3.9.2 Greenhouse Gas Emissions

Natural climate cycles and other factors, including human activities, influence temperatures and weather patterns at regional scales with major indicators of climate conditions include air temperature, sea level rise, and annual precipitation. Data observed at the Saipan International Airport show a trend of increasing air temperature during the day (90° Fahrenheit or warmer) and a decline in the annual number of cool nights (below 74° Fahrenheit) since 2006. Annual total rainfall data collected at the Saipan International Airport from 1989 to 2020 show little average change over the past 30 years. The sea level around the CNMI is rising, with Saipan's tide gauge recording a long-term sea level rise of 0.07 inches per year since 1978 (Pacific Islands Regional Climate Assessment 2021).

The CNMI released a 2024 Priority Climate Action Plan, which outlines five priority measures, each targeting a specific aspect of emissions reduction: electricity generation, transportation, solid waste management, wastewater treatment, and carbon removal. This plan also includes a priority greenhouse gas inventory for the CNMI for the base year of 2023, as shown in Table 3.9-1.

Table 3.9-1 CNMI 2023 Greenhouse Gas Emissions Inventory

Priority Sector for the CNMI Priority Climate Action Plan	***Annual CO_2e Emissions (Metric Tons)***
Electricity Generation (stationary combustion)	224,574
Transportation (mobile combustion from road vehicles, marine vessels, and aviation)	212,788
Wastewater Treatment	5,428
Solid Waste	377
Subtotal of Gross Emissions of Priority Sectors for the Priority Climate Action Plan	**443,167**
Forestry Carbon Sequestration	*-199,228*
Net Emissions of Priority Sectors for Priority Climate Action Plan	**243,939**

Legend: CNMI = Commonwealth of the Northern Mariana Islands; CO_2e = carbon dioxide equivalent.
Source: CNMI Climate Policy and Planning Program 2024.

Energy generation accounts for approximately 51 percent of the CNMI's priority greenhouse gas emissions, as the CNMI relies almost entirely on diesel fuel to generate electricity. Less than 1 percent of the CNMI's power supply comes from solar net-metered systems (CNMI Climate Policy and Planning Program 2024).

On April 15, 2024, Governor Palacios signed the Blue Planet Climate Agreement, committing the CNMI to achieving 100 percent renewable energy by 2045.

3.10 Public Health and Safety

This section describes current public health and safety conditions on the island of Tinian for the following categories: ground training, aviation training and civilian aviation, radio frequency and microwave emission, unexploded ordnance and discarded military munitions, hazardous materials

and waste, natural hazards, wildfire, flood hazards, and protection of children from environmental health and safety risks.

The Proposed Action includes establishing a new lease for the USAGM property on Saipan and the repurpose of the existing facilities and communications towers. The use of the property would remain similar to the current use under this new lease to the DoD. The public is restricted from accessing the property by a perimeter fence. No military training occurs at this location. Due to the nature of the Proposed Action at the USAGM Saipan site, the existing environment is not described further in this section.

3.10.1 Ground Training

Training activities currently occur on Tinian within the Military Lease Area as described in previous NEPA documents (DON 2010, 2015), and in recent years have included large and medium events (e.g., Valiant Shield and Cope North), as well as smaller events. Ground-based activities include surveillance and reconnaissance, military operations in urban terrain, evacuation operations, command and control, logistics, camping, land navigation, convoy training, non-combatant evacuation operations, operations at the Port of Tinian and other non-live-fire activities, and limited live-fire training (i.e., small arms into bullet traps within existing structures).

Military services employ a proactive and comprehensive program to ensure the safety and health of personnel and the general public. Service members training on Tinian are required to comply with all federal and local environmental laws and regulations, in addition to established range, aviation, and munitions safety directives and standard operating procedures. These include the Marianas *Training Manual, Joint Region Marianas Fire Management Plan* (Commander, U.S. Naval Forces Marianas Instructions 3500.4E and 3500.4C, respectively), and *Commonwealth of the Northern Mariana Islands Field Guide for United States and Visiting Forces Mariana Islands Range Complex*, among others as required to perform specific training objectives. Prior to a training activity occurring, an exercise or activity plan is coordinated with the CNMI Government and the Tinian Mayor's Office and any required regulatory agencies (e.g., CNMI Department of Public Works for road closure requests). Exercise planning includes coordination on biosecurity inspections, temporary public access restrictions, environmental compliance, and natural resources consultations. The planning considers other factors such as the ability to control access to an area; schedule (time of day, day of week); duration and intensity of activities; how required range safety procedures or other operational controls would be applied; and safety history. Potential users of an area are notified prior to the event, including where temporary access restrictions may occur. A qualified Range Safety Officer is always on duty during training events to ensure training areas are clear of non-participants during training events.

There are no residences within the Military Lease Area. The nearest residential area is Marpo Heights, located approximately 1 mile south of the Military Lease Area, east of Broadway. However, public access to the Military Lease Area by locals and visitors occurs on a daily basis for recreation, tourism, subsistence gathering purposes, and visiting cultural sites. The Military Lease Area is unfenced except for a formerly used unexploded ordnance area known as the Tinian Mortar Range, private cattle ranching operations, and the former USAGM facility.

3.10.2 Aviation Training and Civilian Aviation

The military currently uses North Field with expeditionary air traffic control. Other military activities at North Field include humanitarian assistance/disaster relief practice, off-loading of cargo, and helicopter night vision landings. Rotary-wing aircraft activities include takeoffs and landing, and troop insertion and extraction. All aircraft are required to maintain an altitude greater than 1,000 feet above ground level over wetlands (Lake Hagoi, Mahalang, Bateha) and limestone forest associated with Mount Lasso.

Military aircraft use of TNI accounts for less than 1 percent of the airport's operations (FAA 2023). Fixed-wing aircraft activities include arrested landings and expeditionary refueling at TNI. Both TNI and North Field allow aircraft loading and unloading in support of military training.

Civilian air taxi/commuter flights account for most aircraft operations at TNI. Two fatal civilian aircraft incidents have occurred in the last 20 years involving flights enroute either to or from TNI (National Transportation Safety Board 2014, 2015). The FAA also recorded three non-fatal safety-related incidents between 2010 and 2019 during taxi or take-off on Tinian (National Transportation Safety Board 2017, 2018, 2019). All resulted in aircraft damage, and two resulted in personal injury but no fatalities.

3.10.3 Radio Frequency and Microwave Emissions

Electromagnetic radiation: Radars, cell phones, radio transmitters, and other navigation, communications and electronic devices used by the military and available in the home produce electromagnetic radiation. These devices can also cause electrical interference with each other, including home entertainment equipment (e.g., television and radio) as well as civilian and military frequency-dependent systems such as aircraft control towers and cell phone towers. Exposure to the radio frequency electromagnetic spectrum (between 3 kilohertz and 300 gigahertz) can adversely affect people, munitions, and fuel (DON 2011).

In 2014, the Defense Information Systems Agency Joint Spectrum Center conducted an analysis identifying potential electrical interference between USMC communication systems and existing civilian and military systems on Tinian. Based on this analysis, it was recommended that the USMC avoid using frequencies close to those assigned to current systems and maintain minimum separation distances from these systems.

To assess the potential for exposure of military personnel and the public to electromagnetic radiation, the Naval Surface Warfare Center conducted two evaluations in 2013 and 2014. The only source of electromagnetic radiation above 3 kilohertz identified was the USAGM's Robert E. Kamosa Transmitting Station. Fencing around the facility protected military personnel and the public from exposure to this electromagnetic radiation. USAGM ceased operations at the transmitting station in August 2024.

3.10.4 Unexploded Ordnance and Discarded Military Munitions

Unexploded ordnance and discarded military munitions from World War II are present on Tinian. These include tank munitions, mortars, and bazookas used during ground assaults. After the initial battle, the U.S. military constructed airfield facilities on the northern part of the island, which involved grading and the use of fill material from other parts of the island. The 2010 *Final Historical Ordnance Assessment, Guam and CNMI Area, P-50*, identified shallow soil and this extensive construction of U.S. military facilities at North Field as mitigating factors that reduced

the potential presence of unexploded ordnance (DON 2010). In addition, unexploded ordnance was removed during the subsequent rebuilding of San Jose and the Port of Tinian. Unexploded ordnance may still be present on Tinian in undeveloped areas or at depths below previously disturbed areas (DON 2010). A 2015 Environmental Report for Tinian confirmed the presence of unexploded ordnance near caves along the cliffs below the east side of Mount Lasso (DON 2015). The northern third of Tinian is classified as a high probability area for the presence of unexploded ordnance, and the middle third of Tinian is classified as a medium probability area.

The single known source of unexploded ordnance after World War II is the Tinian Mortar Range (also known as the Chiget Mortar Range), located on the island's northeastern coast, which was used for military live-fire training events from 1945 through 1994 (GMP 1997). This former mortar range is now fenced and is being addressed under the Navy's Munitions Response Program (DON 2015). The U.S. military, the U.S. EPA, and the CNMI routinely advise the public not to handle or step on any suspicious items, and to report the presence of such items immediately. Qualified military explosive ordnance technicians investigate reports of suspicious items and if unexploded ordnance were to be identified, they would respond and remove it for offsite disposal or destroy it in place if deemed unsafe to move. All actions to address munitions of explosive concern would be in accordance with local and federal regulations or instructions.

3.10.5 Hazardous Materials and Waste

In 1997, an Environmental Baseline Survey was conducted for lands leased by the U.S. on Tinian that identified sites of environmental concern caused by the historical use of hazardous materials during World War II and from more recent agricultural and commercial activities (GMP Associates, Inc. 1997). The 2015 Environmental Report for Tinian updated the 1997 Environmental Baseline Survey, re-evaluating 41 sites for existing conditions and identifying several new sites containing old building structures, scrap metal, container drums, and other conditions requiring further investigation and possible cleanup (DON 2015).

Military training events are conducted in compliance with standard operating procedures and federal and CNMI laws. Training is coordinated with Joint Region Marianas environmental staff who coordinate with federal and CNMI agencies regarding the handling of hazardous materials. As part of current military training exercises, portable aboveground bulk diesel storage containers have been temporarily staged and used at North Field (DON 2014a). The military ensures proper storage and handling of hazardous materials inside an impervious barrier and away from catch basins, storm drains, and waterways. The military also complies with the Tinian Spill Control Plan and has trained spill response teams available during training events (M. Cruz, Joint Region Marianas, Personal Communication, 2014). Outside of limited use during training events, the military does not routinely use any pesticides, herbicides, industrial or household cleaning products, paints, or solvents within the Military Lease Area.

The USAGM Tinian site uses minimal amounts of hazardous materials such as pesticides, herbicides, industrial or household cleaning products, paints, or solvents for interim maintenance since the closure of the facility began in August 2024. Additionally, the site has a standby power plant consisting of three diesel-fired generators, two free-standing aboveground storage tanks, and a fuel pump house. The aboveground storage tanks are surrounded by an earthen containment berm connected to an oil/water separator. No releases related to the fuel storage activities at the USAGM have been reported (DON 2013).

3.10.6 Natural Hazards

Potential natural hazards on Tinian that could affect public health and safety include wildfire and floods.

3.10.6.1 Wildfire

Wildfires have the potential to affect public safety on Tinian, particularly in areas where civilians may use the Military Lease Area, along with the potential to impact habitat supporting Endangered Species Act listed species (i.e., native limestone forest). The dry season (December to June) is characterized by lower rainfall, drying fuels, and northeast trade winds averaging 14 to 17 miles per hour. The highest fire danger peaks in January through March. Relative humidity rarely falls below 50 percent, but brief drops can support ignition in fine fuels. There are three general wildfire fuel environments on Tinian:

- Native forest (low fire-carrying ability due to shade, moisture, and low fine fuels)
- Mowed grasslands near developed areas or objectives (can carry low- to moderate-intensity fire)
- Tall, non-native grasslands (primary carrier of rapid-spread fire under extreme dry-season conditions)

Between 2016 and 2023 there were 136 fires on Tinian, with the majority occurring in the dry season (March to June) and affecting less than 10 acres per occurrence. Dominant fire sources on Tinian are human-caused and include pasture burning for cattle; burning associated with crab hunting; and accidental ignitions from vehicles, improper disposal of cigarettes and other wastes, or power lines. Natural ignitions (i.e., from lightning) are rare and military ignition sources (i.e., tracers, pyrotechnics, heat-producing devices) are not currently used. No wildland fires within the Military Lease Area have been documented as caused by military training, which is consistent with the limited level of training activity. Tinian currently does not have a DoD fire department and wildfire response is limited to local municipal resources, with constrained staffing, limited apparatus, and no specialized wildland firefighting capability (NAVFAC Pacific, Personal Communication, January 2026).

3.10.6.2 Flood Hazard (Flood Zones)

The Federal Emergency Management Agency provides Flood Insurance Rate Maps that define flood zones and show the geographic areas with varying levels of flood risk: V, X, and A. On the Flood Insurance Rate Map of Tinian, the seaward coastline areas are designated as Flood Zone V, or "Special Flood Hazard Area subject to coastal high hazard flooding" (Figure 3.10-1) (FEMA 1998, 2006). Zone V areas may be designated with known wave-induced elevations. However, on Tinian, this area is designated as "without base flood elevation." Most landward areas on Tinian, including those within the Military Lease Area, such as the former USAGM Tinian site, are designated as Zone X, areas of minimal flood hazard, and are for the most part outside of the 500-year floodplain areas. Nineteen distinct areas on Tinian are designated as Flood Zone A, a Special Flood Hazard Area that usually indicates a base flood elevation and may also indicate the type of flooding (e.g., sheet flow, ponding, shallow). These distinct areas are in locations that include Lake Hagoi, portions of North Field, TNI, and Marpo Marsh.

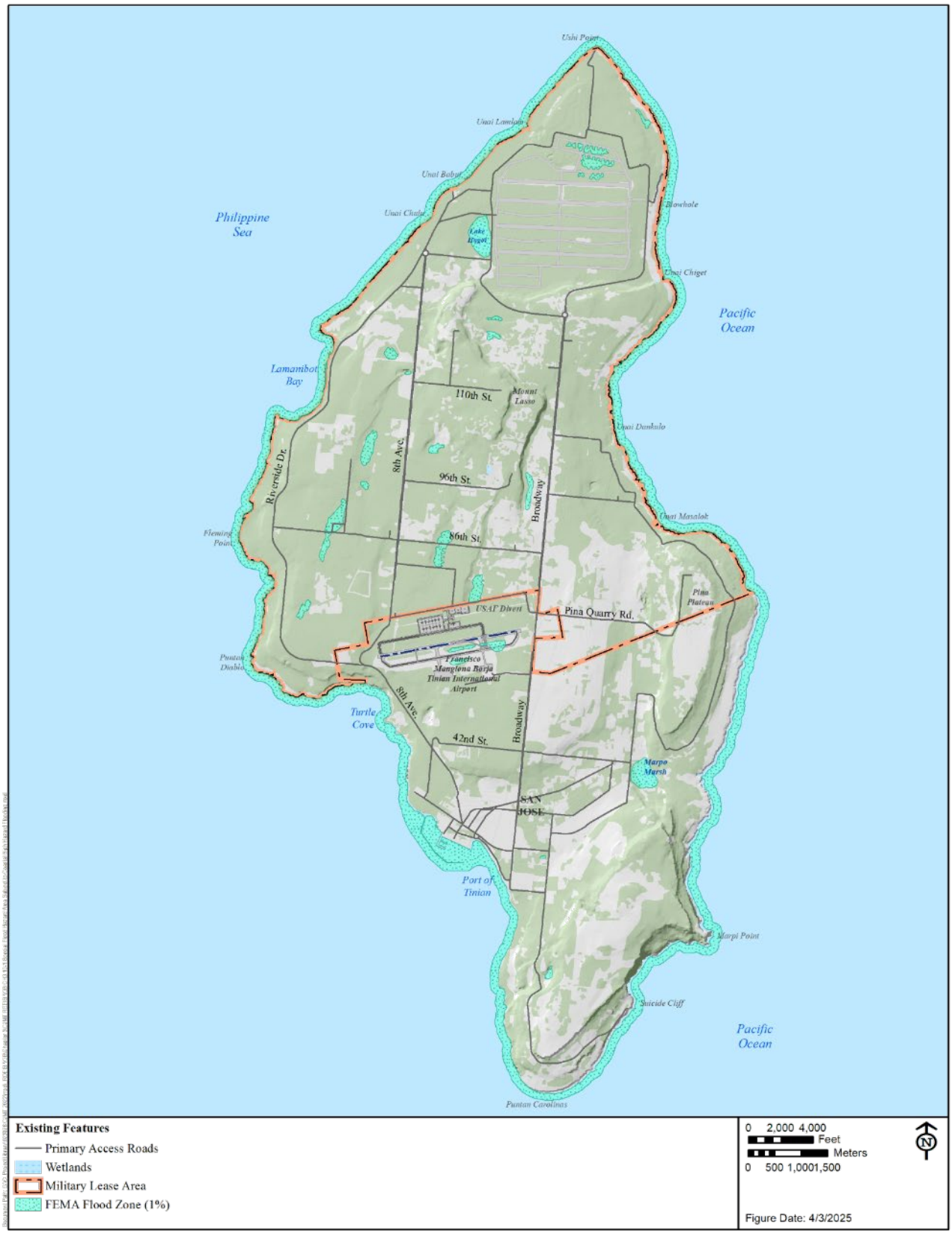

Figure 3.10-1 Special Flood Hazard Area Subject to Coastal High Hazard Flooding

3.10.7 Protection of Children

Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks (April 21, 1997), requires federal agencies to identify and assess environmental risks and safety risks that may disproportionately affect children. On Tinian, most families with children reside south of the Military Lease Area in the villages of San Jose and Marpo Heights. The island's schools, parks, and playgrounds are located within San Jose. No children reside, attend school, or otherwise congregate for long periods in the Military Lease Area.

3.11 Utilities

Utilities on Tinian include water supply (potable water, non-potable water, and groundwater), wastewater treatment, management of solid and hazardous waste, green waste, stormwater, electrical power systems, and communications systems.

3.11.1 Potable, Non-Potable, and Groundwater Water Supply

3.11.1.1 Commonwealth Utilities Corporation

The Commonwealth Utilities Corporation owns, operates, and maintains the public water system on Tinian, including sources, treatment, storage, testing, and distribution of potable water to approximately 800 metered connections outside the Military Lease Area (Commonwealth Utilities Corporation 2015). The distribution system does not extend into the Military Lease Area.

A single groundwater well, Maui Well Number 2, is the sole source of potable water for the island. Maui Well Number 2 has a total operational pumping capacity of approximately 1.5 million gallons per day (Commonwealth Utilities Corporation 2015; DON 2019). Maui Well Number 2 meets U.S. EPA Primary and Secondary Drinking Water Standards including for per- and poly-fluoroalkyl substances (Commonwealth Utilities Corporation 2024a). Figure 3.11-1 provides an overview of the Commonwealth Utilities Corporation public water system and its components. The system disinfects water using chlorine and no other water treatment is necessary.

Table 3.11-1 summarizes water production (i.e., extraction) quantities from Maui Well Number 2 as recorded by the Commonwealth Utilities Corporation at the well site for the last five years. Production includes water delivered into the distribution system, which is inclusive of water billed to customers, unmetered uses, leaks, losses, and overflows.

Table 3.11-1 Commonwealth Utilities Corporation Water Production from Maui Well Number 2

Year	*Total Annual (MG)*	*Average Daily (MGD)*
2019	313	0.86
2020	312	0.85
2021	307	0.84
2022	321	0.88
2023	306	0.84
Average		**0.85**

Legend: MG = million gallons; MGD = million gallons per day.
Source: Commonwealth Utilities Corporation 2024b.