

## **CHAPTER 19.**

# **ENVIRONMENTAL JUSTICE AND THE PROTECTION OF CHILDREN**

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This chapter focuses on the potential for racial and ethnic minorities, low income populations, or children to be disproportionately affected by project-related impacts. Normally an analysis of environmental justice is initiated by determining the presence and proximity of these segments of the population relative to the specific locations that would experience adverse impacts to the human environment. The situation on Guam is unique in this regard because racial or ethnic minority groups (as defined by the U.S.) comprise a majority of the Guam population, and the proportions of people living in poverty or who are under 18 years of age are also substantially higher than in the general U.S. population. The analysis is further complicated by the fact that Guam is a relatively small and isolated island, and certain types of impacts would be experienced island-wide. Accordingly, the analysis of environmental justice described in this chapter acknowledges the unique demographic characteristics of the island population and assumes that the project effects could disproportionately affect disadvantaged groups and children because they comprise relatively high proportions of the population. By the same logic, mitigation measures that would reduce the severity of any significant project impacts to a less than significant level would be expected to effectively mitigate the associated environmental justice impacts to a less than significant level. Consequently, a distinction is made between potential significant impacts that would be mitigated and those for which no mitigations have been identified. The focus of this analysis is on the latter type of impacts.

### **19.1 AFFECTED ENVIRONMENT**

#### **19.1.1 Definition of Resource**

In 1994 President Clinton issued Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, in response to growing concern that minority and low-income populations bear adverse health and environmental effects disproportionately. EO 12898 requires federal agencies to assess the potential for their actions to have disproportionately high and adverse environmental and health impacts on minority and low-income populations. In 1997 EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, required a similar analysis for children.

EO 12898 authorized the creation of an Interagency Working Group on Environmental Justice, overseen by the United States (U.S.) Environmental Protection Agency (USEPA), to implement the EO's requirements. The Interagency Working Group and USEPA developed guidance for terms contained in the EO. USEPA (2009) defines environmental justice as, "The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies."

USEPA (1995) defines "fair treatment" as follows: "No group of people, including a racial, ethnic, or a socioeconomic group, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies." A "disproportionate share of the negative environmental consequences" is an adverse effect or impact that is predominately borne by any segment of the population, including a minority population or a low income population. It can also mean that the

suffering experienced by a minority population or low income population is appreciably more severe or greater in magnitude than the adverse effect that would be suffered by a non-minority or non-low-income population (USEPA 2009).

USEPA defines “meaningful involvement” as follows:

1. Potentially affected community residents have an appropriate opportunity to participate in decisions about a proposed activity that would affect their environment and/or health.
2. The public’s contribution can influence the regulatory agency’s decision.
3. The concerns of all participants involved would be considered in the decision making process.
4. The decision makers seek out and facilitate the involvement of those potentially affected.

The Presidential Memorandum that accompanies EO 12898 cites the importance of the National Environmental Policy Act (NEPA) in identifying and addressing environmental justice concerns. The memorandum states that, “each federal agency shall analyze the environmental effects, including human health, economic and social effects, of Federal actions, including effects on minority communities and low-income communities, when such analysis is required by NEPA” (Federal Register 1994). The memorandum emphasizes the importance of NEPA’s public participation process, directing that “each federal agency shall provide opportunities for community input in the NEPA process.” Agencies are directed to identify potential impacts and mitigations in consultation with affected communities and ensure the accessibility of meetings, crucial documents, and notices.” The Presidential Memorandum includes four provisions that identify ways agencies should consider environmental justice under NEPA:

1. Each federal agency should analyze the environmental effects, including human health, economic, and social effects of federal actions, including effects on minority populations and low-income populations, and Indian tribes, when such analysis is required by NEPA.
2. Mitigation measures identified as part of an Environmental Assessment, a Finding of No Significant Impact, an Environmental Impact Statement (EIS), or a Record of Decision should, whenever feasible, address significant and adverse environmental effects of proposed federal actions on minority populations, low-income populations, and Indian tribes.
3. Each federal agency must provide opportunities for effective community participation in the NEPA process, including identifying potential effects and mitigation measures in consultation with affected communities and improving the accessibility of public meetings, crucial documents, and notices.
4. Review of NEPA compliance must ensure that the lead agency preparing NEPA analyses and documentation has appropriately analyzed environmental effects on minority populations, low-income populations, or Indian tribes, including human health, social, and economic effects.

Neither the EO nor the Council on Environmental Quality (CEQ) prescribe a specific format for environmental justice assessments in the context of NEPA documents. However, CEQ (1979) identifies the following six general principles intended to guide the integration of environmental justice assessment into NEPA compliance, and that are applicable to the proposed project:

1. Agencies should consider the composition of the affected area to determine whether minority populations, low-income populations, or Indian tribes are present in the area affected by the proposed action and, if so, whether there may be disproportionately high and adverse human health or environmental effects on minority populations, low-income populations, or Indian tribes.

2. Agencies should consider relevant public health data and industry data concerning the potential for multiple or cumulative exposure to human health or environmental hazards in the affected population and historical patterns of exposure to environmental hazards, to the extent such information is reasonably available. For example, data may suggest there are disproportionately high and adverse human health or environmental effects on a minority population, low income population, or Indian tribe from the agency action. Agencies should consider these multiple, or cumulative effects, even if certain effects are not within the control or subject to the discretion of the agency proposing the action.
3. Agencies should recognize the interrelated cultural, social, occupational, historical, or economic factors that may amplify the natural and physical environmental effects of the agency's proposed action. These factors should include the physical sensitivity of the community or population to particular impacts; the effect of any disruption on the community structure associated with the proposed action; and the nature and degree of impact on the physical and social structure of the community.
4. Agencies should develop effective public participation strategies. Agencies should, as appropriate, acknowledge and seek to overcome linguistic, cultural, institutional, geographic, and other barriers to meaningful participation, and should incorporate active outreach to affected groups.
5. Agencies should assure meaningful community representation in the process. Agencies should be aware of the diverse constituencies within any particular community when they seek community representation and should endeavor to have complete representation of the community as a whole. Agencies also should be aware that community participation must occur as early as possible if it is to be meaningful.
6. Agencies should seek tribal representation in a manner that is consistent with current procedures and protocols between the U.S. and tribal governments, the federal government's trust responsibility to federally-recognized tribes, and any treaty rights.

CEQ (1979) states that the identification of a disproportionately high and adverse human health or environmental effect on a low-income or minority population does not preclude a proposed agency action from going forward, or compel a finding that a proposed project is environmentally unacceptable. Instead, the identification of such effects is expected to encourage agency consideration of alternatives, mitigation measures, and preferences expressed by the affected community or population.

The following definitions apply to this section and the Environmental Consequences section of this chapter:

- Consistent with CEQ guidance (1979), this chapter defines a racial minority according to the definition used in the 2000 U.S. Census (U.S. Census Bureau 2000a): a racial minority includes American Indian or Alaskan Native; Asian or Pacific Islander; Black; or Hispanic. The 2000 Census (U.S. Census Bureau 2000a) allowed individuals to choose more than one race. For this analysis, consistent with guidance from the CEQ as well as USEPA (CEQ 1979; USEPA 1998, 1999), "minority" refers to people who are Pacific Islander, as well as those who are non- Pacific Islander of a race other than White or European-American.
- Also consistent with CEQ guidance (1979), this chapter bases the definition of low-income on the official poverty line according to the U.S. Census (U.S. Census Bureau 2000b) (\$17,603). However, because U.S. Census Bureau (2000b) data is collected in increments, the closest increment to the poverty line (\$19,999) is used to determine low-income.

- Based on U.S. Census 2000 data categories, children are defined as people under the age of 18.

### **19.1.2 Guam Demographics Relevant to Environmental Justice**

According to the U.S. Census 2000, “Native Hawaiian and Other Pacific Islander” refers to any of the original peoples of Guam, Hawaii, Samoa, or other Pacific Islands. This category includes people who indicated their race or races as Native Hawaiian, Chamorro, Samoan, Carolinian, Chuukese, Tahitian, Mariana Islander, Kosraean, Marshallese, Palauan, Pohnpeian, Yapese, or Other Pacific Islander (Grieco and Cassidy 2001; US Department of Commerce 2004). The island of Guam is divided into 19 villages called municipalities. Figure 19.1-1 identifies the villages located adjacent to each military installation on Guam, and Table 19.1-1 provides an overview of racial composition, percentage of households in poverty, and percentage of children for those villages that are adjacent to and would be potentially affected by elements of the proposed action or alternatives. In general, the various racial and ethnic minority populations are evenly distributed within each of the villages on the island, as are people with lower incomes and children under age 18.

#### 19.1.2.1 North

##### Racial or Ethnic Minorities

With 15% or less of their populations being Caucasian, Dededo and Yigo have high percentages of racial and ethnic minorities based on U.S. averages (Table 19.1-1). Seventy-five percent (75%) of Dededo’s population is Chamorro and Filipino (combined), while 58% of Yigo is Chamorro and Filipino (combined). Both Dededo and Yigo have a slightly higher percentage of Filipinos (31% and 45%, respectively) than Chamorro (27% and 30%, respectively) (U.S. Census Bureau 2000a). The CNMI and other villages of Guam have similar percentages of racial minorities to Dededo and Yigo.

##### Low-Income Populations

Table 19.1-1 compares the percent of households in poverty in Dededo and Yigo to that of other villages on Guam, the U.S. population as a whole, and the CNMI. As the data indicate, while poverty rates in Dededo and Yigo are similar to those of other villages on Guam, CNMI’s poverty rate is almost double that of both Dededo and Yigo. Further, Dededo and Yigo’s poverty rates are double that of the U.S.

##### Children

As Table 19.1-1 indicates, both Dededo and Yigo have percentages of children similar to those of other Guam villages. However, these percentages are higher than those of both CNMI and the U.S. average.

Central Villages

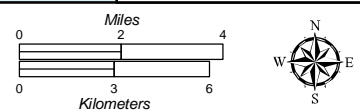
1. Hagåtña
2. Sinajana
3. Mongmong-Toto-Maite
4. Agana Heights
5. Chalan Pago-Ordot



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**Legend**

- Military Installation
- Village



**Figure 19.1-1  
Villages of Guam**

**Table 19.1-1. Villages Affected by the Proposed Action Alternatives on Guam:  
Percentage Ethnic Minorities, in Poverty, and Under 18 Years of Age**

<i>Villages Affected</i>	<i>Village Minority<sup>1</sup></i>	<i>CNMI Minority</i>	<i>U.S. Average Minority</i>	<i>Village Poverty<sup>2</sup></i>	<i>CNMI Poverty</i>	<i>U.S. Average Poverty</i>	<i>Village Children<sup>3</sup></i>	<i>CNMI Children</i>	<i>U.S. Average Children</i>
<b>North</b>									
Dededo	97%	98%	25%	25%	48%	11%	36%	28%	21%
Yigo	85%			22%			38%		
<b>Central</b>									
Mangilao	96%	98%	25%	27%	48%	11%	34%	28%	21%
Barrigada	95%			19%			35%		
Piti	84%			25%			30%		
<b>South</b>									
Santa Rita	76%	98%	25%	13%	48%	11%	31%	28%	21%
Agat	97%			29%			39%		
Umatac	99%			31%			43%		
Talofofu	93%			21%			40%		
Yona	70%			20%			41%		

Notes: <sup>1</sup> All the Guam villages identified in this table have minority populations that are at least three times the percentages of the average minority population in the U.S. (25%), but less than the CNMI average minority populations (98%).

<sup>2</sup> All Guam villages identified in this table have high percentages of people living in poverty relative to the U.S. average (11.3%), but less than the average for CNMI (48%).

<sup>3</sup> All Guam villages identified in this table have higher percentages of children compared to the U.S. average (21.4%) and the CNMI average (28%).

Sources: U.S. Census Bureau 2000b, CNMI Department of Commerce 2005.

#### 19.1.2.2 Central

Villages located in central Guam that would potentially be affected by the proposed action include Mangilao, Barrigada, and Piti (see Figure 19.1-1).

##### Racial or Ethnic Minorities

With only 4% of its population being Caucasian, Mangilao has a racial/ethnic majority compared to the U.S. average. However, this percentage is similar to the percentages of racial minorities in other villages on Guam and on CNMI. Mangilao has a higher percentage of Chamorros (47%) than Filipinos (22%) (U.S. Census Bureau 2000a).

With only 5% of its population being Caucasian, Barrigada has a high percentage of racial and ethnic minorities compared to the U.S. average (refer to Table 19.1-1). Like Mangilao, it has a higher percentage of Chamorros (56%) than Filipinos (19%) (U.S. Census Bureau 2000a).

While Piti has a higher percentage of Caucasians than the other Guam villages analyzed (16%), the majority of its population is a racial or ethnic minority compared to the U.S. average. Piti's percentage of racial minorities (84%) is lower than that of CNMI (98%) but still higher than the U.S. average (25%). Piti has a much higher percentage of Chamorros (60%) than Filipinos (7%) (U.S. Census Bureau 2000a).

##### Low-Income Populations

As indicated in Table 19.1-1, over one quarter (27%) of Mangilao's households live in poverty. While this percentage is similar to that of other villages on Guam and less than that of CNMI (48%), it is over two times greater than that of the U.S. (11%).

The percentage of households living in poverty in Barrigada in 2000 was 19%, which is relatively lower than other Guam villages. This is also substantially lower than the poverty rate on CNMI, which is close

to 50% (U.S. Census Bureau 2000b). However, while relatively low, Barrigada's poverty rate is still higher than the U.S. average.

According to the 2000 U.S. Census, 18% of households in Piti are living in poverty, which is similar to that of Barrigada but less than that of the other villages of Guam analyzed (refer to Table 19.1-1). Piti's poverty rate (18%) is substantially lower than that of CNMI (48%) is but still greater than the U.S. average (11%).

### Children

Mangilao has a similar percentage of children to that of other Guam villages (34%); however, this percentages is higher than both CNMI (28%) and the U.S. average (21%).

Barrigada's percentage of children is similar to that of the other Guam villages analyzed. However, Barrigada's percentage of children exceeds that of both CNMI and the U.S. (refer to Table 19.1-1).

Piti's percentage of children (30%) is similar to that of the Guam villages analyzed but still higher than that of CNMI (28%) and the U.S. (21%).

#### 19.1.2.3 South

Villages located in the south part of Guam that would potentially be affected by the proposed action include Santa Rita, Agat, northern Umatac, Tolofofo, and Yona (refer to Figure 19.1-1).

### Racial or Ethnic Minorities

Santa Rita has one of the highest percentages of Caucasians on the island of Guam (24%) (refer to Table 19.1-1). CNMI has a higher percentage of racial minorities (98%) than Santa Rita (76%). However, Santa Rita has a higher percentage of racial minorities than the U.S. average (25%). The population in Santa Rita is 31% Chamorro and 20% Filipino (U.S. Census Bureau 2000a).

Agat, Talofofo, and Umatac have similarly high percentages of racial minorities compared to the other villages on Guam analyzed and to CNMI. The percentage of racial minorities in Yona (70%) is similar to that of Santa Rita (76%). Agat, Talofofo, Umatac, and Yona have higher percentages of racial minorities than the U.S. average (25%).

Agat, Talofofo, Umatac, and Yona have some of the highest percentages of Chamorros on Guam (67%, 79%, 95%, and 70%, respectively). While 23% of the population in Agat is Filipino, the percentage of Filipinos in Talofofo, Umatac, and Yona is 5% or less (U.S. Census Bureau 2000a).

### Low-income Populations

Santa Rita has the lowest percentage of households in poverty on the island (refer to Table 19.1-1). Santa Rita's poverty rate (13.4%) is substantially lower than that of CNMI (48%) but is still not as low as the U.S. (11%) (U.S. Census Bureau 2000b).

While Umatac has the highest poverty rate of the other southern villages on Guam that were analyzed (31%), this is lower than the CNMI poverty rate (48%). All villages of southern Guam and CNMI have poverty rates higher than the U.S. average (11%).

### Children

As indicated in Table 19.1-1, Santa Rita has a similar percentage of children to the other Guam villages examined. However, the percent of children in Santa Rita (31%) is slightly higher than that of CNMI (28%) and higher than that of the U.S. (21%).

The villages of southern Guam, especially Agat, Umatac, Talofoto, and Yona, have substantially higher percentages of children than villages in other regions of Guam. They also have substantially higher percentages of children than CNMI and the U.S.

## 19.2 ENVIRONMENTAL CONSEQUENCES

This description of environmental consequences addresses all components of the proposed action for the Marine Corps on Guam. The components addressed include: Main Cantonment, Training, Airfield, and Waterfront. There are multiple alternatives for the Main Cantonment, Training-Firing Range, Training-Ammunition Storage, and Training-NMS Access Road. Airfield and Waterfront do not have alternatives. Although organized by the Main Cantonment alternatives, a full analysis of each alternative, Airfield, and Waterfront is presented beneath the respective headings. A summary of impacts specific to each alternative, Airfield, and Waterfront is presented at the end of this chapter. An analysis of the impacts associated with the off base roadways is discussed in Volume 6.

### 19.2.1 Approach to Analysis

#### 19.2.1.1 Methodology

Volume 2 of this EIS/OEIS examines and identifies the potential impacts that each alternative may have on various resources on Guam. Based on the conclusions reached in each resource chapter, the analysis of environmental justice sought to identify the adverse impacts that would disproportionately affect racial minorities, children, and/or low-income populations, based on the following assumptions.

- Environmental justice policies are intended to analyze disproportionate impacts of potentially harmful environmental impacts on minority or other special status populations. However, the island of Guam is unique in that the majority of the population is a racial or ethnic minority, and low-income and child populations also comprise a relatively large proportion of the population (compared to the U.S.). Consequently, in this analysis it is assumed that any adverse impact that would affect the island as a whole, and any localized adverse impact that would affect a particular community on Guam, would have a disproportionate effect in terms of environmental justice.
- The region of influence (ROI) is defined as the area in which the principal effects arising from the implementation of the proposed action or alternatives are likely to occur. Those who may be affected by the consequences of the alternatives are often those who reside or otherwise occupy areas immediately adjacent to the alternative locations.
- Because impacts under the proposed action are related either to construction or operations, impacts to villages could result from either a “spill over” effect that extends beyond an installation’s boundary line into the surrounding community (for instance, noise impacts from operations), or that directly affect minority populations in the ROI.

The analysis involved the application of three tiers of criteria to assess the environmental justice implications of each adverse effect identified in the relevant resource chapters:

- *Tier 1: Are there any racial minorities, low-income, or children populations adjacent to the proposed action site?*
- *Tier 2: Are the applicable disadvantaged groups disproportionately affected by the negative environmental consequences of the proposed action(s)?*
- *Tier 3: Would the disproportionate adverse effects be significant?*



### 19.2.1.2 Determination of Significance

According to Section 1508.27 of the CEQ Regulations for Implementing NEPA (CEQ 1979), determining the level of significance of an environmental impact requires that both context and intensity be considered. These are defined in Section 1508.27 as follows:

- “Context. This means that the significance of an action must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality. Significance varies with the setting of the proposed action. For instance, in the case of a site-specific action, significance would usually depend upon the effects in the locale rather than in the world as a whole. Both short- and long-term effects are relevant”.
- “Intensity. This refers to the severity of the impact. Responsible officials must bear in mind that more than one agency may make decisions about partial aspects of a major action. The following should be considered in evaluating intensity:
  - Impacts that may be both beneficial and adverse. A significant effect may exist even if the federal agency believes that on balance the effect would be beneficial.
  - The degree to which the proposed action affects public health or safety.
  - Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.
  - The degree to which the effects on the quality of the human environment are highly uncertain or involve unique or unknown risks.
  - The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.
  - Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.
  - The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.
  - The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined critical under the Endangered Species Act of 1973.
  - Whether the action threatens a violation of federal, state, or local law or requirements imposed for the protection of the environment.”

This chapter uses these criteria to determine significance for the proposed action in terms of Environmental Justice.

### 19.2.1.3 Issues Identified During Public Scoping Process

As part of the analysis, concerns relating to environmental justice or the protection of children that were mentioned by the public, including regulatory stakeholders, during scoping meetings were addressed. These included:

- Concerns that disruption to family lives and cultural values would ultimately, “jeopardize the future of [indigenous] children.”
- Concerns from the Micronesian Youth Services Network about ensuring that, “the transition of personnel on our islands will not disrupt our family lives and our cultural values...”

- Concerns that indigenous people of Guam are treated as second-class citizens. One commenter from Saipan indicated that, “these are their islands, and the locals’ culture and related artifacts which still can be found...are also deserving of respect.”
- Sanctuary, Incorporated, a non-profit organization focused on youth and their families, recommended using the *Social Impact Assessment Guide and Principles* as a basis for conducting the social impact study for this EIS/OEIS.
- The Chamorro Studies Association requested, “protect the people of Guam and their human rights.”
- The CMTF Social and Cultural Subcommittee submitted a comprehensive paper on the subject of Chamorro interests (see Appendix G). That subcommittee recommends that the EIS identify issues and concerns that must be addressed to minimize negative social impacts and allow local and military communities to live in harmony.

19.2.1.4 Best Management Practices

Given the public concern expressed during the public scoping process and in keeping with CEQ guidance to “develop effective public participation strategies”, the following Best Management Practices (BMPs) are recommended (Table 19.2-1) to ensure that minority populations on Guam have the ability to participate in the public review process of this EIS/OEIS:

**Table 19.2-1 Environmental Justice Best Management Practices**

<i>Alternative 1</i>	<i>Alternative 2</i>	<i>Alternative 3</i>	<i>Alternative 8</i>
<b>Public Involvement</b>			
<ul style="list-style-type: none"> <li>• Public meetings would be located in areas most accessible to public transportation</li> <li>• Public notices would be printed as well as online</li> <li>• Extra effort would be made to inform residents in southern Guam about public meetings</li> <li>• Written materials would be provided in the Chamorro language and an interpreter will be provided at meetings</li> </ul>	<ul style="list-style-type: none"> <li>• Public meetings would be located in areas most accessible to public transportation</li> <li>• Public notices would be printed as well as online</li> <li>• Extra effort would be made to inform residents in southern Guam about public meetings</li> <li>• Written materials would be provided in the Chamorro language and an interpreter will be provided at meetings</li> </ul>	<ul style="list-style-type: none"> <li>• Public meetings would be located in areas most accessible to public transportation</li> <li>• Public notices would be printed as well as online</li> <li>• Extra effort would be made to inform residents in southern Guam about public meetings</li> <li>• Written materials would be provided in the Chamorro language and an interpreter will be provided at meetings</li> </ul>	<ul style="list-style-type: none"> <li>• Public meetings would be located in areas most accessible to public transportation</li> <li>• Public notices would be printed as well as online</li> <li>• Extra effort would be made to inform residents in southern Guam about public meetings</li> <li>• Written materials would be provided in the Chamorro language and an interpreter will be provided at meetings</li> </ul>

*Note:* In addition, for all alternatives, the Mitigation Measures proposed for Chapters 6, 8, 9, 10, and 12 of Volume 2 are recommended; refer to Tables 6.2-6, 8.2-7, 9.2-6, 10.2-15, and 12.2-6, respectively.

**19.2.2 Alternative 1**

19.2.2.1 North

Recreation

As described in Volume 2, Chapter 9 (Recreational Resources), there are numerous public recreational resources in Dededo and Yigo. Chapter 9 discusses that while the proposed action would occur on DoD land, indirect adverse impacts to public recreational resources are anticipated due to the large influx of

military, their dependents, and the H2B workers that are anticipated to provide much of the labor for the construction effort in the north. As Chapter 9 states, this increase in people would cause an increase in demand for the recreational services, which would likely result in crowding during peak use times (i.e. weekends, holidays, and evenings during summer), as well as increased wear and tear on the resources themselves. While the population is expected to taper off again in a few years, this would nonetheless alter the availability and condition of public recreational resources on northern Guam. Potentially affected resources include: Guam International Raceway, Marbo Cave, Pagat Trail and associated trails in the vicinity, cultural gathering activities (*suruhana*), and off-shore fishing near Marbo Cave. Implementation of Alternative 1, regardless of the Training Complex Alternatives A or B, would cause the cessation of the present activities at all the resources mentioned because the Known Distance (KD) Range Complex is proposed in that location.

The loss of Guam International Raceway land and use in particular would be a significant adverse impact. Guam's only automobile raceway is located on a 250-acre (100-ha) parcel of land leased from the Chamorro Land Trust and operated under a 21-year commercial license administered by the Guam Economic Development Authority. To date, the Government of Guam has spent approximately \$7.3 million and volunteers have donated many hours developing the Raceway's facilities. The Raceway began holding events in 2002 and has since operated continuously. The Raceway offers a variety of race venues that provide a variety of activities for various user groups, including participation in soap box derbies and mini bike races for children; quarter mile drag racing, drifting, obstacle course maneuvering, four wheeling rock crawl and mud events, stock car racing, off-road racing for adults and young adults; and construction vehicle events for spectators of all ages. Motocross and drag races are the most frequently held events. International motorcycle and off-road races promote tourism and draw professional competitors from both the U.S. and Asia. In addition to races, the Raceway hosts a number of special events every year, including music concerts, car shows, and driving schools. Some special events are combined with races and draw crowds of over 5,000 people. The Raceway is a popular recreational venue for tourists and Guam's local and military population, and has over 100 races and events scheduled for 2009. Therefore, Alternative 1 would result in significant impacts to recreational resources.

*Tier 1: Are there any racial minorities, low-income, or children populations adjacent to the proposed action site?*

The recreational resources are generally used by all people of Guam, which includes a high proportion of racial or ethnic minorities, low-income individuals, and children.

*Tier 2: Are the applicable disadvantaged groups disproportionately affected by the negative environmental consequences of the proposed action(s)?*

As described above, racial or ethnic minority groups comprise the majority of the population of Guam and so the impacts would disproportionately affect this disadvantaged group. The low-income population and children would not be disproportionately affected.

*Tier 3: Would the disproportionate adverse effect(s) be significant?*

As described in Volume 2, Chapter 9 (Recreational Resources), Alternative 1 would result in significant impacts to recreational resources. Therefore, this impact would also be significant in terms of environmental justice.

### Cultural Resources

Volume 2, Chapter 12 (Cultural Resources), has identified both archaeological and cultural resources at Andersen AFB and Finegayan that are anticipated to be impacted by the proposed action. With mitigation measures, Chapter 12 has determined that the impacts to the resources themselves would be less than significant. However, because these resources are of value to a racial/ethnic group on Guam, this section analyzes the action in terms of environmental justice.

*Tier 1: Are there any racial minorities, low-income, or children populations adjacent to the proposed action site?*

The value of these resources is tied to the Chamorro history and culture, rather than to a specific geographic area.

*Tier 2: Are the applicable disadvantaged groups disproportionately affected by the negative environmental consequences of the proposed action(s)?*

The proposed action may affect resources of value to a particular racial/ethnic group on the island: the Chamorros. So there would be a disproportionate impact on a particular racial minority group. There would be no disproportionate impact to low-income populations or children specifically.

*Tier 3: Would the disproportionate adverse effect(s) be significant?*

While Section 106 would be adhered to and mitigation has been proposed to reduce the adverse effects, Section 1508.27 of the CEQ Regulations (2007) states that the following may be considered a significant impact: “unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wild and scenic rivers, or ecologically critical areas.” The impacts may affect the unique historic and cultural resources of a racial minority group. However, with implementation of the mitigation measures in Chapter 12 of this volume, the impacts would be reduced to less than significant.

### Off Base Transportation

The FHWA traffic study uses a volume to capacity ratio (v/c ratio) to determine the anticipated level of traffic congestion by 2014. If a v/c ratio is greater than 1, the increased traffic is anticipated to reach a level that would cause congestion. Due to the aforementioned and other construction activities in the north, the FHWA traffic study projects that by 2014 the following northern roadways and intersections will have a v/c ratio greater than 1:

- The portion of Route 3 south of the Residential Gate and between Route 28 and Main Gate in both the morning and afternoon
- The intersection of Routes 3, 3A, and 9 in the morning

*Tier 1: Are there any racial minorities, low-income, or children populations adjacent to the proposed action site?*

Over 90% of the local population in Dededo and Yigo are racial minorities (Table 19.1-1). Relative to the U.S. both Dededo and Yigo have a high poverty rate, although some villages in Guam have higher poverty rates. Compared to both CNMI and the U.S., both Dededo and Yigo have a high percentage of children (see Section 19.1.2.1).

*Tier 2: Are the applicable disadvantaged groups disproportionately affected by the negative environmental consequences of the proposed action(s)?*

The racial minorities and low-income populations that live in northern Dededo and northern Yigo near Routes 3 and 9 would be disproportionately impacted by increased traffic. There would be no disproportionate impact to children.

*Tier 3: Would the disproportionate adverse effect(s) be significant?*

Because the traffic increase is anticipated to reach the level of congestion, the impact would be significant. However, with implementation of the mitigation measures in the FHWA traffic study, as well as the mitigation measures proposed in Section 19.2.2.5 of this chapter, the impacts would be reduced to less than significant.

#### Access to Public Health and Social Services

According to Chapter 16 of this volume, health services of the Guam Department of Public Health and Social Services (GDPHSS) and the Guam Department of Mental Health and Substance Abuse (GDMHSA) target the most indigent populations for health care. Therefore, the majority of Guam residents accessing health services from the GDPHSS and the GDMHSA are low-income and uninsured. However, many people with health insurance also use GDPHSS and GDMHSA services because unaffordable co-payments or missing coverage for specific services and medications necessitate that they access the free services of these two public agencies. This section assesses if the proposed action would disproportionately reduce or limit access to GDPHSS and GDMHSA services to low-income populations on Guam.

*Tier 1: Are there any racial minorities, low-income, or children populations adjacent to the proposed action site?*

The people who access GDPHSS and GDMHSA are predominantly low-income.

*Tier 2: Are the applicable disadvantaged groups disproportionately affected by the negative environmental consequences of the proposed action(s)?*

Because the GDPHSS and GDMHSA's programs are designed to primarily serve the poor and uninsured, low-income populations of Guam would be disproportionately impacted by factors that would affect these programs. According to Chapter 16 of this volume, the population growth associated with the proposed action would increase the number of uninsured and underinsured people attempting to access the free services of GDPHSS and GDMHSA, especially temporary workers entering Guam through the Compact of Free Association agreement that does not require individuals to have health coverage before arriving on Guam. Without an increase in staff and other resources, this increase in demand for GDPHSS and GDMHSA would strain existing services to low-income people on Guam.

*Tier 3: Would the disproportionate adverse effect(s) be significant?*

This would depend on how great the demand would be. Given that the GDPHSS and GDMHSA programs are already strained and insufficient to support the needs of the low-income population on Guam, it is likely that the substantial population increase anticipated as part of the proposed action would have significant adverse effects on the low-income and uninsured populations on Guam. However, with implementation of the mitigation measures in Section 19.2.2.5, the impacts would be reduced to less than significant.

### Socioeconomic Impacts

According to Chapter 16 of this EIS/OEIS, the proposed action would have several adverse socioeconomic impacts. Implementation of the proposed action would result in a “boom then bust” effect where the population on Guam would increase rapidly through 2014 during the construction phase, and then decrease rapidly after 2014 before leveling off. This cycle would lead to a construction downturn and the creation of an economic environment that meets standard definitions of an economic recession (e.g. decrease in jobs and civilian labor force income). With implementation of the proposed action, the cost of goods and services would rise with the increase in population, but may not be matched by an increase in income. Further, high housing costs, crowding, and/or homelessness may occur if the construction phase housing demand is not met at the construction peak. This section assesses these impacts in terms of Environmental Justice.

*Tier 1: Are there any racial minorities, low-income, or children populations adjacent to the proposed action site?*

As Table 19.1-1 indicates, Guam villages have a high percentage of low-income people relative to the U.S. The villages have similar percentages of low-income populations when compared to each other and to CNMI (Table 19.1-1).

*Tier 2: Are the applicable disadvantaged groups disproportionately affected by the negative environmental consequences of the proposed action(s)?*

Generally, people with lower incomes have a more difficult time surviving under economic pressures. While all populations on Guam would experience the aforementioned socioeconomic impacts, lower-income people are more likely to slip into poverty under economic distress. Low-income people are more financially vulnerable because they have fewer resources to support them in difficult economic times. The possible combination of higher costs of goods and services with higher housing costs would likely affect low-income people more severely than those with additional resources. Stressful economic circumstances may push people on the verge of poverty into poverty.

*Tier 3: Would the disproportionate adverse effect(s) be significant?*

Chapter 16 proposes mitigation measures to reduce the potential socioeconomic impacts. If these mitigation measures are implemented, they would help reduce the impact of the proposed action on the low-income populations on Guam.

#### 19.2.2.2 Central

### Recreational and Cultural Resources

Due to the proposed action, Pagat Trail, both a recreational and a cultural resource near Andersen South, would be closed to the public because it would be located within the safety zone of a planned fire training area. Cultural resource mitigation in Volume 2, Chapter 12 suggests that the military would consider allowing limited access to this and other cultural sites to the Chamorros.

*Tier 1: Are there any racial minorities, low-income, or children populations adjacent to the proposed action site?*

The value of these resources is tied to the Chamorro history and culture, rather than to a specific geographic area.

*Tier 2: Are the applicable disadvantaged groups disproportionately affected by the negative environmental consequences of the proposed action(s)?*

The proposed action may affect resources of value to a particular racial/ethnic group on the island: the Chamorros. So there would be a disproportionate impact on a particular racial minority group. There would be no disproportionate impact to low-income populations or children specifically.

*Tier 3: Would the disproportionate adverse effect(s) be significant?*

While Section 106 would be adhered to and mitigation has been proposed to reduce the adverse effects, Section 1508.27 states that the following may be considered significantly impacted: “unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wild and scenic rivers, or ecologically critical areas.” The adverse impacts would affect unique historic and cultural resources of a racial minority group. Further, historic resources like Pagat Trail that are now fully accessible to the public would have limited and regulated access. However, with implementation of the mitigation measures in Chapter 12, the impacts would be reduced to less than significant.

#### Off Base Transportation

According to the FHWA Study, with the implementation of Alternative 1, traffic is projected to increase in the following areas by 2014: Route 3, Route 10 north of Route 32 to Route 8, Route 15 at its intersection with Route 10, Route 16, Route 25, Route 26, and Route 28.

*Tier 1: Are there any racial minorities, low-income, or children populations adjacent to the proposed action site?*

The villages that would be impacted by actions proposed in the central region include Mangilao and Barrigada. These village populations all have a majority of racial minorities. Mangilao also has a high poverty rate compared to the U.S. average (refer to Table 19.1-1). These villages do not have high percentages of children relative to the other villages on Guam but they do have higher percentages of children than the U.S. (refer to Table 19.1-1).

*Tier 2: Are the applicable disadvantaged groups disproportionately affected by the negative environmental consequences of the proposed action(s)?*

The racial minorities and low-income populations living near these roads would experience the traffic increase disproportionately relative to racial minorities and low-income populations that do not live near these roadways. Children would not be disproportionately impacted.

*Tier 3: Would the disproportionate adverse effect(s) be significant?*

The FHWA traffic study uses a v/c ratio to determine the anticipated level of traffic congestion. If a v/c ratio is greater than 1, the road is anticipated to be congested. According to the FHWA traffic study, by 2014 Alternative 1 is projected to result in a v/c ratio greater than 1 along the following roadways: Route 3, Route 10 north of Route 32 to Route 8, Route 15 at its intersection with Route 10, Route 16, Route 25, Route 26, and Route 28. Therefore, the impact would be significant. However, with implementation of proposed mitigation in the traffic study, as well as the mitigation proposed in Section 19.2.2.5, the impacts would be less than significant.

#### Land Acquisition of Proposed Range A and B Areas

As described in Chapter 2 of this volume, two ranges are proposed for the Route 15 lands near Andersen South. The Route 15 lands are owned by private owners as well as by the Government of Guam

(GovGuam), and the proposed action would include the federal government acquiring these lands through negotiation.

*Tier 1: Are there any racial minorities, low-income, or children populations adjacent to the proposed action site?*

The site itself is sparsely developed; however, based on the data provided in Sections 19.1.2 – 19.1.4, the private land owners are likely to be racial minorities that live in areas with a higher poverty rate than the U.S.

*Tier 2: Are the applicable disadvantaged groups disproportionately affected by the negative environmental consequences of the proposed action(s)?*

Assuming that the lands are acquired through negotiations and compensation is paid to the landowners there would be no disproportionate adverse impact.

#### Access to Public Health and Social Services

Impacts would be the same as for the North.

#### Socioeconomic Impacts

Impacts would be the same as for the North.

#### 19.2.2.3 Apra Harbor

As discussed in Chapter 2 of this volume, proposed Marine Corps actions at Navy Base Guam include the construction of a ship berthing and embarkation/staging area and the construction of an amphibious craft laydown area. Also included are the relocation of U.S. Coast Guard facilities, the military working dog kennel, and Apra Medical/Dental Clinic.

#### Off Base Transportation

The construction for the Marine Corps actions at Naval Base Guam would increase traffic along Route 1, but because only two facilities would be constructed, it is not a large enough action alone to increase traffic to significant levels. This is supported by the FHWA traffic study, which does not project that traffic would increase along the major roadways near Apra Harbor (Routes 1, 2A, and 11) to the level of congestion by 2014. So there would not be a significant adverse effect at Apra Harbor.

#### Access to Public Health and Social Services

Impacts would be the same as the North.

#### Socioeconomic Impacts

Impacts would be the same as the North.

#### 19.2.2.4 South

#### Recreation

While there are fewer public recreational resources in the south, there are several resources along the coast as described in Volume 2, Chapter 9. An increase in the number of people using these resources is anticipated with implementation of the proposed action. This may have an adverse impact on the ability of others to use these resources.



*Tier 1: Are there any racial minorities, low-income, or children populations adjacent to the proposed action site?*

There are high percentages of racial minorities in the southern villages of Guam, and many of these villages have high levels of poverty and children.

*Tier 2: Are the applicable disadvantaged groups disproportionately affected by the negative environmental consequences of the proposed action(s)?*

Minority and low-income populations would be disproportionately affected as a function of the demographics of villages in the area. Children would not be disproportionately affected.

*Tier 3: Would the disproportionate adverse effect(s) be significant?*

Volume 2, Chapter 9 describes mitigation measures that would reduce the potential impacts to a less than significant level. Therefore, environmental justice impacts would also be mitigated to a less than significant level.

#### Off Base Transportation

The FHWA traffic study projections indicate that traffic on Route 5 would increase to the level of congestion by 2014 during the evening with the implementation of Alternative 1. This traffic increase will now be examined in terms of environmental justice.

*Tier 1: Are there any racial minorities, low-income, or children populations adjacent to the proposed action site?*

These roads run through the village of Santa Rita, which, while still having a high percentage of racial minorities, people in poverty, and children than the U.S., has one of the lowest poverty rates in Guam. Santa Rita has a relatively high proportion of children relative to other villages on Guam and the U.S. (refer to Table 19.1-1).

*Tier 2: Are the applicable disadvantaged groups disproportionately affected by the negative environmental consequences of the proposed action(s)?*

The racial minorities and low-income populations living near Routes 5 would be disproportionately impacted. Children would not be disproportionately impacted.

*Tier 3: Would the disproportionate adverse effect(s) be significant?*

The FHWA traffic study projects that by 2014, the v/c ratio along Route 5 would be greater than 1, which indicates that traffic would increase to the level of congestion. Therefore, this impact would be significant. However, with implementation of the proposed mitigation measures in the FHWA traffic study, as well as those in Section 19.2.2.5, the impacts would be reduced to less than significant.

#### Access to Public Health Services

Impacts would be the same as the North.

#### Socioeconomic Impacts

Impacts would be the same as the North

#### 19.2.2.5 Potential Mitigation Measures

To reduce potential impacts from the implementation of Alternative 1, it is recommended that the mitigation measures in Chapters 6, 8, 9, 10, 12 and 16 of Volume 2, as well as those in the transportation

chapter of this Volume 6, be implemented. This would reduce impacts related to noise, recreation, cultural resources, land ownership/use, and traffic on the surrounding community.

The following measures are recommended to address potential impacts to low-income people due to the proposed land acquisition or long term leasing of the Route 15 lands:

- The mitigation measures in Chapter 8, Land Use.

The following measures are recommended to reduce the strain on GDPHSS and GDMHSA health services for the poor and uninsured:

- DoD would consider assisting GovGuam in finding the resources needed to support the increase in demand for public services.

The following measures would likely reduce the socioeconomic impacts to low-income residents of Guam:

- The mitigation measures in Chapter 16, Socioeconomics.

### **19.2.3 Alternative 2 (Preferred Alternative)**

#### 19.2.3.1 North

The impacts for the actions proposed in Alternative 2 are the same as those discussed under Alternative 1.

#### 19.2.3.2 Central

The impacts for the actions proposed in Alternative 2 are the same as those discussed under Alternative 1.

#### 19.2.3.3 Apra Harbor

The impacts for the actions proposed in Alternative 2 are the same as those discussed under Alternative 1.

#### 19.2.3.4 South

The impacts for the actions proposed in Alternative 2 are the same as those discussed under Alternative 1.

#### 19.2.3.5 Potential Mitigation Measures

The mitigation measures proposed for Alternative 2 are the same as those proposed for Alternative 1.

### **19.2.4 Alternative 3**

#### 19.2.4.1 North

The impacts for the actions proposed in Alternative 3 are the same as those discussed under Alternatives 1 and 2.

#### 19.2.4.2 Central

According to Volume 2, Chapter 10, Alternative 3 includes an adverse impact at Navy and Air Force Barrigada to vegetation due to the removal of 153 ac (62 ha) of previously uncleared limestone forest. The tree removal would generate traffic from construction laborers driving to and from the work site and the transport of material and debris. The villages adjacent to Navy and Air Force Barrigada are Mangilao and Barrigada. However, the proposed action would occur on base. This action will now be analyzed in terms of environmental justice.

*Tier 1: Are there any racial minorities, low-income, or children populations adjacent to the proposed action site?*

Both Mangilao and Barrigada have high percentages of racial minorities. Mangilao has a high percentage of poverty relative to the rest of Guam and the U.S., while Barrigada has a lower level of poverty relative to the rest of Guam but higher than the U.S. Both Mangilao and Barrigada have high percentages of children relative to CNMI and the U.S. (refer to Table 19.1-2).

*Tier 2: Are the applicable disadvantaged groups disproportionately affected by the negative environmental consequences of the proposed action(s)?*

This would affect the racial minorities and low-income populations who live in proximity to Routes 3 and 10 disproportionately. Children would not be disproportionately impacted.

*Tier 3: Would the disproportionate adverse effect(s) be significant?*

The FHWA traffic study projections indicate that the traffic along Routes 2 and 10 would increase to the level of congestion. However, with implementation of the proposed mitigation measures in the FHWA traffic study (Volume 6), the impacts would be reduced to less than significant.

#### 19.2.4.3 Apra Harbor

The impacts for the actions proposed in Alternative 3 are the same as those discussed under Alternatives 1 and 2.

#### 19.2.4.4 South

The impacts for the actions proposed in Alternative 3 are the same as those discussed under Alternatives 1 and 2.

#### 19.2.4.5 Potential Mitigation Measures

The mitigation measures proposed for Alternative 3 are the same as those proposed for Alternatives 1 and 2.

### **19.2.5 Alternative 8**

#### 19.2.5.1 North

The impacts for the actions proposed in Alternative 8 are the same as those discussed under Alternatives 1 and 2.

#### 19.2.5.2 Central

The impacts for the actions proposed in Alternative 8 are the same as those discussed under Alternatives 1 and 2.

#### 19.2.5.3 Apra Harbor

The impacts for the actions proposed in Alternative 8 are the same as those discussed under Alternatives 1 and 2.

#### 19.2.5.4 South

The impacts for the actions proposed in Alternative 8 are the same as those discussed under Alternatives 1 and 2.

#### 19.2.5.5 Potential Mitigation Measures

The mitigation measure proposed under Alternative 8 are the same as those proposed under Alternatives 1 and 2.

**19.2.6 No-Action Alternative**

Under the no-action alternative, no construction or operations associated with the proposed action to Guam would occur. Existing operations at the proposed project areas would continue. Recreational and Cultural Resources like Pagat Trail in northern Guam would remain open to the public, so there would be no disproportionate impact to Chamorros. Traffic congestion along major roadways throughout Guam would not increase due to an influx of construction laborers and military.

The GDPHSS and GDMHSA services would be insufficient to meet the demand; however, their programs would not have the added strain of increased demand due to uninsured and underinsured migrant workers. The no-action alternative would not change the present impact and status of minority, low-income, or children populations.

Under the no-action alternative, the economy of Guam would not change as rapidly as under the proposed action. There would remain a high percentage of low-income people on Guam.

**19.2.7 Summary of Potential Impacts**

Tables 19.2-2, 19.2-3, 19.2-4, and 19.2-5 summarize the potential impacts of each action alternative associated with the Main Cantonment, firing range training, ammunition storage, and NMS access roads. Table 19.2-6 summarizes the potential impacts of other training, airfield, and waterfront components of the proposed action. As these tables indicate, resources that may have effects in terms of Environmental Justice include cultural resources, traffic, access to public health services, and socioeconomics. With implementation of the mitigation measures in other chapters of this volume, these impacts would be reduced to less than significant.

**Table 19.2-2. Summary of Main Cantonment Impacts – Alternatives 1, 2, 3 and 8**

<i>Main Cantonment Alternative 1 (North)</i>	<i>Main Cantonment Alternative 2 (North)</i>	<i>Main Cantonment Alternative 3 (North/Central)</i>	<i>Main Cantonment Alternative 8 (North/Central)</i>
<p>SI-M</p> <ul style="list-style-type: none"> <li>Traffic along Routes 2, 28, 3, 3A, and 9 would increase to the level of congestion and disproportionately impact disadvantaged populations who live near them. With implementation of mitigation measures in Volume 6, would be reduced to less than significant.</li> </ul>	<p>SI-M</p> <ul style="list-style-type: none"> <li>Traffic along Routes 2, 28, 3, 3A, and 9 would increase to the level of congestion and disproportionately impact disadvantaged populations who live near them. With implementation of mitigation measures in Volume 6, would be reduced to less than significant.</li> </ul>	<p>SI-M</p> <ul style="list-style-type: none"> <li>Traffic along Route 3, Route 10 north of Route 32 to Route 8, Route 15 at its intersection with Route 10, and Routes 2, 16, 25, 26, and 28 would increase to the level of congestion and disproportionately impact disadvantaged populations living along these routes. With implementation of mitigation measures in Volume 6, would be reduced to less than significant.</li> </ul>	<p>SI-M</p> <ul style="list-style-type: none"> <li>Traffic along Route 3, Route 10 north of Route 32 to Route 8, Route 15 at its intersection with Route 10, and Routes 2, 16, 25, 26, and 28 would increase to the level of congestion and disproportionately impact disadvantaged populations living along these routes. With implementation of mitigation measures in Volume 6, would be reduced to less than significant.</li> </ul>

<i>Main Cantonment Alternative 1 (North)</i>	<i>Main Cantonment Alternative 2 (North)</i>	<i>Main Cantonment Alternative 3 (North/Central)</i>	<i>Main Cantonment Alternative 8 (North/Central)</i>
<ul style="list-style-type: none"> <li>• Traffic is projected to increase to the level of congestion along Route 5 by 2014. This would disproportionately impact racial minorities and low-income people who live along or near Route 5. With implementation of mitigation in Volume 6, these impacts would be reduced to less than significant.</li> <li>• Cultural resources may be affected by construction, training, or vandalism, which would be a significant effect to resources valued by Chamorros. With implementation of mitigation measures in Chapter 12, this effect would be reduced to less than significant.</li> <li>• Access to public health and social services would be strained by an increase in uninsured and underinsured workers coming to Guam. Implementation of mitigation measures in Chapter 16 would reduce this effect.</li> <li>• The “boom and then bust” cycle of population growth and decline may stress the Guam economy. This would be felt more severely by low-income people, who often do not have resources to buffer hard economic times. Implementation of mitigation measures in Chapter 16 would reduce this effect.</li> </ul>	<ul style="list-style-type: none"> <li>• Cultural resources may be affected by construction, training, or vandalism, which would be a significant effect to resources valued by Chamorros. With implementation of mitigation measures in Chapter 12, this effect would be reduced to less than significant.</li> <li>• Access to public health services would be strained by an increase in uninsured and underinsured workers coming to Guam. Implementation of mitigation measures in Chapter 16 would reduce this effect.</li> <li>• The “boom and then bust” cycle of population growth and decline may stress the Guam economy. This would be felt more severely by low-income people, who often do not have resources to buffer hard economic times. Implementation of mitigation measures in Chapter 16 would reduce this effect.</li> </ul>	<ul style="list-style-type: none"> <li>• Impacts to cultural resources would be the same as for Alternative 1.</li> <li>• Access to public health services would be strained by an increase in uninsured and underinsured workers coming to Guam. Implementation of mitigation measures in Chapter 16 would reduce this effect.</li> <li>• The “boom and then bust” cycle of population growth and decline may stress the Guam economy. This would be felt more severely by low-income people, who often do not have resources to buffer hard economic times. Implementation of mitigation measures in Chapter 16 would reduce this effect.</li> </ul>	<ul style="list-style-type: none"> <li>• Impacts to cultural resources would be the same as for Alternative 1.</li> <li>• Access to public health services would be strained by an increase in uninsured and underinsured workers coming to Guam. Implementation of mitigation measures in Chapter 16 would reduce this effect.</li> <li>• The “boom and then bust” cycle of population growth and decline may stress the Guam economy. This would be felt more severely by low-income people, who often do not have resources to buffer hard economic times. Implementation of mitigation measures in Chapter 16 would reduce this effect.</li> </ul>

Legend: SI-M = Significant impact mitigable to less than significant.

**Table 19.2-3 Summary of Training Impacts – Firing Range Alternatives**

<i>Firing Range Alternative A (Central)</i>	<i>Firing Range Alternative B (Central)</i>
SI-M <ul style="list-style-type: none"> <li>Loss of access to and use of recreational resources (Guam International Raceway, Marbo Cave (spelunking and offshore fishing), Pagat Trail and associated trails, <i>suruhana</i> activities)</li> </ul> SI-M <ul style="list-style-type: none"> <li>Route 15 lands would be acquired for proposed Ranges A and B. Assuming that private lands would be acquired through negotiation and that landowners would be compensated, impacts would be less than significant</li> </ul>	SI-M <ul style="list-style-type: none"> <li>Loss of access to and use of recreational resources (Guam International Raceway, Marbo Cave (spelunking and offshore fishing), Pagat Trail and associated trails, <i>suruhana</i> activities)</li> </ul> SI-M <ul style="list-style-type: none"> <li>Route 15 lands would be acquired for proposed Ranges A and B. Assuming that private lands would be acquired through negotiation and that landowners would be compensated, impacts would be less than significant</li> </ul>

Legend: SI = Significant impact, SI-M = Significant impact mitigable to less than significant.

**Table 19.2-4. Summary of Training Impacts – Ammunition Storage Alternatives**

<i>Ammunition Storage Alternative A (South)</i>	<i>Ammunition Storage Alternative B (South)</i>
NI <ul style="list-style-type: none"> <li>No impacts</li> </ul>	NI <ul style="list-style-type: none"> <li>No impacts</li> </ul>

Legend: NI = No impact.

**Table 19.2-5. Summary of Training Impacts – NMS Access Roads Alternatives**

<i>Access Road Alternative A (South)</i>	<i>Access Road Alternative B (South)</i>
NI <ul style="list-style-type: none"> <li>No impacts</li> </ul>	NI <ul style="list-style-type: none"> <li>No impacts</li> </ul>

**Table 19.2-6. Summary of Other Training, Airfield, and Waterfront Component Impacts**

<i>Other Training (North/Central/South)</i>	<i>Airfield (North)</i>	<i>Waterfront (Apra Harbor)</i>
NI <ul style="list-style-type: none"> <li>No impacts</li> </ul>	NI <ul style="list-style-type: none"> <li>No impacts</li> </ul>	NI <ul style="list-style-type: none"> <li>No impacts</li> </ul>

Legend: NI = No impact.

**19.2.8 Summary of Potential Mitigation Measures**

The proposed action would likely have significant effects on racial minorities due to a risk of damage to, and a loss of access to, cultural and historic resources valued by Chamorros. These effects can be reduced to less than significant with implementation of Chapter 12 mitigation measures. Racial minorities and low-income populations that live near certain major roadways in northern, central, and southern Guam would likely experience increased traffic congestion related to construction; however, with implementation of mitigation measures in Volume 6, these impacts would be reduced to less than significant. Finally, potentially significant impacts to public services and socioeconomics would also be reduced to less than significant with implementation of mitigation measures in Chapter 16 of this EIS/OEIS.