

3.13 TRANSPORTATION

Section 3.13 provides a summary of the general condition and character of transportation facilities and infrastructure on the islands of Tinian and Pagan. Transportation refers to the act or process of moving people or goods and includes those resources, infrastructure, systems and devices used for moving passengers or goods from one place to another. Common forms of transportation include airplanes, pedestrians, trains, automobiles, two-wheeled vehicles (e.g., bicycles, motorcycles), and boats. The region of influence for transportation includes the air, ground, and marine transportation facilities and infrastructure on and surrounding Tinian and Pagan. Airspace and air traffic management resources are included in Section 3.6, *Airspace*. A discussion of resources that fall under Section 4(f) of the *Department of Transportation Act of 1966* is included in Section 4.19, *Section 4(f) Evaluation*.

3.13.1 Definition

Air transportation resources refer to the existing public airport facilities, specifically the Tinian International Airport and the Pagan airfield, as well as private and military air transportation facilities that would potentially be affected by the proposed action.

Ground transportation includes transportation facilities and infrastructure; specifically, the road features that would support vehicle traffic, public transportation service, and pedestrian and bicycle facilities. Level of Service is a measurement used to describe the performance of a road and ranges from Level of Service A, which indicates free-flow of traffic or excellent conditions, to Level of Service F, which indicates congested or overloaded conditions. For a detailed description of Level of Service categories refer to Table 2.1-2 in Appendix O, *Transportation Study*.

Marine transportation refers to marine vessels and facilities used to support commercial, military, and recreational uses.

3.13.2 Regulatory Framework

The regulatory framework governing transportation is briefly summarized below and described in greater detail in Appendix O, *Transportation Study*. A complete listing of applicable regulations is provided in Appendix E, *Applicable Federal and Local Regulations*.

3.13.2.1 Air Transportation

Reference is made to the following order, instruction and the CNMI regulations where applicable:

- Federal Aviation Administration Order 1050.1E Change 1, Environmental Impacts: Policies and Procedures
- DoN, Office of the Chief of Naval Operations Instruction 5090.1C Change Transmittal 1, Environmental Readiness Program Manual
- Commonwealth Ports Authority Title 40-10, Airport Division

3.13.2.2 Ground Transportation

Applicable laws, regulations, and standards include the following:

- CFR Title 23, Highways
- CNMI Administrative Code: Commonwealth Department of Public Works Title 155-20.1, Public Rights-of-way and Related Facilities Regulations
- American Association of State Highway and Transportation Officials. Federal Highway Administration's *A Policy on Geometric Design of Highways and Streets*. 2011.
- Department of Defense. United Facilities Criteria 3-250-18FA, *General Provisions and Geometric Design for Roads, Streets, Walks, and Open Storage Areas*. 2004.

3.13.2.3 Marine Transportation

The following federal and CNMI regulations are applicable:

- 33 CFR Part 165.1403
- 33 CFR Part 110.239
- 33 CFR Part 166
- 33 CFR Part 167 Commonwealth Ports Authority Title 40-20
- CNMI Administrative Code: Commonwealth Department of Public Works Title 155-20.1, Public Rights-of-way and Related Facilities Regulations

3.13.3 Methodology

3.13.3.1 Air Transportation

The preparation of the affected environment discussion for air transportation relied upon a review of the current Tinian International Airport Layout Plan, reports and records from the Federal Aviation Administration and the Commonwealth Ports Authority, site visits, meetings with the Commonwealth Ports Authority and air carriers, and information in the public domain, such as local newspapers and other environmental impact statements, etc.

3.13.3.2 Ground Transportation

The preparation of the affected environment discussion for ground transportation relied on available traffic analyses and engineering evaluations prepared for the Commonwealth Department of Public Works, available traffic data, and the *Highway Capacity Manual* (Transportation Research Board 2000) methodology to determine roadway Level of Service. This approach is not used for Pagan since only all-terrain vehicle pathways exist on the island and the Highway Capacity Manual methodology does not address the unique characteristics of all-terrain vehicle pathways or trail users. Therefore, a qualitative discussion of the affected environment for ground transportation on Pagan is provided based on observations and site visits.

3.13.3.3 Marine Transportation

The preparation of the affected environment discussion of the marine transportation relied upon available records and reports pertaining to the existing port facilities of Tinian and Pagan, as well as

marine traffic patterns in adjacent waters. Current conditions were evaluated through research, interviews with authorities, and a site visit to Tinian Harbor and the Port of Tinian.

3.13.4 Tinian

3.13.4.1 Air Transportation

3.13.4.1.1 Tinian International Airport

Tinian International Airport is classified by the Federal Aviation Administration as a primary commercial service airport and is designed for code D-V aircraft such as 777/747 with a single east-west runway (Runway 08/26) of 8,600 feet (2,621 meters) long and 150 feet (46 meters) wide. Runway 08/26 is paved and marked for precision approaches with centerline, runway designation, threshold, aiming point, touchdown zone markings, and edge stripes. The runway pavement is asphalt and is in good condition. Tinian International Airport also has two apron taxiways, connecting the aircraft parking apron to the parallel Taxiway A. Both taxiways are 75 feet (23 meters) wide with approximately 35 foot wide (10.5 meter) shoulders on each side. The taxiway pavement is asphalt and is in good condition. The apron is the ramp area north of the passenger terminal building. The apron area is approximately 35,000 square yards (29,000 square meters), including an apron edge taxi lane. The apron area connecting to Hangar One west of the passenger terminal building is mainly for general aviation. The existing pavement of the apron is asphalt. [Figure 3.13-1](#) illustrates the Tinian International Airport facilities.

Tinian International Airport is owned, managed, and operated by the Commonwealth Ports Authority and is used primarily for interisland travel between the islands of Saipan, Rota, and Guam. Star Marianas Air provides passenger charters between the islands of Saipan and Tinian, and cargo charters between Guam, Rota, Tinian, and Saipan. The current fleet for Star Marianas Air consists of seven Cherokee Six aircraft and three twin-engine Navajo aircraft all based at Hangar One in Tinian International Airport. Arctic Circle Air provides air cargo services and has expanded to include passenger flights. No regularly scheduled international flights currently operate at Tinian International Airport. Arrangements for immigration and customs services at Tinian International Airport must be made in advance with Chief Immigration Saipan. As indicated during a meeting with Star Marianas Air personnel, there are limitations in existing hospital capacity for handling emergency incidents involving large jet aircraft.

The U.S. military has previously coordinated with the Commonwealth Ports Authority for military training activities at Tinian International Airport. Temporary time slots for the exclusive use of the airfield by the military have been arranged for previous training exercises. U.S. military aircraft and chartered air carriers have operated at Tinian International Airport for transportation purposes as part of previous activities associated with Exercise Forager Fury 2012 and Forager Fury II in 2013. They include B747-400 for delivery of gear and equipment, B737 for transportation of personnel, and C-17 Globemaster III / KC-130J Hercules for delivery of equipment, vehicle, and fuel.

In 2013 there were approximately 49,116 operations (an average of 134 flight operations per day) at Tinian International Airport (Federal Aviation Administration 2014). For more details on the existing facilities at Tinian International Airport, see Appendix O, *Transportation Study*.

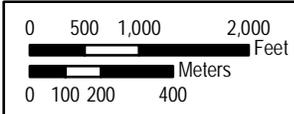
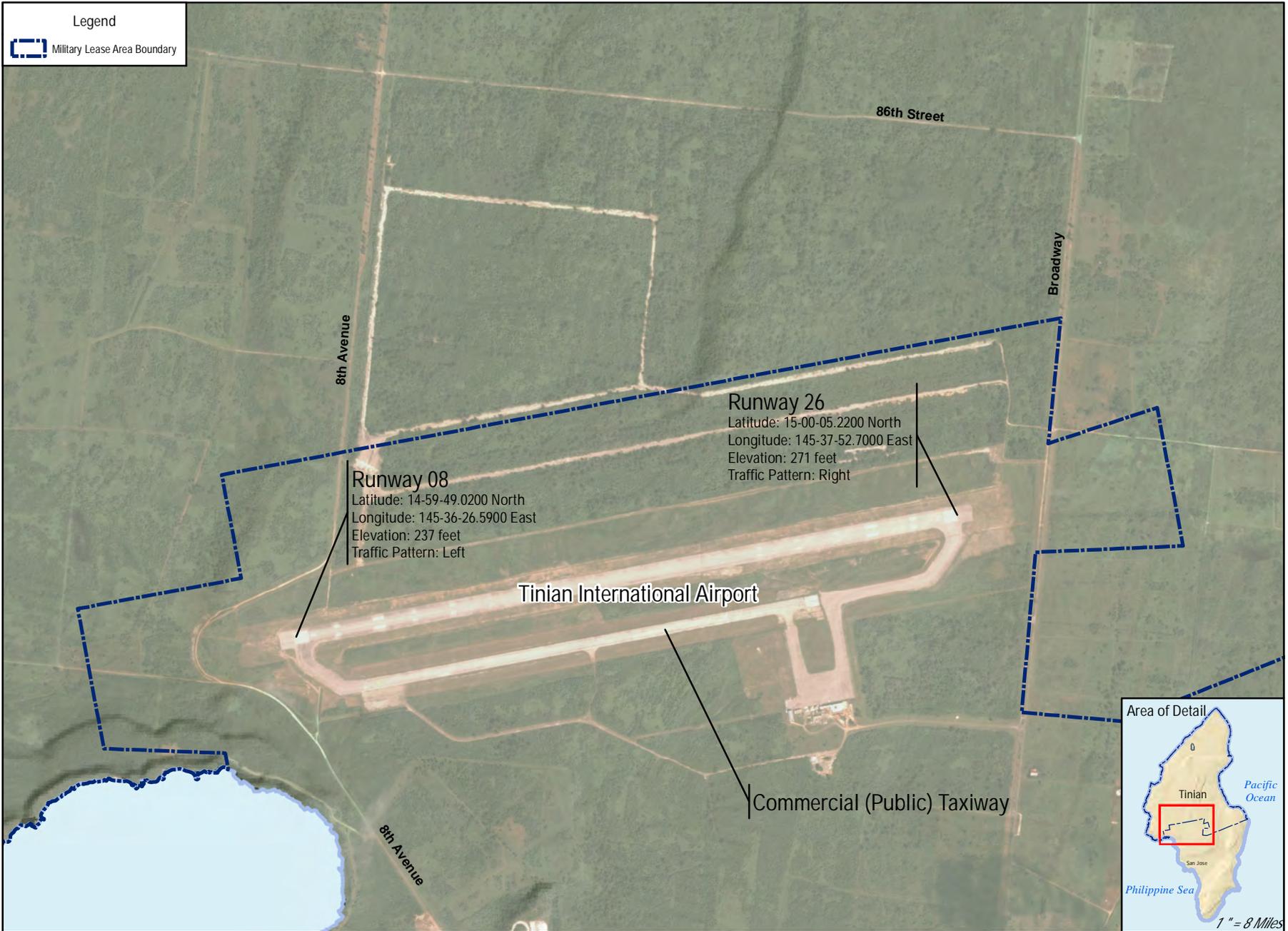


Figure 3.13-1
 Tinian International Airport Facilities

3.13.4.1.2 North Field

There is an existing expeditionary landing field located in the northern portion of the Military Lease Area, i.e. North Field, which is used exclusively by the military. The North Field is not a transportation facility open to the public. North Field is a largely unimproved World War II-era airfield located in the northern portion of the Military Lease Area (see Photo 3.5-1). It remains in use as an expeditionary landing field and supports military fixed wing and helicopter training activities (DoN 2010). The U.S. military currently conducts training at North Field. These training activities have included airlift of personnel and cargo drops into the Military Lease Area (approximately 60 times per year) (DoN 2014) as well as firefighting, search-and-rescue, and expeditionary airfield clearance and flight operations during recent Forager Fury exercises.

3.13.4.1.3 Heliports

Three heliports (two owned by Dynasty Hotel and Casino and one by Americopters) currently exist on Tinian, all within 2.5 miles (4 kilometers) south of Tinian International Airport in the vicinity of the Dynasty Hotel and Casino. The heliports are used by private and charter helicopters for transportation to and from Saipan International Airport to the Dynasty Hotel and Casino.

3.13.4.2 Ground Transportation

3.13.4.2.1 Road Network

Tinian has about 68 miles (110 kilometers) of roads. Most roads were designed, developed, and constructed in 1944 to accommodate heavy truck traffic when the U.S. military population on Tinian was about 150,000. Many of the existing roads throughout Tinian are now in poor condition and traffic volumes are low. There are no roads that are part of the Interstate Highway System on Tinian. Two north/south roads, Broadway Avenue and 8th Avenue, connect the village of San Jose to the Military Lease Area and areas north of the Tinian International Airport. Two east/west roads (Canal Street [Route 202] and Route 201) connect the village of San Jose to 8th Avenue and Broadway Avenue. These roads have the highest traffic volumes with about 1,520 and 2,240 vehicles per day, respectively.

The current state and general conditions of the existing road network, average daily traffic volumes, and roadway Level of Service are shown in [Figure 3.13-2](#) and described below for roadways within and outside of the Military Lease Area. For additional photos of the existing roads refer to Photo 2.1-1 to Photo 2.1-13 in Appendix O, *Transportation Study*.

Within the Military Lease Area:

- **Broadway Avenue:** Within the Military Lease Area, Broadway Avenue is a two-lane, divided, paved road with 20 foot (6 meter) wide lanes and a 32 foot (10 meter) wide median (Photo 3.13-1). Lack of maintenance has resulted in the southbound lane to become moderately to severely overgrown and unsuitable for use by wheeled vehicles. Broadway Avenue carries about 90 vehicles per day within the Military Lease Area.



Photo 3.13-1. View of Broadway Avenue in Central Tinian

Notes:

- 1) All roads operate under capacity at acceptable level of service (LOS) A
- 2) The numbers shown adjacent to road segments are Average Daily Traffic Volume (vehicles per day, both directions)
- 3) Traffic Data Source: CNMI Comprehensive Highway Master Plan (Commonwealth Department of Public Works 2008)



Figure 3.13-2
Tinian Existing Roads and Average Daily Traffic
(vehicles per day)

Source: Commonwealth Department of Public Works 2008

- **8th Avenue:** Within the Military Lease Area, 8th Avenue is an 18 foot (5 meter) wide two-lane, undivided, paved road. This segment was previously a divided road with two 18 foot (5 meter) wide lanes and a 36 foot (11 meter) wide median. Lack of maintenance has resulted in the southbound lane being moderately to severely overgrown and unsuitable for use by wheeled vehicles. 8th Avenue carries up to 90 vehicles per day on this segment within the Military Lease Area.
- **86th Street:** 86th Street is a two-lane, undivided, paved road in poor condition that runs from 8th Avenue to Broadway, north of Tinian International Airport. 86th Street carries about 100 vehicles per day.
- **Other Roads:** Other roads within the Military Lease Area are typically unpaved, moderately to severely overgrown, with traffic volumes of less than 100 vehicles per day.

Outside of the Military Lease Area:

- **Broadway Avenue:** Outside of the Military Lease Area, Broadway Avenue is a two-lane, divided, paved road with 20-foot (6-meter) wide lanes and a 32-foot (10-meter) wide median. Broadway Avenue carries about 1,470 vehicles per day south of 42nd Street, and 390 vehicles per day north of 42nd Street outside of the Military Lease Area.
- **8th Avenue:** This road has two distinct segments outside of the Military Lease Area:
 - 42nd Street to Tinian International Airport, 8th Avenue is a 24-foot (7-meter) wide two-lane, undivided, unpaved road in poor condition. 8th Avenue carries about 180 vehicles per day on this segment.
 - Near Riverside Drive intersection, 8th Avenue is an 18-foot (5-meter) to 22-foot (7-meter) wide two-lane, undivided, paved/gravel road in poor condition. 8th Avenue carries approximately 180 vehicles per day on this segment.
- **Canal Street (Route 202):** Canal Street (Route 202) is two-lanes, undivided, with no median, and connects the village of San Jose to Broadway Avenue and residential and recreational areas to the northeast. Canal Street (Route 202) carries approximately 1,520 vehicles per day.
- **Route 201:** Route 201 is two-lanes, undivided, with no median, and connects the village of San Jose to Broadway Avenue and residential and recreational areas to the east. Route 201 carries about 2,240 vehicles per day.
- **42nd Street:** 42nd Street is two-lanes, undivided, with no median, that runs from 8th Avenue to Broadway, north of the village of San Jose. 42nd Street carries approximately 150 vehicles per day.
- **Other Roads:** Other roads not listed here are typically two lanes, undivided, with no median, and carry between 25 and 300 vehicles per day.

Based on the analysis conducted in the CNMI Comprehensive Highway Master Plan (Commonwealth Department of Public Works 2008), all roads on Tinian are operating under capacity at acceptable Level of Service A in their existing condition, as evidenced by free flowing traffic and no traffic delays.

3.13.4.2.2 Transit Network

There is no existing transit service on Tinian due to the relatively low population density.

3.13.4.2.3 Pedestrian and Bicycle Network

Limited designated bicycle paths are located along major roads and in main tourist attractions (Commonwealth Department of Public Works 2008). Isolated sidewalks can be found along short segments of some roads within San Jose. In general, continuous sidewalks do not exist on the majority of the roads on Tinian. Typically, the outside lane or shoulder, which is generally unpaved, functions as a pedestrian/bicycle space. Bicyclists are required to share the road with vehicles on existing travel lanes, and pedestrians are required to walk on the unpaved shoulder or landscaped area off to the side of the roads.

3.13.4.3 Marine Transportation

3.13.4.3.1 Harbor and Port Facilities

Tinian Harbor (shown on Photo 3.13-2) is located near the town of San Jose and is accessible via a channel with a navigable width of 500 feet (152 meters) and a minimum depth of 27 feet (8 meters) (survey conducted May 2007). The harbor was constructed in 1944 to accommodate up to eight Liberty Ship cargo vessels (U.S. Commander Pacific Fleet 1999), each with a length of about 465 feet (142 meters), a beam (maximum width) of 57 feet (17 meters), and a draft [maximum hull depth below water] of up to 28 feet (8 meters). The Port of Tinian consists of a main wharf, two finger piers, and a breakwater. The main wharf has a usable length of 1,600 feet (488 meters), with depths varying between 24 and 29 feet (7 and 9 meters). The two finger piers (Pier 1 and Pier 2) are southwest of the main wharf (Global Security 2005). A concrete boat ramp used by Amphibious Assault Vehicles is north of the finger piers and adjacent to a public dock and a public boat ramp. An adjacent grassy staging area is used for vehicles brought ashore or for staging, cleaning, and reloading (U.S. Commander Pacific Fleet 1999). A mooring buoy 2 miles (3 kilometers) from Tinian Harbor has been removed, but the anchoring system is still in place and could be used for large draft ships (DoN 2013).



Photo 3.13-2. Aerial view of Tinian Harbor and the Port of Tinian

The two finger piers are in a state of disrepair and are unusable. The Municipality of Tinian declared a state of emergency in October 2009 to repair these piers.

The DoN estimates that the main wharf has the capacity to process 4,500 tons (4,082 metric tons) of cargo daily. [Figure 3.13-3](#) shows recent annual data for revenue tonnage in and out of the port. The Commonwealth Ports Authority estimates that the harbor has the capacity to accommodate passenger vessels holding up to 1,500 passengers.

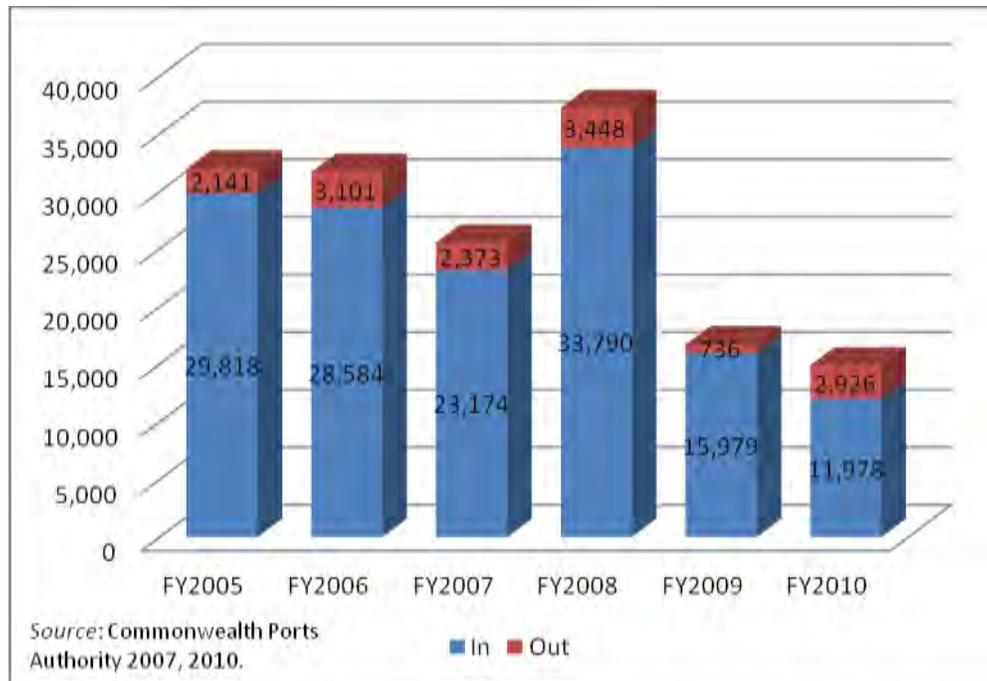


Figure 3.13-3 Port of Tinian Cargo Tonnage Handled

The main wharf has a single mobile crane with a capacity of 50 tons (45 metric tons). A tugboat and lightering barge (smaller barge to transport cargo and passengers from larger-draft vessels that cannot enter the harbor) are available on an as-needed basis at Tinian Harbor (T. Gotti, Ambyth Shipping, personal communication December 4, 2012). The Port of Tinian also has a facility for biosecurity/brown treesnake (*Boiga irregularis*) control, with a capacity of four shipping containers. Current lighting at the Port of Tinian is insufficient for nighttime operations.

The harbor is used by commercial and supply barges, as well as U.S. Coast Guard vessels and military supply shipments on Joint High Speed Vessels. Gasoline and diesel fuel can be obtained at the Mobil Oil tank compound at the Port of Tinian.

Fuel supply and regular day-to-day commodities are shipped through Tinian Harbor. Fuel is shipped by a fuel tanker on a monthly basis. The fuel tanker is berthed at the main wharf area, where its fuel is piped to storage tanks located about 300 feet (91 meters) inland. Usual stay time for the fuel tanker is 1 day. Tinian’s commodities are transported from Saipan via a privately owned SM5 Boat (Landing Craft Mechanized, Mark-6) that transits daily. The SM5 Boat is off-loaded at the shore ramp facility located near the small floating boat pier.

For larger shipments, typically once every 60 days, a tug and barge are used to bring intermodal containers from Saipan. When the larger cargo quantity is delivered, the barge is docked at the main wharf. The stay time for the barge is typically 1 day.

3.13.4.3.2 Marine Shipping Traffic Patterns

Shipment of cargo (to and from Saipan) typically transits to the west of Tinian due to the calmer waters. Large vessels maintain a distance of about 1 mile (2 kilometers) offshore, while smaller vessels come

within 100 feet (30 meters) of shore (Crisostomo, G., PTI Com, personal communication, January 2014). There are no known restrictions to marine traffic in the vicinity of Tinian.

3.13.5 Pagan

3.13.5.1 Air Transportation

The Pagan airfield (Photo 3.13-3) is classified by the Federal Aviation Administration as a basic general aviation airport and is considered a public airport. It is owned and managed by the Commonwealth Ports Authority and administered by the Department of Public Lands. It is unattended and has no scheduled flights. Limited charter flights/air taxi and general aviation operations occur at the airstrip for visitors, but no aircrafts are based there. The volcanic eruption in 1981 significantly reduced the runway's length. The Pagan airfield currently has a single runway (Runway 11/29) measuring 1,500 feet (457 meters) long and 120 feet (37 meters) wide. The runway surface is turf and gravel, with a load-bearing capacity of 4,000 pounds (1,800 kilograms) for single-wheel aircraft. For more details on the existing facilities at the Pagan airfield, see Appendix O, *Transportation Study*.



Photo 3.13-3. Pagan Airfield

3.13.5.2 Ground Transportation

There are no roads, transit networks, or pedestrian or bicycle facilities on Pagan and no significant vehicular traffic patterns. Only all-terrain vehicle pathways exist and their use is limited. For photos of the existing pathways refer to Photos 2.2-1 through 2.2-4 in Appendix O, *Transportation Study*. All residents of Pagan were evacuated to Saipan in May 1981 after the eruption of Mount Pagan; as a result there currently are no permanent residents (U.S. Census Bureau 2010), only visitors to the island.

3.13.5.3 Marine Transportation

3.13.5.3.1 Port Facilities

Pagan has no functional marine port facilities. The only pier on the island was built in the 1940s. The medium-depth pier was 200 feet (61 meters) in length when completed, but is severely degraded and not usable in its current condition (Photo 3.13-4). The pier was described as being in need of repair in the 1970s (Office of Transition Studies and Planning 1978), and there has been no regular



Photo 3.13-4. Current Condition of the Pagan Pier

maintenance since residents were evacuated from the island in 1981. When the island was inhabited, cargo and passengers for delivery to the island had to be transferred to vessels with smaller drafts at sea (i.e., lightering) (Office of Transition Studies and Planning 1978). Anchorage is possible in bays offshore and visitors use smaller vessels to get from anchored boats to shore.

3.13.5.3.2 Marine Shipping Traffic Patterns

No substantial marine traffic occurs within the vicinity of Pagan. Regular, but infrequent, tourism and research vessels occur within adjacent waters (described in Section 3.8, *Recreation*). While no regular schedule exists, tourism and research vessels are not expected to visit more than once per month.