3.10 PUBLIC HEALTH AND SAFETY

3.10.1 INTRODUCTION

3.10.1.1 Overview

Public health and safety issues are defined as those elements of the Proposed Action that directly affect the health and safety of the public in the areas within and adjacent to the Fallon Range Training Complex (FRTC). The United States (U.S.) Department of the Navy's (Navy's) policy is to use every possible precaution in planning and executing all activities in order to prevent injury to people or damage to property. Public safety or health concerns are minimized by these precautions and because the public normally does not have access to Navy-controlled areas, where the most dangerous activities take place.

Proposed Action effects that do not directly affect an individual's health or safety are not considered in this assessment. Also, concerns that affect single individuals and isolated incidents may not rise to the level of a public health or public safety issue. The resource to be evaluated is the collective health and safety of groups of individuals in the areas adjacent to FRTC training areas. Noise effects are not addressed in this section but are analyzed in Section 3.4 (Noise [Airborne]).

3.10.1.2 Regulatory Framework and Management Practices

The inclusion of an analysis of impacts on public health and safety is supported by the National Environmental Policy Act (NEPA); the regulations issued by the Council on Environmental Quality; Executive Orders (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, and EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*; and available guidance on NEPA and environmental justice. For the analysis associated with EOs 12898 and 13045, see Section 3.7 (Socioeconomics, Environmental Justice, and Protection of Children).

The FRTC prepared a Range Air Installations Compatible Use Zone Study in 2011 (U.S. Department of the Navy 2011). The main goals of the program are to foster compatibility among air-to-ground weapons training, special use airspace (SUA), and land uses in the vicinity of a training range complex. The study's objectives include avoiding public exposure to hazards associated with weapons delivery, avoiding incompatible land development near training range complex operations, and safeguarding the operational capabilities of the training range complex. The study includes training range safety and noise analyses and provides land use recommendations that are compatible with training range operations and the associated noise levels.

3.10.1.3 Approach to Analysis

Factors used to assess the significance of potential impacts from military readiness activities at the FRTC include two factors: (1) the probability for a training activity to impact public health and safety, and (2) the degree to which those activities could have an impact. The likelihood that the public would be near a training activity determines the potential for exposure to the activity. If the potential for exposure exists, the degree of the potential impacts on public health and safety, including increased risk of injury or loss of life, is determined. If the potential for exposure were zero, then public health and safety would not be affected. Types of activities that raise public safety concerns are those where members of the public are proximate to or within the footprint of a potentially hazardous training activity. Land detonations of explosives in a controlled training environment on Navy property, where a

substantial buffer exists between the training site and adjacent public areas (i.e., outside of a weapons danger zone), are deemed not to be a risk to public safety.

3.10.2 AFFECTED ENVIRONMENT

3.10.2.1 Regional Setting

All military training activities at the FRTC occur either on the ground, in the air, or a combination of both. Four air-to-ground training ranges (Bravo [B]-16, B-17, B-19, and B-20), the Shoal Site, and the Dixie Valley Training Area (DVTA) are shown in Figure 2-1. The surrounding property is vacant. SUA has defined vertical and lateral limits established by the Federal Aviation Administration (FAA) to segregate air activities that may be hazardous to nonparticipating aircraft. Within the FRTC Study Area, SUA overlies approximately 10.4 million acres (ac.) (4.2 million hectares [ha]) of land that includes 9 restricted areas, 15 military operations areas (MOAs), 14 blocks of Air Traffic Control Assigned Airspace (ATCAA), 2 supersonic operating areas, and a Civilian Visual Flight Rules (VFR) corridor (see Figure 2-1).

3.10.2.2 Region of Influence

The region of influence for public health and safety concerns covers the entire FRTC (including both SUA and Navy-controlled lands) and the immediately adjacent lands. Areas of heightened sensitivity to public health and safety concerns within the region of influence include areas where large groups of people may gather, for example, recreational areas and parks.

3.10.2.3 Aircraft Accident Potential

During aviation training activities, pilots typically avoid towns, noise-sensitive areas, and wilderness areas at prescribed vertical or horizontal distances. Pilots also avoid areas where obstructions to air navigation have been identified.

Potential aircraft mishaps are the primary safety concern for military training flights. Naval Air Station (NAS) Fallon maintains detailed emergency and mishap response plans to react to an aircraft accident, should one occur. NAS Fallon has three runways with associated clear zones and accident potential zones.[1] The clear zones lie within NAS Fallon boundaries, and the accident potential zones lie within and beyond the agricultural outlease areas. Helicopter activities require designation of clear zones but not accident potential zones. The clear zone for VFR aircraft is the same as the takeoff safety zone. The takeoff safety zone constitutes the area under the approach/departure surface until that surface is 50–100 feet (ft.) (15.2–30.5 meters [m]) above the landing zone elevation; this zone must be free of obstructions.

Unmanned autonomous systems (UAS) follow the same safety regulations as aircraft. If Navy or other Department of Defense (DoD) UAS are operating inside restricted airspace, they are required to operate under similar aircraft regulations. If operating outside of restricted airspace, Navy and other DoD UAS need to operate under FAA requirements, may require a Certificates of Waiver or Authorization (COA), and generally require either a chase plane or constant visual contact from the ground controller. Additionally, if a Navy or other DoD UAS loses radio or other contact, it is designed to circle in place until it can reacquire the signal. If it cannot, it is programmed to return to a specific point.

In December 2013, the FAA named Nevada as one of six test sites for the integration of commercial

[1] Clear zones and accident potential zones are areas near runways where an aircraft mishap is most likely to occur (if one were to occur) and are not predictors of accidents.

applications of UAS into the National airspace. Use of UAS by commercial or other civilian applications will require new policies and procedures in order to be integrated into the National Airspace System. The FAA is establishing a Center of Excellence to address these issues. It is important to note the distinction between Navy and other DoD use of UAS, which are covered under this EIS, and civilian and commercial use under the Center of Excellence, which is not related to this Proposed Action.

3.10.2.4 Weapons Safety

A surface danger zone (SDZ) is the mathematically predicted, three-dimensional area that a projectile or fragment could travel through and impact the earth, either by direct fire or ricochet. An SDZ is calculated using procedures found in Department of the Army Pamphlet 385-63, *Range Safety.* An SDZ serves only as a human safety buffer downrange from a firing point, and it must be controlled by the training unit.

A weapons danger zone encompasses the ground and airspace for lateral and vertical containment of projectiles, fragments, debris, and components resulting from the firing, launching, or detonation of aviation delivered ordnance. This three-dimensional zone accounts for weapons accuracy, failures, and ricochets based on weapon type delivered by a specific aircraft type. The weapons danger zone represents the minimum safety requirements designed for aviation weapons training on DoD ranges, and it must be controlled by the training unit.

3.10.2.5 Public Access and Proximity

Public access to certain ranges (e.g., B-16, B-17, B-19, and B-20) within the FRTC is restricted for security and to safeguard against potential hazards associated with military activities. It is accomplished through the use of fences and posted signs. Any gate opened for military activities will have a gate watch posted if it remains open for any length of time. Standard operating procedures require that the range safety officer ensure that a range and the associated safety danger zone are clear of trespassers before starting training activities. Safety instructions for the FRTC are found in *Naval Strike and Air Warfare Center Fallon Range Training Complex Operations Manual* (U.S. Department of the Navy 2012). Controlling public access to the FRTC training areas is for safety concerns, to protect the public and military personnel from harm. Other areas that are managed by the Navy (e.g., the DVTA and the Shoal Site) are considered open for public use as well as available for Navy training. Standard operating procedures are also in place to ensure these areas are clear of non-participants before starting training activities (U.S. Department of the Navy 2012).

3.10.2.6 Range Sustainability Environmental Program Assessment

A critical aspect in ensuring the long-term sustainability of military ranges is to understand the environmental conditions at each range and to conscientiously manage these resources in an environmentally sound manner. The Range Sustainability Environmental Program Assessment process is the Navy's approach for assessing and addressing the environmental condition of land-based operational ranges where munitions are used or were used, excluding small arms ranges, within the United States and its territories. Range Sustainability Environmental Program Assessment complies with the environmental requirements of the U.S. DoD Directive 4715.11, *Environmental and Explosives Safety Management on Operational Ranges within the United States*, and DoD Instruction 4715.14, *Operational Range Assessments*, which serve the following purposes:

- Determining whether there has been a release or substantial threat of a release of munitions constituents of potential concern from an operational range to an off-range area

- Determining whether the release or substantial threat of a release of munitions constituents of potential concern from an operational range to an off-range area poses an unacceptable risk to human health or the environment
- Enhancing the Navy's ability to prevent or respond to a release or substantial threat of a release of munitions constituents of potential concern from operational ranges or range complexes to off-range areas that could pose unacceptable risks to human health or the environment
- Using data quality objectives and conceptual site models to develop sampling strategies, where necessary, to fill data gaps and provide necessary information to confirm whether source-receptor interactions exist and whether unacceptable risks to human health or the environment exist

Requirements, procedures, and protective measures necessary for implementing range assessments under the Range Sustainability Environmental Program Assessment are provided in the Navy's Range Sustainability Environmental Program Assessment policy implementation manual (U.S. Department of the Navy 2006). The process includes:

- **Range Condition Assessments.** The goal of the range condition assessment is to determine if further steps are necessary to maintain compliance and whether further analysis is required to assess risks of off-range releases of munitions constituents of potential concern beyond the range boundary. Range condition assessments are required every 5 years at each range regardless of whether a comprehensive range evaluation is conducted. This re-evaluation also is required whenever significant changes (e.g., changes in range operations, site conditions, applicable statutes, regulations, DoD issuances, or other policies) occur that affect determinations made during the previous assessment.
- **Comprehensive Range Evaluations.** A comprehensive range evaluation will be conducted if necessary to assess the potential for the off-range release of munitions constituents of potential concern. The comprehensive range evaluation includes two phases and two decision points. Protective measures may be implemented during either phase, if appropriate. If a comprehensive range evaluation is performed, sampling and testing of appropriate environmental media will be conducted.
- **Sustainable Range Oversight.** The purpose of the sustainable range oversight is to ensure range sustainability while addressing off-range releases of munitions constituents of potential concern through the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process. If munitions constitutents migrate off-range and present an unacceptable risk to human health and the environment, sustainable range oversight would be implemented by the Navy to control the on-range portion of the off-range migration through appropriate range management techniques. The Navy would use its authority under CERCLA to execute the appropriate CERCLA action for the off-range portion. This includes coordinating with the appropriate regulators and stakeholders.

3.10.2.7 Range Planning and Control

Factors considered in evaluating the impact of the training on public safety include proximity of the activity to public areas; access control; schedule (time of day, day of week); frequency, duration, and intensity of activities; range safety procedures; operational control of hazardous activities or events; and safety history. Range users are instructed to discuss planned activities with the range scheduler to ensure that current and applicable range procedures are applied before conducting any activities.

Current range control procedures at the FRTC limit unanticipated interactions with the public. Entrance to controlled training areas within the FRTC is controlled by gates, and signs are posted to warn the public of potentially hazardous activities. Trainers and exercise participants are responsible for ensuring that nonparticipants are not close enough to be at risk during all training activities.

The Naval Strike and Air Warfare Center (NSAWC) manages and schedules airspace for the FRTC, as delegated by the Oakland and Salt Lake Air Route Traffic Control Centers, and FRTC training areas (including SUA, NSAWC working areas, training ranges, and training areas) for use by tenant or transient activities, including joint or combined operations. Fallon Air Traffic Control (Desert Control) is the range coordinator for airspace. The Range Operations Center is the range coordinator for the training ranges.

Military access to all ranges at the FRTC must be scheduled through the NSAWC as an approved range activity. Aircrew and Range Operations Center personnel are jointly responsible for air safety. Aircrews fly over target areas prior to firing ammunition or dropping munitions to ensure that targets are clearly identified and that the target area is clear of nonparticipating aircraft, personnel, ground vehicles, and livestock. Aircrews operating within MOAs and ATCAAs are responsible for abiding by the spatial restrictions specified by Desert Control. All users of the FRTC ground ranges are required to contact the Range Operations Center for authorization before proceeding onto any range. A range training area safety officer is assigned for all live-fire exercises. All personnel involved with a ground event are required to view a ground access brief before using the scheduled range.

3.10.3 ENVIRONMENTAL CONSEQUENCES

This section evaluates how and to what degree the activities described in Chapter 2 (Description of Proposed Action and Alternatives) could impact public health and safety within the Study Area. The analysis focuses on potential impacts and overall changes associated with implementation of all current and proposed military readiness activities at the FRTC. Table 2-4 presents the baseline and proposed training activities for each alternative. Each stressor is introduced and analyzed by alternative. Table 3.0-2 shows the warfare areas and associated stressors that were considered for analysis. The stressors vary in intensity, frequency, duration, and location within the Study Area. The primary stressors applicable to public health and safety in the Study Area are analyzed:

- Physical disturbance
- Secondary stressors (soil and water quality)

Public health and safety is an interdisciplinary issue, and its aspects are intertwined with other environmental topics. Hazardous air pollutants are addressed in Section 3.2 (Air Quality) in accordance with the Clean Air Act's National Emissions Standards for Hazardous Air Pollutants regulations. Human annoyance and the potential for hearing loss from training noise are addressed in Section 3.4 (Noise [Airborne]). The remaining public health and safety issues are addressed in this section. The potential for impacts on public health and safety were evaluated assuming the continued implementation of the Navy's current safety procedures for each training activity or group of similar activities.

3.10.3.1 No Action Alternative

3.10.3.1.1 Physical Disturbance

Under the No Action Alternative, the frequency and types of FRTC training exercises would remain unchanged. Public health and safety could be impacted by direct physical interactions with Navy activities. Navy munitions, aircraft, and other training materials could have a direct physical encounter

with the public. Military personnel utilizing the ranges for air- or land-based activities are required to verify that the range is clear of nonparticipants before initiating any potentially hazardous activity. During air operations within the FRTC, the military assumes responsibility for separation of aircraft (known as MARSA [Military Assumes Responsibility for Separation of Aircraft]) so local air traffic controllers are not overburdened. These MARSA operations are defined by a letter of agreement between NSAWC and the FAA. When MARSA operations are complete, separation responsibility is relinquished back to air traffic control. In addition, Notices to Airmen advise pilots about when and where Navy training and testing activities are scheduled. Together, these procedures would minimize the potential for adverse interactions between the Navy and the public. Because of standard operating procedures, private and commercial aircraft traversing the FRTC Study Area during training activities are not subject to interactions with Navy aircraft or ordnance.

Training activities would continue to use live and inert ordnance (see Table 2-5). The potential for a direct physical interaction between the public and targets, military munitions, or aircraft would not change from the baseline. The Navy implements strict operating procedures that protect public health and safety. These operating procedures include ensuring clearance of the area before commencing training activities.

Training activities at the FRTC take place in well-defined locations under the close supervision of experienced military personnel. The same policies and procedures that protect training participants from injury or adverse health exposures would protect members of the public. Training materials are transported and stored in accordance with federal, state, and Navy requirements and pose no substantial risk to public safety.

Based on the Navy's implementation of strict operating procedures that protect public health and safety, there would be no impact on public health and safety from physical interactions with training activities. These operating procedures include ensuring clearance of the area before commencing training activities involving physical interactions. Because of the Navy's safety procedures, the potential for training activities to impact public health and safety under the No Action Alternative would be unlikely.

3.10.3.1.2 Secondary Stressors (Soil and Water Quality)

Soil quality can affect public health and safety if contaminated soils are disturbed and there is a potential for wind and water erosion such that it reaches an unacceptable risk to human health or the environment. Analysis in Section 3.1 (Soils) determined that the No Action Alternative would have a negligible impact on public health and safety based on either the localized nature of impacts or the short-term nature of the impacts.

Water quality can affect public health and safety if incidental spills reach groundwater. If a spill were to occur, it would have a negligible impact on public health and safety based on the response procedures in place and the small quantities of materials and wastes used and generated within the FRTC Study Area. Non-explosive practice munitions would have negligible effects on groundwater because potential contaminants are not expected to migrate to groundwater. Predictive modeling and sampling studies conducted as part of Navy Range Sustainability Environmental Program Assessment activities for munitions expenditures at B-17, B-19, and B-20 do not indicate off-range migration of munitions constituents (U.S. Department of the Navy 2008). Because water discharges do not have significant impacts on the local water resources within the FRTC, they do not pose health or environmental risks to the surrounding communities.

3.10.3.2 Alternative 1

3.10.3.2.1 Physical Disturbance

Implementation of Alternative 1 would include an increase in existing military readiness activities and new military readiness activities. Under Alternative 1, training activities would Alternative 1 would adjust and introduce two new training activities, as described in Table 2-2, Ground Light Amplification by Stimulated Emission of Radiation (LASER) Targeting and Dismounted Fire and Maneuver. These additional activities are subject to the same strict operating procedures that protect public health and safety, including procedures to make sure training areas are clear of nonparticipants.
No additional impacts from physical disturbances are expected beyond those described in the No Action Alternative for the increase and additions in training activities because Navy operational procedures and practices are already in place to avoid impacts on public health and safety in the FRTC. Therefore, impacts on public health and safety from physical disturbance as a result of the implementation of Alternative 1 would be negligible.

3.10.3.2.2 Secondary Stressors (Soil and Water Quality)

Soil quality can affect public health and safety if contaminated soils are disturbed and there is a potential for wind and water erosion such that it reaches an unacceptable risk to human health or the environment. Analysis in Section 3.1 (Soils) determined that the no action alternative would have a negligible impact on public health and safety based on either the localized nature of impacts or the short-term nature of the impacts.

Water quality can affect public health and safety if incidental spills reach groundwater. If a spill were to occur, it would have a negligible impact on public health and safety based on the response procedures in place and the small quantities of materials and wastes used and generated within the FRTC Study Area. Non-explosive practice munitions would have negligible effects on groundwater because potential contaminants are not expected to migrate to groundwater. Predictive modeling and sampling studies conducted as part of Navy Range Sustainability Environmental Protective Assessment activities for munitions expenditures at B-17, B-19, and B-20 do not indicate off-range migration of munitions constituents (U.S. Department of the Navy 2008). Because water discharges do not have significant impacts on the local water resources within the FRTC, they do not pose health or environmental risks to the surrounding communities.

3.10.3.3 Alternative 2 (Preferred Alternative)

3.10.3.3.1 Physical Disturbance

Alternative 2 would include all elements of Alternative 1, plus it would increase frequency of training activities by 10 percent. The potential for direct physical interaction between the public and targets, military munitions, or aircraft would be similar to baseline conditions due to the continued implementation of strict operating procedures that protect public health and safety, including procedures to make sure areas are clear of nonparticipants. Because of these strict operating procedures, the potential for impacts on public health and safety from physical disturbances as a result of the implementation of Alternative 2 would be negligible.

3.10.3.3.2 Secondary Stressors (Soil and Water Quality)

No additional impacts are expected from secondary stressors beyond those described in Alternative 1; therefore, impacts on public health and safety from secondary stressors as a result of the implementation of Alternative 2 would be negligible.

3.10.3.4 Proposed Management Practices, Monitoring, and Mitigation Measures

3.10.3.4.1 Proposed Best Management Practices

Current measures in place to ensure that nonparticipants are not endangered by actions at the FRTC would continue (see Section 3.10.2, Affected Environment). Standard operating procedures and range clearance procedures are in place to ensure that training areas are clear of nonparticipants before an activity commences. The following best management practices would continue to be implemented to reduce hazards associated with unexploded ordnance: (1) post signs warning of areas where unexploded ordnance clearance has not been confirmed, (2) restrict movement of personnel using the training range to designated areas known to be free of unexploded ordnance, (3) maintain the Range Sustainability Environmental Program Assessment discussed in Section 3.10.2.6 (Range Sustainability Environmental Program Assessment), and (4) continue Operational Range Clearance activities that remove unexploded ordnance and other materials to reduce munition constituent loading. No additional best management practices are warranted.

3.10.3.4.2 Proposed Monitoring

The Navy has a program in place designed to assess environmental impacts of training operations and to implement measures to protect the environment when needed (see Section 3.10.2.6 [Range Sustainability Environmental Program Assessment]). No additional measures are warranted.

3.10.3.4.3 Proposed Mitigation Measures

No mitigation measures are warranted based on the analysis presented above and continued implementation of management practices.

3.10.3.5 Summary of Effects and Conclusions

Table 3.10-1 summarizes the effects of the No Action Alternative, Alternative 1, and Alternative 2.

Table 3.10-1: Summary of Effects

Stressors	Effects
No Action Alternative	
Physical Disturbances	• Training activities at the Fallon Range Training Complex (FRTC) take place in well-defined locations under the close supervision of experienced military personnel. • The same policies and procedures that protect training participants from injury or adverse health exposures would protect members of the public. • Strict operating procedures are in place, including ensuring clearance of the area before commencing training activities. • Routine training activities conducted within the FRTC pose little risk to public health or safety outside of the training areas.
Secondary Stressors	• No significant impacts on public health and safety are expected.
Impact Conclusion	• The No Action Alternative would not result in significant impacts on public health and safety.
Alternative 1	
Physical Disturbances	• Training activities would increase. The United States Department of the Navy (Navy) would continue to implement range planning and control procedures to avoid public safety issues. • No additional impacts are expected beyond those described in the No Action Alternative because Navy operational procedures and practices are already in place.
Secondary Stressors	• No significant impacts on public health and safety are expected.
Impact Conclusion	• Alternative 1 would not result in significant impacts on public health and safety.
Alternative 2	
Physical Disturbances	• Training activities would increase. The Navy would continue to implement range planning and control procedures to avoid public safety issues. • No additional impacts are expected beyond those described in the No Action Alternative because Navy operational procedures and practices are already in place.
Secondary Stressors	• No significant impacts on public health and safety are expected.
Impact Conclusion	• Alternative 2 would not result in significant impacts on public health and safety.

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