4.17 PUBLIC HEALTH AND SAFETY

Section 4.17 describes the potential impacts to public health and safety as a result of the proposed action. The region of influence for construction activities includes the Military Lease Area on Tinian, Tinian International Airport, Port of Tinian, Unai Chulu, and Pagan. Areas of potential exposure to operational activities include airspace, land, waters, within and adjacent to the proposed military RTAs, including areas underlying airspace used for military training. Impacts to public health and safety may result from construction, military training operations, and/or materials used during military training, such as unexploded ordnance and munitions. Munitions include, but are not limited to, inert aviation ordnance, naval and field artillery projectiles, aerial rockets, mortar rounds, man-portable rockets, hand grenades, machine gun/pistol rounds, flares, and other pyrotechnic devices.

In addition, impacts to public health and safety may result from direct (e.g., traffic accidents and personal injuries), social (e.g., health care services and public services), or environmental (e.g., water quality, air quality, noise, and hazardous materials and waste) effects. Potential impacts to the police department, fire department, and health services are presented in Section 4.15, *Socioeconomics*. Potential impacts to environmental resources including water, air, and noise environment, are discussed in Sections 4.3, *Water Resources*; 4.4, *Air Quality*; and 4.5, *Noise*, respectively. For detailed information on hazardous materials, see Section 4.16, *Hazardous Materials and Waste*.

The analysis presented in this section focuses on potential health and safety impacts to the general public from associated construction and operational activities of the proposed action. Potential effects to construction and military personnel are not addressed in this EIS/OEIS. Safety risks to construction personnel are addressed under 29 CFR 1910 *et seq*., *Occupational Health and Safety Standards*. Health and safety risks to military personnel are an inherent and unavoidable aspect of military training due largely to the nature of military missions and the need to train under realistic conditions. Additional risks result from the non-training operations including military travel and transport, handling, and storage of munitions. To reduce such risks to the extent possible during training, all proposed training operations and exercises are designed and conducted in accordance with comprehensive military safety procedures, rules, and regulations.

The health and safety impacts related to the geologic hazards described Section 3.2, *Geology and Soils*, are not analyzed for construction and military personnel. The U.S. military would require appropriate plans (e.g., evacuation plans) and safety protocols related to geological hazards to be in place prior to the commencement of construction and operations to provide for adequate protection for construction and military personnel. As discussed above, safety risks to construction personnel are addressed under 29 CFR 1910 *et seq*., *Occupational Health and Safety Standards.* All proposed operations (i.e., training, maintenance) would be designed and conducted in accordance with established military safety procedures, rules and regulations. As discussed in Section 4.2, *Geology and Soils* (impact analysis), the proposed action would result in less than significant impacts to geological hazards (i.e., the proposed action would not significantly increase the likelihood of geological hazards to occur). The public's exposure to geological hazards would not increase as a result of the proposed action and, therefore, the health and safety impacts associated with geologic hazards on the public are not analyzed.

4.17.1 Approach to Analysis

Impacts to public health and safety were assessed by evaluating the relative scope and location of proposed construction and operation activities and their potential to alter or impact the existing conditions for public health and safety. Potential impacts associated with military training activities (i.e., range safety, including wildfire) and unexploded ordnance/munitions are considered as part of the operation impact analysis. Impact significance was determined by analyzing the extent or degree to which implementation of the proposed action would potentially result in an increased risk to public health and safety. Factors considered in evaluating the effects of the proposed activities on public health and safety include:

- Proximity of construction or operation activities to the public
- Frequency and duration of events
- Range safety procedures (access control, public notification, natural resource protection)
- Post-training procedures (site clean-up)

The U.S. military is required to comply with applicable regulations and laws under the enforcement authorities of both federal and local government entities. In accordance with Naval Ordnance Safety and Security Activity Instruction 8020.15D, an Explosives Safety Submission document must be prepared that details how explosive safety standards would be applied to munitions responses (DoN 2011). The Explosives Safety Submission document would address how a proposed action complies with applicable environmental requirements related to the management of munitions and explosives of concern, and would outline specific measures to be taken to ensure the safety of the public. Accordingly, documented procedures would be established to ensure that the public are not endangered by proposed military training events conducted on or around the islands of Tinian and Pagan.

The management of RTAs would be linked to the overall management of the Joint Region Marianas Mariana Islands Range Complex. As the Executive Agent for the U.S. Pacific Command for this action, Marine Corps policies and procedures are assumed to provide the basis for joint and multi-national range and training area management. Marine Corp Order P3550.10, Policies and Procedures for Range and Training Area Management, establishes Marine Corps responsibilities and prescribes policies and procedures concerning safety and management of Marine Corps operational ranges and training areas, to include associated training facilities (DoN 2005).

4.17.2 Resource Management Measures

Resource management measures applicable to public health and safety include the following.

4.17.2.1 Avoidance and Minimization Measures

- As described in Chapter 2, *Proposed Action and Alternatives,* Section 2.4.1.3, *Operation and Management of Tinian Range and Training Area*, the Military Lease Area would become an active military training area that includes hazardous activity. Gates and fencing would be employed for access control and security and signs will be posted to warn the public of hazards. Varying degrees of public access would be provided to certain portions of the Military Lease Area and waters off the Military Lease Area during the training periods.

- As described in Chapter 2, *Proposed Action and Alternatives,* Section 2.5.1.4, *Operation and Management of Pagan Range and Training Area*, a range safety program will be established per Marine Corps Order 3570.1C, *Range Safety,* detailing procedures for RTA safety, emergency response (medical and fire), explosive ordnance disposal, training mishap investigations, safety training, and range inspections.
- As described in Chapter 2, *Proposed Action and Alternatives*, Section 2.5.1.2.3, *Munitions Storage Area,* the Munitions Storage Area on Pagan would be secured by chain-link fencing with barbed wire. To provide for the safe conduct of military training, both for the public and the training participants, designated sea space and airspace would be selected to support training for all the Tinian and Pagan alternatives. Both the planned sea space and airspace would be scheduled for use during training and these active time periods would be provided to the public via the current Notice to Mariners and Notice to Airmen processes.
- As described in Chapter 2, *Proposed Action and Alternatives*, danger zones would be established around live-fire RTAs under the proposed action and its alternatives. The purpose of the danger zones are established for safe separation of non-participating military personnel and the public from live-fire training. These zones delineate areas (air, land, and sea) in which personnel and/or equipment may be endangered by ground weapons firing or detonation activities. The establishment of charted Special Use Airspace and danger zones on aeronautical and surface navigation charts provides safety information to the public including vertical hazard altitudes that could be a danger to other airspace users. Application of these safety and notification procedures would ensure safety of flight, water operations, and non-training personnel.

4.17.2.2 Best Management Practices and Standard Operating Procedures

Best management practices and standard operating procedures that are applicable for public health and safety are listed below and described in Appendix D, *Best Management Practices*.

- Federal Aviation Administration notification: including the Construction Safety and Phasing Plan and coordination with the Commonwealth Ports Authority and commercial aviation operators
- Bird Aircraft Strike Hazards Plan
- Traffic Management Plan and Work Zone Traffic Management
- Range Training Area and Management Plan
- Public Access Plan
- Gates, Fencing, and Signs
- Fire Management Plan
- Explosives Safety Submission
- Hazards to Electromagnetic Radiation to Ordnance safety program

The Department of Defense would prepare a fire prevention and management plan specific to proposed RTA activities on Tinian and Pagan prior to initiation of live-fire training. The fire management plan would address the preventative and immediate actions required for fire hazards connected with RTA training. Adequate water supply and manpower would be identified to ensure safe training and protection of public safety and property. On Tinian, a 90-foot (30-meter) wide firebreak would be provided around the High Hazard Impact Area. Water trucks and hydrants would be located at the base

camp and Munitions Storage Area on Tinian. Prescribed burns for vegetation maintenance could occur within the High Hazard Impact Area on Tinian only after assessment of fire conditions.

An organization, such as a Marine Corps Base Guam Range Management Division, would be the designated range control facility organization with responsibility for the range and training facilities. This organization would provide safety, control, maintenance, environmental compliance, and administrative functions for aviation, ground, and combined arms training events within RTAs, to include both live-fire and non-live-fire events.

A range control facility would be established on Tinian to oversee safety, control, maintenance, and administrative functions for air, ground, and sea training activities within the Tinian RTA. Approximately 95 personnel on Tinian would be required for base camp support, range management, range operations, and range maintenance. Military personnel and/or civilian staff on Tinian would be responsible for base camp support, range management, range operations, and range maintenance. Anticipated public health and safety responsibilities of the Range Management Division include:

- **Safety**: Establish and implement required safety regulations such as a range safety program that includes specific safety regulations for each type of training facility. Develop, publish, and coordinate procedures for medical emergency response and evacuation and explosive ordnance disposal response management. Conduct training, face-to-face personnel briefs with required individuals, and conduct inspections.
- **Control**: Schedule, publish notices (electronically and other) to the public, operate a fire desk (a centralized, manned, coordinating military office/agency for range control operations), and provide management of airspace, control personnel, and aircraft movement and access. Provide and coordinate communications and radar surveillance. Establish and man the physical range control facility on Tinian. Administer a web-enabled scheduling system, the Range Facility Management Support System, to schedule training facilities, providing a standard, integrated system to efficiently schedule and manage firing ranges and training areas and providing training support for units. Perform pre-training range sweeps (for people and animals), and active observation during live-fire training. Operate Observation Posts manned or with cameras/radar, to survey the sea space and airspace. Initiate “cease fire” if situations arise where live-fire training could not be conducted safely.
- **Maintenance**: Provide and coordinate range clearance and environmental compliance and monitoring. Construct and maintain targets and training devices. Provide and maintain range boundary signs, fences, security cameras and gates, and coordinate range maintenance.

4.17.3 Tinian

4.17.3.1 Tinian Alternative 1

4.17.3.1.1 Construction Impacts

4.17.3.1.1.1 Aircraft Operations

Tinian Alternative 1 would include construction of the proposed training facilities at the Tinian International Airport, including new taxiways connecting to the north of existing Runway 08/26 within

the existing Tinian International Airport boundary. Through implementation of the Construction Safety and Phasing Plan and coordination with the Commonwealth Ports Authority, Tinian Alternative 1 construction activities would result in less than significant direct or indirect impacts to public health and safety with regards to aircraft operations.

4.17.3.1.1.2 Ground Operations

Construction personnel would be required to maintain boundary signs, fences, and barricades to provide notice to the public of active construction zones. In addition, security personnel or construction safety flaggers would provide warnings to the public of ongoing construction activities along roadways and publicly visited areas (e.g., recreational areas). Because the public would be excluded from entering active construction areas, potential risks to public health and safety would be reduced. Therefore, construction of Tinian Alternative 1 construction activities would result in less than significant direct or indirect impacts to public health and safety with regards to ground operations.

4.17.3.1.1.3 Marine Operations

Proposed improvements at the Port of Tinian would include construction of a new biosecurity station and construction of a new bulk fuel storage facility, parking, and a stormwater retention pond. In addition, improvements would be made on land in the vicinity of the existing public boat ramp to facilitate egress from the ramp to the roadway. No in-water construction is proposed at the Port of Tinian.

Proposed construction at Unai Chulu to develop the amphibious landings would include in-water construction in the nearshore waters of the beach. Construction techniques would require large construction equipment and temporary construction work areas. Public beach access at Unai Chulu would be prohibited during construction activities. Construction personnel would be required to maintain boundary signs, fences, and barricades to provide notice to the public of active construction zones. In addition, security personnel or construction safety flaggers would provide warnings to the public of ongoing construction activities along roadways leading to the beach. Because the public would be excluded from entering active construction areas, potential risks to public health and safety would be reduced.

Based upon the above analysis and implementation of the resource management measures identified in Section 4.17-2, Alternative 1 construction activities would result in no direct or indirect impacts to public health and safety with regards to marine operations.

4.17.3.1.2 Operation Impacts

4.17.3.1.2.1 Aircraft Operations

Various levels of Special Use Airspace will be designated as described in Section 4.6, *Airspace*, to provide for the safe separation of military air traffic and activities of civilian and non-participating air traffic. Special Use Airspace is airspace wherein activities must be confined or limited due their nature. For example, artillery fire must be confined to Special Use Airspace to ensure public aviation safety. Also, public aviation must be restricted from certain Special Use Airspace to ensure their safety. Three types of Special Use Airspace are planned to meet the safety and control aspects of military training:

- **Military Operation Areas:** airspace designated to separate or segregate certain nonhazardous military activities from other air traffic and to identify where these activities are taking place.
- **Warning Areas:** airspace to alert nonparticipating pilots of the potential danger of military training that contains activity that may be hazardous to nonparticipating aircraft.
- **Restricted Areas:** airspace identified above an area on the surface of the earth within which the flight of aircraft is subject to restrictions.

Range control would monitor and control aircraft and unmanned aircraft system access and activities within the Special Use Airspace. Range control would also observe the airspace and sea space areas affected by live-fire and execute procedures to support safe passage of watercraft and aircraft. Planned live-fire range activities would be specified in published range regulations, with detailed procedures to accommodate the cease fire of activities in response to non-authorized aircraft. Real-time communications between on-site range safety personnel, range users, aircraft, and oversight personnel would be in place at all times during range use. Procedures would be implemented and enforced to ensure the cessation of all live-fire activities in the event of conflicting aircraft over flight, or non-authorized personnel.

Aircrew operating in Tinian airspace would be required to follow applicable procedures outlined in the Bird Aircraft Strike Hazards Plan, or similar measures developed by civilian airport authorities.

Based upon the above analysis and implementation of the resource management measures identified in Section 4.17.2, Tinian Alternative 1 operations would result in less than significant direct or indirect impacts to public safety with regard to aircraft operations.

4.17.3.1.2.2 Ground Operations

As described in Section 4.13, *Transportation Resources*, the altered circulation patterns resulting from the permanent closure of existing roads within the High Hazard Impact Area under Tinian Alternative 1 would not significantly increase the rate of traffic-related accidents. Proposed roadway improvements would decrease accident rates and increase overall transportation safety on Tinian.

Restricting public access to portions of or all of the Military Lease Area during military training activities would occur under the proposed action. Varying degrees of public access may be allowed to certain inactive areas in the Military Lease Area. Live-fire training activities would occur for 20 training weeks per year. Outside of the 20 live-fire training weeks per year, non-live-fire training activities would occur.

Active live-fire training areas would not be accessible by the public, and it would be standard protocol to provide sufficient lead-time to ensure range clearance before any training activities were conducted. In addition, the U.S. military would provide and maintain boundary signs, fences, security cameras, and/or gates in the following areas, to which public access would not be permitted at any time:

- High Hazard Impact Area
- Munitions Storage Area
- Airport improvements
- Base camp
- Fenced and gated range training areas
- Surface Radar
- Observation Posts

Unauthorized civilian entry during military training operations could result in accidents that impact public health and safety. To facilitate range safety, ground access would be controlled by traffic control points on existing roads into the Military Lease Area. Sea space and airspace restrictions would be established and published electronically by U.S. military using current methods of notifications (including Notices to Mariners and Airmen), along with schedules of when the ranges and associated danger zones are restricted. Training periods would be published electronically and signs posted to inform residents and visitors of when they are and are not allowed access to the Military Lease Area. The RTA would be patrolled each morning before use to ensure no unauthorized individuals are present.

Range control would monitor and control access of personnel and vehicles within the Military Lease Area. Planned live-fire ranges would be specified in published range regulations, with detailed procedures to accommodate the cease fire of activities in response to intruder personnel. Real-time communications between on-site range safety personnel, range users, and oversight personnel would be in place at all times during range use. Procedures would be implemented and enforced to ensure the cessation of all live-fire activities in the event of conflicting aircraft over flight, or transit of watercraft or personnel.

Live-fire operations that could result in unexploded ordnance would be restricted to the High Hazard Impact Area which would be fenced and public access restricted at all times. Activities associated with firing range operations could result in increased exposure to munitions and explosives of concern. This clearing would occur based on tabulated range usage. The Tinian RTA would be managed in accordance with current military range management policies and procedures that are designed to ensure the safe, efficient, effective, and environmentally sustainable use of the range area. Routine range clearance would be employed that involves the destruction or removal and proper disposal of munitions, including target debris, munition packaging, and crating materials.

There is also a potential for wildfire during operations within the RTA that could affect public health and safety. Range safety procedures would include measures to minimize the risk of wildfire and would provide a response plan for the event of a wildfire. To ensure public safety and protection of property, a fire management plan would be developed to address the preventative and immediate actions required to address potential fire hazards associated with military training, including considerations of both water supply and manpower.

The effects of electromagnetic environments created by stationary and mobile/portable antenna/transmitter systems (such as the International Broadcasting Bureau), located in the vicinity of ordnance operations (transportation, assembly, and loading operation areas) may present hazardous situations. A Hazards to Electromagnetic Radiation to Ordnance safety program and instruction (detailed directions pertaining to types of munitions authorized for use, based on specific transmitters/antennas in use) would provide emission control procedures for safely minimizing operational restrictions due to Hazards to Electromagnetic Radiation to Ordnance. This includes safe separation distances for all personnel (military and non-military), ground vehicles, ships, and aircraft.

Implementation of range safety and access control procedures would prevent the public from accessing the Tinian RTA during live-fire training events. The High Hazard Impact Area and certain training areas would be fenced and gated to restrict the public from entering during non-training periods. Based upon the above analysis and implementation of the resource management measures identified in Section

4.17-2, Tinian Alternative 1 operations would result in less than significant direct or indirect impacts to public safety with regard to ground operations.

4.17.3.1.2.3 Marine Operations

Planned sea space activation would serve to segregate non-participating ships from potentially hazardous military training. The sea space immediately underlying the airspace would be designated as danger zones. Specific danger zones would be broadcasted to the public. Danger zones are defined water areas used for military training, aviation ordnance, rocket firing or other hazardous operations and are designed to separate military operations from non-participating marine vessels. Danger zones would be closed to the public on a full-time or intermittent basis during training and open to the public when no training is occurring in that area. Public access would be prohibited or limited in restricted areas.

Range control would monitor and control access of personnel, vehicles, aircraft, and unmanned aircraft system activities within the Military Lease Area and supporting Special Use Airspace. Range control would also observe the sea space areas affected by live-fire and execute procedures to support safe passage of watercraft. Planned live-fire ranges would be specified in published range regulations, with detailed procedures to accommodate the cease fire of activities in response to intruder watercraft. Real-time communications between on-site range safety personnel, range users, and oversight personnel would be in place at all times during range use. Procedures would be implemented and enforced to ensure the cessation of all live-fire activities in the event of conflicting transit of watercraft or personnel.

Based upon the above analysis and implementation of the resource management measures identified in Section 4.17-2, Tinian Alternative 1 operations would result in less than significant direct or indirect impacts to public safety with regard to marine operations.

4.17.3.2 Tinian Alternative 2

4.17.3.2.1 Construction Impacts

The impacts to public health and safety resulting from construction activities associated with Tinian Alternative 2 would be the same as those described for Tinian Alternative 1. Tinian Alternative 2 would also follow the same resource management measures as described in Section 4.17.2. See Section 4.17.3.1, *Tinian Alternative 1*, for a discussion of impacts. Tinian Alternative 2 construction activities would result in less than significant direct or indirect impacts to public health and safety with regard to aircraft and ground operations; and no impact to public health and safety with regard to marine operations.

4.17.3.2.2 Operation Impacts

The impacts to public health and safety from Tinian Alternative 2 operations would be the same as those described for Tinian Alternative 1. Tinian Alternative 2 would also follow the same resource management measures as described in Section 4.17.2. See Section 4.17.3.1, *Tinian Alternative 1*, for a discussion of impacts. Tinian Alternative 2 operations would result in less than significant direct or indirect impacts to public health and safety.

4.17.3.3 Tinian Alternative 3

4.17.3.3.1 Construction Impacts

The impacts to public health and safety resulting from construction activities associated with Tinian Alternative 3 would be the same as those described for Tinian Alternative 1. Tinian Alternative 3 would also follow the same resource management measures as described in Section 4.17.2. See Section 4.17.3.1, *Tinian Alternative 1*, for a discussion of impacts. Tinian Alternative 3 construction activities would result in less than significant direct or indirect impacts to public health and safety with regard to aircraft and ground operations; and no impact to public health and safety with regard to marine transportation.

4.17.3.3.2 Operation Impacts

The impacts to public health and safety resulting from operations associated with Tinian Alternative 3 would be the same as those described for Tinian Alternative 1. Tinian Alternative 3 would also follow the same resource management measures as described in Section 4.17.2. See Section 4.17.3.1, *Tinian Alternative 1*, for a discussion of impacts. Tinian Alternative 3 operations would result in less than significant direct or indirect impacts to public health and safety.

4.17.3.4 Tinian No-Action Alternative

The periodic non-live-fire military training exercises in the Military Lease Area on Tinian would be expected to continue under the no-action alternative. The impacts to public health and safety would be less than significant during these short term duration events. The military training exercises of troop and vehicle movements would be limited to within and to/from the Military Lease Area where there would be no public access. As documented in the Guam and CNMI Military Relocation EIS (DoN 2010a), the four planned live-fire training ranges would have less than significant impacts (see Table 18.2-4; DoN 2010a). Also, for the Mariana Islands Range Complex training (see Table 3.19-2; DoN 2010b), there would be less than significant impacts to public health and safety on Tinian. Therefore, overall, the no-action alternative would have less than significant impacts.

4.17.3.5 Summary of Impacts for Tinian Alternatives

Table 4.17-1 contains a comparison of the potential impacts to public health and safety resources for the three Tinian alternatives and the no-action Alternative.

Table 4.17-1. Summary of Impacts for Tinian Alternatives

Resource Area	*Tinian (Alternative 1)*		*Tinian (Alternative 2)*		*Tinian (Alternative 3)*		*No-Action Alternative*	
Public Health and Safety	**Construction**	**Operation**	**Construction**	**Operation**	**Construction**	**Operation**	**Construction**	**Operation**
Aircraft Operations	*LSI*	*LSI*	*LSI*	*LSI*	*LSI*	*LSI*	*LSI*	*LSI*
Ground Operations	*LSI*	*LSI*	*LSI*	*LSI*	*LSI*	*LSI*	*LSI*	*LSI*
Marine Operations	*NI*	*LSI*	*NI*	*LSI*	*NI*	*LSI*	*LSI*	*LSI*

Legend: *LSI* = less than significant impact; *NI* = no impact.

4.17.4 Pagan

4.17.4.1 Pagan Alternative 1

4.17.4.1.1 Construction Impacts

After the completion of an appropriate real estate agreement and notifications with the CNMI government, construction activities associated with Pagan Alternative 1 could occur. Although there is no permanent resident population on Pagan, members of the public (e.g., visitors) could be present on the island during construction. However, they would be excluded from the construction areas. Construction personnel would be required to maintain boundary signs, fences, and barricades to provide notice to the public of active construction zones. In addition, security personnel or construction safety flaggers would provide warnings to the public of ongoing construction activities along roadways and publicly visited areas (e.g., recreational areas). There would be temporary closure of the Pagan airfield during the removal of the lava flow and for the improvements on and adjacent to the runway. Based upon the above analysis and the implementation of resource management measures in Section 4.17.2, Pagan Alternative 1 construction activities would result in no direct or indirect impacts to public health and safety.

4.17.4.1.2 Operation Impacts

4.17.4.1.2.1 Aircraft Operations

Various levels of Special Use Airspace would be designated as described in Section 4.6, *Airspace*, to provide for the safe separation of military air traffic and activities from civilian and non-participating air traffic.

Range control would occur via communications (i.e., radios) between military range personnel on Pagan and the range control facility on Tinian along with surveillance capabilities supported by participating tactical training agencies (i.e., groups of military units with tactical responsibility for a training asset) and training assets. As with the Tinian alternatives (Section 4.17.3), range control personnel on Pagan would oversee personnel, aircraft, and unmanned aircraft system access and activities for direct fire, indirect fire, and aviation activity training.

Training periods would be published electronically by U.S. military using current methods of notifications (including Notice to Airmen). The restricted airspace would be off-limits during live-fire training.

Aircrews operating on Pagan would be required to follow applicable procedures outlined in the Bird Aircraft Strike Hazards Plan.

Based upon the above analysis and the implementation of resource management measures in Section 4.17.2, Pagan Alternative 1 operations would result in less than significant direct or indirect impacts to public safety with regard to aircraft operations.

4.17.4.1.2.2 Ground Operations

No permanent range control facilities are proposed for Pagan (i.e., no permanent observation towers or radars). Military range personnel on Pagan during training exercises would oversee safety, control,

maintenance, and administrative functions for air, ground, and sea training activities within the RTA. Range personnel deployed to Pagan would utilize temporary lookouts (primarily located on high ground) that provide the ability to observe interlopers (non-authorized aircrafts, boats or civilians). In addition, an aircraft clearing pass (visual review) of the area would be a standard procedure to see if people, animals, vehicles, etc. are in the area prior to military operations.

Range control would occur via communications (i.e., radios) between military range personnel on Pagan and the range control facility on Tinian and surveillance supported by participating tactical training agencies and assets. As with Tinian, range control personnel on Pagan would oversee personnel, vehicles, aircraft, and unmanned aircraft system access and activities for direct fire, indirect fire, and aviation activity training.

Training periods would be published electronically by U.S. military using current methods of notifications. During training periods, public access would be restricted from accessing areas within the Pagan RTA encumbered by surface danger zones for safety reasons. Depending upon the type of training and training scenario, portions of the island could be available for public access.

Range safety procedures would include both preventative measures to minimize the risk of wildfire and a response plan in the event of a wildfire. The U.S. military would provide and maintain boundary signs, fences, and/or gates in areas around the High Hazard Impact Areas; public access to the two High Hazard Impact Areas would not be permitted at any time.

Pagan Alternative 1 would emphasize the use of air-to-ground missiles in conjunction with live-fire aerial and sea-to-surface munitions. Activities associated with firing range operations would result in unexploded ordnance and munitions constituents. If unexploded ordnance or military munitions are inadvertently discovered by a member of the public, the resulting effects could be serious or life threatening.

Live-fire operations that could result in unexploded ordnance would be restricted to the High Hazard Impact Areas which would be fenced (as feasible) and public access restricted at all times. Activities associated with firing range operations could result in increased exposure to munitions and explosives of concern. This clearing would occur based on tabulated range usage. The Pagan RTA would be managed in accordance with military range management policies and procedures, designed to ensure the safe, efficient, effective, and environmentally sustainable use of the range area. Range clearance on Pagan would occur on a case-by-case basis, based on the usage of the RTA. Range clearance involves the destruction or removal and proper disposal of munitions, including target debris, munition packaging, and crating materials.

Implementation of safety and access control procedures are designed to prevent the public from accessing the island during live-fire training events. The High Hazard Impact Area(s) would have signage posted to inform the public they are restricted from entering during non-training periods. Based upon the above analysis and the implementation of resource management measures in Section 4.17.2, Pagan Alternative 1 operations would result in less than significant direct or indirect impacts to public health and safety with regard to ground operations.

4.17.4.1.2.3 Marine Operations

The sea space immediately underlying the restricted airspace around Pagan would be designated as danger zones. Range control would occur via communications (i.e., radios) between military range personnel on Pagan and the range control facility on Tinian and surveillance supported by participating tactical training agencies and assets. Range control personnel on Pagan would also coordinate with exercise participants to ensure observation of the sea space areas surrounding Pagan impacted by live-fire effects to ensure procedures are executed to support safe passage of transiting watercraft.

Training periods would be published electronically by U.S. military using current methods of notifications (including Notice to Mariners). During training periods, public access would be restricted from accessing areas within the Pagan RTA encumbered by danger zones for safety reasons. Depending upon the type of training and training scenario, portions of the surrounding waterways may be available for public access.

Based upon the above analysis and the implementation of resource management measures in Section 4.17.2, Pagan Alternative 1 operations would result in less than significant direct or indirect impacts to public safety with regard to marine operations.

4.17.4.2 Pagan Alternative 2

Pagan Alternative 2 construction and training activities would have similar impacts to public health and safety as those identified for Pagan Alternative 1. The main differences that would affect public health and safety are the northern High Hazard Impact Area would be smaller and southern High Hazard Impact Area located across the isthmus would not be constructed.

4.17.4.2.1 Construction Impacts

The impacts to public health and safety from construction activities associated with Pagan Alternative 2 would be the same as those described for Pagan Alternative 1. Pagan Alternative 2 would also follow the same resource management measures as described in Section 4.17.2. See Section 4.17.4.1, *Pagan Alternative 1* for a discussion of impacts. Based upon the above analysis and the implementation of resource management measures in Section 4.17.2, Pagan Alternative 2 construction activities would result in no direct or indirect impacts to public health and safety.

4.17.4.2.2 Operation Impacts

The impacts to public health and safety resulting from operations associated with Pagan Alternative 2 would be the same as those described for Pagan Alternative 1. Pagan Alternative 2 would also follow the same resource management measures as described in Section 4.17.2. See Section 4.17.4.1, *Pagan Alternative 1* for a discussion of impacts. Based upon the above analysis and the implementation of resource management measures in Section 4.17.2, Pagan Alternative 2 operations would result in less than significant direct or indirect impacts to public health and safety.

4.17.4.3 Pagan No-Action Alternative

The periodic visits of eco-tourism, scientific surveys or military training related to search and rescue are assumed to continue on Pagan under the no-action alternative. The impacts to public health and safety of these activities would be considered to be less than significant.

4.17.4.4 Summary of Impacts of Pagan Alternatives

Table 4.17-2 contains a comparison of the potential impacts to public health and safety resources for the two Pagan alternatives and the no-action alternative.

Table 4.17-2. Summary of Impacts for Pagan Alternatives

Resource Area	*Pagan (Alternative 1)*		*Pagan (Alternative 2)*		*No-Action Alternative*	
Public Health and Safety	**Construction**	**Operation**	**Construction**	**Operation**	**Construction**	**Operation**
Aircraft Operations	*NI*	*LSI*	*NI*	*LSI*	*LSI*	*LSI*
Ground Operations	*NI*	*LSI*	*NI*	*LSI*	*LSI*	*LSI*
Marine Operations	*NI*	*LSI*	*NI*	*LSI*	*LSI*	*LSI*

Legend: *LSI* = less than significant impact; *NI* = no impact.