No construction activities would be conducted at the USAGM site on Saipan. Military traffic would be limited to installation of communication equipment on existing towers and occasional inspection and maintenance of communication towers. Worker access to the wastewater treatment plant and visitor access to Agingan Point would not be impacted. Consequently, there would be no impact to traffic at the USAGM Saipan site.

4.7.4 Alternative 2

Under Alternative 2, training would increase over the No Action Alternative by approximately 5 percent, which is approximately 10 percent less than Alternative 1. The size of training events would remain the same, including the same number of people and equipment arriving and departing for each event. This would result in the same volume of activity at the Port and TNI for Alternative 2 and a small increase in traffic on Tinian for any given training event compared to the No Action Alternative. For ground transportation, a 5 percent training increase would not change the level of service for any roadways on Tinian. Improvements to roads would be a beneficial impact such as paving or re-paving of the roads to improve safety and the longevity of the road. Training associated with Alternative 2 would result in fewer impacts to transportation than Alternative 1, and impacts would be less than significant. Alternative 2 would include the same construction activities and impacts as Alternative 1 and would also be a less than significant impact.

4.8 Noise

This section evaluates the potential noise effects on human populations. Effects on specific resources from noise are also presented in their respective sections in this Revised Draft EIS–potential effects to land uses from noise are discussed in Section 4.2, socioeconomic-related impacts on domesticated animals in Section 4.3, wildlife in Section 4.4, and cultural resources in Section 4.5. Additional background information on the basics of sound and the potential effects of noise can be found in "Discussion of Noise and Its Effects on the Environment," which is provided as Attachment 1 to Appendix J, *Noise Study*. Specific topics include land use compatibility, noise-induced vibration effects, noise-induced hearing impairment and non-auditory health effects, noise effects on children, domestic animals, and wildlife.

4.8.1 Approach to Analysis

This noise impact analysis evaluates potential changes to the baseline noise environment with implementation of training and construction activities under the Proposed Action, considering both long-term changes to cumulative sound levels and short-term effects from a single event or peak noise level. The resulting noise exposure is evaluated at Tinian and the southern portion of Saipan. These include locations with noise-sensitive land uses such as residential, schools, places of worship, and natural and cultural resources, as identified in Section 3.8. The analysis also considers whether noise from the Proposed Action would exceed any applicable standards.

4.8.1.1 Methodology

The Proposed Action would result in sounds produced by military training and construction. Typical noise levels generated by construction equipment are used to evaluate potential impacts from construction activities within the Military Lease Area. Noise from military training activities would be principally generated from the use of small arms and explosives during ground training

activities, and helicopters, fixed-wing (propellor-driven or jet), and tilt-rotor aircraft during aviation training. The analysis examined these Proposed Action elements and relevant research to determine the appropriate noise modeling approach to accurately depict potential noise impacts, including the use of noise modeling software developed for these activities. Details on these noise modeling software programs are summarized in Table 4.8-1, and described in detail in Appendix J.

Table 4.8-1 Noise Modeling Software

Type of Noise Modeled and Proposed Location	*Software Name and Managing Agency*	*Modeling Notes*
Live-Fire Training Small Arms at Multi-Purpose Maneuver Range	Small Arms Range Noise Assessment Model (SARNAM): Developed by US Army and Approved for DoD use	Used to estimate noise levels from the use of small caliber munitions. For the Proposed Action, ammunition up to 0.50 caliber would be used. This includes different types of ammunition commonly used during training, such as 5.56 mm and 7.62 mm, at the Multi-Purpose Maneuver Range. The largest ammunition would be used less frequently. Additional inputs include the location and configuration of the range (e.g., distances between firing points and targets), approximate number of days the range is utilized annually, weapons to be fired at each of the ranges, percent of night firing, and information on range physical features such as land and water data to account for greater sound reflection as sound propagates over water versus over land.
Live-Fire Training Ordnance at Multi-Purpose Maneuver Range and Explosives Training Range	Blast noise model (BNOISE): Developed by US Army and Approved for DoD use	Used to estimate blast noise from the use of ordnance and explosive equipment. For the Proposed Action, a maximum 40 pounds net explosive weight would be used infrequently, approximately 2 to 4 times per year, only at the Explosives Training Range. Smaller amounts of explosives would be used more regularly for training, including charges with a net explosive weight of approximately 1.25 pounds (Multi-Purpose Maneuver Range or Explosives Training Range) or 10 pounds (Explosives Training Range).
Aviation Activities Training at North Field, Landing Zones, and within the Military Lease Area and Cargo Transport Operations at TNI	Aircraft noise model (NOISEMAP, which includes NMAP, AAM, and MRNMAP): Developed and approved for DoD use	Used to analyze noise generated by military aircraft operations by developing estimated noise levels at identified sensitive receptors and noise contours around airfields and Landing Zones. For the Proposed Action, inputs include the types of aircraft, flight patterns, variations in altitude, power settings, number of operations, and hours of operation.
Graphical plotting tool for all types of noise modeling shown above	Noise contour plot program (NMPLOT)	Used to plot modeled noise levels on a grid and identify areas of equal noise levels—shown as contour lines—to help determine noise exposure in different geographical areas.

Legend: mm = millimeter; TNI = Francisco Manglona Borja / Tinian International Airport.

Due to more sporadic live-fire training and aircraft operations in the Military Lease Area and at North Field, annual activity assumptions were used to estimate a "busy month" scenario for the cumulative noise analysis. With more regular aircraft operations at TNI, the analysis for this activity utilized the average annual conditions for the cumulative noise analysis. Single event peak or maximum noise levels augment the cumulative noise analysis results, which applies to equipment and ordnance that would commonly be used at each live-fire range and typical aircraft for aircraft related training activities.

4.8.1.2 Noise Metrics and Effects of Noise

Noise is generally described as unwanted sound, based on both objective effects (e.g., hearing loss or damage to structures) or subjective judgments (e.g., community annoyance). A noise analysis thus requires assessing a combination of physical measurements of sound, physical and physiological effects, plus psycho- and socio-acoustic effects. The response of different individuals to similar noise events is diverse and influenced by the type of noise, the perceived importance of the noise, its appropriateness in the setting, the time of day, the type of activity during which the noise occurs, and the sensitivity of the individual.

As described in Section 3.8, with additional detail provided in Appendix J, noise and sound levels are expressed in logarithmic units measured by decibels, with the unit "dB" (refer to Table 3.8-1 and Figure 3.8-1). The A-weighting scale has been adopted by the Occupational Safety and Health Administration for its noise standards, as this measurement is thought to provide a rating of noise that predicts the injurious effects on human hearing (Occupational Safety and Health Administration 2022). A few example sound levels in A-weighted decibels are summarized below for reference (Berglund and Lindvall 1995):

- 0 decibels = approximate threshold of human hearing, which is barely audible under extremely quiet listening conditions
- 60 decibels = equates to normal speech at a distance of about 3 feet
- Greater than 120 decibels = sound begins to be felt inside the human ear as discomfort
- 130 to 140 decibels = sound levels felt as pain

The minimum change in sound level of an individual event that the average human ear can detect is about 3 decibels, while a 10 decibel increase in sound level will generally be perceived as a doubling (or halving with a decrease) of a sound's loudness (DoD Noise Working Group 2009a).

Cumulative metrics are used to describe, assess, and predict long-term noise exposure and represent the sound level from all noise-generating activities conducted throughout the day, usually averaged over an extended period of time. Single event metrics are used to describe, assess, and predict annoyance associated with occasional loud impulsive events, when the sound is experienced for a brief period of time. Impulsive noise results from an instantaneous event that produces a sharp sound (like a crack or pop from small arms fire or explosive detonation).

In accordance with DoD guidelines and standard practice for environmental impact analysis documents, the appropriate noise metric depends upon the type of activity analyzed. The day-night average sound level (or "DNL") represents an average of all noise activities conducted throughout the day, including periods of no activity, light training, and heavy training while accounting for periods at night when people are more sensitive to noise. Therefore, this metric does not describe

a noise level heard directly but instead represents a measure of intrusiveness or annoyance over the assessment period. The day-night average sound level and C-weighted day-night average sound level (or "CDNL," which is a version of DNL applicable to live fire activity) are metrics to predict the noise environment at airfields, airspace, and ranges when considering compatible land use and assessment of noise impacts on noise-sensitive receptors. Noise from military training is also assessed in this Revised Draft EIS by considering the unweighted peak and maximum sound levels from single events (i.e., and aircraft flying overhead or impulsive noise such as small arms fire or explosions) to provide a description of the noise levels people may experience during a training event. The metrics used in this evaluation are described in Table 4.8-2.

Table 4.8-2 Primary Metric for Significance Analysis and Additional Effects Metrics

Activity Type	*Metric (Primary or Additional Effect) and Reference*	*Description*
Live-Fire Training Explosives Detonations	Primary: Peak sound level PK15(met) in dBP (USMC 2021)	The PK15(met) metric is used to describe the maximum or peak sound level produced by a single impulsive noise event such as blast, which would be heard for a fraction of second. Blast noise may be loud enough to startle people or animals. The duration of the blast or explosion would last for only a few milliseconds but increases as the sound moves further from the point of origin, similar to thunder. This metric accounts for statistical variations from weather. Single event metrics are used to assess if a noise event would interfere with activities and produce annoyance, which is usually described in DoD planning guidelines correlated to a complaint risk. However, this metric does not capture how long sounds may be heard, which would affect how the noise may be experienced. For example, a series of small detonations that happen consecutively versus being spaced out over hours or days may result in different levels of annoyance.
Live-Fire Training Small Arms	Primary: Peak sound level in dBP (USMC 2021)	This metric is used to describe the maximum or peak sound level produced by a single impulsive noise event such as a small caliber gunshot, which would be heard for a fraction of a second. The DoD treats small arms noise differently from blast or aviation noise, because the single event metric provides a better predictor of annoyance. Additionally, it is more conservative than a cumulative metric like DNL/CDNL that may understate the intensity of impulsive events like small arms fire, which can be particularly annoying to residents or other noise-sensitive receptors.
Aviation Activities	Primary: Day-night average sound level (DNL) in dBA (USMC 2021)	This metric uses annual operations at an airfield or landing area to calculate the average sound level over the course of a year. A-weighting is used to better reflect the frequencies people actually hear.

Activity Type	*Metric (Primary or Additional Effect) and Reference*	*Description*
		The DNL contours are depicted on a map and used to evaluate land use compatibility and future planning, as described for the CDNL metric, above. Consistent with DoD and FAA guidance, 65 dB DNL is used to show areas with potential for annoyance in this analysis. However, aircraft noise does occur outside the 65 dB DNL contour.
Aviation Activities	Additional Effects: Maximum sound level (L_{max}) and sound exposure level (SEL) in dBA (USMC 2021)	The maximum sound level or L_{max} is measured during a single event where the sound level changes value with time (e.g., an aircraft overflight). The L_{max} is the maximum, instantaneous level of noise that a particular event produces, and it is most closely related to what an individual would hear. However, this metric does not describe how often that sound would occur (e.g., multiple aircraft flying after each other or helicopters hovering or maneuvering in a small pattern near land). This metric is used in the analysis of the effects of noise on speech interference, including speech in the classroom and potential effects on recreation. The sound exposure level or SEL is the most common measure of cumulative noise exposure for a single aircraft flyover. SEL does not directly represent the sound level heard at any given time but condenses the entire event—starting from the ambient or background noise level, rising to the maximum level as the aircraft flies closest to the observer, and returning to the background noise level as the aircraft moves further away—into a 1-second period of time. During an aircraft flyover, SEL would include both the maximum sound level and the lower sound levels produced during onset and recess periods of the overflight to represent the entire sound exposure received. A-weighting is used to better reflect the frequencies people actually hear.

Legend: dB = decibels; dBA = A-weighted decibels; dBC = C-weighted decibels; dBP = peak sound pressure level in unweighted decibels; CDNL = C-weighted day-night average sound level; DNL = day-night average sound level; DoD = Department of Defense; FAA = Federal Aviation Administration; L_{max} = maximum sound level in A-weighted decibels; SEL = sound exposure level in dBA.

4.8.2 No Action Alternative

Under the No Action Alternative, training events including both ground maneuver and aviation activities would continue in the Military Lease Area at the same tempo as described in previous NEPA documentation (DON 2010a, 2015b). In addition, all actions related to the U.S. Air Force Divert project would be implemented including aircraft operations that are projected to occur annually at TNI.

Under this baseline condition, there would be no change to the current levels of ground and aviation training on Tinian. Activities that are the equivalent of a large training event, such as

Valiant Shield, and smaller events that utilize ground vehicles and equipment and fixed- and rotary-wing aircraft at North Field would continue to occur throughout the year within the Military Lease Area. The aircraft training activities center around North Field, with materials and supplies also arriving by air through TNI. TNI would additionally be used for military divert operations, humanitarian assistance staging, exercises, and other aircraft support activities. Noise levels at representative sensitive receptors would remain the same as the baseline levels shown in Table 3.8-3. Additionally, civilian jets would continue to periodically fly at low altitudes (approximately 2,200 to 2,600 feet) over runway Able at North Field on approach to the Saipan International Airport.

North Field runway Able is used for military fixed-wing and helicopter activities during training. North Field runway Baker is used for parachute drops and helicopter activities. These relatively low altitude activities may occur below flight paths used by large commercial jet aircraft on approach to Saipan. Therefore, since there would be no changes to existing noise levels, the No Action Alternative would remain the same and result in no new noise impacts.

4.8.3 Alternative 1

4.8.3.1 Training

Ground Training

Non-Live Fire

Alternative 1 represents an approximate 15 percent increase in training activities from the No Action Alternative in terms of military vehicles and equipment traveling to conduct activities throughout the training areas in the Military Lease Area. There are no residences, schools, or churches located within the Military Lease Area, but there are cultural and natural resources present. In addition, members of the public conducting subsistence activities or agricultural users may visit the Military Lease Area throughout the day and evening. The sound level from ground vehicles experienced during a training event would vary depending on the distance away from the source–for example being very close to vehicles while operating (e.g., 25 to 50 feet) could produce sound levels in the 80 to 90 decibel range, which may sound like being within 50 feet of a heavy truck while it is running (refer to Figure 3.8-1 in Section 3.8 Noise). The sound levels generally decrease as the distance to the source increases, but environmental and weather conditions can either amplify or dampen the sound level experienced at any given time (e.g., effects of wind, humidity, topography, vegetation may cause variations in how loud the sound seems at the same location at different times). Noise from ground vehicles and equipment used for training would remain similar to the No Action Alternative, and would generally result in sound levels of 50 to 60 decibels at noise sensitive receptor locations. This sound level would be similar to standing 10 feet away from a vacuum cleaner or 100 feet away from an automobile or air conditioner while they are operating (refer to Figure 3.8-1 in Section 3.8 Noise). Therefore, non-live-fire ground-based training would result in less than significant noise impacts.

Live-Fire Training

Live-fire training would present new sources of noise concentrated in specific areas within the Military Lease Area, at the Multi-Purpose Maneuver Range and the Explosives Training Range. Noise-producing events would be intermittent over the course of any given year, and be interspersed with quieter times when less noise-producing activities or even no military training

would be audible. For all live-fire training events, Range Control would provide advance notification to the public of access restrictions required to preserve a safe separation for civilians not participating in training and information on what activities may be seen or heard (i.e., small arms or blast noise, as appropriate). As described in the previous section, the primary metric used to evaluate impacts from training activities at the two proposed live-fire ranges is the peak noise level, which is the most conservative method. Additionally, the noise study in Appendix J provides a cumulative analysis of the proposed explosives activity to ensure that the day-night average sound level would not present land use incompatibilities. Modeling assumptions and results are detailed in Appendix J, *Noise Study* (refer to Section J.3.3).

Small Arms Firing at the Multi-Purpose Maneuver Range. Small caliber rifles and machine guns create impulsive noise, characterized by brief bursts of sound pressure, typically lasting less than a second, but many impulsive sounds could occur in series for longer durations (e.g., multiple service members shooting rifles or a machine gun firing upward of 400 rounds per minute). This is why the DoD uses the peak sound level, and not a cumulative metric, to estimate land use compatibility near areas where small arms fire occurs. Therefore, peak sound levels in unweighted decibels, denoted as "dBP", are used to convey the absolute "loudness" of each individual shot.

The DoD has established thresholds for evaluating the impact of small arms fire at different sound levels (MCO 3550.13, *Range Compatible Use Zones Program*). Impulsive sounds may create a startle effect if the noise occurs unexpectedly, like a clap of thunder. While responses to noise vary, in general, individuals exposed to peak sound levels less than 87 decibels would not be disturbed by the noise event. As the peak sound level increases, the risk of annoyance increases. To provide context to interpret modeled peak sound levels, Table 4.8-3 shows the percentage of people who are highly annoyed from small arms range noise at different peak sounds levels and Table 4.8-4 provides peak noise levels for a variety of common noise sources.

Table 4.8-3 Percentage of Population Highly Annoyed by Small Arms Noise

Peak Sound Level (dBP)	*Percentage Highly Annoyed (%)*
80	4
85	10
90	13
95	21
100	29
105	38

Legend: % = percent; dBP = unweighted decibels.
Source: Sorenson and Magnusson 1979, as cited in DoD Defense Noise Working Group 2018.

Table 4.8-4 Peak Sound Levels for Common Noise Sources

Peak Sound Level (dBP)	*Noise Source*
76	Safety whistle at approximately 50 feet
95-112	Thunderstorm at varying distances
105-145	Restaurant
117-137	Balloon pop at approximately 3 feet
<130	Movie theater
139	Average rock, pop, or rap concert
143-152	Cap gun at <1 foot
153	Pull-apart firecracker at approximately 0.5 feet
169	Airbag at driver's ear

Legend: < = less than; dB = unweighted decibels.
Source: DoD Noise Working Group 2013.

Figure 4.8-1 shows the estimated peak sound levels for representative weapons and ammunition that would be used at the Multi-Purpose Maneuver Range. Range Control would provide advance notice to the community of the training schedule and types of noise that may be heard, and would restrict public access within the surface danger zone during live-fire training. The surface danger zone generally encompasses the land area around the Multi-Purpose Maneuver Range where the 104 decibel contour overlaps. Thus, members of the public would not be present in areas that would experience peak sound levels above 104 decibels. Peak sound levels between 87 and 104 decibels would reach as far as the southernmost runway at North Field and extend over the waters north and northwest of Tinian. At these levels, sound may cause a startle effect and would be considered moderately likely to produce annoyance especially for people who are not accustomed to hearing gunfire noise. Recreational and cultural sites in this area include T16: North Field National Historic Landmark, T20: Ushi Point, and T20: Unai Lam Lam. Areas located south of North Field on Tinian would hear peak sound levels of 87 decibels or less when small arms training occurs, which may sound like a series of bangs, pops, or lower rumbling sounds like a distant thunderstorm (i.e., would be audible but not as likely to cause disturbance or be perceived as annoying). Depending on the weather and other conditions that may affect sound propagation, small arms training may be audible across the Saipan Channel at certain times but would be at levels below 87 decibels and would similarly not be anticipated to cause disruptions or annoyance.

Explosives Detonation at the Multi-Purpose Maneuver Range and Explosives Training Range. Noise generated by ordnance or explosive detonations, referred to as "blast noise," is modeled with the peak noise metric PK15(met) (refer to Table 4.8-2), which is different than the peak noise metric used for small arms. As with small arms, the resulting noise levels are presented in unweighted decibels and are intended to convey the "loudness" of each individual detonation, which lasts only a fraction of a second. The actual sound level a receptor experiences is dependent on highly variable factors such as weather (e.g., cloud cover, humidity, precipitation), wind, and temperature. The same explosive detonation occurring in the same location on the Explosives Training Range could result in different sound levels being heard at a single receptor location from day to day or even hour to hour, by as much as 40 decibels. In general, sound levels would be higher when the receiver is located downwind from a source, and prevailing winds on Tinian are southeast to northwest (i.e., would lessen the sound levels heard in areas of San Jose and Saipan).

Figure 4.8-1 Peak Sound Levels (Unweighted Decibels) from Small Arms Firing at the Multi-Purpose Maneuver Range

However, when a weather event like a temperature inversion occurs, distant sounds may sound much louder or be heard at further distances (DoD Noise Working Group 2018). A temperature inversion results when air near the ground cools more quickly than the air above it. The warm air sitting above the cooler air functions like a lid, and sound waves change direction when hitting the warmer air, refracting the sound differently than on a typical day (i.e., when air temperatures decrease with height). Temperature inversions are more likely to occur on clear days with light and variable winds (less than 3 miles per hour) when conditions are dry and in the vicinity of areas with low elevations where cool air can sink and collect (Midwestern Regional Climate Center 2025). These conditions could occur in the CNMI during the drier, less windy times of the year, which may result in differing sound levels from the same training activity. When using the PK15(met) metric, the noise modeling software accounts for environmental variation so the actual peak sound level experienced when the detonation occurs should be at or below the modeled peak sound level at least 85 percent of the time.

Threshold levels for single event blast noise are also defined differently from small arms. Peak sound levels at 115 decibels or less would be considered audible but are unlikely to produce annoyance; at peak sound levels between 115 and 130 decibels the risk of annoyance becomes moderate as events may be noticeable and distinct from other sounds; at peak sound levels of 130 decibels or greater the sound is very loud, may cause a startle effect, and the risk of annoyance becomes high. The peak sound level from blast noise is experienced for only a fraction of a second per detonation, and a number of detonations may occur throughout a day with quiet periods in between, which is why the cumulative C-weighted day-night average sound level is used to evaluate community compatibility with longer term exposure to the activity MCO 3550.13, *Range Compatible Use Zones Program*).

At the Multi-Purpose Maneuver Range, training would include the use of C-4 explosive with a net explosive weight of up to 1.25 pounds but could also include practice grenades, training rockets, and antipersonnel obstacle breaching charges. Ordnance use at the Explosives Training Range would involve higher net explosive weights and thus charges with varying net explosive weights were modeled to represent the variation that would occur. Detonations of the largest cratering charge (40 pounds net explosive weight) would occur infrequently, up to 4 times per year. The intermediate charge (10 pounds net explosive weight) and smaller breaching charge (1.25 pounds net explosive weight) would be more commonly used during training events, at a rate of approximately 12 and 15 charges per quarter, respectively. The full noise modeling results and noise contour maps for proposed live-fire training can be found in Appendix J, Section J.3.3.2 Noise Exposure.

As shown in Figure 4.8-2, similar to small arms, the 130 decibel peak sound level contour from explosives detonations would fall within the boundary of the surface danger zone, and thus public access would be restricted when this type of training would occur at the Multi-Purpose Maneuver Range. Peak sound levels between 115 and 130 decibels would reach to the southernmost runway at North Field and extend over the waters north, northwest, and northeast of Tinian. This would be similar to sound levels experienced when at a movie theater, music concert, or a loud restaurant (Table 4.8-4), and may create a startle response if the sound is not expected. Recreational and cultural sites in this area include T16: North Field National Historic Landmark, T20: Ushi Point, and T20: Unai Lam Lam.

Figure 4.8-2 Peak Sound Levels (Unweighted Decibels) from Typical Explosive Equipment Detonation at the Multi-Purpose Maneuver Range

Areas south of North Field and across the channel at the southern tip of Saipan would hear peak sound levels of 115 decibels or less when training using explosives occurs at the Multi-Purpose Maneuver Range. Receptors in these areas, such as the residential and commercial zones in the southern portion of the island, could potentially hear these live-fire training events but the sound may be perceived similar to a balloon being popped 3 feet away or a nearby thunderstorm (refer to Table 4.8-4).

As depicted in Figure 4.8-3, the largest charge that would be used at the Explosives Training Range would generate peak sound levels of 140 decibels or greater that extend approximately 1 mile in all directions except for the area north of the 110th Street and west of Mount Lasso, where the sound level is reduced due to the terrain and elevation change. One area of wetlands located southwest of the Explosives Training Range (T6: Bateha 1 Isolated Wetlands) would experience a peak sound level of 140 decibels or greater. The area that would experience peak sound levels between 130 and 140 decibels extends approximately half a mile beyond the 140 decibel contour and covers the middle of the island, from just south of 86th Street to just north of the traffic circle at 116th Street and Broadway, and just west of 8th Avenue out over the ocean approximately 0.5 miles east of Unai Dankulo. Two points of interest are located in this zone–a wetland area located west of the Explosives Training Range (T8: Bateha 2 Isolated Wetlands) and T14: Unai Dankulo. Depending on the weather and other environmental factors, it is likely the detonation of the largest charge would be audible at a peak sound level between 115 and 130 decibels (i.e., likely to produce moderate annoyance) across the remainder of Tinian, with the exception of the northwestern section of the island shielded by the ridgeline southwest of Mount Lasso, across the channel to the southern tip of Saipan, and across a large area of open ocean, extending approximately 5 to 7 miles to the east and west of Tinian.

Figure 4.8-4 depicts peak sound levels for the intermediate charge. Sound levels would be similar in nature to those described for the largest charge, but the area encompassed by each contour shrinks slightly. Sensitive receptors that would potentially experience peak sound levels greater than 140 and between 130 and 140 decibels remain the same for the intermediate charge. The 140 decibel contour extends out approximately 0.8 miles from the center, and the 130 decibel contour still extends approximately 0.5 miles from the edge of the 140 decibel contour, with the exception of the northwestern section of the island where, due to the shielding provided by the ridgeline elevation, peak sound levels would generally remain at or below 115 decibels for all modeled net explosive weights. However, the area that would experience peak sound levels between 115 and 130 decibels is greatly reduced, extending from just south of TNI to just north of the runway Able at North Field, and from just east of Riverside Drive to out over the ocean approximately 2.5 miles beyond Unai Dankulo.

Except for the residential area just northeast of Marpo Heights, the southern third of Tinian where commercial and residential areas are concentrated would experience peak sound levels below 115 decibels (i.e., low potential for annoyance). The southern portion of Saipan across the channel would also experience similar sound levels. Peak noise at this level would likely cause low annoyance where it may blend in with the ambient noise environment and could sound like a distant thunderstorm or a moderately loud restaurant (refer to Table 4.8-4). As depicted in Figure 4.8-5, the smallest charge would affect an even smaller area than the intermediate charge, but the 115 decibel contour would extend approximately 2 miles in every direction from the Explosives Training Range and stay almost entirely within the Military Lease Area.

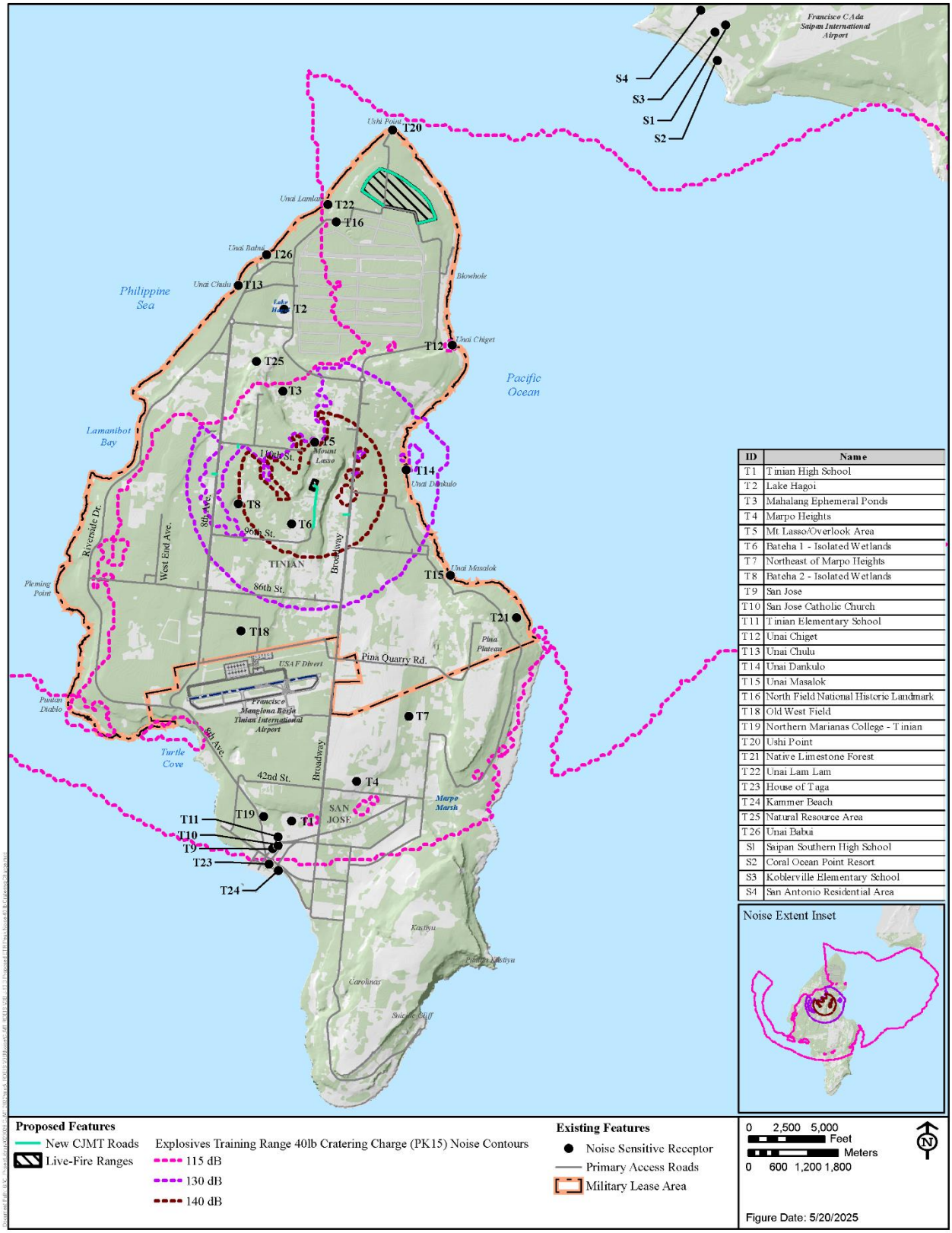
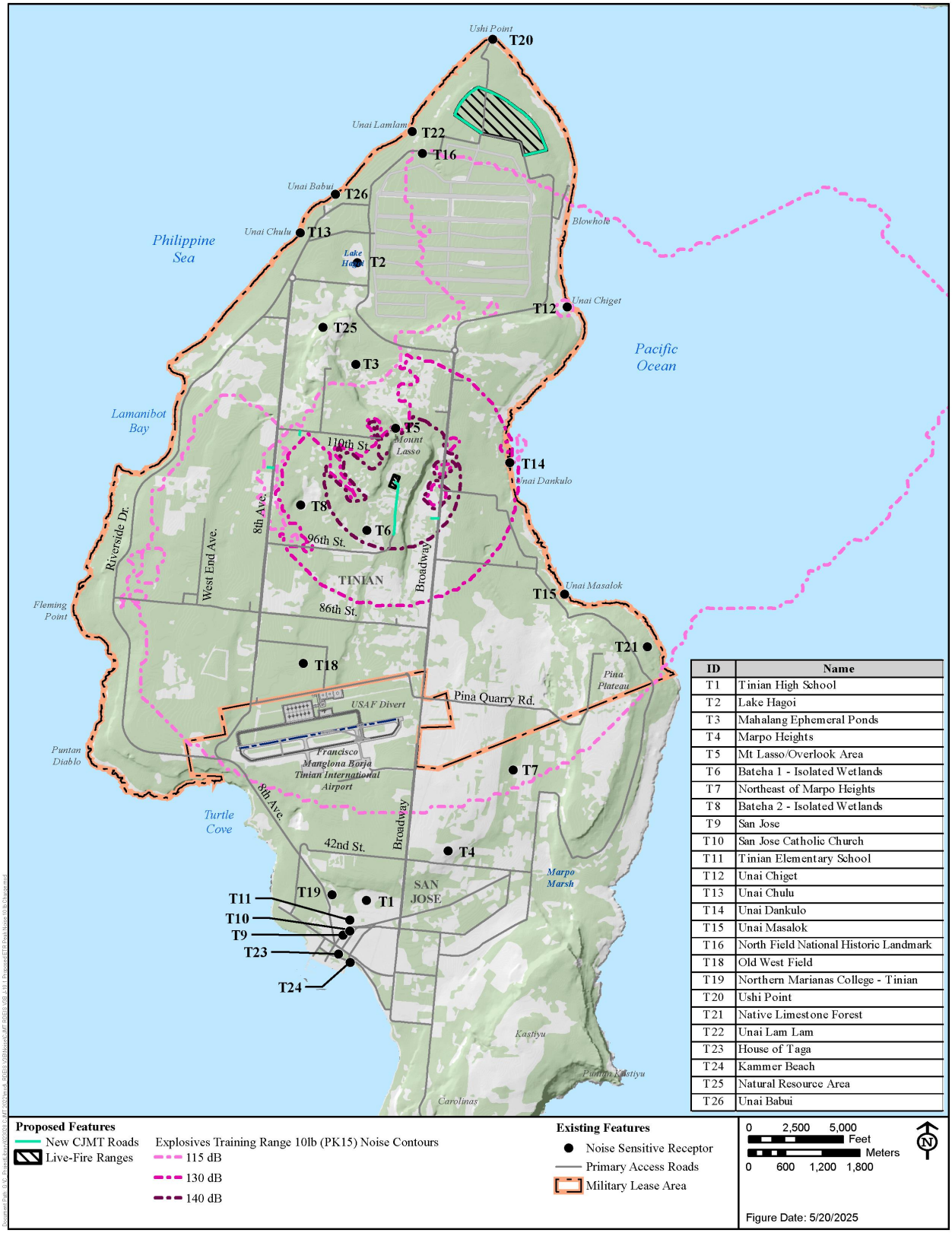
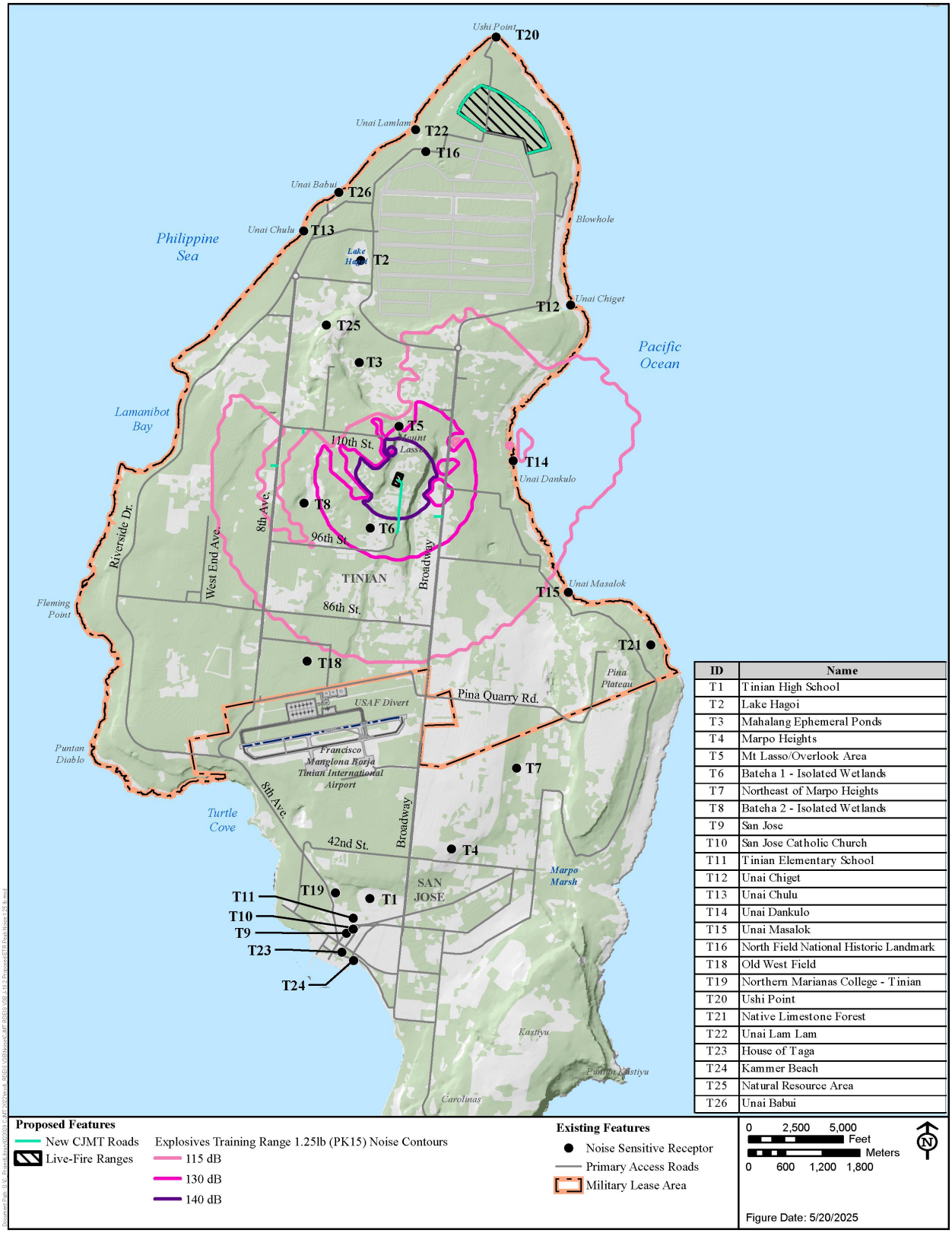


Figure 4.8-3 Peak Sound Levels (Unweighted Decibels) from a 40 Pound Net Explosive Weight Detonation at the Explosives Training Range



ID	Name
T1	Tinian High School
T2	Lake Hagoi
T3	Mahalang Ephemeral Ponds
T4	Marpo Heights
T5	Mt Lasso/Overlook Area
T6	Bateha 1 - Isolated Wetlands
T7	Northeast of Marpo Heights
T8	Bateha 2 - Isolated Wetlands
T9	San Jose
T10	San Jose Catholic Church
T11	Tinian Elementary School
T12	Unai Chiget
T13	Unai Chulu
T14	Unai Dankulo
T15	Unai Masalok
T16	North Field National Historic Landmark
T18	Old West Field
T19	Northern Marianas College - Tinian
T20	Ushi Point
T21	Native Limestone Forest
T22	Unai Lam Lam
T23	House of Taga
T24	Kammer Beach
T25	Natural Resource Area
T26	Unai Babui

Figure 4.8-4 Peak Sound Levels (Unweighted Decibels) from a 10 Pounds Net Explosive Weight Detonation at the Explosives Training Range



ID	Name
T1	Tinian High School
T2	Lake Hagoi
T3	Mahalang Ephemeral Ponds
T4	Marpo Heights
T5	Mt Lasso/Overlook Area
T6	Bateha 1 - Isolated Wetlands
T7	Northeast of Marpo Heights
T8	Bateha 2 - Isolated Wetlands
T9	San Jose
T10	San Jose Catholic Church
T11	Tinian Elementary School
T12	Unai Chiget
T13	Unai Chulu
T14	Unai Dankulo
T15	Unai Masalok
T16	North Field National Historic Landmark
T18	Old West Field
T19	Northern Marianas College - Tinian
T20	Ushi Point
T21	Native Limestone Forest
T22	Unai Lam Lam
T23	House of Taga
T24	Kammer Beach
T25	Natural Resource Area
T26	Unai Babui

Figure 4.8-5 Peak Sound Levels (Unweighted Decibels) from a 1.25 Pounds Net Explosive Weight Detonation at the Explosives Training Range

The limits of the 115 decibel contour are just north of TNI to the south, south of the North Field runway area, at West End Avenue to the west, and only extends approximately 0.5 miles over the water to the east of Unai Dankulo. Table 4.8-5 presents the peak sound levels in unweighted decibels that would occur at select sensitive receptors as a result of live-fire training at both the Multi-Purpose Maneuver Range and the Explosives Training Range.

Table 4.8-5 Peak Noise Levels (Unweighted Decibels) at Points of Interest on Tinian and Saipan from Explosives Detonations at Proposed Live-Fire Ranges

ID	*Description*	*Type*	*Multi-Purpose Maneuver Range[1] (dBP)*	*Explosives Training Range[2] (dBP)*
T1	Tinian High School	School	90	117
T4	Marpo Heights	Residential	93	118
T5	Mount Lasso Overlook Area	Natural Resource	102	126[3]
T6	Bateha 1 – Isolated Wetlands	Natural Resource	98	148
T7	Northeast of Marpo Heights	Residential	94	120
T8	Bateha 2 – Isolated Wetlands	Natural Resource	99	138
T9	San Jose	Residential	92	116
T11	Tinian Elementary School	School	92	116
T12	Unai Chiget	Cultural Resource	109	123
T14	Unai Dankulo	Cultural Resource	102	137
T15	Unai Masalok	Cultural Resource	98	126
T16	North Field National Historic Landmark	Cultural Resource	124	119
T18	Old West Field	Cultural Resource	96	125
T19	Northern Marianas College – Tinian	School	92	117
T20	Ushi Point	Natural Resource	122[3]	116
T22	Unai Lam Lam	Cultural Resource	122[3]	104
T26	Unai Babui	Natural Resource	110	104
S2	San Antonio Residential Area	Residential	108	112
S4	Koblerville Elementary School	School	108	113

Legend: dBP = peak decibels.

Notes: Results presented here as exterior noise levels. Typical building construction results in a reduction of noise of level of 15 dB with windows open and 25 dB for windows closed (DoD Noise Working Group 2013).
Refer to Table 4.8-4 for typical peak noise levels for common sounds, such as the peak sound level from: thunderstorms at varying distances (95 to 112 decibels); restaurant (105-145); balloon popping around 3 feet away (117 to 137 decibels); average concert (139 decibels).

[1] Modeled charge size: 1.25 pounds net explosive weight.

[2] Modeled charge size: 40 pounds net explosive weight. This peak level would occur 2-4 times per year.

[3] Range Control would restrict public access to this area during live-fire training as it is located within the surface danger zone for the associated live-fire range.

For all live-fire training events, Range Control would provide advance notification to the public of access restrictions required to preserve safety according to the nature of the training scheduled to occur. The notifications would provide information on what activities may be seen or heard (i.e., small arms or blast noise, as appropriate). In addition to potential annoyance from hearing sounds from live-fire training, visitors and residents may experience inconvenience from having to adjust plans to visit alternate areas of the Military Lease Area if they are sensitive to noise at lower peak

levels, or fuel costs associated with driving to alternative recreation or cultural sites within the Military Lease Area where public access remains unrestricted. However, these impacts would be temporary and would occur intermittently over the course of any given year, and interspersed with quieter times where less noise-producing activities or even no military training would be audible. Additionally, with temporary access restrictions put in place by Range Control, the public visiting the Military Lease Area would not experience noise at levels that would present a risk for hearing loss. Therefore, ground training would result in less than significant impacts on human receptors from noise.

Aviation Training

Cumulative (Annual Average) Noise Impacts

TNI and Military Lease Area (North Field and Landing Zones). Under Alternative 1, the existing KC-135, F-18E/F, and F-35A/B/C activity currently occurring at TNI would remain the same while other military aircraft operations would increase by 15 percent, related to transport of materials, equipment, and personnel to support training. Total airfield operations at TNI would increase less than 1 percent, from 29,207 to 29,308. As with the baseline condition, each landing or take-off is counted as an operation for noise modeling purposes and majority of operations would take place during the day (approximately 75 of operations occurring during the acoustic day, between 7 a.m. and 10 p.m.). No sensitive receptors would experience a day-night average sound level of 65 decibels or greater due to operations at TNI under Alternative 1 (Figure 4.8-6).

Under Alternative 1, military flight training in and around Tinian would also increase, as described in Chapter 2 and additional modeling details are presented in Appendix J. Approximately one half of the additional military flight time would occur within the Military Lease Area or within 1 mile from shore. Training within the Military Lease Area would involve helicopters or tilt-rotorcraft (such as CH-53, AH-1, UH-1, and MV-22) flying approaches, hovering, and landing at the proposed Landing Zones. Additionally, these helicopters and tilt-rotor aircraft, as well as fixed wing fighters (F-18E/F and F-35A/B/C) and tankers (KC-130) would fly approaches to and takeoffs from the runways in North Field.

Figure 4.8-7 depicts the day-night average sound level contours for the Military Lease Area under Alternative 1. Aviation training at North Field would result in noise contours that would extend both west and east from runway Baker primarily due to military aircraft operations. There are five locations within the 65 decibel day-night average sound level: T2: Lake Hagoi at 70 decibels; T12: Unai Chiget at 65 decibels, T13: Unai Chulu at 76 decibels, T16: North Field National Historic Landmark at 65 decibels, and T26: Unai Babui at 76 decibels. These locations are just beyond the western edge of the North Field runways, and outdoor recreational activities at these sound levels are generally still considered to be compatible. Under Alternative 1, the training activity proposed at Landing Zones would result in a day-night average sound level contour of 65 decibels or greater centered around each Landing Zone, but the boundary does not extend much beyond the footprint of each Landing Zone. This occurs because the lowest portion of each operation (less than 30 feet and down to the ground) only occurs within the Landing Zone boundary. Aircraft operations beyond the boundary of each Landing Zone would be at greater altitudes and be spread throughout the Military Lease Area.

Figure 4.8-6 Day-Night Average Sound Level Contours (A-weighted Decibels) at TNI under Alternative 1

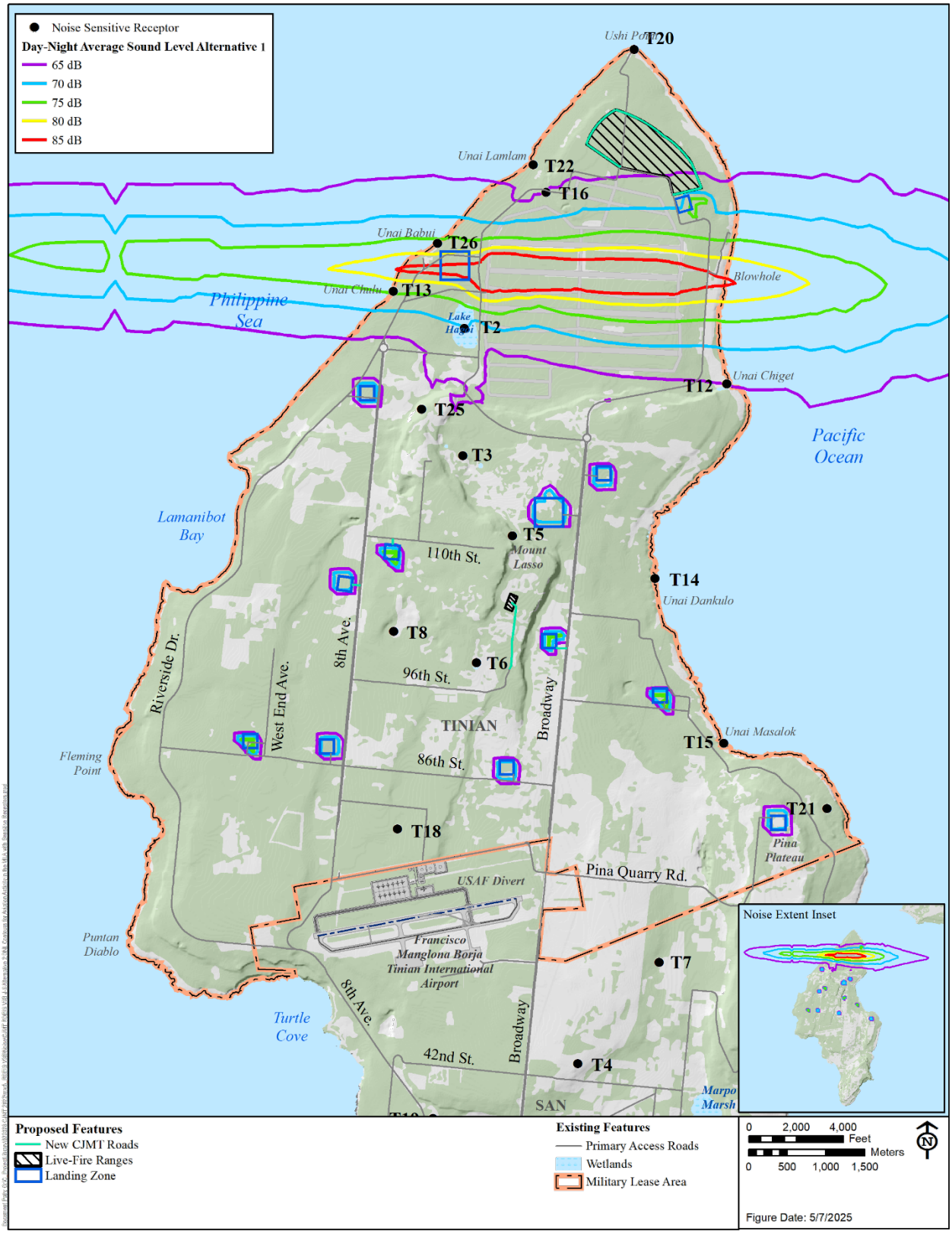


Figure 4.8-7 Day-Night Average Sound Level Contours (A-weighted Decibels) in Military Lease Area under Alternative 1

Table 4.8-6 presents the noise levels at select sensitive receptors when considering the additional operations at TNI and aviation training proposed to occur at North Field and Landing Zones throughout the Military Lease Area. The cumulative day-night average sound levels presented in Table 4.8-6 and depicted in Figures 4.8-6 and 4.8-7 are meant to characterize long-term exposure to noise for the purpose of determining land use compatibility and identifying when indoor or outdoor noise level reduction measures may be appropriate to achieve compatibility for various types of uses. In general, all land uses are considered to be compatible with a day-night average sound level below 65 decibels and land uses that involve outdoor activities are not recommended in areas with sound levels above 80 decibels.

Table 4.8-6 Alternative 1 Aviation Training - Modeled Day-Night Average Noise Levels at Sensitive Receptors on Tinian

ID	*Description*	*Type*	*Alt 1 Noise Level – DNL (dB) / Change from Modeled Baseline*[1]
T2	Lake Hagoi	Natural Resource	70 / +26
T3	Mahalang Ephemeral Ponds	Natural Resource	60 / +20
T5	Mount Lasso Overlook Area	Natural Resource	55 / +10
T6	Bateha 1 – Isolated Wetlands	Natural Resource	49 / +3
T8	Bateha 2 – Isolated Wetlands	Natural Resource	49 / +5
T12	Unai Chiget	Cultural Resource	65 / +27
T13	Unai Chulu	Cultural Resource	76 / +34
T14	Unai Dankulo	Cultural Resource	51 / +5
T16	North Field National Historic Landmark	Cultural Resource	65 / +25
T20	Ushi Point	Natural Resource	53 / +17
T22	Unai Lam Lam	Cultural Resource	62 / +24
T25	Natural Resource Area	Natural Resource	57 / +15
T26	Unai Babui	Natural Resource	76 / +38

Legend: dB = decibels; DNL = day-night average noise level; ID = identification.
Notes: [1] Noise levels calculated based on aircraft activity that occurs at TNI and military aviation training throughout the Military Lease Area, including use of North Field and landing zones (Appendix J, *Noise Study*). Results presented here as exterior noise levels. Typical building construction results in a reduction of noise of level of 15 dB with windows open and 25 dB for windows closed (DoD Noise Working Group 2013).

There would be no human populations regularly gathering at sensitive receptors that fall within the 65 decibel day-night average sound level contours shown in Figure 4.8-6 or 4.8-7. Additionally, no sensitive receptors would experience a day-night average sound level of greater than 80 decibels due to operations at TNI, North Field or Landing Zones under Alternative 1. The single event noise metrics presented further below in this section are used to evaluate noise impacts that may be experienced by people visiting natural or cultural resources within the Military Lease Area while aviation activities are occurring.

Additional Noise Effects

Single Event Noise from Aviation Training

Table 4.8-7 presents single event noise levels from aircraft flying over the airspace to North Field or Landing Zones in the Military Lease Area. The sound exposure level and maximum sound level provide the noise level of a single aircraft event in A-weighted decibels. However, these metrics do not represent a continuous source of noise, as the flight activities are intermittent in nature.

Table 4.8-7 Single Event Noise Levels (Sound Exposure Level and Maximum Sound Level) for Common Military Aircraft Operating Conditions

Altitude (ft AGL)	*MV-22 at 80 kts*		*CH-53 at 80 kts*		*AH-1/UH-1 at 80 kts*		*F-35A/B/C at 220 kts*		*F-18E/F at 220 kts*		*KC-130 at 220 kts*	
	SEL (dB)	*L_{max} (dB)*	*SEL (dB)*	*L_{max} (dB)*	*SEL (dB)*	*L_{max} (dB)*	*SEL (dB)*	*L_{max} (dB)*	*SEL (dB)*	*L_{max} (dB)*	*SEL (dB)*	*L_{max} (dB)*
300	98	91	97	91	96	88						
500	95	86	95	87	93	84						
2,000	89	75	87	73	87	73	110	102	111	104	85	77
5,000							100	90	101	93	76	66
10,000							90	80	91	82	67	56

Legend: ft AGL = feet above ground level; kts = knots (speed); dB = decibels; L_{max} = maximum sound level; SEL = sound exposure level.

Note: Modeled at a constant speed and altitude.

In terms of the magnitude of noise, helicopter or tilt-rotor overflights at 300 feet above ground level would produce a single event maximum sound level of 88 to 91 decibels, or a sound exposure level of 96 to 98 decibels. Similar sounds at that level would occur from a heavy truck driving by less than 50 feet away or a motorcycle at 25 feet, which can be annoying or cause discomfort for a brief period of time. Overflights at 500 feet would be quieter, more equivalent to the sound of an alarm clock or garbage disposal at 3 feet away. Although fixed-wing aircraft (i.e., F-18E/F and F-35A/B/C) would generate greater maximum sound levels of up to 102 to 104 decibels and a sound exposure level of up to 111 decibels, these sound levels would generally only occur within the vicinity of the runways at North Field during an approach or departure. Range Control would implement mandatory safety exclusion zones to restrict access for the general public when and where required to avoid exposure to sound levels that would be potentially harmful. Fixed-wing aircraft operate primarily at altitudes greater than 10,000 feet above ground level and pass through the lower altitudes in a matter of seconds to minutes, and therefore noise exposure would be of short duration. Table 4.8-8 presents the maximum A-weighted sound level from aircraft operations at select points of interest under Alternative 1.

Table 4.8-8 Alternative 1 Aviation Training Maximum Noise Levels at Sensitive Receptors on Tinian and Saipan

ID	*Description*	*Type*	*L_{max} (dB)[1]*
T1	Tinian High School	School	104
T2	Lake Hagoi	Natural Resource	102
T4	Marpo Heights	Residential	107
T5	Mount Lasso Overlook Area	Natural Resource	100
T6	Bateha 1 – Isolated Wetlands	Natural Resource	99
T7	Northeast of Marpo Heights	Residential	97
T9	San Jose	Residential	93
T10	San Jose Catholic Church	Church	94
T11	Tinian Elementary School	School	96
T12	Unai Chiget	Cultural Resource	95
T13	Unai Chulu	Cultural Resource	108
T14	Unai Dankulo	Cultural Resource	104

ID	Description	Type	L_{max} (dB)[1]
T15	Unai Masalok	Cultural Resource	99
T16	North Field National Historic Landmark	Cultural Resource	100
T18	Old West Field	Cultural Resource	102
T19	Northern Marianas College – Tinian	School	103
T20	Ushi Point	Natural Resource	91
T21	Native Limestone Forest	Natural Resource	105
T22	Unai Lam Lam	Cultural Resource	99
T24	Jones (Kammer) Beach/Park	Natural Resource	98
T25	Natural Resource Area	Natural Resource	104
T26	Unai Babui	Natural Resource	108
S1	Saipan Southern High School	School	87
S2	Coral Ocean Resort/Golf Course	Resort	92

Legend: dB = decibels; ID = identification; L_{max} = maximum sound level.
Note: [1] Results presented here as exterior noise levels. Typical building construction results in a reduction of noise of level of 15 dB with windows open and 25 dB for windows closed (DoD Noise Working Group 2013).

For aircraft noise, a maximum A-weighted sound level between 70 to 80 decibels corresponds to a low likelihood of annoyance, between 80 and 95 decibels produces a moderate likelihood of annoyance, and above 95 decibels there is a high likelihood of annoyance when the sounds in this range occur frequently (approximately 50-200 operations per day) (DoD Noise Working Group 2018). The aircraft operations at North Field and Landing Zones would not occur on a regular schedule, as with commercial aircraft activities at TNI. Aircraft activity would occur most frequently during large training events but would also occur periodically throughout the year during medium and small events. However, based on the single event noise levels presented in Table 4.8-7 and the distance of sensitive receptors such as residences and schools from the Military Lease Area, interruptions to conversations or indoor speech or classroom learning would be unlikely to occur. The screening criteria for classroom learning impacts begins at 60 decibels day-night average sound level, and no schools are located in areas that would experience a day-night average sound level exceeding 50 decibels.

Additionally, although aircraft operations at North Field and throughout the Military Lease Area would not directly create noise impacts on Saipan, aviation activity under Alternative 1 would result in increased numbers of aircraft (like F-35A/B/C) transiting through the general area north of Tinian, which may result in an increase in the number of military flights that could be heard from the southern portion of Saipan. Sleep disruption refers to noise events occurring during the nighttime that could interfere with people's sleep. Under Alternative 1 the increase in nighttime flights at TNI would increase by less than 1 percent from baseline, nighttime training in the Military Lease Area at night would occur far from residential areas.

Summary

Under Alternative 1, there would be live-fire and aviation activities that occur at the same time, especially during large training events. Live-fire and aviation activities would also occur during medium training events and less frequently during small training events. Overall, the proposed training in the Military Lease Area, live-fire and aviation training, would generate elevated noise levels compared to the No Action Alternative. Based on the cumulative and single event noise levels described above, there may be some temporary disturbance to recreational users or

individuals engaged in ranching and grazing in the Military Lease Area, but these effects would be limited in duration and scope. As described above, Range Control would restrict access to surface danger zones and other areas within the Military Lease Area as required to preserve safety. This would ensure the public would not be present in areas where sound levels would be potentially harmful to human hearing. Range Control would provide advance notice of training schedules to the public to make them aware of when and where noise from training may be heard. Therefore, training under Alternative 1 would result in less than significant impacts from ground and aviation training noise.

4.8.3.2 Construction

Short-term, moderate impacts on the noise environment would be anticipated from construction associated with Alternative 1, including vegetation trimming and clearing, grading and earthmoving, and construction of the Base Camp and other training infrastructure. New temporary sources of noise would be present at the different construction locations at varied periods throughout the entire construction phase, over a 10 to 15 year period. Projects would be constructed at different locations throughout the Military Lease Area. Construction would typically be limited to daytime hours (7 a.m. to 10 p.m.). This would result in a temporary increase in noise at the project site and surrounding area. For example, at 50 feet away, construction equipment can produce maximum sound levels between 70 and 95 decibels, but that dissipates to around 65 decibels at a distance of 300 feet and less than 65 decibels at 1,000 feet. There are no residences, schools, or churches located within the Military Lease Area that would be affected by construction noise; however, some cultural resources would experience temporary moderate impacts. As construction would be intermittent and temporary, occur only over small areas, only in the Military Lease Area, and would be managed by Range Control to minimize impacts to cultural resource sites, Alternative 1 construction would result in less than significant noise impacts.

4.8.4 Alternative 2

4.8.4.1 Training

Ground Training

Under Alternative 2, training would continue and would increase over the No Action Alternative by approximately 5 percent, which is approximately 10 percent less than Alternative 1. All training would occur within the Military Lease Area and impacts would be similar to those described for Alternative 1. The increased training tempo may result in additional days when noise from ground training (vehicle movements, live-fire range operations) may occur, but it would not expose new or different receptors to noise levels that are differ from what was described for Alternative 1.

Aircraft Training

Cumulative (Annual Average) Noise Impacts

TNI and Military Lease Area (North Field and Landing Zones). Under Alternative 2, no additional training flights are proposed to occur at TNI, and the baseline number of KC-135, F-18E/F, and F-35A/B/C at TNI would remain unchanged. There would be additional flights to TNI to deliver materials and equipment to support training, resulting in an increase of less than 1 percent of annual operations (from 29,207 to 29,238). The number of noise sensitive areas that would experience a day-night average sound level of 65 decibels would remain at zero due to

operations at TNI under Alternative 2. The change in Day-Night Average Sound Level solely related to the aircraft activity at TNI would be approximately 0.2 decibels relative to the No Action Alternative, which would be a less than significant noise impact.

While the tempo of training increases 5 percent over the No Action Alternative, the individual activities involving aircraft can have a range or aircraft types and flight times required to achieve the training objectives. Thus, military flight training in and around Tinian would increase for Alternative 2, as described in Chapter 2 and Appendix J. Similar to Alternative 1, approximately half of the annual flight time would occur at Landing Zones, North Field, within the airspace above the Military Lease Area or within 1 mile from shore. Training would involve the same aircraft types as Alternative 1: helicopters or tilt-rotorcraft (such as CH-53, AH-1, UH-1, and MV-22) flying approaches, hovering, and landing at the proposed Landing Zones, and helicopters, tilt-rotor aircraft, fixe d wing fighters (F-18E/F and F-35A/B/C) and tankers (KC-130) flying approaches to and takeoffs from the runways in North Field. Table 4.8-9 presents the noise levels at key sensitive receptors, which accounts for the change in aviation training in the Military Lease Area and the activity related to materials, equipment, and personnel transport to support training at TNI.

Table 4.8-9 Alternative 2 Aviation Training - Modeled Day-Night Average Noise Levels at Sensitive Receptors on Tinian

ID	*Description*	*Type*	*Alt 2 Noise Level – DNL (dB) / Change from Modeled Baseline*[1]
T2	Lake Hagoi	Natural Resource	67 / +23
T3	Mahalang Ephemeral Ponds	Natural Resource	57 / +17
T5	Mount Lasso Overlook Area	Natural Resource	52 / +7
T6	Bateha 1 – Isolated Wetlands	Natural Resource	48 / +2
T8	Bateha 2 – Isolated Wetlands	Natural Resource	47 / +3
T12	Unai Chiget	Cultural Resource	62 / +24
T13	Unai Chulu	Cultural Resource	73 / +31
T14	Unai Dankulo	Cultural Resource	49 / +3
T16	North Field National Historic Landmark	Cultural Resource	62 / +22
T20	Ushi Point	Natural Resource	59 / +15
T22	Unai Lam Lam	Cultural Resource	54 / +21
T25	Natural Resource Area	Natural Resource	54 / +12
T26	Unai Babui	Natural Resource	73 / +35

Legend: dB = decibels; DNL = day-night average noise level; ID = identification.
Notes: [1] Noise levels calculated based on aircraft activity that occurs at TNI and military aviation training throughout the Military Lease Area, including use of North Field and landing zones (Appendix J, *Noise Study*). Results presented here as exterior noise levels. Typical building construction results in a reduction of noise of level of 15 dB with windows open and 25 dB for windows closed (DoD Noise Working Group 2013).

Under Alternative 2 the training activity proposed at Landing Zones would result in similar impacts as described for Alternative 1, with the day-night average sound level contours of 65 decibels or greater centered at each location but generally limited to the boundary of the Landing Zone or the area immediately adjacent. The activity that would occur at North Field would result in noise contours that would extend both west and east along the heading of runway Baker primarily due to military jet operations that would perform arrival and departures. There are three locations that would have a day-night average sound level above 65 decibels: T2: Lake Hagoi,

T13: Unai Chulu, and T26: Unai Babui at 67, 73, and 73 decibels, respectively. These locations are just beyond the western edge of the North Field runways, and outdoor recreational activities at these day-night average sound level are generally still considered to be compatible. The remaining modeled operations that would be spread throughout the Military Lease Area and within 1 mile off-shore would produce day-night average sound levels between 40 to 55 decibels, which are considered compatible with all land uses. Therefore, changes to cumulative day-night average sound level would result in less than significant impacts to land use compatibility from aviation training noise under Alternative 2.

Single Event Noise Impacts

Under Alternative 2, the single event noise impacts would be similar to those described for Alternative 1. The sound exposure level and maximum sound levels would be the same as shown in Table 4.8-8. The number of flights would be less than under Alternative 1, with the flight speeds, altitudes, and areas where flights would occur would remain the same as under Alternative 1. Thus, aircraft training under Alternative 2 would be likely to produce annoyance and not expected to result in interruptions to conversations or indoor speech, or classroom learning on Tinian or Saipan. Figures 4.8-8 and Figure 4.8-9 depict the day-night average sound level contours for TNI and the Military Lease Area under Alternative 2, respectively. The full noise modeling results for proposed live-fire training can be found in Appendix J, Sections J.3.1.2 and J.3.2.1 Noise Exposure. Therefore, the single event noise levels from training under Alternative 2 would result in less than significant impacts.

In summary, training under Alternative 2 would result in similar impacts to those described for Alternative 1, with the primary difference being less flight activities, which would result in fewer, and still infrequent, single event noise levels that may produce annoyance related to aviation training. Therefore, training under Alternative 2 would result in less than significant impacts from noise.

Additional Noise Effects

Additional noise effects from training under Alternative 2 would result in the same conclusions as Alternative 1. There would not be a potential for hearing loss, increase to classroom disturbance, or increase in sleep disturbance. The primary difference for Alternative 2 would be less flight activities than Alternative 1, which would result in fewer, and still infrequent, single event noise levels that may produce annoyance related to aviation training.

4.8.4.2 Construction

Construction under Alternative 2 would be identical to Alternative 1, and therefore impacts would be the same as described for Alternative 1. Therefore, construction under Alternative 2 would result in less than significant noise impacts.

Figure 4.8-8 Day-Night Average Sound Level Contours (A-weighted Decibels) at TNI under Alternative 2

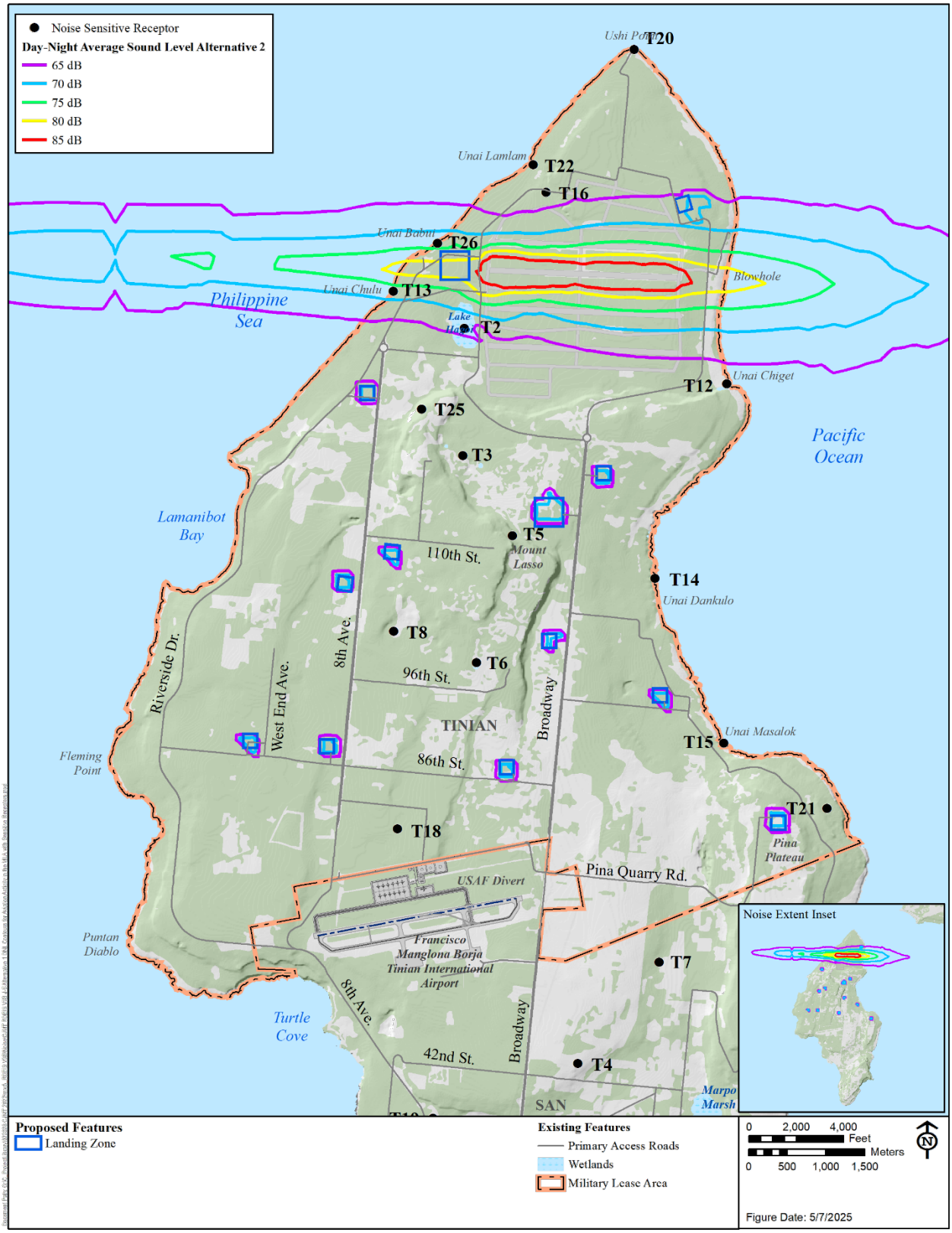


Figure 4.8-9 Day-Night Average Sound Level Contours (A-weighted Decibels) in Military Lease Area under Alternative 2