

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 CNMI Joint Military Training (CJMT), and the Mariana Islands Training and Testing (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 Joint Guam Program Office (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

1 Qualification Course, and Field Firing Range would be located along 86th Street and west of
2 Broadway. The Platoon Battle Course would be located northwest of the other ranges. All four
3 range footprints partially overlay the existing FAA Mitigation Area, which was established for the
4 protection of endangered and threatened wildlife, particularly the Tinian monarch. The area
5 may be used for low-impact military training and other purposes that do not disrupt the habitat
6 and living conditions for the Tinian monarch. The projects on Tinian would only be implemented
7 if the CJMT actions, described later in this section, are not implemented.

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

14 ***Mariana Islands Range Complex (MIRC) (DON 2010a)***. This project consists of military
15 training and RDT&E training activities within the Mariana Islands (DON 2010a). An EIS/OEIS
16 was prepared for the MIRC by the DON and a ROD was issued in 2010. The MIRC consists of
17 the ranges, airspace, and ocean areas surrounding the ranges that make up the study area.

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

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

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

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

35 The proposed activities relevant to Saipan and Tinian training areas are listed in **Table 5.2-2** for
36 the baseline (No Action) and Alternative 1 (DON 2015b). Seven training activities would occur
37 more frequently on Tinian than the baseline tempo established under the MIRC EIS/OEIS (DON
38 2010). Saipan and Tinian are not the only islands where these events could occur. The actual
39 annual tempo on Saipan and Tinian would vary, but would not exceed the number of events
40 proposed under Alternative 1 in the table.

1 **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

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

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

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

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

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

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

Aircraft Type ²	Tinian International Airport ¹			North Field ¹			Total		
	7:00 a.m. – 10:00 p.m.	10:00 p.m. – 7:00 a.m.	Total	7:00 a.m. – 10:00 p.m.	10:00 p.m. – 7:00 a.m.	Total	7:00 a.m. – 10:00 p.m.	10:00 p.m. – 7:00 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 takeoff 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.

1 **5.2.2 Non-DOD Development on Saipan and Tinian**

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

6 **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	The project includes: (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
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

Proponent	Name	Location	Description	Construction Year	Status*
Tinian (continued)					
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	Carolin 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
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

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

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

12 5.3 Cumulative Effects Analysis

13 For the purposes of **Section 5.3**, any project related to the Construction Phase or
14 Implementation Phase of the Proposed Action described in **Section 2.2** of this EIS is referred to
15 wholly as “Divert,” where applicable.

16 5.3.1 Noise

17 5.3.1.1 Alternative 1 – Modified Saipan Alternative

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

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

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

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

13 In the Feasibility Assessment for the Establishment of Special Use Airspace for Marine Corps
14 Training Activities on the islands of Guam, Tinian, and Pagan, October 2011 (NAVFAC Pacific
15 2011), one of the alternatives includes the construction of four firing ranges on the northern end
16 of Tinian. The proposed ranges would affect Saipan International Airport aircraft approach
17 procedures. This could impact noise levels around the airport since aircraft arriving could be
18 required to fly at different elevations if the approach procedures were changed.

19 5.3.1.2 Alternative 2 – Modified Tinian Alternative

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

22 5.3.1.2.1 North Option

23 Short-term, moderate, adverse cumulative impacts on the noise environment would be expected
24 from construction associated with the Alternative 2 North Option. As described in **Section**
25 **4.1.2**, the majority of the projects under this alternative would occur on Tinian International
26 Airport property. The closest noise-sensitive receptors to the airport are residences on the
27 south side of the airport, approximately 5,200 feet from the southern airport boundary. At this
28 distance, noise levels from construction equipment would be below 55 dBA. In addition to the
29 projects at the airport, a fuel tank would be constructed at the Port of Tinian. The closest noise-
30 sensitive receptors to this site are residences approximately 700 feet away. At this distance,
31 noise levels from construction equipment would be approximately 67 to 71 dBA.

32 There are numerous DOD and non-DOD construction projects proposed on Tinian, particularly
33 in association with the CJMT proposal and the planned housing and hotel resort developments.
34 The planned Plumeria Resort and Casino, for example, would be located southwest of the
35 airport, approximately 7,500 feet from the proposed KC-135 parking apron. Further south in
36 Tinian Harbor, the Tinian Ocean View Resort is planned for development. At this time, several
37 of the DOD and non-DOD projects do not have definitive construction dates. Under the
38 Alternative 2 North Option, vehicle traffic would increase on a short-term basis during
39 construction and on a long-term, periodic basis with the delivery of fuel. Fuel truck deliveries
40 under this alternative would occur during a 30-day period initially and then throughout the 8
41 weeks of anticipated operations each year. The additional truck traffic would use existing
42 roadways commonly used by similar delivery trucks. The increase of roadway vehicles as

1 compared to existing average daily traffic on the local roadways would not present a significant
2 increase in current noise levels. However, the increase of traffic analyzed in this EIS combined
3 with construction vehicles from potential projects on Tinian could result in periodic minor to
4 moderate, adverse cumulative impacts on the noise environment, depending on the location of
5 the site and the construction dates.

6 Just as for Alternative 1, the USAF anticipates typical exercises at Tinian International Airport to
7 include two to four cargo/tanker type aircraft for up to 8 weeks per year under Alternative 2.
8 Approximately 720 operations (i.e., 360 take-offs and 360 landings) by KC-135 or similar aircraft
9 would be completed annually at the airport. As described in **Section 4.1.2**, the KC-135
10 operations would slightly extend the current noise contours at the airport when applying the
11 FAA's Terminal Area Forecast. When combined with other future aircraft operations, however,
12 the amount of land area affected by a 65-dBA noise level or greater would increase
13 substantially, but affected land areas are expected to remain mostly within the airport property
14 and MLA. According to the CJMT Draft EIS/OEIS (DON 2015a), the proposed 9,244 aircraft
15 operations at Tinian International Airport would result in potentially significant direct impacts
16 from increased noise levels affecting residents in the Marpo Heights area located approximately
17 1.3 mile southeast of the airport. Although the Divert aircraft operations would be additive to the
18 CJMT effects, they are not expected to further increase noise levels for the Marpo Heights
19 residents.

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

24 *5.3.1.2.2 South Option*

25 Impacts on the noise environment from the Alternative 2 South Option would be less than those
26 described for the North Option. The construction footprint under the South Option is
27 approximately 37 percent smaller than the North Option and would require less construction
28 equipment and vehicle use. While the noise level from construction equipment and vehicles at
29 the airport would remain the same, the noise would also be less frequent than that described
30 under the Alternative 2 North Option. Construction of the fuel tank at the Port of Tinian would
31 be the same.

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

40 Under the South Option, noise from aircraft operations would generally be the same as for the
41 North Option, resulting in long-term, minor to moderate, adverse cumulative impacts. For the

1 planned Plumeria Resort and Casino, hotel and villa facilities could potentially be located
2 between 1,300 and 1,600 feet of the proposed Divert cargo pad and parking apron. Even at this
3 distance, however, noise levels from taxiing aircraft are expected to be less than during runway
4 take-offs and landings, and would only occur for brief periods during the 8 weeks of operations
5 per year.

6 5.3.1.3 Alternative 3 – Hybrid Modified Alternative

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

10 5.3.1.4 Hybrid Modified – Saipan

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

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

26 5.3.1.4.1 Hybrid Modified – Tinian

27 5.3.1.4.1.1 NORTH OPTION

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

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

1 **5.3.1.4.1.2 SOUTH OPTION**

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

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

12 **5.3.2 Air Quality**

13 **5.3.2.1 Alternative 1 – Modified Saipan Alternative**

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

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

25 Proposed Divert operational activities, combined with other traffic, training, and testing activities
26 (e.g. MITT-related actions) would result in increased criteria pollutant emissions and hazardous
27 air pollutant emissions throughout the study area. Sources of the emissions would include
28 vehicles, aircraft, fuels, and, to a lesser extent, munitions. Potential impacts include localized
29 and temporarily elevated pollutant concentrations; however, emission dispersal would quickly
30 occur because of the trade winds. As a result, periodic, minor, adverse cumulative impacts on
31 local and regional air quality would be expected from aircraft, vehicles, and fuel transfer/storage
32 operations under Alternative 1.

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

36 **5.3.2.2 Alternative 2 – Modified Tinian Alternative**

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

1 *5.3.2.2.1 North Option*

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

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

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

24 *5.3.2.2.2 South Option*

25 Compared to the Tinian North Option, the South Option would not include construction of a
26 taxiway, has a smaller size parking apron and cargo pad, and requires substantially less
27 concrete to be transported. Thus, construction-related air emissions would be less. As a result,
28 all proposed construction and other land disturbance projects under Alternative 2 would have
29 short-term minor, adverse impacts on local and regional air quality. Like the North Option, the
30 combination of the South Option emissions with other projects, even if they were to occur at the
31 same time, would have no significant cumulative impacts.

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

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

38 *5.3.2.3 Alternative 3 – Hybrid Modified Alternative*

39 Under the Hybrid Modified Alternative, construction would occur at both Saipan and Tinian, and
40 be phased over a 2- to 3-year period. Thus, Construction Phase air quality impacts are

1 expected at both islands. For cumulative analysis purposes, the air emissions for Saipan and
2 Tinian were conservatively combined. The islands are relatively close and are considered to be
3 within the same air quality control region.

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

7 *5.3.2.3.1 Hybrid Modified – Saipan/Tinian North Option*

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

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

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

24 *5.3.2.3.2 Hybrid Modified – Saipan/Tinian South Option*

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

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

39 Greenhouse gas emissions associated with the Divert actions also would be negligible based on
40 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. This safety plan would then be subjected to an SMS evaluation.

The USAF proposed expansion of airport infrastructure would benefit airport operations by providing increased aircraft parking capacity and increased jet fuel supply. The USAF would coordinate with the CPA to determine potential common use of infrastructure improvements. 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 impacts, however, would be minimized by optimizing the scheduling of 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. This safety plan would then be subjected to an SMS evaluation.

The USAF proposed expansion of airport infrastructure would benefit airport operations by providing increased aircraft parking capacity and increased jet fuel supply. The USAF would coordinate with CPA to determine potential common use of infrastructure improvements. 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 when the U.S. military training occupies the runway. Such delays could worsen assuming an increase in commercial flights associated with the new hotel resorts.

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

5 *5.3.3.2.2 South Option*

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

9 5.3.3.3 Alternative 3 – Hybrid Modified Alternative

10 *5.3.3.3.1 Hybrid Modified – Saipan*

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

14 *5.3.3.3.2 Hybrid Modified – Tinian*

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

18 5.3.4 Geological Resources and Soils

19 5.3.4.1 Alternative 1 – Modified Saipan Alternative

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

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

30 During project implementation, soil erosion and sedimentation issues could be exacerbated by
31 the MITT and similar military training/testing actions on the island, but such effects would be
32 localized. These types of impacts would be much less prevalent for the Divert actions once
33 vegetation cover and other soil stabilization methods are implemented and maintained. As a
34 result, cumulative impacts on geological resources and soils from operations are expected to be
35 long-term, minor, and adverse.

36 *5.3.4.2 Alternative 2 – Modified Tinian Alternative*

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

1 *5.3.4.2.1 North Option*

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

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

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

19 *5.3.4.2.2 South Option*

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

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

27 *5.3.4.3 Alternative 3 – Hybrid Modified Alternative*

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

30 *5.3.4.3.1 Hybrid Modified – Saipan*

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

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

1 5.3.4.3.2 *Hybrid Modified – Tinian*

2 5.3.4.3.2.1 NORTH OPTION

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

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

9 5.3.4.3.2.2 SOUTH OPTION

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

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

16 5.3.5 Water Resources

17 5.3.5.1 Alternative 1 – Modified Saipan Alternative

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

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

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

1 5.3.5.2 Alternative 2 – Modified Tinian Alternative

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

4 5.3.5.2.1 North Option

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

16 Long-term, minor to moderate, adverse cumulative impacts on groundwater could occur from
17 the overall increases in impervious surfaces on Tinian from Divert and other past, present, and
18 reasonably foreseeable actions. The Alternative 2 North Option would result in the addition of
19 4,483,194 ft² of impervious surfaces. Other future projects on Tinian, particularly the CJMT
20 actions and the planned housing and hotel resort developments, would result in additional
21 impervious surfaces. All of these actions would reduce rainwater infiltration into the underlying
22 aquifer and increase groundwater usage with the potential for saltwater intrusion. Because of
23 separate aquifers, the civilian projects would not affect the same groundwater resources
24 affected by the military actions in the MLA (DON 2015a). This separation would result in the
25 municipal water supply not being impacted by the CJMT projects. The Divert actions at Tinian
26 International Airport, however, could potentially have some effect on the municipal sources.
27 Accidental spills of petroleum or other pollutants during construction and operations could also
28 introduce pollutants into the aquifer. Just as for Alternative 1, adherence to Section 438 of the
29 EISA and the CNMI DEQ/GEPA Stormwater Management Manual (CNMI DEQ and GEPA
30 2006) would help mitigate these cumulative impacts on groundwater supply and quality.

31 5.3.5.2.2 South Option

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

39 Similar to the Alternative 2 North Option, the South Option would have long-term, minor to
40 moderate, adverse cumulative impacts on groundwater. This alternative would result in the
41 addition of 2,832,615 ft² of impervious surfaces; about 37 percent smaller than the North Option.

1 The combination of the Divert actions with the other projects and developments on the island
2 would reduce rainwater infiltration into the underlying aquifer and increased groundwater usage
3 with the potential for saltwater intrusion. Accidental spills of petroleum or other pollutants during
4 construction and operations could also introduce pollutants into the aquifer. Just as for the
5 North Option, adherence to Section 438 of the EISA and the CNMI DEQ/GEPA Stormwater
6 Management Manual (CNMI DEQ and GEPA 2006) would help mitigate these cumulative
7 impacts on groundwater supply and quality.

8 5.3.5.3 Alternative 3 – Hybrid Modified Alternative

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

11 5.3.5.3.1 Hybrid Modified – Saipan

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

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

17 5.3.5.3.2 Hybrid Modified – Tinian

18 5.3.5.3.2.1 NORTH OPTION

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

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

25 5.3.5.3.2.2 SOUTH OPTION

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

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

32 5.3.6 Terrestrial Biological Resources

33 5.3.6.1 Alternative 1 – Modified Saipan Alternative

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

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

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

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

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

23 5.3.6.2 Alternative 2 – Modified Tinian Alternative

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

28 5.3.6.2.1 North Option

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

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

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

11 *5.3.6.2.2 South Option*

12 Under the Alternative 2 South Option, most of land to be cleared at Tinian International Airport is
13 developed, mowed field, and second-growth tangantangan forest, which is very common on
14 Tinian. The extent of possible vegetation removal for most other projects on the island,
15 including the hotel casino development projects, is undetermined. However, it is assumed that
16 these developments would require at least some vegetation removal. For the proposed CJMT
17 actions, up to approximately 8.7 percent of the island's vegetation could be permanently lost
18 from various construction and clearing projects across the MLA. Such impacts under the CJMT
19 are considered to be significant (DON 2015a). Because the Divert actions would affect only
20 37.43 acres of second-growth tangantangan forest, they would have minor additive effects on
21 the CJMT vegetation impacts. Additionally, forest enhancement measures are proposed as
22 mitigation under the CJMT. As a result, the Alternative 2 North Option is expected to have long-
23 term, moderate, adverse cumulative impacts on vegetation.

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

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

34 *5.3.6.3 Alternative 3 – Hybrid Modified Alternative*

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

1 5.3.6.3.1 *Hybrid Modified – Saipan*

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

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

12 5.3.6.3.2 *Hybrid Modified – Tinian*

13 5.3.6.3.2.1 NORTH OPTION

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

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

24 5.3.6.3.2.2 SOUTH OPTION

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

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

35 5.3.7 Marine Biological Resources

36 5.3.7.1 Alternative 1 – Modified Saipan Alternative

37 No Divert-related construction would occur in the marine waters. The operational effects from
38 Alternative 1 implementation would have short-term, periodic, minor, adverse cumulative
39 impacts on sea turtles and marine mammals.

1 **Sea Turtles.** Short-term, periodic, minor, adverse cumulative impacts on sea turtles could
2 occur under Alternative 1 at Saipan. Some of the DOD redevelopment projects in the region
3 could result in increases in noise from low-flying aircraft or other training activities. These
4 include operations associated with MIRC and MITT actions. While these activities have the
5 potential to result in an increase in noise over the nearshore waters and beaches of Saipan, this
6 impact is expected to be negligible. As with the noise associated with takeoffs and landings
7 under Alternative 1, it is unlikely that low-flying aircraft associated with these projects would
8 result in more than a negligible increase in noise over the beaches where sea turtles nest in
9 Saipan. Potential exposure to elevated noise levels from Divert operations would only occur
10 periodically for a total of up to 8 weeks per year. As such, Alternative 1 would have a negligible
11 contribution to cumulative impacts.

12 **Marine Mammals.** Short-term, periodic, minor, adverse cumulative impacts on marine
13 mammals could occur under Alternative 1 on Saipan. Some of the DOD projects in the region
14 would result in increases in noise from low-flying aircraft or other training activities. These
15 include operations associated with MIRC and MITT actions. While these activities have the
16 potential to result in an increase in noise over the nearshore waters Saipan, this impact is
17 expected to be negligible. It is extremely unlikely that individual animals would be repeatedly
18 exposed to low-altitude overflights. As such, Alternative 1 would have a negligible contribution
19 on cumulative impacts.

20 5.3.7.2 Alternative 2 – Modified Tinian Alternative

21 No Divert-related construction would occur in the marine waters. The operational effects from
22 Alternative 2 implementation would have short-term, periodic, minor, adverse cumulative
23 impacts on sea turtles and marine mammals. Impacts from implementing either the North or
24 South Options would be the same.

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

37 **Marine Mammals.** Short-term, periodic, minor, adverse cumulative impacts on marine
38 mammals could occur under Alternative 2. Some of the DOD projects in the region would result
39 in increases in noise from low-flying aircraft or other training activities. These include activities
40 associated with the MITT and CJMT activities. It is extremely unlikely that individual animals
41 would be repeatedly exposed to low-altitude overflights of Divert and other DOD projects. As
42 such, Alternative 2 would have a negligible contribution to cumulative impacts.

1 5.3.7.3 Alternative 3 – Hybrid Modified Alternative

2 No Divert-related construction would occur in the marine waters. The operational effects from
3 Alternative 3 implementation at Saipan and Tinian would have short-term, periodic, minor,
4 adverse cumulative impacts on sea turtles and marine mammals. Impacts from implementing
5 either the Tinian North or Tinian South Options would be the same.

6 **Sea Turtles.** Short-term, periodic, minor, adverse cumulative impacts on sea turtles could
7 occur under the Alternative 3 Implementation Phase on Saipan and Tinian. A similar or lower
8 number of aircraft flights would be conducted from each island under this alternative, and the
9 effects will therefore be similar to or less than those described for the other two alternatives.

10 **Marine Mammals.** Short-term, periodic, minor, adverse cumulative impacts on marine
11 mammals could occur under the Alternative 3 Implementation Phase on Saipan and Tinian. A
12 similar or lower number of aircraft flights would be conducted from each island under this
13 alternative, and the effects will therefore be similar to or less than those described for the other
14 two alternatives.

15 5.3.8 Cultural Resources

16 5.3.8.1 Alternative 1 – Modified Saipan Alternative

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

20 Construction at Saipan International Airport could have minor, adverse cumulative impacts on
21 contributing elements of the Aslito/Isley Field NHLD by introducing new facilities that alter the
22 viewshed of nearby historic structures. Because the Construction Phase of the Modified Saipan
23 Alternative would only have direct adverse impacts to features not recommended as
24 contributing to the NHL, these impacts would not be considered significant for NEPA purposes.
25 Inadvertent direct impacts to unrecorded cultural resources, particularly buried archaeological
26 sites, are possible during construction but unlikely given the extent of previous cultural
27 resources survey coverage. Construction would adhere to best practices designed to address
28 any inadvertent impacts to previously unreported resources. The operational phase of
29 Alternative 1 is expected to have no impact on cultural resources.

30 Other projects are planned on Saipan that would involve ground-disturbing activities
31 (e.g., wastewater system improvements and planned hotel resorts), though the specific cultural
32 resources potentially affected are not known at this time. It is anticipated that all new
33 development activities on Saipan would involve coordination with the CNMI HPO and that
34 mitigation would occur where necessary to protect cultural resources. Mitigations and
35 management actions pertaining to cultural resources will be determined through the Section 106
36 consultation process.

37 For the Divert actions, the USAF will complete Section 106 consultation that culminates in an
38 agreement document signed by consulting parties. This process will be completed prior to
39 implementing any actions proposed in the EIS.

1 5.3.8.2 Alternative 2 – Modified Tinian Alternative

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

5 5.3.8.2.1 North Option

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

18 Other projects are planned on Tinian that would involve ground-disturbing activities (e.g., CJMT
19 actions, and the planned housing and hotel resort developments), though the specific cultural
20 resources potentially affected are not entirely known at this time. It is anticipated that all new
21 development activities on Tinian would involve coordination with the CNMI HPO and that
22 mitigation would occur where necessary to protect cultural resources. Mitigations and
23 management actions pertaining to cultural resources will be determined through the Section 106
24 consultation process. For the proposed CJMT construction projects, impacts on cultural
25 resources are expected to be mitigated to less than significant levels (DON 2015a).

26 For the Divert actions, the USAF will complete Section 106 consultation that culminates in an
27 agreement document signed by consulting parties. This process will be completed prior to
28 implementing any actions proposed in the EIS.

29 5.3.8.2.2 South Option

30 Under the Alternative 2 South Option, major, adverse cumulative impacts would be consistent
31 with those described for the North Option. Construction at Tinian International Airport under the
32 South Option would also occur within West Field (Site TN-6-0030) and could have similarly
33 effects. Just as for the North Option, the operational phase for the South Option is expected to
34 have no impact on cultural resources.

35 Other projects on Tinian are expected to involve coordination with the CNMI HPO, and that
36 mitigation would occur where necessary to protect cultural resources. Mitigations and
37 management actions pertaining to cultural resources will be determined through the Section 106
38 consultation process. For the Divert actions, the USAF will complete Section 106 consultation
39 that culminates in an agreement document signed by consulting parties. This process will be
40 completed prior to implementing any actions proposed in the EIS.

1 5.3.8.3 Alternative 3 – Hybrid Modified Alternative

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

6 5.3.8.3.1 Hybrid Modified – Saipan

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

14 Other projects on Saipan are expected to involve coordination with the CNMI HPO, and that
15 mitigation would occur where necessary to protect cultural resources. Mitigations and
16 management actions pertaining to cultural resources will be determined through the Section 106
17 consultation process. For the Divert actions, the USAF will complete Section 106 consultation
18 that culminates in an agreement document signed by consulting parties. This process will be
19 completed prior to implementing any actions proposed in the EIS.

20 5.3.8.3.2 Hybrid Modified – Tinian

21 5.3.8.3.2.1 NORTH OPTION

22 Under the Alternative 3 Tinian North Option, cumulative impacts would be similar to those for
23 Alternative 2. Major, adverse cumulative impacts could occur on the West Field (Site TN-6-
24 0030) archaeological site at Tinian International Airport. This alternative would have a reduced
25 likelihood of inadvertent impacts to unrecorded cultural resources compared to Alternative 2,
26 due to smaller construction footprints. Additionally, the operational phase for the North Option is
27 expected to have no impact on cultural resources.

28 Other projects on Tinian are expected to involve coordination with the CNMI HPO, and that
29 mitigation would occur where necessary to protect cultural resources. Mitigations and
30 management actions pertaining to cultural resources will be determined through the Section 106
31 consultation process. For the Divert actions, the USAF will complete Section 106 consultation
32 that culminates in an agreement document signed by consulting parties. This process will be
33 completed prior to implementing any actions proposed in the EIS.

34 5.3.8.3.2.2 SOUTH OPTION

35 For the Alternative 3 Tinian South Option, cumulative impacts would be similar to those for
36 Alternative 2. Major, adverse cumulative impacts could occur on the West Field (Site TN-6-
37 0030) archaeological site at Tinian International Airport. This alternative would have a reduced
38 likelihood of inadvertent impacts to unrecorded cultural resources compared to Alternative 2,
39 due to smaller construction footprints. Just as for Alternative 2, the operational phase for the
40 North Option is expected to have no impact on cultural resources.

1 Other projects on Tinian are expected to involve coordination with the CNMI HPO, and that
2 mitigation would occur where necessary to protect cultural resources. Mitigations and
3 management actions pertaining to cultural resources will be determined through the Section 106
4 consultation process. For the Divert actions, the USAF will complete Section 106 consultation
5 that culminates in an agreement document signed by consulting parties. This process will be
6 completed prior to implementing any actions proposed in the EIS.

7 5.3.9 Recreation

8 5.3.9.1 Alternative 1 – Modified Saipan Alternative

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

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

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

26 5.3.9.2 Alternative 2 – Modified Tinian Alternative

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

29 5.3.9.2.1 North Option

30 Under the Alternative 2 North Option, impacts on recreational resources due to construction at
31 Tinian International Airport would be similar to those described under Alternative 1, but to a
32 greater extent. The Divert actions and other planned projects on Tinian (i.e., CJMT, Tinian
33 Ocean View Resort, Plumeria Resort and Casino, West San Jose Village Homesteads, and
34 others) would be larger in scale. Short-term, moderate, adverse cumulative impacts on
35 recreational resources could occur if multiple construction projects were to occur
36 simultaneously. Travel times to recreational resources could be increased, which could
37 inconvenience tourists. Also, it could become difficult for tourists to find available lodging when
38 upwards of 2,000 workers are on the island to support Divert and other large projects. Local
39 lodging establishments, however, would be informed well in advance and could alert potential

1 tourists to any temporary unavailability of lodging. Additionally, the Tinian Ocean View Resort
2 may include construction of workforce housing for the estimated 750 workers needed.

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

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

15 *5.3.9.2.2 South Option*

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

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

24 *5.3.9.3 Alternative 3 – Hybrid Modified Alternative*

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

28 *5.3.9.3.1 Hybrid Modified – Saipan*

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

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

36 *5.3.9.3.2 Hybrid Modified – Tinian*

37 **5.3.9.3.2.1 NORTH OPTION**

38 Under Alternative 3 at Tinian, recreational impacts due to construction on the north side of
39 Tinian International Airport would be similar to those described for the Alternative 2 North

1 Option, but to a lesser extent because of the smaller construction area. If several of the large
2 projects planned on the island were to occur simultaneously, short-term, moderate, adverse
3 cumulative impacts on recreational resources could occur.

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

6 5.3.9.3.2.2 SOUTH OPTION

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

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

14 5.3.10 Land Use

15 5.3.10.1 Alternative 1 – Modified Saipan Alternative

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

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

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

26 5.3.10.2 Alternative 2 – Modified Tinian Alternative

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

29 5.3.10.2.1 North Option

30 During construction for the Alternative 2 North Option on Tinian, no cumulative impacts on land
31 and submerged land use are expected at Tinian International Airport or the Port of Tinian. The
32 USAF would obtain the necessary authority or minimum property interest necessary to construct
33 the Divert facilities on public lands near the airport and would maintain some of the facilities as
34 common-use facilities for use by the CPA and other airport users. Although the proposed Divert
35 fuel tanks and the Tinian Ocean View Resort would both be located in the Port of Tinian, they
36 would not be close to each other or conflict with each other should construction of both occur
37 simultaneously.

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

15 *5.3.10.2.2 South Option*

16 Just as for the Alternative 2 North Option, construction of the South Option is expected to have
17 no cumulative impacts on land and submerged land use at Tinian International Airport or the
18 Port of Tinian. The USAF would obtain the necessary authority or minimum property interest
19 necessary to construct the Divert facilities on public lands near the airport and would maintain
20 some of the facilities as common-use facilities for use by the CPA and other airport users.

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

27 *5.3.10.3 Alternative 3 – Hybrid Modified Alternative*

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

30 *5.3.10.3.1 Hybrid Modified – Saipan*

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

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

1 5.3.10.3.2 *Hybrid Modified – Tinian*

2 5.3.10.3.2.1 NORTH OPTION

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

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

10 5.3.10.3.2.2 SOUTH OPTION

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

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

17 5.3.11 Transportation

18 5.3.11.1 Alternative 1 – Modified Saipan Alternative

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

21 Short-term, minor to moderate, adverse cumulative impacts on Saipan local roadways could
22 occur if multiple construction projects, such as the planned hotel resorts, were to occur
23 simultaneously during the Divert construction. Between the Divert actions and other projects,
24 upwards of 500 to 1,000 workers or more could be on the island for weeks or months at a time.
25 Increased traffic congestion would reduce the current roadway LOS and cause additional stress
26 to road surfaces resulting in deterioration (e.g., rutting, cracking, and breakup) of pavements.

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

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

35 5.3.11.2 Alternative 2 – Modified Tinian Alternative

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

1 *5.3.11.2.1 North Option*

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

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

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

19 *5.3.11.2.2 South Option*

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

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

28 *5.3.11.3 Alternative 3 – Hybrid Modified Alternative*

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

33 *5.3.11.3.1 Hybrid Modified – Saipan*

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

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

3 *5.3.11.3.2 Hybrid Modified – Tinian*

4 **5.3.11.3.2.1 NORTH OPTION**

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

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

13 **5.3.11.3.2.2 SOUTH OPTION**

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

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

21 **5.3.12 Hazardous Materials and Wastes**

22 **5.3.12.1 Alternative 1 – Modified Saipan Alternative**

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

25 On Saipan, short- and long-term, minor, adverse cumulative impacts associated with hazardous
26 materials, hazardous wastes, and petroleum products would be expected under Alternative 1.
27 Implementation of many of the projects identified in **Section 5.2** would require additional
28 quantities of hazardous materials and petroleum products to be delivered, stored, and used on
29 Saipan on a short-term basis during construction and on a long-term basis during operations.
30 Increases in the amount of hazardous materials and petroleum products used, and hazardous
31 wastes generated, when combined with the effects from Alternative 1, are not expected to be
32 significant.

33 Hazardous wastes generated by the U.S. military would be transported to Guam for disposal
34 through the DLA Disposition Service. Additionally, implementation of Alternative 1 might require
35 Saipan International Airport to reevaluate its RCRA SQG status should any changes in the
36 amounts and types of hazardous wastes stored and generated at the airport exceed SQG
37 threshold limits. All hazardous wastes would be stored, handled, and disposed of in accordance
38 with Federal, CNMI, and applicable DOD hazardous waste management regulations. No

1 cumulative impacts would result with respect to existing contamination areas, ACMs, LBPs,
2 PCBs, pesticides, and radon.

3 5.3.12.2 Alternative 2 – Modified Tinian Alternative

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

6 For both the North and South Options at Tinian, hazardous material and waste related impacts
7 would be similar to Alternative 1, resulting in short- and long-term, minor, adverse cumulative
8 impacts. Implementation of many projects identified in **Section 5.2** would require additional
9 quantities of hazardous materials and petroleum products to be delivered, stored, and used on
10 Tinian on a short-term basis during construction and on a long-term basis during operations.
11 Increases in the amount of hazardous materials and petroleum products used, and hazardous
12 wastes generated, when combined with the effects from Alternative 2, are not expected to be
13 significant.

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

23 5.3.12.3 Alternative 3 – Hybrid Modified Alternative

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

29 5.3.13 Infrastructure and Utilities

30 5.3.13.1 Alternative 1 – Modified Saipan Alternative

31 On Saipan, short-term, negligible to minor, adverse cumulative impacts on airport and seaport
32 operations, and on utilities, would be expected during construction. For operations, long-term,
33 minor, beneficial cumulative impacts would occur from increased aircraft parking and increased
34 liquid fuel supplies at the airport and seaport. Additionally, long-term, negligible to minor,
35 adverse cumulative impacts on utilities would occur.

36 Completion of Divert construction would occasionally disrupt commercial aircraft operations at
37 Saipan International Airport. Impacts, however, would be minimized by optimizing the
38 scheduling of construction and commercial flights to limit overlap. At the Port of Saipan, Divert-

1 related fuel tank construction would to have negligible effects on port operations and
2 infrastructure.

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

14 For operations at Saipan International Airport, the Divert-related expansion would benefit airport
15 operations by providing increased aircraft parking capacity. The USAF would coordinate with
16 CPA to determine potential common use of infrastructure improvements. Both the airport and
17 seaport also would benefit from the increased liquid fuel supply provided by the Divert project.

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

25 5.3.13.2 Alternative 2 – Modified Tinian Alternative

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

30 During operations, there would be long-term, minor to moderate, adverse cumulative impacts on
31 airport operations due to increased military flights, but long-term, minor, beneficial cumulative
32 impacts from increased aircraft parking. Other minor, beneficial effects would come from
33 increased liquid fuel supplies at the airport and seaport. Additionally, long-term, negligible to
34 minor, adverse cumulative impacts on utilities would occur.

35 5.3.13.2.1 North Option

36 Similar to Alternative 1, completion of Divert construction at Tinian International Airport would
37 occasionally disrupt other military and commercial aircraft operations. These impacts, however,
38 would be minimized by optimizing the scheduling of construction and flights to limit overlap. At
39 the Port of Tinian, Divert fuel tank construction would have negligible effects on port operations
40 and infrastructure.

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

9 The USAF would coordinate with the CUC to ensure the water supply is sufficient for Divert
10 actions. To help compensate for increased stresses on the water system and supply, the CJMT
11 project proposes to include new potable extraction wells on the MLA for military use and the
12 CNMI would construct a 0.5-million gallon reservoir in Carolina Heights. As more groundwater
13 is withdrawn, the potential for saltwater intrusion into aquifers increases. Currently, there is no
14 centralized wastewater collection, treatment, or disposal system on Tinian. Requirements for
15 wastewater treatment and disposal are provided by each entity for their own needs. The only
16 current solid waste facility on Tinian is non-USEPA compliant, and its ability to accommodate
17 additional stresses has been in decline. There are plans to close the existing Tinian Solid
18 Waste Facility and replace it, but until then, construction solid wastes must be transferred off-
19 island to a USEPA-compliant landfill. Other ongoing and future improvements to these
20 infrastructure systems would help meet current and future demand, and also improve system
21 reliability.

22 In addition to the Divert operations at Tinian International Airport, implementation of up to 9,244
23 CJMT aircraft operations per year would result in major, but non-significant impacts on existing
24 airport facilities. Intermittent delays for civil and commercial aircraft would likely result
25 periodically when the U.S. military training occupies the runway. Increased maintenance of the
26 main runway is also anticipated. The 720 annual Divert aircraft operations would have a
27 minimal additive effect on airport usage, lasting only 8 weeks per year. Also, the Divert facility
28 expansion would benefit airport operations by providing increased aircraft parking capacity. The
29 USAF would coordinate with the CPA to determine potential common use of infrastructure
30 improvements. Both the airport and seaport would also benefit from the increased liquid fuel
31 supply provided by the Divert project.

32 The Divert operations and personnel, in combination with the CJMT actions and personnel, and
33 the added hotel resorts and tourist population, would require increased usage of utility systems,
34 particularly water, sewer, and electrical. As previously mentioned, most systems have sufficient
35 capacities to handle the increased demands. For the CJMT project, the addition of new potable
36 extraction wells and wastewater treatment/disposal systems should address most needs on the
37 MLA. Until a new municipal solid waste facility can be established on Tinian, all solid waste
38 would be collected and transported off the island using commercial solid waste haulers and
39 commercial barges or ships. Other ongoing and future improvements to these utility and
40 infrastructure systems would help meet current and future demand and improve system
41 reliability.

1 5.3.13.2.2 *South Option*

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

6 5.3.13.3 *Alternative 3 – Hybrid Modified Alternative*

7 5.3.13.3.1 *Hybrid Modified – Saipan*

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

11 5.3.13.3.2 *Hybrid Modified – Tinian*

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

15 5.3.14 *Socioeconomics and Environmental Justice*

16 5.3.14.1 *Alternative 1 – Modified Saipan Alternative*

17 SOCIOECONOMICS

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

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

33 **Economic Characteristics.** Construction and operations for Divert and other projects would
34 result in short-term and long-term, moderate, beneficial cumulative impacts on the economy of
35 Saipan due to increases in employment, and increased spending on goods and services.
36 Indirect beneficial impacts would likely result from secondary increased spending from the
37 increased population (construction workers and long-term personnel) and economic advantages
38 of the increased efficiency and enhancement of infrastructure on Saipan.

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

8 **Sociocultural Issues.** Short-term, negligible to minor, adverse and long-term, minor adverse
9 cumulative impacts could occur. All Divert-related construction at the airport would occur on
10 land owned by the CPA. At the Port of Saipan, construction would occur on land currently
11 leased by the U.S. government. The USAF would obtain the necessary authority or minimum
12 property interest necessary to construct the facilities on public lands. Land currently available to
13 Chamorros and Carolinians, and other Saipan residents, would not be removed from their use
14 during construction. The ownership status and use of lands planned for other non-military
15 projects is undetermined. The majority of construction workers would be from Saipan or the
16 CNMI, and most likely would be familiar and respectful of the local culture and customs. During
17 long-term operations, the increase in military and commercial air traffic would result in minor
18 increases in noise on the local communities, although the Divert operations would only occur 8
19 weeks per year and have a small additive effect to noise levels.

20 ENVIRONMENTAL JUSTICE

21 Short-term and long-term, disproportionately high and adverse cumulative impacts could occur
22 on minority populations due to noise. Approximately 98 percent of the total population of Saipan
23 is considered a minority, and approximately 53 percent of the population is low-income. Divert-
24 related construction would impact Districts 1 and 2, which have disproportionately high minority
25 populations. Possible adverse impacts would include increased traffic and construction noise.
26 Other projects planned on Saipan could have similar impacts on nearby communities. During
27 long-term operations, noise from increased military and commercial air traffic would
28 disproportionately impact the high minority populations within District 1, although the Divert
29 operations would only occur 8 weeks per year.

30 5.3.14.2 Alternative 2 – Modified Tinian Alternative

31 5.3.14.2.1 North Option

32 SOCIOECONOMICS

33 **Population Characteristics.** Short-term, moderate, adverse cumulative impacts could occur.
34 Cumulative impacts under Alternative 2 would be similar to, but greater than, those described
35 for Alternative 1. On Tinian, several large projects, including the CJMT proposal, the large hotel
36 resorts, and the new homestead development, would result in short-term temporary and long-
37 term periodic population increases on Tinian. During simultaneous construction projects,
38 upwards of 1,500 to 2,000 or more workers could be on the island. During Divert operations, up
39 to 265 military personnel would be on the island to provide airfield support, but for only 8 weeks
40 per year. Although unknown, the number of visiting tourists and hotel workers is expected to
41 increase substantially once the new resorts begin operations. Such build-ups in population,
42 however, are likely to occur slowly over several years. For the CJMT training and testing

1 actions on Tinian, military personnel numbers could range from as few as 30 to 3,000 personnel
2 (assumes a maximum of 2,200 training personnel with potential overlap of pre- or post-training
3 parties). On average, over the course of a year, 771 training personnel would be on Tinian
4 (DON 2015a).

5 **Housing.** Short-term, minor, adverse and long-term, minor, beneficial cumulative impacts could
6 occur. Cumulative impacts under Alternative 2 would be similar to, but greater than, those
7 described for Alternative 1. If multiple construction projects, including Divert, were to occur
8 simultaneously on Tinian, a shortage of hotel rooms for workers could occur, but it is unlikely if
9 construction contractors coordinate with the existing hotels well in advance. Additionally, the
10 planned Tinian Ocean View Resort may include construction of workforce housing for the
11 estimated 750 workers needed. During long-term operations, hotel room availability is expected
12 to increase and present little problem for military, civilian workers, and tourists to find housing.
13 In addition to use of temporary shelters (tents and bivouacs) by training personnel, the CJMT is
14 planning to include additional billeting on the MLA that could be utilized by the USAF.

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

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

30 **Sociocultural Issues.** Short-term, negligible to minor, adverse and long-term, adverse
31 cumulative impacts could occur. Cumulative impacts under Alternative 2 would be similar to
32 those described for Alternative 1. All Divert-related construction would occur on lands managed
33 by the CPA. The USAF would obtain the necessary authority or minimum property interest
34 necessary to construct the facilities on public lands. Land currently available to Chamorros and
35 Carolinians, and other Tinian residents, would not be removed from their use during
36 construction. The ownership status and use of lands planned for other non-military projects is
37 undetermined. The majority of construction workers would be from Tinian or the CNMI, and
38 would most likely be familiar with and respectful of the local culture and customs. During long-
39 term operations, the increase in military and commercial air traffic would result in major
40 increases in noise on the local communities, although the Divert operations would only occur 8
41 weeks per year and have a small additive effect to noise levels.

ENVIRONMENTAL JUSTICE

Short-term and long-term, disproportionately high and adverse cumulative impacts could occur on minority populations due to noise. Approximately 98 percent of the total population of Tinian is considered a minority, and approximately 44 percent of the population is low-income. Divert-related construction would impact District 6, which has disproportionately high minority population. Possible adverse impacts would include increased traffic and construction noise. Other projects planned on Tinian could have similar impacts on nearby communities. During long-term operations, noise from increased military and commercial air traffic would disproportionately impact high minority populations, 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 (500 workers at peak construction periods instead of 750) 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 (250 workers at peak construction periods instead of 500) 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 personal protective equipment 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

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

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

11 5.3.15.2 Alternative 2 – Modified Tinian Alternative

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

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

34 5.3.15.3 Alternative 3 – Hybrid Modified Alternative

35 5.3.15.3.1 Hybrid Modified – Saipan

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

38 5.3.15.3.2 Hybrid Modified – Tinian

39 Under Alternative 3 for the Tinian North and South Options, overall health and safety cumulative
40 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), carbon dioxide (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.**

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.

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

9 5.7 Irreversible and Irretrievable Commitments of 10 Resources

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

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

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

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

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

30 **Landfill Space.** The generation of construction debris and subsequent disposal of that debris in
31 a landfill would be an irretrievable, adverse impact. Construction contractors would be expected
32 to recycle, to the greatest extent possible, any debris that is generated. Recycling wastes would
33 reduce irretrievable impacts on landfills. However, any waste generated by the Proposed Action
34 that is disposed of in a landfill would be considered an irretrievable loss of that landfill space.

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

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- 37 *Socioeconomics and Environmental Justice*
- 38 M.E.S.M. Environmental Science and
- 39 Management
- 40 B.S. Biology
- 41 Years of Experience: 9

- 42 **Jeff Hokanson**
- 43 *Cultural Resources*
- 44 M.A. Anthropology
- 45 Years of Experience: 20

- 46 **Chris Holdridge**
- 47 *Hazardous Materials and Wastes,*
- 48 *Infrastructure and Utilities, Human Health*
- 49 *and Safety, QC/QC*
- 50 M.S. Environmental Assessment
- 51 B.S. Environmental Science/Chemistry
- 52 Years of Experience: 18

- 53 **Brian Hoppy**
- 54 *QA/QC*
- 55 B.S. Biology
- 56 Certificate of Environmental Management
- 57 Years of Experience: 24

- 58 **Christopher McJetters**
- 59 *Technical Editor*
- 60 B.S. English
- 61 Years of Experience: 10

- 62 **Tara Kramer**
- 63 *Transportation*
- 64 M.S. Transportation Engineering
- 65 B.S. Civil Engineering
- 66 Years of Experience: 14

- 67 **Joseph Kriz**
- 68 *Cumulative Effects*
- 69 B.S. Biology
- 70 B.A. Geoenvironmental Studies
- 71 Years of Experience: 30

- 1 **Ed Lynch**
- 2 *Program Manager, QA/QC*
- 3 J.D.
- 4 B.A. Political Science
- 5 Years of Experience: 36

- 6 **Sean McCain**
- 7 *Air Quality*
- 8 M.B.A. Business Administration
- 9 B.S. Forestry and Natural Resources
- 10 Management
- 11 Years of Experience: 15

- 12 **Sean McNeil**
- 13 *Air Quality*
- 14 M.S. Environmental Engineering
- 15 Years of Experience: 4

- 16 **Darrell Molzan**
- 17 *Noise*
- 18 B.S. Civil Engineering
- 19 Years of Experience: 29

- 20 **Cheryl Myers**
- 21 *Document Production*
- 22 A.A.S. Nursing
- 23 Years of Experience: 24

- 24 **Steve Peluso, CHMM, CPEA**
- 25 *Air Quality*
- 26 B.S. Chemical Engineering
- 27 Years of Experience: 26

- 28 **Tanya Perry**
- 29 *Noise*
- 30 B.S. Environmental Science
- 31 B.A. Communications
- 32 Years of Experience: 11

- 33 **Max Pinnola**
- 34 *Infrastructure and Utilities*
- 35 M.S. Sustainable Development
- 36 B.A. Environmental Policy and Science
- 37 Years of Experience: 1

- 38 **Stephen Pyle**
- 39 *Project Manager*
- 40 J.D. with Certification in Environmental Law
- 41 B.S. Natural Resources Management
- 42 Years of Experience: 16

- 43 **Kurt Rautenstrauch**
- 44 *Biological Resources*
- 45 Ph.D. Wildlife and Fisheries Science
- 46 M.S. Wildlife and Fisheries Science
- 47 B.S. Wildlife Management
- 48 Years of Experience: 26

- 49 **Lisa Richardson**
- 50 *Transportation*
- 51 M.S. Plan Sciences (Community and
- 52 Regional Planning)
- 53 B.S. Civil Engineering
- 54 Years of Experience: 19

- 55 **Jennifer Rose**
- 56 *Geological Resources and Soils*
- 57 M.S. Environmental Science and Policy
- 58 B.S. Geology
- 59 Years of Experience: 5

- 60 **Carl Siebe, PE**
- 61 *Airspace/Airfield Environment*
- 62 BS Engineering Management
- 63 Years of Experience: 41

- 64 **Jason Smiley**
- 65 *GIS/Graphics*
- 66 M.S. Geography
- 67 B.S. Education
- 68 Years of Experience: 12

- 69 **Emily Smith**
- 70 *Deputy Project Manager*
- 71 M.R.L.S. Natural Resources Law Studies
- 72 B.A. Biology
- 73 Years of Experience: 10

- 74

- 1 **Patrick Solomon**
- 2 *Recreation, Land Use and Submerged Land*
- 3 *Use*
- 4 M.S. Geography
- 5 B.A. Geography
- 6 Years of Experience: 18

- 7 **Nicholas Stadille**
- 8 *GIS/Graphics*
- 9 B.S. Geographic Information Science
- 10 Years of Experience: 5

- 11 **Audrey Stuller**
- 12 *Water Resources*
- 13 M.S. Environmental Science and Policy
- 14 B.S. Wildlife Science
- 15 Years of Experience: 6

- 16 **Adam Teepe**
- 17 *Land Use and Submerged Land Use*
- 18 M.S. Environmental Science and
- 19 Management
- 20 B.S. Environmental Geology
- 21 Years of Experience: 10

- 22

- 23 **Ryan Thompson**
- 24 *QA/QC*
- 25 B.S. Environmental Policy and Planning
- 26 Years of Experience: 14

- 27 **Philip Thorson**
- 28 *Marine Biological Resources*
- 29 Ph.D. Biology
- 30 Years of Experience: 30

- 31 **Lauri Watson**
- 32 *Document Management/Production*
- 33 B.S. Environmental Science
- 34 Years of Experience: 10

- 35 **Valerie Whalon**
- 36 *Marine Biological Resources*
- 37 M.S. Fisheries Science
- 38 B.S. Marine Science
- 39 Years of Experience: 19

- 40 **Mary Young**
- 41 *Cumulative Impacts*
- 42 B.S. Environmental Science
- 43 Years of Experience: 10

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8. Acronyms and Index

8.1 Acronyms and Abbreviations

µg/m ³	micrograms per cubic meter	ARTCC	Air Route Traffic Control Center
A5U	Strategy, Policy, and Requirements Division	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
AFH	Air Force Handbook	BEAR	Basic Expeditionary Airfield Resources
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	CFR	Code of Federal Regulations
AMSL	above mean sea level	CGP	Construction General Permit
AOC	Area of Concern	CHC	Commonwealth Health Center
AOR	Area of Responsibility	ChST	Chamorro Standard Time
APC	Area of Particular Concern	CJMT	CNMI Joint Military Training
APE	area of potential effect	cm	centimeters
AQCR	air quality control region		
ARFF	Airport Rescue and Firefighting		

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

FPPA	Farmland Protection Policy Act	INRMP	Integrated Natural Resources Management Plan
FR	Federal Register		
ft ²	square feet	IO	Isolated Occurrence
ft ³	cubic feet	ISR/Strike	Intelligence, Surveillance, Reconnaissance, and Strike
FY	Fiscal Year		
GEPA	Guam Environmental Protection Agency	J4	Joint Region Marianas Regional Engineer
GHG	greenhouse gas	JGPO	Joint Guam Program Office
gph	gallons per hour	JRM	Joint Region Marianas
gpm	gallons per minute	kg	kilogram
GVW	gross vehicle weight	km	kilometers
HACCP	Hazard Analysis and Critical Control Points	km ²	square kilometers
HANMI	Hotel Association of the Northern Mariana Islands	kV	kilovolt
HIES	Household, Income, and Expenditures Survey	kVA	kilovolt-ampere
HIRL	Runway Edge Lights, High Intensity	kW	kilowatt
HPO	Historic Preservation Office	LBA	Leaseback Area
HUD	U.S. Department of Housing and Urban Development	LBP	Lead-based Paint
IBB	U.S. Government International Broadcasting Bureau	LEED	Leadership in Energy and Environmental Design
IBD	Inhabited Building Distance	LOA	Letter of Authorization
ICE	Internal Combustion Engine	LOC	Localizer
IFR	Instrument Flight Rules	LOS	level of service
IHA	Incidental Harassment Authorization	LTO	landing and takeoff
IICEP	Interagency and Intergovernmental Coordination for Environmental Planning	MAJCOM	Major Command
ILS	Instrument Landing System	MALSR	Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights
INM	Integrated Noise Model	MARFORPAC	Marine Corps Forces Pacific
		MBTA	Migratory Bird Treaty Act
		mg/m ³	milligrams per cubic meter
		mi ²	square miles
		MIMC	Military Integration Management Committee

MIRC	Mariana Island Range Complex	NOAA	National Oceanic and Atmospheric Administration
MIRL	Runway Edge Lights, Medium Intensity	NOI	Notice of Intent
MITT	Mariana Islands Training and Testing	NO _x	nitrogen oxides
		NPDES	National Pollutant Discharge Elimination System
MLA	Military Lease Area		
mm	millimeters	NPS	National Park Service
MMPA	Marine Mammal Protection Act	NRHP	National Register of Historic Places
mph	miles per hour	O ₃	Ozone
MS4	Municipal Separate Storm Sewer System	OE/AAA	Obstruction Evaluation/Airport Airspace Analysis
MSFCMA	Magnuson-Stevens Fishery Conservation and Management Act	OEIS	Overseas Environmental Impact Statement
MSWF	Marpi Solid Waste Facility	OFA	Object Free Area
MW	Megawatts	OFZ	Obstacle Free Zone
MWh	Megawatt Hours	OPA	Oil Pollution Act
NAAQS	National Ambient Air Quality Standards	OSHA	Occupational Safety and Health Administration
NAVAID	Navigational Aid	P.L.	Public Law
ND	Negative Determination	PACAF	Pacific Air Forces
NDB	Non-Directional Beacon	PAPI	precision approach path indicator
NEPA	National Environmental Policy Act	Pb	lead
NHL	National Historic Landmark	PCB	polychlorinated biphenyl
NHPA	National Historic Preservation Act	pCi/L	picocuries per liter
		PM ₁₀	Particulate Matter 10 microns in diameter
NM	nautical miles		
NM ²	square nautical miles	PM _{2.5}	Particulate Matter 2.5 microns in diameter
NMFS	National Marine Fisheries Service	POL	petroleum, oil, and lubricant
NMTIT	Northern Marianas territorial income tax	ppb	parts per billion
		PPE	Personal Protection Equipment
NO ₂	nitrogen dioxide		
NOA	Notice of Availability	ppm	parts per million

PSD	Federal Prevention of Significant Deterioration	TPH	Total Petroleum Hydrocarbon
QDR	Quadrennial Defense Review	tpy	Tons per year
RCRA	Resource Conservation and Recovery Act	TSA	Transportation Security Administration
RDT&E	Research, Development, Test, and Evaluation	TSCA	Toxic Substances Control Act
REIL	Runway End Identifier Lights	U.S.C.	United States Code
RNAV	Area Navigation	UFC	Unified Facilities Criteria
ROD	Record of Decision	USACE	U.S. Army Corps of Engineers
RPZ	Runway Protection Zone	USAF	U.S. Air Force
RSA	Runway Safety Area	USDA-WS	U.S. Department of Agriculture-Wildlife Services
RT	Revenue Tons	USEPA	U.S. Environmental Protection Agency
RTA	range and training area	USFWS	U.S. Fish and Wildlife Service
RWY	runway	USGS	U.S. Geological Survey
SDWA	Safe Drinking Water Act	USMC	U.S. Marine Corps
SEL	Sound Exposure Level	UST	Underground storage tank
SHPO	State Historic Preservation Office	UXO	unexploded ordnance
SIP	State Implementation Plan	VASI	Visual Approach Slope Indicator
SMS	Safety Management System	VOC	Volatile organic compound
SO ₂	sulfur dioxide	WHA	Wildlife Hazard Assessment
SPCC	Spill Prevention, Control, and Countermeasures	WHMP	Wildlife Hazard Management Plan
SQG	Small-Quantity Generator	WI	Wing Instruction
SUA	Special Use Airspace	WTO	World Trade Organization
SWPPP	Storm Water Pollution Prevention Plan	yds ³	cubic yards
TERPS	Terminal instrument procedures		
TIM	Time-in-mode		
TMDL	Total Maximum Daily Load		

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8.2 Index

A

air quality, ES-15, ES-27, 1-24, 3-8, 3-10, 3-11, 3-12, 3-115, 4-18, 4-19, 4-20, 4-21, 4-22, 4-23, 4-24, 4-25, 4-26, 4-27, 4-28, 4-29, 4-30, 4-31, 4-32, 4-33, 4-34, 4-35, 4-36, 4-37, 4-38, 4-39, 4-40, 4-41, 4-42, 4-43, 4-172, 4-180, 4-204, 4-215, 5-12, 5-13, 5-14, 5-43

aircraft operations, R-2, ES-8, ES-15, ES-20, ES-21, ES-23, 1-12, 2-1, 2-6, 2-10, 2-22, 2-27, 2-30, 2-34, 2-40, 3-1, 3-4, 3-5, 3-7, 3-24, 3-54, 3-92, 3-107, 3-112, 3-127, 3-128, 3-136, 4-1, 4-4, 4-5, 4-6, 4-11, 4-12, 4-17, 4-21, 4-22, 4-30, 4-37, 4-38, 4-50, 4-55, 4-69, 4-70, 4-73, 4-77, 4-88, 4-94, 4-97, 4-101, 4-106, 4-107, 4-139, 4-140, 4-142, 4-147, 4-151, 4-154, 4-156, 4-159, 4-166, 4-177, 4-186, 4-187, 4-189, 4-190, 4-191, 4-192, 4-193, 4-194, 4-195, 4-202, 4-203, 5-10, 5-11, 5-12, 5-14, 5-15, 5-21, 5-22, 5-30, 5-31, 5-35, 5-36, 5-37, 5-42

Andersen AFB, ES-3, ES-7, ES-9, ES-12, ES-13, ES-14, 1-4, 1-5, 1-6, 1-7, 1-8, 1-11, 1-16, 2-7, 2-8, 2-11, 2-12, 2-13, 2-14, 2-15, 2-16, 2-17, 2-45, 3-13, 4-4, 4-11, 4-18, 4-43, 4-51, 4-55, 4-63, 4-77, 4-83, 4-90, 4-95, 4-107, 4-123, 4-127, 4-133, 4-141, 4-169, 4-188, 4-195, 5-3

apron, R-1, ES-7, ES-9, ES-11, ES-16, 2-2, 2-5, 2-6, 2-7, 2-19, 2-21, 2-22, 2-27, 2-29, 2-30, 2-32, 2-34, 2-36, 2-38, 3-14, 3-15, 3-18, 3-25, 3-30, 3-31, 3-45, 3-49, 3-57, 3-58, 3-81, 3-101, 3-102, 3-107, 3-112, 4-16, 4-29, 4-36, 4-44, 4-46, 4-47, 4-49, 4-50, 4-65, 4-85, 4-87, 4-89, 4-96, 4-100, 4-104, 4-105, 4-125, 4-135, 4-174, 4-189, 4-191, 4-194, 4-195, 4-200, 4-202, 5-9, 5-11, 5-13, 5-17, 5-19, 5-31

aquifer, 3-33, 3-38, 3-40, 4-59, 4-60, 4-61, 4-62, 4-146, 4-165, 4-208, 5-18, 5-19, 5-20

archaeological, ES-19, ES-29, 3-74, 3-76, 3-79, 3-81, 4-85, 4-86, 4-88, 4-89, 5-25, 5-26, 5-27

archaeological resources, 3-74

Arm/Disarm Pad, 2-3, 2-42

asbestos, ES-21, 3-99, 3-103, 3-106, 3-135, 4-126, 4-130, 4-132, 4-136, 4-137, 4-138, 4-207, 4-220

B

barrier reef, 3-27, 3-28, 3-80, 3-83

bedrock, 3-26

billeting, R-1, R-2, 4-198, 4-213, 5-5, 5-40

biological, ES-18, ES-19, 1-20, 3-22, 3-24, 3-33, 3-44, 3-67, 3-135, 4-64, 4-77, 4-78, 4-80, 4-81, 4-82, 4-83, 5-22, 5-43

bird species, 3-49, 3-50, 3-61, 4-72

brackish, 3-27, 3-28, 3-33, 3-38

C

canopy, 3-45, 3-58, 3-60

Clean Air Act (CAA), 3-8

Clean Water Act (CWA), 1-9, 1-19

clearing, ES-18, 3-13, 3-14, 3-33, 3-36, 3-102, 4-56, 4-57, 4-67, 4-72, 4-75, 4-76, 4-200, 5-21, 5-22

coastal zone, 1-17, 3-85, 3-87, 3-88, 3-92, 4-96, 4-97, 4-100, 4-101, 4-104, 4-105

Commonwealth of the Northern Mariana Islands (CNMI), R-1, 1-1

communication, ES-4, ES-5, 1-15, 1-22, 2-6, 3-2, 3-14, 3-16, 3-24, 3-57, 4-18, 4-66, 4-147, 4-150, 4-153, 4-156, 4-158, 4-161, 4-164, 4-166, 4-168

conservation, 3-22, 3-24, 3-35, 3-36, 3-88, 4-196, 4-200, 4-203

contaminant, 3-10, 3-33, 3-99

contamination, ES-17, ES-21, 3-99, 3-101, 3-102, 3-103, 3-104, 3-105, 3-106, 4-53, 4-54, 4-58, 4-60, 4-61, 4-62, 4-125, 4-128, 4-130, 4-132, 4-134, 4-135, 4-137, 4-138, 4-139, 4-140, 4-207, 4-219, 5-35

coral reef, 3-30, 3-32, 3-35, 3-36, 3-39, 3-83, 3-110

D

Dandan, 3-4, 3-31, 3-32, 3-39, 3-53, 3-88, 3-123, 4-99, 4-172, 4-176
degradation, ES-16, ES-17, 3-110, 4-53, 4-54, 4-55, 4-64, 4-202, 5-21
demolition, 3-4, 3-34, 3-103, 3-106, 3-134, 4-126, 4-127, 4-131, 4-132, 4-133, 4-136, 4-137, 4-138, 4-139, 4-204, 4-215
diesel, ES-22, ES-23, 3-100, 3-101, 3-105, 3-108, 3-113, 3-114, 4-25, 4-33, 4-41, 4-124, 4-127, 4-128, 4-129, 4-134, 4-142, 4-148, 4-151, 4-152, 4-155, 4-157, 4-159, 4-160, 4-162, 5-44
discharge, 1-19, 3-33, 3-34, 3-35, 3-36, 3-39, 3-41, 3-111, 4-57, 4-144, 4-149, 4-152, 4-158, 4-160, 4-163, 4-208, 4-221
disturbance, ES-15, ES-16, ES-18, ES-27, 2-6, 2-21, 2-24, 2-30, 2-32, 3-2, 3-34, 3-45, 3-53, 4-19, 4-27, 4-29, 4-35, 4-36, 4-52, 4-53, 4-54, 4-64, 4-72, 4-86, 4-87, 4-88, 4-89, 4-96, 4-124, 4-126, 4-131, 4-202, 4-205, 4-207, 4-208, 4-216, 4-220, 5-12, 5-13, 5-14, 5-17, 5-22
drinking water, 3-33, 3-40, 4-58, 4-59, 4-146, 4-165, 4-208

E

ecosystem, 4-66
electrical, ES-21, ES-22, ES-23, ES-24, 3-103, 3-104, 3-106, 3-107, 3-108, 3-113, 4-128, 4-142, 4-145, 4-148, 4-151, 4-154, 4-156, 4-157, 4-159, 4-162, 4-165, 4-167, 5-36, 5-37
emergency, ES-7, ES-9, 1-7, 2-8, 2-13, 2-19, 2-21, 2-30, 2-34, 3-32, 3-39, 3-115, 3-130, 4-51, 4-62, 4-128, 4-155, 4-167, 4-188
emissions, ES-15, 2-25, 3-8, 3-10, 3-11, 3-12, 3-99, 4-18, 4-19, 4-20, 4-21, 4-22, 4-23, 4-24, 4-25, 4-26, 4-27, 4-28, 4-29, 4-30, 4-31, 4-32, 4-33, 4-34, 4-35, 4-36, 4-37, 4-38, 4-39, 4-40, 4-41, 4-42, 4-204, 4-215, 5-12, 5-13, 5-14, 5-44
endangered, 1-17, 2-3, 3-44, 3-57, 3-64, 3-66, 3-68, 3-70, 4-65, 4-69, 4-73, 4-74, 4-76, 4-77, 5-3, 5-21, 5-23

Energy Independence and Security Act (EISA), 3-35, 4-205, 4-217
environmental justice, ES-24, ES-25, 3-115, 3-117, 3-118, 4-169, 4-172, 4-180, 4-181, 4-183, 4-185, 4-186, 4-188, 5-41
erosion, ES-16, 1-18, 3-26, 3-34, 3-35, 3-36, 3-37, 3-67, 4-52, 4-53, 4-54, 4-57, 4-59, 4-60, 4-61, 4-78, 4-80, 4-82, 4-144, 4-149, 4-152, 4-158, 4-160, 4-163, 4-204, 4-205, 4-206, 4-216, 4-217, 5-16, 5-17, 5-18, 5-19, 5-43, 5-44
eutrophication, 3-39
excavating, 3-33, 4-56
exercise, ES-3, ES-10, ES-12, 1-8, 1-17, 1-20, 2-4, 2-9, 2-10, 2-12, 2-13, 2-19, 2-25, 2-27, 2-34, 2-36, 2-38, 2-40, 3-1, 4-4, 4-6, 4-11, 4-12, 4-14, 4-45, 4-48, 4-91, 4-93, 4-94, 4-95, 4-173, 4-182, 4-199, 4-209, 4-213, 4-222, 5-5

F

farmland, 3-26, 3-28, 3-32, 5-17
fauna, 3-47, 3-60
fish, 1-17, 1-18, 1-20, 3-22, 3-24, 3-35, 3-36, 3-65
flight, R-2, ES-8, ES-9, ES-10, 1-3, 1-16, 2-1, 2-10, 2-13, 2-18, 2-25, 3-5, 3-14, 3-15, 3-16, 3-22, 3-24, 3-65, 3-112, 4-1, 4-4, 4-5, 4-6, 4-12, 4-70, 4-170, 4-173, 4-182, 4-196, 5-9, 5-14
flood zone, 3-39, 3-41, 4-58, 4-60, 4-61
floodplain, 3-37
footprint, 2-3, 2-5, 2-6, 2-30, 2-32, 3-35, 3-117, 4-11, 4-16, 4-52, 4-54, 4-55, 4-59, 4-60, 4-61, 4-62, 4-85, 4-93, 4-100, 4-103, 4-104, 4-135, 4-136, 4-138, 4-157, 4-159, 4-160, 4-161, 4-162, 4-163, 4-164, 4-190, 4-191, 4-192, 4-193, 5-10, 5-11, 5-12, 5-14, 5-17, 5-18, 5-19, 5-20
fuel tank, ES-9, ES-10, ES-11, ES-12, 2-6, 2-16, 2-19, 2-21, 2-22, 2-25, 2-27, 2-29, 2-30, 2-32, 2-34, 2-36, 2-38, 2-39, 3-15, 3-27, 3-38, 3-47, 3-49, 3-103, 3-109, 4-3, 4-10, 4-16, 4-17, 4-23, 4-31, 4-39, 4-40, 4-59, 4-61, 4-65, 4-68, 4-76, 4-78, 4-79, 4-80, 4-85, 4-87, 4-88, 4-89, 4-96, 4-97, 4-100, 4-101, 4-103, 4-104, 4-105, 4-110, 4-114, 4-121, 4-122, 4-130, 4-142, 4-143,

4-148, 4-173, 4-174, 4-178, 4-181, 4-182,
5-5, 5-9, 5-10, 5-30, 5-36, 5-43
fueling, ES-16, 2-5, 2-22, 2-40, 3-15, 3-18,
3-19, 3-25, 3-101, 3-107, 3-109, 4-22,
4-30, 4-38, 4-45, 4-49, 4-148, 4-152,
4-160, 4-162, 4-204, 4-215

G

geology, 3-25, 3-26, 3-27, 3-29, 3-30, 4-53,
4-54, 4-55, 5-16, 5-17, 5-18
grading, 3-33, 3-36, 4-20, 4-28, 4-36, 4-56,
4-58, 4-66
greenhouse gas (GHG), 3-10
groundwater, ES-17, ES-22, ES-24, 2-30,
3-27, 3-29, 3-30, 3-33, 3-36, 3-37, 3-38,
3-40, 3-102, 3-103, 3-109, 3-110, 3-114,
4-52, 4-56, 4-57, 4-58, 4-59, 4-60, 4-61,
4-62, 4-63, 4-125, 4-147, 4-155, 4-166,
4-167, 4-168, 4-205, 4-217, 5-18, 5-19,
5-37

H

habitat, ES-18, 1-17, 1-18, 2-3, 2-15, 2-17,
2-21, 3-47, 3-50, 3-51, 3-54, 3-55, 3-56,
3-58, 3-62, 3-65, 3-66, 3-68, 3-70, 4-64,
4-65, 4-66, 4-67, 4-68, 4-70, 4-72, 4-73,
4-74, 4-75, 4-76, 4-77, 4-200, 4-201,
4-202, 5-3, 5-21, 5-44
harbor, ES-14, 2-9, 2-14, 2-15, 2-16, 2-17,
2-22, 2-25, 2-32, 2-34, 3-1, 3-47, 3-86,
3-88, 4-78, 4-79, 4-80, 4-81, 4-82, 4-83,
5-24
hazard, 1-15, 3-29, 3-32, 3-37, 3-41, 3-64,
3-87, 3-99, 3-134, 4-60
hazardous material, ES-21, ES-29, ES-30,
3-99, 3-100, 3-101, 3-104, 3-105, 3-135,
4-53, 4-58, 4-60, 4-61, 4-124, 4-127,
4-129, 4-132, 4-133, 4-135, 4-136, 4-138,
4-139, 4-140, 4-141, 4-205, 4-207, 4-217,
4-219, 5-34, 5-35
hazardous waste, 3-99, 3-100, 3-101,
3-105, 3-115, 4-124, 4-125, 4-127, 4-128,
4-129, 4-130, 4-131, 4-132, 4-133, 4-134,
4-135, 4-136, 4-138, 4-139, 4-140, 4-141,
4-171, 4-178, 4-207, 4-208, 4-207, 4-219,
4-220, 5-34, 5-35

health hazard, 4-56, 4-126, 4-128, 4-131,
4-134, 4-139, 4-140
herbaceous species, 3-47, 3-58
historic, ES-19, 1-5, 1-16, 1-19, 2-3, 2-11,
2-17, 3-2, 3-74, 3-76, 3-77, 3-78, 3-79,
3-80, 3-81, 3-83, 3-85, 3-122, 3-128,
3-129, 4-79, 4-80, 4-81, 4-82, 4-84, 4-85,
4-86, 4-87, 4-88, 4-178, 5-25, 5-27
historic district, 3-74, 3-77, 3-79, 4-85
hotel, ES-20, 3-22, 3-120, 3-128, 3-129,
4-9, 4-93, 4-170, 4-171, 4-173, 4-175,
4-177, 4-178, 4-179, 4-181, 4-182, 4-209,
5-6, 5-7, 5-9, 5-11, 5-13, 5-15, 5-16, 5-18,
5-19, 5-21, 5-22, 5-23, 5-25, 5-26, 5-28,
5-29, 5-31, 5-32, 5-33, 5-36, 5-37, 5-38,
5-39, 5-40
housing, ES-24, ES-25, ES-31, 3-3, 3-78,
3-116, 3-125, 4-93, 4-118, 4-169, 4-170,
4-171, 4-173, 4-177, 4-178, 4-180, 4-181,
4-184, 4-185, 4-186, 4-187, 5-3, 5-7, 5-9,
5-19, 5-26, 5-29, 5-38, 5-40, 5-41
human health, 3-8, 3-37, 3-99, 3-115,
3-117, 4-96, 4-124, 4-169
humanitarian, R-1, ES-3, ES-6, ES-10,
ES-11, ES-12, ES-13, 1-3, 1-5, 1-6, 1-7,
1-8, 2-4, 2-5, 2-6, 2-8, 2-9, 2-10, 2-11,
2-12, 2-14, 2-24, 2-27, 2-32, 2-33, 2-34,
2-38, 2-39, 2-40, 2-45, 3-13, 3-14, 3-15,
3-86, 4-18, 4-43, 4-51, 4-55, 4-63, 4-77,
4-83, 4-90, 4-92, 4-95, 4-107, 4-123,
4-141, 4-168, 4-173, 4-188, 4-189, 4-191,
4-194, 4-195, 4-196, 4-197, 4-211
hydrant, ES-9, ES-11, ES-22, ES-24, 2-19,
2-22, 2-27, 2-29, 2-30, 2-34, 2-36, 2-38,
2-40, 3-15, 3-18, 3-49, 3-101, 3-107,
3-109, 3-112, 3-113, 4-3, 4-53, 4-54,
4-65, 4-85, 4-96, 4-100, 4-104, 4-105,
4-125, 4-128, 4-135, 4-143, 4-155, 4-167,
4-173, 4-174, 4-205, 4-216, 5-8
hydrology, 3-35, 3-57, 3-67, 4-59, 4-205,
4-217

I

impervious, ES-17, 2-24, 2-32, 3-57, 3-111,
4-53, 4-54, 4-55, 4-57, 4-58, 4-59, 4-61,
4-62, 4-70, 4-144, 4-147, 4-149, 4-153,
4-156, 4-158, 4-161, 4-164, 4-166, 4-168,
4-205, 4-209, 4-217, 4-221, 5-18, 5-19,
5-44

impervious surface, 2-24, 2-32, 4-53, 4-54, 4-55, 4-57, 4-58, 4-59, 4-61, 4-62, 4-144, 4-147, 4-149, 4-153, 4-156, 4-158, 4-161, 4-164, 4-166, 4-168, 4-205, 4-209, 4-217, 4-221, 5-18, 5-19, 5-44

introduced species, 3-47, 3-54

invasive species, 1-10, 4-64, 4-66, 4-68, 4-69, 4-72, 4-73, 4-76, 4-196, 4-197, 4-198, 4-199, 4-201, 4-202, 4-211, 4-212, 4-213, 4-214

J

jet fuel, R-1, ES-16, ES-22, ES-23, ES-25, ES-26, 2-5, 2-6, 2-9, 2-14, 2-16, 2-18, 2-21, 2-30, 2-39, 3-100, 3-101, 3-102, 3-108, 3-109, 3-113, 4-23, 4-31, 4-38, 4-45, 4-46, 4-48, 4-49, 4-51, 4-78, 4-79, 4-80, 4-83, 4-125, 4-127, 4-130, 4-143, 4-146, 4-148, 4-152, 4-155, 4-157, 4-160, 4-162, 4-165, 4-204, 4-215, 5-15

joint military exercises, R-1, ES-3, ES-12, ES-16, 1-7, 2-8, 2-9, 2-25, 2-34, 2-39, 2-45, 3-13, 4-18, 4-43, 4-45, 4-48, 4-49, 4-51, 4-55, 4-63, 4-77, 4-83, 4-90, 4-95, 4-107, 4-114, 4-122, 4-123, 4-141, 4-169, 4-173, 4-188, 4-195, 4-196, 4-202, 4-203

L

lagoon, 3-80, 3-110

lake, 3-27, 3-54

Lake Susupe, 3-27, 3-28, 3-54

land use, ES-20, ES-29, 1-12, 2-2, 2-3, 3-3, 3-26, 3-84, 3-85, 3-87, 3-88, 3-91, 3-92, 4-3, 4-4, 4-11, 4-95, 4-96, 4-97, 4-99, 4-100, 4-101, 4-103, 4-104, 4-105, 4-106, 4-107, 4-176, 5-30, 5-31, 5-32

landfill, 3-64, 3-103, 3-111, 3-112, 3-115, 4-126, 4-131, 4-145, 4-147, 4-166, 4-201, 4-207, 4-220, 5-7, 5-37, 5-44

landslide, 3-29

laws, ES-5, 1-9, 1-19, 3-20, 3-85, 3-103, 3-116, 3-118, 4-56

Leadership in Energy and Environmental Design (LEED), 4-146, 4-209, 4-221

limestone, 3-26, 3-27, 3-28, 3-29, 3-30, 3-31, 3-32, 3-38, 3-39, 3-40, 3-47, 3-55,

3-56, 3-57, 3-66, 3-114, 4-58, 4-65, 4-67, 4-69, 4-72, 4-73, 4-74

liquefaction, 3-30, 3-32

liquid fuel, ES-21, ES-22, ES-23, ES-24, ES-30, 3-15, 3-100, 3-107, 3-111, 4-24, 4-124, 4-128, 4-129, 4-134, 4-142, 4-143, 4-146, 4-148, 4-151, 4-152, 4-157, 4-160, 4-162, 5-35, 5-36, 5-37

local economy, 4-170, 4-171, 4-173, 4-174, 4-177, 4-178, 4-181, 4-182, 4-183, 4-186, 4-187

M

maintenance facility, R-1, ES-9, ES-11, ES-12, ES-22, ES-23, 2-5, 2-6, 2-19, 2-21, 2-29, 2-36, 2-38, 3-49, 3-102, 4-44, 4-46, 4-87, 4-89, 4-96, 4-100, 4-103, 4-104, 4-105, 4-127, 4-128, 4-133, 4-134, 4-143, 4-145, 4-149, 4-152, 4-157, 4-160, 4-163, 4-173, 4-174, 4-181

Marine Mammal Protection Act (MMPA), 1-10, 1-18

marine mammals, ES-18, ES-19, ES-28, 1-10, 1-18, 3-68, 3-70, 3-71, 4-77, 4-79, 4-80, 4-81, 4-82, 4-83, 5-23, 5-24, 5-25

Marpo Heights, 3-7, 3-92, 3-123, 4-101, 4-103, 4-107, 5-10, 5-31

military exercises, R-1, ES-15, 1-16, 2-9, 2-10, 2-24, 2-25, 2-33, 2-34, 2-39, 2-40, 2-45, 3-15, 3-16, 4-4, 4-11, 4-12, 4-14, 4-17, 4-18, 4-30, 4-37, 4-43, 4-45, 4-48, 4-49, 4-50, 4-51, 4-79, 4-80, 4-81, 4-82, 4-91, 4-93, 4-95, 4-110, 4-121, 4-123, 4-173, 4-174, 4-175, 4-181, 4-182, 4-183, 4-195, 4-197, 4-211, 5-9, 5-10, 5-11, 5-30, 5-31

military operations, 1-5, 2-45, 3-1, 3-5, 3-7, 3-20, 3-24, 3-107, 4-64

minority, ES-24, ES-25, ES-31, 1-10, 3-116, 3-117, 3-133, 4-169, 4-172, 4-175, 4-176, 4-180, 4-181, 4-183, 4-184, 4-187, 5-39, 5-41

MIRC, ES-1, ES-7, ES-9, ES-10, ES-12, ES-14, 1-4, 1-12, 2-8, 2-9, 2-11, 2-13, 2-15, 2-16, 2-17, 2-18, 2-45, 3-13, 3-15, 4-45, 4-48, 4-79, 4-81, 4-82, 5-2, 5-3, 5-24

mitigation, ES-14, 1-22, 1-23, 4-45, 4-48,
4-68, 4-195, 4-196, 4-200, 4-201, 4-202,
4-211, 5-1, 5-21, 5-22, 5-25, 5-26, 5-27,
5-28

munitions, R-1, R-2, 1-4, 2-2, 2-3, 2-25,
3-136, 5-5, 5-12, 5-13

N

National Historic Landmark, ES-19, 1-10,
1-16, 3-77, 3-81

native species, 4-65, 4-66, 4-144, 4-158,
5-21

native vegetation, 3-45, 3-55, 4-65, 4-67,
5-21, 5-23

natural gas, 3-107, 3-108, 3-113, 4-142,
4-146, 4-148, 4-151, 4-155, 4-157, 4-159,
4-162, 4-165, 4-167, 5-44

nightingale reed warbler, 2-3, 4-76, 4-77

No Action Alternative, ES-12, ES-13, ES-14,
ES-15, ES-16, ES-17, ES-18, ES-19,
ES-20, ES-21, ES-24, ES-25, ES-26,
1-17, 1-23, 2-1, 2-8, 2-45, 4-18, 4-43,
4-51, 4-55, 4-56, 4-63, 4-77, 4-83, 4-90,
4-95, 4-107, 4-123, 4-141, 4-168, 4-169,
4-188, 4-194, 4-195

nonnative, ES-18, 3-45, 3-49, 3-55, 3-58,
3-60, 3-65, 4-64, 4-68, 4-73, 4-76

O

Occupational Safety and Health
Administration (OSHA), 3-2

P

paleontology, 3-25

park, 1-16, 3-14, 3-44, 3-45, 3-47, 3-57,
3-81, 3-86, 3-87, 3-112, 4-69, 5-7

particulate, 3-8, 4-20, 4-23, 4-28, 4-36

permeable, 3-27, 3-30, 3-35, 3-38, 3-40,
3-110

permit, ES-20, 1-9, 1-10, 1-11, 1-18, 1-19,
2-14, 3-11, 3-12, 3-33, 3-35, 3-36, 3-85,
3-87, 4-18, 4-19, 4-20, 4-22, 4-24, 4-25,
4-26, 4-27, 4-28, 4-29, 4-30, 4-32, 4-34,
4-35, 4-36, 4-37, 4-38, 4-39, 4-41, 4-53,
4-57, 4-60, 4-69, 4-73, 4-100, 4-101,
4-104, 4-105, 4-133, 4-141, 4-144, 4-147,

4-149, 4-152, 4-153, 4-156, 4-158, 4-160,
4-161, 4-163, 4-166, 4-169, 4-177, 4-178,
4-204, 4-205, 4-205, 4-208, 4-209, 4-208,
4-215, 4-216, 4-217, 4-218, 4-219, 4-221,
5-35, 5-36

pesticides, 3-99, 3-100, 3-104, 4-127,
4-129, 4-132, 4-133, 4-135, 4-136, 4-137,
4-139, 4-140, 5-35

petroleum, ES-1, ES-17, ES-21, ES-23, 1-3,
3-34, 3-100, 3-101, 3-102, 3-103, 3-105,
4-46, 4-58, 4-59, 4-60, 4-61, 4-124,
4-125, 4-127, 4-128, 4-129, 4-130, 4-132,
4-134, 4-135, 4-136, 4-138, 4-139, 4-140,
4-142, 4-148, 4-151, 4-157, 4-160, 4-162,
4-208, 4-207, 4-219, 4-220, 5-18, 5-19,
5-20, 5-34, 5-35

physiography, 3-25

plan, ES-1, 1-1, 1-5, 3-22, 3-24, 3-32, 3-35,
3-36, 3-37, 3-97, 3-101, 3-115, 4-17,
4-45, 4-47, 4-48, 4-53, 4-54, 4-59, 4-61,
4-69, 4-73, 4-76, 4-84, 4-97, 4-103,
4-141, 4-144, 4-150, 4-153, 4-156, 4-161,
4-164, 4-170, 4-177, 4-201, 4-204, 4-205,
4-209, 4-215, 4-216, 4-221, 5-15

point source, 1-19, 3-33, 3-34, 3-39

pollutant, 3-8, 3-10, 3-35, 4-18, 4-20, 4-21,
4-22, 4-23, 4-27, 4-28, 4-30, 4-36, 4-38,
4-144, 4-150, 4-153, 4-156, 4-161, 4-164,
4-209, 4-221, 5-12, 5-13

pollution, 3-8, 3-10, 3-11, 3-12, 3-34, 3-35,
3-36, 3-37, 3-39, 3-41, 3-110, 4-19, 4-23,
4-27, 4-35, 4-58, 5-18, 5-19

porous, 3-26, 3-28, 3-31, 3-39, 3-40, 3-110

port, ES-7, ES-9, ES-21, ES-22, ES-23, 2-9,
2-11, 2-14, 2-16, 2-17, 2-18, 2-32, 3-24,
3-28, 3-31, 3-32, 3-92, 3-107, 3-108,
3-113, 3-114, 3-121, 4-9, 4-14, 4-16,
4-19, 4-27, 4-29, 4-35, 4-37, 4-66, 4-78,
4-79, 4-80, 4-81, 4-82, 4-85, 4-87, 4-88,
4-89, 4-97, 4-100, 4-101, 4-104, 4-105,
4-142, 4-145, 4-147, 4-151, 4-154, 4-156,
4-159, 4-162, 4-167, 4-171, 4-174, 4-178,
4-182, 4-197, 4-211, 5-36

potable water, ES-30, 3-35, 3-108, 3-109,
3-113, 3-114, 3-122, 4-59, 4-62, 4-143,
4-146, 4-165, 5-36, 5-37

precipitation, 3-33, 3-34, 3-37, 3-40, 3-64,
3-110, 3-114, 4-57, 4-58, 5-43

prehistoric, 3-74, 3-76, 3-77, 3-78, 3-79, 3-83
private land, 3-92, 4-101, 4-107
project area, 1-4, 3-40, 3-44, 3-55, 3-66, 3-67, 3-74, 3-95, 3-97, 3-100, 3-101, 3-102, 3-103, 3-104, 3-105, 3-106, 3-116, 3-122, 4-57, 4-58, 4-63, 4-67, 4-69, 4-70, 4-71, 4-73, 4-74, 4-76, 4-77, 4-84, 4-90, 4-95, 4-109, 4-111, 4-112, 4-114, 4-117, 4-119, 4-120, 4-122, 4-142, 4-149, 4-154, 4-181, 4-188, 4-201
proposed action, ES-14, 1-9, 1-11, 1-12, 1-13, 1-18, 2-1, 2-40, 3-85, 3-95, 3-99, 3-116, 3-117, 4-1, 4-52, 4-56, 4-65, 4-90, 4-96, 4-188, 4-195, 4-196, 5-1, 5-4, 5-43
public land, 3-86, 3-88, 3-91, 4-97, 4-100, 4-101, 4-103, 4-104, 4-105, 4-179, 4-206, 4-218, 5-30, 5-31, 5-39, 5-40
public service, ES-24, ES-25, ES-31, 3-116, 3-121, 3-129, 4-172, 4-175, 4-179, 4-180, 4-183, 4-184, 4-185, 4-186, 4-187, 5-39, 5-40, 5-41

R

rainwater, ES-16, ES-17, 3-27, 3-30, 3-40, 3-110, 4-53, 4-58, 4-209, 4-221, 5-18, 5-19, 5-20
ramp, 2-21, 2-29, 3-14, 3-92, 5-5
receptor, 3-2
recreation, ES-20, 1-16, 1-20, 3-35, 3-36, 3-80, 3-88, 3-126, 3-131, 4-92, 4-94, 4-95, 4-97, 4-106, 5-28, 5-29, 5-30
recycle, 5-44
reef, 3-27, 3-30, 3-84, 3-87
refueling, ES-13, ES-17, 1-11, 2-7, 2-12, 2-22, 2-25, 2-27, 2-30, 2-34, 2-40, 2-45, 3-14, 3-19, 3-86, 3-101, 3-109, 4-45, 4-49, 4-50, 4-59, 4-61, 4-125, 4-128, 4-130, 5-5
regulation, 1-9, 1-14, 3-3, 3-99, 4-195
remediate, 3-102, 4-124, 4-125, 4-130, 4-207, 4-219
resident, 3-51, 3-52, 3-61, 3-63, 3-64, 3-68, 3-70, 4-78, 4-111, 4-113, 4-118, 4-119
retention basin, 3-38, 3-39, 3-52, 3-53, 3-55
rivers, 1-20, 3-33, 3-35, 3-37

Rota, ES-1, ES-4, ES-8, ES-10, ES-12, 1-1, 1-4, 1-7, 1-12, 1-21, 2-10, 2-14, 2-15, 2-18, 2-45, 3-17, 3-22, 3-50, 3-61, 3-65, 3-66, 3-76, 3-87, 3-127, 4-18, 4-43, 4-51, 4-55, 4-63, 4-77, 4-83, 4-90, 4-95, 4-107, 4-123, 4-141, 4-168, 4-169, 4-170, 4-177, 4-188, 4-195, 5-3
route, 1-1, 3-20, 3-24, 3-27, 3-31, 3-101, 3-122, 4-87, 4-91, 4-92, 4-94, 4-95, 4-110, 4-111, 4-112, 4-114, 4-115, 4-118, 4-119, 4-120, 4-121, 4-122, 4-123, 4-178, 4-189, 4-191, 4-197, 4-210, 4-211, 4-222
runoff, ES-17, ES-22, ES-24, 1-18, 3-33, 3-34, 3-38, 3-39, 3-40, 3-41, 3-58, 3-67, 3-110, 3-111, 3-114, 4-56, 4-57, 4-58, 4-59, 4-61, 4-62, 4-78, 4-79, 4-80, 4-81, 4-82, 4-144, 4-147, 4-149, 4-150, 4-152, 4-153, 4-158, 4-160, 4-161, 4-163, 4-164, 4-166, 4-168, 4-204, 4-206, 4-208, 4-216, 4-217, 4-221, 5-44

S

Saipan Harbor, 2-12, 3-86, 4-91, 4-93
San Jose, 3-7, 3-79, 3-83, 3-84, 3-86, 3-92, 3-113, 3-122, 3-123, 3-129, 3-130, 4-87, 4-92, 4-93, 4-101, 4-103, 4-107, 5-6, 5-8, 5-17, 5-28, 5-33
sanitary sewer, ES-22, 3-40, 3-107, 4-143, 4-146, 4-158, 4-165
sea turtle, ES-18, ES-19, ES-28, 3-68, 3-70, 4-77, 4-78, 4-79, 4-80, 4-81, 4-83, 5-23, 5-24, 5-25
seaport, ES-9, ES-10, ES-11, ES-12, ES-21, ES-22, ES-23, ES-30, 2-6, 2-11, 2-14, 2-25, 2-34, 2-39, 3-27, 3-28, 3-38, 3-39, 3-79, 3-83, 3-100, 3-103, 3-104, 3-105, 3-106, 3-108, 3-109, 3-111, 3-113, 3-114, 3-136, 4-24, 4-32, 4-38, 4-40, 4-52, 4-57, 4-86, 4-107, 4-110, 4-114, 4-115, 4-121, 4-122, 4-125, 4-143, 4-144, 4-146, 4-148, 4-149, 4-152, 4-158, 4-159, 4-160, 4-162, 4-163, 4-171, 4-174, 4-178, 4-182, 4-198, 4-212, 5-35, 5-36, 5-37
security, ES-6, 1-4, 1-6, 1-20, 2-4, 2-21, 2-29, 3-20, 3-51, 3-131, 4-44, 4-172, 4-173, 4-174, 4-175, 4-179, 4-180, 4-181, 4-182, 4-183, 4-196, 4-198, 4-209, 4-213, 4-222

sediment, 3-33, 3-34, 3-36, 4-52, 4-53, 4-56, 4-57, 4-58, 4-59, 4-61, 4-144, 4-149, 4-153, 4-158, 4-161, 4-163, 4-204, 4-205, 4-208, 4-216, 4-221, 5-16, 5-17

sedimentation, ES-16, 1-18, 3-34, 3-39, 3-67, 4-52, 4-53, 4-54, 4-57, 4-60, 4-78, 4-79, 4-80, 4-81, 4-82, 4-144, 4-149, 4-152, 4-158, 4-160, 4-163, 4-204, 4-206, 4-216, 4-217, 5-16, 5-18, 5-19

sewer, ES-21, ES-23, 2-6, 3-110, 3-111, 4-143, 4-147, 4-149, 4-157, 4-166, 4-208, 5-6, 5-36, 5-37

shorebird, 3-48, 3-50, 3-53, 3-62

significant impact, 1-11, 1-19, 4-20, 4-22, 4-24, 4-25, 4-26, 4-27, 4-28, 4-29, 4-30, 4-32, 4-34, 4-36, 4-37, 4-38, 4-39, 4-41, 4-42, 4-69, 4-73, 4-101, 4-104, 4-105, 4-106, 4-175, 4-176, 5-15, 5-29, 5-37, 5-44

socioeconomics, ES-25, 3-118, 4-169, 4-188

soil, ES-1, ES-16, ES-17, 1-3, 3-26, 3-28, 3-30, 3-31, 3-33, 3-34, 3-35, 3-99, 3-102, 3-103, 3-104, 3-106, 3-114, 4-52, 4-53, 4-54, 4-55, 4-57, 4-60, 4-125, 4-126, 4-130, 4-131, 4-133, 4-136, 4-137, 4-138, 4-204, 4-205, 4-207, 4-208, 4-216, 4-219, 4-220, 5-16, 5-17, 5-18, 5-19, 5-44

solid waste, ES-22, ES-23, ES-24, 3-99, 3-103, 3-107, 3-110, 3-111, 3-115, 4-141, 4-145, 4-147, 4-150, 4-153, 4-156, 4-159, 4-161, 4-164, 4-166, 4-168, 5-5, 5-7, 5-36, 5-37

storm water, ES-16, ES-17, ES-22, ES-23, ES-24, 1-9, 1-18, 3-33, 3-34, 3-35, 3-37, 3-38, 3-39, 3-41, 3-52, 3-53, 3-55, 3-67, 3-107, 3-110, 3-111, 3-114, 4-53, 4-54, 4-55, 4-56, 4-57, 4-58, 4-59, 4-60, 4-61, 4-62, 4-78, 4-79, 4-80, 4-81, 4-82, 4-143, 4-144, 4-147, 4-149, 4-152, 4-153, 4-156, 4-158, 4-160, 4-161, 4-163, 4-166, 4-168, 4-205, 4-206, 4-208, 4-209, 4-217, 4-221, 5-18, 5-19, 5-43, 5-44

Storm Water Pollution Prevention Plan (SWPPP), 3-34, 4-205, 4-217

stream, 3-37, 3-40

strike, 2-13, 3-22, 3-50, 3-52, 3-54, 3-63, 3-76, 4-69, 4-73

submerged land, 3-85, 3-86, 3-87, 3-88, 3-92, 5-30, 5-31, 5-32

surface flow, 3-33

surface water, ES-17, 1-19, 3-30, 3-33, 3-38, 3-41, 3-55, 3-65, 4-56, 4-57, 4-59, 4-60, 4-61, 4-62, 4-144, 4-149, 4-153, 4-156, 4-158, 4-161, 4-163, 4-164, 4-208, 4-209, 4-221, 5-18, 5-19, 5-44

Susupe Marsh, 3-27

T

Tanapag, 3-27, 3-103, 3-108, 3-110

tangantangan forest, 2-3, 3-44, 3-45, 3-55, 3-56, 3-57, 3-58, 3-65, 4-65, 4-67, 4-68, 4-69, 4-71, 4-72, 4-73, 4-74, 4-75, 4-76, 5-21, 5-22

taxiway, R-3, ES-11, ES-16, 2-1, 2-4, 2-5, 2-7, 2-21, 2-29, 2-32, 2-38, 3-12, 3-13, 3-18, 3-23, 3-31, 3-41, 3-45, 3-53, 3-58, 3-106, 3-107, 3-112, 4-29, 4-36, 4-44, 4-46, 4-47, 4-49, 4-50, 4-51, 4-60, 4-65, 4-71, 4-151, 5-5, 5-13, 5-17, 5-19, 5-21

terrestrial biological resources, ES-18, 3-44, 4-64, 4-77, 4-195

threatened and endangered species, ES-18, ES-28, 1-17, 2-15, 3-44, 3-55, 3-65, 4-67, 4-70, 5-20, 5-21, 5-22, 5-23

Tinian Harbor, 2-16, 2-17, 3-41, 3-83, 3-92, 3-94, 3-112, 3-129, 4-83, 4-111, 4-113, 4-118, 4-119, 5-7, 5-9, 5-24

topography, 2-15, 2-17, 3-8, 3-25, 3-26, 3-30, 3-31, 3-33, 3-37, 3-99, 4-53, 5-16

tourist, 3-83, 3-118, 3-119, 3-120, 3-128, 4-170, 4-171, 4-175, 4-178, 5-36, 5-37

transportation, ES-8, ES-21, ES-29, 1-16, 2-10, 2-40, 3-99, 3-120, 3-121, 3-134, 4-1, 4-9, 4-86, 4-87, 4-107, 4-108, 4-109, 4-110, 4-111, 4-112, 4-113, 4-114, 4-115, 4-116, 4-117, 4-118, 4-119, 4-120, 4-121, 4-122, 4-123, 4-141, 4-142, 4-148, 4-151, 4-157, 4-160, 4-162, 4-178, 4-198, 4-213, 5-32, 5-44

tree species, 3-45, 3-58, 3-60

tsunami, ES-3, 1-3, 1-5, 1-7, 2-8, 3-29, 3-32, 3-120

U

utilities, ES-7, ES-30, 2-5, 2-6, 2-19, 2-29,
3-107, 3-111, 3-120, 3-125, 3-126, 4-19,
4-27, 4-35, 4-141, 5-4, 5-35, 5-36, 5-37

V

vegetation, ES-18, ES-28, 2-21, 3-7, 3-8,
3-36, 3-44, 3-45, 3-47, 3-51, 3-56, 3-57,
3-58, 3-60, 3-63, 3-64, 3-67, 3-87, 3-111,
3-114, 4-57, 4-58, 4-64, 4-65, 4-69, 4-70,
4-71, 4-72, 4-73, 4-74, 4-76, 4-79, 4-81,
4-85, 4-88, 4-200, 5-16, 5-17, 5-20, 5-21,
5-22, 5-23, 5-43, 5-44

vegetation communities, 3-45, 3-57, 3-58,
4-65, 4-69

W

wastewater, ES-22, 3-103, 3-107, 3-108,
3-110, 3-113, 3-114, 3-121, 4-146, 4-149,
4-155, 4-165, 4-168, 4-208, 5-5, 5-25,
5-36, 5-37

water supply, ES-22, ES-23, ES-24, 3-33,
3-36, 3-39, 3-107, 3-109, 3-110, 3-114,

4-56, 4-59, 4-143, 4-146, 4-149, 4-152,
4-155, 4-157, 4-160, 4-163, 4-165, 4-167,
4-208, 5-19, 5-37

watershed, 3-35, 3-37, 3-39, 3-40

weather, 3-12, 3-14, 3-16, 3-20, 3-22, 3-23,
3-25, 3-32, 3-38, 3-64, 3-67, 3-122, 4-20,
4-28, 4-36, 4-49

wells, 3-38, 3-57, 3-109, 3-110, 3-114, 4-58,
4-62, 4-87, 4-89, 4-155, 4-167, 5-37

wetlands, 1-11, 1-17, 1-20, 3-33, 3-35, 3-40,
3-54, 3-55, 3-57, 3-65, 3-66, 3-67, 4-64,
4-67, 4-69, 4-71, 4-73, 4-74, 4-76, 4-77

wildlife, ES-18, ES-28, 1-16, 1-17, 3-22,
3-24, 3-36, 3-44, 3-50, 3-52, 3-53, 3-63,
3-64, 3-81, 3-99, 3-135, 3-136, 4-65,
4-66, 4-69, 4-72, 4-73, 4-74, 4-75, 4-76,
4-77, 4-206, 4-217, 5-3, 5-20, 5-21, 5-22,
5-23, 5-43, 5-44

World War II, ES-8, 1-1, 1-16, 2-10, 2-14,
2-17, 3-71, 3-76, 3-77, 3-78, 3-79, 3-81,
3-83, 3-84, 3-87, 3-95, 3-98, 3-101,
3-102, 3-103, 3-105, 3-106, 3-118, 4-85,
4-125, 4-126, 4-130, 4-131, 4-132, 4-133,
4-135, 4-136, 4-137, 4-138