

4.13 TRANSPORTATION

Section 4.13 addresses the components of the proposed action that could affect the existing air, ground, and marine transportation resources. Potential impacts to Tinian and Pagan's transportation network are analyzed, and include both construction and operational elements of the proposed action alternatives that could affect air, ground, and marine transportation.

4.13.1 Approach to Analysis

4.13.1.1 Air Transportation

The air transportation section evaluates the existing operational capacity of the Tinian International Airport facilities and Pagan airfield to meet the air transportation demand for the proposed action and the potential impacts of the air transportation demand on these airport facilities. Airfield demand/capacity was analyzed to determine the ability of the Tinian International Airport and Pagan airfield to accommodate forecasted operation levels with the implementation of the proposed action, and to identify additional airport facilities, if required.

Factors considered in defining airfield facility requirements include:

- Impact to the efficiency and safety of existing facilities
- Increase in level of aviation operation, which determines the requirements for runway and taxiways
- Increase in mix of aircraft projected to operate at Tinian International Airport and Pagan airfield

The impact analysis considered the following potential effects to air transportation from the proposed action:

- Increase in aviation operation demand to a level that approaches the airfield capacity resulting in operational delays, limited growth of airport operations, use of larger aircraft, and/or cancellation or consolidation of flights during peak delay periods.
- Shortfalls in the existing airport facilities, such as the pavement strength, aircraft parking apron, passenger terminal and vehicular parking facilities that would severely impede the public access to these facilities.
- Obstructions to air navigation, navigational aids, or navigational facilities which are hazardous to the usage of the airport.

Like the highway system and traffic laws, Federal Aviation Administration regulations establish how and where aircraft may fly. Collectively, the Federal Aviation Administration uses these regulations to make airport use as safe, efficient, and compatible as possible for all types of aircraft; from private propeller-driven planes to large, high-speed commercial and military aircraft. The impact analysis on air transportation resources for this EIS/OEIS is developed in consultation with the Federal Aviation Administration and assists the Federal Aviation Administration in fulfilling their requirement to complete an aeronautical study. The Federal Aviation Administration will prepare two separate aeronautical studies, one for Tinian and one for Pagan, to determine the aeronautical effects of potential obstructions to air navigation. The separate aeronautical study will review the existing airspace structure

and use, and contain an analysis of the potential impacts of the proposed action alternatives on civil aviation. Refer to Section 4.6, *Airspace* for details on the impacts to airspace and air traffic.

4.13.1.2 Ground Transportation

The analysis for ground transportation on Tinian addresses potential impacts to traffic and circulation associated with the proposed action. The analysis uses past traffic analyses and engineering evaluations, currently available traffic data, and Highway Capacity Manual (Transportation Research Board 2000) to determine specific roadways' projected Level of Service. For a definition of Level of Service, see Section 3.13.1, *Definition*.

This approach was not used for Pagan, because only all-terrain pathways currently exist and the Highway Capacity Manual methodology does not address the unique characteristics of all-terrain pathways or trail users.

As part of the 1999 amendment to the 1975 Technical Agreement, the Department of Defense transferred ownership of the roads (public rights of way) within the lease-back portion of the Military Lease Area on Tinian back to the CNMI (as described in Section 3.7, *Land and Submerged Land Use*), for the purposes of maintaining roads used by the civilian population and to alleviate public safety concerns for those requiring access to the Lease Back Area (Northern Mariana Islands 1975). Roads within the Exclusive Military Use Area were retained by the military with a maintenance agreement between the CNMI and the Department of Defense, to facilitate public access to the historic areas within the Military Lease Area. Development within the Military Lease Area as part of proposed action would require a review of the 1999 amendment to the 1984 Tinian lease agreement on road ownership and maintenance.

Roadways on Tinian would be designed and constructed in accordance with standards included in the Federal Highway Administration's *A Policy on Geometric Design of Highways and Streets* (American Association of State Highway and Transportation Officials 2011) and criteria included in the United Facilities Code 3-250-18FA, *General Provisions and Geometric Design for Roads, Streets, Walks, and Open Storage Areas* (Department of Defense 2006).

The significance of impacts were determined based on the degree of change between pre- and post-proposed action conditions. Significant impacts to ground transportation would occur if execution of the proposed action alternative would cause the following:

- Substantial increase in traffic volumes (average daily traffic) on existing roadways, such that the available capacity would be exceeded and the Level of Service would degrade to unacceptable conditions (i.e., Level of Service E or Level of Service F, as defined in Appendix O, *Transportation Study*)
- Significant non-compliance with jurisdictional transportation policies, plans, or mandated improvement programs

4.13.1.3 Marine Transportation

The analysis for marine transportation addresses the potential impacts to facility access at the Port of Tinian. The analysis assessed effects to general vessel access, loading/unloading of ships, and vessel handling requirements. This analysis was not done for Pagan alternatives, as Pagan does not currently

have an active harbor. A separate analysis addressed sea space restriction requirements for training activities around Tinian and Pagan and identified effects to marine vessel transportation.

Significance of impacts was determined qualitatively based on the degree of change between pre- and post-proposed action alternative conditions. Significant impacts to marine transportation would occur in the event that execution of the alternative caused either of the following:

- Conflict with transportation policies, plans, or programs
- Substantially affect marine transportation routes, in-harbor procedures, or infrastructure

4.13.2 Resource Management Measures

4.13.2.1 Air Transportation

Resource management measures that are applicable to air transportation include the following:

4.13.2.1.1 Avoidance and Minimization Measures

- Contractor coordination with the Commonwealth Ports Authority and the various air and sea carriers in advance for transport arrangement during peak season when the majority of construction personnel and dependents may travel at the same time (i.e. during Christmas Exodus break), to possibly spread out the departure/arrival times and to utilize different modes of transport to mitigate temporary strain on air transportation infrastructure.
- Adjustment of construction timing and phasing to accommodate the civil and commercial usage of the existing airport facilities.

4.13.2.1.2 Best Management Practices and Standard Operating Procedures

- Erosion Control Plan
- Hazardous Materials Management Plan
- Hazardous Waste Management Program
- Spill Prevention, Control and Countermeasures Plans and Facility Response Plans
- Biosecurity Outreach and Education
- Traffic Management Plan and Work Zone Traffic Management
- Notice to Air Traffic – The Federal Aviation Administration will announce in the Notice to Airmen the proposed schedule for the use of the surface danger zone to inform vessel operators of periods of potential airspace use
- Range Training Area Management Plan
- Bird-Aircraft Strike Hazard Plan
- Construction Safety and Phasing Plan – Which would be approved by the Federal Aviation Administration and would require coordination with Commonwealth Ports Authority and commercial aviation operators

4.13.2.2 Ground Transportation

Resource management measures that are applicable to ground transportation include the following:

4.13.2.2.1 Avoidance and Minimization Measures

- Low Impact Development

4.13.2.2.2 Best Management Practices and Standard Operating Procedures

- Range Training Area and Management Plan
- Traffic Management Plan and Work Zone Traffic Management
- Erosion Control Plan

4.13.2.3 Marine Transportation

Resource management measures that are applicable to marine transportation include the following:

4.13.2.3.1 Best Management Practices and Standard Operating Procedures

- Range Training Area and Management Plan
- Notice to Mariners

A complete listing of best management practices is provided in Appendix D, *Best Management Practices*.

4.13.3 Tinian

4.13.3.1 Tinian Alternative 1

4.13.3.1.1 Construction Impacts

4.13.3.1.1.1 Air Transportation

The average annual population of construction personnel, including their dependents, coming from outside of Tinian is estimated to be approximately 450 to 600 during the 8 to 10 years of the construction period of the proposed action (Appendix Q, *Socioeconomic Impact Assessment Study*) (DoN 2014a). There would be some increase in air passenger volume if they transport to and from Tinian by air, especially if the construction personnel and dependents return home at the same time (e.g. during Christmas Exodus break). It is anticipated that the construction personnel and dependents are likely to take the following transport scenarios:

- By sea
- By air to nearby airport, such as Saipan International Airport, and connect to Tinian by sea
- By air to nearby airport, such as Saipan International Airport, and connect to Tinian by air
- By chartered plane to Tinian International Airport directly (varies from approximately 3 to 6 flights for regional jets with approximately 100 to 200 seats, to approximately 20 flights by twin-engine Short 360 aircraft with 30 seats)

If Tinian International Airport is the first port of entry to the U.S. for some of the foreign construction personnel and dependents, arrangements for immigration and customs services must be made in advance with the Chief Immigration Judge Saipan, and coordination with Transportation Security Administration would be required for security screening.

The existing airfield annual service volume capacity of Tinian International Airport is approximately 164,000 operations, with hourly capacities during visual flight rules and instrument flight rules of approximately 50 and 45 operations, respectively. The existing total operations at Tinian International Airport were 49,116 in 2013, which represents approximately 30% of the annual service volume. The Federal Aviation Administration recommends a detailed planning analysis for airfield enhancements when annual operations reach 60% of the annual service volume (98,400 operations at Tinian International Airport) and implementing the enhancements when annual operations approach 80% of the annual service volume (131,200 operations at Tinian International Airport). There is approximately 50% of the airfield capacity (i.e., 82,000 annual service volume) at the existing Tinian International Airport available before any enhancements are required. Based on the above estimates, the capacity of the existing airfield facilities is sufficient to handle the increase in air travel demand during the 8 to 10 year construction period.

It is anticipated that the primary transport of construction equipment and materials to Tinian would be by sea instead of by air, in view of the delivery costs. Although some of the light construction equipment and materials may potentially be delivered by air, the increase in air cargo during the construction period would be minimal.

Construction of the proposed training facilities, such as new taxiways connecting to the north of existing Runway 08/26 and the required expeditionary (non-permanent) navigation lights are within the existing airport boundary, and would have temporary impacts to the existing airport facilities during construction, such as intermittent delays from unanticipated construction issues and time-sensitive construction operations. To the extent practical construction within runway critical areas, such as the runway safety area, would be completed during off-peak hours. Coordination with the Commonwealth Ports Authority and commercial aviation operators is required as part of the Construction Safety and Phasing Plan and would reduce these impacts and/or develop phasing strategies to remove the impacts. Development of the Construction Safety and Phasing Plan is to begin during engineering design stages of the project. Federal Aviation Administration Form 7460-1, Notice of Proposed Construction or Alteration, including the Construction Safety and Phasing Plan, has to be submitted prior to construction on the airport, and for any construction that is within an imaginary surface extending outward and upward at 100 to 1 for a horizontal distance of 20,000 feet (6,096 meters) from the nearest point of Runway 08/26.

Through the implementation of resource management measures, including contractor coordination with the Commonwealth Ports Authority and the various air and sea carriers in advance for transportation arrangements during the peak transportation seasons, and adjusting construction timing to accommodate civil and commercial usage of airport facilities, impacts to transportation facilities would be less than significant during the construction period.

4.13.3.1.1.2 Ground Transportation

[Figure 4.13-1](#) shows the proposed ground transportation improvements and road closures. New road construction and existing roadway improvements are planned as part of the proposed action, and necessary to support tactical vehicles and military training activities on Tinian, as well as to improve access to areas within the Military Lease Area for civilians. Improvements may include, but would not be limited to, clearing, grading, resurfacing, and reinforcing/strengthening existing roads that are currently in poor condition. The following roadway improvements and new roadway construction would be considered for implementation and are detailed in Section 2.4.1.1, *Construction and Improvements*.

- Improve road right-of-way for utilities
- Repair existing road for public use
- Repair existing road to a public access boulevard
- Construct new paved roads
- Repair existing road for general use
- Construct new gravel roads
- Establish military training roads
- Establish perimeter patrol road

The following cargo transit and tracked vehicle transit routes would be established:

- Outside of the Military Lease Area a cargo transit route/tracked vehicle transit lane would be established
- Within the Military Lease Area a tracked vehicle training trail would be established

Construction activities associated with the proposed action are anticipated to span 8 to 10 years. On Tinian, the construction of training facilities, support facilities, and infrastructure would be limited in most cases to grading and excavation. Some localized construction of structures (e.g., port improvements, base camp, Munitions Storage Area, Observation Posts) and installation of automation equipment within the Military Lease Area would take place (Section 2.4.1.1, *Construction and Improvements*).

Depending on how rapidly construction is completed, the average number of construction workers, including their dependents, would range from approximately 450 to 600 on Tinian for each year of the 8- to 10 year construction period, and most off-island construction workers would be expected to live in workforce housing that is currently located behind the Tinian Dynasty Hotel and Casino (Appendix Q, *Socioeconomic Impact Assessment Study* (DoN 2014a)).

Throughout the 8- to 10-year construction period of Tinian Alternative 1, intermittent impacts to traffic circulation may result from the movement of trucks containing construction and debris removal materials, as well as from construction workers commuting. It is assumed that construction workers residing in workforce housing would be bused to the construction site in 40-passenger buses (between 12 and 15 bus trips per work day). This increase in traffic volumes on Tinian roadways would not significantly adversely affect traffic circulation or roadway Level of Service.

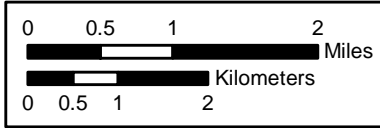


Figure 4.13-1
Ground Transportation Improvements

Construction truck movements may result in generally isolated impacts that could include, but would not be limited to, congestion, slower speeds in construction zones, temporary roadway closures, and short detours that may be caused by equipment movement, delivery of construction materials, removal of construction debris, and construction of roadway improvements.

Most of the construction activities would occur on military property, and as such, very limited transportation and circulation impacts from construction are anticipated. Projects at the port or road and utility improvements from the port to the base camp would impact the community. The traffic management plan and work zone traffic management would minimize construction impacts on vehicular travel and bicycle and pedestrian circulation, and access to destinations near the construction area.

With implementation of best management practices (Appendix D), which would include a comprehensive Traffic Management Plan, work zone traffic management strategies, and appropriate roadway and public right-of-way maintenance, construction under Tinian Alternative 1 would not significantly increase the potential for impacts to traffic circulation or roadway Level of Service for vehicles, public transit, pedestrians, or bicycles, increase the rate of traffic related accidents, or reduce transportation safety. Therefore, construction activities associated with Tinian Alternative 1 would result in less than significant direct and indirect impacts to ground transportation resources.

4.13.3.1.1.3 Marine Transportation

Construction of proposed training ranges and support facilities would increase use of Tinian's port facilities. Several vessel visits would be required to transport the initial equipment, materials, and personnel (temporary and permanent) associated with construction of the training and supporting facilities. Use of the port would be increased over the entire 8 to 10 year course of the construction period.

All vessels associated with the construction would dock at Tinian's commercial harbor. Tinian Alternative 1 does not include improvements to the harbor. However, port improvements (on land) would include enhancements to the existing old public boat ramp to accommodate use by Amphibious Assault Vehicles, new military-only bulk fuel storage tanks, a new military-only biosecurity facility, and a military-only vehicle washdown facility. The improvements are described in Chapter 2, *Proposed Action and Alternatives*, Sections 2.4.1.2.4 and 2.4.1.2.5, and shown on Figure 2.4-5. These improvements would not affect the port's current ability to process vessels transporting personnel and cargo. Therefore, construction activities associated with Tinian Alternative 1 would result in less than significant impacts to marine transportation resources.

4.13.3.1.2 Operation Impacts

4.13.3.1.2.1 Air Transportation

The existing capacity of Tinian International Airport facilities and the air transportation demand for the proposed action have been analyzed. Based on the airfield demand/capacity analysis, the airport would not experience airfield-capacity constraints with the additional air transportation demand under the proposed action. Details of the analysis are given in Appendix O, *Transportation Study* (DoN 2014b).

No runway pavement additions, or strengthening of existing runway pavement, are anticipated. The existing runway length would be sufficient to accommodate the fleet mix with reduced maximum takeoff weights (i.e., limited allowable gross weights) for 747-400, C-17, and C-130.

A new aircraft parking apron and associated taxiway for the U.S. military would be provided to the north of Runway 08/26, and would be separated from the existing civilian apron and taxiways. It is anticipated that usage of the existing civilian apron and taxiways for the proposed action would be limited once the military apron and taxiways are in operation. Runway 08/26 would be the only major shared-use airport facility.

The personnel associated with the proposed action, including all support personnel, would enplane and deplane separate from civilian passengers and would then be bused to the base camp in designated vehicles, or walk to the base camp through a proposed gate in the joint airport/base camp security fence. It is anticipated that personnel would not be processed in the existing passenger terminal. No additional requirement for passenger processing in the existing passenger terminal is anticipated. If Tinian International Airport is the first port of entry to the U.S. for foreign allies or participants from overseas military facilities, clearance for immigration, customs, and quarantine control would be carried out at designated staging areas separate from the existing airport terminal facilities. Therefore, no additional requirement for customs, immigration, or quarantine facilities would be needed at the existing passenger terminal.

A communication tower is proposed at the base camp. Under the CFR Title 14 Part 77, Subpart B, Federal Aviation Administration Form 7460-1, Notice of Proposed Construction or Alteration, must be filed before construction. The Federal Aviation Administration would complete an obstruction evaluation/airport airspace analysis to determine whether the effects of the proposed tower would constitute a hazard to air navigation. An application for a license from the Federal Communications Commission must also be filed, if applicable.

Periodic impacts to the existing airfield facilities (mainly Runway 08/26) would be expected due to the implementation of Tinian Alternative 1. Intermittent delays could occur periodically when military training occupies the runway or during other activities (such as arming/dearming aircraft). However, potential delays would be sporadic and typically on the order of 5 minutes or less. In addition, coordination with the Commonwealth Ports Authority and commercial aviation would minimize these impacts. The training event timing could be coordinated with the civil and commercial usage of the existing airport facilities. Increase in maintenance requirements for Runway 08/26 are anticipated as a result of the increase in usage for the military training exercises.

In summary, implementation of Tinian Alternative 1 would result in less than significant direct or indirect impacts to air transportation resources.

4.13.3.1.2.2 Ground Transportation

In general, roadways would be maintained to ensure their serviceability, and would be designed in accordance with the American Association of State Highway and Transportation Officials' *A Policy on the Geometric Design of Highways and Streets, 6th Edition* (American Association of State Highway and Transportation Officials 2011) and United Facilities Criteria 3-250-18FA, *General Provisions and Geometric Design For Roads, Streets, Walks, and Open Storage Areas* (Department of Defense 2006). Exceptions to design standards (e.g., lane width, shoulder width, vertical alignment, stopping sight

distance, clear recovery zones) may be requested in some cases, with sufficient justification and documentation of reasons for the request. Examples of reasons for which exceptions have been granted include reducing or avoiding significant right-of-way, and environmental and/or socioeconomic impacts. Existing roads around the North Field Runway (e.g., 123rd Street, Ushi Point Road, and Lennox Avenue) would be maintained by the U.S. military to allow tour bus access.

Roadway alignments were evaluated for both feasibility and constructability. Permanent erosion control and bank stabilization measures are recommended for implementation on segments with steep grades and/or side slopes. Detailed information, including illustrations of the proposed roadway network, typical cross-sections, and elevation profiles are included in Appendix O, *Transportation Study*. Planned roadway improvements are preliminary and are subject to change pending ongoing engineering and feasibility studies.

Vehicles

Each unit would bring the type and amount of vehicles and equipment required for its own training. The type and amount of vehicles and equipment required would vary depending on the training activities being conducted. Examples of the type of vehicles and equipment that would be used on Tinian are shown and described in Table 2.2-2, *Representative Weaponry and Equipment*. Vehicles would include, but not limited to, the following:

- High Mobility Multi-purpose Wheeled Vehicle (Humvee)
- Light Armored Vehicle (e.g., C2 variant of LAV-25)
- Amphibious Assault Vehicle (e.g., AAV-7A1)
- Medium Tactical Vehicle Replacement 7-ton Truck

In addition, various types of military and commercial vehicles are planned for personnel movement and permanent support of administrative and range maintenance functions. These are listed in Section 2.4, *Ground Transportation*.

To minimize the need for shipping equipment to Tinian, parking for permanently staged vehicles would be provided within the Military Lease Area.

Pre-Training Preparation

Pre-training preparation would include an advance team performing administrative functions within the Tinian RTA. Pre-training preparation activities consist of a check-out of base camp facilities, clearing the Military Lease Area of non-participating personnel, establishing check points/road blocks, and conducting communications checks. Vehicles involved in pre-training preparation would travel minimally on roadways outside the Military Lease Area and would involve vehicles to be supplied from the base camp motor pool. The minimal, infrequent, and temporary increase in traffic volumes associated with pre-training preparation would result in no impacts to traffic circulation or roadway Level of Service. Pre-training preparation activities, (i.e., establishing check points/road blocks and clearing the Military Lease Area of non-participating personnel) would reduce the risk of safety hazards, accidents, and collisions.

Arrival/Departure

The periods of peak demand on roadways outside the Military Lease Area would be expected to occur immediately following the arrival, and preceding the departure, of personnel and equipment. The Port of Tinian and Tinian International Airport would serve as the primary embarkation and disembarkation points for transportation of personnel and equipment by sea and air, respectively. Personnel arriving at Tinian would disembark and proceed to base camp by vehicle, bus, or on foot.

The expected primary route for personnel traveling between The Port of Tinian and the base camp is approximately 3.44 miles (5.54 kilometers) in length and includes the following roadways outside of the Military Lease Area: new parallel roadway south of West Street, new parallel roadway west of 6th Avenue and Tinian Power Plant, and 8th Avenue. The expected primary route for personnel traveling between Tinian International Airport and base camp is less than 0.5 mile (0.8 kilometer) in length and does not require travel on roadways outside the Military Lease Area.

For purposes of impact analysis a scenario with the maximum potential for adverse effects was used; assuming a training population of 3,000 (the maximum number of personnel the base camp could accommodate) arrive on the same day, disembark from the Port of Tinian, and are transported to base camp by bus, 150 round-trips (450 passenger vehicle equivalents) would be required. Daily traffic volumes on 8th Avenue, outside the Military Lease Area, would increase from 115 to 565 vehicles (measured in passenger car equivalents). Although substantial, this estimated increase in traffic volumes (average daily traffic) would not exceed available capacity and this roadway would continue to operate at the acceptable Level of Service A with free-flowing traffic and little or no delay to motorists.

During the arrival and departure periods, brief traffic delays and increased traffic congestion would likely occur due to transport of personnel and equipment. Increases in traffic volumes associated with the arrival of military personnel would be temporary and all Tinian roadways would continue to operate at the acceptable Level of Service A. Traffic levels on the majority of roadways within the village of San Jose would not be affected, and traffic volumes on military transit corridors outside the Military Lease Area would return to baseline conditions following arrival. Ground transportation conditions during departure would be similar to arrival. The temporary increase in vehicular traffic volumes during the arrival and departure periods would result in no impacts to traffic circulation or roadway Level of Service.

Training

Ingress to and egress from the four range complexes would not result in a direct increase in traffic on roadways outside the Military Lease Area. Personnel departing base camp destined for any of the range complexes would follow the most direct route available, as described in Appendix O, *Transportation Study*.

In addition to the training facilities associated with the four range complexes, several training facilities would be distributed throughout the Military Lease Area, including a Convoy Course, Tracked Vehicle Driver's Course, and maneuver areas (for both light and amphibious forces). Vehicle maneuvering would only occur on developed roads and trails within the Military Lease Area, or within designated range areas. Tracked vehicles would travel only along designated tracked vehicle trails or within designated range areas (i.e., the Tracked Vehicle Driver's Course). Tactical vehicles involved in exercises at Military

Lease Area-wide training facilities would not result in an increase in the amount of traffic on roadways outside the Military Lease Area.

Supporting activities, such as transportation of munitions and hazardous waste, would require use of roadways outside the Military Lease Area.

The primary proposed supply route, which would be used for transport of munitions, as well as other supplies, is illustrated in Chapter 2, *Proposed Action and Alternatives*, Figure 2.4-3 and runs from the Port of Tinian to the Munitions Storage Area. Transportation of munitions would result in a minor increase in the amount of vehicular traffic on roadways outside of the Military Lease Area. All roadways that comprise the proposed supply route currently operate under capacity at the acceptable Level of Service A and are able to accommodate the marginal increase in vehicular traffic. Therefore, the increase in vehicular traffic along the proposed supply route would not adversely affect roadway Level of Service.

Transportation of Hazardous Materials

Vehicles transporting hazardous materials (including munitions) will travel from the Port of Tinian to the proposed Munitions Storage Area, base camp, and/or the northern part of Tinian International Airport via the primary proposed supply route (see Chapter 2, *Proposed Action and Alternatives*; Figure 2.4-3), which utilizes roads outside of the Military Lease Area and away from populated neighborhoods. A secondary proposed supply route would connect the Munitions Storage Area to munitions holding pads at the northern part of Tinian International Airport. The secondary proposed supply route would utilize roads within the Military Lease Area, including 8th Avenue, 86th Street, and Broadway Avenue. This secondary route bypasses roads which run through the Tinian International Airport and would help to prevent potential conflicts with airfield operation, which could result from temporary road closures for transport of munitions. During training activities, all roads within the Military Lease Area may be used for the transport of munitions as necessary to live-fire training facilities.

Transportation of hazardous materials would result in a minor increase in the amount of vehicular traffic on roadways outside of the Military Lease Area. All roadways that comprise the proposed supply route currently operate under capacity at the acceptable Level of Service A and are able to accommodate the marginal increase in vehicular traffic. U.S. Department of Transportation regulations establish the requirements for transporting hazardous substances. Transportation of all materials would be conducted in compliance with the U.S. Department of Transportation regulations and CFR Title 49.

Transportation of hazardous materials under Tinian Alternative 1, and the minimal incremental increase in traffic associated with the transportation of hazardous materials, would not significantly increase the potential for impacts to traffic circulation or roadway Level of Service for vehicles, public transit, pedestrians, or bicycles, increase the rate of traffic related accidents, or reduce transportation safety. Therefore, transportation of hazardous materials under Tinian Alternative 1 would result in less than significant direct and indirect impacts to ground transportation resources.

Liberty

Military personnel training on Tinian are expected to have 1 day of liberty per training cycle. While off-duty, military personnel would have liberty to go into town. Military personnel would not have access to

privately owned vehicles and would be bused to town and/or other destinations on Tinian. The number of bus trips required to transport off-duty personnel would vary depending on the training cycle.

The minimal incremental increase in traffic associated with transportation of military personnel to and from town, or other destinations on Tinian, under Tinian Alternative 1 would not be expected to significantly increase the potential for impacts to traffic circulation or roadway Level of Service for vehicles, public transit, pedestrians, or bicycles, increase the rate of traffic related accidents, or reduce transportation safety. Therefore, liberty under Tinian Alternative 1 would result in less than significant direct and indirect impacts to ground transportation resources.

Operations and Management

Base camp and training operations would require some permanent employment. In total, about 95 full-time positions would be needed to maintain a functional operation. This increase in population would result in an insubstantial increase in traffic volumes on Tinian roadways.

The minimal incremental increase in traffic associated with operations-related employment under Tinian Alternative 1 would not significantly increase the potential for impacts to traffic circulation or roadway Level of Service for vehicles, public transit, pedestrians, or bicycles, increase the rate of traffic related accidents, or reduce transportation safety. Therefore, operations and management under Tinian Alternative 1 would result in less than significant direct and indirect impacts to ground transportation resources.

Access

Mandatory vehicle access control to military installations is a Department of Defense requirement (Department of Defense Directives 5200.08-R and 5200.08 [2009, 2014]). Gates at 8th Avenue and Broadway Avenue would be manned to allow Military Lease Area access to authorized personnel (including International Broadcasting Bureau employees). Common to all alternatives would be the prohibition of public access at any time to the High Hazard Impact Area, Munitions Storage Area, base camp, all fenced and gated training facilities, and the range Observation Posts.

During the training period, varying degrees of public access may be afforded, and would depend on the areas being used for training. It is estimated that civilian use and access would be affected up to 20 weeks per year.

The proposed action would result in the following permanent and temporary road and/or intersection closures:

- Permanent road closure – Existing roads within the High Hazard Impact Area, including portions of Broadway Avenue and 116th Street, would be closed under all alternatives.
- Temporary road closure –
 - Outside the Military Lease Area: transportation of munitions would result in the temporary closure of intersections along the proposed supply route (see Chapter 2, *Proposed Action and Alternatives*, Figure 2.4-3).
 - Within the Military Lease Area: Only certain portions would be open during the training period. As training cycles are better defined, an access plan would be developed and published for public information.

Permanent closure of existing roads within the High Hazard Impact Area (including portions Broadway Avenue and 116th Street) would limit route choice and restrict vehicular access to areas of northern Tinian. A new perimeter road would be constructed around the High Hazard Impact Area. However, given the projected high utilization and frequency of live-fire training activities along Broadway Avenue (i.e., at Range Complex A and Range Complex B), motorists would be diverted to alternate routes (i.e., 8th Avenue) to access areas within the Military Lease Area. Motorists who currently travel on Broadway Avenue (280 daily vehicle trips) would be diverted to 8th Avenue during periods when access to areas within the Military Lease Area is allowed. The estimated peak hour vehicle demand at the proposed 8th Avenue gate would be fewer than 50 vehicles. This estimated peak hour demand would not exceed the gate capacity of 300 vehicles per hour. Adequate vehicle storage would be provided and queues would not be expected to spillback onto adjacent roadways. Therefore, the proposed gate at 8th Avenue would provide the security level required with little or no disruption to the ingress and egress of the installation.

Additionally, planned roadway improvements along 8th Avenue (e.g., resurfacing, realignment, and vegetation clearance) would ensure adequate capacity to accommodate the projected traffic volumes (approximately 345 daily vehicles). 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 potential for impacts to traffic circulation or roadway Level of Service for vehicles, public transit, pedestrians, or bicycles; or increase the rate of traffic related accidents; or reduce transportation safety.

Temporary closure of roads and intersections along the proposed supply route would occur during transportation of munitions. To minimize the potential negative adverse effect of roadway closures and resulting altered circulation patterns, the U.S. military would coordinate with the village of San Jose, Commonwealth Department of Public Works, and other local authorities to provide as much advance notice as possible of the date and times public access would be both restricted and afforded to areas within the Military Lease Area. With implementation of resource management measures which would include a Range Training Area Management Plan, access controls and the permanent and temporary closure of roads under Tinian Alternative 1 would not significantly increase the potential for impacts to traffic circulation or roadway Level of Service for vehicles, public transit, pedestrians, or bicycles, increase the rate of traffic related accidents, or reduce transportation safety. Therefore, access controls and the permanent and temporary closure of roads from implementation of Tinian Alternative 1 would result in less than significant direct and indirect impact to ground transportation resources.

Planned roadway improvements would support access to base camp and training support facilities and would result in beneficial impacts to traffic circulation for vehicles, pedestrians, and bicycles, and would decrease accident rates and increase overall transportation safety on Tinian.

4.13.3.1.2.3 Marine Transportation

Increases in marine vessel traffic and harbor use during Tinian Alternative 1 operations would be limited to vessel trips required for transport of personnel, equipment, and materials at the beginning and end of each training cycle. Personnel would arrive and depart to and from Tinian via a mix of air and sea transportation. For the marine transportation analysis, it is assumed that all personnel would arrive and

depart via sea transportation, and that a surge-level of personnel would be both embarking and disembarking at once.

At the Port of Tinian, Amphibious Assault Vehicles and Rubber Raiding Craft used during training activities would use an improved public boat ramp, shown in Chapter 2, *Proposed Action and Alternatives*, Figure 2.4-5. Other existing port facilities could be used during training operations. None of the proposed improvements to existing port facilities is expected to impact harbor capacity.

Proposed danger zones are shown in Chapter 2, *Proposed Action and Alternatives*, Figures 2.4-17 and 2.4-20. As stated in 33 CFR Part 334, Navigable Waters (surface danger zone and Restricted Area Regulations); operation of the Tinian RTA would exclude traffic from these areas of sea space on a full-time or intermittent basis, depending on the requirements of training. Consistent with military safety requirements, danger zones would be open to the public only when hazards are minimized to assure safety of the non-participating public. In addition to the danger zones, adjacent restricted areas may be required to accommodate warning areas that separate military operations from non-participating marine vessels.

Cargo vessels traveling from Saipan would be impacted by the danger zones, as these vessels typically traverse in shallow waters off the western shore (100 feet to 1 mile [30 meters to 2 kilometers] offshore) from the northern tip of Tinian to the Port of Tinian, which would be encumbered by the danger zones. Cargo vessels will either have to schedule travel through danger zones during times when the range is not in use, or detour around the danger zones. These impacts would be intermittent.

Range control would be conducted to maximize safety for both the public and military units. Training schedules would be published through Notice to Mariners. The range control facility would remotely survey the range and danger zones via Surface Radar, and visual inspection cameras and/or thermal imaging, and communicate with personnel involved in training to identify conflict prior to, and during use. Procedures would be implemented for the immediate cessation of training if a vessel entered a restricted area. Active training is proposed for 20 weeks per year.

Therefore, Tinian Alternative 1 operations would result in less than significant direct or indirect impacts to marine transportation resources.

4.13.3.2 Tinian Alternative 2

4.13.3.2.1 Construction Impacts

4.13.3.2.1.1 Air Transportation

The impacts to air transportation resources resulting from Tinian Alternative 2 construction activities would be the same as those identified for Tinian Alternative 1, discussed in [Section 4.13.3.1](#). Through the implementation of resource management measures, including contractor coordination with the Commonwealth Ports Authority and the various air and sea carriers in advance for transportation arrangements during the peak transportation seasons, and adjusting construction timing to accommodate civil and commercial usage of airport facilities, Tinian Alternative 2 construction activities would result in less than significant direct and indirect impacts to air transportation resources.

4.13.3.2.1.2 Ground Transportation

Impacts to ground transportation resources during Tinian Alternative 2 construction activities would be the same as those identified for Tinian Alternative 1, discussed in [Section 4.13.3.1](#).

With implementation of best management practices (Appendix D), which would include a comprehensive Traffic Management Plan and appropriate work zone traffic management strategies, Tinian Alternative 2 construction activities would not significantly increase the potential for impacts traffic circulation or roadway Level of Service for vehicles, public transit, pedestrians, or bicycles, increase the rate of traffic related accidents, or reduce transportation safety. Therefore, construction activities associated with Tinian Alternative 2 would result in less than significant direct and indirect impacts to ground transportation resources. In addition, planned roadway improvements would result in an overall beneficial impacts to traffic circulation for vehicles, pedestrians, and bicycles, and would decrease accident rates and increase overall transportation safety on Tinian.

4.13.3.2.1.3 Marine Transportation

Impacts to marine transportation resources during Tinian Alternative 2 construction activities would be the same as those identified for Tinian Alternative 1, discussed in [Section 4.13.3.1](#).

Construction activities associated with Tinian Alternative 2 would not affect the port's ability to process vessels transporting personnel and cargo. Therefore, Tinian Alternative 2 construction activities would result in less than significant direct and indirect impacts to marine transportation resources.

4.13.3.2.2 Operation Impacts

4.13.3.2.2.1 Air Transportation

Impacts to air transportation resources during Tinian Alternative 2 operations would be the same as those identified for Tinian Alternative 1, discussed in [Section 4.13.3.1](#). Tinian Alternative 2 operations would result in less than significant direct and indirect significant impacts to air transportation resources.

4.13.3.2.2.2 Ground Transportation

Impacts to ground transportation resources during Tinian Alternative 2 operations would be similar to those identified for Tinian Alternative 1, discussed in [Section 4.13.3.1](#).

The planned roadway network and projected roadway use levels within the Military Lease Area under Tinian Alternative 2 would differ from Tinian Alternative 1 as follows:

- **Range Complex C.** The southern Battle Area Complex would exist. Therefore, vehicle travel on roadways between base camp and Range Complex C would increase slightly compared to Tinian Alternative 1. The slight increase in vehicle travel would not adversely affect traffic circulation or roadway Level of Service.
- **Military Lease Area-wide Training Facilities.** The Convoy Course would run along a different alignment that would extend into the International Broadcasting Bureau Area. There would be more engagement areas along the route (11 versus 6) compared to Tinian Alternative 1. The reconfiguration of the Convoy Course would not change projected roadway use levels compared to Tinian Alternative 1.

- **Access.** The International Broadcasting Bureau would not be in operation. Therefore, vehicle travel on roadways between the proposed 8th Avenue gate and the International Broadcasting Bureau would be expected to decrease slightly compared to Tinian Alternative 1.

The minimal incremental increase in traffic associated with transportation of military personnel, the altered circulation patterns resulting from the permanent closure of existing roads within the High Hazard Impact Area, the transportation of hazardous materials, and the temporary road closures and detours under Tinian Alternative 2 would not significantly increase the potential for impacts to traffic circulation or roadway Level of Service for vehicles, public transit, pedestrians, or bicycles, increase the rate of traffic related accidents, or reduce transportation safety.

Therefore, Tinian Alternative 2 operations would result in less than significant direct and indirect impacts to ground transportation resources. In addition, planned roadway improvements would result in beneficial impacts to traffic circulation for vehicles, pedestrians, and bicycles, and would decrease accident rates and increase overall transportation safety on Tinian.

4.13.3.2.3 Marine Transportation

Impacts to marine transportation resources during Tinian Alternative 2 operations would be similar to those identified for Alternative 1, discussed in [Section 4.13.3.1](#). The Tinian Alternative 2 danger zones are expanded versus those of Alternative 1, as shown in Chapter 2, *Proposed Action and Alternatives*, Figure 2.4-17. The closure of the larger area as compared to Tinian Alternative 1 would have no additional impact to marine transportation, as vessels would already be re-routed due to the closure.

Therefore, Tinian Alternative 2 operations would result in less than significant direct and indirect impacts to marine transportation resources.

4.13.3.3 Tinian Alternative 3

4.13.3.3.1 Construction Impacts

4.13.3.3.1.1 Air Transportation

The impacts to air transportation resources during Tinian Alternative 3 construction activities would be the same as those identified for Tinian Alternative 1, discussed in [Section 4.13.3.1](#). Through the implementation of resource management measures, including contractor coordination with the Commonwealth Ports Authority and the various air and sea carriers in advance for transportation arrangements during the peak transportation seasons, and adjusting construction timing to accommodate civil and commercial usage of airport facilities, construction activities associated with Tinian Alternative 3 would result in less than significant direct and indirect impacts to air transportation resources.

4.13.3.3.1.2 Ground Transportation

Impacts to ground transportation resources during Tinian Alternative 3 construction activities would be the same as those identified for Tinian Alternative 1, discussed in [Section 4.13.3.1](#).

With implementation of resource management measures which would include a comprehensive Traffic Management Plan and appropriate work zone traffic management strategies, construction associated with Tinian Alternative 3 would not significantly increase the potential for impacts traffic circulation or

roadway Level of Service for vehicles, public transit, pedestrians, or bicycles, increase the rate of traffic related accidents, or reduce transportation safety. Therefore, construction activities associated with Tinian Alternative 3 would result in less than significant direct and indirect impacts to ground transportation resources.

4.13.3.3.1.3 Marine Transportation

Impacts to marine transportation resources from Tinian Alternative 3 construction activities would be the same as those identified for Tinian Alternative 1, discussed in [Section 4.13.3.1](#).

Construction activities associated with Tinian Alternative 3 would not affect the port's ability to process vessels transporting personnel and cargo. Therefore, Tinian Alternative 3 construction activities would result in less than significant direct and indirect impacts to marine transportation resources.

4.13.3.3.2 Operation Impacts

4.13.3.3.2.1 Air Transportation

The impacts to air transportation resources resulting from Tinian Alternative 3 operations would be the same as those identified for Tinian Alternative 1, discussed in [Section 4.13.3.1](#). Operation of Tinian Alternative 3 would result in less than significant direct and indirect impacts to air transportation resources.

4.13.3.3.2.2 Ground Transportation

Impacts to ground transportation resources resulting from Tinian Alternative 3 operations would be similar to those identified for Tinian Alternative 1, discussed in [Section 4.13.3.1](#).

The planned roadway network and projected use levels within the Military Lease Area under Tinian Alternative 3 would differ from Tinian Alternative 1 as follows:

- **Range Complex C.** The southern Battle Area Complex would exist. Therefore, vehicle travel on roadways between base camp and Range Complex C would increase slightly compared to Tinian Alternative 1. The slight increase in vehicle travel would not adversely affect roadway Level of Service.
- **Range Complex D.** The northern Battle Area Complex would not exist. Therefore, vehicle travel on roadways between base camp and Range Complex D would be expected to decrease slightly compared to Tinian Alternative 1.
- **Military Lease Area-wide Training Assets.** The Convoy Course would run along a different alignment that would extend into the International Broadcasting Bureau area. There would be more engagement areas along the route (11 versus 6) compared to Tinian Alternative 1. The reconfiguration of the Convoy Course would not change projected roadway use levels compared to Tinian Alternative 1.
- **Access.** The International Broadcasting Bureau would not be in operation. Therefore, vehicle travel on roadways between the proposed 8th Avenue gate and the International Broadcasting Bureau would be expected to decrease slightly compared to Tinian Alternative 1.

The minimal incremental increase in traffic associated with transportation of military personnel, the altered circulation patterns resulting from the permanent closure of existing roads within the High

Hazard Impact Area, the transportation of hazardous materials, and the temporary road closures and detours under Tinian Alternative 3 would not significantly increase the potential for impacts to traffic circulation or roadway Level of Service for vehicles, public transit, pedestrians, or bicycles, increase the rate of traffic related accidents, or reduce transportation safety.

Therefore, Tinian Alternative 3 operations would result in less than significant direct and indirect impacts to ground transportation resources. In addition, planned roadway improvements would result in beneficial impacts to traffic circulation for vehicles, pedestrians, and bicycles, and would decrease accident rates and increase overall transportation safety on Tinian.

4.13.3.3.2.3 Marine Transportation

Impacts to marine transportation resources during Tinian Alternative 3 operations would be the same as those identified for Tinian Alternative 1, discussed in [Section 4.13.3.1](#). The Tinian Alternative 3 danger zones are expanded as compared to those of Tinian Alternative 1, as shown in Chapter 2, *Proposed Action and Alternatives*, Figure 2.4-17. The closure of the larger area as compared to Tinian Alternative 1 would have no additional impact to marine transportation, as vessels would already be re-routed due to the closure.

Therefore, Tinian Alternative 3 operations would result in less than significant direct and indirect impacts to marine transportation resources.

4.13.3.4 Tinian No-Action Alternative

The periodic non-live-fire training that the military has undertaken in the Military Lease Area of Tinian would be expected to continue under the no-action alternative. Constructing and operating the four training ranges on Tinian analyzed in the Guam and CNMI Military Relocation EIS (DoN 2010a) would have less than significant impacts to ground transportation and no impacts to air or sea port transportation (see Table 14.2-4; DoN 2010a). On Tinian, Mariana Islands Range Complex training would not affect transportation resources (DoN 2010b). The no-action alternative, therefore, would have less than significant impacts to transportation resources.

4.13.3.5 Summary of Impacts for Tinian Alternatives

[Table 4.13-1](#) contains a comparison of the potential impacts to transportation resources for the three Tinian alternatives and the no-action alternative.

Table 4.13-1. Summary of Impacts for Tinian Alternatives

<i>Resource Area</i>	<i>Tinian (Alternative 1)</i>		<i>Tinian (Alternative 2)</i>		<i>Tinian (Alternative 3)</i>		<i>No-Action Alternative</i>	
	Construction	Operation	Construction	Operation	Construction	Operation	Construction	Operation
Air Transportation	<i>LSI</i>	<i>LSI</i>	<i>LSI</i>	<i>LSI</i>	<i>LSI</i>	<i>LSI</i>	<i>NI</i>	<i>NI</i>
Ground Transportation	<i>LSI</i>	<i>LSI/BI</i>	<i>LSI</i>	<i>LSI/BI</i>	<i>LSI</i>	<i>LSI/BI</i>	<i>LSI</i>	<i>LSI</i>
Marine Transportation	<i>LSI</i>	<i>LSI</i>	<i>LSI</i>	<i>LSI</i>	<i>LSI</i>	<i>LSI</i>	<i>NI</i>	<i>NI</i>

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

4.13.4 Pagan

4.13.4.1 Pagan Alternative 1

4.13.4.1.1 Construction Impacts

4.13.4.1.1.1 Air Transportation

Pagan Alternative 1 is designed to use Pagan's terrain features to support the combined level training for the proposed action. The proposed facilities would support an expeditionary base camp. Air transportation during the construction period would be very limited and constrained by the existing Runway 11/29 measuring 1,500 feet (457 meters) long and with a load-bearing capacity of only 4,000 pounds (1,814 kilograms). Some of the construction work would be carried out by the military as part of the training exercises. The primary mode of transportation for construction equipment, materials, and personnel would be by sea. The increase in the number of flights to Pagan during construction would be minimal.

The lava flow from the 1981 volcano eruption covered nearly half of Runway 11/29 on the existing Pagan airfield. The lava flow would be removed under the proposed action and Runway 11/19 would be extended, re-graded, and strengthened. New aircraft parking apron would be provided. 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. Upon completion of proposed improvements the airfield would reopen. In view of the very low usage of the existing Pagan airfield, the construction would be carried out with minimal interruption of operations and as part of military training. The impacts to the existing facility during construction would be limited and included in the operation phase impacts. Federal Aviation Administration Form 7460-1, Notice of Proposed Construction or Alternation, would be submitted prior to construction on the Pagan airfield.

Therefore, direct and indirect impacts to air transportation resources from construction activities associated with implementation of Pagan Alternative 1 would be less than significant.

4.13.4.1.1.2 Ground Transportation

Currently there are no roads, transit networks, pedestrian, or bicycle facilities, and no significant vehicular traffic patterns occur on Pagan. Only all-terrain vehicle pathways exist on Pagan and their use is limited. Construction of the expeditionary base camp, supporting facilities, and military training trails on Pagan would require heavy equipment, including, but not limited to: road graders, vibratory compactors, dump trucks, and backhoes.

Construction activities associated implementation of Pagan Alternative 1 would not increase the potential for impacts to traffic circulation or Level of Service for vehicles, public transit, pedestrians, bicycles; increase the rate of traffic related accidents, or reduce transportation safety. Therefore, Pagan Alternative 1 construction activities would result in no direct or indirect impacts to ground transportation resources.

4.13.4.1.1.3 Marine Transportation

There is currently no functional dock or appreciable marine vessel traffic to Pagan. Therefore, Pagan Alternative 1 construction activities would have no impact to marine transportation.

4.13.4.1.2 Operation Impacts

4.13.4.1.2.1 Air Transportation

Based on the airfield demand/capacity analysis, the Pagan airfield would not experience airfield-capacity constraint with the additional air transportation demand under the proposed action. Details of the analysis are given in Appendix O, *Transportation Study* (DoN 2014b). Although the airfield has sufficient capacity for the increased operations, the existing physical constraints at Runway 11/29, such as the lava flow from the 1981 volcano eruption, would limit its usage for the proposed action and improvements would be implemented. During the operation phase of the Pagan alternatives, the lava flow would be removed and Runway 11/29 would be extended, re-graded and strengthened, and a new aircraft parking apron would be provided adjacent to the runway to support the training activities. It is anticipated that the Pagan airfield would be restricted for the exclusive military use during the training period (around 16 weeks per year). Taking into consideration the existing low usage of the Pagan airfield for general aviation only, the direct and indirect impacts to the civilian usage of the Pagan airfield are considered less than significant.

Transportation of personnel and equipment to Pagan by air is only the secondary mode of transportation. Marine transportation is considered the primary mode. If the Pagan airfield would be the first port of entry to the U.S. for any foreign allies or participants from overseas military facilities, coordination among the Department of Defense, Department of Homeland Security, and the CNMI Customs Services would be accomplished. No permanent facility for passenger boarding or processing on the Pagan airfield is anticipated.

The proposed action also includes improvements at the Pagan airfield that would have positive effects to air transportation resources. These improvements include:

- Removal of the lava flow and increase in the capability of the runway in terms of runway length and strength
- Runway turnaround aprons
- Aircraft parking aprons
- Removal of existing obstructions within the runway object free area and trimming trees outside to meet the transition slope and obstacle clearance surfaces

These improvements would enhance the existing facilities at the Pagan airfield.

Therefore, Pagan Alternative 1 operations would have beneficial direct and indirect impacts on air transportation resources.

4.13.4.1.2.2 Ground Transportation

All units would be expected to arrive and depart with their own vehicles and equipment. Similar to Tinian, personnel would arrive and depart via sea transport (e.g., Amphibious Assault Vehicle) and aircraft (CH-53, MV-22, and C-130).

Training activities under Pagan Alternative 1 would require the use of the planned military training trails (see Chapter 2, *Proposed Action and Alternatives*, Figure 2.5-3). About 6 miles (10 kilometers) of the planned 22-mile (35-kilometer) trail system would be on existing all-terrain vehicle pathways or trails and the other 16 miles (25 kilometers) would be over terrain where no pathways or trails currently exist.

Access to all-terrain vehicle pathways or trails and areas within the High Hazard Impact Area would be restricted.

No specific construction activities would occur to support maneuvering operations. Personnel would move along the landscape and train in a manner similar to combat conditions. Vehicles would move along the established military training trails as well as other terrain that they could safely navigate (excluding no maneuver areas).

Pagan Alternative 1 would not increase the potential for impacts to traffic circulation or Level of Service for vehicles, public transit, pedestrians, bicycles; or increase the rate of traffic related accidents; or reduce transportation safety. Therefore, Pagan Alternative 1 operations would result in no direct or indirect impacts to ground transportation resources.

4.13.4.1.2.3 Marine Transportation

During operations, personnel would arrive and depart via air or marine transport at the beginning and end of each training period. The primary mode of marine transportation would be amphibious shipping to beaches of both personnel and equipment, as no docking facilities are proposed at Pagan under any Alternative. All training equipment would arrive with the personnel. There is no current functional dock on Pagan or appreciable vessel traffic in adjacent waters.

The Proposed danger zones associated with Pagan Alternative 1 are described in Chapter 2, *Proposed Action and Alternatives*, Section 2.5, and Figures 2.5-4 and 2.5-6. As stated in 33 CFR Part 334, Navigable Waters (danger zone and restricted area regulations), operation of the Pagan RTA would exclude traffic from these areas of sea space on a full-time or intermittent basis, depending on the requirements of training. Consistent with military safety requirements, danger zones would be open to the public only when hazards are minimized to assure safety of the non-participating public. In addition to the danger zones, adjacent restricted areas may be required to accommodate warning areas that separate military operations from non-participating vessels.

Range control would be conducted to maximize safety for the public and military units. Training schedules would be published through a Notice to Airmen. The range control facility would remotely survey the range and communicate with personnel involved in training to identify conflict prior to and during use. Procedures would be implemented for the immediate cessation of training if a vessel entered the restricted areas.

Therefore, Pagan Alternative 1 operations would have no impact to marine transportation resources.

4.13.4.2 Pagan Alternative 2

4.13.4.2.1 Construction Impacts

4.13.4.2.1.1 Air Transportation

Impacts to air transportation resources during Pagan Alternative 2 construction activities would be the same as those identified for Pagan Alternative 1, discussed in [Section 4.13.4.1](#).

4.13.4.2.1.2 Ground Transportation

Impacts to ground transportation resources during Pagan Alternative 2 construction activities would be the same as those identified for Pagan Alternative 1, discussed in [Section 4.13.4.1](#).

Construction activities associated with Pagan Alternative 2 would not increase the potential for impacts to traffic circulation or Level of Service for vehicles, public transit, pedestrians, bicycles; increase the rate of traffic related accidents; or reduce transportation safety. Therefore, Pagan Alternative 2 construction activities would result in no direct or indirect impacts to ground transportation resources.

4.13.4.2.1.3 Marine Transportation

Impacts to marine transportation resources during Pagan Alternative 2 construction activities would be the same as those identified for Pagan Alternative 1, discussed in [Section 4.13.4.1](#).

Pagan Alternative 2 construction activities would have no impact to marine transportation.

4.13.4.2.2 Operation Impacts

4.13.4.2.2.1 Air Transportation

Impacts to air transportation resources during Pagan Alternative 2 operations would be the same as those identified for Pagan Alternative 1, discussed in [Section 4.13.4.1](#).

4.13.4.2.2.2 Ground Transportation

Impacts to ground transportation resources during Pagan Alternative 2 operations would similar to those identified for Pagan Alternative 1, discussed in [Section 4.13.4.1](#).

Under Pagan Alternative 2, vehicular access to areas of northern Pagan would be slightly less restricted due to the smaller northern High Hazard Impact Area compared to Pagan Alternative 1.

Pagan Alternative 2 would not increase the potential for impacts to traffic circulation or Level of Service for vehicles, public transit, pedestrians, bicycles, increase the rate of traffic related accidents, or reduce transportation safety. Therefore, Pagan Alternative 2 operations would result in no direct or indirect impacts to ground transportation resources.

4.13.4.2.2.3 Marine Transportation

The proposed danger zones associated with Pagan Alternative 2 are described in Chapter 2, *Proposed Action and Alternatives*, Section 2.5, and Figures 2.5-4 and 2.5-6. Impacts to marine transportation resources during Pagan Alternative 2 operations would be the same as those identified for Pagan Alternative 1, discussed in [Section 4.13.4.1](#). Pagan Alternative 2 operations would have no impact to marine transportation resources.

4.13.4.3 Pagan No-Action Alternative

The no-action alternative would include short term and periodic visits to Pagan for eco-tourism, scientific surveys and military training for search and rescue type exercises and would be expected to continue. These temporary activities would have no impacts on transportation resources. Therefore, the no-action alternative would have no impacts ground transportation resources.

4.13.4.4 Summary of Impacts for Pagan Alternatives

Table 4.13-2 contains a comparison of the potential impacts to transportation resources for the two Pagan alternatives and the no-action alternative.

Table 4.13-2. Summary of Impacts for Pagan Alternatives

<i>Resource Area</i>	<i>Pagan (Alternative 1)</i>		<i>Pagan (Alternative 2)</i>		<i>No-Action Alternative</i>	
	<i>Construction</i>	<i>Operation</i>	<i>Construction</i>	<i>Operation</i>	<i>Construction</i>	<i>Operation</i>
Air Transportation	<i>LSI</i>	<i>BI</i>	<i>LSI</i>	<i>BI</i>	<i>NI</i>	<i>NI</i>
Ground Transportation	<i>NI</i>	<i>NI</i>	<i>NI</i>	<i>NI</i>	<i>NI</i>	<i>NI</i>
Marine Transportation	<i>NI</i>	<i>NI</i>	<i>NI</i>	<i>NI</i>	<i>NI</i>	<i>NI</i>

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