installation of security systems; and new cargo handling and equipment systems. The project would significantly increase the operating efficiency and capacity of the terminal by an eastward extension of useable terminal area and through modernization of upland port facilities, equipment, utilities, and systems including new gate systems with automated gate technology and modern truck scanning equipment.

Preliminary design of Phase IA Port expansion was recently completed. The Environmental Assessment for Phase IA is anticipated to be completed in August 2010. The preparation of permit applications is expected to be completed by the end of 2010. Full funding for the proposed work is anticipated in 2011 and construction would be completed in 2013 (Rosenthal 2010).

- Phase IB: The focus is on structural refurbishment of existing docks (F4, F5, and F6), modernization of terminal areas to the west and acquisition of cranes. It includes dredging to increase berth depths at F4, F5, and F6 to -42 feet (-13 meters) mean lower low water and security equipment and process improvements to meet International Ship and Port Facility Security Code requirements. Construction would last approximately two years. The preliminary design, preparation of permit applications, and the NEPA process would start as soon as funding has been identified (Rosenthal 2010).
- Phase II: The focus is on construction of a new berth F7 and additional terminal capacity to the east to meet long-term organic growth. Creation of the new berth F7 would require some land reclamation (i.e., placement of fill in Apra Harbor), removal of existing derelict vessels, and the addition of 900 feet (274 meters) of berthing/wharf space. Dredging would also be included. Execution of this phase is likely 20 or more years into the future and funding has not been identified (Rosenthal 2010).

Funding for the Port's improvements (modernization) and expansion is anticipated to come from various federal agencies, GovGuam, and private sources. The funds for capital improvements would likely be repaid through user fees that would then be passed on to consumers, businesses, and other entities (i.e., DoD). While the DoD is not directing the Port improvements, an amendment to the 2010 Defense Appropriations Bill is proposed in Congress, which calls for the transfer of \$50M of DoD FY10 funds to the Department of Transportation to fund Phase I of the port improvements.

The modernization projects are also included in the cumulative impacts discussion of Volume 7, Chapter 4.

1.3.2 A.B. Won Pat International Airport

The A.B. Won Pat International Airport (Airport) is a primary regional airport serving passenger and cargo needs between Guam and the U.S., Asia, Australia, and various islands in the Pacific region. There are numerous capital improvement projects planned under Project Airport Guam. Construction has begun on some projects but they are phased for completion through 2030. Project Airport Guam is included as a cumulative project in Volume 7, Chapter 4.

The increase in population associated with the proposed action would increase the number of passengers and operations at Airport. The increase would be addressed in the airport master planning process. Facility improvements may be required to meet the increased traffic and these improvements may be eligible for federal Airport Improvement Program Funding.

It is anticipated that increased customs and agricultural inspections would be coordinated through both Guam and relevant federal officials, including the U.S. Department of Agriculture. DoD would work with relevant Guam and federal inspection authorities to address required inspection of military cargoes that pass through the Airport. In addition to continuing to implement existing Standard Operating Procedures and DoD requirements covering the inspection and transport of material and personnel from Guam to other locations, the Navy is also funding and coordinating the preparation of a Micronesia Biosecurity Plan. This plan would address all aspects of the potential for the unintended transport of the brown tree snake and all potential non-native species to other Pacific Islands and from other locations to Guam due to both civilian and military activities originating on Guam.

Funding for Airport improvements, including increased customs and agricultural inspection requirements, would be funded from federal agencies, GovGuam, and private sources. The DoD would work with the Airport to identify possible increased sources of federal funds. It is further anticipated that the DoD would

work with the airport to investigate the development of possible user charges and fees to cover the costs of increased customs and agricultural inspection associated with shipment of materials for military-relocation related construction projects and increased civilian growth.

The increased inspection needs associated with civilian population growth would be a function of Airport planning, implementation, and coordination with relevant Guam and federal customs and inspection authorities. In any instance, it is not anticipated that the DoD would conduct the required inspections.

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