

5. Cumulative and Other Effects

5.1 Definition of Cumulative Effects

The CEQ defines cumulative impacts as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.” Informed decisionmaking is served by consideration of cumulative impacts resulting from projects that are proposed, under construction, recently completed, or anticipated to be implemented in the reasonably foreseeable future.

CEQ guidance in considering cumulative effects states that the first steps in assessing cumulative effects involve defining the scope of the other actions and their interrelationship with a proposed action. The scope must consider other projects whose effects coincide with the location and timetable of a proposed action and other actions. Cumulative effects analyses must also evaluate the nature of interactions among these actions (CEQ 1997).

To identify cumulative effects, the analysis needs to address two fundamental questions:

1. Does a relationship exist such that affected resource areas of the Proposed Action or alternatives might interact with the affected resource areas of past, present, or reasonably foreseeable actions?
2. If such a relationship exists, then does an EA or EIS reveal any potentially significant effects not identified when the Proposed Action is considered alone?

Section 5.2 presents those actions or projects that are temporally or geographically related to the Proposed Action and, as such, have the potential to result in cumulative impacts. The cumulative impacts analysis in **Section 5.3** discusses the potential cumulative impacts of these actions, some of which are in early planning stages. The cumulative impact assessment is based on available information at the time of the development of this EIS and might not include potential mitigation measures for these actions.

5.2 Past, Present, and Reasonably Foreseeable Future Actions

Using readily available information, numerous DOD and non-DOD projects were reviewed in order to identify the past, present, and reasonably foreseeable future projects on Saipan, Tinian, and in the region in general that are relevant to determining potential cumulative impacts associated with the Proposed Action. The list of projects described in the following sections has changed since release of the 2012 Draft EIS. In addition to the identification of new projects, changes to the project list have occurred because of project modifications, the completion of construction projects, the termination of land leases, projects being too conceptual, projects that are unfunded, and the lack of potential for cumulative effects in association with the revised proposed action.

5.2.1 DOD Development in the Region

Some of the most substantial projects identified are the DOD projects consisting of the MIRC improvements, the Guam and CNMI Military Relocation, the CJMT, and the MITT. The cumulative impacts analysis, however, is limited to consideration of those actions located on Saipan and Tinian, since the Proposed Action and their impacts would be limited to these two islands and would contribute little or no impacts elsewhere. These DOD projects are listed in **Table 5.2-1** and summarized in the following discussions.

Table 5.2-1. DOD: List of Past, Present, and Reasonably Foreseeable Future Actions

Proponent	Name	Location	NEPA Document	Description	Construction Year	Status*
Joint Guam Program Office (JGPO)	Guam and CNMI Military Relocation	Region, Tinian	Final EIS and ROD, 2010; Supplemental Final EIS and ROD 2015	Relocation of Marines from Okinawa to Guam; includes construction of four live-fire ranges and training activities on Tinian.	TBD	RF
Department of Navy (DON)/US Pacific Fleet	Mariana Islands Range Complex (MIRC)	Region, Saipan, Tinian	Final EIS/OEIS and ROD, 2010	Increased levels of land, sea, and air training, and weapons testing, within the MIRC.	N/A	P
DON	Mariana Islands Training and Testing (MITT)	Region, Saipan, Tinian	Final EIS/OEIS and ROD, 2015	Adjustments to range capabilities, locations, and tempo of land, sea, and air training, and weapons testing, within the MITT; includes reassessment of training and testing activities analyzed in the 2010 MIRC EIS/OEIS.	N/A	P
Marine Corps Forces Pacific (MARFORPAC)	CNMI Joint Military Training (CJMT)	Region, Tinian	Draft EIS/OEIS 2015 (Final EIS/OEIS and ROD expected 2016)	Includes establishment of multiple live-fire and maneuver ranges and training areas on Tinian.	2016–2026	RF

*Status Key: P = Present; RF = Reasonably Foreseeable

Guam and CNMI Military Relocation (DON 2010b, DON 2010c). This project includes the relocation of Marines from Okinawa to Guam. An EIS was prepared by the DON and JGPO, and a ROD was issued in 2010 (DON 2010b). The project also includes development of four live-fire training ranges within the leaseback area on Tinian. The Rifle Known Distance Range, the Automated Combat Pistol/Military Police Firearms Qualification Course, and Field Firing Range would be located along 86th Street and west of Broadway. The Platoon Battle Course

would be located northwest of the other ranges. All four range footprints partially overlay the existing FAA Mitigation Area, which was established for the protection of endangered and threatened wildlife, particularly the Tinian monarch. The area may be used for low-impact military training and other purposes that do not disrupt the habitat and living conditions for the Tinian monarch. The projects on Tinian would only be implemented if the CJMT actions, described later in this section, are not implemented.

A Supplemental EIS for this project was prepared by the DON and JGPO, and a ROD for the Supplemental EIS was issued in 2015 (DON 2015c). The ROD for the Supplemental EIS includes cantonment and family housing at the Navy Computer and Telecommunications Station in the Finegayan area of Guam, and family housing to be located at Andersen AFB. The Live Fire Training Range Complex would be located at Andersen AFB, Northwest Field and includes a stand-alone hand grenade range at Andersen South (DON 2015c).

Mariana Islands Range Complex (MIRC) (DON 2010a). This project consists of military training and Research, Development, Test and Evaluation training activities within the Mariana Islands (DON 2010a). An EIS/OEIS was prepared for the MIRC by the DON and a ROD was issued in 2010. The MIRC consists of the ranges, airspace, and ocean areas surrounding the ranges that make up the study area.

The Proposed Action would result in critical enhancements to increase training capabilities (especially in the undersea and air warfare areas) that are necessary if the military services are to maintain a state of military readiness commensurate with the national defense mission. The Proposed Action primarily focuses on the development and improvement of existing training capabilities in the MIRC, including the use of training areas and facilities on Saipan and Tinian.

It does not include any military construction projects. Additionally, it does not involve extensive changes to the MIRC facilities, activities, or training capabilities, nor does it involve an expansion of the existing MIRC property or airspace requirements.

In summary, the MIRC ROD establishes the MIRC and the training that occurs jointly within the MIRC. Training that occurs within the MIRC includes those exercises that would initiate at the airport or airports being proposed for improvements within this Divert EIS.

Mariana Islands Testing and Training (MITT) (DON 2015b). The project is for U.S. military readiness training and research, development, testing, and evaluation activities conducted in the MITT land, sea, and air study area. As part of the analysis, the MITT Final EIS/OEIS reassesses the continued military training activities that occur on Guam, Rota, Tinian, Saipan, and FDM. The training is needed to meet the U.S. Navy's statutory responsibilities described in Title 10 U.S.C. to achieve and maintain military readiness.

The proposed activities relevant to Saipan and Tinian training areas are listed in **Table 5.2-2** for the baseline (No Action) and Alternative 1 (DON 2015b). Seven training activities would occur more frequently on Tinian than the baseline tempo established under the MIRC EIS/OEIS (DON 2010a). Saipan and Tinian are not the only islands where these events could occur. The actual annual tempo on Saipan and Tinian would vary, but would not exceed the number of events proposed under Alternative 1 in the table.

Table 5.2-2. MITT Training Activities per Year that could occur on Saipan and Tinian

Range Activity	Saipan		Tinian	
	Baseline	Alternative 1	Baseline	Alternative 1
Proposed changes to training tempo				
Amphibious Assault	N/A	N/A	4	6
Amphibious Raid	N/A	N/A	2	6
Non-combatant Evacuation	N/A	N/A	2	5
Humanitarian Assistance/Disaster Relief Operations	N/A	N/A	2	5
Urban Warfare Training (Blanks/Simulations)	N/A	N/A	17	36
Personnel Insertion/Extraction	N/A	N/A	150	240
Parachute Insertion	N/A	N/A	12	20
Training tempo unchanged				
Embassy Reinforcement	N/A	N/A	50	50
Marine Air Ground Task Force Exercise (Amphibious) Battalion	4	4	4	4
Special Purpose Marine Air Ground Task Force Exercise	2	2	2	2
Urban Warfare Exercise	5	5	5	5
Intelligence, Surveillance, Reconnaissance	16	16	16	16
Maneuver (Convoy, Land Navigation)	N/A	N/A	16	16
Field Training Exercise	100	100	100	100
Force Protection	N/A	N/A	75	75
Anti-Terrorism	N/A	N/A	80	80

*Number of activities per year is not limited to Saipan or Tinian, but the maximum number of annual events that could potentially occur on Saipan or Tinian is listed.

Source: DON 2015b

CNMI Joint Military Training (CJMT) (DON 2015a). The proposed project is to establish live-fire range and training areas (RTAs) within the CNMI. An RTA refers to live-fire ranges, training courses, maneuver areas, and associated support facilities, collectively, that are located in close proximity to each other. Under the proposed action, a unit-level RTA is proposed on Tinian (consisting of four range complexes) and a combined level RTA is proposed on Pagan. Both RTAs would require amphibious training beaches linked to an existing or improved road/trail system, maneuver areas to support personnel on foot or in vehicles, as well as access points (i.e., airfields, ports) for personnel, equipment, and cargo deliveries. Land use agreements would be required to implement the proposed action on Tinian. The United States currently has a real estate agreement for nearly two-thirds of Tinian (i.e., the MLA). The DOD would acquire jurisdictional control of additional lands outside of the MLA through long-term real estate agreements.

Construction on Tinian would occur to support range and target installation; administrative, command, and control functions; access roads and trails; delivery of utilities (i.e., water, electric,

wastewater, communications and solid waste handling); personnel billeting; and equipment and munitions storage. To accommodate the anticipated aircraft training tempo and equipment/ cargo needs, taxiways, directly north and adjacent to the runway of Tinian International Airport, would be constructed to include: (1) one tactical aircraft parking ramp; (2) one cargo aircraft parking ramp; (3) connecting taxiways; (4) ordnance arming and de-arming pads; (5) one hot cargo (i.e., munitions) pad/combat aircraft loading area; (6) fuel tanks and an expeditionary/temporary refueling area; (7) arresting gear pads; (8) munitions holding pads; (9) taxiway crossings; and (10) access roads connecting to the airfield. Construction could also include a fuel pipeline along 8th Avenue to transfer fuel to the bulk storage facility at the airfield.

For all action alternatives, approximately 95 full-time personnel would be needed to carry out range management and maintenance activities. These personnel would have responsibility for both RTAs on Tinian and Pagan; for the purposes of analysis, it is assumed these employees would live on Tinian.

Based on the planned deployment and training exercise tempo for units in the U.S. Pacific Command Area of Responsibility, it was determined that 20 weeks of live-fire training on Tinian (and 16 weeks of live-fire training on Pagan) would meet the unfilled training requirements. So as to understand the extent of CJMT aircraft activities proposed at Tinian, the types and numbers of proposed annual airfield operations are listed in **Table 5.2-3**. Approximately 920 rotary aircraft landing zone operations are also planned to occur annually on Tinian (DON 2015a).

Table 5.2-3. CJMT Proposed Annual Airfield Military Operations on Tinian

Aircraft Type ²	Tinian International Airport ¹			North Field ¹			Total		
	7 a.m. – 10 p.m.	10 p.m. – 7 a.m.	Total	7 a.m. – 10 p.m.	10 p.m. – 7 a.m.	Total	7 a.m. – 10 p.m.	10 p.m. – 7 a.m.	Total
Transport Tilt-rotor	720	280	1,000	320	80	400	1,040	360	1,400
Transport Rotary-wing	680	280	960	280	80	360	960	360	1,320
Attack Helicopter	520	240	760	120	40	160	640	280	920
Transport Fixed Wing	800	400	1,200	800	400	1,200	1,600	800	2,400
Unmanned	200	100	300	200	100	300	400	200	600
Fighter	1,600	400	2,000	Not applicable			1,600	400	2,000
Heavy commercial transport	24	0	24	Not applicable			24	0	24
Fighter – Field Carrier Landing Practice	2,500	500	3,000	Not applicable			2,500	500	3,000
Total	7,044	2,200	9,244	1,720	700	2,420	8,764	2,900	11,664

¹ Operations include a take-off or a landing, and each are counted as one operation. A take-off and a landing are two operations.

² Examples of aircraft types: Transport Tilt-rotor – MV-22; Transport Rotary-wing – CH-53; Attack Helicopter – AH-1 and AH-64; Transport Fixed Wing – C-130, KC-135, and C-17; Unmanned Aerial System – RQ-7; and Fighter – F-18, AV-8, and F-35.

5.2.2 Non-DOD Development on Saipan and Tinian

As for non-DOD projects, numerous recent, ongoing, and future actions were identified, but only those actions with considerable potential for cumulative effects (positive or negative) as relating to the Proposed Action were included. **Table 5.2-4** identifies a variety of mostly capital improvement projects and private commercial developments for Saipan and Tinian.

Table 5.2-4. Non-DOD: List of Past, Present, and Reasonably Foreseeable Future Actions

Proponent	Name	Location	Description	Construction Year	Status*
Saipan					
CNMI Government-DPW	Saipan Water System Improvements	Multiple Sites	Designed to meet a USEPA-stipulated order, this project will provide focus and direction to meet CWA and SDWA requirements in Saipan on the existing water quality outputs (CNMI Department of Commerce 2009).	2012–2020	P
CNMI Government- DPW	Water/ Waste Water System for Saipan	Multiple Sites	This is a U.S. Federal Court-ordered project. The existing water/sewer system needs major rehabilitation and USEPA compliance upgrades (CNMI Department of Commerce 2009, USEPA 2012).	2012–2020	P
Honest Profit International	Saipan Resort Hotel	San Antonio	This project is the construction of a 300-room resort hotel immediately north of the Pacific Islands Club. Construction will include a batching plant and warehouse. (Saipan Tribune 2014c, Saipan Tribune 2015b)	2014-2016	P
Best Sunshine International	Grand Mariana Casino and Hotel Resort	Garapan	This project plans for potentially up to 2,000 hotel rooms in stages, beginning with a 250-room hotel and casino. (Saipan Tribune 2015a)	TBD	RF
Tinian					
Commonwealth Ports Authority	Tinian Airport Improvements	Airport	This effort includes implementing projects identified in the CPA Master Plan such as: (1) relocation of the Aircraft Rescue and Fire Fighting Facility building; (2) terminal improvements; (3) acquisition of a 1,500-gallon Aircraft Rescue and Fire Fighting Facility vehicle; and (4) a new water line. (DON 2015a)	2014-2015	P
Commonwealth Ports Authority	Tinian Seaport Improvements	Seaport	This project would include development of an immigration and customs facility; brown treesnake inspection area; and fire suppression pump house.	TBD	RF

Proponent	Name	Location	Description	Construction Year	Status*
Tinian (continued)					
Department of Public Lands	West San Jose Village Homesteads	San Jose Village	This residential subdivision includes lots for 189 homes, ponding basin, and approximately 12,000 linear feet of roadways. Recipients have 3 years to build their homes. (DON 2015a, Saipan Tribune 2014a)	2014-2016	P
Capital Improvements Projects Program Office	Solid Waste Transfer Station	Across from the CUC power plant	The Solid Waste Transfer Station on 3 acres provides a more convenient method for people to take their solid waste for processing prior to disposal because it is closer to their homes and provides dumpsters for collection of trash, sorting bins for separation of recyclables, and collection areas for green waste and appliances. (DON 2015a)	2015	RF
Bridge Investment Group, LLC	Tinian Ocean View Resort	Tinian Harbor	A hotel replica of the Titanic would be built at Tinian Harbor. It would be part of a larger resort complex with 300 guest rooms, restaurants, shopping arcades, casino, and wedding chapel. The project would be constructed in increments and the initial construction includes two stevedore warehouses to replace the existing dilapidated structures, and a new Customs, Immigration and Quarantine building. The project includes construction of workforce housing for the estimated 1,000 workers; no site information. (DON 2015a, Saipan Tribune 2014b)	2015-2020	RF
Alter City Group	Plumeria Resort and Casino	Puntan Diablo Cove	Within the 150-hectare property along Puntan Diablo Cove, the project would include over 5,000 hotel rooms to be built in three phases, villas, a casino, golf course, water park, shops, restaurants, and new roads. (CNMI 2014, Saipan Tribune 2015c)	2015-2027	RF
Capital Improvements Projects Program Office	0.5-Million Gallon Reservoir	Carolinas Heights	The Office of Insular Affairs approved funding and NEPA categorical exclusion for the construction of a 0.5-Million Gallon Reservoir. (DON 2015a, Marianas Variety 2014)	2015	RF

Proponent	Name	Location	Description	Construction Year	Status*
Tinian (continued)					
Department of Public Works	Tinian Solid Waste Facility Closure	South of Tinian Airport	The existing Tinian Solid Waste Facility will be closed, in accordance with Federal regulations, after a new landfill is developed. The new landfill site has not been determined. There is insufficient site information available to include it on the reasonably foreseeable actions list. (DON 2015a)	Beyond 2016	RF

*Status Key: P = Present; RF = Reasonably Foreseeable

Those actions that are relatively small in scale, lacking funding, or still conceptual were not included in the project list. Examples of such actions are as follows:

- American Memorial Park, Tinian Historical Interpretative Center at North Field – conceptual plans only
- Tinian Slaughterhouse: Phase 1 – relatively small operation and not mapped
- Saipan 10 MW Solar Power Plant: Phase 1 – in early planning stages and the location has not been determined
- New Tinian Solid Waste Facility – location has not been determined, and the funding commitment and design are pending
- Tinian Roadway Hazard Elimination in San Jose Village – relatively small-scale road safety improvements (DON 2015a, Marianas Variety 2015).

5.3 Cumulative Effects Analysis

For the purposes of **Section 5.3**, any project related to the Construction Phase or Implementation Phase of the Proposed Action described in **Section 2.3** of this EIS is referred to wholly as “Divert,” where applicable.

5.3.1 Noise

5.3.1.1 Alternative 1–Modified Saipan Alternative

Short- and long-term, minor to moderate, adverse cumulative impacts on the noise environment would be expected.

Short-term, minor to moderate, adverse cumulative noise impacts could occur during the Construction Phase. As described in **Section 4.1.1**, the majority of the projects under Alternative 1 would occur on or adjacent to Saipan International Airport property. The closest residences to the construction sites are approximately 700 feet north of the fuel storage and hydrant system infrastructure. At this distance, peak noise levels from construction equipment would be approximately 67 to 71 dBA.

Several non-DOD construction projects are proposed on Saipan, most of which would be 1.5 miles or more from the airport including the planned Saipan Resort Hotel in San Antonio. At this time, these projects do not have definitive construction dates. Under Alternative 1, vehicle traffic would increase on a short-term basis during construction and on a long-term, periodic basis with the delivery of fuel. Fuel truck deliveries would occur during a 14-day period initially and then throughout the 8 weeks of anticipated operations each year. The additional truck traffic would use existing roadways commonly used by similar delivery trucks. The increase of roadway vehicles as compared to existing ADT on the local roadways would not present a significant increase in current noise levels. However, the increase of traffic analyzed in this EIS combined with construction vehicles from potential projects on Saipan could result in periodic minor to moderate, adverse cumulative impacts on the noise environment, depending on the location of the site and the construction dates.

For Alternative 1, the USAF anticipates typical exercises at Saipan International Airport to include two to four cargo/tanker type aircraft for up to 8 weeks per year. Approximately 720 operations (i.e., 360 take-offs and 360 landings) by KC-135 or similar aircraft would be completed annually at the airport. As described in **Section 4.1.1**, the KC-135 operations would extend the noise contours at the airport along the take-off and landing flight tracks. The amount of land area affected by a 65-dBA noise level or greater would only increase slightly outside airport property. Although the numbers and timeframes for increased commercial aircraft traffic associated with the planned hotel resorts is unknown at this time, the baseline analyses in **Section 4.1.1** did utilize the FAA's Terminal Area Forecast out to 2018. Based on this analysis, minor, adverse cumulative impacts on the noise environment would be expected from Alternative 1. Impacts would be periodic and short-term because they would only occur during planned military exercises for a maximum of 8 weeks per year.

In the Feasibility Assessment for the Establishment of Special Use Airspace for Marine Corps Training Activities on the islands of Guam, Tinian, and Pagan, October 2011 (NAVFAC Pacific 2011), one of the alternatives includes the construction of four firing ranges on the northern end of Tinian. The proposed ranges would affect Saipan International Airport aircraft approach procedures. This could impact noise levels around the airport since aircraft arriving could be required to fly at different elevations if the approach procedures were changed.

5.3.1.2 Alternative 2—Modified Tinian Alternative

Short- and long-term, minor to moderate, adverse cumulative impacts on the noise environment would be expected.

5.3.1.2.1 North Option

Short-term, moderate, adverse cumulative impacts on the noise environment would be expected from construction associated with the Alternative 2 North Option. As described in **Section 4.1.2**, the majority of the projects under this alternative would occur on Tinian International Airport property. The closest noise-sensitive receptors to the airport are residences on the south side of the airport, approximately 5,200 feet from the southern airport boundary. At this distance, noise levels from construction equipment would be below 55 dBA. In addition to the projects at the airport, a fuel tank would be constructed at the Port of Tinian. The closest

noise-sensitive receptors to this site are residences approximately 700 feet away. At this distance, noise levels from construction equipment would be approximately 67 to 71 dBA.

There are numerous DOD and non-DOD construction projects proposed on Tinian, particularly in association with the CJMT proposal and the planned housing and hotel resort developments. The planned Plumeria Resort and Casino, for example, would be located southwest of the airport, approximately 7,500 feet from the proposed KC-135 parking apron. Further south in Tinian Harbor, the Tinian Ocean View Resort is planned for development. At this time, several of the DOD and non-DOD projects do not have definitive construction dates. Under the Alternative 2 North Option, vehicle traffic would increase on a short-term basis during construction and on a long-term, periodic basis with the delivery of fuel. Fuel truck deliveries under this alternative would occur during a 30-day period initially and then throughout the 8 weeks of anticipated operations each year. The additional truck traffic would use existing roadways commonly used by similar delivery trucks. The increase of roadway vehicles as compared to existing ADT on the local roadways would not present a significant increase in current noise levels. However, the increase of traffic analyzed in this EIS combined with construction vehicles from potential projects on Tinian could result in periodic minor to moderate, adverse cumulative impacts on the noise environment, depending on the location of the site and the construction dates.

Just as for Alternative 1, the USAF anticipates typical exercises at Tinian International Airport to include two to four cargo/tanker type aircraft for up to 8 weeks per year under Alternative 2. Approximately 720 operations (i.e., 360 take-offs and 360 landings) by KC-135 or similar aircraft would be completed annually at the airport. As described in **Section 4.1.2**, the KC-135 operations would slightly extend the current noise contours at the airport when applying the FAA's Terminal Area Forecast. When combined with other future aircraft operations, however, the amount of land area affected by a 65-dBA noise level or greater would increase substantially, but affected land areas are expected to remain mostly within the airport property and MLA. According to the CJMT Draft EIS/OEIS (DON 2015a), the proposed 9,244 aircraft operations at Tinian International Airport would result in potentially significant direct impacts from increased noise levels affecting residents in the Marpo Heights area located approximately 1.3 miles southeast of the airport. Although the Divert aircraft operations would be additive to the CJMT effects, they are not expected to further increase noise levels for the Marpo Heights residents.

Based on this analysis, long-term, minor to moderate, adverse cumulative impacts on the noise environment would be expected from Alternative 2. Divert-related impacts would be periodic and short-term because they would only occur during planned military exercises for a maximum of 8 weeks per year.

5.3.1.2.2 South Option

Impacts on the noise environment from the Alternative 2 South Option would be less than those described for the North Option. The construction footprint under the South Option is approximately 37 percent smaller than the North Option and would require less construction equipment and vehicle use. Noise could also be expected from construction proposed on the south side of the airport by CPA. However, cumulative noise levels would be from the same

types of sources, construction equipment and vehicles at the airport, and would therefore be the same as those described under the Alternative 2 North Option because noise is not additive. The noise could be less frequent than that described under the Alternative 2 North Option. Construction of the fuel tank at the Port of Tinian would be the same.

Just as for the North Option, fuel truck deliveries under this alternative would occur during a 30-day period initially and then throughout the 8 weeks of anticipated operations each year. The additional truck traffic would use existing roadways commonly used by similar delivery trucks. The increase of roadway vehicles as compared to existing ADT on the local roadways would not present a significant increase in current noise levels. However, the increase of traffic analyzed in this EIS combined with construction vehicles from potential projects on Tinian could result in periodic minor to moderate, adverse cumulative impacts on the noise environment, depending on the location of the site and the construction dates.

Under the South Option, noise from aircraft operations would generally be the same as for the North Option, resulting in long-term, minor to moderate, adverse cumulative impacts. For the planned Plumeria Resort and Casino, hotel and villa facilities could potentially be located between 1,300 and 1,600 feet of the proposed Divert cargo pad and parking apron. Even at this distance, however, noise levels from taxiing aircraft are expected to be less than during runway take-offs and landings, and would only occur for brief periods during the 8 weeks of operations per year.

5.3.1.3 Alternative 3—Hybrid Modified Alternative

The implementation of Alternative 3 would have short-term, minor to moderate, adverse cumulative impacts and long-term, moderate, adverse cumulative impacts on the noise environment. Individual impact analysis discussions for Saipan and Tinian are provided below.

5.3.1.3.1 Hybrid Modified – Saipan

Under Alternative 3, the construction area footprint at Saipan International Airport would be approximately one-third in size compared to Alternative 1. As a result, the extent and duration of construction would be substantially less. This reduced level of activity from equipment and vehicles would have less noise impacts on local communities. Fuel truck deliveries, however, would be the same as for Alternative 1, assuming all of the annual aircraft operations were to occur on Saipan. Truck deliveries would occur during a 14-day period initially and then throughout the 8 weeks of anticipated operations each year. When combined with construction and vehicle noise from other projects, the increase in traffic could result in periodic minor, adverse cumulative impacts on the noise environment, depending on the location of the site and the construction dates.

Assuming all 720 annual aircraft operations were to occur at Saipan International Airport, the resulting noise impacts from aircraft would be the same as for Alternative 1. Minor adverse cumulative impacts on the noise environment would be expected. Impacts would be periodic and short-term because they would only occur during planned military exercises for a maximum of 8 weeks per year.

5.3.1.3.2 *Hybrid Modified – Tinian*

NORTH OPTION

For the Alternative 3 North Option on Tinian, cumulative noise impacts during construction would be similar to those described under the Alternative 2 North Option. Although the overall construction footprint would be approximately 20 percent smaller than Alternative 2, the difference in construction equipment and vehicle use would be minor. Fuel truck deliveries would occur over 17 days instead of the 30 days for the initial implementation period. Thus, the increase of traffic analyzed in this EIS combined with construction vehicles from potential projects on Tinian could result in periodic minor to moderate, adverse cumulative impacts on the noise environment, depending on the location of the site and the construction dates.

Under this alternative, noise effects from aircraft operations would be the same as those analyzed under Alternative 2, resulting in moderate, adverse cumulative impacts on the noise environment.

SOUTH OPTION

Under Alternative 3 South Option on Tinian, cumulative noise impacts during the construction would be similar to those described under the Alternative 2 South Option. The overall construction footprint would be approximately a third smaller than Alternative 2, but would still require substantial amounts of construction equipment and vehicle use. Fuel truck deliveries would occur over 17 days instead of the 30 days for the initial implementation period. Thus, the increase of traffic analyzed in this EIS combined with construction vehicles from potential projects on Tinian could result in periodic minor to moderate, adverse cumulative impacts on the noise environment, depending on the location of the site and the construction dates.

Under this alternative, noise effects from aircraft operations would be the same as those analyzed under Alternative 2, resulting in moderate, adverse cumulative impacts.

5.3.2 Air Quality

5.3.2.1 Alternative 1–Modified Saipan Alternative

For Alternative 1, short-term, minor, adverse cumulative impacts would be expected from construction and other land disturbance. Periodic, minor, adverse cumulative impacts on local and regional air quality would be expected from operational activities.

Saipan is designated as attainment/unclassifiable for all criteria pollutants. All proposed construction and other land disturbance projects under Alternative 1 would have short-term minor, adverse impacts on local and regional air quality. The combination of Divert with ongoing or reasonably foreseeable projects (e.g., Saipan Resort Hotel and the Grand Mariana Casino and Hotel Resort) would generate criteria air pollutants during construction; however, dominant trade winds in the region blowing from the east and northeast would quickly disperse emissions. Even if construction activities from these other regional actions were to occur at the same time as Alternative 1, no significant cumulative impacts would occur.

Proposed Divert operational activities, combined with other traffic, training, and testing activities (e.g., MITT-related actions) would result in increased criteria pollutant emissions and hazardous air pollutant emissions throughout the study area. Sources of the emissions would include

vehicles, aircraft, fuels, and, to a lesser extent, munitions. Potential impacts include localized and temporarily elevated pollutant concentrations; however, emission dispersal would quickly occur because of the trade winds. As a result, periodic, minor, adverse cumulative impacts on local and regional air quality would be expected from aircraft, vehicles, and fuel transfer/storage operations under Alternative 1.

Additionally, impacts from greenhouse gas emissions associated with the proposed construction and operational activities measured on a global scale would be negligible based on the predicted fraction of the U.S. emission inventory.

5.3.2.2 Alternative 2–Modified Tinian Alternative

Under Alternative 2, short-term, minor, adverse cumulative impacts would be expected from construction and other land disturbance. Periodic, minor, adverse cumulative impacts on local and regional air quality would be expected from operational activities.

5.3.2.2.1 North Option

Tinian is also designated as attainment/unclassifiable for all criteria pollutants. There is a potential for impacts to air quality in the Tinian airshed from the proposed Divert activities and other construction actions (e.g., CJMT-related actions, Tinian Ocean View Resort, Plumeria Resort and Casino, and the 0.5-Million Gallon Reservoir). The cumulative air emissions at the island and in the regional, however, would not appreciably impact the ambient air quality. Just as on Saipan, emission dispersal would quickly occur because of trade winds. As a result, all proposed construction and other land disturbance projects under Alternative 2 would have short-term minor, adverse impacts on local and regional air quality. Even if construction activities from these other actions were to occur at the same time as the Alternative 2 North Option, no significant cumulative impacts would occur.

In addition to the proposed Divert actions, ongoing or reasonably foreseeable projects that would result in new sources of air emissions during the operational phase of Alternative 2 include the MITT and CJMT military training and testing actions, and the increased aircraft and vehicular traffic associated with the new hotel resorts. Sources of the emissions would include trucks, aircraft, fuels, and, to a lesser extent, munitions. Potential impacts include localized and temporarily elevated pollutant concentrations; however, emission dispersal would quickly occur because of the trade winds. As a result, all of the proposed aircraft, vehicles, and fuel transfer/storage operational actions under Alternative 2 would have periodic, minor, adverse cumulative impacts on local and regional air quality.

Additionally, impacts from greenhouse gas emissions associated with the proposed construction and operational activities measured on a global scale would be negligible based on the predicted fraction of the U.S. emission inventory.

5.3.2.2.2 South Option

Compared to the Tinian North Option, the South Option would not include construction of taxiways or road reroute, has a smaller size parking apron and cargo pad, and requires substantially less concrete to be transported. Thus, construction-related air emissions would be less. As a result, all proposed construction and other land disturbance projects under

Alternative 2 would have short-term minor, adverse impacts on local and regional air quality. Like the North Option, the combination of the South Option emissions with other projects, even if they were to occur at the same time, would have no significant cumulative impacts.

Operational impacts would be the same as for the North Option. Periodic, minor, adverse cumulative impacts on local and regional air quality would be expected from aircraft, vehicles, and fuel transfer/storage operations.

Additionally, impacts from greenhouse gas emissions associated with the proposed construction and operational activities measured on a global scale would be negligible based on the predicted fraction of the U.S. emission inventory.

5.3.2.3 Alternative 3—Hybrid Modified Alternative

Under the Hybrid Modified Alternative, construction would occur at both Saipan and Tinian, and be phased over a 2- to 3-year period. Thus, Construction Phase air quality impacts are expected at both islands. For cumulative analysis purposes, the air emissions for Saipan and Tinian were conservatively combined. The islands are relatively close and are considered to be within the same AQCR.

For both Alternative 3 Options, short-term, minor, adverse cumulative impacts would be expected from construction and other land disturbance. Periodic, minor, adverse cumulative impacts on local and regional air quality would be expected from operational activities.

5.3.2.3.1 Hybrid Modified – Saipan/Tinian North Option

For the Saipan/Tinian North Option, the combined Divert footprint area for both islands would be larger than Alternative 1 (Saipan only) but less than Alternative 2 (Tinian North Option only). As described in **Section 4.2.3**, the combination of Divert construction-related air emissions for the Saipan/Tinian North Option would not contribute to or affect local or regional attainment status or violate any NAAQS standards. As a result, all proposed construction and other land disturbance projects under this alternative would have short-term minor, adverse impacts on local and regional air quality. Like the other alternatives, the combination of the Divert emissions with other projects, even if they were to occur at the same time, would have no significant cumulative impacts.

When it comes to implementation of the Divert flight activities under the Saipan/Tinian North Option, a total of 720 KC-135 aircraft operations would occur entirely at Saipan, entirely at Tinian, or be split in some unknown fraction between the two islands. Just as for the other alternatives, the combination of the Divert operations with other projects on the islands are expected to have periodic, minor, adverse cumulative impacts on local and regional air quality.

Greenhouse gas emissions associated with the Divert actions also would be negligible based on the predicted fraction of the U.S. emission inventory.

5.3.2.3.2 Hybrid Modified – Saipan/Tinian South Option

For the Saipan/Tinian South Option, the combined Divert footprint area for both islands would also be larger than Alternative 1 (Saipan only), but less than Alternative 2 (Tinian North or South Options only). As previously described, the combination of Divert construction-related air

emissions for the Saipan/Tinian South Option would not contribute to or affect local or regional attainment status or violate any NAAQS standards. As a result, all proposed construction and other land disturbance projects under this alternative would have short-term minor, adverse impacts on local and regional air quality. Like the other alternatives, the combination of the Divert emissions with other projects, even if they were to occur at the same time, would have no significant cumulative impacts.

When it comes to implementation of the Divert flight activities under the Saipan/Tinian North Option, a total of 720 KC-135 aircraft operations would occur entirely at Saipan, entirely at Tinian, or be split in some unknown fraction between the two islands. Just as for the other alternatives, the combination of the Divert operations with other projects on the islands are expected to have periodic, minor, adverse cumulative impacts on local and regional air quality.

Greenhouse gas emissions associated with the Divert actions also would be negligible based on the predicted fraction of the U.S. emission inventory.

5.3.3 Airspace and Airfield Environment

5.3.3.1 Alternative 1–Modified Saipan Alternative

Short term, minor, adverse cumulative impacts on airport use are expected under Alternative 1 on Saipan. Additionally, long-term, negligible, adverse and minor, beneficial cumulative impacts would occur.

During construction under Alternative 1 at Saipan International Airport, commercial aircraft operations could be disrupted on occasion to allow for completion of construction. These impacts, however, would be minimized by scheduling construction and commercial flights to limit overlap. To help ensure that construction can be completed in a safe manner, and recognizing the operational needs of other airport users, the USAF could prepare an airport construction safety plan in accordance with Advisory Circular 150/5370-2F. To avoid or rectify any potential impacts on airfield operations during implementation, the USAF would develop a SMS Plan

The USAF proposed expansion of airport infrastructure would benefit airport operations by providing increased aircraft parking capacity. The proposed 720 annual Divert aircraft operations would have a minor effect on airport usage, lasting only 8 weeks per year. Intermittent delays for civil and commercial aircraft would be minimal.

5.3.3.2 Alternative 2–Modified Tinian Alternative

Short term, minor to moderate, adverse cumulative impacts on airport use are expected under Alternative 2 on Tinian. Additionally, long-term, moderate, adverse and minor, beneficial cumulative impacts would occur.

5.3.3.2.1 *North Option*

For construction at Tinian International Airport, commercial aircraft operations and road access to the airport could be disrupted on occasion to allow for completion of Divert construction. These effects would be exacerbated or have a longer duration because of overlapping Divert, CJMT, and CPA airport projects such as the proposed terminal improvements construction.

Such impacts, however, would be minimized by optimizing the scheduling of construction and commercial flights to limit overlap. Additionally, proposed Divert and CJMT development under the North Option would occur on the opposite side of the airport from all proposed CPA development projects. To help ensure that construction can be completed in a safe manner, and recognizing the operational needs of other airport users, the USAF could prepare an airport construction safety plan in accordance with Advisory Circular 150/5370-2F. To avoid or rectify any potential impacts on airfield operations during implementation, the USAF would develop a SMS Plan.

The USAF proposed expansion of airport infrastructure would benefit airport operations by providing increased aircraft parking capacity and increased jet fuel supply. In addition to the 720 annual Divert aircraft operations at Tinian International Airport, the implementation of up to 9,244 CJMT aircraft operations per year would result in major, but less than significant impacts on existing airport facilities. Intermittent delays for civil and commercial aircraft would likely result periodically during U.S. military training at the airport. Such delays could worsen assuming an increase in commercial flights associated with the new hotel resorts.

Because the USAF Divert and MARFORPAC CJMT missions have overlapping requirements in the use of the airport at Tinian, the airfield improvement designs for both programs would be coordinated to maximize common use of infrastructure requirements, such as the fuel pipeline and to minimize conflicting operations.

5.3.3.2.2 *South Option*

Under the Alternative 2 South Option, overall airport impacts would be similar to those described for the Tinian North Option, except that proposed USAF construction could overlap with airport improvements proposed by the CPA on the south side of the airport, depending on construction schedule. Multiple construction projects on the south side of the airport could cause a short-term inconvenience to airport users during times of construction; however, no impacts to flight schedules would be expected. To help ensure that construction can be completed in a safe manner, and recognizing the operational needs of other airport users, the USAF could prepare an airport construction safety plan in accordance with Advisory Circular 150/5370-2F. To avoid or rectify any potential impacts on airfield operations during implementation, the USAF would develop a SMS Plan.

5.3.3.3 *Alternative 3—Hybrid Modified Alternative*

5.3.3.3.1 *Hybrid Modified – Saipan*

Under Alternative 3 on Saipan, overall airport impacts would be similar to those described for Alternative 1, except that the duration of Divert construction would likely be shorter. This reduction would result in very minor changes to the overall effects.

5.3.3.3.2 *Hybrid Modified – Tinian*

Under Alternative 3 for the Tinian North and South Options, overall airport impacts would be similar to those described for Alternative 2, except that the duration of construction would likely be shorter. This reduction would result in very minor changes to the overall effects.

5.3.4 Geological Resources and Soils

5.3.4.1 Alternative 1—Modified Saipan Alternative

Short- and long-term, minor, adverse cumulative impacts on geological resources and soils would be expected.

Because of Divert construction on Saipan, short-term, minor, adverse impacts on soils would result from vegetation removal, compaction of surrounding soils, and increased soil erosion and sedimentation. Similar impacts would also occur from other island projects, particularly for the larger hotel resorts that are planned. All projects would be required to obtain appropriate construction and earthmoving permits; implement erosion and sediment control BMPs; and comply with applicable seismic and wind load engineering standards. Because of these requirements and the localized effects of the construction actions on soils, topography, and geology, the cumulative impacts would be short-term, minor, and adverse.

During project implementation, soil erosion and sedimentation issues could be exacerbated by the MITT and similar military training/testing actions on the island, but such effects would be localized. These types of impacts would be much less prevalent for the Divert actions once measures identified in the ESCP are implemented and maintained. As a result, cumulative impacts on geological resources and soils from operations are expected to be long-term, minor, and adverse.

5.3.4.2 Alternative 2—Modified Tinian Alternative

Short-term, minor to moderate, adverse and long-term minor adverse cumulative impacts on geological resources and soils would be expected.

5.3.4.2.1 *North Option*

For the Alternative 2 Tinian North Option, impacts on soils from construction activities would be similar to, but greater than, those described for Alternative 1. The extent of other project activities on Tinian is also much greater, considering all of the proposed CJMT construction, the Tinian Ocean View Resort, Plumeria Resort and Casino, West San Jose Village Homesteads, and other projects that are planned. All projects would be required to obtain appropriate construction and earthmoving permits, implement erosion and sediment control BMPs, and comply with applicable seismic and wind load engineering standards.

Because of the loss of prime farmland soils within the MLA under the proposed CJMT actions, potentially significant direct impacts on geology and soils may occur. The Divert actions, however, would not affect any prime farmlands. Thus, there would be no additive effects on prime farmlands. Construction-related cumulative impacts would therefore be short-term, minor to moderate, and adverse.

Use of live-fire ranges and other training/testing areas for CJMT might exacerbate soil disturbance, compaction, and erosion. These types of impacts would be much less prevalent for the Divert actions once measures identified in the ESCP are implemented and maintained. As a result, cumulative impacts on geological resources and soils from operations are expected to be long-term, minor, and adverse.

5.3.4.2.2 *South Option*

Compared to the Tinian North Option, the South Option would not include construction of taxiways or road reroute and has a smaller size parking apron and cargo pad. Just like the North Option, no prime farmlands would be affected. Construction-related cumulative impacts would therefore be short-term, minor, and adverse.

Cumulative impacts on geological resources and soils during the Implementation Phase would be the same as for the North Option; therefore, long-term, minor, and adverse cumulative impacts would be expected.

5.3.4.3 *Alternative 3—Hybrid Modified Alternative*

Short-term, minor to moderate, adverse and long-term minor adverse cumulative impacts on geological resources and soils would be expected.

5.3.4.3.1 *Hybrid Modified – Saipan*

The construction footprint under Alternative 3 on Saipan would be approximately one-third the size of that described under Alternative 1. Thus, the impacts on geology and soils would be slightly less. Similar to Alternative 1, the overall cumulative impacts for construction would be short-term, minor, and adverse.

Cumulative impacts on geological resources and soils would be the same as for Alternative 1; therefore, long-term, minor, and adverse cumulative impacts would be expected.

5.3.4.3.2 *Hybrid Modified – Tinian*

NORTH OPTION

For the Alternative 3 North Option, the overall construction footprint would be approximately 20 percent smaller than the construction footprint of Alternative 2. Thus, the impacts on geology and soils would be slightly less. Similar to Alternative 2, the overall cumulative impacts for construction would be short-term, minor to moderate, adverse.

Cumulative impacts on geological resources and soils would be the same as for Alternative 2; therefore, long-term, minor, and adverse cumulative impacts would be expected.

SOUTH OPTION

For the Alternative 3 North Option, the overall construction footprint would be approximately one-third smaller than the construction footprint of Alternative 2. Thus, the impacts on geology and soils would be less. Similar to Alternative 2, the overall cumulative impacts for construction would be short-term, minor, and adverse.

Cumulative impacts on geological resources and soils would be the same as for Alternative 2; therefore, long-term, minor, and adverse cumulative impacts would be expected.

5.3.5 *Water Resources*

5.3.5.1 *Alternative 1—Modified Saipan Alternative*

Short- and long-term, minor, adverse cumulative impacts on water resources would be expected.

Short-term, minor, adverse cumulative impacts on the water resources of Saipan could occur from ground-disturbing construction associated with Alternative 1 and other past, present, and reasonably foreseeable actions. An increase in ground-disturbing activities would increase the potential for soil erosion and sedimentation within freshwater bodies and nearshore waters. Implementation of soil erosion and sedimentation controls and storm water pollution prevention at construction sites would minimize the potential for adverse impacts from individual construction sites and, therefore, reduce potential cumulative impacts on water resources. All construction BMPs would follow the guidelines provided in Federal and CNMI permitting processes and regulations.

Long-term, minor, adverse cumulative impacts on groundwater could occur from the overall increases in impervious surfaces on Saipan from Divert and other past, present, and reasonably foreseeable actions. Alternative 1 would include construction of 1,245,382 ft² of impervious surfaces. Other future projects on Saipan, including the planned hotel resorts, would result in additional impervious surfaces, increased prevention of rainwater infiltration into the underlying aquifer, and increased groundwater usage with the potential for saltwater intrusion. Accidental spills of petroleum or other pollutants during construction and operations could also introduce pollutants into the aquifer. Adherence to Section 438 of the EISA and the *CNMI BECQ/GEPA Storm Water Management Manual* (CNMI BECQ and GEPA 2006), however, would help mitigate these impacts on groundwater supply and quality.

5.3.5.2 Alternative 2—Modified Tinian Alternative

Short- and long-term, minor to moderate, adverse cumulative impacts on water resources would be expected.

5.3.5.2.1 North Option

Under the Alternative 2 North Option, impacts on surface water resources would be similar to, but greater than, Alternative 1 due to the larger construction footprint of Alternative 2. Short-term, minor to moderate, adverse cumulative impacts on surface water resources of Tinian could occur from ground-disturbing construction associated with Alternative 2 and from other past, present, and reasonably foreseeable actions. An increase in ground-disturbing activities would increase potential for soil erosion and sedimentation within fresh water bodies and nearshore waters. Implementation of soil erosion and sedimentation controls and storm water pollution prevention at construction sites would minimize the potential for adverse impacts from individual construction sites and, therefore, reduce potential cumulative impacts on water resources. All construction BMPs would follow the guidelines provided in Federal and CNMI permitting processes and regulations.

Long-term, minor to moderate, adverse cumulative impacts on groundwater could occur from the overall increases in impervious surfaces on Tinian from Divert and other past, present, and reasonably foreseeable actions. The Alternative 2 North Option would result in the addition of 4,483,194 ft² of impervious surfaces. Other future projects on Tinian, particularly the CJMT actions and the planned housing and hotel resort developments, would result in additional impervious surfaces. All of these actions would reduce rainwater infiltration into the underlying aquifer and increase groundwater usage with the potential for saltwater intrusion. Because of separate aquifers, the civilian projects would not affect the same groundwater resources

affected by the military actions in the MLA (DON 2015a). This separation would result in the municipal water supply not being impacted by the CJMT projects. The Divert actions at Tinian International Airport, however, could potentially have some effect on the municipal sources. Accidental spills of petroleum or other pollutants during construction and operations could also introduce pollutants into the aquifer. Just as for Alternative 1, adherence to Section 438 of the EISA and the *CNMI BECQ/GEPA Storm Water Management Manual* (CNMI BECQ and GEPA 2006) would help mitigate these cumulative impacts on groundwater supply and quality.

5.3.5.2.2 *South Option*

Compared to the Alternative 2 North Option, the South Option construction-related effects on water resources would be less because the project would not include new taxiways or road reroute, and it has a smaller size parking apron and cargo pad. Like the North Option, implementation of soil erosion and sedimentation controls and storm water pollution prevention would minimize the potential for adverse impacts from Divert and other project construction sites. Therefore, short-term, minor, adverse cumulative impacts on surface water resources would be expected from ground-disturbing construction associated with the South Option.

Similar to the Alternative 2 North Option, the South Option would have long-term, minor to moderate, adverse cumulative impacts on groundwater. This alternative would result in the addition of 2,832,615 ft² of impervious surfaces; about 37 percent smaller than the North Option. The combination of the Divert actions with the other projects and developments on the island would reduce rainwater infiltration into the underlying aquifer and increased groundwater usage with the potential for saltwater intrusion. Accidental spills of petroleum or other pollutants during construction and operations could also introduce pollutants into the aquifer. Just as for the North Option, adherence to Section 438 of the EISA and the *CNMI BECQ/GEPA Storm Water Management Manual* (CNMI BECQ and GEPA 2006) would help mitigate these cumulative impacts on groundwater supply and quality.

5.3.5.3 *Alternative 3–Hybrid Modified Alternative*

Short-term, negligible to moderate and long-term, minor to moderate, adverse cumulative impacts on water resources would be expected.

5.3.5.3.1 *Hybrid Modified – Saipan*

The construction footprint under Alternative 3 on Saipan would be approximately one-third the size of that described under Alternative 1. Thus, the impacts on water resources would be less. The overall cumulative impacts for construction would be short-term, negligible, and adverse.

Cumulative impacts on water resources would be the same as for Alternative 1; therefore, long-term, minor, and adverse cumulative impacts would be expected.

5.3.5.3.2 *Hybrid Modified – Tinian*

NORTH OPTION

For the Alternative 3 North Option, the overall construction footprint would be approximately 20 percent smaller than the construction footprint of Alternative 2. Thus, the impacts on water resources would be slightly less. Similar to Alternative 2, the overall cumulative impacts for construction would be short-term, minor to moderate, and adverse.

Cumulative impacts on water resources would be the same as for Alternative 2; therefore, long-term, minor to moderate, and adverse cumulative impacts would be expected.

SOUTH OPTION

For the Alternative 3 South Option, the overall construction footprint would be approximately one-third smaller than the construction footprint of Alternative 2. Thus, the impacts on water resources would be less. For the South Option, the overall cumulative impacts for construction would be short-term, minor, and adverse.

Cumulative impacts on water resources would be the same as for Alternative 2; therefore, long-term, minor to moderate, and adverse cumulative impacts would be expected.

5.3.6 Terrestrial Biological Resources

5.3.6.1 Alternative 1—Modified Saipan Alternative

The implementation of Alternative 1 would not contribute to cumulative impacts on vegetation. Short- and long-term, minor, adverse cumulative impacts on wildlife, and threatened and endangered species, are expected to occur.

For construction of the Divert facilities on Saipan, most areas to be disturbed are bare, have maintained or mowed vegetation, or are dominated by tangantangan and other non-native species. Impacts on vegetation associated with other projects (such as the planned hotel resorts) could occur; however, Alternative 1 is not expected to impact native vegetation. Therefore, this alternative would not contribute to cumulative impacts on vegetation at Saipan International Airport.

Short- and long-term, minor, adverse cumulative impacts on wildlife also could occur from combined project activities. Wildlife could be permanently displaced from the construction sites and temporarily dispersed from adjacent areas. Cumulative impacts on wildlife from increased aircraft operations at Saipan International Airport also are considered long-term, minor, and adverse because the area is already subjected to similar noise levels.

Incremental and gradual habitat degradation and loss of tangantangan forest have led to the endangered status of the nightingale reed-warbler under the ESA. Nightingale reed-warbler habitat and potential territories would be affected by Alternative 1 as indicated in the *Biological Opinion for Divert Activities and Exercises at Saipan International Airport, CNMI* provided in **Appendix B** (USFWS 2013). Other ongoing and reasonably foreseeable projects on Saipan might also result in additional loss of tangantangan and other suitable nightingale reed-warbler habitat, which would have a long-term, adverse cumulative impact. However, if any impacts on the nightingale reed-warbler were to occur, they would be mitigated under Alternative 1 as indicated in the *Biological Opinion for Divert Activities and Exercises at Saipan International Airport, CNMI* (**Appendix B**) and the amendment to the Biological Opinion (USFWS 2013, USFWS 2015e).

Therefore, Alternative 1 would be expected to have a minor contribution to cumulative impacts on this species.

5.3.6.2 Alternative 2—Modified Tinian Alternative

The implementation of Alternative 2 would have long-term, minor to moderate, adverse cumulative impacts on vegetation. Short- and long-term, minor to moderate, adverse cumulative impacts on wildlife are expected to occur. There would be no or negligible cumulative impacts on terrestrial threatened and endangered species.

5.3.6.2.1 North Option

Under the Alternative 2 North Option, most of land to be cleared at Tinian International Airport is second-growth tangantangan/ironwood scrub or tangantangan forest, which is very common on Tinian. In addition, several acres of mowed fields adjacent to the existing taxiway would be occupied for additional taxiways. The extent of possible vegetation removal for most other projects on the island, including the hotel casino development projects, is undetermined. However, it is assumed that these developments would require at least some vegetation removal. For the proposed CJMT actions, up to approximately 8.7 percent of the island's vegetation could be permanently lost from various construction and clearing projects across the MLA. Such impacts under the CJMT are considered to be significant (DON 2015a). Because the Divert actions would affect only 0.17 acre of tangantangan forest, they would have very little additive effects on the CJMT vegetation impacts. Additionally, forest enhancement measures are proposed as mitigation under the CJMT. As a result, the Alternative 2 North Option is expected to have long-term, minor to moderate, adverse cumulative impacts on vegetation.

Short- and long-term, minor to moderate, adverse cumulative impacts on wildlife also could occur from combined project activities. Although terrestrial biological surveys are not available for all of the CJMT and other projects, the impacts are assumed because of the large areas of ground disturbance required (DON 2015a). Wildlife could be permanently displaced from the construction sites and temporarily dispersed from adjacent areas. Cumulative impacts on wildlife from increased aircraft operations are considered to be long-term, moderate, and adverse because of the large increase in the frequency of aircraft operations at Tinian International Airport and North Field, primarily from CJMT.

Because the Proposed Action would have no or negligible impacts on terrestrial threatened and endangered species, there would be no cumulative impacts.

5.3.6.2.2 South Option

Under the Alternative 2 South Option, most of land to be cleared at Tinian International Airport is developed, mowed field, and second-growth tangantangan forest, which is very common on Tinian. The extent of possible vegetation removal for most other projects on the island, including the hotel casino development projects, is undetermined. However, it is assumed that these developments would require at least some vegetation removal. For the proposed CJMT actions, up to approximately 8.7 percent of the island's vegetation could be permanently lost from various construction and clearing projects across the MLA. Such impacts under the CJMT are considered to be significant (DON 2015a). Because the Divert actions would affect only 37.43 acres of second-growth tangantangan forest, they would have minor additive effects on the CJMT vegetation impacts. Additionally, forest enhancement measures are proposed as

mitigation under the CJMT. As a result, the Alternative 2 North Option is expected to have long-term, moderate, adverse cumulative impacts on vegetation.

Short- and long-term, moderate, adverse cumulative impacts on wildlife also could occur from combined project activities. Although terrestrial biological surveys are not available for all of the CJMT and other projects, the impacts are assumed because of the large areas of ground disturbance required (DON 2015a). Wildlife could be permanently displaced from the construction sites and temporarily dispersed from adjacent areas. Cumulative impacts on wildlife from increased aircraft operations at Tinian International Airport are considered to be long-term, moderate, and adverse because of the large increase in the frequency of aircraft operations at Tinian International Airport and North Field, primarily from CJMT.

Because the Proposed Action would have no or negligible impacts on terrestrial threatened and endangered species, there would be no cumulative impacts.

5.3.6.3 Alternative 3—Hybrid Modified Alternative

For implementation of Alternative 3, there would be no cumulative vegetation impacts on Saipan, and long-term, minor to moderate, adverse cumulative impacts on Tinian. Short- and long-term, minor to moderate, adverse cumulative impacts on wildlife are expected to occur. There would be no or negligible cumulative impacts on terrestrial threatened and endangered species.

5.3.6.3.1 Hybrid Modified – Saipan

For Alternative 3 on Saipan, the amount of vegetation to be cleared is only about a third of the amount for Alternative 1. Because Alternative 1 is not expected to impact native vegetation, it would not contribute to cumulative impacts on vegetation at Saipan International Airport.

Cumulative impacts on wildlife, and threatened and endangered species, are expected to be slightly less than that of Alternative 1. Short- and long-term, minor, adverse cumulative impacts on wildlife could occur from combined project activities on the island. Because impacts on the endangered nightingale reed-warbler, if any, would be mitigated under Alternative 3 on Saipan indicated in the *Biological Opinion for Divert Activities and Exercises at Saipan International Airport, CNMI (Appendix B)* and the amendment to the Biological Opinion, Alternative 3 would be expected to have a minor contribution to cumulative impacts on this species (USFWS 2013, USFWS 2015e).

5.3.6.3.2 Hybrid Modified – Tinian

NORTH OPTION

Under the Alternative 3 North Option on Tinian, the amount of vegetation to be cleared would be slightly less than the amount for Alternative 2. Although the CJMT actions and hotel developments on Tinian could result in significant vegetation impacts, the North Option would have very little additive effects on the CJMT vegetation impacts. As a result, the Alternative 3 North Option is expected to have long-term, minor to moderate, adverse cumulative impacts on vegetation.

Just as for Alternative 2, the Alternative 3 North Option would have short- and long-term, moderate, adverse cumulative impacts on wildlife. Because the Proposed Action would have no or negligible impacts on terrestrial threatened and endangered species, there would be no cumulative impacts.

SOUTH OPTION

Under the Alternative 3 South Option on Tinian, the amount of vegetation to be cleared would be slightly less than the amount for Alternative 2. Although the CJMT actions and hotel developments on Tinian could result in significant vegetation impacts, the South Option would have minor additive effects on the CJMT vegetation impacts. As a result, the Alternative 3 South Option is expected to have long-term, moderate, adverse cumulative impacts on vegetation.

Just as for Alternative 2, the Alternative 3 South Option would have short- and long-term, moderate, adverse cumulative impacts on wildlife. Because the Proposed Action would have no or negligible impacts on terrestrial threatened and endangered species, there would be no cumulative impacts.

5.3.7 Marine Biological Resources

5.3.7.1 Alternative 1–Modified Saipan Alternative

Short-term and long-term, periodic, minor, adverse cumulative impacts could occur on marine biological resources under Alternative 1 at Saipan. Impacts could occur on marine resources, including the nearshore marine environment, EFH, and ESA-listed corals, from ground-disturbing construction and an increase in impervious surfaces during implementation associated with Alternative 1 and other past, present, and reasonably foreseeable actions. An increase in ground-disturbing activities and impervious surfaces would increase the potential for soil erosion, sedimentation, and storm water runoff to freshwater bodies and nearshore waters. Implementation of soil erosion and sedimentation controls and storm water pollution prevention at projects sites would minimize the potential for adverse impacts on the marine environment. All construction BMPs and storm water management would follow the guidelines provided in Federal and CNMI permitting processes and regulations.

Accidental spills of petroleum or other pollutants during construction and operations associated with Alternative 1 and other past, present, and reasonably foreseeable actions could also introduce pollutants into the marine environment and have impacts on marine resources. Adherence to Federal and CNMI permitting processes and regulations and an SPCC Plan would help mitigate these impacts on marine resources.

Some of the DOD redevelopment projects in the region could result in increases in noise from low-flying aircraft or other training activities. These include operations associated with MIRC and MITT actions. While these activities have the potential to result in an increase in noise over the nearshore waters and beaches of Saipan, impacts on sea turtles and marine mammals are expected to be negligible. As with the noise associated with take-offs and landings under Alternative 1, it is unlikely that low-flying aircraft associated with these projects would result in more than a negligible increase in noise over the beaches where sea turtles nest in Saipan. Potential exposure to elevated noise levels from Divert operations would only occur periodically

for a total of up to 8 weeks per year. As such, Alternative 1 would have a negligible contribution to cumulative impacts.

5.3.7.2 Alternative 2—Modified Tinian Alternative

Short-term and long-term, periodic, minor, adverse cumulative impacts could occur on marine biological resources under Alternative 2 at Tinian. Impacts from implementing either the North or South Options would be the same.

Impacts could occur on marine resources, including the nearshore marine environment, EFH, and ESA-listed corals, from ground-disturbing construction and an increase in impervious surfaces during implementation associated with Alternative 2 and other past, present, and reasonably foreseeable actions. An increase in ground-disturbing activities and impervious surfaces would increase the potential for soil erosion, sedimentation, and storm water runoff to freshwater bodies and nearshore waters. Implementation of soil erosion and sedimentation controls and stormwater pollution prevention at projects sites would minimize the potential for adverse impacts on the marine environment. All construction BMPs and storm water management would follow the guidelines provided in Federal and CNMI permitting processes and regulations.

Accidental spills of petroleum or other pollutants during construction and operations associated with Alternative 2 and other past, present, and reasonably foreseeable actions could also introduce pollutants into the marine environment and have impacts on marine resources. Adherence to Federal and CNMI permitting processes and regulations and an SPCC Plan would help mitigate these impacts on marine resources.

Some of the DOD development projects in the region could result in increases in noise from low-flying aircraft or an increase of training/testing activities at beaches. These include activities associated with the MITT and CJMT activities. Additionally, new development projects along beach areas, such as the Plumeria Resort and Casino at Puntan Diablo Cove, could result in an increase in noise at the beaches and nearshore waters. While these activities have the potential to result in an increase in noise over the nearshore waters and beaches of Tinian, this impact is expected to be negligible. The largest concentration of sea turtles occurs at Tinian Harbor; however, Alternative 2 is not expected to result in an increase in noise at the harbor. Potential exposure to elevated noise levels from Divert operations would be brief (seconds) and only occur periodically for a total of up to 8 weeks per year. As such, Alternative 2 would have a negligible contribution to cumulative impacts on sea turtles.

Some of the DOD projects in the region would result in increases in noise from low-flying aircraft or other training activities. These include activities associated with the MITT and CJMT activities. It is extremely unlikely that individual animals would be repeatedly exposed to low-altitude overflights of Divert and other DOD projects. As such, Alternative 2 would have a negligible contribution to cumulative impacts on marine mammals.

5.3.7.3 Alternative 3—Hybrid Modified Alternative

Short-term and long-term, periodic, minor, adverse cumulative impacts could occur on marine biological resources under Alternative 3 at Saipan and Tinian. Impacts from implementing either the North or South Options would be the same.

Impacts could occur on marine resources, including the nearshore marine environment, EFH, and ESA-listed corals, from ground-disturbing construction and an increase in impervious surfaces during implementation associated with Alternative 3 and other past, present, and reasonably foreseeable actions on Saipan and Tinian. An increase in ground-disturbing activities and impervious surfaces would increase the potential for soil erosion, sedimentation, and storm water runoff to freshwater bodies and nearshore waters. Implementation of soil erosion and sedimentation controls and storm water pollution prevention at projects sites would minimize the potential for adverse impacts on the marine environment. All construction BMPs and storm water management would follow the guidelines provided in Federal and CNMI permitting processes and regulations.

Accidental spills of petroleum or other pollutants during construction and operations associated with Alternative 3 and other past, present, and reasonably foreseeable actions could also introduce pollutants into the marine environment and have impacts on marine resources. Adherence to Federal and CNMI permitting processes and regulations and an SPCC Plan would help mitigate these impacts on marine resources.

Cumulative impacts on sea turtles and marine mammals also could occur under the Alternative 3 Implementation Phase on Saipan and Tinian. A similar or lower number of aircraft flights would be conducted from each island under this alternative, and the effects will therefore be similar to or less than those described under Alternative 1 and Alternative 2.

5.3.8 Cultural Resources

5.3.8.1 Alternative 1—Modified Saipan Alternative

Under Alternative 1, minor, adverse cumulative impacts on contributing elements of the Aslito/Isley Field NHLD could occur. There would be no impacts to any cultural resources during Divert operations.

Construction at Saipan International Airport could have minor, adverse cumulative impacts on contributing elements of the Aslito/Isley Field NHLD by introducing new facilities that alter the viewshed of nearby historic structures. Inadvertent physical impacts to unrecorded cultural resources, particularly buried archaeological sites, are possible during construction but unlikely given the extent of previous cultural resources survey coverage. Construction would adhere to best practices designed to address any inadvertent impacts to previously unreported resources. The operational phase of Alternative 1 is expected to have no impact on cultural resources.

Other projects are planned on Saipan that would involve ground-disturbing activities (e.g., wastewater system improvements and planned hotel resorts), though the specific cultural resources potentially affected are not known at this time. The USAF consulted under Section 106 of the NHPA on the identification of the APE, potential effects, and potential mitigation measures for Alternative 1 with the CNMI SHPO, ACHP, NPS, JRM, FAA, CNMI Governor's

office, CNMI Historic Preservation Review Board, and members of the public. Although the USAF consulted on Alternative 1 during the Section 106 process, it was removed from the Divert PA upon request of the CNMI Governor after identification of Alternative 2 as the Preferred Alternative. The Divert PA requires the USAF to re-initiate Section 106 consultation should Alternative 1 be selected.

5.3.8.2 Alternative 2—Modified Tinian Alternative

Under Alternative 2, minor to major, adverse cumulative impacts could occur on the West Field archaeological site at Tinian International Airport. There would be no cumulative impacts on any cultural resources during Divert operations.

5.3.8.2.1 North Option

For the Alternative 2 North Option, minor to major, adverse cumulative impacts to known cultural resources at Tinian International Airport could occur during the Construction Phase. Construction at the airfield would involve ground-disturbing activities within the boundaries of the archaeological site associated with the intact remains of West Field (Site TN-6-0030). The combination of the Divert actions with the Tinian Airport Improvement project could potentially exacerbate the impacts within West Field. Inadvertent physical impacts to unrecorded features of West Field or other cultural resources are possible during construction. Construction would adhere to best practices designed to address any inadvertent impacts to previously unreported resources. Construction at Tinian International Airport also would introduce new structural elements to the landscape that could diminish integrity of setting, design, and feeling, and thus NRHP eligibility, of West Field, resulting in additional adverse cumulative impacts. The operational phase of Alternative 2 is expected to have no impact on cultural resources.

Other projects are planned on Tinian that would involve ground-disturbing activities (e.g., CJMT actions, and the planned housing and hotel resort developments), though the specific cultural resources potentially affected are not entirely known at this time. For the proposed CJMT construction projects, impacts on cultural resources are expected to be mitigated to less than significant levels (DON 2015a). The USAF consulted under Section 106 of the NHPA on Alternative 2 with the CNMI SHPO, ACHP, NPS, JRM, FAA, CNMI Governor's office, CNMI Historic Preservation Review Board, and members of the public. The Section 106 process resulted in a *Programmatic Agreement among the Pacific Air Forces, Directorate of the Strategy, Plans, and Programs, the Commonwealth of the Northern Mariana Islands State Historic Preservation Office, and the Advisory Council on Historic Preservation Regarding the Proposed Construction and Operation of Divert Activities and Exercises within the Commonwealth of the Northern Mariana Islands* (Divert PA), executed on June 28, 2016. The Divert PA stipulates the USAF's responsibilities regarding the identification of and resolution of adverse effects to historic properties, including mitigation measures the USAF would take to avoid, minimize, and mitigate adverse effects if Alternative 2 is selected for the Proposed Action. These measures would apply to both the North and South options and are detailed in the PA provided in **Appendix D**.

5.3.8.2.2 *South Option*

Under the Alternative 2 South Option, minor to major, adverse cumulative impacts would be consistent with those described for the North Option. Construction at Tinian International Airport under the South Option would also occur within West Field (Site TN-6-0030) and could have similarly effects. Just as for the North Option, the operational phase for the South Option is expected to have no impact on cultural resources. Other projects on Tinian are expected to involve coordination with the CNMI SHPO, and that mitigation would occur where necessary to protect cultural resources. The USAF consulted under Section 106 of the NHPA on Alternative 2 with the CNMI SHPO, ACHP, NPS, JRM, FAA, CNMI Governor's office, CNMI Historic Preservation Review Board, and members of the public. The Section 106 process resulted in a *Programmatic Agreement among the Pacific Air Forces, Directorate of the Strategy, Plans, and Programs, the Commonwealth of the Northern Mariana Islands State Historic Preservation Office, and the Advisory Council on Historic Preservation Regarding the Proposed Construction and Operation of Divert Activities and Exercises within the Commonwealth of the Northern Mariana Islands* (Divert PA), executed on June 28, 2016. The Divert PA stipulates the USAF's responsibilities regarding the identification of and resolution of adverse effects to historic properties, including mitigation measures the USAF would take to avoid, minimize, and mitigate adverse effects if Alternative 2 is selected for the Proposed Action. These measures would apply to both the North and South options and are detailed in the PA provided in **Appendix D**.

5.3.8.3 *Alternative 3—Hybrid Modified Alternative*

Under Alternative 3, minor, adverse cumulative impacts on contributing elements of the Aslito/Isley Field NHLD could occur on Saipan. Additionally, minor to major, adverse cumulative impacts could occur within the West Field archaeological site on Tinian. There would be no impacts to any cultural resources during Divert operations.

The USAF consulted under Section 106 of the NHPA on the identification of the APE, potential effects, and potential mitigation measures for Alternative 3 with the CNMI SHPO, ACHP, NPS, JRM, FAA, CNMI Governor's office, CNMI Historic Preservation Review Board, and members of the public. Although the USAF consulted on Alternative 3 during the Section 106 process, it was removed from the Divert PA upon request of the CNMI Governor after identification of Alternative 2 as the Preferred Alternative. The Divert PA requires the USAF to re-initiate Section 106 consultation should Alternative 3 be selected.

5.3.8.3.1 *Hybrid Modified – Saipan*

For Alternative 3, cumulative impacts on Saipan would be similar to those for Alternative 1. Construction at Saipan International Airport could have minor, adverse cumulative impacts on contributing elements of the Aslito/Isley Field NHLD by introducing new facilities that alter the viewshed of nearby historic structures. This alternative would have a reduced likelihood of inadvertent impacts to unrecorded cultural resources at the airfield compared to Alternative 1, due to smaller construction footprints. Just as for Alternative 1, the operational phase is expected to have no impact on cultural resources.

Other projects on Saipan are expected to involve coordination with the CNMI SHPO, and that mitigation would occur where necessary to protect cultural resources. The Divert PA requires

the USAF to re-initiate Section 106 consultation to determine mitigations pertaining to cultural resources should Alternative 3 be selected.

5.3.8.3.2 *Hybrid Modified – Tinian*

NORTH OPTION

Under the Alternative 3 Tinian North Option, cumulative impacts would be similar to those for Alternative 2. Minor to major, adverse cumulative impacts could occur on the West Field (Site TN-6-0030) archaeological site at Tinian International Airport. This alternative would have a reduced likelihood of inadvertent impacts to unrecorded cultural resources compared to Alternative 2, due to smaller construction footprints. Additionally, the operational phase for the North Option is expected to have no impact on cultural resources.

Other projects on Tinian are expected to involve coordination with the CNMI SHPO, and that mitigation would occur where necessary to protect cultural resources. Mitigations and management actions pertaining to cultural resources will be determined through the Section 106 consultation process. The Divert PA requires the USAF to re-initiate Section 106 consultation to determine mitigations pertaining to cultural resources should Alternative 3 be selected.

SOUTH OPTION

For the Alternative 3 Tinian South Option, cumulative impacts would be similar to those for Alternative 2. Minor to major, adverse cumulative impacts could occur on the West Field (Site TN-6-0030) archaeological site at Tinian International Airport. This alternative would have a reduced likelihood of inadvertent impacts to unrecorded cultural resources compared to Alternative 2, due to smaller construction footprints. Just as for Alternative 2, the operational phase for the North Option is expected to have no impact on cultural resources.

Other projects on Tinian are expected to involve coordination with the CNMI SHPO, and that mitigation would occur where necessary to protect cultural resources. Mitigations and management actions pertaining to cultural resources will be determined through the Section 106 consultation process. The Divert PA requires the USAF to re-initiate Section 106 consultation to determine mitigations pertaining to cultural resources should Alternative 3 be selected.

5.3.9 Recreation

5.3.9.1 Alternative 1–Modified Saipan Alternative

For recreation at Saipan, short-term, minor to moderate, adverse cumulative impacts and long-term, periodic, minor, adverse cumulative impacts are expected.

Alternative 1 would generally be consistent with the present and foreseeable use of recreational activities when combined with other construction projects, such as the planned hotel resorts. Short-term, minor to moderate, adverse cumulative impacts on recreational resources could occur if multiple construction projects were to occur simultaneously. Travel times to recreational resources could be increased, which could inconvenience tourists. Also, it could become difficult for tourists to find available lodging when upwards of 1,000 workers are on the island to support Divert and other large projects. Local lodging establishments, however, would be informed well in advance and could alert potential tourists to any temporary unavailability of lodging.

During Divert operations, when up to 265 personnel are on the island to provide airfield support, traffic could become more congested because of the increased number of tourists at the future hotel resorts. Fuel truck deliveries for Divert would also add to the traffic for brief periods. Additionally, there would be increased competition for lodging and the use of recreational areas. The Divert exercises, however, would not exceed 8 weeks in duration. As a result, long-term, periodic, minor, adverse cumulative impacts on recreation would be expected.

5.3.9.2 Alternative 2–Modified Tinian Alternative

For recreation at Tinian, short-term, moderate, adverse cumulative impacts and long-term, periodic, minor, adverse cumulative impacts are expected.

5.3.9.2.1 North Option

Under the Alternative 2 North Option, impacts on recreational resources due to construction at Tinian International Airport would be similar to those described under Alternative 1, but to a greater extent. The Divert actions and other planned projects on Tinian (i.e., CJMT, Tinian Ocean View Resort, Plumeria Resort and Casino, West San Jose Village Homesteads, and others) would be larger in scale. Short-term, moderate, adverse cumulative impacts on recreational resources could occur if multiple construction projects were to occur simultaneously. Travel times to recreational resources could be increased, which could inconvenience tourists. Also, it could become difficult for tourists to find available lodging when upwards of 2,000 workers are on the island to support Divert and other large development projects, such as the planned resorts and casinos. Local lodging establishments, however, would be informed well in advance and could alert potential tourists to any temporary unavailability of lodging. Additionally, the Tinian Ocean View Resort may include construction of workforce housing for the estimated 150 workers needed.

During Divert operations when up to 265 personnel are on the island to provide airfield support, traffic could become more congested because of the increased number of tourists at the future hotel resorts and from military personnel associated with CJMT actions. Fuel truck deliveries for Divert would also add to the traffic for brief periods. Additionally, there would be increased competition for lodging and the use of recreational areas. However, the USAF could utilize lodging facilities constructed by the CJMT project to ensure lodging is available for tourists. Additionally, the proposed Divert actions would only occur over an 8-week period each year. As a result, long-term, periodic, minor, adverse cumulative impacts on recreation would be expected.

Although the CJMT training actions would result in significant impacts on recreation due to the temporary or permanent loss of access to certain recreational sites in the MLA, the Divert actions would not have an additive effect in restricting such access.

5.3.9.2.2 South Option

Recreational impacts due to construction on the south side of Tinian International Airport would be similar to those described for the Alternative 2 North Option, but to a slightly lesser extent because of the smaller construction area associated with the South Option. If several of the large projects planned on the island were to occur simultaneously, short-term, moderate, adverse cumulative impacts on recreational resources could occur.

Under the South Option, operational impacts on recreation would be the same as for the North Option. Long-term, periodic, minor, adverse cumulative impacts on recreation would be expected.

5.3.9.3 Alternative 3—Hybrid Modified Alternative

For the implementation of Alternative 3, short-term, minor to moderate, adverse cumulative impacts and long-term, periodic, minor, adverse cumulative impacts on recreation would be expected.

5.3.9.3.1 Hybrid Modified – Saipan

Recreational impacts due to Divert construction at Saipan International Airport would be similar to those described for Alternative 1, but to a slightly lesser extent because of the smaller construction area. If multiple construction projects on the island were to occur simultaneously, short-term, minor to moderate, adverse cumulative impacts on recreational resources could occur.

Operational impacts on recreation would be the same as for Alternative 1. Long-term, periodic, minor, adverse cumulative impacts on recreation would be expected.

5.3.9.3.2 Hybrid Modified – Tinian

NORTH OPTION

Under Alternative 3 at Tinian, recreational impacts due to construction on the north side of Tinian International Airport would be similar to those described for the Alternative 2 North Option, but to a lesser extent because of the smaller construction area. If several of the large projects planned on the island were to occur simultaneously, short-term, moderate, adverse cumulative impacts on recreational resources could occur.

For the North Option, operational impacts on recreation would be the same as for Alternative 2. Long-term, periodic, minor, adverse cumulative impacts on recreation would be expected.

SOUTH OPTION

For the Alternative 3 South Option, recreational impacts due to construction at Tinian International Airport would be similar to those described for the Alternative 2 South Option, but to a lesser extent because of the smaller construction area. If several of the large projects planned on the island were to occur simultaneously, short-term, moderate, adverse cumulative impacts on recreational resources could occur.

Operational impacts on recreation would be the same as for Alternative 2. Long-term, periodic, minor, adverse cumulative impacts on recreation would be expected.

5.3.10 Land Use

5.3.10.1 Alternative 1—Modified Saipan Alternative

Under Alternative 1, no short-term cumulative impacts on land use are expected; however, long-term, negligible, adverse cumulative impacts would occur.

During construction, no cumulative impacts on land and submerged land use in Saipan would occur. Alternative 1 would be consistent with the Saipan Zoning Law of 2013 and the 2002 Saipan Airport Master Plan.

Long-term, negligible, adverse cumulative impacts on land use or land ownership would be expected under the Alternative 1 Implementation Phase as a result of minor increases in noise from the increased aircraft operations at Saipan International Airport. Impacts from the Divert operations would be periodic and short-term because they would only occur during planned military exercises for a maximum of 8 weeks per year.

5.3.10.2 Alternative 2—Modified Tinian Alternative

Under Alternative 2, no short-term cumulative impacts on land use are expected; however, long-term, minor, adverse cumulative impacts would occur.

5.3.10.2.1 North Option

During construction for the Alternative 2 North Option on Tinian, no cumulative impacts on land and submerged land use are expected at Tinian International Airport or the Port of Tinian. The USAF would obtain the minimum property interest necessary to construct the Divert facilities on public lands near the airport. Although the proposed Divert fuel tanks, CPA port improvement projects, and the Tinian Ocean View Resort would all be located in the Port of Tinian, their proposed locations would allow for construction of all projects occur simultaneously.

As described in **Section 4.1.2**, the Divert KC-135 operations would slightly extend the current noise contours at Tinian International Airport when applying the FAA's Terminal Area Forecast. When combined with other future aircraft operations, however, the amount of land area affected by a 65-dBA noise level or greater would increase substantially, but affected land areas are expected to remain mostly within the airport property and MLA. According to the CJMT Draft EIS/OEIS (DON 2015a), the proposed 9,244 aircraft operations at Tinian International Airport would result in potentially significant direct impacts from increased noise levels affecting residents in the Marpo Heights area located approximately 1.3 miles southeast of the airport. Although the Divert aircraft operations would be additive to the CJMT effects, they are not expected to further increase noise levels for Marpo Heights and other noise-sensitive land use areas affected by CJMT operations. Based on this analysis, long-term, minor, adverse cumulative impacts on land use or land ownership would be expected from implementation of Alternative 2. Divert-related impacts would be periodic and short-term because they would only occur during planned military exercises for a maximum of 8 weeks per year.

5.3.10.2.2 South Option

Just as for the Alternative 2 North Option, construction of the South Option is expected to have no cumulative impacts on land and submerged land use at Tinian International Airport or the Port of Tinian. The USAF would obtain the minimum property interest necessary to construct the Divert facilities on public lands near the airport.

Under the South Option, noise from aircraft operations generally would be the same as for the North Option, resulting in long-term, minor, adverse cumulative impacts. For the planned Plumeria Resort and Casino, hotel and villa facilities could potentially be located between 1,300

and 1,600 feet of the proposed Divert cargo pad and parking apron. Even at this distance, however, noise levels from taxiing aircraft are expected to be less than during runway take-offs and landings, and would only occur for brief periods during the 8 weeks of operations per year.

5.3.10.3 Alternative 3—Hybrid Modified Alternative

Under Alternative 3, no short-term cumulative impacts on land use are expected; however, long-term, negligible or minor, adverse cumulative impacts would occur.

5.3.10.3.1 Hybrid Modified – Saipan

Just as for Alternative 1, no cumulative impacts on land and submerged land use are expected during construction for Alternative 3 at Saipan.

Operational impacts on land use would be the same as for Alternative 1. Long-term, negligible, adverse cumulative impacts would be expected as a result of minor increases in noise from the increased aircraft operations at Saipan International Airport. Impacts from the Divert operations would be periodic and short-term because they would only occur during planned military exercises for a maximum of 8 weeks per year.

5.3.10.3.2 Hybrid Modified – Tinian

NORTH OPTION

For Alternative 3 at Tinian, land use impacts due to construction would be the same as for the Alternative 2 North Option; no cumulative impacts on land and submerged land use are expected at Tinian International Airport or the Port of Tinian.

Operational impacts on land use also would be the same as for Alternative 2. Because of increased aircraft noise, long-term, minor, adverse cumulative impacts on land use or land ownership would be expected. The Divert exercises would only occur for a maximum of 8 weeks per year.

SOUTH OPTION

For the South Option, land use impacts due to construction would be the same as for the North Option; no cumulative impacts on land and submerged land use are expected at Tinian International Airport or the Port of Tinian.

Operational impacts on land use also would be the same as for the North Option. Increased aircraft noise would result in long-term, minor, adverse cumulative impacts. The Divert exercises would only occur for a maximum of 8 weeks per year.

5.3.11 Transportation

5.3.11.1 Alternative 1—Modified Saipan Alternative

Under Alternative 1, short-term, minor to moderate, adverse and long-term, periodic, minor, adverse cumulative impacts on local roadway transportation would be expected.

Short-term, minor to moderate, adverse cumulative impacts on Saipan local roadways could occur if multiple construction projects, such as the planned hotel resorts, were to occur simultaneously during the Divert construction. Between the Divert actions and other projects,

upwards of 500 to 1,000 workers or more could be on the island for weeks or months at a time. Increased traffic congestion would reduce the current roadway LOS and cause additional stress to road surfaces resulting in deterioration (e.g., rutting, cracking, and breakup) of pavements.

During Divert operations, when up to 265 personnel are on the island to provide airfield support, traffic could become more congested because of the increased number of tourists at the future hotel resorts and from the increase in military personnel associated with the MITT actions. Fuel truck deliveries for Divert would also add to the traffic for brief periods. The Divert exercises, however, would not exceed 8 weeks in duration. As a result, long-term, periodic, minor, adverse cumulative impacts on local roadways would be expected.

Ongoing and future roadway improvements on the island are expected to help limit traffic congestion and maintain road surfaces and safe driving conditions in the long term.

5.3.11.2 Alternative 2—Modified Tinian Alternative

Under Alternative 2, short-term, moderate, adverse and long-term, periodic, minor to moderate, adverse cumulative impacts on local roadway transportation would be expected.

5.3.11.2.1 North Option

Under the Alternative 2 North Option, impacts on local roadways due to construction at Tinian International Airport would be similar to those described under Alternative 1, but to a greater extent. The Divert actions and other planned projects on Tinian (i.e., CJMT, Tinian Ocean View Resort, Plumeria Resort and Casino, West San Jose Village Homesteads, and others) would be larger in scale. If multiple construction projects were to occur simultaneously, upwards of 2,000 workers could be on the island for weeks or months at a time. Increased traffic congestion would reduce the current roadway LOS and cause additional stress to road surfaces resulting in deterioration (e.g., rutting, cracking, and breakup) of pavements. Consequently, short-term, moderate, adverse cumulative impacts would occur on the local roadway network.

During Divert operations, when up to 265 personnel are on the island to provide airfield support, traffic could become more congested because of the increased number of tourists at the future hotel resorts and from the increase in military personnel associated with CJMT training and testing. Fuel truck deliveries for Divert would also add to the traffic for brief periods. The Divert exercises, however, would not exceed 8 weeks in duration. As a result, long-term, periodic, minor to moderate, adverse cumulative impacts on local roadways would be expected.

Ongoing and future roadway improvements on the island are expected to help limit traffic congestion and maintain road surfaces and safe driving conditions in the long term.

5.3.11.2.2 South Option

Roadway network impacts due to construction of the Alternative 2 South Option would be similar to those described for the North Option, but to a lesser extent because of the smaller construction area associated with the South Option. If several of the large construction projects planned on Tinian were to occur simultaneously, short-term, moderate, adverse cumulative impacts would occur on the local roadway network.

Under the South Option, operational impacts on local roadways would be the same as for the North Option. Long-term, periodic, minor to moderate, adverse cumulative impacts on the roadways would be expected.

5.3.11.3 Alternative 3—Hybrid Modified Alternative

Under Alternative 3 on Saipan, short-term, minor to moderate, adverse and long-term, periodic, minor, adverse cumulative impacts on local roadways would be expected. Additionally, short-term, moderate, adverse and long-term, periodic, minor to moderate, adverse cumulative impacts would occur on Tinian.

5.3.11.3.1 Hybrid Modified – Saipan

Impacts on local roadways due to Divert construction at Saipan International Airport would be similar to those described for Alternative 1, but to a slightly lesser extent because of the smaller construction area. If multiple construction projects on the island were to occur simultaneously, short-term, minor to moderate, adverse cumulative impacts on the local roadway network could occur.

Operational impacts on local roadways would be the same as for Alternative 1. Long-term, periodic, minor, adverse cumulative impacts on local roadways would be expected.

5.3.11.3.2 Hybrid Modified – Tinian

NORTH OPTION

Under Alternative 3 at Tinian, impacts on local roadways due to construction on the north side of Tinian International Airport would be similar to those described for the Alternative 2 North Option, but to a lesser extent because of the smaller construction area. If several of the large projects planned on the island were to occur simultaneously, short-term, moderate, adverse cumulative impacts would occur on the local roadway network.

For the North Option, operational impacts on local roadways would be the same as for Alternative 2. Long-term, periodic, minor to moderate, adverse cumulative impacts would be expected.

SOUTH OPTION

For the Alternative 3 South Option, impacts on local roadways due to construction at Tinian International Airport would be similar to those described for the Alternative 2 South Option, but to a lesser extent because of the smaller construction area. If several of the large projects planned on the island were to occur simultaneously, short-term, moderate, adverse cumulative impacts would occur on the local roadway network.

Operational impacts on local roadways would be the same as for Alternative 2. Long-term, periodic, minor to moderate, adverse cumulative impacts would be expected.

5.3.12 Hazardous Materials and Wastes

5.3.12.1 Alternative 1—Modified Saipan Alternative

Under Alternative 1, short- and long-term, minor, adverse cumulative impacts associated with hazardous materials and waste would be expected.

On Saipan, short- and long-term, minor, adverse cumulative impacts associated with hazardous materials, hazardous wastes, and petroleum products would be expected under Alternative 1. Implementation of many of the projects identified in **Section 5.2** would require additional quantities of hazardous materials and petroleum products to be delivered, stored, and used on Saipan on a short-term basis during construction and on a long-term basis during operations. Increases in the amount of hazardous materials and petroleum products used, and hazardous wastes generated, when combined with the effects from Alternative 1, are not expected to be significant. The USAF would construct all proposed fuels infrastructure according to the most stringent applicable Federal and CNMI requirements and would develop and implement an SPCC Plan and FRP.

Hazardous wastes generated by the U.S. military would be transported to Guam for disposal through the DLA Disposition Service. Additionally, implementation of Alternative 1 might require Saipan International Airport to reevaluate its RCRA SQG status should any changes in the amounts and types of hazardous wastes stored and generated at the airport exceed SQG threshold limits. All hazardous wastes and petroleum products would be stored, handled, and disposed of in accordance with Federal, CNMI, and applicable DOD hazardous waste management regulations. No cumulative impacts would result with respect to existing contamination areas, ACMs, LBPs, PCBs, pesticides, and radon.

5.3.12.2 Alternative 2–Modified Tinian Alternative

Under Alternative 2, short- and long-term, minor, adverse cumulative impacts associated with hazardous materials and waste would be expected.

For both the North and South Options at Tinian, hazardous material and waste related impacts would be similar to Alternative 1, resulting in short- and long-term, minor, adverse cumulative impacts. Implementation of many projects identified in **Section 5.2** would require additional quantities of hazardous materials and petroleum products to be delivered, stored, and used on Tinian on a short-term basis during construction and on a long-term basis during operations. Increases in the amount of hazardous materials and petroleum products used, and hazardous wastes generated, when combined with the effects from Alternative 2, are not expected to be significant. The USAF would construct all proposed fuels infrastructure according to the most stringent applicable Federal and CNMI requirements and would develop and implement an SPCC Plan and FRP.

Just as for Alternative 1, hazardous wastes generated by the U.S. military would be transported to Guam for disposal through the DLA Disposition Service. Implementation of Alternative 2 might require Tinian International Airport to obtain an RCRA hazardous waste generator permit and be classified as a hazardous waste generator should the changes in the amounts and types of hazardous wastes stored and generated at Tinian International Airport meet applicable regulatory thresholds. All hazardous wastes and petroleum products would be stored, handled, and disposed of in accordance with Federal, CNMI, and applicable DOD hazardous waste management regulations. No cumulative impacts would result with respect to existing contamination areas, ACMs, LBPs, PCBs, pesticides, and radon.

5.3.12.3 Alternative 3—Hybrid Modified Alternative

For Alternative 3, cumulative impacts at Saipan would be similar to those for Alternative 1. Additionally, cumulative impacts on Tinian for both the North and South Options would be similar to those for Alternative 2. Short- and long-term, minor, adverse cumulative impacts associated with hazardous materials, hazardous wastes, and petroleum products would be expected.

5.3.13 Infrastructure and Utilities

5.3.13.1 Alternative 1—Modified Saipan Alternative

On Saipan, short-term, negligible to minor, adverse cumulative impacts on seaport operations, and on utilities, would be expected during construction. Additionally, long-term, negligible to minor, adverse cumulative impacts on utilities would occur.

At the Port of Saipan, Divert-related fuel tank construction would to have negligible effects on port operations and infrastructure.

The combination of the Divert project with other construction projects, particularly the two planned hotel resorts, would place greater demands on utilities because of the increased worker population and construction activities. Most systems, however, have sufficient capacities to handle increased demands, including electrical supply and solid waste. Short-term disruptions to some utilities (e.g., electrical and water) would be expected as new lines and connections are installed. Planned water and wastewater system upgrades by the CNMI government would improve system operations and meet recent USEPA compliance requirements. The USAF would coordinate with the CUC to determine how to use the wastewater and sewer system in a manner that would not contribute to noncompliance with the NPDES permit requirements. Other ongoing and future improvements to these infrastructure systems would help meet current and future demand and improve system reliability.

The Divert operations and personnel, in combination with other military training and the added hotel resorts and tourist population, would require increased use of utility systems, particularly water, sewer, and electrical. As previously mentioned, most systems have sufficient capacities to handle the increased demands. Planned water and wastewater system upgrades by the CNMI government would improve system operations and compliance. Other ongoing and future improvements to these infrastructure systems would help meet current and future demand and improve system reliability.

5.3.13.2 Alternative 2—Modified Tinian Alternative

For Alternative 2, short-term, negligible to minor, adverse cumulative impacts on seaport operations would be expected during construction. Also during construction, short-term, negligible to minor, adverse cumulative impacts would occur for utilities, except for potable water, which would be short-term, moderate, and adverse. Additionally, long-term, negligible to minor, adverse cumulative impacts on utilities would occur.

5.3.13.2.1 *North Option*

Similar to Alternative 1, at the Port of Tinian, Divert fuel tank construction would have negligible effects on port operations and infrastructure. While multiple construction and development projects propose use of the Tinian harbor that could result in cumulative effects, the USAF is not proposing to increase the number of fuel tanker trips to the harbor or to improve the harbor. Therefore, cumulative effects on the harbor under the Divert project are not expected.

The combination of the Divert project with other construction projects, particularly the CJMT proposal, the large hotel resorts, and the new homestead development, would place much greater demands on utilities because of the increased worker population and level of construction. Additionally, pre-existing utility deficiencies (e.g., potable water, solid waste management) can contribute to potential impacts. Most systems, however, have sufficient capacities to handle increased demands, including electrical supply. Short-term disruptions to some utilities (e.g., electrical and water) would be expected as new lines and connections are installed.

The USAF would install two water wells and coordinate with the CUC on withdrawal rates and times to support Divert potable water demands. The CJMT project proposes to include new potable extraction wells on the MLA for military use and the CNMI would construct a 0.5-million gallon reservoir in Carolina Heights. Because the USAF Divert and MARFORPAC CJMT missions have overlapping requirements in the use of the airport at Tinian and are both DOD agencies, the water demands for both programs would be coordinated to maximize common use of infrastructure requirements and to minimize conflicting operations. As such, the USAF could utilize CJMT's proposed potable extraction wells, rather than installing an additional two wells, if CJMT's wells are determined to be able to support the Divert water demands. This would minimize some cumulative impacts on potable water resources by eliminating the installation of additional wells. Additionally, the USAF could coordinate with CPA to utilize the proposed fire suppression system at the Port of Tinian.

Currently, there is no centralized wastewater collection, treatment, or disposal system on Tinian. Requirements for wastewater treatment and disposal are provided by each entity for their own needs. The only current solid waste facility on Tinian is non-USEPA compliant, and its ability to accommodate additional stresses has been in decline. There are plans to close the existing Tinian Solid Waste Facility and replace it, but until then, construction solid wastes must be transferred off-island to a USEPA-compliant landfill. Other ongoing and future improvements to these infrastructure systems would help meet current and future demand, and also improve system reliability.

The Divert operations and personnel, in combination with the CJMT actions and personnel, and the added hotel resorts and tourist population, would require increased usage of utility systems, particularly water, sewer, and electrical. As previously mentioned, most systems have sufficient capacities to handle the increased demands. Water demands during implementation for DOD proposed projects would be coordinated to maximize common use of infrastructure requirements and to minimize conflicting operations. For the CJMT project, the addition of new potable extraction wells and wastewater treatment/disposal systems should address most needs on the MLA. Until a new municipal solid waste facility can be established on Tinian, all

solid waste would be collected and transported off the island using commercial solid waste haulers and commercial barges or ships. Other ongoing and future improvements to these utility and infrastructure systems would help meet current and future demand and improve system reliability.

5.3.13.2.2 *South Option*

Infrastructure and utility-related cumulative impacts due to construction of the Alternative 2 South Option would be similar to those described for the North Option, but to a slightly lesser extent because of the smaller construction area associated with the South Option. Cumulative impacts during the Implementation Phase would be the same as for the North Option.

5.3.13.3 *Alternative 3—Hybrid Modified Alternative*

5.3.13.3.1 *Hybrid Modified – Saipan*

Infrastructure and utility-related cumulative impacts would be similar to those described for Alternative 1, but to a slightly lesser extent because of the smaller construction footprints associated with the Divert project.

5.3.13.3.2 *Hybrid Modified – Tinian*

Infrastructure and utility-related cumulative impacts for both the Tinian North and South Options would be similar to those described for Alternative 2, but to a slightly lesser extent because of the smaller construction footprints associated with the Divert project.

5.3.14 *Socioeconomics and Environmental Justice*

5.3.14.1 *Alternative 1—Modified Saipan Alternative*

5.3.14.1.1 *Socioeconomics*

Population Characteristics. Short-term, and long-term, moderate, adverse cumulative impacts could occur. On Saipan, several development projects, the planned hotel resorts in particular, would result in short-term temporary and long-term periodic population increases in Saipan. During simultaneous construction projects, upwards of 500 to 1,000 workers could be on the island. During Divert operations, up to 265 military personnel would be on the island to provide airfield support, but for only 8 weeks per year. Although unknown, the number of visiting tourists and hotel workers is expected to increase substantially once the new resorts begin operations. Such build-ups in population, however, are likely to occur slowly over several years.

Housing. Short-term, minor, adverse and long-term, minor, beneficial cumulative impacts could occur. If multiple construction projects, including Divert, were to occur simultaneously on Saipan, a shortage of hotel rooms for workers could occur, but it is unlikely if construction contractors coordinate with the existing hotels well in advance. During long-term operations, hotel room availability is expected to increase and present little problem for military and civilian workers, and tourists, to find housing.

Economic Characteristics. Construction and operations for Divert and other projects would result in short-term and long-term, moderate, beneficial cumulative impacts on the economy of Saipan due to increases in employment, and increased spending on goods and services.

Indirect beneficial impacts would likely result from secondary increased spending from the increased population (construction workers and long-term personnel) and economic advantages of the increased efficiency and enhancement of infrastructure on Saipan.

Public Services. Short-term and long-term, moderate, adverse cumulative impacts could occur. Most ongoing and reasonably foreseeable projects, including Alternative 1, would have adverse impacts on public services due to the associated short- and long-term population increases. Population increases would increase demand for public services such as medical, law enforcement, and firefighting services. These services, particularly medical care, may not be able to manage additional demand adequately in the short-term during periods of simultaneous project construction.

Sociocultural Issues. Short-term, negligible to minor, adverse and long-term, minor adverse cumulative impacts could occur. All Divert-related construction at the airport would occur on land managed by the CPA. At the Port of Saipan, construction would occur on land currently leased by the U.S. government. The USAF would obtain the minimum property interest necessary to construct the facilities on public lands. The ownership status and use of lands planned for other non-military projects is undetermined. The majority of construction workers would be from Saipan or the CNMI, and most likely would be familiar and respectful of the local culture and customs. During long-term operations, the increase in military and commercial air traffic would result in minor increases in noise on the local communities, although the Divert operations would only occur 8 weeks per year and have a small additive effect to noise levels.

5.3.14.1.2 Environmental Justice

Significant adverse impacts would not be expected on disproportionately high minority and low-income populations. Approximately 98 percent of the total population of Saipan is considered a minority, and approximately 53 percent of the population is low-income. Divert-related construction would impact Districts 1 and 2, which have disproportionately high minority populations. Possible adverse impacts would include increased traffic and construction noise. Other projects planned on Saipan could have similar impacts on nearby communities. During long-term operations, noise from increased military and commercial air traffic would disproportionately impact the high minority populations within District 1, although the Divert operations would only occur 8 weeks per year and would remain below the 65 dBA DNL.

5.3.14.2 Alternative 2–Modified Tinian Alternative

5.3.14.2.1 North Option

SOCIOECONOMICS

Population Characteristics. Short-term, moderate, adverse cumulative impacts could occur. Cumulative impacts under Alternative 2 would be similar to, but greater than, those described for Alternative 1. On Tinian, several large projects, including the CJMT proposal, the large hotel resorts, and the new homestead development, would result in short-term temporary and long-term periodic population increases on Tinian. During simultaneous construction projects, upwards of 1,500 to 2,000 or more workers could be on the island. During Divert operations, up to 265 military personnel would be on the island to provide airfield support, but for only 8 weeks per year. Although unknown, the number of visiting tourists and hotel workers is expected to

increase substantially once the new resorts begin operations. Such build-ups in population, however, are likely to occur slowly over several years. For the CJMT training and testing actions on Tinian, military personnel numbers could range from as few as 30 to 3,000 personnel (assumes a maximum of 2,200 training personnel with potential overlap of pre- or post-training parties). On average, over the course of a year, 771 training personnel would be on Tinian (DON 2015a).

Housing. Short-term, minor, adverse and long-term, minor, beneficial cumulative impacts could occur. Cumulative impacts under Alternative 2 would be similar to, but greater than, those described for Alternative 1. If multiple construction projects, including Divert, were to occur simultaneously on Tinian, a shortage of hotel rooms for workers could occur, but it is unlikely if construction contractors coordinate with the existing hotels well in advance. Additionally, the planned Tinian Ocean View Resort may include construction of workforce housing for the estimated 150 workers needed. During long-term operations, hotel room availability is expected to increase and present little problem for military, civilian workers, and tourists to find housing. In addition to use of temporary shelters (tents and bivouacs) by training personnel, the CJMT is planning to include additional billeting on the MLA that could be utilized by the USAF.

Economic Characteristics. Cumulative impacts under Alternative 2 would be similar to, but greater than, those described for Alternative 1. Construction and operations for Divert and other projects would result in short-term and long-term, moderate, beneficial cumulative impacts on the economy of Tinian due to increases in employment, and increased spending on goods and services. Indirect beneficial impacts would likely result from increased secondary spending from the increased population (construction workers and long-term personnel), and economic advantages of the increased efficiency and enhancement of infrastructure on Tinian.

Public Services. Short-term, and long-term, moderate, adverse cumulative impacts could occur. Cumulative impacts under Alternative 2 would be similar to those described for Alternative 1. Most ongoing and reasonably foreseeable projects, including Alternative 2, would have adverse impacts on public services due to the associated short- and long-term population increases. Population increases would increase demand for public services such as medical, law enforcement, and firefighting services. These services, particularly medical care, may not be able to manage additional demand adequately in the short term during periods of simultaneous project construction.

Sociocultural Issues. Short-term, negligible to minor, adverse and long-term, adverse cumulative impacts could occur. Cumulative impacts under Alternative 2 would be similar to those described for Alternative 1. All Divert-related construction would occur on lands managed by the CPA. The USAF would acquire the minimum property interest necessary to construct the facilities on public lands. The ownership status and use of lands planned for other non-military projects is undetermined. The majority of construction workers would be from Tinian or the CNMI, and would most likely be familiar with and respectful of the local culture and customs. During long-term operations, the increase in military and commercial air traffic would result in major increases in noise on the local communities, although the Divert operations would only occur 8 weeks per year and have a small additive effect to noise levels.

ENVIRONMENTAL JUSTICE

Disproportionately high and adverse environmental justice impacts would not be expected under Alternative 2. Approximately 98 percent of the total population of Tinian is considered a minority, and approximately 44 percent of the population is low-income. Short-term, minor to moderate, adverse environmental justice impacts could occur during construction due to moderately increased population that could result in housing shortage and increased demands on health care/medical, law enforcement, and firefighting services. Other projects planned on Tinian could have similar impacts on nearby communities. Short-term, minor to moderate, adverse environmental justice impacts could also occur during implementation due to moderately increased population and related traffic, although the Divert operations would only occur 8 weeks per year.

5.3.14.2.2 *South Option*

Under the Alternative 2 South Option, overall socioeconomic and environmental justice impacts would be similar to those described for the Tinian North Option, except that fewer Divert construction workers would be required (100 workers at peak construction periods instead of 150) and the duration of construction likely would be shorter. This reduction would result in very minor changes to the effects on population characteristics, housing, economic characteristics, and public services described earlier.

5.3.14.3 *Alternative 3—Hybrid Modified Alternative*

5.3.14.3.1 *Hybrid Modified – Saipan*

Under Alternative 3 on Saipan, overall socioeconomic and environmental justice impacts would be similar to those described for Alternative 1, except that fewer Divert construction workers would be required (50 workers at peak construction periods instead of 75) and the duration of construction likely would be shorter. This reduction would result in minor changes to the effects on population characteristics, housing, economic characteristics, and public services described earlier.

5.3.14.3.2 *Hybrid Modified – Tinian*

Under Alternative 3 for the Tinian North and South Options, socioeconomic and environmental justice impacts would be similar to those described for Alternative 2, except that the duration of construction would likely be shorter. This reduction would result in very minor changes to the effects on population characteristics, housing, economic characteristics, and public services described earlier.

5.3.15 Human Health and Safety

5.3.15.1 *Alternative 1—Modified Saipan Alternative*

During Alternative 1 construction on Saipan, in combination with other construction projects on the island, short-term, minor, adverse cumulative impacts could result primarily from increased risk of construction-site accidents and traffic accidents associated with increased construction vehicle traffic. Contractors working on Saipan are required to adhere to OSHA and CNMI safety regulations. Workers must wear appropriate PPE on job sites. Construction areas would be fenced and appropriately marked with signs to prevent public access and to warn of potentially

hazardous conditions. Construction equipment and trucks transporting material to and from project sites could be directed to roads and streets that have a smaller volume of traffic. Additionally, contractor businesses would be required to establish and maintain health and safety programs for their employees.

For operations at the Saipan International Airport, the Port of Saipan, and at other new project sites and facilities on the island, long-term, minor, adverse cumulative impacts could result from increased risk of work-site accidents, traffic accidents associated with fuel and other transport trucks on local roads, increased use of ordnance at military training sites, and from increased aircraft operations. The risks associated with these activities would be managed by mandatory training. Military and civilian personnel, and contractors, would be required to adhere to applicable Federal, DOD, and CNMI safety regulations.

5.3.15.2 Alternative 2–Modified Tinian Alternative

During Alternative 2 construction on Tinian, in combination with other construction projects on the island, short-term, minor, adverse cumulative impacts could result primarily from increased risk of construction-site accidents and traffic accidents associated with increased construction vehicle traffic. Contractors working on Tinian are required to adhere to OSHA and CNMI safety regulations. Workers must wear appropriate PPE on job sites. Construction areas would be fenced and appropriately marked with signs to prevent public access and to warn of potentially hazardous conditions. Construction equipment and trucks transporting material to and from project sites could be directed to roads and streets that have a smaller volume of traffic. Additionally, contractor businesses would be required to establish and maintain health and safety programs for their employees.

For operations at the Tinian International Airport, the Port of Tinian, and at other new project sites and facilities on the island, long-term, minor, adverse cumulative impacts could result from increased risk of work-site accidents, traffic accidents associated with fuel and other transport trucks on local roads, increased use of ordnance on the MLA, and from increased aircraft operations. The risks associated with these activities would be managed by mandatory training. Military and civilian personnel, and contractors, would be required to adhere to applicable Federal, DOD, and CNMI safety regulations. For enhanced safety at Tinian International Airport, CPA improvements include relocating the ARFF Facility and adding fire fighting equipment. CJMT implementation of range safety and access control procedures would prevent the public from accessing the MLA during live-fire training events, and certain training areas would be fenced and gated to restrict the public from entering during non-training periods.

5.3.15.3 Alternative 3–Hybrid Modified Alternative

5.3.15.3.1 Hybrid Modified – Saipan

Under Alternative 3 for Saipan, overall health and safety cumulative impacts would be similar to those described for Alternative 1.

5.3.15.3.2 Hybrid Modified – Tinian

Under Alternative 3 for the Tinian North and South Options, overall health and safety cumulative impacts would be similar to those described for Alternative 2.

5.4 Climate Change

Global climate change refers to long-term fluctuations in temperature, precipitation, wind, and other elements of Earth's climate system. Recently there has been global discussion of the ways in which the earth's climate system may also be influenced by changes in the concentration of various gases in the atmosphere. Of particular interest are those gases that affect the Earth's absorption of solar radiation. These gases serve a natural function of trapping heat in the atmosphere, thereby regulating Earth's climate. The most common of these gases include water vapor (H₂O), CO₂, methane (CH₄), and nitrous oxide (N₂O); the latter three are referred to collectively as GHGs. Natural processes, such as respiration by plants or animals and seasonal cycles of plant growth and decay, continuously cycle GHGs between the atmospheric, oceanic, and terrestrial systems. Human activities can increase the amount of these gases to be emitted or sequestered, thereby changing their atmospheric concentrations and influencing changes in the global climate.

The proposed action must be evaluated in the context of global climate change because in addition to producing GHGs as described in **Section 4.2**, it would also be an activity affected by climate change. The proposed action would be located in the Mariana Islands. Potential effects on the Marianas' tropical environment could include increases in sea level, storm activity, accelerated coastal erosion, hydrological changes and flooding, and vegetation and wildlife changes. The consequences of these changes on the Marianas' environment and the Proposed Action could include alterations in the biological diversity of the ecosystems; damage to proposed infrastructure due to coastal erosion or flooding due to sea level rise, and hydrologic events; and disruption to the social and economic lifestyle of the community. For example, coastal flooding due to sea level rise could have an adverse impact on proposed fuel tanks located near the seaports of Saipan and Tinian. If a rise were to occur suddenly, fuel tanks could become inundated, and this could lead to a release of fuel into the environment. However, if a rise were to occur slowly, it would be possible to safely remove the tanks prior to being affected. Additionally, all fuels infrastructure proposed in the EIS would be constructed according to the most stringent applicable Federal and CNMI requirements, which would reduce the likelihood of spills or spill migration into the environment. The potential for contamination from a spill would be reduced through implementation of an SPCC Plan (Section 311(j)(1)(C) of the CWA) and all fuel tanks at the airport and seaport would include secondary containment to eliminate the potential for spills. Additionally, per the OPA of 1990, which amended the CWA, the USAF would develop an FRP for accidental catastrophic spill.

5.5 Unavoidable Adverse Effects

Unavoidable adverse impacts would result from implementation of any of the alternatives. Adverse impacts on soils, storm water management, vegetation, wildlife, air quality, the noise environment, and traffic congestion would be unavoidable during construction activities but not significant.

5.6 Relationship Between Short-Term Uses and Long-Term Productivity

Short-term uses of the biophysical components of the human environment include direct impacts, usually related to construction activities, which occur over a period of less than 5 years. Long-term uses of the human environment include those impacts that occur over a period of more than 5 years, including permanent resource loss.

This EIS identifies potential short-term, adverse impacts on the natural environment as a result of construction activities. These adverse impacts include noise, air emissions, soil erosion, storm water runoff into surface water, and increased traffic. The long-term and essentially permanent loss of vegetation and soil to impervious surfaces would have irreversible and irretrievable impacts on natural resources. However, development of either any of the alternatives would be expected to increase the long-term economic productivity of either Saipan or Tinian while protecting and preserving historical importance of the islands and their cultural resources.

5.7 Irreversible and Irretrievable Commitments of Resources

An irreversible or irretrievable commitment of resources refers to impacts on or losses to resources that cannot be reversed or recovered, even after an activity has ended and facilities have been decommissioned. A commitment of resources is related to use or destruction of nonrenewable resources, and the impacts that loss will have on future generations.

Improvement and periodic use of the airport or airports selected would involve the irreversible and irretrievable commitment of materials, energy, terrestrial biota and soil, landfill space, and human resources. The impacts on these resources would be permanent.

Materials. Material resources irretrievably used for airport improvements would include steel, concrete, and other building materials. Such materials are not in short supply and would not be expected to limit other unrelated construction activities. The irretrievable use of material resources would not be considered significant.

Energy. Energy resources used for the Proposed Action and airport improvements would be irretrievably lost. These include fossil fuels (e.g., gasoline, diesel, natural gas) and electricity. During construction and utilization of the airport, gasoline and diesel fuel would be used for the operation of construction vehicles, transportation vehicles, and equipment. Overall, consumption of energy resources would not place a significant demand on their availability in the region. Therefore, no significant impacts would be expected.

Terrestrial Biota and Soils. Airport improvements would result in some irretrievable loss of wildlife habitat and soil resources. This result would be a permanent loss or conversion.

Landfill Space. The generation of construction debris and subsequent disposal of that debris in a landfill would be an irretrievable, adverse impact. Construction contractors would be expected to recycle, to the greatest extent possible, any debris that is generated. Recycling wastes would

reduce irretrievable impacts on landfills. However, any waste generated by the Proposed Action that is disposed of in a landfill would be considered an irretrievable loss of that landfill space.

Human Resources. The use of human resources for construction is considered an irretrievable loss in that it would preclude such personnel from engaging in other work activities. However, use of human resources represents employment opportunities and is considered beneficial.

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8. Acronyms and Index

8.1 Acronyms and Abbreviations

µg/m ³	micrograms per cubic meter	AST	Aboveground Storage Tank
AAD	Average Annual Day	ATC	Air Traffic Control
ABD	Average Busy Day	ATCAA	Air Traffic Control Assigned Airspace
ACHP	Advisory Council on Historic Preservation	ATCALs	Air Traffic Control and Landing System
ACM	Asbestos-Containing Material	ATCT	Air Traffic Control Tower
ADT	average daily traffic	BASH	Bird/Wildlife Aircraft Strike Hazard
AFB	Air Force Base	bbbl	barrel(s)
AFCEC	Air Force Civil Engineer Center	BEAR	Basic Expeditionary Airfield Resources
AFH	Air Force Handbook	BECQ	Bureau of Environmental and Coastal Quality
AFI	Air Force Instruction	BGRT	Business Gross Revenue Tax
AFMAN	Air Force Manual	BMP	best management practice
AFOSH	Air Force Occupational and Environmental Safety, Fire Protection, and Health	C&D	Construction and Development
AFPD	Air Force Policy Directive	CAA	Clean Air Act
AGL	Above Ground Level	CEDS	Comprehensive Economic Development Strategic
ALP	airport layout plan	CEQ	Council on Environmental Quality
AMC	Air Mobility Command	CERAP	FAA Center Radar Approach Control
AMDTF	U.S. Army Air and Missile Defense Task Force	CERCLA	Comprehensive, Environmental Response, Compensation, and Liability Act
AMSL	above mean sea level	CFR	Code of Federal Regulations
AOC	Area of Concern	CGP	Construction General Permit
AOR	Area of Responsibility	CHC	Commonwealth Health Center
APC	Area of Particular Concern	CJMT	CNMI Joint Military Training
APE	area of potential effect	CMC	Commonwealth Code
API	American Petroleum Institute		
AQCR	air quality control region		
ARFF	Airport Rescue and Firefighting		
ARTCC	Air Route Traffic Control Center		

CNMI	Commonwealth of the Northern Mariana Islands	EIAP	Environmental Impact Analysis Process
CO	carbon monoxide	EIS	Environmental Impact Statement
CO ₂	carbon dioxide	EISA	Energy Independence and Security Act
COMNAVMA R	Commander Naval Forces Marianas	ELG	Effluent Limitation Guideline
CPA	Commonwealth Ports Authority	EMUA	Exclusive Military Use Area
CRM	Coastal Resources Management	EO	Executive Order
CRMO	Coastal Resources Management Office	ERS	Economic Restoration Summit
CUC	Commonwealth Utilities Corporation	ESA	Endangered Species Act
CWA	Clean Water Act	ESCP	Erosion-and-sediment-control plan
CZMA	Coastal Zone Management Act	ETL	Engineering Technical Letter
dBA	A-weighted decibel	FAA	Federal Aviation Administration
DFW	Division of Fish and Wildlife	FAR	Federal Aviation Regulation
DHS	Department of Homeland Security	FDM	Farallon de Medinilla
DLA	Defense Logistics Agency	FEMA	Federal Emergency Management Agency
DLNR	Department of Lands and Natural Resources	FICUN	Federal Interagency Committee on Urban Noise
DME	Distance Measuring Equipment	FIR	Flight Information Region
DNL	Day-Night Average Sound Level	FIRM	Flood Insurance Rate Map
DOD	Department of Defense	FMP	fishery management plan
DON	Department of the Navy	FOD	foreign object debris
DOT	Department of Transportation	FORCE	Fuels Operational Readiness Capability Equipment
DPL	Department of Public Lands	FPPA	Farmland Protection Policy Act
DPS	Department of Public Safety	FR	Federal Register
E&E	Ecology and Environment, Inc.	FRP	Facility Response Plan
EA	Environmental Assessment	ft ²	square feet
EDF	Economic Development Forum	FY	Fiscal Year
EFH	Essential Fish Habitat	GEPA	Guam Environmental Protection Agency

GHG	greenhouse gas	LEED	Leadership in Energy and Environmental Design
gpd	gallons per day	LOA	Letter of Authorization
gpm	gallons per minute	LOC	Localizer
GVW	gross vehicle weight	LOS	level of service
HACCP	Hazard Analysis and Critical Control Points	LTO	landing and take-off
HANMI	Hotel Association of the Northern Mariana Islands	MAJCOM	Major Command
HAP	Hazardous Air Pollutant	MALSR	Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights
HIES	Household, Income, and Expenditures Survey	MARFORPA C	Marine Corps Forces Pacific
HIRL	Runway Edge Lights, High Intensity	MBTA	Migratory Bird Treaty Act
HQ	Headquarters	mg/m ³	milligram(s) per cubic meter
HUD	U.S. Department of Housing and Urban Development	mi ²	square mile(s)
ICE	Internal Combustion Engine	MIRC	Mariana Island Range Complex
IFR	Instrument Flight Rules	MIRL	Runway Edge Lights, Medium Intensity
IHA	Incidental Harassment Authorization	MITT	Mariana Islands Training and Testing
ILS	Instrument Landing System	MLA	Military Lease Area
INM	Integrated Noise Model	mm	millimeters
INRMP	Integrated Natural Resources Management Plan	MMPA	Marine Mammal Protection Act
IO	Isolated Occurrence	mph	mile(s) per hour
ISR/Strike	Intelligence, Surveillance, Reconnaissance, and Strike	MS4	Municipal Separate Storm Sewer System
JGPO	Joint Guam Program Office	MSFCMA	Magnuson-Stevens Fishery Conservation and Management Act
JRM	Joint Region Marianas	MSWF	Marpi Solid Waste Facility
kg	kilogram	MW	Megawatts
km	kilometers	MWh	Megawatt Hours
km ²	square kilometers	NAAQS	National Ambient Air Quality Standards
kV	kilovolt	NAVAID	Navigational Aid
kVA	kilovolt-ampere	ND	Negative Determination
LBA	Leaseback Area		
LBP	Lead-based Paint		

NDB	Non-Directional Beacon	PAPI	precision approach path indicator
NEPA	National Environmental Policy Act	Pb	lead
NHL	National Historic Landmark	PCB	polychlorinated biphenyl
NHLD	National Historic Landmark District	pCi/L	picocuries per liter
NHPA	National Historic Preservation Act	PM ₁₀	particulate matter 10 microns in diameter
NM	nautical mile(s)	PM _{2.5}	particulate matter 2.5 microns in diameter
NM ²	square nautical mile(s)	POL	petroleum, oil, and lubricant
NMFS	National Marine Fisheries Service	ppb	parts per billion
NMTIT	Northern Marianas territorial income tax	PPE	personal protection equipment
NO ₂	nitrogen dioxide	ppm	parts per million
NOA	Notice of Availability	PSD	Federal Prevention of Significant Deterioration
NOAA	National Oceanic and Atmospheric Administration	RCRA	Resource Conservation and Recovery Act
NOI	Notice of Intent	REIL	Runway End Identifier Lights
NO _x	nitrogen oxides	RNAV	Area Navigation
NPDES	National Pollutant Discharge Elimination System	ROD	Record of Decision
NPS	National Park Service	RPZ	Runway Protection Zone
NRHP	National Register of Historic Places	RSA	Runway Safety Area
O ₃	ozone	RT	Revenue Tons
OE/AAA	Obstruction Evaluation/Airport Airspace Analysis	RTA	range and training area
OEIS	Overseas Environmental Impact Statement	RWY	runway
OFA	Object Free Area	SDWA	Safe Drinking Water Act
OFZ	Obstacle Free Zone	SEL	Sound Exposure Level
OPA	Oil Pollution Act	SHPO	State Historic Preservation Office
OSHA	Occupational Safety and Health Administration	SIP	State Implementation Plan
P.L.	Public Law	SNHL	Saipan Landing Beaches, Aslito/Isley Field, and Marpi Point National Historic Landmark
PACAF	Pacific Air Forces	SO ₂	sulfur dioxide
		SPCC	Spill Prevention, Control, and Countermeasures

SQG	Small-Quantity Generator	USAF	U.S. Air Force
SUA	Special Use Airspace	USDA-WS	U.S. Department of Agriculture-Wildlife Services
SWPPP	Storm Water Pollution Prevention Plan	USEPA	U.S. Environmental Protection Agency
TCP	Traditional Cultural Property	USFWS	U.S. Fish and Wildlife Service
TERPS	Terminal instrument procedures	USGS	U.S. Geological Survey
TIM	Time-in-mode	USMC	U.S. Marine Corps
TMDL	total maximum daily load	UST	Underground storage tank
TPH	Total Petroleum Hydrocarbon	UXO	unexploded ordnance
tpy	Tons per year	VASI	Visual Approach Slope Indicator
TSA	Transportation Security Administration	VOC	Volatile organic compound
TSCA	Toxic Substances Control Act	WHA	Wildlife Hazard Assessment
U.S.C.	United States Code	WHMP	Wildlife Hazard Management Plan
UFC	Unified Facilities Criteria	WI	Wing Instruction
USACE	U.S. Army Corps of Engineers	WTO	World Trade Organization

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8.2 Index

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