CHAPTER 10. LAND AND SUBMERGED LAND USE

10.1 INTRODUCTION

This section relies on the Volume 2 affected environment description of land and submerged land ownership and management for both civilian and Department of Defense (DoD) land. Submerged lands refer to areas in coastal waters extending from the Guam coastline into the ocean 3 nautical miles (5.6 kilometers), which is the limit of territorial jurisdiction. The focus of Volume 6, Chapter 10 is to address the land ownership and land use impacts associated with the related actions including large-scale utility projects and roadways. The methodology for impact analysis is as described in Volume 2.

Many of the related actions occur on non-DoD land in conjunction with existing Government of Guam (GovGuam) utilities and roadways. Collocation provides opportunities for maximum land use efficiency. Associated linear facilities, such as transmission or distribution lines would be required. The potential impacts are described by alternatives and components, and the chapter concludes by identifying and discussing mitigation measures that apply to significant impacts.

The region of influence for land use is land on the proposed development area and adjacent properties, and the ocean within 3 nautical miles (5.6 kilometers) offshore.

10.2 ENVIRONMENTAL CONSEQUENCES

10.2.1 Approach to Analysis

There are two components to the land use analysis: (1) land/submerged lands ownership and management, and (2) land/submerged land use. There are different criteria for assessing potential impacts under these two categories.

Short-term impacts would be related to facility construction activities that would be located within the project footprint or on previously disturbed lands. No construction staging area has been designated away from the project site. No construction impacts are described. All impacts related to land ownership and use are assumed to occur during the long-term operational phase of the proposed action as the changed conditions would alter the development and use of the current site and its vicinity. The potential indirect impacts that would be due to changes in land ownership and use are addressed under other specific resource categories, such as traffic, noise, natural resources, and recreation. Incompatibility with adjacent land uses to the extent that public health and safety is impacted is addressed under public health and safety and noise resource sections. Federal lands are not subject to local zoning regulations and permitting; however, consistency with surrounding non-federal land uses is an important consideration for land use planning. Coastal Zone Management Act consistency determination assessments would be prepared for each construction phase. The coastal zone consistency determination for construction projects occurring in fiscal years 2010 and 2011 is being prepared and would be submitted to the Bureau of Statistics and Plans for review.

Off Base Roadways

Methods for assessing impacts on land use differ slightly for the utilities and the roadways. The roadway analysis is subject to Federal Highway Administration (FHWA) regulations. Impacts on land ownership,

social, economic, right-of-way (ROW) acquisition, and relocation as a result of the proposed roadway improvement projects are addressed in Volume 6, Chapter 17.

10.2.1.1 Land Ownership/Management

Utilities

The impact assessment methodology for land/submerged land ownership and management is not dictated by regulatory authority or permit requirements. There is flexibility in the methodology and assumptions that are made. The basic premise is that a release of federal lands/submerged lands to the GovGuam or individuals has beneficial impacts on the new landowners. Conversely, the acquisition of land by the federal government may be considered a beneficial or an adverse impact depending on the perspective of the individual landowner. Owners who are interested in selling land to the federal government would presumably perceive the federal acquisition as a beneficial impact, whereas owners who are not interested in selling their land would presumably perceive the federal acquisition as an adverse impact. Owners who do not want to sell their property (or relocate) are likely to consider an involuntary acquisition or relocation as an adverse impact even though they are properly compensated. Until the land acquisition negotiations are concluded, the impact analysis assumes a significant adverse impact on an individual landowner. There are exceptions to this rule, such as in the case of acquisition of non-possessory affirmative easements for utilities or other ROWs. A more detailed discussion of the land acquisition process is described in Volume 9, Appendix F, Section 5.2.6.

The comments received during the scoping period and Draft Environmental Impact Statement (EIS) comment period did not support an increase in federal land on island and the increase is considered an adverse impact. The impacts of the proposed islandwide increase in federal land are being addressed in Volume 6, Chapter 17.

No indirect impacts are associated with changes in land ownership, except for those that would be discussed under other resource categories. For example, changes in land ownership may have an impact on potential tax revenue to the GovGuam and this would be addressed under socioeconomics.

The test for significance of the potential land ownership/management for utilities is based on the type of land acquisition. New land for industrial plants is considered a significant adverse impact because of the quantity of land required. Land ownership impacts due to proposed linear facilities is dependent on site-specific conditions, such as the availability of existing easements and utility corridors, location, land use, and quantity of land affected. Expansion of an existing utility corridor requiring modification of existing easements would be a less than significant impact. A new corridor through undeveloped land may be considered a mitigable, significant impact because it may not be consistent with future development plans.

Off Base Roadways

Methods for assessing impacts on land use differ slightly for the utilities and the roadways. The roadway analysis is subject to FHWA regulations. Impacts on land ownership, social, economic, ROW acquisition, and relocation as a result of the proposed roadway improvement projects are addressed in Volume 6, Chapter 17.

10.2.1.2 Land Use

Utilities

There are two criteria used to assess impacts on land and submerged land use:

- Consistency with current or documented planned land and submerged land use. Land use consistency includes impacts on access policies and loss of open space.
- Restrictions on access.

Land Use Criterion 1: Consistency with Current or Documented Planned Land Use

Land use plans are intended to guide future development. Potential adverse land use impacts would result from a proposed land use that is incompatible with the existing land use or planned land use or if vacant (i.e., no modern manmade structures) land and open space is developed. It is possible for land uses to be inconsistent, but not necessarily incompatible. For example, residential development next to a park is inconsistent, but compatible, while an industrial facility proposed within a residential area would likely be incompatible and inconsistent. Potential adverse impacts would also result if there are incompatible changes in use within submerged lands. Changes in access policies may result from changes in land use and adverse impacts would result if the access became more restrictive to the public.

The test for impact significance is less rigorous for existing DoD land and submerged land, where limited land availability may result in less than ideal land use changes. Federal actions on federal lands/submerged lands are subject to Base Command approval, but are not required to conform to state/territory land use plans or policies. The proposed action alternatives of this EIS have been developed in consultation with Base Command planners. As a result, there would be no anticipated significant impact to land use within DoD parcel boundaries. Land use changes on existing DoD land could be the basis for significant impacts on other resources (such as visual resources, noise, traffic, recreation, cultural and biological resources) within and beyond DoD land boundaries. Impacts on these resources and others are addressed in other resource chapters of this EIS.

Proposed land uses on newly acquired lands may have an adverse impact if they are not consistent with the existing or proposed land use at that site. Similarly, a change in use within non-DoD submerged land could have an adverse impact. The test for significance is the degree of incompatibility and is qualitative. For example, proposed military housing would be consistent with existing or planned civilian residential communities and there would be no adverse impact to land use. A proposed industrial facility in an area that is designated for a public park would be a significant adverse impact, while the same facility in an area designated for heavy commercial land use would have no significant adverse impact.

While a proposed land use under the action alternatives may be consistent with existing land use, there is potential for adverse impacts due to changes in land use intensity. For example, a training range that is used once per month would likely have no adverse impact, while daily use may result in an adverse impact. Potential adverse impacts associated with changes in land use intensity such as increases in marine traffic (Volume 6, Chapter 13), noise (Volume 6, Chapter 8), and unexploded ordnance (Volume 6, Chapter 18) are addressed under other resource area discussions of this EIS. No significance criterion is established for land use intensity impacts. Noise from airfields or training may be a land use constraint and is discussed.

Land Use Criterion 2: Restrictions on Access

Additional restrictions on public access due to changes in land use on federally-controlled lands/submerged lands would be a potential adverse impact. For example an increase in the setback

distance from Navy ships for security purposes may restrict access to a Self-Contained Underwater Breathing Apparatus site. The test for significance is subjective and based on geographic area affected, the schedule or timing of the access restrictions (permanent or occasional), and the population affected.

Physical access restrictions can also result if land acquisition by the federal government results in a pocket or island of non-federal land. This would be an adverse impact on the landowners to which access has been restricted. The significance of the impact is based on the extent to which access to the non-federal land is restricted. Significant adverse impacts result when the private property is surrounded by federal property because there would be access restrictions and other potential land use limitations to the private property. Similarly, such pockets of non-DoD land within DoD land is an adverse impact on military land use.

The Farmland Protection Policy Act (FPPA) (Public Law 97-98, 7 United States Code 4201, and 7 Code of Federal Regulations 658) is intended for federal agencies to (1) identify and take into account the potential adverse effects of federal programs on the preservation of farmland; (2) consider alternative actions, as appropriate, that could lessen such adverse effects; and (3) assure that such federal programs, to the extent practicable, are compatible with state, unit of local government, and private programs and policies to protect farmland. The FPPA addresses Prime and Important Farmlands. Consistency with FPPA was a land use significance criterion in the Draft EIS, but was removed for the Final EIS. In the interval between the two EISs, the Navy determined that the Guam and Commonwealth of the Northern Mariana Islands (CNMI) military relocation is exempt from FPPA regulations because the action is undertaken by a federal agency for national defense purposes (Section (§) 1547(b) of the Act, 7 United States Code 4208(b)). Although consistency with FPPA is not a criterion for analysis, impacts on agricultural use are assessed in this EIS in conjunction with impacts on other land uses, such as residential or urban land uses.

Roadways

Land use impacts as a result of the proposed roadway improvement projects are assessed following FHWA Guidance for Preparing and Processing Environmental and § 4(f) Documents (FHWA 1987). Land use impacts would involve project effects that would be inconsistent with the comprehensive development plans adopted for the area and other plans used in the development of the transportation plan.

Impacts on land use as a result of roadway improvements could be classified into short-term impacts and long-term impacts. Short-term impacts would occur during the peak construction period (2014) and would include disruption of current use activities such as access road blockage, temporary closure of public or private facilities, and business disruption. This type of impact would cease at the completion of construction activities. Long-term impacts (post-construction up to future year 2030) would involve changes in land use patterns, population density, and growth rate. Proposed projects that are inconsistent with applicable plans and policies are considered to cause an adverse long-term impact to land use as well.

10.2.1.3 Issues Identified During Public Scoping Process

Many scoping issues regarding land use overlap with other resource areas, such as noise and recreation, and are discussed under those sections. As part of the analysis, concerns related to land use that were mentioned by the public, including regulatory stakeholders, during the public scoping meetings were addressed. None of the land use issues were specific to utilities or roadways. The following are public, including regulatory agency, preferences:

- No increases of federal land ownership (although some landowners were interested to sell).
- No re-acquisition of lands that have been or are in the process of being released by the federal government.
- Retention of current public ROWs.

10.2.2 Power

10.2.2.1 Basic Alternative 1: Recondition up to Five Existing Guam Power Authority–Permitted Facilities to Provide Peaking Power/Reserve Capacity

Basic Alternative 1 would recondition existing Combustion Turbines (CTs) and upgrade Transmission and Distribution (T&D) systems and would not require new construction or enlargement of the existing footprint of the facility. This work would be undertaken by the Guam Power Authority on its existing permitted facilities. Reconditioning would be made to existing permitted facilities at the Marbo, Yigo, Dededo (2 units), and Macheche CTs. The five CTs are currently being used very little, if at all. Upon reconditioning, these CTs would be available for peaking and reserve power to ensure system reliability. T&D system upgrades would be on existing above ground and underground transmission lines. This alternative supports Main Cantonment Alternatives 1 and 2 and Main Cantonment Alternatives 3 and 8 would require additional upgrades to the T&D system.

Construction

All impacts related to land ownership and use are assumed to occur during the long-term operational phase of the proposed action as the changed conditions would alter the development and use of the current site and its vicinity.

Operation

Under Basic Alternative 1, the land use footprint of generation and substation facilities would not extend beyond existing property boundaries. No new uses in submerged lands are proposed. No acquisition of land by the federal government is proposed, and no additional restrictions would be placed on public access. No construction would occur at these generation facilities; existing facilities would only be upgraded. Some of the overhead transmission lines would require upgrading, with some remaining overhead and others being changed from overhead to underground. All of the transmission lines would follow current routings and would not negatively impact land ownership or use. The lines being converted from overhead to underground would potentially impact land use in a beneficial manner by eliminating overhead lines impact to surface land use. Some substations would require upgrades, which would occur on the current facilities without requiring expansion of their footprints. Therefore, there would be no adverse impacts and a potentially beneficial impact to land use.

The population growth that is not a direct result of the proposed action would increase the on-island demand for electricity. Projections suggest there is sufficient power capacity to meet the total demand (Volume 6, Chapter 2, Table 2.1-2) if Basic Alternative 1 is implemented. The indirect impacts on land use would be as described for Basic Alternative 1.

Basic Alternative 1 would result in no impacts on land/submerged land ownership or use.

Proposed Mitigation Measures

Because no significant impacts on land/submerged land ownership, management, or use were identified under Basic Alternative 1, no mitigation is necessary or proposed.

10.2.2.2 Summary of Impacts

Table 10.2-1 summarizes the potential impacts of the alternative. A text summary is provided below.

Table 10.2-1. Summary of Potential Land and Submerged Land Use Impacts – Power

Potential Impact	*Basic Alternative 1**
Land Ownership	
Land	NI
Submerged land	NI
Land Use	
1. Consistency with existing or proposed land use	
DoD land	NI
DoD submerged lands	NI
Non-DoD land	NI
Non-DoD submerged lands	NI
1. Public Access	NI

Legend: DoD = Department of Defense; NI = No impact.
*Preferred Alternative.

The Basic Power Alternative 1 would have no impact on land or submerged land ownership or use during operation. As described under the approach to analysis, the land ownership and use impacts occur during operation and construction impacts are described as not applicable.

10.2.3 Potable Water

10.2.3.1 Basic Alternative 1 (Preferred Alternative)

Basic Alternative 1 would provide additional water capacity of 11.3 MGd (42.8 MLd), which is anticipated to be met by an estimated 22 new wells at Andersen Air Force Base (AFB), rehabilitate existing wells, interconnect with the Guam Waterworks Authority (GWA) water system, and associated treatment, storage and distribution systems. Two new 2.5 MG (9.5 ML) water storage tanks would be constructed at ground level at NCTS Finegayan. Up to two new elevated 1 MG (3.8 ML) water storage tanks would be constructed at Finegayan within the Main Cantonment footprint.

Basic Alternative 1 combines a number of water resource development options staged over 5 years, from 2010 to 2015. These options include installing new water supply wells, rehabilitating existing wells, and interconnecting with GWA. Basic Alternative 1 would affect the north (water supply wells) and central (rehabilitation of Navy Regional Medical Center well) areas of Guam.

Construction

All impacts related to land ownership and use are assumed to occur during the long-term operational phase of the proposed action as the changed conditions would alter the development and use of the current site and its vicinity.

Operation

Under Basic Alternative 1, no acquisition of non-DoD land and no submerged land uses are proposed. No impact on land and submerged lands ownership would occur. Additional public access restrictions would not be imposed. No land use impacts on farmlands were identified.

At Andersen AFB, an estimated 22 new water wells including one contingency well would be installed. The wells are planned in clusters and are consistent with adjacent land uses. A 1,000-foot (305-meter) wellhead protection arc is generated at each well that constrains land use within the arc. This constraint would not result in an adverse land use impact because the areas are vacant with no other planned land

uses at or adjacent to the sites. The existing wells that are proposed for use or rehabilitation are also on DoD land, and no impact to land ownership or use was identified.

Water storage tanks would be sited in conjunction with the large scale development proposals of the proposed actions described in Volumes 2 and 5. They would be sited to be consistent with the proposed land uses. No adverse impacts on land use are anticipated. Potential visual impacts are described in Volume 6, Chapter 15. Storage tanks and distribution lines and pumps would be sited on DoD land or within existing ROWs along roads. This does not represent a change in land ownership or use.

The population growth that is not a direct result of the proposed action would increase the on-island demand for potable water. The GWA had pre-existing plans to install 16 new potable wells by 2014. These wells would not require additional land or submerged land acquisitions by the federal government; therefore, no impact on land ownership is anticipated. There are 1,000-foot (305-meter) wellhead protection arcs associated with the new wells that could constrain future community land use plans. However, these wells are planned land uses by the GovGuam and development plans would be updated to minimize land use impacts. There would be adverse impacts on land use.

In conclusion, Basic Alternative 1 and the GWA proposed wells would result in no impacts on land ownership or use.

Proposed Mitigation Measures

As no significant impacts on land/submerged land ownership, management, or use were identified under Basic Alternative 1, no mitigation is necessary or proposed.

10.2.3.2 Basic Alternative 2

Basic Alternative 2 would provide additional water capacity of 11.7 MGd (44.3 MLd), which is anticipated to be met by an estimated 20 new wells at Andersen Air Force Base (AFB) and 11 new wells at Air Force Base Barrigada, rehabilitate existing wells, interconnect with the Guam Waterworks Authority (GWA) water system, and associated treatment, storage and distribution systems. Two new 1.8 MG (6.8 ML) water storage tanks would be constructed at ground level at NCTS Finegayan and one 1 MG (3.8 ML) water storage tank would be construction at Air Force Base Barrigada. Up to two new elevated 1 MG (3.8 ML) water storage tanks would be constructed at Finegayan within the Main Cantonment footprint.

Construction

All impacts related to land ownership and use are assumed to occur during the long-term operational phase of the proposed action as the changed conditions would alter the development and use of the current site and its vicinity.

Operation

The impacts on land ownership and use are as described under Basic Alternative 1. Basic Alternative 1 and the GWA proposed wells would result in no impacts on land ownership or use.

Proposed Mitigation Measures

No impacts on land/submerged land ownership or use were identified for Basic Alternative 2; therefore, no mitigation is proposed.

10.2.3.3 Summary of Impacts

Table 10.2-2 summarizes the potential impacts of each basic alternative. A text summary is provided below.

Table 10.2-2. Summary of Potential Land and Submerged Land Use Impacts – Potable Water

Potentially Impact	*Basic Alternative 1**	*Basic Alternative 2*
Land Ownership		
Land	NI	NI
Submerged land	NI	NI
Land Use		
Consistency with existing or proposed land use		
DoD land	NI	NI
DoD submerged lands	NI	NI
Non-DoD land	NI	NI
Non-DoD submerged lands	NI	NI
1. Public Access	NI	NI

Legend: DoD = Department of Defense; NI = No impact. *Preferred Alternative.

The action alternatives are all on DoD land in vacant areas with no conflicting land uses identified at or adjacent to the project components. No land or submerged land ownership or use impacts during operation were identified. As described under the approach to analysis, the land ownership and use impacts that occur during operation and construction impacts are described as not applicable.

10.2.4 Wastewater

10.2.4.1 Basic Alternative 1a (Preferred Alternative) and 1b

Basic Alternative 1 (Basic Alternative 1a supports Main Cantonment Alternatives 1 and 2; and Basic Alternative 1b supports Main Cantonment Alternatives 3 and 8) combines upgrades to the existing primary treatment facilities and expansion to secondary treatment at the Northern District Wastewater Treatment Plant (NDWWTP). The difference between Basic Alternatives 1a and 1b is a requirement for a new sewer line from Barrigada housing to NDWWTP for Basic Alternative 1b.

Construction

All impacts related to land ownership and use are assumed to occur during the long-term operational phase of the proposed action as the changed conditions would alter the development and use of the current site and its vicinity.

Operation

Under Basic Alternative 1a and 1b, the land use footprint of the NDWWTP would not extend beyond the existing property boundary. Basic Alternative 1a requires a new gravity sewer from Finegayan to the NDWWTP; however, the alignments are in existing easements or aligned along existing roads' ROWs. A short segment is between the southwest corner of South Finegayan and the intersection with the existing GWA trunk sewer (Volume 6, Chapter 2, Figure 2.3-2) where a new utility easement is likely required. This requirement would result in a less than significant impact on land ownership and no impact on land use because the alignment follows an existing minor roadway.

New Interim Alternative 1b requires an additional new sewer line with two pump stations, from Barrigada housing to the NDWWTP, aligned along an existing Route 16 GWA ROW. The segment between the NDWWTP and Route 3 may require new easements along an existing minor roadway resulting in a less than significant impact on land ownership. No impact on land use would occur.

The population growth that is not a direct result of the proposed action would increase the on-island demand for wastewater management. The impacts on wastewater treatment plants other than NDWWTP would be GWA's responsibility to manage. Some existing plants may require expansion and improvements to collections systems. These improvements would likely be within existing sewer alignments and not require land acquisition. The land use would remain unchanged.

Proposed Mitigation Measures

No mitigation measures are required.

10.2.4.2 Summary of Impacts

Table 10.2-3 summarizes the potential impacts of each interim alternative. A text summary is provided below.

Table 10.2-3. Summary of Potential Land and Submerged Land Use Impacts – Wastewater

Potentially Impact	*Basic Alternative 1a*	*Basic Alternative 1b*
Land Ownership		
Land	LSI	LSI
Submerged land	NI	NI
Land Use		
1. Consistency with existing or proposed land use:		
DoD land	NI	NI
DoD submerged lands	NI	NI
Non-DoD land	NI	NI
Non-DoD submerged lands	NI	NI
2. Public Access	NI	NI

Legend: DoD = Department of Defense; LSI = Less than significant impact; NI = No impact.
*Preferred Alternative.

There would be less than significant impacts on land ownership from acquisition of short easements along existing roads' ROW for underground lines under both alternatives. No impact on submerged land ownership is anticipated. No impacts on land use or existing public access policies are anticipated from the proposed actions or GWA potential improvements to existing collection systems. As described under the approach to analysis, the land ownership and use impacts occur during operation and construction impacts are described as not applicable.

10.2.5 Solid Waste

10.2.5.1 Basic Alternative 1 (Preferred Alternative)

The Preferred Alternative would be to continue to use the Navy Landfill at Apra Harbor for municipal solid waste (MSW) until the new GovGuam Layon Landfill at Dandan is available for use. Disposal of other waste streams excluded from Layon Landfill would continue at the Navy Landfill. Construction and demolition (C&D) debris would continue to be disposed at the Navy hardfill.

Construction

Under Basic Alternative 1, no construction would occur; therefore, there would be no construction impacts on land use.

Operation

Under Basic Alternative 1, no land acquisition would occur. No new uses in submerged lands are proposed. No land acquisition is proposed, and no additional public access restrictions would be imposed. Therefore, Interim Alternative 1 would result in no impacts on land ownership or use.

Proposed Mitigation Measures

No significant impacts on land/submerged land ownership, management, or use were identified under Basic Alternative 1; therefore, no mitigation is necessary or proposed.

10.2.5.2 Summary of Impacts

Table 10.2-4 summarizes the potential impact of the Preferred Alternative. A text summary is provided below.

Table 10.2-4. Summary of Potential Solid Waste Impacts

Potentially Impact	*Basic Alternative 1**
Land Ownership	
Land	NI
Submerged land	NI
Land Use	
1. Consistency with existing or proposed land use:	
DoD land	NI
DoD submerged lands	NI
Non-DoD land	NI
Non-DoD submerged lands	NI
2. Public access	NI

Legend: DoD = Department of Defense; NI = No impact. *Preferred Alternative.

Since there is no construction involved in the alternative for solid waste, there are no impacts on land use or submerged lands.

10.2.6 Off Base Roadways

The North and Central Guam Land Use Plan (Bureau of Statistics and Plans [BSP] 2009) has accounted for the DoD facility expansion and organic (natural) growth within the island of Guam over the next 20 years. Growth in the military sector would impact private-sector economic and residential growth and development. As part of the North and Central Guam Land Use Plan development, the public has been involved in identifying potential policies and changes needed to address future growth. The draft vision statement from the first round of public meetings states that "Guam is a sustainable tropical paradise that is safe, walkable, family- and community-oriented, and protective of natural resources."

The 2030 Guam Transportation Plan (GTP) (Guam Department of Public Works [GDPW] 2008) presents a comprehensive, long-term strategy to improve transportation infrastructure and operations throughout Guam. The GovGuam, through its GDPW and Department of Administration, Division of Public Transportation Services, and FHWA, as well as the Federal Transit Administration have partnered to prepare this plan. The plan addresses Guam's anticipated multimodal transportation needs, including roadway, bicycle, pedestrian, and transit facilities. The GTP includes forecasts for population, employment, and traffic growth through the year 2030; including impacts associated with the relocation of potential DoD multiple services. Sustainable financing and project implementation recommendations are also included in the plan.

Different types of roadway improvements are being proposed under the Guam Road Network (GRN) improvement projects, including pavement strengthening, intersection improvement, road widening, road rehabilitation, bridge replacement, road relocation, and Military Access Point (MAP) improvements. Temporary impacts on current uses of land along the vicinity of the construction sites would normally occur as a result of construction equipment blockage and traffic lane closures that are typical of any public works project. A Traffic Management Plan (TMP) would minimize these temporary impacts.

Long-term impacts would involve changes in land use patterns, population density, and growth rate that have not been approved or planned by the Guam BSP. Adverse impacts are determined by the magnitude and types of conversion that are not consistent with the approved land use patterns. When possible, engineering design would be performed to avoid the acquisition of public facilities, such as parkland.

Of the six different types of roadway improvements being proposed, pavement strengthening (including some pavement strengthening projects where widening would occur) and bridge replacement would normally occur within the existing ROW; therefore, the improvements would not result in any impacts on land use. Road widening, intersection improvements, new road, and road relocation would potentially result in impacts on land use if ROW acquisition is required. MAP improvements are consistent with respective installation general plans or regional shore infrastructure plans would occur within DoD lands; therefore, impacts on land use are not anticipated with these improvements.

10.2.6.1 Alternative 1

The roadway projects that would be implemented for Alternative 1 are listed in Volume 6, Chapter 2, Table 2.5-3, with the exception of the following GRN projects: #38 (which is an intersection improvement at a MAP), #39 (MAP), #41 (MAP), #47 (MAP), #48 (MAP), #49 (MAP), #49A (MAP), #63 (pavement strengthening and widening), and #74 (pavement strengthening and widening). As stated above, the proposed GRN projects are consistent with the North and Central Guam Land Use Plan and the GTP. The following subsections describe the impacts of the proposed roadway construction on land use during the peak construction period and the future year 2030.

Year 2014 (Peak Construction and Force Flow)

North

Improvements within the North Region consist of intersection improvements, pavement strengthening, road widening, intersection improvements to MAPs and a new road. Land uses in this region along the proposed GRN project locations are comprised mostly of DoD land and low-density residential. Implementation of Alternative 1 would require the acquisition of approximately 82 acres (ac) (33 hectares [ha]) of land area. Approximately 22 ac (9 ha) of residential property would be acquired resulting in approximately 20 residential units subject to relocation. Approximately 13 ac (5 ha) of non-residential property would be acquired with the relocation of approximately four non-residential or business units. In addition, approximately 47 ac (19 ha) of military-owned land within the North Region would be acquired. Businesses identified for possible acquisition in the North Region include one fast-food restaurant, one convenience/outdoor supply store, and two storage facilities. More detailed information about ROW acquisition and relocation is presented in Volume 6, Chapter 17. This change in land use is consistent with the North and Central Guam Land Use Plan (BSP 2009). The impact from the required commercial and residential land conversion is considered significant, but could be mitigated to a less than significant level with careful planning and, if unavoidable, with compensation measures.

The new two-lane Finegayan Connection that would run parallel to Routes 1 and 3 between the Route 1/16 intersection and South Finegayan is proposed to alleviate traffic on Routes 1 and 3 and on the

Route 1/3 intersection. Construction of this parallel road would require additional ROW north of Route 1 and west of Route 3. These areas are generally undeveloped. According to the North and Central Guam Land Use Plan, the area north of Route 1 and west of Route 3 has been designated as part of the Dos Amantes Planning Area, where hotel/resort and an urban center would be the major land uses in the future. The proposed road would support future land uses planned under the Dos Amantes Planning Area; therefore, the proposed Finegayan Connection construction would be consistent with future land use.

Impacts on current uses of land from construction activities would be typical of a public works project. A TMP would be developed and implemented during construction. The impacts are not considered significant with implementation of the TMP.

Central

Three intersection improvement and three road widening projects are proposed within the Central Region. Improvements are located along the major arterial running along the coastline and inland where major commercial and tourist activities are situated. To accommodate the construction, approximately 74 ac (30 ha) of land area would need to be acquired. Approximately 42 ac (17 ha) of residential property would be acquired, with approximately 51 residential units subject to relocation in the Central Region. Approximately 10 ac (4 ha) of non-residential property would be acquired, with approximately seven non-residential or business units subject to relocation. Businesses identified for possible acquisition include three fast-food restaurants, one office space, and a gas station and rental car office. In addition, approximately 22 ac (9 ha) of military-owned land within the Central Region would be acquired. The impact from the required commercial and residential land conversion is considered significant, but could be mitigated to a less than significant level with careful planning and, if unavoidable, with compensation measures.

Two existing parks along Route 1 would be affected by minor ROW acquisition to accommodate the proposed intersection improvements; however, no permanent closure of any public park or recreational facility would occur. In addition, the use of public parks for transportation projects would be considered a use of § 4(f) resources. Impacts on parklands are addressed in Volume 6, Chapter 11, and impacts on § 4(f) resources are addressed in Volume 6, Chapter 21.

Although impacts on current uses of land from construction activities would be typical of a public works maintenance project, occasional disruption to business/commercial and tourist facilities could be expected. A TMP would be developed for implementation during construction activities. To further minimize the impacts on business/commercial and tourist activities, close coordination with business owners and area residents would be conducted to keep them informed of the roadway improvement schedule. Construction of the various proposed projects would be scheduled to the extent practicable to avoid multiple projects under construction at the same time.

Apra Harbor

One intersection improvement project is proposed within the Apra Harbor Region. No residential units are subject to relocation in this region. Implementation of this alternative would not require acquisition of non-residential or military-owned property. No substantial impacts on commercial and residential land use conversion from the proposed improvement would occur. Impacts during the peak construction period within this region would be similar to those described for the Central Region.

South

One intersection improvement project is proposed within the South Region. The improvement would occur within the existing ROW. No residential or non-residential units would be relocated, and no lands would be acquired. No substantial impacts on commercial and residential land use conversion from the proposed improvement would occur. Impacts during the peak construction period within this region would be similar to those described under the North Region.

Proposed Mitigation Measures

The GDPW would develop a TMP for implementation during construction activities. The TMP would identify and provide alternate traffic detour routes, construction materials haul routes, bus stops, transit routes and operation hours, pedestrian routes, and residential and commercial access routes to be used during the construction period.

The GDPW would develop an outreach program to keep residents, businesses, and any service providers within the area informed, and to inform surrounding communities about the project construction schedule, relocation plans and assistance programs, areas affected by traffic and the TMP, and other relevant project information.

Year 2030

North

The North and Central Guam Land Use Plan (BSP 2009) has addressed the changes in future land use as a result of the proposed Guam and CNMI military relocation project, as well as other military facility expansions over the next 20 years. The proposed GRN improvement projects are intended to meet the projected traffic demand both under the proposed military expansion action and the no-action alternative (natural growth). The proposed GRN improvement projects are consistent with the North and Central Guam Land Use Plan (BSP 2009) that addresses the projected growth from the proposed military relocation on the island, and the GTP that addresses the long-term strategy to improve transportation infrastructure and operations throughout Guam.

All construction activities associated with proposed improvements in the North Region would have been completed by the year 2030. Since no farmland and parkland conversion to roadway use or the use of parkland are expected within this region, no adverse impacts on land use or on farmland and parkland are anticipated.

Because no ocean use is in the North Region within the vicinity of the proposed GRN projects, no impacts on submerged land via ocean use would occur.

Central

The proposed GRN improvement projects are consistent with the North and Central Guam Land Use Plan (BSP 2009) that addresses the projected growth from the proposed military facility expansion on the island, and the GTP that addresses the long-term strategy to improve transportation infrastructure and operations throughout Guam.

All construction activities associated with proposed improvements in the Central Region would have been completed by the year 2030. Since there would be no permanent closure of any parkland, no impacts on parkland use over the long term would occur. The roadway improvement would help enhance access to park and recreational facilities within the Central Region. The long-term impact pertaining to parkland use is beneficial.

No farmland conversion to roadway use would occur; therefore, no adverse impacts on farmland are anticipated.

The proposed roadway improvement projects would be confined within the existing roadway corridor; therefore, no permanent impacts on submerged land use would occur.

Apra Harbor

The proposed GRN improvement projects are consistent with the North and Central Guam Land Use Plan (BSP 2009) that addresses the projected growth from the proposed military facility expansion on the island, and the GTP that addresses the long-term strategy to improve transportation infrastructure and operations throughout Guam.

The construction activities associated with proposed improvements within the Apra Harbor Region would have been completed by the year 2030.

No farmland conversion to roadway use or the use of parkland are expected within this region; therefore, no adverse impacts on farmland and parkland are anticipated.

The proposed roadway improvement projects would be confined within the existing roadway corridor; therefore, no permanent impacts on submerged land use would occur.

South

The proposed GRN improvement projects are consistent with the North and Central Guam Land Use Plan (BSP 2009) that addresses the projected growth from the proposed military facility expansion on the island, and the GTP that addresses the long-term strategy to improve transportation infrastructure and operations throughout Guam.

The construction activities associated with proposed improvements within the South Region would have been completed by the year 2030.

No farmland conversion to roadway use or the use of parkland are expected within this region; therefore, no adverse impacts on farmland and parkland are anticipated.

Because no ocean use is within the vicinity of the proposed GRN projects, no impacts on submerged land use would occur.

Proposed Mitigation Measures

Because the proposed GRN improvement projects are consistent with the North and Central Guam Land Use Plan (BSP 2009) and the GTP, no mitigation measures would be required.

Most roadway improvements would be undertaken within the existing ROW, with some ROW acquisition that would result in conversion of residential, commercial, and open space uses to public (transportation) use. The proposed roadway improvements are intended to meet the projected traffic demand based on the local land use plans. Land use conversion from the required ROW acquisition would be addressed through the relevant planning agencies of the GovGuam. Compensation as a result of land use disruption or acquisition is addressed in the Socioeconomic and General Services sections of this document.

10.2.6.2 Alternative 2 (Preferred Alternative)

The roadway projects that would be implemented for Alternative 2 are listed in Volume 6, Chapter 2, Table 2.5-3, with the exception of the following GRN projects: #38A (MAP), #39A (MAP), #41A (MAP), #47 through #49A (MAP), #63 (pavement strengthening), and #74 (pavement strengthening).

Peak construction and permanent impacts on land uses under Alternative 2 would be similar to those described under Alternative 1 because the same projects are proposed under this alternative with the only difference being gate locations for MAP projects, which have no impact on existing commercial or residential uses.

Proposed Mitigation Measures

Proposed mitigation measures for Alternative 2 would be the same as those proposed for Alternative 1.

10.2.6.3 Alternative 3

The roadway projects that would be constructed under Alternative 3 are listed in Volume 6, Chapter 2, Table 2.5-3, with the exception of the following GRN projects: #20 (pavement strengthening), #31 (pavement strengthening), #38A (MAP), #39A (MAP), #41 (MAP), #41A (MAP), and #124 (new roadway). In general, the MAP and pavement strengthening projects would not cause significant impacts on existing commercial or residential uses. Impacts on land use disruption from construction activities under Alternative 3 in 2014 during peak construction would be slightly less than Alternatives 1 and 2 because no new roadway (GRN# 124) would be constructed under this alternative. However, there would be no new roadway to support the planned land-use development within the Dos Amantes Planning Area in the long term.

To accommodate the roadway construction in the North Region, Alternative 3 would require the acquisition of approximately 71 ac (29 ha) of land area. Approximately 22 ac (9 ha) of residential property would be acquired with approximately 47 residential units subject to relocation. Approximately 2.0 ac (0.8 ha) of non-residential property would be acquired with the potential relocation of approximately four non-residential or business units, including one fast-food restaurant, one convenience/outdoor supply store, and two storage facilities. In addition, approximately 47 ac (19 ha) of military-owned land within the North Region would be acquired.

Within the Central Region, Alternative 3 would require the acquisition of approximately 84 ac (34 ha) of land area. Approximately 42 ac (17 ha) of residential property would be acquired, with approximately 51 residential units subject to relocation. Approximately 20 ac (8 ha) of non-residential property would be acquired with the potential relocation of approximately seven non-residential or business units, including three fast-food restaurants, one office space, one gas station, and one rental car office. In addition, approximately 22 ac (9 ha) of military-owned land within the Central Region would be acquired.

Similar to Alternatives 1 and 2, no residential and non-residential property acquisition would be required under Alternative 3 in the Apra Harbor and South Regions.

Proposed Mitigation Measures

Proposed mitigation measures for Alternative 3 would be the same as those proposed for Alternative 1.

10.2.6.4 Alternative 8

The roadway projects that would be constructed under Alternative 8 are listed in Volume 6, Chapter 2, Table 2.5-3, with the exception of the following GRN projects: #38 (MAP), #39 (MAP), #41 (MAP), #47 (MAP), #48 (MAP), #49 (MAP), #63 (pavement strengthening), and #74 (pavement strengthening). In general, the MAP and pavement strengthening projects would not cause significant impacts on existing commercial or residential uses. Therefore, impacts on land use disruption under Alternative 8 in 2014 during peak construction would be similar to those described under Alternative 1. The impacts are similar because the same projects are proposed under this alternative, with the only difference being the gate

locations for military access (GRN #s 38A and 49A). Land use impacts over the long term (year 2030) of Alternative 8 would be similar to Alternative 1.

To accommodate the roadway construction in the North Region, Alternative 8 would require the acquisition of approximately 82 ac (33 ha) of land. Approximately 22 ac (9 ha) of residential property would be acquired, with approximately 20 residential units subject to relocation. Approximately 13 ac (5 ha) of non-residential property would be acquired with the potential relocation of approximately four non-residential or business units, including one fast-food restaurant, one convenience/outdoor supply store, and two storage facilities. In addition, approximately 47 ac (19 ha) of military-owned land within the North Region would be acquired.

Within the Central Region, Alternative 8 would require the acquisition of approximately 75 ac (30 ha) of land. Approximately 42 ac (17 ha) of residential property would be acquired, with approximately 51 residential units subject to relocation. Approximately 10 ac (4 ha) of non-residential property would be acquired with the potential relocation of approximately seven non-residential or business units, including three fast-food restaurants, one office building, one gas station, and one rental car office. In addition, approximately 23 ac (9 ha) of military-owned land within the Central Region would be acquired.

Similar to Alternatives 1 and 2, no residential and non-residential property acquisition would be required for Alternative 8 in the Apra Harbor Region and South Region.

Proposed Mitigation Measures

Proposed mitigation measures for Alternative 8 would be the same as those proposed for Alternative 1.

10.2.6.5 No-Action Alternative

2009

Under the no-action alternative, only some roadway improvements would be constructed to support normal growth on Guam. Based on the GTP, without the military relocation project, it is anticipated that committed improvements that are currently programmed for funding in the Territorial Transportation Improvement Plan would be constructed. The types of projects currently funded include safety improvements, bridge replacements, roadway rehabilitation, and traffic improvements; therefore, the no-action alterative is consistent with the Territorial Transportation Improvement Plan and GTP.

Construction activities for the improvement projects would be typical of public works projects, as described under Alternatives 1, 2, 3, and 8. Because the no-action alternative does not include proposed roadway improvement projects in year 2009 (baseline year), there would be no construction impacts on land use under the no-action alternative.

2014

Construction activities for the improvement projects would be typical of public works maintenance projects. Because the no-action alternative would include only limited roadway improvement projects (compared to the GRN roadway improvements that would occur for Alternatives 1, 2, 3 and 8) to be constructed by the year 2014, construction impacts on land use under this alternative would be less than each of the build alternatives described above. Under the no-action alternative, no parkland and farmland conversion would be required; the impacts on parkland and farmland uses would be less than significant.

2030

As discussed previously, roadway improvements have been proposed and documented in the GTP. The no-action alternative, in the long-term, is consistent with the Territorial Transportation Improvement Plan and GTP.

Under the no-action alternative, the proposed 20 roadway improvements would be phased for construction over the period between 2014 and 2030. Construction activities of the improvement projects would be typical of public works projects as described under the proposed Alternatives 1, 2, 3, and 8. A TMP would be developed for implementation during construction activities. The TMP would identify and provide alternate traffic detour routes, construction materials hauling routes, bus stops, transit routes and operation hours, pedestrian routes, and residential and commercial access routes to be used during the construction period.

Because the number of roadway improvements projects under the no-action alternative (20) is substantially fewer than for Alternatives 1, 2, 3, and 8, and because the improvements would occur over a longer period of time, impacts on the use of land from this ongoing road improvement program would be less than significant.

Proposed Mitigation Measures

Because the proposed GRN improvement projects under the no-action alternative are consistent with the GTP, and because the impacts are considered to be less than significant, no mitigation measures are proposed.

10.2.6.6 Summary of Impacts

Table 10.2-5 summarizes the potential impacts of each action alternative. A text summary is provided below.

Table 10.2-5. Summary of Potential Land and Submerged Land Use Impacts – Roadway Project

Potentially Impacted Resource	*Alternative 1*	*Alternative 2**	*Alternative 3*	*Alternative 8*
Consistency with approved plans and policies	NI	NI	NI	NI
Disruption to current use of land	SI-M	SI-M	SI-M	SI-M
Commercial and residential land conversion	SI-M	SI-M	SI-M	SI-M
Ocean use	NI	NI	NI	NI
Farmland conversion	NI	NI	NI	NI
Parkland conversion	LSI	LSI	LSI	LSI

Legend: LSI = Less than significant impact; NI = No impact; SI-M = Significant impact mitigable to less than significant.
*Preferred Alternative.

The North and Central Guam Land Use Plan (BSP 2009) has addressed the changes in future land use as a result of the proposed Guam and CNMI military relocation project, as well as other military facility expansions over the next 20 years. The proposed GRN improvement projects are intended to meet the projected traffic demand both under the proposed military relocation and the no-action alternative (natural growth). The proposed GRN improvement projects are consistent with the North and Central Guam Land Use Plan (BSP 2009) that addresses projected growth from the proposed military relocation on the island, and the GTP that addresses the long-term strategy to improve transportation infrastructure and operations throughout Guam.

Implementation of the proposed roadway improvements project under each alternative would require some residential, non-residential, and military land acquisition for ROW use. Some residential and business properties would be subject to relocation.

10.2.6.7 Summary of Potential Mitigation Measures

Table 10.2-6 summarizes the potential mitigation measures for roadway projects impacts on land and submerged land use.

Table 10.2-6. Summary of Potential Mitigation Measures for Roadway Projects Impacts on Land Use

Phase	*Mitigation Measure*
Construction	Traffic Management Plan to identify/provide alternate: • Traffic detour routes • Construction material haul routes • Bus stops • Transit routes and operating hours • Pedestrian routes • Residential/commercial access routes • Outreach Program to inform residents, businesses, service providers and communities of: • Project construction schedules • Relocation plans • Assistance programs • Areas affected by traffic • Other relevant information
Operation	None

Implementation of the adaptive program management and force flow mitigation measures could further reduce roadway projects impacts on land use by lowering peak population levels during construction. See Volume 7 for a full description of these two mitigation measures.