

## CHAPTER 18.

# PUBLIC HEALTH AND SAFETY

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### 18.1 INTRODUCTION

This chapter describes the potential public health and safety impacts associated with implementation of the alternatives within the region of influence (ROI). For a description of the affected environment for all resources, refer to the respective chapter of Volume 2 (Marine Corps Relocation – Guam). The locations described in Volume 2 include the ROI for the Army Air and Missile Defense Task Force (AMDTF) component of the proposed action. The chapters are presented in the same order as the resource areas contained in this Volume.

### 18.2 ENVIRONMENTAL CONSEQUENCES

#### 18.2.1 Approach to Analysis

##### 18.2.1.1 Methodology

Potential effects to public health and safety from implementation of the alternatives are based upon information detailed in the descriptions of each alternative provided in Chapter 2. Public health and safety concerns are identified based on anticipated changes in the population of Guam, both from natural increases and the introduction of military personnel and their dependents to Guam. Average per capita incidents for notifiable diseases, mental illness, and traffic accidents are used to calculate the potential increases in such incidents as a result of the proposed alternatives. Safety of construction workers would be the same as outlined in Volume 2. Proposed construction activities supporting Army AMDTF activities would be conducted in accordance with federal and local safety guidelines to ensure a safe work environment.

##### 18.2.1.2 Determination of Significance

Factors considered in determining whether an alternative poses a significant public health and safety impact include the extent/degree to which implementation would subject the public to increased risk of contracting a disease or experiencing personal injury.

##### 18.2.1.3 Issues Identified during Public Scoping Process

As part of the analysis, concerns related to public health and safety that were mentioned by the public, including regulatory stakeholders, during the public scoping meetings were addressed. A general account of these comments includes the following:

- Potential increases in diseases including:
  - Acquired Immune Deficiency Syndrome (AIDS)
  - Cholera
  - Dengue
  - Hepatitis C
  - Malaria
  - Measles
  - Rubella
  - Sexually Transmitted Diseases (STDs) other than AIDS
  - Tuberculosis (TB)

- Typhoid Fever
- Potential increases in mental illness
- Potential increases in traffic incidents
- Potential contact with unexploded ordnance (UXO).

### 18.2.2 Headquarters/Housing Alternatives

This description of environmental consequences addresses all components of the proposed actions for the Army AMDTF. This includes the headquarters/housing component and the munitions storage component, each of which has three alternatives. A full analysis of each alternative is presented beneath the individual headings of this chapter. The weapons emplacement component has four alternatives. Detailed information on the weapons emplacements is contained in a Classified Appendix (Appendix L). A summary of impacts specific to each set of alternatives (including an unclassified summary of weapons emplacement impacts) is presented at the end of this chapter.

#### 18.2.2.1 Headquarters/Housing Alternative 1 (Preferred Alternative)

##### Environmental/Social Safety

###### *Water Quality*

As discussed in Volume 5, Chapter 4, construction and operational activities associated with the Army AMDTF would be implemented in accordance with standard operating procedures (SOPs) and Best Management Practices (BMPs), and in accordance with applicable regulations to prevent impacts to water quality.

However, the Guam Waterworks Authority (GWA) water system infrastructure does not meet the basic flow and pressure requirements for all customers. These conditions can result in microbiological and other contaminants entering the distribution system potentially resulting in illness. GWA water distribution system problems also exist, which may result in customers receiving inadequate supply/service. The Department of Defense (DoD) acknowledges the existing sub-standard conditions of key public infrastructure systems on Guam and the interest to have DoD fund improvements to these systems. DoD's ability to fund infrastructure improvements is limited by Federal law. However, to minimize adverse impacts associated with the proposed military relocation program, the DoD is leading a federal inter-agency effort to identify other Federal programs and funding sources that could benefit the people of Guam. The DoD cannot repair GWA distribution system problems but would attempt to identify ways to address them via the federal interagency task force. While groundwater production rates would increase, implementation of sustainability practices would reduce the amount of groundwater needed, which would help minimize impacts to groundwater availability. The resulting total annual groundwater production would be less than the sustainable yield and monitoring of groundwater chemistry would ensure no harm to existing or beneficial use. However, since it is doubtful that GWA could fund and implement required upgrades to water system in time for the proposed military relocation, it is anticipated that public health and safety impacts from increased demand on potable water and potential water-related illnesses would be significant.

###### *Air Quality*

As discussed in Volume 5, Chapter 5, increased pollutants associated with construction and operational activities associated with the Army AMDTF would be less than significant. Although increased emissions would be less than significant, construction and operational activities would result in pollutant emissions, which could result in health impacts to individuals on Guam that could increase the use of health care

services. Air pollution can harm individuals when it accumulates in the air in high enough concentrations. People exposed to high enough levels of certain air pollutants may experience:

- irritation of the eyes, nose, and throat
- wheezing, coughing, chest tightness, and breathing difficulties
- worsening of existing lung and heart problems
- increased risk of heart attack

In addition, long-term exposure to air pollution has been linked to certain types of cancer and damage to the immune, neurological, reproductive, and respiratory systems. Some groups of people are especially sensitive to common air pollutants such as particulates and ground-level ozone.

Because air emission increases would be less than significant, it is anticipated that Guam clinics and hospital would have adequate staffing handle air quality-related illnesses; therefore, less than significant impacts to health care services would be anticipated as a result of emissions from construction and operational activities.

#### *Hazardous Substances*

Activities associated with the Army AMDTF would result in an increase in the use, handling, storage, transportation, and disposition of hazardous substances. These activities would be conducted in accordance with applicable hazardous material and waste regulations, and established BMPs and SOPs to ensure the health and safety of workers and the general public is maintained. BMPs and SOPs include:

- Implementing Hazardous Materials Management Plans.
- Implementing Facility Response Plans.
- Implementing Spill Prevention Control and Countermeasures plans (training, spill containment and control procedures, clean up, notifications, etc.). Also, ensure personnel are trained in accordance with spill prevention, control, and clean up methods.
- Implementing Stormwater Pollution Prevention Plans.
- Implementing hazardous materials minimization plans.
- Ensuring DoD personnel and contractors are trained as to proper container labeling, storage, staging, and transportation requirements for hazardous materials.
- Ensuring that the Defense Reuse and Marketing Office has sufficient hazardous materials storage, transportation, and disposal capacity prior to any expected increases.
- Verifying full compliance with federal and local laws and regulations, as well as DoD requirements, and implementing corrective actions as necessary.

Because hazardous substance management activities would be conducted in accordance with applicable regulations and established BMPs and SOPs, no impacts to public health and safety are anticipated.

#### *Health Care Services*

Volume 5, Chapter 16 discusses the impact of an increased patient to health care provider ratio as a result of population growth associated with the Army AMDTF. The DoD acknowledges the existing sub-standard conditions of health care services on Guam and the interest to have DoD fund improvements to these services. DoD's ability to fund these services is limited by Federal law. However, to minimize adverse impacts associated with the proposed Army AMDTF, the DoD is leading a federal inter-agency effort to identify other Federal programs and funding sources that could benefit health care services of Guam. It is anticipated that short- and mid-term medical staffing requirements would increase over current requirements as a result of increased population. During the peak construction year (2015) 2 additional doctors (3.5% increase) and 10 additional nurses (3% increase) would be required at Guam

Memorial Hospital to maintain the current service ratios; the number of additional doctors drops to less than 1 (<1% increase) and nurses drops to 1 (<1% increase) after construction activities are completed. These additional health care professionals would be hired in order to maintain current service ratios. Without corresponding increases in health care providers potential health and safety impacts could include:

- longer wait/response times for patients
- fewer or no available providers on island for chronic or acute issues
- complications or death from delayed treatment, and/or
- requirements for patients to travel off-island to receive adequate treatment

It is anticipated that Guam clinics and hospital would not be able to increase staffing to meet current health care service ratios and would not be capable of handling a potential increase in illnesses unless the federal inter-agency task force succeeds in finding funding or other assistance to help Guam correct these deficiencies. Therefore, because corresponding increases in doctors and nurses are not anticipated to occur to maintain existing service conditions, significant impacts to health care services are anticipated.

#### *Public Services*

*Police Service.* Volume 5, Chapter 16 discusses staffing requirements for Guam Police Department (GPD) necessary to cope with population increases associated with the Army AMDTF. It is anticipated that short- and mid-term GPD staffing requirements would increase over current requirements as a result of increased population. During the peak construction year (2015) the GPD would require 11 (3.5% increase) additional officers to maintain the current service ratio; the number of additional officers drops to 4 (1% increase) after construction activities are completed. Without increases in police services (i.e., more police officers) to compensate for population increases, it would be expected that crime rates and police response times would also increase. As a result, the severity of consequences associated with crimes may worsen (i.e., there may be increased injury and or death associated with delayed police responses). The DoD acknowledges the existing sub-standard conditions of protective services on Guam and the interest to have DoD fund improvements to these services. DoD's ability to fund these services is limited by Federal law. However, to minimize adverse impacts associated with the proposed Army AMDTF, the DoD is leading a federal inter-agency effort to identify other Federal programs and funding sources that could benefit protective services of Guam. It is anticipated that GPD would not be able to increase staffing to meet current service ratios unless the federal inter-agency task force succeeds in finding funding or other assistance to help Guam correct these deficiencies. Therefore, because corresponding increases in GPD personnel are not anticipated to occur to maintain existing service conditions, significant impacts to police services are anticipated.

*Fire Service.* Volume 5, Chapter 16 discusses staffing requirements for Guam Fire Department (GFD) necessary to cope with population increases associated with the Army AMDTF. It is anticipated that short- and mid-term GFD staffing requirements would increase over current requirements as a result of increased population. During the peak construction year (2015) the GFD would require 6 (3% increase) additional firefighters to maintain the current service ratio; the number of additional firefighters drops to 1 (<1% increase) after construction activities are completed. Without increases in fire protection services (i.e., more firemen, trucks, and stations) to compensate for population increases, it is anticipated that response times to incidents would increase. As a result, increases in property damage and injuries/deaths could be expected. The DoD acknowledges the existing sub-standard conditions of protective services on Guam and the interest to have DoD fund improvements to these services. DoD's ability to fund these services is limited by Federal law. However, to minimize adverse impacts associated with the proposed

Army AMDTF, the DoD is leading a federal inter-agency effort to identify other Federal programs and funding sources that could benefit protective services of Guam. It is anticipated that GFD would not be able to increase staffing to meet current service ratios unless the federal inter-agency task force succeeds in finding funding or other assistance to help Guam correct these deficiencies. Therefore, because corresponding increases in GFD personnel are not anticipated to occur to maintain existing service conditions, significant impacts to fire services are anticipated.

#### Notifiable Diseases

A potential increase in disease occurrences due to the addition of approximately 1,830 Army AMDTF personnel and dependents, as well as natural population increases, would be anticipated. A natural annual increase of 1.4% in the Guam population is expected, resulting in a population of approximately 201,095 by the year 2019. Using the average per capita rates for notifiable diseases on Guam, the potential changes in the numbers of disease occurrence estimates were based on the natural increase in population, and the anticipated introduction of military and civilian personnel and their dependants to Guam. In addition to the increase in personnel and natural population increase on Guam, the construction workforce visiting Guam from other countries to support Army AMDTF construction requirements would have the potential to contribute additional notifiable disease incidents during the construction period.

With construction activities, there is a potential for standing water and water based vectors such as mosquitoes and related diseases. Most mosquitoes require quiet, standing water or moist soil where flooding occurs to lay their eggs. Removal of standing water sources and/or promotion of drainage would eliminate potential breeding sites. In compliance with Guam Code Annotated (10 GCA 36-Mosquito Control), to limit the amount of standing water at construction sites, stagnant water pools, puddles, and ditches would be drained or filled; containers that catch/trap water (e.g., buckets, old tires, cans) would be removed; and if necessary, pesticide application (e.g., *Bacillus thuringensis*) would be used to help control mosquitoes. Implementing these BMPs would reduce the opportunities for an outbreak of water-related diseases.

Based on the projected 2019 population of Guam, and the addition of approximately 1,580 Army AMDTF personnel and dependents, the annual numbers of AIDS, cholera, dengue, hepatitis C, malaria, measles, rubella, and typhoid fever cases would not be anticipated to increase; however, occurrences of STDs and TB would likely increase. Young adults are more likely to be susceptible to STDs.

During the construction period, the construction workforce visiting Guam from other countries would have the potential to contribute additional cases of STDs and TB annually. The annual number of AIDS cholera, dengue, Hepatitis C, malaria, measles, rubella, and typhoid fever cases is not anticipated to increase and would remain at about one case annually.

The potential increase in disease occurrences would be low and not likely to impact the resources of the citizens of Guam. The DoD acknowledges the existing sub-standard conditions of health care services on Guam and the interest to have DoD fund improvements to these services. DoD's ability to fund these services is limited by Federal law. However, to minimize adverse impacts associated with the proposed Army AMDTF, the DoD is leading a federal inter-agency effort to identify other Federal programs and funding sources that could benefit health care services of Guam. The military installations offer hospitals and clinic facilities to treat military personnel; therefore, the presence of additional military personnel and their dependents would not increase stress on the public hospital and other clinics on Guam. Additionally, military personnel are vaccinated against multiple diseases including measles, rubella, and typhoid fever, which would preclude them from the potential increase in disease incidents. Vaccinations for AIDS and STDs are not available. Based on the potential for an increase in notifiable diseases, a significant impact

to health care services is anticipated unless the federal inter-agency task force succeeds in finding funding or other assistance to help Guam correct health care service deficiencies.

### Mental Illness

Based on the average per capita rates for mental illness on Guam, the potential increase in mental illness occurrences was estimated based on the natural increase in population, and the anticipated introduction of Army AMDTF personnel and dependents to Guam. Based on the projected 2019 population of Guam, the annual number of mental illness cases is estimated to increase by one. The potential increase in mental illness occurrences is low. The DoD acknowledges the existing sub-standard conditions of health care services on Guam and the interest to have DoD fund improvements to these services. DoD's ability to fund these services is limited by Federal law. However, to minimize adverse impacts associated with the Army AMDTF, the DoD is leading a federal inter-agency effort to identify other Federal programs and funding sources that could benefit the health care services of Guam. During the construction period, the construction workforce visiting Guam from other countries would have the potential to contribute two additional mental illness cases annually. Based on the small potential for increase in mental illness cases (including construction workforce contribution), Alternative 1 would result in less than significant impacts to public health and safety (from mental illness).

### Traffic Incidents

The increased number of Army AMDTF personnel and their dependents would potentially add to the number of vehicles on Guam's roadways, traffic congestion, automobile accidents, and traffic related fatalities. Using the average per capita rates for traffic accidents and traffic fatalities on Guam, potential increases were estimated based on the natural increase in population, and the anticipated introduction of Army AMDTF personnel and dependents to Guam.

Based on the additional Army AMTDF increase in personnel and dependents moving to Guam, the annual number of traffic accidents would potentially increase by 61 to a total of 7,795 with no increase in traffic related fatalities. Young adults that are of legal driving age would be more likely to experience a traffic incident. During the construction period, the construction workforce visiting Guam from other countries would have the potential to increase the number of traffic incidents by 2,095. The annual number of traffic fatalities is not anticipated to increase. The DoD acknowledges the existing sub-standard conditions of key public infrastructure systems on Guam and the interest to have DoD fund improvements to these systems. DoD's ability to fund infrastructure improvements is limited by Federal law. However, to minimize adverse impacts associated with the proposed Army AMDTF, the DoD is leading a federal inter-agency effort to identify other Federal programs and funding sources that could benefit the infrastructure of Guam. Only a small potential for increase in traffic incidents is anticipated from the addition of Army AMDTF personnel and their dependents (as well as the construction workforce contribution); therefore, Alternative 1 would result in no impact to public health and safety (from traffic incidents).

### UXO

The Island of Guam was an active battlefield during World War II. As a result, unexploded military munitions may still remain. Excavation for building foundations, roads, underground utilities, and other infrastructure would potentially encounter unexploded military munitions in the form of UXO, Discarded Military Munitions, and Materials Potentially Presenting an Explosive Hazard. Exposure to these Munitions and Explosives of Concern (MEC) would potentially result in death or injury to workers or to the public. To reduce the potential hazards related to exposure to MEC, in accordance with DoD Directive

6055.9 (DOD Ammunition and Explosive Safety Standard) and NOSSA Instruction 8020.15B, ESS documentation would be prepared that outlines specific measures that would be implemented to ensure the safety of workers and the public. BMPs that would be implemented include having qualified UXO personnel perform surveys to identify and remove potential MEC items prior to the initiation of ground disturbing activities. Additional safety precautions would include UXO personnel supervision during earth moving activities and MEC awareness training for construction personnel involved in grading and excavations, prior to and during ground-disturbing activities. The identification and removal of MEC (prior to initiating construction activities) and training would ensure minimization of potential impacts; therefore, Alternative 1 would result in less than significant impacts to public health and safety (from UXO).

#### Alternative 1 Proposed Mitigation Measures

Mitigation measures proposed for providing adequate public health and protective services resources would be for the federal inter-agency task force to succeed in finding funding and/or other assistance to help Guam upgrade capacity to care for increased incidence of illnesses and meet service ratios for police and fire services. Funding should be provided in a timely manner in order to effectively mobilize prior to the population increase created by the proposed Army actions (construction) and relocation. As a measure to decrease the rapid population increase associated with the operations phase, the DoD could prohibit dependents from accompanying military personnel until the construction phase has ended (described in Volume 1 Chapter 4). Another measure the DoD could implement is to reduce population impacts by lowering peak population levels during the construction period (described in Volumes 1 and 7).

#### 18.2.2.2 Headquarters/Housing Alternative 2

Potential impacts to public health and safety from implementation of Alternative 2 would be the same as those discussed under Alternative 1.

#### Alternative 2 Proposed Mitigation Measures

The proposed mitigation measures would be the same as for Alternative 1.

#### 18.2.2.3 Headquarters/Housing Alternative 3

Potential impacts to public health and safety from implementation of Alternative 3 would be the same as those discussed under Alternative 1.

#### Alternative 3 Proposed Mitigation Measures

The proposed mitigation measures would be the same as for Alternative 1.

### **18.2.3 Munitions Storage Alternatives**

#### 18.2.3.1 Munitions Storage Alternative 1 (Preferred Alternative)

Proposed construction and infrastructure improvements related to the Army AMDTF would be consistent with established explosive safety quantity distance arcs. The new earth covered magazines and/or modular storage magazines would be designed and constructed in accordance with Air Force and Army criteria for explosives storage. Therefore, construction activity and subsequent operations would not result in any greater safety risk. Ordnance would be handled, stored, and transported in accordance with applicable Air Force and Army requirements and all munitions handling would be carried out by trained, qualified personnel. Thus, no impacts related to explosives safety are anticipated.

Potential impacts to public health and safety from implementation of Munitions Storage Alternative 1 would be similar to those of Headquarters/Housing Alternative 1. Therefore, Munitions Storage Alternative 1 would have significant impacts to water quality illness, health care services, protective services, and notifiable diseases; less than significant impacts to health and safety due to air quality illness, mental illness, and UXO; and no impacts to health and safety due to hazardous substances or traffic incidents.

#### Alternative 1 Proposed Mitigation Measures

Mitigation measures proposed for providing adequate public health and protective services resources would be for the federal inter-agency task force to succeed in finding funding and/or other assistance to help Guam upgrade capacity to care for and help prevent increased incidence of illnesses and meet service ratios for police and fire services. Funding should be provided in a timely manner in order to effectively mobilize prior to the population increase created by the proposed Army actions (construction) and relocation.

As a measure to decrease the rapid population increase associated with the operations phase, the DoD could prohibit dependents from accompanying military personnel until the construction phase has ended (described in Volume 1 Chapter 4). Another measure the DoD could implement is to reduce population impacts by lowering peak population levels during the construction period (described in Volumes 1 and 7).

#### 18.2.3.2 Munitions Storage Alternative 2

Potential impacts to public health and safety from implementation of Munitions Storage Alternative 2 would be the same as those for Alternative 1.

#### Alternative 2 Proposed Mitigation Measures

The proposed mitigation measures would be the same as for Alternative 1.

#### 18.2.3.3 Munitions Storage Alternative 3

Potential impacts to public health and safety (i.e., disease, mental illness, traffic incidents, and UXO) from implementation of Munitions Storage Alternative 3 would be the same as those discussed under Alternative 1.

#### Alternative 3 Proposed Mitigation Measures

The proposed mitigation measures would be the same as for Alternative 1.

### **18.2.4 Weapons Emplacement Alternatives**

Detailed information on the weapons emplacements is contained in a Classified Appendix (Appendix L). An unclassified summary of impacts specific to each set of alternatives is presented at the end of this chapter.

#### Weapons Emplacement Alternatives Proposed Mitigation Measures

No mitigation measures are proposed.

## **18.2.5 No-Action Alternative**

### 18.2.5.1 Environmental/Social Safety

#### Water Quality

No new impacts to public health and safety associated with water quality would result from construction or operational activities on Guam. Therefore no impacts to public safety from water quality would be expected from the no-action alternative.

#### Air Quality

No new impacts to public health and safety associated with air quality would result from construction or operational activities on Guam. Therefore no impacts to public safety from air emissions would be expected from the no-action alternative.

#### Hazardous Substances

No increase in the types or quantities of hazardous substances would be anticipated under the no-action alternative. Management of hazardous substances would continue to be conducted in accordance with applicable hazardous material and waste regulations, and established BMPs and SOPs to ensure the health and safety of workers and the general public is maintained. Therefore no impacts to management of hazardous substances would be expected from the no-action alternative.

#### Health Care Services

No increases in demand for health care services would occur as a result of additional military activities on Guam. However, the natural increase in population would result in a slight increase in demand for these services. As a result of natural population increase on Guam, approximately 1 additional doctor and 3 additional nurses would be required to maintain the current service ratios. These additional health care professionals would be hired in order to maintain current service ratios. Without corresponding increases in health care providers potential health and safety impacts could include:

- longer wait/response times for patients
- fewer or no available providers on island for chronic or acute issues
- complications or death from delayed treatment, and/or
- requirements for patients to travel off-island to receive adequate treatment.

However, because corresponding increases in doctors and nurses are anticipated to occur to maintain existing service conditions, no impact to health care services from the no-action alternative is anticipated.

#### Public Services

Under the no-action alternative, natural increases in population on Guam would result in an increased need for police and firefighting presence on the island. As a result of natural population increase on Guam, approximately 3 additional police officers and 5 additional firefighters would be required to maintain the current service ratios. The GPD and GFD would hire these additional personnel in order to maintain current service ratios. Without increases in police and fire services (i.e., more police officers and firefighters) to compensate for population increases, it would be expected that response times would increase. As a result, the severity of consequences associated with crimes and fire may worsen (i.e., there may be increased injury and or death associated with delayed responses). However, because corresponding increases in police and fire service are anticipated to occur to maintain existing service conditions, no impact to public services from the no-action alternative is anticipated.

#### 18.2.5.2 Notifiable Diseases

A potential increase in disease occurrences due to the natural increase in population would be anticipated. Using the average per capita rates for notifiable diseases on Guam, the potential increase in disease occurrences was estimated based on the natural increase in population.

Based on the anticipated 2019 population of Guam, the annual number of AIDS cases would potentially increase by one to a total of six cases; cholera, dengue, malaria, measles, rubella, and Typhoid fever cases would not be anticipated to increase; and the number of cases of hepatitis C would potentially increase by one to a total of four cases. The number of cases of STDs would potentially increase by 156 to a total of 827 cases. Young adults would be more likely to contract an STD. The number of cases of TB could increase by 15 to a total of 83 cases. The potential increase in notifiable diseases would occur from natural population increases on the island rather than from proposed military actions; Government of Guam (GovGuam) would ensure adequate health care for Guam residents. Therefore, the no-action alternative would result in no impacts to public health and safety (from notifiable diseases).

#### 18.2.5.3 Mental Illness

A potential increase in mental illness occurrences due to the natural increase in population would occur. Using the average per capita rates for mental illness on Guam, the potential increase in mental illness occurrences was estimated based on the natural increase in population. Based on the anticipated 2019 population of Guam, the annual number of mental illness cases would potentially increase by 41 to a total of 218 cases. The potential increase in mental illness cases would occur from natural population increases on the island rather than from proposed military actions and GovGuam would ensure adequate health care for Guam residents. Therefore, the no-action alternative would result in no impacts to public health and safety (resulting from mental illness).

#### 18.2.5.4 Traffic Incidents

A potential increase in traffic accidents and traffic fatalities due to the natural increase in population would occur. Using the average per capita rates for traffic accidents and traffic fatalities on Guam, the potential increase in traffic accidents and traffic fatalities was estimated based on the natural increase in population.

Based on the anticipated 2019 population of Guam, the annual number of traffic accidents would potentially increase by 1,083 to a total of 7,734 and the number of traffic fatalities would potentially increase by three to a total of 21. Young adults that are of legal driving age would be more likely to experience a traffic incident. The potential increase in traffic incidents would occur from natural population increases on the island rather than from proposed military actions and the Guam Department of Transportation and Police Department would ensure traffic safety measures are in place to provide safe road conditions. Therefore, the no-action alternative would result in no impacts to public health and safety (from traffic accidents).

#### 18.2.5.5 UXO

The Island of Guam was an active battlefield during World War II. As a result of the invasion, occupation, and defense of the island by Japanese forces and the assault by Allied/American forces to retake the island, unexploded military munitions may still remain. Under the no-action alternative, no excavation for building foundations, roads, underground utilities, and other infrastructure would occur in support of proposed Army AMDTF requirements. As a result, there would not be an increase in the

likelihood of encountering unexploded military munitions. Therefore, the no-action alternative would result in no impacts to public health and safety (from UXO).

**18.2.6 Summary of Impacts**

Tables 18.2-1, 18.2-2, and 18.2-3 summarize the potential impacts of each major component – headquarters/housing, munitions storage, and weapons emplacement, respectively. A text summary is provided below.

**Table 18.2-1. Summary of Headquarters/Housing Impacts – Alternatives 1, 2, and 3**

<i>Alternative 1</i>	<i>Alternative 2</i>	<i>Alternative 3</i>
<b>Construction</b>		
SI • Significant impacts to water-related illness, health care services, protective services, and notifiable diseases LSI • Less than significant impacts to air quality, from UXO, and due to mental illness NI • No impacts to health and safety associated with hazardous substances and traffic incidents	SI • Significant impacts would be the same as for Alternative 1 LSI • Less than significant impacts would be the same as for Alternative 1 NI • No impacts would be the same as for Alternative 1	SI • Significant impacts would be the same as for Alternative 1 LSI • Less than significant impacts would be the same as for Alternative 1 NI • No impacts would be the same as for Alternative 1
<b>Operation</b>		
SI • Significant impacts to water-related illness, health care services, protective services, and notifiable diseases LSI • Less than significant impacts to air quality, from UXO, and due to mental illness NI • No impacts to hazardous substances and traffic incidents	SI • Significant impacts would be the same as for Alternative 1 LSI • Less than significant impacts would be the same as for Alternative 1 NI • No impacts would be the same as for Alternative 1	SI • Significant impacts would be the same as for Alternative 1 LSI • Less than significant impacts would be the same as for Alternative 1 NI • No impacts would be the same as for Alternative 1

Legend: LSI = Less than significant impact; NI = No impact; SI = Significant impact

**Table 18.2-2. Summary of Munitions Storage Impacts – Alternatives 1, 2, and 3**

<i>Alternative 1</i>	<i>Alternative 2</i>	<i>Alternative 3</i>
<b>Construction</b>		
SI <ul style="list-style-type: none"> <li>Significant impacts to water-related illness, health care services, protective services, and notifiable diseases</li> </ul> LSI <ul style="list-style-type: none"> <li>Less than significant impacts to air quality, from UXO and due to mental illness</li> </ul> NI <ul style="list-style-type: none"> <li>No impacts to health and safety due to hazardous substances and traffic incidents</li> </ul>	SI <ul style="list-style-type: none"> <li>Significant impacts would be the same as for Alternative 1</li> </ul> LSI <ul style="list-style-type: none"> <li>Less than significant impacts would be the same as for Alternative 1</li> </ul> NI <ul style="list-style-type: none"> <li>No impacts would be the same as for Alternative 1</li> </ul>	SI <ul style="list-style-type: none"> <li>Significant impacts would be the same as for Alternative 1</li> </ul> LSI <ul style="list-style-type: none"> <li>Less than significant impacts would be the same as for Alternative 1</li> </ul> NI <ul style="list-style-type: none"> <li>No impacts would be the same as for Alternative 1</li> </ul>
<b>Operation</b>		
SI <ul style="list-style-type: none"> <li>Significant impacts to water-related illness, health care services, protective services, and notifiable diseases</li> </ul> LSI <ul style="list-style-type: none"> <li>Less than significant impacts to air quality, from UXO, and due to mental illness</li> </ul> NI <ul style="list-style-type: none"> <li>No impacts to health and safety due to hazardous substances, traffic incidents, and explosives safety</li> </ul>	SI <ul style="list-style-type: none"> <li>Significant impacts would be the same as for Alternative 1</li> </ul> LSI <ul style="list-style-type: none"> <li>Less than significant impacts would be the same as for Alternative 1</li> </ul> NI <ul style="list-style-type: none"> <li>No impacts would be the same as for Alternative 1</li> </ul>	SI <ul style="list-style-type: none"> <li>Significant impacts would be the same as for Alternative 1</li> </ul> LSI <ul style="list-style-type: none"> <li>Less than significant impacts would be the same as for Alternative 1</li> </ul> NI <ul style="list-style-type: none"> <li>No impacts would be the same as for Alternative 1</li> </ul>

*Legend:* LSI = Less than significant impact; NI = No impact; SI = Significant impact

**Table 18.2-3. Summary of Weapons Emplacement Impacts – Alternatives 1, 2, 3 and 4**

<i>Alternative 1</i>	<i>Alternative 2</i>	<i>Alternative 3</i>	<i>Alternative 4</i>
<b>Construction</b>			
LSI <ul style="list-style-type: none"> <li>Less than significant impacts due to construction hazards, UXO, and air quality</li> </ul>	LSI <ul style="list-style-type: none"> <li>The impacts would be the same as for Alternative 1</li> </ul>	LSI <ul style="list-style-type: none"> <li>The impacts would be the same as for Alternative 1</li> </ul>	LSI <ul style="list-style-type: none"> <li>The impacts would be the same as for Alternative 1</li> </ul>
<b>Operation</b>			
LSI <ul style="list-style-type: none"> <li>Impacts to public health and safety due to operational safety (explosives safety and EMR) would be less than significant</li> </ul> BI <ul style="list-style-type: none"> <li>A beneficial impact to public safety would result from the increased level of protection provided by the AMTDF forces</li> </ul>	LSI <ul style="list-style-type: none"> <li>The impacts would be the same as for Alternative 1</li> </ul> BI <ul style="list-style-type: none"> <li>The impact would be the same as for Alternative 1</li> </ul>	LSI <ul style="list-style-type: none"> <li>The impacts would be the same as for Alternative 1</li> </ul> BI <ul style="list-style-type: none"> <li>The impacts would be the same as for Alternative 1</li> </ul>	LSI <ul style="list-style-type: none"> <li>The impacts would be the same as for Alternative 1</li> </ul> BI <ul style="list-style-type: none"> <li>The impacts would be the same as for Alternative 1</li> </ul>

Legend: LSI = Less than significant impact, BI = Beneficial impact.

The DoD acknowledges the existing sub-standard conditions of social services on Guam and the interest to have DoD fund improvements to these services. DoD’s ability to fund these services is limited by Federal law. However, to minimize adverse impacts associated with the proposed military relocation program, the DoD is leading a federal inter-agency effort to identify other Federal programs and funding sources that could benefit the people of Guam. The potential increase in air quality emissions would be less than significant. The potential increase in disease occurrences as a result of proposed Army AMDTF activities would be low; however, it is anticipated that Guam clinics and hospital would not be able to increase staffing to meet current health care service ratios and would not be capable of handling potential increases in illnesses (e.g., water-related illnesses and notifiable diseases) unless the federal inter-agency task force succeeds in finding funding and/or other assistance to help upgrade the deficiencies in healthcare; therefore, significant impacts to health care services would be anticipated. It is anticipated that the GPD and GFD would not be able to increase staffing to meet current service ratios unless the federal inter-agency task force succeeds in finding funding and/or other assistance to help upgrade deficiencies; therefore, significant impacts to police and fire services are anticipated. No impacts to public health and safety are anticipated from management of hazardous substances. The potential increase in mental illness cases as a result of proposed Army AMDTF activities would be low and unlikely to impact the resources of the citizens of Guam, thus the impact would be considered less than significant. The potential increase in the number of traffic accidents and fatalities would also be less than significant and no adverse impact on the health and safety of the citizens of Guam from traffic incidents would occur. Excavation for building foundations, roads, underground utilities, and other infrastructure would potentially encounter unexploded military munitions. To reduce the potential hazards related to the exposure to MEC, in accordance with DoD Directive 6055.9 (DOD Ammunition and Explosive Safety Standard) and NOSSA Instruction 8020.15B, ESS documentation would be prepared that outlines specific measures that would be implemented to ensure the safety of workers and the public. BMPs that would be implemented include

having qualified UXO personnel perform surveys to identify and remove potential MEC items prior to the initiation of ground disturbing activities. UXO supervision during earth moving activities and providing MEC awareness training to construction personnel prior to and during ground-disturbing activities could also occur. The identification and removal of MEC prior to initiating construction activities and training construction personnel regarding hazards associated with MEC would ensure that potential impacts would be minimized. Therefore, less than significant impacts to public health and safety from UXO are anticipated.

**18.2.7 Summary of Proposed Mitigation Measures**

Mitigation measures proposed for providing adequate public health and protective services resources would be for the federal inter-agency task force to succeed in finding funding and/or other assistance to help Guam upgrade capacity to care for and help prevent increased incidence of illnesses and meet service ratios for police and fire services. Funding should be provided in a timely manner in order to effectively mobilize prior to the population increase created by the proposed Army actions (construction) and relocation.

As a measure to decrease the rapid population increase associated with the operations phase, the DoD could prohibit dependents from accompanying military personnel until the construction phase has ended (described in Volume 1 Chapter 4). Another measure the DoD could implement is to reduce population impacts by lowering peak population levels during the construction period (described in Volumes 1 and 7). Table 18.2-4 summarizes proposed mitigation measures for each action alternative.

**Table 18.2-4. Summary of Proposed Mitigation Measures**

<i>Headquarters/Housing Alternatives</i>	<i>Munitions Storage Alternatives</i>	<i>Weapons Emplacement Alternatives</i>
<b>Construction</b>		
<ul style="list-style-type: none"> <li>Identify funding and/or other assistance to help Guam upgrade their capacity to care for and help prevent increased incidence of illnesses and meet service ratios for police and fire</li> </ul>	<ul style="list-style-type: none"> <li>Same as for Headquarters/Housing Alternatives</li> </ul>	<ul style="list-style-type: none"> <li>Same as for Headquarters/Housing Alternatives</li> </ul>
<b>Operation</b>		
<ul style="list-style-type: none"> <li>Identify funding and/or other assistance to help Guam upgrade their capacity to care for and help prevent increased incidence of illnesses and meet service ratios for police and fire</li> </ul>	<ul style="list-style-type: none"> <li>Same as for Headquarters/Housing Alternatives</li> </ul>	<ul style="list-style-type: none"> <li>Same as for Headquarters/Housing Alternatives</li> </ul>