4.15 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

Section 4.15 evaluates the effects of the proposed action on the general socioeconomic conditions in the CNMI, with concentration on socioeconomic impacts to Tinian and Pagan. Appendix Q, *Socioeconomic Impact Assessment Study*, provides detailed analysis conducted in determining the socioeconomic impacts described in this section.

In compliance with Executive Order 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations and Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks, this section also identifies and evaluates impacts that could disproportionately and adversely affect minority and low-income populations and have the potential to expose children to adverse health and/or safety risks.

4.15.1 Approach to Analysis

Methodologies for focused topics are identified and described below; see Appendix Q, *Socioeconomic Impact Assessment Study* (specifically Chapter 2 and Appendix A of the study), for more detailed information on approach to analysis, methodologies and intermediate calculations made for quantified estimates.

Impacts are quantified and compared to estimates of expected future baseline conditions, and presented as percentage changes compared to the expected future baseline conditions (e.g., employment if the proposed action were implemented versus baseline employment, and the percent difference between the two is identified as the impact). The expected future baseline represents projected socioeconomic conditions from 2016, when the Record of Decision would be signed, to 2025, when construction related to the proposed action would be complete. While the expected future baseline is not the no-action alternative for the proposed action, it does not take potential effects from the proposed action into consideration. The expected future baseline was established because establishing a baseline that accounted for no change in economic activity over time would likely lead to incorrect results (U.S. Environmental Protection Agency 2010).

Impacts that are quantified were calculated as direct impacts; some potential indirect impacts would also be anticipated to occur due to multiplier effects associated with financial activity and, as such, would primarily be associated with economic impacts. Public service and sociocultural impacts are presented qualitatively, though some quantitative data are used to provide a basis for conclusions.

Data for environmental justice and protection of children analyses were gathered from the U.S. Census Bureau and the U.S. military. Additionally, in February 2014, a series of project specific interviews were conducted to obtain more detailed information about the socioeconomic conditions on Tinian and community sentiment about Pagan (see Appendix Q, *Socioeconomic Impact Assessment Study,* Appendix B, January-February 2014 Site Visit Meeting Records).

There is military-specific legislation (Public Law 110-17, 10 U.S. Code 2391: *Military Base Reuse Studies and Community Planning Assistance*) and implementing Department of Defense Directives (3030.01 and 5410.12) that address the issue of what is a significant impact to communities due to changes in military programs.

The price of pozzolan in 2012 was lower than the cost would be to ship pozzolan to market (U.S. Geological Survey 2013, Saipan Shipping Company 2014). This indicates that, while a permit to mine pozzolan was provided by the CNMI Department of Public Lands to a private mining company, a pozzolan mine on Pagan may not be economically feasible and pozzolan mining activities are not expected to take place (see Appendix Q, *Socioeconomic Impact Assessment Study*, Section 4.2.10 for more information). Therefore, impacts to pozzolan mining are not analyzed.

Impacts are analyzed separately for the construction and operations phases of the proposed action. For additional information on methods of analysis, see Chapter 2 and Appendix A of Appendix Q, *Socioeconomic Impact Assessment Study*.

4.15.1.1 Population

Population change was determined based on changes in the number of people who would be on Tinian as a result of the proposed action. Sources of additional population that would be related to the proposed action include construction workers, operations personnel, and training personnel, along with dependents of construction workers and operations personnel. Estimates of the change in population were divided by the estimated baseline population to determine the percentage change in population relative to baseline levels. See Sections 1.1.1 and 1.2.1 of Appendix A of the *Socioeconomic Impact Assessment Study* for additional details on these estimates.

Construction of training ranges and support facilities on Tinian would occur for 8 to 10 years. It is anticipated that the construction work force would be rotational, i.e., the same construction workers would not be on Tinian the entire 8 to 10 year period. While Tinian residents would be eligible to work on project-related construction, Tinian has a very small construction workforce, so the vast majority of construction workers were anticipated to come from off-Tinian and temporarily add to the population. While it is possible that some portion of the construction workforce could be from other the CNMI islands, and travel to Tinian for work on a daily basis, for purposes of analysis, in order to assess maximum potential impacts, all workers from off-island are assumed to reside on Tinian and add to the existing population. Additional assumptions used in the process of estimating population change led to an assessment of maximum potential impacts. For instance, construction phase population was estimated using data on construction cost to construction worker ratios that were based on numerous smaller CNMI construction projects that would not achieve the same efficiencies of scale and utilization of equipment over manpower that would likely be realized with this proposed construction effort.

Department of Defense-specific legislation (Public Law 110-17 10 U.S. Code 2391: Military base reuse studies and community planning assistance) and Directives (Department of Defense 3030.01 and 5410.12) address the issue of what is a significant impact on communities due to changes in population related to Department of Defense programs, such as a base realignment or expansion. Collectively, these documents establish “thresholds” that allow the Department of Defense’s Office of Economic Adjustment to provide communities with technical and financial assistance for organizing and planning for Department of Defense program impacts. To qualify for financial assistance, the magnitude of Department of Defense personnel increases must meet the following statutory thresholds:

- More than 2,000 direct military, civilian, and contractor personnel (i.e., net addition); or

- More military, civilian, and contractor personnel than 10% of persons employed in the counties or independent municipalities within 15 miles (24 kilometers) of the installation, whichever is less.

Additionally, the Office of Economic Adjustment must make a finding that the affected community would experience a "direct and significantly adverse consequence" based on the Department of Defense impacts in light of community-specific needs and resources (Office of Economic Adjustment, Department of Defense n.d.).

Impacts related to population change on Pagan are not assessed because there is no existing permanent population or socioeconomic infrastructure, although visitors do travel to the island.

A change in population is not considered an impact itself. However, population change has the potential to drive positive or negative impacts to other socioeconomic factors discussed in the following subsections.

4.15.1.2 Economic Conditions

Economic conditions that are assessed include tourism, gross domestic product, employment and income, government revenues, housing, agriculture, fishing and aquaculture, airports and sea ports, and power utility rates.

Increases in quantifiable impacts related to jobs and dollars – the usual measures of economic prosperity – were considered "beneficial" impacts. Impacts that were either qualitative or where precise numbers could not be estimated, were given significance ratings on a judgment basis, considering the overall information available from surveys or interviews conducted for this EIS/OEIS (see Appendix Q, *Socioeconomic Impact Assessment Study,* Appendix B, January-February 2014 Site Visit Meeting Records).

4.15.1.2.1 Tourism

Estimates of potential changes in the number of visitors to Tinian and the CNMI, which may result from the proposed action, were developed in Appendix Q, *Socioeconomic Impact Assessment Study.* These estimates were compared to baseline estimates of visitors in order to establish the percentage change in number of visitors to the CNMI that would result from the proposed action. See Sections 1.1.2.1 and 1.2.2.1 of Appendix A of the *Socioeconomic Impact Assessment Study* (Appendix Q)*,* for additional details on these estimates.

Potential changes in number of visitors resulting from the proposed action were estimated for the following scenarios: (1) impacts could occur by altering commercial and civil aircraft flight paths and increasing the distance flown and associated fuel costs resulting in a potential rise in ticket prices, which could lead to reduced demand for visits to Tinian; and (2) access restrictions to tourist sites in the Military Lease Area potentially resulting in a decrease in tourism visitors.

4.15.1.2.2 Gross Domestic Product

Estimates of changes to gross domestic product that would result from the proposed action were developed in Appendix Q, *Socioeconomic Impact Assessment Study.* These estimates were compared to baseline estimates of gross domestic product in order to establish the percentage change in the CNMI

gross domestic product that would result from the proposed action. See Sections 1.1.2.2 and 1.2.2.2 of Appendix A of the *Socioeconomic Impact Assessment Study* (Appendix Q) for details on these estimates.

Contributions to gross domestic product were estimated in association with potential changes in tourism visitor expenditures, construction expenditures, operations employment, and spending by military personnel while on Tinian. Each contribution was determined separately and then summed to calculate the total change to gross domestic product.

4.15.1.2.3 Employment and Income

Estimates of changes to employment and income that would result from the proposed action were developed in Appendix Q, *Socioeconomic Impact Assessment Study.* These estimates were compared to baseline estimates of employment and income in order to establish the percentage change in Tinian employment and income that would result from the proposed action. Total employment and income associated with the proposed action were estimated based on planned construction spending and estimates of operations employment. See Sections 1.1.2.3 and 1.2.2.3 of Appendix A of the *Socioeconomic Impact Assessment Study* for information on these estimates.

4.15.1.2.4 Government Revenues

Estimates of changes to government revenues that would result from the proposed action were developed in Appendix Q, *Socioeconomic Impact Assessment Study.* These estimates were compared to baseline estimates of government revenues in order to establish the percentage change in the CNMI government revenues that would result from the proposed action. Changes in government revenues were estimated based on estimated changes in gross domestic product associated with the proposed action using the historical relationship between gross domestic product and government revenues of 20% (i.e., government revenues have historically equaled 20% of gross domestic product). See Sections 1.1.2.4 and 1.2.2.4 of Appendix A of the *Socioeconomic Impact Assessment Study* for information on these estimates. Qualitative assessments related to payments for use of the CNMI land were also made, under the assumption that these payments would be positive and contribute to the CNMI government revenues.

4.15.1.2.5 Housing

Estimates of changes to housing demand on Tinian that would result from the proposed action were developed in Appendix Q, *Socioeconomic Impact Assessment Study.* These estimates were compared to broad estimates of baseline housing supply on Tinian in order to determine whether demand could be met by supply. Based on the existing supply of potential construction workforce housing located behind the Tinian Dynasty, construction contractor-provided housing was assumed to accommodate the vast majority of construction workers (all non-managers). See Section 1.2.2.5 of Appendix A of the *Socioeconomic Impact Assessment Study* for information on approach to housing analysis.

4.15.1.2.6 Agriculture

Impacts to agriculture were assessed in terms of potential reductions of land available for grazing in the Military Lease Area. The amount of land currently used for cattle grazing was considered as was a range of estimates of grazing area required per head of cattle in the Tinian herd (of various potential sizes) that were developed in Appendix Q, *Socioeconomic Impact Assessment Study.* Estimates were compared

to the land that would potentially be available for grazing with the proposed action, in order to determine whether there would be adequate space for the herd. See Sections 1.1.2.5 and 1.2.2.6 of Appendix A of the *Socioeconomic Impact Assessment Study* for information on these estimates.

Additional discussion regarding growing agricultural products for subsistence purposes is provided with respect to community and social topics in Section 4.15.1.4.

4.15.1.2.7 Fishing and Aquaculture

Marine areas that would potentially have access restricted as a result of the proposed action were reviewed in comparison with areas that are used for commercial fishing to determine whether areas that are important to commercial fishing would be affected by the proposed action. Similarly, potential affects that the proposed action may have on open-ocean aquaculture were reviewed in terms of whether open-ocean aquaculture and the proposed action would be compatible given potential access restrictions. See Sections 1.1.2.6 and 1.2.2.7 of Appendix A of the *Socioeconomic Impact Assessment Study* for information on the approach to analysis for fishing and aquaculture.

4.15.1.2.8 Airport and Sea Ports

Estimates of changes to sea port freight that would result from the proposed action were developed in Appendix Q*, Socioeconomic Impact Assessment Study.* These estimates were compared to baseline estimates in order to establish the percentage change that would result from the proposed action. Potential changes in the level of airport freight were addressed qualitatively. See Sections 1.1.2.7 and 1.2.2.8 of Appendix A of the *Socioeconomic Impact Assessment Study* for information on the approach to analysis for airports and sea ports.

4.15.1.2.9 Power Utility Rates

The potential for changes to utility rates was based on whether the proposed action would lead to a change in demand for power and thus result in a change in costs to residents of Tinian. The general framework of analysis considered that a reduction in overall power demand on Tinian would lead to the same cost of power generation being shared by fewer customers, and thus lead to higher per-customer power utility rates (and vice versa). Additional information on this topic is provided in Appendix Q, the *Socioeconomic Impact Assessment Study*.

4.15.1.3 Public Services

Impacts to public services (i.e., education, emergency services, and health) were assessed primarily in relation to changes in population. Increases in population tend to drive up the demand for public services as well as the level of services required to be provided by public service agencies. Additional demands, generated by additional population, were evaluated and compared to the ability of existing facilities and services to meet these demands. Impacts to public services were considered significant if they would lead to a condition where demand on public services would exceed existing capacity of Tinian public services agencies to provide services. Additional information on this topic is provided in Appendix Q, the *Socioeconomic Impact Assessment Study* and detail on estimates is provided in Sections 1.1.3 and 1.2.4 of Appendix A of the study.

4.15.1.4 Community and Social Topics

Community and social topics were identified, discussed, and summarized in the context of both community character and community cohesion. Community character is the distinctive identity of a particular place that results from the interaction of many factors—built form, landscape, history, people, and their activities (American Planning Association 2011). Community character impacts occur when ties with particular places are degraded or eliminated. Community cohesion is the social ties and community commitments that bind people together or a community with strong relationships between people from diverse backgrounds. A deterioration of community cohesion occurs when there are increased divisions between social groups in a community (Holdsworth 2009). Additional information on this topic is provided in Appendix Q, the *Socioeconomic Impact Assessment Study* and detail is provided in Sections 1.1.4 and 1.2.5 of Appendix A of the study.

4.15.1.5 Environmental Justice and Protection of Children

The Council on Environmental Quality suggests several principles in its *Environmental Justice Guidance Under the National Environmental Policy Act* (1997), to guide agencies in identifying environmental justice issues. These guidelines and the following steps were used to assess potential environmental justice impacts. First, minority and/or low-income populations affected by the proposed action within the region of influence were identified. Second, if these population groups were present, they were specifically identified as to where they were located. Third, it was determined whether these populations were exposed to health or environmental impacts caused by the proposed action. If so, then these impacts were evaluated to determine whether the effects were disproportionally high and adverse to human health or to the natural and physical environment of low-income and/or minority populations. The guidance further states that, "when determining whether environmental effects are disproportionately high and adverse, agencies are to consider the following three factors to the extent practicable:

(a) Whether there is or will be an impact on the natural or physical environment that significantly (as employed by NEPA) and adversely affects a minority population, low-income, or Indian tribe;

(b) Whether environmental effects are significant (as employed by NEPA) and are or may be having an adverse impact on minority populations, low-income population, or Indian tribe that appreciably exceeds or is likely to appreciably exceed those on general population or other appropriate comparison group; and

(c) Whether the environmental effects occur or would occur in a minority population, low-income population, or Indian tribe affected by cumulative or multiple adverse exposures from environmental hazards."

Health and safety impacts to children were identified by consulting U.S. Environmental Protection Agency's memorandum *Addressing Children's Health through Reviews Conducted Pursuant to the National Environmental Policy Act and Section 309 of the Clean Air Act* (U.S. Environmental Protection Agency 2012). The memorandum suggests that proposed activities that impact air quality, water quality, floodplains, noise, and traffic and/or produce hazardous/poisonous materials, introduce toxic chemicals, or use radiation have the potential to adversely affect the health and safety of children. Therefore, the analysis herein considered where children live, go to school, and play to determine whether children

would be affected by proposed RTA construction and operational activities. Analysis then identified if any adverse health or safety risks for children would be introduced.

If disproportionately high and adverse impacts to low-income and/or minority populations were identified, then they would be considered significant; however, analysis of proportionality (the possibility that impacts would have greater effects on certain locations than other locations) did not apply because the only locations that could be affected by the proposed action are in the CNMI. If children were exposed to adverse health and safety risks, then impacts would be considered significant.

4.15.2 Resource Management Measures

There are no resource management measures that were specifically developed for socioeconomics. In many cases; however, there are incidental environmental, socioeconomic, and cultural benefits resulting from standard operating procedures and best management practices. As detailed in Appendix D, *Best Management Practices*, the following resource management measures are standard operating procedures and best management practices that have incidental benefits relating to socioeconomics:

- Dust Control Measures
- Water Quality Monitoring
- Design individual projects using Leadership in Energy and Environmental Design Certification standards
- Design projects with Water Conservation measures
- Spill Prevention, Control and Countermeasures Plans and Facility Response Plans
- Biosecurity Outreach and Education
- Implement Traffic Management Plan and Work Zone Traffic Management
- Noise Abatement
- Notice to Mariners
- Notice to Air Traffic
- Utility Services
- Cultural Resources
- Range Environmental Vulnerability Assessments

4.15.3 Tinian

Please refer to Appendix Q, *Socioeconomic Impact Assessment Study, Chapter 5, Impacts of the Proposed Action,* for supporting documentation of the socioeconomic impact conclusions. Assessments of potential environmental justice impacts and potential impacts to children's health and safety follow the socioeconomic analysis.

4.15.3.1 Tinian Alternative 1

4.15.3.1.1 Construction Impacts

4.15.3.1.1.1 Population

The construction phase of the proposed action, for Tinian Alternative 1, would be anticipated to increase Tinian's population by between 477 and 596 (including between 456 and 571 construction

workers and between 21 and 26 construction worker dependents), on average, each year for an 8 to 10 year period. Tinian's baseline population over the time period was estimated to be between 2,890 and 3,532. Given projected baseline population and projected population increase, the population increase would be between 14% and 21%.

Since the population increase is estimated to be greater than 10%, in order for the CNMI to qualify for financial assistance to help manage this growth, the Office of Economic Adjustment must make a finding that Tinian would experience a "direct and significantly adverse consequence" based on the Department of Defense impacts in light of community-specific needs and resources (Office of Economic Adjustment, Department of Defense n.d.). As noted above in Section 4.15.1.1, a change in population is not considered an impact itself. However, population change has the potential to drive positive or negative impacts to other socioeconomic factors discussed in the following subsections.

4.15.3.1.1.2 Economic Conditions

Tourism

The number of tourism visitors to some tourism areas on Tinian may decline modestly relative to baseline conditions during the construction period due to temporary access restrictions (see Appendix Q, *Socioeconomic Impact Assessment Study,* Section 5.2.1). Because the impact of the construction phase would be small relative to the overall number of visitors, Tinian Alternative 1 construction activities to tourism is considered less than significant.

Gross Domestic Product

Construction activities associated with Tinian Alternative 1 are anticipated to lead to increases in the CNMI gross domestic product. Increases to the gross domestic product would be an estimated $29 to $36 million, annually, over the 8 to 10 year construction period (see Appendix Q, *Socioeconomic Impact Assessment Study,* Section 5.2.2). This represents an annual increase of between 2.7% and 4.1% over baseline levels, which were estimated to be between $878 million and $1.09 billion. Because gross domestic product would increase, Tinian Alternative 1 construction activities would result in beneficial impacts.

Employment and Income

Construction activities associated with Tinian Alternative 1 would result in employment increases of between 456 and 571 annual construction jobs on Tinian during the construction period; this would represent between a 19% and 30% increase in employment over baseline levels (see Appendix Q, Socioeconomic Impact Assessment Study, Section 5.2.3), which were estimated to be between 1,899 and 2,378 jobs. Income related to the additional jobs is estimated to be between $5.9 and $7.4 million annually (between 13% and 21% above baseline levels, which were estimated to be between $35.8 million and $44.6 million). Since employment and income would increase, Tinian Alternative 1 construction activities would result in beneficial economic impacts.

Government Revenues

The CNMI government revenues under Tinian Alternative 1 would increase by between $6.5 million and $7.9 million, annually, over the course of the 8 to 10 year construction period (see Appendix Q, *Socioeconomic Impact Assessment Study,* Section 5.2.4*)*. About 90% of this (between $5.9 million and

$7.1 million) would be associated with construction activities (e.g., taxes on income and businesses, fees). Estimated baseline CNMI government revenues were estimated to be between $176 million and $219 million, indicating that the annual increase in government revenues associated with construction would be between 3% and 4% above estimated baseline levels. Since government revenues would increase, Tinian Alternative 1 construction activities would result in beneficial impacts to the CNMI government revenues.

Housing

There are existing underutilized dwelling units including those associated with and adjacent to the Dynasty Hotel. It is understood that the dwelling units associated with the Dynasty could be available to construction workers and could house in excess of 1,500 people, many more than would potentially be needed for the high-end estimate of 571 construction workers. Given this apparent availability of existing workforce housing, it is likely that construction contractors would make this housing available for their employees and that no new workforce housing would need to be constructed to implement the proposed action.

For construction managers, who are not anticipated to reside in workforce housing, between 18 and 23 housing units would be needed in the Tinian community (see Appendix Q, *Socioeconomic Impact Assessment Study,* Section 5.2.5*)*. As of the 2010 Census, there were 101 housing units for rent and additional housing is currently being built. Thus demand for housing related to construction, under Tinian Alternative 1, would not exceed the number of units available during construction. There may be some potentially beneficial impacts related to growth in the housing/rental markets. Overall, Tinian Alternative 1 construction activities would result in less than significant impacts on housing.

Agriculture

Commercial agriculture, which only occurs outside of Military Lease Area boundaries, would not be affected by Tinian Alternative 1 construction activities.

As of 2014, the Lease Back Area (i.e., southern portion of the Military Lease Area) supported approximately 2,375 acres (961 hectares) of agricultural grazing permits. An estimated approximation of 1,010 acres (409 hectares) of that was being used for cattle grazing. Under Tinian Alternative 1, land within the Lease Back Area, which has been used for cattle grazing, would be removed from cattle grazing use. However, the DoN has identified and proposed a total of 2,554 acres (1,034 hectares) of land for cattle grazing areas throughout the Military Lease Area. Of this total 1,010 acres (409 hectares) would be unencumbered by surface danger zones and 1,544 acres (625 hectares) would be encumbered. The unencumbered portion is approximately the same amount of land that is currently used for cattle grazing and the approximate amount of land needed for the current herd under the ideal herd size to utilized acreage ratio (see Appendix Q, *Socioeconomic Impact Assessment Study,* Sections 4.2.6 and 5.2.6*).* The proposed action would require that some cattle be relocated; however, since the amount of land currently used for cattle grazing would be made available for cattle grazing under Tinian Alternative 1, impacts to cattle grazing are considered less than significant.

Commercial Fishing and Aquaculture

There would be limited access restrictions to nearshore waters at Unai Chulu due to construction of an amphibious landing. Access to commercial fishing or potential open-ocean aquaculture activities would

not be affected. Therefore, there would be no impacts related to Tinian Alternative 1 construction activities.

Airports and Sea Ports

At Tinian International Airport, there is the potential for increased revenue from freight deliveries during construction. For inbound sea port freight, measured in revenue tons, short-term increases of between 8% and 12% are anticipated during the construction period under Tinian Alternative 1 (as annual revenue tons would increase by between 50,573 and 61,076 above estimated baseline levels which were estimated to be between 516,443 and 642,966 revenue tons) (see Appendix Q, *Socioeconomic Impact Assessment Study,* Section 5.2.8). Since capacity would not be exceeded and revenues would increase, Tinian Alternative 1 construction activities would result in increased revenues to the Commonwealth Ports Authority and beneficial economic impacts.

Additionally, infrastructure improvements, including additional lighting, would be made to the Tinian seaport that would benefit the public.

Power Utility Rates

Construction activities under Alternative 1 would not displace any utility users. And there would be no reduction in demand for electricity consumption on Tinian. Therefore, Tinian Alternative 1 construction activities would result in no impact to Tinian resident utility rates.

4.15.3.1.1.3 Public Services

Education

An increase in the number of students of between 29 and 59 is anticipated during Tinian Alternative 1 construction and operations activities (see Appendix Q, *Socioeconomic Impact Assessment Study,* Section 5.3.1*)*, with between 8 and 10 students per year associated with construction related population. The addition of between 8 and 10 students per year would be between a 1.5% and 2.3% increase above baseline levels, which were estimated to be between 451 and 551 students. The total number of students associated with the proposed construction (between 459 and 561) would be fewer than recent (2007-2008 school year) enrollment of 615 students. Since enrollment would not exceed recent levels, it is not anticipated that the construction phase would lead to capacity issues at Tinian schools. Because issues of excess capacity are not anticipated, impacts are considered less than significant.

Emergency Services

Under Tinian Alternative 1, emergency services agencies (police and fire departments) would have a short-term added burden due to increased construction-related population. Existing staffing to service population ratios greatly exceed U.S. averages (see Appendix Q, *Socioeconomic Impact Assessment Study,* Section 3.4.2.2). With the projected population increase associated with proposed construction, it is estimated that staffing to service population ratios would continue to exceed U.S. averages. Since Tinian agencies would continue to exceed U.S. averages for level of service, it is anticipated that emergency services agencies would have sufficient capacity to meet the anticipated increased demands without exceeding capacity. Since capacity would not be exceeded, Tinian Alternative 1 construction activities would result in less than significant impacts to Tinian's emergency services agencies.

Public Health

Off-island construction workers associated with the proposed action would increase the service population of the Tinian Health Center; however, construction worker population would not exceed the past population during the late 1990s, when the Tinian Dynasty was under construction, when an estimated 1,800 non-resident construction workers were on Tinian (DoN 2010a).

No existing deficits were noted by Tinian Health Center officials, and given recent facility upgrades (DoN 2014), the additional service population would not be anticipated to necessitate the construction of a new facility or initiate demand for additional services that are not currently provided on Tinian (major health issue would continue to be serviced off-island). Since construction contractors would cover construction worker healthcare expenses, such as by providing health insurance and covering workers compensation expenses, Tinian Health Center revenues would be anticipated to increase in conjunction with the level of services provided, allowing for the hiring of staff or purchasing of equipment and supplies needed to meet additional demands. Because it is not anticipated that an additional medical facility would be required as a result of the proposed action and because providing services in relation to additional demands would be funded by patient fees, Tinian Alternative 1 construction activities would result in less than significant direct impacts to Tinian's public health.

4.15.3.1.1.4 Community and Social Topics

More detailed information on Community and Social Topics can be found in Appendix Q, *Socioeconomic Impact Assessment Study,* Sections 3.5, 4.4, and 5.4.

Community character on Tinian may change due to factors associated with construction activities related to the proposed action. Access restrictions in areas where construction would take place (see Section 2.4.1.2.6, *Fence Lines and Gates*) could shift the relationship between some community members and certain areas/landscapes of the island by reducing opportunities for using the land for subsistence, income earning, practicing traditional skills, or any other place-based relationship. However, since construction activities would restrict access to only discreet portions of the island, there would be considerable alternative areas and locations available that would provide opportunities for using the land, and effects on place-based relationships for the vast majority of the population would likely not occur.

Community cohesion on Tinian may also change due to construction activities associated with the proposed action. Community or social cohesion measures the levels of "relationship between individuals, groups and organizations within a community" (Holdsworth 2009), a concept that is closely tied with the Chamorro concept of "inafa'maolek" (a core Chamorro value that refers to the "interdependence within the kinship group," literally translated as "making it good for each other" or "getting along"). The potential decreases in opportunities to access resources in areas where construction would take place could reduce opportunities for some to provide "chenchule" (gifting or donation, which preserves and strengthens networks), thus disrupting his/her ability to maintain and strengthen the social cohesion within their network. In addition, a potential decrease in the opportunity to practice cultural activities such as fishing, hunting, and gathering among the community on Tinian could lessen the opportunities that the community could engage in activities together and build and maintain social cohesion. However, because construction activities would restrict access to only discreet portions of the island, there would be considerable alternative areas and locations available that would

provide opportunities for using the land, and effects on personal relationships driven by changes in opportunities to access resources, for the vast majority of the population, would likely not occur.

Finally, a lack of community cohesion occurs when there are "divisions between groups, individuals and systems" (Stone and Hughes 2002); such divisions could be possible if the current Tinian population were to come into conflict with the incoming construction worker population. The introduction of some construction workers from outside of the CNMI would increase the number of people present in the community that have no social ties to the community or commitments that bind them to the community. However, foreign workers regularly operate on Tinian and in the past have not been prone to conflict.

Because only discreet portions of the island would be affected, and because major community conflict with construction workers is not anticipated, the potential changes to community character and cohesion caused by Tinian Alternative 1 construction activities would result in less than significant impacts to the overall community. However, these changes may significantly impact the perceptions that some Tinian residents have of the place they live.

4.15.3.1.1.5 Environmental Justice and Protection of Children

Data from the 2010 Census indicate that 98.2% of Tinian's population was comprised of minorities (see Table 3.15-8) and 44.6% of the population was low income (see Table 3.15-9) (U.S. Census Bureau 2010). On Tinian, these populations predominantly reside in San Jose and Marpo Heights (see Figures 3.15-6 and 3.15-7). Children age 18 and younger comprise to approximately 30% of the total population of Tinian (see Table 3.15-10); attend the Tinian elementary school, junior/senior high school, or the Head Start program in San Jose; and reside in San Jose and Marpo Heights areas (see Figure 3.15-7).

The resources that could impact environmental justice populations disproportionately would be air quality, noise, public health and safety, and hazardous materials and waste. Air pollutant emissions would not degrade the regional air quality, noise during construction would not extend outside Military Lease Area boundaries, the public would be prohibited from entering construction zones to protect their health and safety, and any hazardous materials used or waste generated would be stored and disposed of according to federal and CNMI regulations. Therefore, Tinian Alternative 1 construction activities would have no significant impacts that would be considered adverse or disproportionate to the health and safety of environmental justice populations.

4.15.3.1.2 Operation Impacts

4.15.3.1.2.1 Population

The number of military personnel training is variable and fluctuates annually across 20 non-consecutive weeks of live-fire training. During weeks when there would be live-fire training, there may be as few as 30 and as many as 3,000 personnel (assumes a maximum of 2,200 training personnel and the potential for overlap of pre- or post-training parties) in the Military Lease Area. On average, over the course of a year, 771 training personnel would be on Tinian.

Additional population to Tinian, consisting of base operation and support employees and their dependents, is estimated to be between 143 and 242 (see Appendix Q, *Socioeconomic Impact Assessment Study,* Section 5.1.1). Estimated baseline Tinian population ranges from 2,890 to 3,532

indicating that non-military operations-related population increase would be between 4% and 8.4% over baseline levels.

Since the population increase would be variable in size and, in part transient in duration, in order for the CNMI to qualify for financial assistance to help manage this growth, the Office of Economic Adjustment must make a finding that Tinian would experience a "direct and significantly adverse consequence" based on the Department of Defense impacts in light of community-specific needs and resources (Office of Economic Adjustment, Department of Defense n.d.). A change in population is not considered an impact itself. However, population change has the potential to drive positive or negative impacts to other socioeconomic factors discussed in the following subsections.

4.15.3.1.2.2 Economic Conditions

Tourism

Tinian Alternative 1 operational activities may result in a decline in tourism relative to estimated baseline levels. Flights to and from Saipan and Tinian may need to be diverted from overflying the Military Lease Area during training, which would potentially result in increased ticket costs (by an estimated 0.26% while training would be occurring) and a decrease in overall demand for travel to Tinian (by and estimated 0.12% to 0.15%). This effect would lead to an estimated decline in visitors of between 68 and 123 (-0.08% and -0.22%) annually, compared to baseline levels (see Appendix Q, *Socioeconomic Impact Assessment Study,* Section 5.2.1*)*.

In addition, access to certain natural/historic attractions in the Military Lease Area would be reduced during training, potentially leading to decreases in projected growth in visitor numbers. This reduction in visitors is estimated to be between 578 and 788 annually, representing between a 0.7% and 1.38% reduction from estimated baseline levels (see Appendix Q, *Socioeconomic Impact Assessment Study,* Section 5.2.1).

In total, it is estimated that Tinian Alternative 1 operations would reduce tourism visitors to Tinian by between 647 and 912 annually, from baseline levels which were estimated to be between 57,046 and 82,565 annually, constituting a decline of between 0.8% and 1.6%.

Despite the small reduction potentially associated with the proposed action, it is estimated that, while the proposed action would be occurring, there would be more visitors to Tinian than there are currently, due to market expansion in China and Korea (see Appendix Q, *Socioeconomic Impact Assessment Study,* Section 1.1.2.1 of Appendix A). Because the impact of the proposed action is expected to be small in percentage terms, and because it is expected that the Tinian tourism market will grow from current levels (indicating that the proposed action would not hinder overall growth in the industry), impacts to tourism are considered less than significant.

Gross Domestic Product

The CNMI gross domestic product would see an estimated net increase of between $3.7 million and $4.2 million per year considering the following operations-related factors: combined income earned by RTA employees (estimated to be $3.4 million per year), the spending of training personnel at Tinian business establishments (estimated to be $2 million per year), and the estimated decrease in visitor expenditures (between -$1.2 million and -$1.7 million) due to decreased visitor numbers. The increase of between $3.7 and $4.2 million per year would represent an increase of between 0.3% and 0.5% compared to

baseline levels which were estimated to be between $878 and $1,093 million (see Appendix Q, *Socioeconomic Impact Assessment Study,* Section 5.2.2*).*

Additional growth in gross domestic product would result from operational expenditures, which would include payments to the Commonwealth Utilities Corporation for utilities service, the purchase of fuel from local distributors, and other purchases. The increase in gross domestic product brought about by Tinian Alternative 1 operations is considered a beneficial impact.

Employment and Income

It is estimated that the employment increase associated with Tinian Alternative 1 operations would be 95 full-time positions, an increase of between 4% and 5% compared to baseline employment levels, which were estimated to range from 1,899 to 2,378 jobs. Combined, these positions would earn approximately $2.2 million annually, between a 4.9% to 6.1% increase in income relative to baseline levels, which were estimated to be between $35.8 and $46.7 million. Additional employment and income would be generated at businesses that provide goods and services to RTA employees and visiting trainees. Increases in employment and income as a result of Tinian Alternative 1 operations would result in beneficial impacts (see Appendix Q, *Socioeconomic Impact Assessment Study,* Section 5.2.3).

Government Revenues

The CNMI government revenues under Tinian Alternative 1 would increase by between $650,000 and $790,000, annually, in association with RTA operations. These increases would be from revenues related to income and business taxes associated with employment. Estimated baseline CNMI government revenues are between $176 million and $219 million indicating that the increase in government revenues associated with RTA operations would be between 0.3% and 0.4% over baseline levels (see Appendix Q, *Socioeconomic Impact Assessment Study,* Section 5.2.1).

In addition to those estimated revenues, payments associated with any additional acquisition of land on Tinian, taxes associated with local operations expenditures, and other payments and fees (such as port charges) would contribute to increases in government revenues. The increase in government revenues associated with Tinian Alternative 1 operations would result in beneficial impacts.

Housing

Between 57 and 87 housing units would be required for operations-related residents of Tinian (see Appendix Q, *Socioeconomic Impact Assessment Study,* Section 5.2.5). As of the 2010 Census, there were 101 housing units for rent and additional housing is currently being built. Additional demand for housing under Tinian Alternative 1 likely would not exceed the number of units available.

For the 8 to 10 year period when construction and operations overlap, the required 57 to 87 operations-related units and 18 to 23 construction-related units would, combined, generate a requirement for between 75 and 110 units. The high end of the range (110 units) would exceed the number of existing available rental units, which as of the 2010 Census was 101.

While demand generated by the proposed action may exceed existing supply, other factors would likely relieve potential conditions of excess demand. As noted in Section 3.15, additional housing units are being developed, as homestead property; while these units would not be available to incoming

populations, the occupants of these units would conceivably exit the housing units that they currently occupy, which would increase the number of rental units available for incoming population. It is also possible that some construction managers may share housing units amongst themselves, which would lead to a reduction in the number of estimated units demanded. Furthermore, additional demand for housing may lead to private sector housing development, with the additional housing supply considered a beneficial economic outcome. Overall, impacts of the proposed action on Tinian housing are considered less than significant.

Agriculture

Commercial agriculture, which only occurs outside of Military Lease Area boundaries, would not be affected by Tinian Alternative 1 operations.

As of 2014, the Lease Back Area (i.e., southern portion of the Military Lease Area) supported approximately 2,375 acres (961 hectares) of agricultural grazing permits. An estimated approximation of 1,010 acres (409 hectares) of that was being used for cattle grazing. Under Tinian Alternative 1, land within the Lease Back Area, which has been used for cattle grazing, would be removed from cattle grazing use. However, the DoN has identified and proposed a total of 2,554 acres (1,034 hectares) of land for cattle grazing areas throughout the Military Lease Area. Of this total 1,010 acres (409 hectares) would be unencumbered by surface danger zones and 1,544 acres (625 hectares) would be encumbered. The unencumbered portion is approximately the same amount of land that is currently used for cattle grazing and the approximate amount of land needed for the current herd under the ideal herd size to utilized acreage ratio (see Appendix Q, *Socioeconomic Impact Assessment Study,* Sections 4.2.6 and 5.2.6). The proposed action would require that some cattle be relocated; however, since the amount of land currently used for cattle grazing would be made available for cattle grazing under Tinian Alternative 1, impacts to cattle grazing are considered less than significant.

Commercial Fishing and Aquaculture

Tinian does not have a commercial fishing fleet so there would be no impacts from that perspective. However, the waters on the west side of the Military Lease Area are prime locations for net casting from boats, which is a method applied in commercial fishing, so commercial fishers from Saipan may be affected. Once the RTA is operational, access to adjacent waters, during some of the 20 weeks of training, would be restricted, including access to some areas used for net-cast fishing. Since these restrictions would not be permanent and other areas would be available for net-cast fishing during times when access is temporarily restricted, impacts to on-shore or open-ocean fishing activities from Tinian Alternative 1 operations would be less than significant.

There are no current open-ocean aquaculture operations in Tinian waters. Because there is a large amount of open-ocean area around Tinian that would not be affected by the proposed action, it is anticipated that any potential future open-ocean aquaculture operation would be compatible with the proposed action, and no impacts would be anticipated.

Airports and Sea Ports

Once the RTA is operational, airport and sea port freight would increase negligibly leading to small increases in port fees. There would also be airport and sea port infrastructure improvements and road

upgrades that would benefit the public. Increased freight activity, port fees, and infrastructure improvements would result in beneficial impacts on the Tinian airport and sea port.

Power Utility Rates

Under Tinian Alternative 1, the International Broadcasting Bureau would remain in place. Power utility rates could potentially decrease for Tinian residents because of increased demand for power from the RTA and associated reduced cost per unit of electricity sold by the Commonwealth Utilities Corporation. Potentially reduced electricity rates under Tinian Alternative 1 would have beneficial impacts to Tinian ratepayers.

4.15.3.1.2.3 Public Services

Education

An increase in the number of students of between 29 and 59 is anticipated during Tinian Alternative 1 construction and operation activities. After construction is complete, considering only operations related increases, the increase in number of students would be between about 21 and 48 (see Appendix Q, *Socioeconomic Impact Assessment Study,* Section 5.3.1), and increase over baseline enrollment levels of between 3.8% and 10.7%.

Considering both construction and operations, given an estimated baseline number of students ranging from 451 to 551, the high estimate for total number of students with the proposed action (609) is lower than the number of students that attended Tinian schools during the 2007 to 2008 school year (615 students). Since even the highest estimates of student population with the proposed action would be less than levels seen in the recent past, it is not likely that the proposed action would lead to Tinian schools exceeding existing capacity. Since it is not likely that capacity would be exceeded, impacts are considered less than significant.

Emergency Services

During Tinian Alternative 1 operations, military police would accompany the military units when training personnel are in town. A fire-response facility would be added to respond to emergencies within the Military Lease Area, as well as assist the community when needed. Therefore, Tinian Alternative 1 operations would result in beneficial impacts to emergency services.

Public Health

The military units undertaking training come with their own medical and first aid capabilities and the addition of personnel could be accommodated by the existing health agencies on Tinian. Therefore Tinian Alternative 1 operations would result in less than significant impacts to Tinian's public health services.

4.15.3.1.2.4 Community and Social Topics

More detailed information on Community and Social Topics can be found in Appendix Q *Socioeconomic Impact Assessment Study,* Sections 3.5, 4.4, and 5.4.

Decreased opportunities to access fresh locally grown and gathered food, decreased income for those that participate in subsistence and commercial gathering activity, decreased access to recreational and

cultural activity areas, and potential conflict with incoming populations can all impact community character and cohesion.

Community character on Tinian may change due restricted access to certain areas that are used for agriculture, hunting, fishing, and gathering (see Section 2.4.1.4.1 for information on access restrictions). The potential decrease in access to these food sources and the associated subsistence, recreational, and cultural activities could change the nature of everyday activities for the population on Tinian. This could accelerate the trend of the Tinian community moving away from these activities to a more modern community with different cultural practices and reduced practice of traditional skills. In addition, the access restrictions themselves, by restricting access to areas that have been known to be accessible, could shift the perception of the relationship between the community and the place they live.

Community cohesion on Tinian may also change due to the proposed action. Community or social cohesion measures the levels of "relationship between individuals, groups and organizations within a community" (Holdsworth 2009), a concept that is closely tied with the Chamorro concept of "inafa'maolek". The potential decreases in opportunities for access to resources in the Military Lease Area could reduce a person's ability to provide "chenchule," thus disrupting his/her ability to maintain and strengthen the social cohesion within their network. In addition, a potential decrease in the practice of cultural activity among the Chamorro community on Tinian could lessen the opportunities that the community could engage in activity together and build and maintain social cohesion. Finally, a lack of community cohesion occurs when there are "divisions between groups, individuals and systems" (Stone and Hughes 2002); such divisions could be possible if the current Tinian population were to come into conflict with incoming populations. The introduction of military training personnel would increase the number of people present in the community that have no social ties to the community or commitments that bind them to the community. However, military personnel tend to be respected by the local population on Tinian and there is not a history of conflict.

The potential changes to community character and cohesion that could occur from Tinian Alternative 1 operations would result in less than significant impacts to the overall community. However, these changes may significantly impact the perceptions that some Tinian residents have of the place they live.

4.15.3.1.2.5 Environmental Justice and Protection of Children

Environmental Justice

Under Tinian Alternative 1, there would be no geological or soil impacts (see Section 4.2.3.1) that would affect environmental justice populations. Impacts to water (see Section 4.3.3.1) from munitions expenditure and constituents would introduce less than significant impacts, and air quality (see Section 4.4.3.1) would not be adversely affected as a consequence of RTA operations. Therefore, no disproportionately high and adverse human health effects from geology and soils, water, and air quality to low-income and minority populations would occur.

Noise levels from small caliber munitions expenditures would also not generally extend beyond the Military Lease Area boundaries. However, as depicted in Section 4.5, *Noise*, Table 4.5-13, estimated day-night average ambient noise levels from aircraft operations would increase four-fold (20 decibels) throughout much of Tinian. This large rate of increase reflects both the level of anticipated aircraft operations involved in the proposed action and the relative quiet existing conditions of Tinian. During

these airspace training operations, noise generated by aircraft overflights would expose 10 homes in Marpo Valley, east of Marpo Heights, to noise levels over 65 A-weighted day-night average sound levels and therefore, would be considered incompatible with residential land use. It is estimated that about 40 people (slightly more than 1% of Tinian's population) live in the 10 houses that would be exposed to these noise levels from aircraft operations. Impacts to the 10 residences would occur as often as 15% of the time during operations, or about 3 weeks per year. This incompatibility would be considered significant to the residents of 10 houses, but since the affected individuals account for approximately 1% of Tinian's total population, the affect would be less than significant. The impact would not be considered disproportional as all of Tinian is considered a minority and low-income area.

Peak noise levels would be significant during training with large caliber weapons and artillery blasts. As noted in Section 4.5, *Noise,* 80 people on Tinian and over 1,000 people on Saipan would be exposed to Peak noise levels of 115 decibels during certain training events under unfavorable weather conditions (wind directions and cloud cover). This Peak noise level of 115 decibels compares with hearing a siren of an emergency vehicle (Noise Help 2014) or proximate to other common noise events like fireworks or being near a rock band playing music. There are approximately 13,596 large caliber expenditures from 155 millimeters high explosive weapons per year under the proposed action that would produce the Peak noise levels of 115 decibels (see Chapter 2, Table 2.4-5). Best management practices addressed in Section 4.5, *Noise*, and Appendix D, would limit nighttime training with large caliber weapons. In addition, these peak noise levels would only be experienced during unfavorable weather conditions. Unfavorable weather conditions occur when the wind blows in the opposite direction of normal trade winds. It was estimated that this condition would occur a maximum of 10-15% of the total training time. Therefore, there is the potential on Saipan to hear Peak noise of 115 decibels from certain large caliber weapon training about 2,040 times (15% of 13,596) during the times while weather conditions were unfavorable. The residents of Tinian and Saipan that would be the receptors of these periodic Peak noise levels live in a minority and low-income area. However, the impact would not be considered disproportional as all of the CNMI is considered a minority and low-income area.

There would be impacts to land use (see Section 4.7.3.1), recreation (see Section 4.8.3.1), and visual resources (see Section 4.12.3.1) from the operations of proposed Tinian Alternative 1. Residents of Tinian, most of who are minority and low-income populations, would be affected by access restrictions to the Military Lease Area during active training events. However, access would still be granted during the 32 weeks when there would be no training and intermittently during the 20 weeks when training would occur. Effects from access restrictions would be shared equally throughout the island and would not be considered disproportionately high and adverse to minority and low-income populations.

Economic impacts would tend to be beneficial and public service agencies would have sufficient capacity to meet the needs of the proposed action leading to no adverse impacts on the health or environment of populations. A potentially significant impact on community character and community cohesion was identified but this would affect all residents similarly and so would not be a disproportionate impact.

There would be no significant impacts that would be adverse or disproportionate to affect environmental justice populations resulting from Tinian Alternative 1 operations.

Protection of Children

Noise exposure at schools on both Tinian and Saipan was evaluated (see Section 4.5.2.1). The modeling results illustrated that on average, noise generated by aircraft would not exceed levels considered detrimental to human hearing, either for adults or children in these school areas. However, to the northeast of Marpo Heights, 10 homes in which children may live would be exposed to incompatible levels (65 decibels) from the aircraft operations of the proposed action. There are schools, particularly in Saipan, located in the areas identified as receptors of significant Peak noise levels of 115 decibels from the planned expenditures of large caliber weapons during training events. While these Peak noise levels would be significant, they would be short-term and intermittent impacts when weather conditions are unfavorable. Reactions to these Peak noise events could affect children in a range from no reaction, to minor annoyance, activity interference or stress. However, these noise levels would be short-term in duration, occur infrequently during the 20 weeks of live-fire training. These noise events and other activities associated with the proposed training ranges on Tinian would not disproportionally present environmental health or safety risks to children on Tinian or Saipan. In accordance with the Executive Order, the anticipated noise level and frequency would not likely result in health risks to children Therefore, Tinian Alternative 1 operations would result in less than significant impacts to children under Tinian Alternative 1.

4.15.3.2 Tinian Alternative 2

4.15.3.2.1 Construction Impacts

Construction impacts for Tinian Alternative 2 are similar to those for Alternative 1 (see Section 4.15.3.1.1). There would be no disproportionate or adverse health risks to affect environmental justice populations and children would not be exposed to increased health and safety issues.

Tinian Alternative 2 construction activities would result in an increase in population; less than significant or beneficial impacts to economic conditions; less than significant impacts to public services; there could be the potential for significant impacts to community character and cohesion; and there would be less than significant impacts to environmental justice populations and children.

4.15.3.2.2 Operation Impacts

Operation impacts for Tinian Alternative 2 are similar to those for Alternative 1 (see Section 4.15.3.1.2). The only difference that would affect socioeconomics is the relocation of the International Broadcasting Bureau; however, there would be no net reduction in electricity consumption due to the proposed action, and therefore no adverse impacts are anticipated in relation to the proposed action. There would be no disproportionate or adverse health risks to affect environmental justice populations and children would not be exposed to increased health and safety issues.

Tinian Alternative 2 operations would lead to an increase in population; less than significant or beneficial impacts to economic conditions; less than significant impacts to public services; there could be the potential for significant impacts to community character and cohesion; and there would be less than significant impacts to environmental justice populations and children.

4.15.3.3 Tinian Alternative 3

4.15.3.3.1 Construction Impacts

Construction impacts for Tinian Alternative 3 are similar to those for Alternative 1 (see Section 4.15.3.1.1). There would be no disproportionate or adverse health risks to affect environmental justice populations and children would not be exposed to increased health and safety issues.

Tinian Alternative 3 construction activities would lead to an increase in population; less than significant or beneficial impacts to economic conditions; less than significant impacts to public services; there could be the potential for significant impacts to community character and cohesion; and there would be less than significant impacts to environmental justice populations and children.

4.15.3.3.2 Operation Impacts

Operation impacts for Tinian Alternative 3 are similar to those for Alternative 1 (see Section 4.15.3.1.2). The only difference that would affect socioeconomics is the relocation of the International Broadcasting Bureau; however there would be no net reduction in electricity consumption due to the proposed action and therefore no adverse impacts are anticipated in relation to the relocation. There would be no disproportionate or adverse health risks to affect environmental justice populations and children would not be exposed to increased health and safety issues.

Tinian Alternative 3 operations would result in an increase in population; less than significant or beneficial impacts to economic conditions; less than significant impacts to public services; there could be the potential for significant impacts to community character and cohesion; and there would be less than significant impacts to environmental justice populations and children.

4.15.3.4 Tinian No-Action Alternative

The periodic military non-live-fire training exercises that have occurred in the Military Lease Area of Tinian are expected to continue. These activities are short term events that would produce minimal impacts to the socioeconomic conditions of the island. In addition, the impacts from the four proposed live-fire training ranges, described in the September 2010 Record of Decision in the Guam and CNMI Military Relocation EIS (DoN and Department of the Army 2010) span from beneficial, to less than significant, and significant (see Table 16.2-1; DoN 2010a). More jobs would be created during construction creating beneficial impacts; however, fewer agricultural leases would be available and reduce revenues. Less than significant impacts would occur to tourism revenues. Under Mariana Islands Range Complex training, no impacts to Tinian's economy would occur (see Table 3.16-4; DoN 2010b). The no-action alternative, therefore, would introduce mixed, but generally less than significant, impacts.

For environmental justice, establishing the four ranges would remove the availability of conducting agricultural activities for some who are low income and leasing land; however, while this could be considered significant unless other lands were made available, it would not be disproportionate. No significant impacts to children would occur by operating the four ranges (see Table 19.2-4; DoN 2010a). In terms of the Mariana Islands Range Complex training, no disproportionate health and safety impacts to low-income, minority, and children populations (see Table 3.18-1; DoN 2010b). Therefore, less than significant impacts would be expected from the no-action alternative.

4.15.3.5 Summary of Impacts for Tinian Alternatives

Table 4.15-1 provides a comparison of the potential impacts to socioeconomics and environmental justice resources for the three Tinian alternatives and the no-action alternative.

Table 4.15-1. Summary of Impacts for Tinian Alternatives

Resource Area	*Tinian (Alternative 1)*		*Tinian (Alternative 2)*		*Tinian (Alternative 3)*		*No Action Alternative*	
Socioeconomic and Environmental Justice	**Construction**	**Operation**	**Construction**	**Operation**	**Construction**	**Operation**	**Construction**	**Operation**
Population[1]	*NI*	*NI*	*NI*	*NI*	*NI*	*NI*	*NI*	*NI*
Economic Conditions								
Tourism	*LSI*	*LSI*	*LSI*	*LSI*	*LSI*	*LSI*	*LSI*	*LSI*
Gross Domestic Product	*BI*	*BI*	*BI*	*BI*	*BI*	*BI*	*LSI*	*LSI*
Employment and Income	*BI*	*BI*	*BI*	*BI*	*BI*	*BI*	*BI*	*BI*
Government Revenues	*BI*	*BI*	*BI*	*BI*	*BI*	*BI*	*LSI*	*LSI*
Housing	*LSI*	*LSI*	*LSI*	*LSI*	*LSI*	*LSI*	*LSI*	*LSI*
Agriculture	*LSI*	*LSI*	*LSI*	*LSI*	*LSI*	*LSI*	*LSI*	*LSI*
Commercial Fishing and Aquaculture	*NI*	*LSI*	*NI*	*LSI*	*NI*	*LSI*	*LSI*	*LSI*
Airports and Sea Ports	*BI*	*BI*	*BI*	*BI*	*BI*	*BI*	*LSI*	*LSI*
Power Utility Rates	*NI*	*BI*	*NI*	*BI*	*NI*	*BI*	*LSI*	*LSI*
Public Services								
Education	*LSI*	*LSI*	*LSI*	*LSI*	*LSI*	*LSI*	*LSI*	*LSI*
Emergency Services	*LSI*	*BI*	*LSI*	*BI*	*LSI*	*BI*	*LSI*	*LSI*
Public Health	*LSI*	*LSI*	*LSI*	*LSI*	*LSI*	*LSI*	*LSI*	*LSI*
Community and Social Topics	*LSI/SI*	*LSI/SI*	*LSI/SI*	*LSI/SI*	*LSI/SI*	*LSI/SI*	*LSI*	*LSI*
Environmental Justice and Protection of Children	*NI*	*NI*	*NI*	*NI*	*NI*	*NI*	*LSI*	*LSI*

Legend: *BI* = beneficial impact; *LSI* = less than significant impact; *NI* = no impact; *SI* = significant impact. Shading is used to highlight the significant impacts.
Note[1]: A change in population is not considered an impact itself. However, population change has the potential to drive positive or negative impacts to other socioeconomic factors.

4.15.4 Pagan

Economic conditions (i.e., tourism, gross domestic product, employment and income, government revenues, housing, agriculture, airport and sea port, and power utility rates) and public services are non-existent on Pagan. Because there are no residents on Pagan, Executive Orders for Environmental Justice and the Protection of Children are not relevant and no analyses of these issues were provided in this EIS/OEIS. The following discusses only those aspects of socioeconomics impacts anticipated on Pagan.

4.15.4.1 Pagan Alternative 1

4.15.4.1.1 Construction Impacts

Because the island is currently undeveloped and unpopulated, there would be no impacts related to population change, public services, or community character and cohesion associated with Pagan Alternative 1 construction activities. Pagan Alternative 1 construction activities would result in beneficial economic impacts due to construction-related economic activity and revenues provided to the CNMI government.

4.15.4.1.2 Operation Impacts

There would be no impacts related to population change associated with Pagan Alternative 1 operational activities because the island is currently unpopulated, with no socioeconomic infrastructure. However, any potential future settlement may be smaller with the proposed action than without it. Appendix Q, *Socioeconomic Impact Assessment Study*, indicates that there is potential for existing transitory economic activities that occur on Pagan to continue and for new ones to be developed. These activities include the continuance of very limited ecotourism and potential open-ocean aquaculture operations. Given the existing level of these activities, and accounting for some expansion, assuming appropriate planning takes place, while there may be a reduced land area available, these activities could take place either concurrent with training activities or during times when training would not be occurring on Pagan. Since ecotourism and aquaculture activities could take place at similar magnitudes, with or without the proposed action, the proposed action is not anticipated to have an effect on these activities.

The CNMI government would see an increase in revenues from payments made by the U.S. federal government associated with military use of Pagan. Because the increased revenue would improve the CNMI government's financial position, the increased revenues would constitute a beneficial impact to the CNMI.

4.15.4.1.2.1 Community and Social Topics

More detailed information on Community and Social Topics can be found in Appendix Q, *Socioeconomic Impact Assessment Study,* Sections 3.5, 4.4, and 5.4.

Potential impacts to Pagan include decreased access to recreational and cultural opportunities (see Section 2.5.1.4.1.2, *Public Access,* for information on access restrictions), and decreased the opportunity for former Pagan residents or their descendants to be able to re-settle or homestead the island. Pagan Alternative 1 operations could affect community character by replacing some recreational and cultural opportunities on Pagan with military training. Pagan Alternative 1 operations would convert land that

could be used for subsistence activities and farming into lands sustaining active live-fire military training, thereby affecting the place-based relationship that communities are able to have with their ancestral homeland. Access restrictions associated with Pagan Alternative 1 operations would also affect the opportunity for those with ties to the island to practice and pass down knowledge of cultural activities while on the island.

These localized changes may impact the perceptions that some former residents and their descendants have of Pagan. Therefore, there is a potential for changes to community character and cohesion to occur as a result of Pagan Alternative 1 operations.

4.15.4.2 Pagan Alternative 2

The only differences between Pagan Alternatives 1 and 2 are that the southern High Hazard Impact Area would not be established and the northern impact area would decrease in size. These changes would not affect the analysis presented for Alternative 1. Therefore, socioeconomic impacts associated with Pagan Alternative 2 would be the same as those presented for Pagan Alternative 1.

4.15.4.2.1 Construction Impacts

There would be no population, public services, or community character and cohesion impacts associated with Pagan Alternative 2 construction activities. There would be beneficial economic impacts due to construction-related revenues provided to the CNMI government.

4.15.4.2.2 Operation Impacts

Pagan Alternative 2 operations would result in less than significant impacts to the population and beneficial impacts to economic conditions from U.S. federal land acquisition. However, there is a potential for direct significant impacts to community character and cohesion resulting from Pagan Alternative 2 operations.

4.15.4.3 Pagan No-Action Alternative

There would be no live-fire training on Pagan under the no-action alternative. There would continue to be periodic visits to Pagan for eco-tourism, scientific surveys and military training for search and rescue. These activities would be short term and have less than significant impacts on the socioeconomic conditions of Pagan.

4.15.4.4 Summary of Impacts for Pagan Alternatives

Table 4.15-2 provides a comparison of the potential impacts to socioeconomics and environmental justice resources for the two Pagan alternatives and the no-action alternative.

Table 4.15-2. Summary of Impacts for Pagan Alternatives

Resource Area	*Pagan (Alternative 1)*		*Pagan (Alternative 2)*		*No-Action Alternative*	
Socioeconomics and Environmental Justice	**Construction**	**Operation**	**Construction**	**Operation**	**Construction**	**Operation**
Population	*NI*	*NI*	*NI*	*NI*	*NI*	*NI*
Economic Conditions	*BI*	*BI*	*BI*	*BI*	*NI*	*LSI*
Public Services	*NI*	*LSI*	*NI*	*LSI*	*NI*	*NI*
Community and Social Topics	*NI*	*Potential for SI*	*NI*	*Potential for SI*	*NI*	*LSI*

Legend: *BI* = beneficial impact; *LSI* = less than significant impact; *NI* = no impact; *SI* = significant impact. Shading is used to highlight the significant impacts.

Note[1]: A change in population is not considered an impact itself. Population change has the potential to drive positive or negative impacts to other socioeconomic factors; however, Pagan has no socioeconomic infrastructure that could be impacted by population change.