Installation Environmental Noise Management Plan

for the

New Jersey Army National Guard

Training Center

Sea Girt, New Jersey

September 2005

Abbreviations and Acronyms

AR	Army Regulation
ARNG	Army National Guard
CDNL	C-weighted DNL
DA	Department of the Army
DBA	A-weighted
DBP	Peak-flat weighted
DNL	Day-night sound level
DoD	Department of Defense
DoDI	Department of Defense Instruction
ENMP	Environmental Noise Management Plan
FAA	Federal Aviation Administration
FICUN	Federal Interagency Committee on Urban Noise
IENMP	Installation Noise Management Plan
JLUS	Joint Land Use Study
NAS	Naval Air Station
NJARNG	New Jersey Army National Guard
NLR	Noise Level Reduction
NEPA	National Environmental Policy Act
NZ	Noise Zone
ONAC	Office of Noise Abatement and Control
PL	Public Law
SARNAM	Small Arms Range Noise Assessment Model
SEL	Sound Exposure Level
SLUCM	Standard Land Use Coding Manual
U.S.	United States
USEPA	U.S. Environmental Protection Agency
ZOI	Zone of Influence

INSTALLATION ENVIRONMENTAL NOISE MANAGEMENT PLAN FOR THE NEW JERSEY ARMY NATIONAL GUARD TRAINING CENTER

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1. Introduction

1.1 Overview

The Installation Environmental Noise Management Plan (IENMP) provides a strategy for noise management at the New Jersey Army National Guard (NJARNG) Training Center in Sea Girt, NJ. Elements of the IENMP include education, complaint management, noise and vibration mitigation, and noise-abatement procedures.

The IENMP program provides a methodology for analyzing exposure to noise and a safety hazard associated with military operations and provides land use guidelines for achieving compatibility between the Department of the Army (DA) and the surrounding communities. The DA has an obligation to United States (U.S.) citizens to recommend uses of land around its installations, which will (a) protect citizens from noise and other hazards, and (b) protect the public's investment in the installation.

The noise impact on the community is translated into noise zones. The program defines four noise zones. Zone I is compatible for most noise-sensitive land uses. Zone II is normally incompatible for noise-sensitive land uses. Zone III is incompatible with noise-sensitive land uses.

1.2 Conclusions

NJARNG Training Center, in Sea Girt, NJ, will continue with its IENMP program to reduce the potential for noise complaints due to incompatible land uses around its facilities thereby severely impacting its mission. NJARNG Training Center will continue to model and assess the noise environment as site development plans are revised. At a minimum, county and municipal governments are encouraged to support disclosures of noise zones.

The noise environment for the NJARNG Training Center is described using the 104-Day A-weighted Day-Night Sound Level (DNL) noise metric. The incompatible noise zone (Zone III) for the NJARNG Training Center training is contained within the installation boundary, while the normally incompatible noise zone (Zone II) extends beyond the installation boundary.

For future planning purposes, the unweighted peak (dBP) noise metric is used to demonstrate what the noise environment would be like based upon specific firearm usage at the proposed firing range facilities at the NJARNG Training Center in Sea Girt, NJ.

1.3 Recommendations

The NJARNG can only make recommendations for land use and land use compatibility in the vicinity of the NJARNG Training Center Installation. This report's findings indicate that actions are appropriate to guide any future development or ownership transactions of the adjacent properties. General and specific recommendations for NJARNG Training Center and the local jurisdictions are provided in Section 5. Joint action recommendations are also included. It is recommended that NJARNG Training Center work with local jurisdictions to guide development and increase public awareness near the installation's boundary in order to protect the NJARNG Training Center's mission requirements. These processes might include public notification of properties in the associated noise zones, discussion regarding noise abatement for residences affected by noise generated by firing range activity from NJARNG Training Center, and adding noise-abatement features for the existing and proposed range facilities. It is also recommended that future assessments of NJARNG Training Center's noise environment be conducted as necessitated by any proposed changes in operations.

1.4 General

One of the goals of the DA is to plan, initiate, and carry out actions and programs designed to minimize adverse impacts upon the quality of the human environment without impairing the DA mission. In keeping with this goal, the DA established an Environmental Noise Management Plan (ENMP) as the framework for the control of noise produced by DA activities since noise has been determined by the U.S. Congress, as recorded in the Noise Control Act of 1972, to "present danger to the health and welfare of this Nation's population" (Public Law [PL] 92-574 1972). The primary strategy for noise management is the IENMP.

1.4.1 History of Noise Controversy

The advent of jet aircraft in the 1950s resulted in significantly greater noise levels around commercial airports, which led to an intense outcry from the public. This outcry caused Congress to revise the Federal Aid to Airports Act to make Federal aid contingent upon implementation of programs to resolve noise problems with surrounding neighborhoods. Subsequently, Congress passed the Noise Control Act of 1972 and the Quiet Communities Act of 1978. Under these laws, airports carried out noise control measures such as outright purchase of adjoining land, work with local communities to ensure zoning which would permit only compatible uses, development of procedures for including noise information in the consumer disclosure documents provided when real estate is sold, altering run-up procedures and locations, and changing approach and takeoff patterns. At the present time,

the Federal Aviation Administration (FAA) has specific requirements for community involvement in all airport planning.

The Federal Aid to Airports Act exempted military aircraft, as did portions of the Noise Control Act of 1972. However, the Noise Control Act and the Quiet Communities Act did contain language outlining the responsibilities of Federal agencies to protect the public from unreasonable noise impacts. Specifically, these laws state that

> *Federal agencies shall, to the fullest extent consistent with their authority under federal laws administered by them, carry out the programs within their control in such a manner as to....Promote an environment for all Americans free from noise that jeopardizes their health and welfare.*

To comply with the intent of Congress, the Department of Defense (DoD) provided guidance to the military departments regarding the compatible use of public and private lands in the vicinity of military airfields. The DoD Instruction (DoDI) (DoDI 1977):

- Defined restrictions on the uses and heights of natural and man-made objects in the vicinity of air installations.
- Defined restrictions on land use in the vicinity of air installations to ensure compatibility with the characteristics, including noise of military operations.
- Provided policy as to the extent of the U.S. Government's interest in retaining or acquiring real property to protect the operational capability of active military airfields.

As a matter of general policy, the military departments were instructed to work toward achieving compatibility between air installations and the neighboring civilian communities through a compatible land use planning and control process conducted by the civilian community.

Based upon DoD guidance, DA developed its ENMP, which considers noise from all sources of military activities, not just military airfields. The DA's program is designed to (U.S. Army 1997)

- Control environmental noise to protect the health and welfare of military personnel and their dependents, DA civilian employees, and members of the public on lands adjacent to Army, Army Reserve, and ARNG installations.
- Reduce community annoyance from environmental noise, to the extent feasible and consistent with Army, Army Reserve, and ARNG training and materiel testing activities.

1.4.2 Threat to Military Installations

It is an established fact that military installations tend to attract activity from the civilian sector. For example, sizable new communities might grow up near an installation or existing communities might expand toward or around an installation's boundaries. This growth process can place severe limitations upon the ability of a military installation to support training and for assigned units to maintain an adequate level of readiness. As noise impacts from military activities increase upon the civilian communities, both litigation and/or political pressures, which could result in degradation of the installation's mission, also increase. Not only do the number of complaints to the installation's commander increase dramatically, but also the number of complaints to Congressional members. As a consequence of adverse public reaction to military operations, some military installations have closed and others have had limitations placed upon the conduct of operations.

One of the best examples of the degradation of mission performance due to encroachment occurred at the Naval Air Station (NAS), Los Alamitos, California. When it was established during World War II, this NAS was in a rural area. With the postwar expansion of southern California, Los Alamitos NAS was eventually surrounded with homes and the Navy could no longer routinely fly jet aircraft into this property. Today, the airfield serves the needs of the California ARNG, which, compared to the Navy, operates fewer noisy flights.

In the DA's case, the size of the explosives that were used in Combat Engineer field training at Fort Belvoir, Virginia, was severely restricted, which made it necessary to move a portion of the training to a less urbanized area at Fort A. P. Hill, Virginia, and Fort Leonard Wood, Missouri. In another case, limitations were placed on the types of weapons that could be fired at Fort Dix, NJ, as well as the times the weapons could be fired (U.S. Army undated). In both of these cases, the limitations upon operational activities degraded the installations' capabilities to support essential training, and the training missions of these installations were moved to other installations.

1.4.3 Contending with the Threat

The consequences of ignoring the conflicts between noise generated on military installations and the desires of the civilian community regarding use of the land surrounding these installations can be grave. If the DA fails to respond to the concerns of the civilian community, the ill-will produced by such an approach is quite likely to result in unwillingness within the civilian community to work with the DA to regulate land use. The community's ill-will can also result in political pressure or lawsuits,

which force unilateral concessions on the part of the DA without any reciprocal concessions from the community.

To prevent the conflicts between military operations and civilian land use from reaching significant proportions, it is necessary for the DA to work with the local communities to prevent incompatible land use from occurring and to take reasonable steps on the installation to protect the community from noise. Since the regulation of land use on adjoining land is the authority of local communities, the DA cannot solve these problems unilaterally. Rather, the DA must work with local communities to establish the controls that will prevent noise problems from growing even larger.

1.4.4 DA's IENMP

The primary strategies for protecting the mission of DA installations from the problems of noise incompatibility are long-range land use planning and being a responsible neighbor to its surrounding communities. The IENMP addresses these issues in a proactive manner. The IENMP along with the Joint Land Use Study (JLUS), assess the compatibility of the noise environment with the land uses.

Other elements of the IENMP include education of both the military and civilian communities, management of noise complaints, mitigation of the firearm noise, and noise-abatement procedures. The goal is to be a responsible neighbor to the communities surrounding the NJARNG Training Center.

1.4.5 Stages of THE IENMP

Stage 1: Quantify the installation's noise environment. The primary means of assessing environmental noise is through computer simulations. Computer-generated noise contours can be shown on installation land use maps to be incorporated into the installation master plan and National Environmental Policy Act (NEPA) (PL 91-190 1970) documentation. A more detailed discussion of noise modeling is provided at Appendix A.

Stage 2: Identify noise-impacted areas. During this stage noise contours are overlaid on maps to determine areas that are currently or potentially impacted by installation noise-producing activities.

Stage 3: Identify existing and potential incompatible land uses. Using the noise contour overlays, current and future land uses are examined to identify those land areas that are or will be incompatible. This stage requires coordination between the installation and the civilian communities.

Stage 4: Identify alternative actions to mitigate/minimize noise impacts. The purpose of this stage is to generate a wide range of alternative actions that could be taken by either the installation or the community to minimize noise impacts. Like Stage 3, this also requires coordination between the installation and the civilian communities.

Stage 5: Evaluate alternative actions. During this stage the impact of the various alternatives identified must be evaluated.

Stage 6: Develop agreements with local communities and agencies. At this stage good-faith efforts should be made to negotiate agreements with local communities and agencies that affect or will be affected by the commitments made as a result of the IENMP.

Stage 7: Submit agreements for review by decision-makers. All agreements must be ratified by commanders and the elected bodies or decision-makers within the affected agencies.

Stage 8: Publish final IENMP and implement agreements. The final IENMP must be made available to the public and contain all elements of the process, including the agreement reached. It is at this stage that agreements should begin to be implemented. Expectations regarding timing and sequencing of implementing actions should be defined, so that disagreements do not arise.

Stage 9: Update and review. Procedures should be established to monitor the agreements and to determine effectiveness of actions taken. Agreements need occasional maintenance. Established procedures for monitoring the agreement are essential to ensure that problems are identified and solved in a cooperative manner. This stage is essential to examine the impact of changes in DA training doctrine and modern weapons technology.

1.5 Purpose

The purpose of the NJARNG Training Center IENMP is to assess the noise environment and provide a plan to manage this environment through land use planning and being a responsible neighbor. This document also presents the noise exposure from a proposed range. Currently, none of the existing ranges meet Training Circular No. 25-8, *Training Ranges* requirements. As a result, use of these facilities by ARNG units may diminish as additional more modernized ranges become available both at the NJARNG Training Center and others alike.

1.6 Objectives

The objectives of the IENMP are:

- Education of the military and civilian community and improving communications between them.
- Management of noise complaints to reduce potential conflicts between NJARNG Training Center and the surrounding communities.
- Assessment of the compatibility of the noise environment with existing and proposed land uses.
- Mitigation of the noise and vibration levels, where feasible, to increase land use compatibility.

1.7 Content

The body of the plan consists of a discussion and analysis of NJARNG Training Center and the surrounding community, and the relationships between them. It presents the IENMP concept, policies, and methodologies. The plan describes the responsibilities of the DA and the community, and provides recommendations for both the DA and the community.

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2. NJARNG Training Center and the Community

2.1 General

This section examines the relationship between the NJARNG Training Center and the surrounding civilian communities in the terms of histories, population, activities, and needs of what are, in reality, parts of an integrated system rather than separate, independent entities. Since there are few areas in which Sea Girt and the communities do not depend upon each other, it is important to understand the nature of mutual interest and concerns, which forms the basis for present and future civilian and military cooperative efforts.

2.2 NJARNG Training Center

NJARNG Training Center is in central New Jersey along the Atlantic Ocean coastline. The installation resides within the borough of Sea Girt, which is in Monmouth County, NJ (see Figure 2-1).

2.2.1 Physical Description

NJARNG Training Center consists of approximately 170 acres (NJARNG 2002). The majority of the facility is on flat ground with 10 to 15 foot-tall sand dunes on the far eastern portion of the property near the ocean and beach. The NJARNG Training Center is utilized by various local, state, and Federal government agencies for training purposes, and these activities occur year-round at the installation. These training activities generate noise that might impact the citizens who live adjacent to, or near the installation. Many of the citizens residing near the NJARNG Training Center enjoy the scenery and sounds associated with oceanside living and appreciate a minimum of noise disturbance. The goal in the establishment of the IENMP is to achieve a harmonious relationship between the soldiers and police officers who reside and train at the NJARNG Training Center and those who live and work in the surrounding communities.

2.2.2 NJARNG Training Center History

Since the establishment of the NJARNG Training Center in 1884, the surrounding community has grown to the full extent around the border of the facility. The only exception to the densely packed growth is the eastern border of the facility which is ocean and beach area and the canal to the south. Development of land adjacent to the facility's boundaries emphasizes the need for an IENMP if the military operations on the NJARNG Training Center are to be protected as well as protecting the

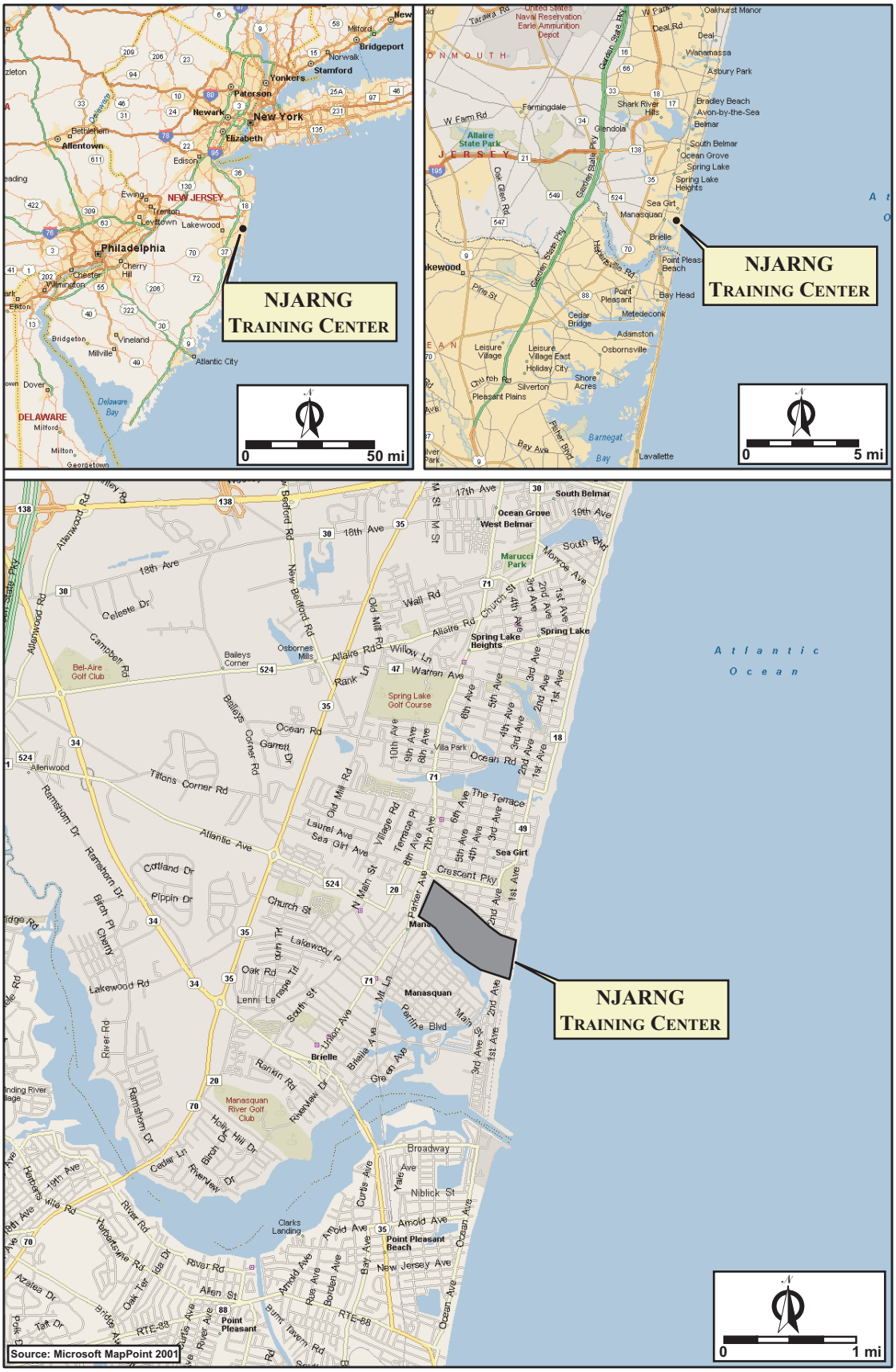

Figure 2-1. Location of NJARNG Training Center, Sea Girt, NJ

public health and welfare in the surrounding communities. An understanding of past events leading up to the current land use relationships will demonstrate the desirability of such a plan.

The surrounding communities illustrate the propensity for growth by civilian communities around military installations since Sea Girt was established. This development and growth on the part of the civilian communities has included expansion toward the NJARNG Training Center reservation boundaries. Such expansion has been referred to as encroachment and the process, if left unchecked, can place severe limitations upon the ability of a military installation to ensure satisfactory accomplishment of training and other mission-essential activities. At the least, the noise generated by weapons firing and aircraft flying can become an annoyance to the citizens who live in the vicinity of the installation. At the worst, these military activities can become such an irritant that the citizens might seek relief through legal means. It is in the best interest of all citizens, therefore, to ensure compatible development and use of land adjacent to the NJARNG Training Center boundary.

2.2.3 NJARNG Training Activities

Training Requirements. The NJARNG Training Center provides facilities for the NJARNG, the NJ State Police, and the NJ State Corrections Officers to perform administrative tasks, physical training, and weapons qualification. The area utilized for small arms weapons qualification on the eastern side of the installation makes up a small portion of the facilities total area (see Figure 2-2). Weapons qualification takes place at the range facilities year-round.

Training Areas. The NJARNG Training Center currently has three small arms firing ranges in the eastern portion of the facility. Ranges 1 and 2 have 25 firing alleys while Range 3 has eight firing alleys. Future training needs at the facility might require Range 3 to be expanded to 25 alleys. In addition, a completely new firing range (identified as the proposed range) with 10-lanes might be built to the north of the three existing ranges to facilitate a change in the installation's training capabilities or an expansion of the training mission. The proposed 10-lane Combat Pistol Qualification Range will be built with support facilities: general instruction, target storage/repair building, ammo breakdown building, male/female latrine, mess shelter, bleacher enclosure, and utilities as required. Physical security measures will be incorporated into design including maximum feasible standoff distance from roads, parking areas, and vehicle unloading areas, berms, heavy landscaping, and bollards to prevent access when standoff distance cannot be maintained. The NJARNG, NJ State Police, and NJ State Corrections Officers utilize all three firing ranges.

Figure 2-2. NJARNG Training Center Site Map

Small Arms Activities. Small arms training can be conducted year-round at these firing ranges. Small arms weapons fired at the ranges include the M-16 rifle, 0.40 caliber, 0.38 caliber, and 9-millimeter pistols; and the 12 gauge shotgun. A detailed listing of firing range activities can be found in Appendix B.

2.2.4 Installation Command

The 254th Regiment provides Combat Arms Military Occupation Skill Qualifier, Additional Skill Indicator, Non-Commissioned Officer Basic and Advanced, Officer Candidate School, Commissioned Officer, Non-Commissioned Officer sustainment, and transition training for all active combat and reserve combat soldiers, which enables Armed Forces components to mobilize and deploy units capable of meeting wartime mission requirements on current and force modernization equipment systems (NJARNG 2004a).

2.2.5 Transient and Tenant Organization Activities

The 63rd Army Band promotes readiness by performing music that promotes troop morale and unit esprit de corps. They provide music for troop gatherings and activities, military and religious ceremonies, and civil affairs such as parades and other public events. Army Bands also contribute significantly to the combat effort by developing and maintaining the morale and esprit de corps of friendly forces and by promoting support for U.S. and allied forces. Their job is to perform this mission for the NJ area in peacetime, wartime, and in situations deemed necessary by the Governor of NJ (NJARNG 2004b).

The NJ State Police has a Training Bureau at the State Police Academy in Sea Girt, which is responsible for conducting a variety of preservice and advanced law enforcement training for prospective State Police candidates and Municipal Police trainees. The Bureau also conducts regular in-service training classes and workshops for enlisted and civilian State Police personnel, as well as advanced and specialized training for Federal, state, county, and municipal police agencies (NJARNG 2004c).

2.3 The Civilian Community

NJARNG Training Center lies in southeastern corner of the borough of Sea Girt and adjacent to the northeastern border of Manasquan in Monmouth County, NJ (See Figure 2-1). The surrounding boroughs of Sea Girt and Manasquan should take interest in the IENMP. These boroughs are adjacent to the NJARNG Training Center. The boroughs of Spring Lake Heights and Spring Lake

and Wall Township are adjacent to the boundaries of Sea Girt borough, but are greater than a mile from the Training Center. While these boroughs are most likely not impacted by the noise generated from firing range activities on a regular basis, they could be positively impacted economically by the existence of the facility.

NJARNG Training Center's presence has a measurable impact on the overall population and employment levels within the surrounding boroughs. The installation-community relationship results in a number of positive impacts and mutual benefits.

2.3.1 Population

The population surrounding the NJARNG Training Center is to the north, south, and west of the installation. As indicated in Table 2-1, not all of the nearby municipalities have increased in population since 1980.

Table 2-1. Population by Municipality per Decade

Municipality	Population		
	1980	1990	2000
Manasquan	5,354	5,369	6,310
Sea Girt	2,650	2,099	2,148
Spring Lake	4,215	3,499	3,567
Spring Lake Heights	5,424	5,341	5,227
Wall Township	18,952	20,244	25,261

Source: U.S. Census Bureau 2000

2.3.2 Economic Impact

Socioeconomics is defined as the basic attributes and resources associated with the human environment, particularly population and economic activity. Regional birth and death rates, and immigration and emigration affect population levels. Economic activity typically encompasses employment, personal income, and industrial or commercial growth. Changes in these two fundamental socioeconomic indicators can be accompanied by changes in other components, such as housing availability and the provision of public services. Socioeconomic data at county, state, and national levels permit characterization of baseline conditions in the context of regional, state, and national trends.

While the NJARNG Training Center employs numerous state and Federal employees who live near the installation, no formal Economic Impact Assessment has been provided for analysis in this study. The income generated by employees at the NJARNG Training Center and the money spent on various projects associated with the installation all have a positive economic impact on the surrounding community that would otherwise not be noticed under different circumstances.

Per capita income for the communities near the NJARNG Training Center all rank above average when compared to the nationwide and State of New Jersey averages. Table 2-2 lists the community per capita income averages for communities near in the NJARNG Training Center vicinity along with the State of New Jersey and nationwide averages.

Table 2-2. 2000 Per Capita Income

Area/Municipality	2000 Per Capita Income
U.S.	$21,587
New Jersey[1]	$29,094
Manasquan	$32,898
Sea Girt	$63,871
Spring Lake	$59,445
Spring Lake Heights	$35,093
Wall Township	$32,954

Source: U.S. Census Bureau 2000
Note: [1] State of New Jersey Data is from 2003

2.3.3 Installation-Community Relationships

In keeping with its good neighbor policy, the NJARNG Training Center maintains a number of formal and informal programs and activities, which contribute directly to the benefit of both the installation and the surrounding communities.

2.3.4 Recreation

The NJARNG Training Center is adjacent to the Atlantic Ocean and numerous public and private recreational facilities are built to assist in enjoying the oceanside environment. Beaches up and down the New Jersey coast are intended to provide public access to the ocean and its recreational opportunities to the general population. Also in the area of the NJARNG Training Center are numerous public parks that are inland from the ocean and beaches. Within Sea Girt Borough and to

the north of the installation are Crescent and Edgemere Parks and to the west is Orchard Park in Wall Township.

2.4 Summary

Since the NJARNG Training Center's establishment, the Federal and state government expenditures on military and civilian employees and associated installation projects have contributed to the local economy and provide employment in the surrounding communities. The NJARNG Training Center has also benefited from the existing housing, schools, entertainment, recreation, and retail sales and services. The communities in the vicinity of the NJARNG Training Center are established communities that have co-existed with the installation for many years.

3. Federal, State, and Local Land Use Policy and Control

3.1 Federal

The only direct land use controls available to the Federal government in New Jersey result from free-owned land and easements related to Federal projects.

3.2 State

The state of NJ and its counties have the legal authority to impose zoning controls for the purpose of controlling land use within their boundaries. Activities that affect the noise environment can also have an impact on land use planning and zoning. The NJ Department of Environmental Protection (NJDEP) has implemented a Model Noise Control Ordinance to assist land use planning when dealing with noise-related issues. Outdoor and indoor standards are established for residential, commercial, and multiuse categories. The New Jersey Model Noise Control Ordinance can be found in Appendix C (NJDEP 2004).

3.3 Local/Regional

Sea Girt Borough has a zoning ordinance that addresses noise-related issues. Noise sources such as horns and construction activity are addressed within the ordinance. The Sea Girt Borough Noise Ordinance can be found in Appendix D (Sea Girt 2004).

Metropolitan and Regional Planning Commission. The purpose of a metropolitan or regional planning commission is to study and plan for the development of the area, guide unified development of the area, eliminate planning duplication, promote efficiency and economy in developing the area, and promote the welfare of the people.

Multi-County Planning and Development Organizations. NJ encourages multi-county planning and development to promote economic development, to assist local governments and private organizations, to prepare comprehensive regional plans for economic development and government services, and to coordinate private and public programs in the multi-county districts.

County Planning Boards and Commissions. The purpose of the county planning board is to promote public interest in planning, to prepare plans for the county, to receive and make recommendations on public and private proposals for development, to prepare and transmit to the county quorum court recommended ordinances implanting plans, and to advise public bodies on planning-related matters.

Municipal Planning. First and second-class cities and incorporated towns have the power to adopt and enforce plans for the coordinated development of the municipality and its environs. The municipality's plans should promote the general welfare of the citizens while considering present and future needs, safety, and morals. The municipality's land use plan is not a zoning ordinance, nor is it as specific as a zoning ordinance. Rather it is a declaration of policy, specifying the present and future uses of the land within the municipality's reach.

3.4 DA Policy Land Use and Its Application at NJARNG Training Center

It is DA policy to manage lands, facilities, and resources under its control in a manner that provides maximum mission effectiveness while recognizing the importance of the conservation of resources and preservation of the quality of human and natural environments. The DA developed the IENMP to provide a mechanism for identifying and addressing issues and concerns between the community and the installation.

3.5 Land Use Planning Determinants

Compliance with the laws, regulations, executive orders, and guidelines which are applicable to current operations and to restoration of sites contaminated by previous activities is fundamental to attaining DA goals associated with environmental protection and conservation of natural resources. In this respect, the DA has designated the achievement of the following goals, applicable in land use planning, as an integral part of the overall DA mission.

- Demonstrate leadership in environmental protection and improvement.
- Minimize adverse environmental and health impacts while maximizing readiness and strategic preparedness.
- Ensure that consideration of the environment is an integral part of DA decisionmaking.
- Initiate aggressive action to comply with all applicable Federal, state, regional, and local environmental quality laws.
- Restore lands and waters damaged through past waste disposal activities.

To achieve the foregoing DA goals, the policy at NJARNG Training Center, which applies to all subordinate organizations, agencies, and activities, is to

- Comply with Army Regulation (AR) 200-1, and all applicable Federal, state, and local environmental quality laws, regulations, and other requirements.

- Plan, initiate, and carry out all actions and programs in a manner that will preserve, protect, restore, or mitigate the degradation of human and natural environments.
- Ensure that historic, archeological, and cultural sites, structures, and other objects under NJARNG Training Center jurisdiction will be preserved, restored, and maintained for the benefit of future generations.
- Eliminate or control environmental degradation resulting from training, operations, maintenance, repair, or construction of real property facilities owned, leased, or supported by NJARNG Training Center.

3.6 Land Use Compatibility

With an overview of NJARNG Training Center land, airspace, and facility requirements, the rationale behind the DA's efforts, through the IENMP program, to achieve compatibility between military operations and private property interests should be more apparent. At NJARNG Training Center, in particular, the successful accomplishment of the DA and ARNG's training mission depends on the positive involvement of the civilian communities in all elements of the IENMP including land use planning and control.

The land owned by the NJARNG Training Center is needed to conduct training and other mission-essential operations. There is a significant amount of interest from officials at NJARNG Training Center to achieve civilian community cooperation in regulating use of land around the locations adjacent to the perimeter of the military reservation proper. The concerns at NJARNG Training Center over the noise and potential impacts on off-post land will be articulated best in graphic form.

3.7 Environmental Justice

Environmental Justice is defined by the U.S. Environmental Protection Agency (USEPA) as "fair treatment of people of all races, cultures, and incomes, regarding the development of environmental laws, regulations, and policies." Over the past decade, attention to the impact of environmental pollution on particular segments of our society has been growing. Concern that minority populations and low-income populations bear a disproportionate amount of adverse health and environmental effects led President Clinton to issue Executive Order 12898 in 1994, focusing Federal agency attention on these issues. To this end, the NJARNG Training Center will ensure that the environmental justice philosophy is embraced in the management of noise from its activities. The location and use of training activities, such as firing ranges, is always based on the operational, safety, and environmental considerations of both the installation and the civilian community.

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4. The IENMP

4.1 Introduction

In the past, the emphasis of the DA's IENMP has been the ENMP. The goal of the ENMP is to maintain land use compatibility with the installation's noise environment. At many installations, the land uses around the facilities already are not compatible with the noise environment.

To reduce potential conflicts between the installation and surrounding communities, the DA is developing the IENMP. In addition to the ENMP, the plan includes education of both installation personnel and surrounding residents, management of noise complaints, mitigation of the noise and vibration, the Fly Neighborly program, and noise-abatement procedures. At installations with noise-monitoring capabilities, a monitoring system and data management are also included in the plan.

4.2 Education/Awareness

An important element of the IENMP is education. This includes educating both the NJARNG Training Center personnel and the local community. The tenants must be aware of all NJARNG Training Center policies and regulations dealing with environmental noise. These include the locations of no-fly areas, noise-sensitive areas, and safety plans. The education will include the potential for adverse consequences to NJARNG Training Center ability to perform and maintain its mission due to violations of the policies and regulations.

The local community can be made aware of NJARNG Training Center mission and its by-products, including noise, through newspaper articles, community displays, public presentations, and other information released to the community. These will address the concerns of the community.

Local government officials, including the zoning and planning boards, must also be informed, so that they will be able to accurately assess both sides of the issues before them and factor such information into any decision making process concerning potential land use planning.

4.3 Noise Complaint Management

The Noise Complaint Management Program establishes local policies, assigns responsibilities, directs actions, and prescribes procedures to achieve compliance with applicable outdoor noise regulations in a manner consistent with mission accomplishment at NJARNG Training Center. Appendix E contains Chapter 8 Noise Management of the NJARNG Desktop Guide, which provides details

regarding the NJARNG Noise Management Program and the Noise Complaint Form (NJARNG 2004d).

The purpose of the Noise Complaint Management Program is to educate people reporting complaints, so they are aware that the NJARNG Training Center cares about their concerns. In most cases, the courteous and honest treatment of the complainant will reduce the potential for future calls; letters to local, state, and Federal government officials; and formation of community action groups. There are two key words to a successful complaint management program—integrity and sensitivity.

The program will have integrity, so that when the NJARNG Training Center officials tell the community something, the community will believe and trust them. Once you tell the community, they will consider the information as your policy. For example, if you tell the community that you will have quiet hours then you must keep these hours. If it is necessary to change this procedure, then you should explain to the community why you are changing the procedure before the change takes place.

The program will be sensitive to the community's concerns. The NJARNG Training Center will listen to their neighbors to find out what is annoying them. There might be a simple solution to the problem once the cause of the concern is discovered. The NJARNG Training Center will also be responsive to the community by telling them, for example, why they must perform the operation. The public's perception of the NJARNG Training Center is their reality.

A successful noise-complaint management procedure will assist the NJARNG Training Center in avoiding community action directed at their activities. Like the other elements of the IENMP, this procedure will be proactive. Its purposes are to reduce the potential of noise complaints by keeping the public informed about what is going to happen and to satisfy the complainants, so that noise complaints do not escalate into political actions.

The potential for noise complaints will be reduced by providing the news media with press releases when unusual operations are scheduled, or when normal operations are scheduled to resume after a period of inactivity. The press release will include a telephone number that the community can use to receive additional information or report a noise complaint. The NJARNG Training Center's officials will monitor the news media to ensure the information is being released to the community in a timely manner.

The NJARNG Training Center will respond to all complaints in a timely and polite fashion to reduce the potential of the complainants organizing into citizen action groups. These groups can address the complaint to higher levels of command and government. When the situation becomes political, the installation's mission can be impaired by unnecessary operational restrictions and resources spent reacting to political pressures, both local and Congressional.

A noise-complaint procedure is required by AR 200-1 (U.S. Army 1997) to log and investigate all complaints. An effective procedure will enable the NJARNG Training Center to maintain a good relationship with the surrounding communities. The minimum requirements of the complaint procedure are discussed below.

A log is maintained of all noise complaints. The log will contain the complaint location, date, time, and cause of complaint. It will help isolate habitual complainers, show the effectiveness of predictions, and identify the types and times of operations that are most offensive.

Complaints are investigated without delay. By investigating complaints immediately, it might be possible to delay the cause of the complaint until noise propagation conditions lessen or aircraft or range fire is rerouted away from the complainant. This action will reduce the risk of additional complaints and will show the complainants that the NJARNG Training Center is concerned about their health and welfare.

The complainant is aware of the installation's mission and that every effort will be made to correct the problem, mission permitting. The NJARNG Training Center's representatives should visit with the complainant. If feasible, this visit should occur during a time period when the operation that caused the complaint is being performed. The representatives will explain the operation to the complainant, including why it is being performed at this time and at the NJARNG Training Center. They will ask the complainant about how the present noise environment today compares with the noise environment on the day of the complaint and try to obtain some insight into why the complaint was generated. If feasible, the complainant should be invited to the installation to observe the operation.

Complaints are routed to the office responsible for the type of activity that resulted in the noise complaint. The Garrison Commander's Staff will require a response for the purpose of providing information to the complainant, if required.

4.4 Noise-Monitoring System

The NJARNG Training Center does not have a noise-monitoring system in place. However, the facility personnel check for health and safety of all personnel by checking sounds levels periodically.

4.5 The Program

The DA IENMP provides a method for evaluating the effect of noise and the hazards associated with training operations that stem from activities at military installations. The purpose of the program is to identify land areas that are exposed to generally unacceptable noise levels. These noise levels can be generated from firing range activity, aircraft flight activities, and from aircraft accident potential areas. These noise-exposure levels are then used to recommend uses for the land lying within these areas that are compatible with the needs of the civilian community and the DA.

DA installation commanders establish and maintain active programs to achieve the maximum feasible compatibility between the noise environment and noise-sensitive land uses, both off and on the installation. The program requires that all appropriate governmental bodies and citizens be fully informed whenever IENMP or other planning matters affecting the installation are under consideration. This includes a positive and continuous effort designed to

- Provide information, criteria, and guidelines to Federal, state, regional, and local planning bodies, civic associations, and similar groups.
- Inform such groups of the requirements of the operational activity, noise exposure, aircraft accident potential, and noise management plans.
- Describe the noise-reduction measures, which are being, or could be, used.
- Ensure that all reasonable, economical, and practical measures are taken to reduce or control the impact of noise-producing or hazardous activities to minimize the exposure of populated areas. This must be done without jeopardizing the safety or effectiveness of military operations.

The IENMP considers the land areas, with noise-sensitive land uses, that are exposed to generally unacceptable noise levels and aircraft accident potential. These areas include NZ III, NZ II, and NZ I, which are projected using computer models (see Appendix A). The 65 DNL noise contour represents a 104-day annual average that separates the normally incompatible NZ II from the normally compatible NZ I. Taking all operations that occur at the NJARNG Training Center over a training

year and analyzing the firing data with DoD-approved software generates the contours. Noise-sensitive land uses include residences, schools, medical facilities, and churches.

4.5.1 Noise Zones

The extent of the noise emanating from DA weapons firing, aircraft, and other military activities at specific sites will be depicted graphically further on in this section. Note: During the examination of the environmental noise attributable to NJARNG Training Center's operations, day-night sound level (DNL) will always refer to DNL to describe small arms weapons firing, aircraft, vehicle, and the like. The NJARNG Training Center will not have C-Weighted DNL (CDNL) because the facility does not have large caliber weapons (greater than 20 millimeter) that would produce large impulse noise blasts and vibrations. A more detailed description of the noise environment and the methodology used in noise evaluation is provided in Appendix A.

- NZ I includes all areas around a noise source in which the DNL is less than 65 A-weighted decibel (dBA). This area is usually suitable for all types of land use activities.
- NZ II consists of an area where the DNL is between 65 and 75 dBA. Exposure to noise within this area is considered significant and use of land within NZ II should normally be limited to activities such as industrial, manufacturing, transportation, and resource production. However, if the community determines that land in NZ II areas must be used for residential purposes, then noise level reduction (NLR) features should be incorporated into the design and construction of the buildings. A discussion of NLR features is included in Appendix A.
- NZ III consists of the area around the source of the noise in which the DNL is greater than 75 dBA. The noise level within NZ III is considered so severe that noise-sensitive land uses should not be considered therein.

The firing range activity at the NJARNG Training Center has dBA NZ I, NZ II, and NZ III according to available data from range ammunition records (see Appendix B) (see Figure 4-1). Under the proposed scenario, a new range would be built and the four ranges would also create a noise environment that would contain all three NZs (See Figure 4-2). Both the existing and proposed firing range activities create noise environments where the 65 dBA (NZ II) contours exceed NJARNG Training Center boundaries, but the 75 dBA (NZ III) contours remain within the installation property.

Figure 4-1. NJARNG Training Center Firing Ranges and Existing DNL Noise Contours

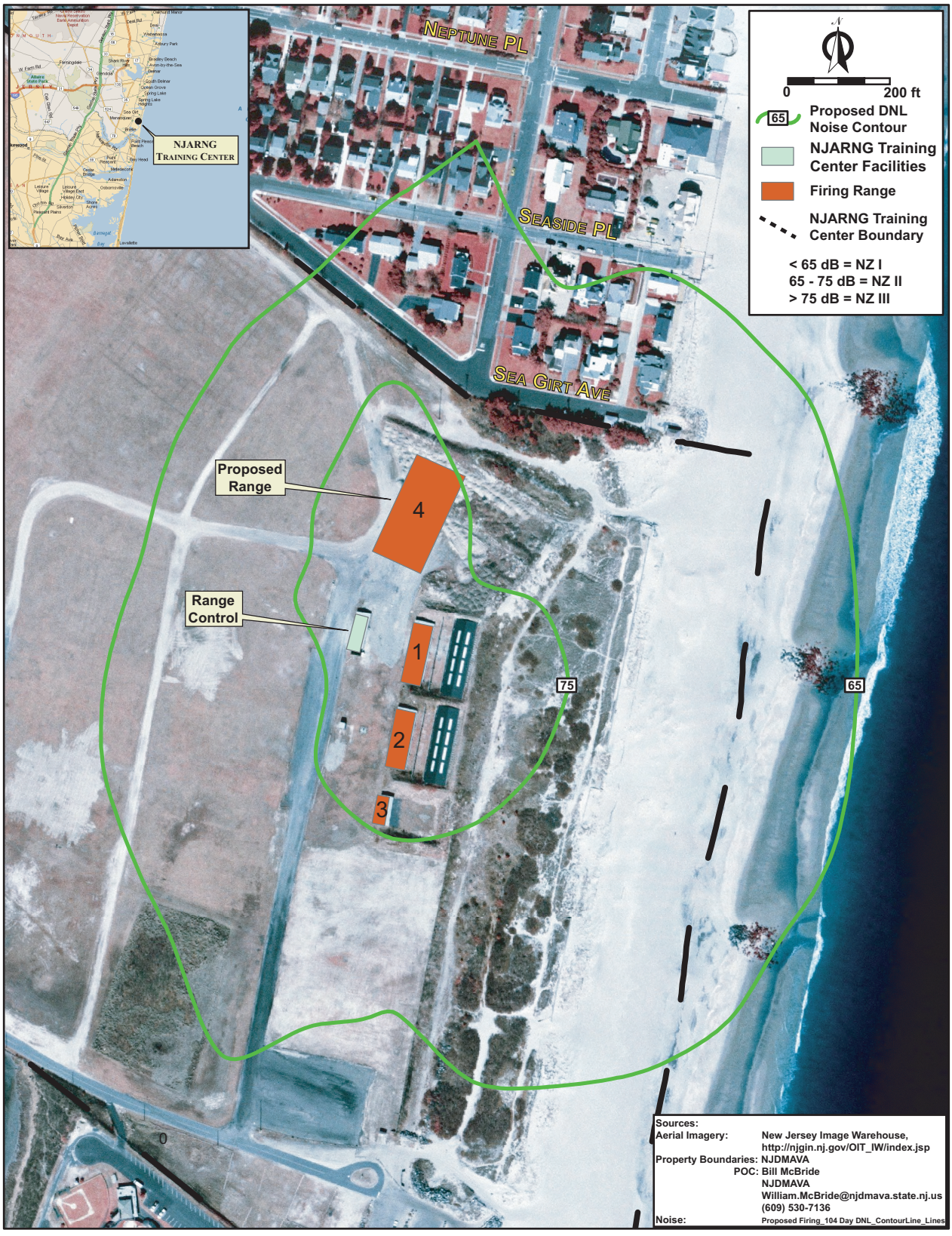

Figure 4-2. NJARNG Training Center Firing Ranges and Proposed DNL Noise Contours

Land Use Guidelines

The Federal Interagency Committee on Urban Noise (FICUN) (FICUN 1980) has developed land use guidelines for areas on or near noise-producing activities, such as highways, airports, and firing ranges. The IENMP uses these guidelines. The IENMP designates NZs for land use planning. By projecting these zones onto an area map, land use guidelines can be used to help planners develop compatible land uses. The compatibility for different land use categories is separated into decibel ranges and includes the associated NZ for that decibel range within the Standard Land Use Coding Manual (SLUCM) as shown in Table 4-1.

Table 4-1. Suggested Land Use Compatibility Guidelines

Land Use	NZs (in Day-Night Average A-Weighted (DNL))						
	I (0–55)	**I (55–65)**	**II (65–70)**	**II (70–75)**	**III (75–80)**	**III (80–85)**	**III (85+)**
Residential (except mobile homes) Mobile Homes	Y Y	Y[1] Y	25[2] N	30[3] N	N N	N N	N N
Manufacturing (except precision)	Y	Y	Y	Y[4]	Y[5]	Y[6]	N
Precision[7]	Y	Y	Y	25	30	N	N
Transportation Communication Utilities	Y Y Y	Y Y Y	Y Y Y	Y[4] 25[8] Y[4]	Y[5] 30[8] Y[5]	Y[6] N Y[6]	N N Y
Wholesale Trade Retail Trade	Y Y	Y Y	Y Y	Y[4] 25	Y[5] 30	Y[6] N	N N
Services (except listed below) Cemeteries Hospitals, Nursing Homes, Education Other Medical	Y Y Y Y	Y Y Y[1] Y	Y Y 25[1] Y	25 Y[4] 30[1] 25	30 Y[5] N 30	N Y[6,9] N N	N Y[8,9] N N
Cultural Entertainment (except outdoor music) Outdoor Music Recreational	Y Y Y	Y1 Y Y[1] Y[1]	25[1] 25 N Y[1]	30[1] 30 N Y[1]	N N N N	N N N N	N N N N
Resource Production Livestock Resource Extraction	Y Y Y	Y Y Y	Y[10] Y[10] Y	Y[11] Y[11] Y	Y[12] Y Y	Y[13] Y Y	Y[13] Y Y

Table 4-1. Land Use Compatibilities (continued)

Source: U.S. Army 2002

Notes:

SLUCM: Standard Land Use Coding Manual.

Y (Yes) – Land use compatible without restrictions.

N (No) – Land use not compatible and should be prohibited.

Noise Level Reduction (NLR) – NLR (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.

Yx – Land use generally compatible with noted restrictions.

25, 30, 35 – Land use generally compatible, measures to achieve NLR of 25, 30, 35 must be incorporated into the design and construction of structures.

25x, 30x, 35x – Land use generally compatible to the NLR; however, measures to achieve an overall noise reduction do not necessarily solve noise difficulties and an additional evaluation is warranted.

[1] The designation of these uses as "compatible" in this zone reflects an individual Federal agency's consideration of general cost and feasibility factors as well as past community experiences and program objectives. Localities, when evaluating the application of these guidelines to specific situations, might have different concerns or goals to consider.

[2] Although local conditions might require residential use, it is discouraged in this zone. NLR criteria will not eliminate outdoor noise problems.

[3] Although local conditions might require residential use, it is strongly discouraged in this zone. NLR criteria will not eliminate outdoor noise problems.

[4] Measures to achieve NLR 25 must be incorporated into the design and construction of portions of these buildings where the public is received (i.e., office areas, noise-sensitive areas, or where the normal noise level is low).

[5] Same as footnote 4 except measures to achieve NLR of 30 must be incorporated.

[6] Same as footnote 4 except measures to achieve NLR of 35 must be incorporated.

[7] Includes professional, scientific, and controlling instruments; photographic and optical goods; watches and clocks.

[8] If noise sensitive use indicated, NLR; if not, the use is compatible.

[9] Land use not recommended, but if the community decides the use is necessary, personnel should wear hearing protection devices.

[10] Residential buildings require an NLR of 25.

[11] Residential buildings require an NLR of 30.

[12] Residential buildings not permitted.

[13] Residential buildings not permitted. Land use not recommended, but if the community decides the use is necessary, personnel should wear hearing protection devices.

NJARNG Training Center Noise Environment

The following discussion of existing and proposed conditions for the area near the NJARNG Training Center deals with compatible and incompatible land uses. The Federal guidelines pertaining to compatible and incompatible land use around military installations have been addressed briefly in other parts of this study.

To reduce the discussion to manageable proportions, the examination of existing conditions will focus on the small arms ranges for NJARNG Training Center. The discussion will be in terms of

- Noise
- Current land use
- Recommended land use under Federal guidelines
- Compatibilities and incompatibilities in land use

Effects of Current Noise on Surrounding Communities

Because the noise associated with small arms firing range activity at the NJARNG Training Center exceeds the installation's boundary, noise impacts on the surrounding communities' noise environment will be observed. The existing firing data create a 65 dBA noise contour (NZ II) that exceeds the installation boundary and encompasses 0.19 acres of residential land (see Figure 4-3). The addition of another firing range under the proposed firing data scenario creates a 65 dBA noise contour that exceeds the installation boundary and encompasses 4.77 acres of residential land (see Figure 4-4). Residential land that is within NZ II is considered to be a Potentially Incompatible land use based on the SLUCM Guidelines found in Table 4-1.

Land

The off-base land surrounding the NJARNG Training Center has been almost entirely developed. Compatible land uses need to be promoted, noise easements acquired, and the presence of the NJARNG Training Center disclosed to existing and potential land owners. While noise contours leave the installation property under the current or proposed actions in this report, future actions might dictate that the surrounding communities address any potential land use incompatibilities associated with NJARNG Training Center noise.

There is little that can be done about the abundant development and encroachment that has occurred in the past. However, later in this document, suggestions will be provided to assist in the development of any remaining land in a manner that is compatible with the economic needs of the civilian communities and the mission of the NJARNG Training Center. See Table 4-1 for land use guidelines in noise zones.

Community Reaction to Noise

Community reaction refers to the action taken by members of the noise-exposed community. Community reaction runs the gamut from "no reaction although noise is generally noticeable" to "vigorous action." USEPA found that DNL by itself was a poor predictor of community reaction. To improve the prediction of community reaction, USEPA adopted a set of corrections to the measured DNL. These corrections date back to Air Force funded research of Rosenblith and Stevens (1953).

- This model accounted for the following factors:
- Magnitude of the noise with a frequency weighting relating to human response
- Duration of the intruding noise

Figure 4-3. NJARNG Training Center Existing Land Use and Existing DNL Noise Contours

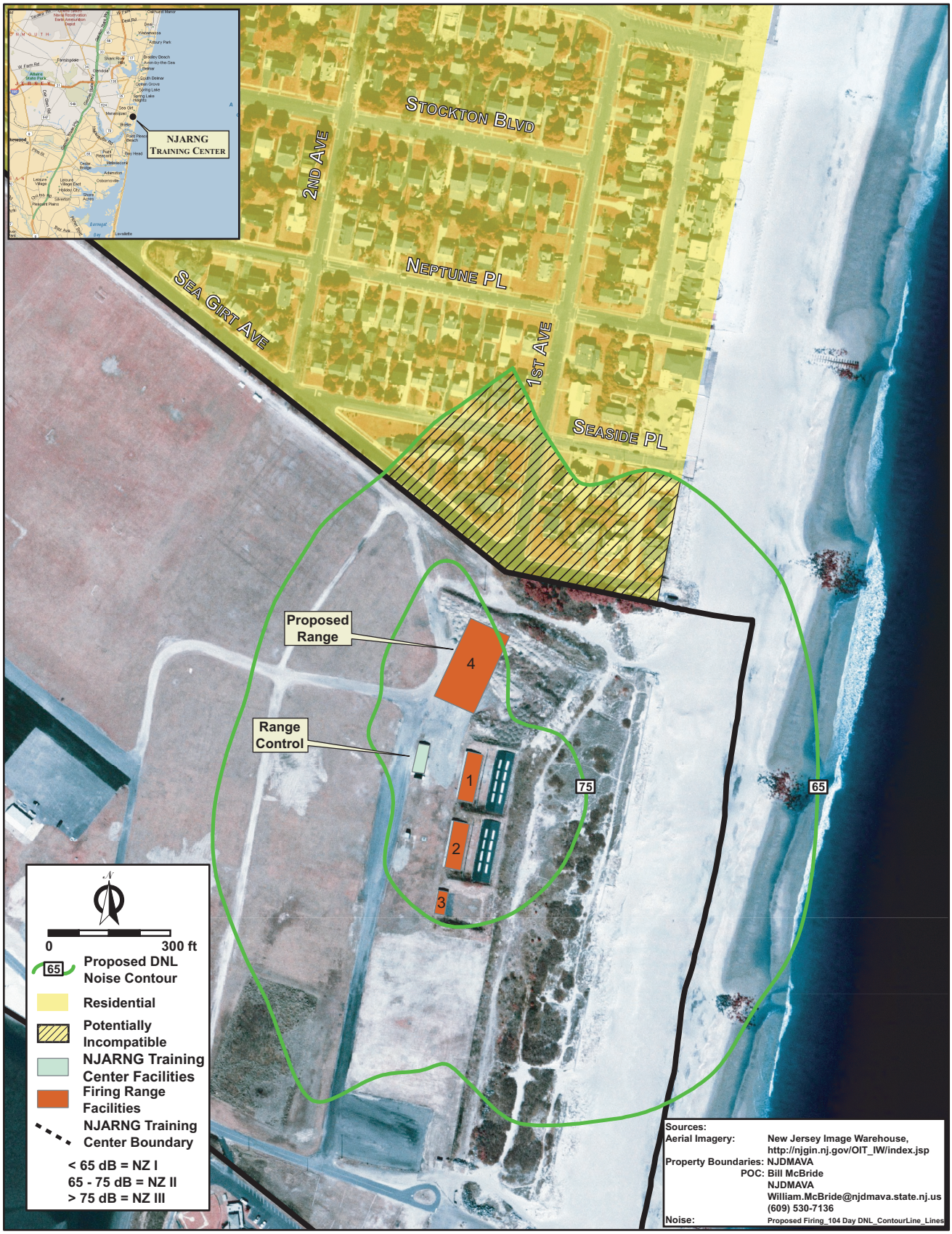

Figure 4-4. NJARNG Training Center Existing Land Use and Proposed DNL Noise Contours

- Time of year (windows open or closed)
- Time of day noise occurs
- Outdoor noise level in the community when the intruding noise is not present
- History of prior exposure to the noise source and attitude toward its owner
- Existence of pure tone or impulsive character in the noise

Corrections for these factors were initially made in 5 dB intervals since it is difficult to assess human response accurately for any smaller increment. The U.S. Air Force and the FAA later simplified this model for ease of application.

The data indicate that widespread complaints might be expected when the normalized value of the outdoor DNL of the intruding noise exceeds that amount of noise by approximately 5 dB. Vigorous community reaction might be expected when the excess approaches 20 dB. More recent case studies demonstrating a need to adjust DNL to predict community reaction include (1) response of rural communities to increase in DNL from the low 40s to the high 40s under the FAA's Expanded East Coast Plan (Muldoon and Miller 1989); (2) reaction of mayors of four cities around NAS Miramar to the introduction of helicopters (Hurad 1999); (3) litigation at Westover Air Force Base after introduction of the C-5A (Green 1997); and (4) the National Resource Defense Council's finding that, despite relatively few people living within the 65 dBA contour at Denver International Airport, this airport received the highest number of complaints per month among the 50 busiest airports in the U.S. (NRDC 1995).

Disclosure of Installation Activity and Noise

To protect the installation training and readiness mission, areas within a 1.6 kilometer (1 mile) buffer adjacent to the installation boundary, that are not already contained within a NZ should be included in a Zone of Influence (ZOI). Local communities should disclose the existence of the NJARNG Training Center and its activities, e.g., weapons firing, aircraft operations, and heavy vehicle movements. This would provide the residents with an understanding of the installation mission and purpose. Thus, informing the community of the installation's existence reduces citizen concern or misunderstanding related to noise from unknown installation activities.

Given the threat to some of NJARNG Training Center's training facilities from the process of encroachment, action by both county and municipal authorities is essential if the installation is to continue to train without restrictions. The local jurisdictions should adopt ordinances that will promote land use, including NLR features in new noise-sensitive buildings that are compatible with

the noise produced at NJARNG Training Center. Disclosure of the existence of the NJARNG Training Center, and of noise levels from training operations, should be mandatory for any property within the NZs or the ZOI. Optimally, for any new residential development, or transfer of existing residences, ordinances should be in place to ensure purchasers are aware of the NJARNG Training Center's noise environment. The following gives suggestions on how this could be accomplished.

Residential Development. Most properties in the vicinity of the NJARNG Training Center are established residential areas. There is very little undeveloped land near the NJARNG Training Center. Any future development within the NZs or the ZOI should include a disclosure of the NJARNG Training Center's existence at the time of purchase.

Transfer of Residential Property. Many states have disclosure statements that are required when residential property is transferred. Nuisance land uses, such as noise, must be included in the disclosure. With the noise associated with the NJARNG Training Center activities leaving the installation property, development of such an ordinance might be pursued. An example of the North Carolinas Property Disclosure is also included in Appendix F. A similar disclosure statement could be applied in the jurisdictions surrounding the NJARNG Training Center.

Land Use Planning by Noise Metric

The DNL noise metric is based on annual average noise from the specified operations. However, complaints are usually attributable to individual noise events rather than average noise levels. For this reason, a peak sound level is often used in addition to the DNL in analyzing the noise environment. By mapping peak levels, one can see where noise levels during training may be high enough to annoy people or to generate complaints during periods where weather conditions favor sound propagation.

The peak sound level, or dBP, is equal to 20 times the common logarithm of the ratio of the highest instantaneous sound pressure to a reference pressure of 20 micropascals (NJARNG 2005). This noise metric can be used to measure or describe a noise event such as the sudden onset of a single round of small arms firing noise. Research conducted by Hede and Bullen concluded that "a mean unweighted peak sound pressure level around 85 dB would be a reasonable criterion for land-use planning. At this level approximately 10% of a residential population would be expected to be seriously affected." Their research also concluded that the 85 dB sound pressure level for annoyance was applicable for an installation for up to 1,000,000 rounds per year (Hede and Bullen 1982). Current calculations for

the both existing and proposed firing data place the NJARNG Training Center under 500,000 rounds per year (Appendix B).

Land use compatibility guidelines based on peak sound levels have been developed for small arms firing ranges. The information in Table 4-2 is based on the land use guidelines shown in Table 4-1. Table 4-2 shows the estimated population sensitivity within dBP and DNL noise contours. NZ I has the smallest impact on populations, while NZ III typically has the greatest impact on noise sensitive populations.

The noise contours illustrated in Figure 4-5 depict the extent of the peak sound level by firearm type, with the 12-gauge covering the largest area. The potentially incompatible NZ II (87–104 dBP) extends well beyond the installation boundaries on all sides while the incompatible NZ III (104+ dBP) extends beyond the installation boundary on the north. The area and land use encompassed by the NZ III contour is residential, which makes this area an incompatible land use based on SLUCM and AR-200-1 standards.

Table 4-2. NZ Comparison by Noise Metric

Noise Zone	Population Highly Annoyed	Decibels, unweighted (dBP)	Decibels, A-weighted (DNL)
I	≤ 15%	≤ 87	≤ 65
II	15 – 39%	87 - 104	65 - 75
III	≥ 39%	≥ 104	≥ 75

Sources: U.S. Army 1997, 2002

Notes:

≤: Less than or equal to

≥: Greater than or equal to

4.5.2 Aviation Safety

There are few flights that conduct aircraft operations from the NJARNG Training Center's helipads. The types of rotor aircraft that arrive and depart from NJARNG Training Center are Huey (UH-1N) and Blackhawk (UH-60A) Helicopters. Figure 4-6 depicts the typical flight paths used by New Jersey State Police and NJARNG helicopters when arriving and departing these helipads.

Table 4-3 uses Sound Exposure Level (SEL) to describe noise from the Huey and Blackhawk Helicopters. This measurement describes a noise event, such as an aircraft overflight, comprising a period of time when an aircraft is approaching a receptor and noise levels are increasing, the instant

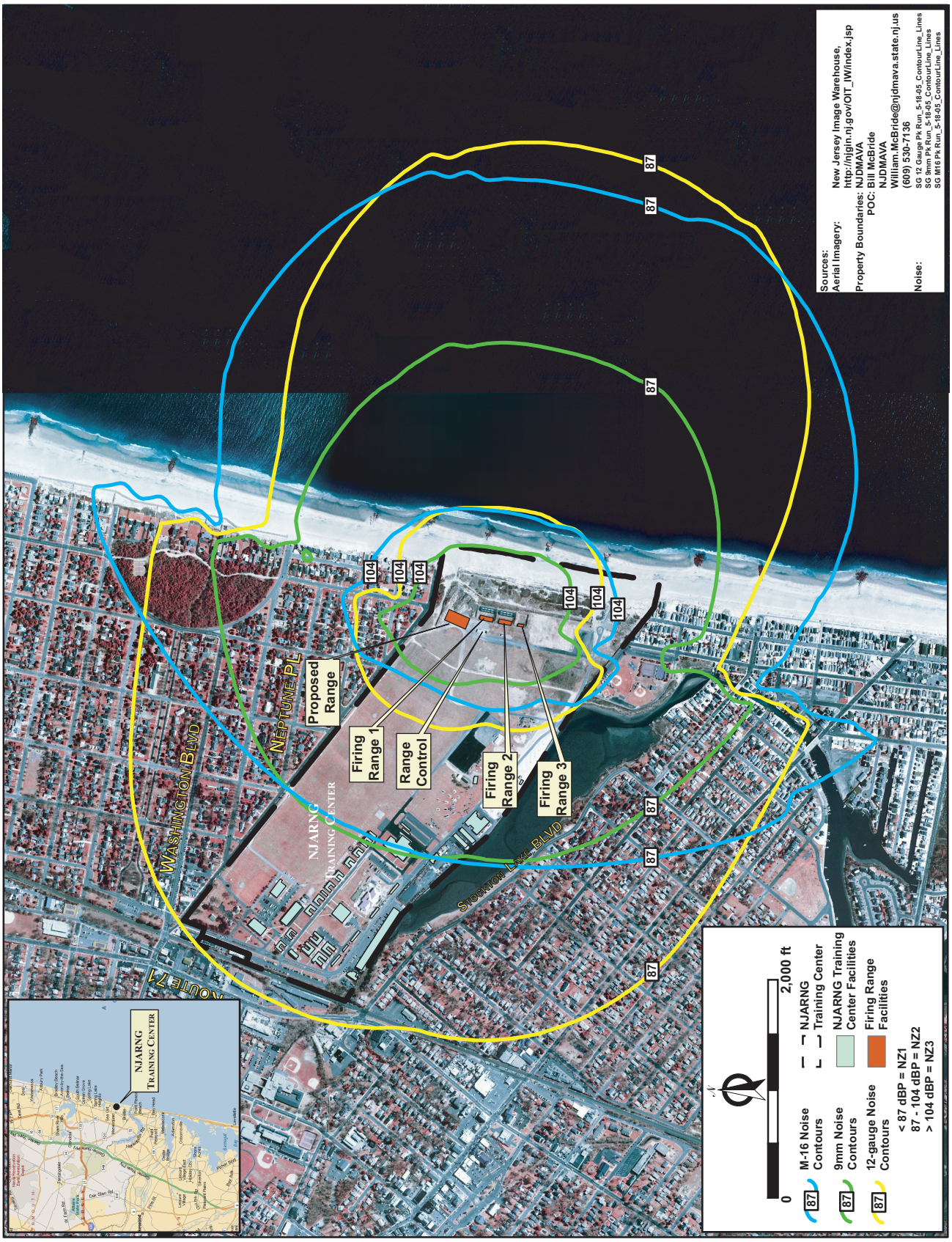

Figure 4-5. NJARNG Training Center Peak Noise Contours

Figure 4-6. NJARNG Training Center Helipads and Typical Flight Tracks

when the aircraft is closest to the receptor and the maximum noise level is experienced, and the period of time when the aircraft moves away from the receptor resulting in decreased noise levels. SEL is a measure that accounts for both loudness and duration of a noise event. Table 4-3 lists dBs for the aircraft at varying distances from the noise receptor.

Table 4-3. SEL dB Values for Aircraft Operating in the Vicinity of NJARNG Training Center

Altitude (feet AGL)	UH 1[1]	UH 60[2]
200	101.8	93.4
500	96.0	87.2
1,000	91.4	82.3
2,000	86.6	76.7
3,150	83.1	72.6
5,000	79.4	68.0

Source: Omega 2001
Notes:
[1] Based on steady flight at 80 knots using Omega 108 aircraft profile data from actual overflight noise measurements.
[2] Based on steady, takeoff flight at 40 knots using Omega 108 aircraft profile data from actual overflight noise measurements.
Omega 108 is a standalone DoD noise-modeling program that allows the user to retrieve data from the NOISEMAP database.

Other Hazards

In addition to physical obstructions that can be erected within the airspace, there are other uses that can also create conditions hazardous to aircraft operations. These uses include

- Activities that release substances into the air, such as steam, dust, or smoke, which can impair the visibility of aircrew members. Some examples of these activities are industrial plants, refineries, quarries, and sand or gravel pits.
- Objects that produce light emissions, either direct or indirect (reflective), which could interfere with the vision of aircrew members. Some examples are high-intensity strobe lights, lasers, extensive areas of glass such as those found in many modern office buildings, and highly reflective artificial surfaces.
- Activities which produce emissions capable of interfering with aircraft communications or navigational systems.
- Activities which tend to attract birds or waterfowl, particularly in large numbers. Such activities include the operation of sanitary landfills, the maintenance of feeding stations, and growing certain types of vegetation (e.g., grain and cornfields).

4.6 Noise Mitigation

Acoustical engineers categorize the technology for mitigating noise into source, path, and receiver.

- When dealing with military weapons, aircraft and vehicles, mitigating at the source is not viable, and Congress specifically exempted the DoD from source mitigation by excluding combat material from the definition of a product in the Noise Control Act of 1972. In some situations, helicopter pilots are able to achieve noise reduction at the source by altering the way they fly. The effort to train pilots to reduce helicopter noise is known as the "Fly Neighborly Program" (HAI 2005).
- Mitigation along the path of propagation refers to the use of berms or vegetation to absorb some of the sound. It is also possible to mitigate along the path by waiting for a time when the weather is unfavorable for the propagation of noise along a pathway to decrease noise reception at the receiver.
- Mitigation at the receiver includes both the construction of buildings so that the occupants will be less bothered by noise and noise complaint management. Noise mitigation for low frequency sound of firearms by building construction methods needs to be improved or updated based on the new construction materials available to construction contractors.

Public attitude surveys have shown that noise is considered an "enemy" in urban, suburban, and even rural areas. It is often rated worse than crime, litter, and abandoned buildings, since it seems to infiltrate homes and minds incessantly. As the public, in general, has become less tolerant of noise, the noise from military-unique sources, artillery, low-level jet operations, helicopters, and small arms firing, has increased both in intensity and frequency. Even though the military departments have made concerted efforts to reduce the noise from training and operations, weapons platforms and systems have become larger and louder.

The weapons, munitions, and aircraft used at NJARNG Training Center are no exception in the larger and louder scenario. Whereas the noise from horse-drawn artillery and small airplanes was once confined to the military reservation, with little if any impact upon the civilian communities, today's training involves artillery pieces, projectiles, rockets, and aircraft that create noise extending beyond the reservation boundary.

4.7 Vibration

There are no impulsive, or larger than 20 millimeter, weaponry blasts at the NJARNG Training Center. Only small arms are fired.

4.8 Annoyance from Noise

Even though the noise contours show a minimal impact, people living near NJARNG Training Center might be annoyed and could complain about the noise environment. The amount of annoyance also depends on the time of day the noise takes place, the background noise environment, and whether the person is indoors or outdoors at the time. The annoyance and complaint potential from single events, such as firing a 12-gauge shotgun near dusk, is highly subjective.

The usual complaint pattern is that economic activity unrelated to the installation stimulates increased population and development in the vicinity. Segments of the new population are not economically dependent on the installation, and tend to be annoyed by the noise or other aspects of government presence. The noise from the ranges provides a specific and undeniable object to complain about. As time goes on, the complainants become more articulate and eventually address their concerns to higher levels of command and government. When the situation becomes political, the installation's mission can be jeopardized.

Individual response of community members to noise depends on many factors. Some of these factors are the characteristics of the noise, including the intensity and spectral characteristics, duration, repetitions, abruptness of onset or cessation, and the noise climate or background noise against which a particular noise event occurs. Social surveys show that the following are all factors related to annoyance:

- The degree of interference of the noise with activity
- The previous experience of the community with the particular noise
- The time of day during which the intruding noise occurs
- Fear of personal danger associated with the activities of the noise sources
- Socioeconomic status and educational level of the community
- The extent the people believe that the noise output could be controlled

4.9 Summary

This section provided a discussion of the IENMP. The purpose of the IENMP is to assist NJARNG Training Center in managing its noise environment, with a minimal impact on its mission, while being a good neighbor. The IENMP includes education, complaint management, noise mitigation, and vibration.

The environmental impacts of activities at NJARNG Training Center extend beyond the military reservation boundary. Therefore, officials at NJARNG Training Center depend upon the goodwill and cooperation of the civilian sector to promote public support for and understanding of the installation's mission requirements. Although a number of positive steps have been taken by the NJARNG Training Center to minimize the unfavorable effects of noise and hazards to the public welfare and safety, these unilateral actions do not guarantee that the post will be able to carry out its training mission into the infinite future.

To have a reasonable assurance that the NJARNG Training Center will continue as a viable installation for the ARNG, a comprehensive effort and involvement by the civilian community in land use planning will be necessary. The validity of this observation will be substantiated in Section 5 through an examination of specific locations that are affected by the noise and safety hazards created by military training and mission-essential activities.

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5. Army and Community Responsibilities

5.1 Introduction

This section addresses the responsibilities of the DA and the civilian communities around the NJARNG Training Center with respect to the IENMP. In the civilian sector, responsibility for integrating noise considerations and safety of humans and property into the land use planning process rests with state and local governments. Within the military sector, consideration of these noise management issues is the responsibility of the Installation Commander. Neither can work in isolation. The emphasis of this section is the joint nature of environmental noise management.

Noise is considered to be one of the most important aspects of the environmental quality of life and needs to be considered in the planning process. Failure to do so can only result in irritation, complaints, and possibly legal action, all of which are detrimental to a harmonious relationship between NJARNG Training Center and the citizens who live in the surrounding areas. Recommendations to achieve compatibility between the needs of the civilian community and NJARNG Training Center's mission responsibilities are provided in this section.

5.2 Land Use Guidelines

Land use guidelines are meant to ensure compatibility with the noise environment while allowing maximum beneficial use of contiguous property. The NJARNG Training Center has an obligation to the communities around it and to the citizens of the U.S. to point out ways to protect both the people in adjacent areas and the public investment in the installation.

5.3 Noise Implications

The analysis of the noise impacts on privately owned land around the NJARNG Training Center shows that some citizens are exposed to noise that exceeds the levels recommended under Federal land use guidelines (FICUN 1980). This exposure of citizens to noise proliferation is a matter of concern to officials at NJARNG Training Center and it emphasizes the importance of the IENMP.

5.4 Safety Implications

The analysis of the safety impacts shows that there are none.

5.5 DA Responsibilities

The IENMP describes the DA's and the NJARNG Training Center's responsibilities for reducing the impact of the noise environment on the surrounding communities.

The reduction of noise levels in commercial equipment is being fulfilled by the use of equipment, which complies with Federal emissions standards. In addition, the NJARNG Training Center has taken the following specific actions to limit noise exposure:

- Investigation of Noise Complaints
- Designation of Noise-Sensitive Areas

Safety of Operations. The DA Safety Program is designed to provide a safe and healthful environment for all DA personnel and others exposed to DA operations. This includes civilians who live in the vicinity of or work on military installations. The objectives of the program include

- Prevention of injury due to DA operations.
- Detecting and eliminating causes of preventable, inadvertent damage to property both on and off the military reservation, which could result from military activities.
- Prevention of accidents.
- Compliance with Federal statutes dealing with the safety of people, property, or the environment.

Facets of the DA Safety Program pertinent to this study include

- Safety of operations associated with training and operations
- Safety of the airspace above the firing ranges
- Safety of training and operational activities conducted by DA aircraft

In keeping with its concern over the safety of DA training and allied activities, the DA had designated safety zones of fixed dimensions at its airfields and ranges. These safety zones provide a means for identifying areas with the environs where an accident is likely to take place.

Participation with Local Communities. This report is one effort to fulfill NJARNG Training Center's responsibility to the local communities by notifying elected officials, civic and business organizations, and other interested persons of its willingness to cooperate in noise management and promotion of the safety of humans and property. These responsibilities include

- ***Education.*** The NJARNG Training Center has the civic responsibility to educate, through media releases, public meetings, and open houses, the surrounding communities about its mission. This education also includes what NJARNG Training Center is doing to reduce the impact.
- ***Noise Complaint Management.*** The NJARNG Training Center has the responsibility to maintain good public relations with its neighbors by being responsive to the concerns of these neighbors. The NJARNG Training Center must continue with its effective noise-complaint management program.
- ***Land Use Recommendations.*** Officials at the NJARNG Training Center stand ready to provide local governments with recommendations for land uses, which are compatible with the noise levels produced by, and the hazards to safety created by, military training and operations.
- ***Compliance with Noise Reduction Regulations.*** Community NLR codes and regulations will be compiled and be consistent with the requirements for essential military activities. When compliance is not feasible, NJARNG Training Center officials will assist in seeking alternatives.
- ***Mitigative Actions.*** All reasonable actions to reduce noise during periods requested by local officials, as well as actions to resolve individual complaints, are considered.

5.6 Civilian Community Responsibilities

Local government planning responsibilities include the protection of the environmental quality of life of the community and protection of individual and community investments. Communities near military installations have the additional responsibility of assisting in maintaining our national security by protecting the mission capability of the installation.

The DA has made great strides toward the reduction of noise and safety hazards at the source but neither noise nor safety hazards can be eliminated completely. In recognition of these facts, the IENMP has been developed to help military and civilian planners identify the various levels of noise to which people are exposed, as well as areas of potential accidents, and to suggest compatible land uses. Integrating noise and safety considerations into the community planning process, however, rests with the various elected bodies that have control over actual off-post land development.

The easiest and most effective ways a community can solve noise and safety issues are to recognize the zones that have been established in this study and to adopt the land use guidelines of the Federal

government. Although this seems ideal, such a simplistic solution is sometimes not feasible in view of personal property rights, political expedience, community needs, and personal preferences. Even so, there are a number of techniques that can be used to help incorporate noise- and safety-related issues into land use planning. Techniques which could work in the communities surrounding the NJARNG Training Center including those listed below. (Note: Not all of the techniques will work in all of the communities.)

- ***Public Awareness.*** Increase public awareness of noise levels, effects, sources, reduction techniques, and land use planning solutions. The same public awareness holds true for aircraft accident potential zones. Citizen education can be an important factor in determining the marketability of homes, placement of outdoor recreation facilities, and the decisions regarding construction of schools, churches, and other noise-sensitive activities. Prior notice of noise levels to renters and purchasers can be required by local ordinance, enabling the public to choose living environments with complete information. This information program should reduce noise complaints and incompatible development in high noise zones as developers and builders are required to consider noise levels in the sitings of new construction.
- ***Coordination of Local Needs and Federal Assistance.*** This supplies an indirect control over land use by requiring the identification of noise levels and areas of potential aircraft accidents wherever Federal or federally assisted projects are proposed. This could increase public awareness of noise and exposure to potential aircraft accidents and, if Federal money is involved, prohibit inappropriate projects.
- ***Advisory Services.*** Advisory services, either direct or via library reference, can be provided to those persons wishing to build in high-noise level zones or in the vicinity of an aviation facility. The advice could include NLR specifications, siting modifications, and berm and barrier information for noise reduction. In the case of aviation safety zones, information regarding the existence of these zones and the precise locations can be provided.
- ***Building Codes.*** Building codes and policies, which require noise reduction considerations, site orientation, buffers, and barriers in areas of severe to significant noise levels, can be developed.
- ***Capital Improvements.*** Individual owners should be advised of capital improvements most acceptable to noise-sensitive urban activities, thus encouraging noise-sensitive buildings in compatible areas.

- ***Tax Incentives.*** Such incentives might not prevent incompatible development but incentives can encourage economically productive, compatible land use.
- ***Other Measures.*** Appendix G, "Land Use Planning and Control Techniques, suggests more ways for communities to accomplish the task of adopting land use guidelines.

5.7 Recommendations

In providing these recommendations, neither the DA nor anyone at the NJARNG Training Center has any desire to make privately owned land economically useless. However, when the development that has occurred around the NJARNG Training Center is considered, it becomes apparent that actions are appropriate to guide the future development of the surrounding or adjoining private property. Failure to do so creates a long-term threat the NJARNG Training Center's future. The recommendations are offered in a spirit of mutual cooperation.

General Recommendations

The elected officials of the counties and the cities and towns within these counties; civic, social, and business organizations; and concerned citizens provide these general recommendations for consideration. Authorities at the NJARNG Training Center are available to provide additional information and advice regarding specific details.

- County and municipal governments are encouraged to support public disclosure of noise zones. Disclosure of noise zones enables citizens to make more informed choices regarding the location of homes, businesses, and public facilities. Being so informed, members of the public might be less vocal in voicing their complaints about noise while developers and builders might be more discriminating when siting new construction.
- County and municipal governments should provide a means for informing individuals, companies and corporations of the types of noise, the levels of noise, and hazards to humans and property generated by military activities in the areas adjacent to the NJARNG Training Center.
- County and municipal governments should provide advisory services, either direct or via library reference, to those persons wishing to build in high-noise zones. The advice could include NLR specifications, siting modifications, and berm and barrier information for noise reduction.
- County and municipal governments should consider incorporation of statements into legal documents (for example, deeds, subdivision plats, comprehensive plans) that will inform

property owners or buyers of the nature and extent of the noise and safety hazards generated by the NJARNG Training Center's training and mission essential activities.

- The county and municipal governments should consider application of a Compatible Use Zone Overlay to all official government maps depicting areas exposed to NZs II and III. Proposed development in areas depicted on the overlay should require a public hearing to provide both the public and the NJARNG Training Center with an opportunity to comment.
- Local governments are encouraged to support efforts by the NJARNG Training Center in obtaining memorandums of agreement or understanding designed to address land use issues identified in this study.
- County and municipal governments are encouraged to support concerns regarding land uses around the NJARNG Training Center that are not compatible with the noise potential generated by training and other mission-essential activities.
- County and municipal governments are urged to consider any of the techniques listed below that are deemed appropriate and feasible to promote uses of land not under the control of the NJARNG Training Center and which are compatible with the noise and safety concerns identified in this report.

Zoning. Although zoning is not effective for correcting existing noise or safety problems, it can be effective in controlling land use density, as well as the character of uses permitted, in areas that are in a state of transition from, for example, agricultural or open land to residential.

Special Permits. Special permits provide a mechanism for achieving flexibility in land use in communities with zoning ordinances. In applying for a special permit, the property owner can be required to demonstrate that the proposed land use will be compatible with the noise or hazards to safety created by the NJARNG Training Center's activities.

Special Projects. Modify zoning ordinances to permit planned unit developments where the buildings are clustered and the resulting open space provides a buffer between noise sources and the buildings.

Health Codes. Noise standards can be added to existing health codes to promote the use of noise attenuation features in the construction of noise-sensitive buildings.

Subdivision Regulations. Noise performance standards can be included in subdivision regulations. In areas that lie in proximity to the NJARNG Training Center's boundary, a subdivision regulation can

require dedication of land as open space if impacted by noise or accident potential from aviation flight training.

Capital Improvements. Local governments might have an opportunity in the planning process to structure capital improvements so as to promote land uses that are compatible with the NJARNG Training Center's noise and safety environs.

Building Codes. Building codes can be adopted, or existing codes can be modified, to require noise-attenuation features in the vertical design and construction of noise-sensitive buildings located in high-noise zones.

Tax Incentives. Jurisdictions with taxing authority can use tax incentives, in the form of special or preferential tax assessments of land, as a technique for maintaining open space in NZs III and II, and in accident potential zones. Comprehensive Land Use Plans, initiated by any county or municipal government, should be coordinated with the NJARNG Training Center to develop recommendations for land use compatibility areas adjacent to its facilities. Within each land use compatibility area, land uses compatible with training and operations at the NJARNG Training Center should be established.

The following specific recommendations are provided to promote the orderly use and development of land for purposes that are compatible with the NJARNG Training Facility mission requirements and the needs and concerns of the surrounding civilian community. While many of the recommended techniques will result in additional vertical design and construction costs, it can be assumed that Federal and state environmental protection legislation will continue to mandate more stringent measures to enhance the safety of humans and property in the near future. The "asbestos, lead pipe, and paint" clean-up programs are prime examples of post-construction renovation costs that have far exceeded the budgets of numerous private citizens, industries and businesses, and civil governments.

NJARNG Training Center

Public Record. The NJARNG Training Center will distribute this IENMP to the county and municipal governments and ensure that it is filed in the office of official records to become a matter of public record.

Education Program. The NJARNG Training Center should continue to educate its personnel in the techniques needed to minimize the noise and safety impact from their training and operations. In addition, the NJARNG Training Center should educate the communities surrounding its facilities on

its mission and what it is doing to reduce and minimize the negative impacts of its mission on the community.

Noise Complaint Management. The NJARNG Training Center should continue with its noise-complaint management program.

Joint Land Use Study (JLUS). The NJARNG Training Center should study the feasibility and desirability of establishing a JLUS with the surrounding civilian communities. The JLUS will be a step toward the implementation of the land use planning recommendations in this study.

Noise Mitigation. The NJARNG Training Center should continue with its noise-mitigation policies and explore new mitigation techniques for feasibility.

Local Jurisdictions. Given the impact to some of the NJARNG Training Center's mission capability from the process of noise-sensitive encroachment, action by both county and municipal authorities is essential if the NJARNG Training Center is to continue to use the facilities without restrictions. It is recommended that all jurisdictions adopt both a noise disclosure and a noise easement ordinance for those areas within NZ II and NZ III, as well as the 1.6 kilometer (1 mile) ZOI adjacent to the NJARNG Training Center boundary (Appendix C and D). In addition, they should adopt ordinances that will promote land use, including NLR features in new noise-sensitive buildings, that are compatible with the noise produced at the NJARNG Training Center.

Joint action Recommendations.

Community Involvement Program. The NJARNG Training Center, in cooperation with the county and municipal governments affected by noise, aircraft accident potential, and safety hazards resulting from training and operations, should initiate Community Involvement Programs as delineated in Section 6. The purpose of the programs is to achieve mutual agreements regarding use of land impacted by high levels of noise.

Land Use Agreements. The NJARNG Training Center, in cooperation with the county and municipal government affected by noise and safety hazards from training and operations, should negotiate agreements regarding land use in the affected areas

6. Community Involvement

6.1 Purpose of Community Involvement Program

The purpose of the community involvement plan will be to educate the public, achieve negotiated mutual agreements with neighboring civilian communities, and to promote compatible land use in areas around installations. The IENMP objectives are to protect the installation operational capability from the effects of incompatible land use and to assist local, regional, state, and Federal officials.

The purposes of the community involvement plan are to

- Maintain the military installation's position as a good neighbor in the community.
- Inform the community of alternative actions and their potential impacts.
- Solicit information from the public regarding possible impacts, future development in the community, and the acceptability of proposed actions.

Maintain an open and visible decisionmaking process that is fair and equitable to different people within the community.

6.2 Purpose of this Section

The purpose of this section is to

- Provide a summary of the programs and policies developed by civilian communities to resolve Installation Environmental Noise Management issues presented in this study.
- Document the steps taken to reach agreements between the installation and local communities on matters affecting land use in areas impacted by activities on the military installation.

6.3 Introduction

The specific techniques to be used for community involvement will be at the discretion of the installation commander and staff, taking into account the unique circumstances of the installation, the degree of controversy surrounding noise and other issues at the installation, and the characteristics of the local political institutions. But installation commanders will be asked to follow a carefully designed thought process which will help them think through the design of their community involvement programs in an orderly and systematic manner.

Implicit in this thought process is the recognition that people are different. Some people might be concerned because they hold an official position in the community; others because the noise or other issues impact directly on them or because they are concerned with how the community is growing. Some hold real estate in noise-impacted areas, which they want to develop in the future. To be credible to the community, any agreement needs to win acceptance not only of elected leaders, but also of those people that see themselves as having a stake in the issue.

The DA's experience with noise and other environmental issues suggests that most people will not be interested in the Installation Environmental Noise Management process unless they are directly impacted by these issues such as, planning regulations, changes in tax rates, or some other direct impact.

But even when dealing with only part of the community, there are differences in the kind of information you can give or get from various people. The number of people that can understand the technical complexities of acoustical measurement is extremely small, but the opinion of this small technical group of people can be very important. They often influence whether public officials accept the IENMP study. Thus, it is important to balance the technical aspects of noise based on the people involved. In other words: "Do not tell people how to build a watch when all they want to know is the time." The general attitudes towards the installation and perceptions of whether or not there is a noise problem are the keys to success or failure. The reason it is so important to carefully target the people you want to reach is that this determines the techniques you will use. An appropriate technique for reviewing the technical methodology might be a small technical advisory group. But if you want general public perceptions you might hold community workshops in noise-impacted neighborhoods, or conduct a number of interviews.

The person implementing a community involvement program will need to go through this kind of analysis to select from the considerable array of community involvement techniques, which have been developed, including

- Public Meetings
- Public Hearings
- Informal Workshops
- Coffee Klatches
- Interviews
- Field Trips

- Advisory Committees or Task Forces
- Computer-Based Interactive Graphics
- Homepages
- Questionnaires, Response Forms, Polls
- Open Houses
- Brochures
- Newsletters
- Hot Lines
- News Releases

This list is not exhaustive, but simply includes the most frequently used techniques, or techniques which might have particular suitability for noise-related community involvement.

6.4 Designing a Community Involvement Program

Installation Environmental Noise Management community involvement programs will usually not be single events, such as one public hearing, but rather a series of coordinated activities, which provide different kinds of participation opportunities at different times. Unlike the NEPA process, environmental noise management requires continuous community involvement.

There is no single community involvement program that can be prescribed for all circumstances. A program that has been very successful in one situation might be ineffective in another. The following will provide guidance to assist in identifying a community involvement program suitable to your circumstances. This guidance will include general principles, which will help you approach the design of community involvement programs in a logical manner. It should be remembered, however, that there are a number of special conditions surrounding each installation that can also influence the selection of community involvement techniques. Many of these conditions are described later in this section. These conditions do not negate the thought process, but are in addition to it.

6.4.1 General Principles

Practical experience with community involvement has lead to four general observations about community involvement programs.

- Different people from the community will be involved at different stages of the decisionmaking process. A community involvement program, unless it lasts only a very short time, is not a simple linear thing. Rather, public participation will expand and contract.

During technical phases, participation is likely to be limited to leaders of groups and interests, or staffs of agencies. In those phases where alternatives are being considered, a broader community-based group might be involved.

- There are appropriate levels of involvement at each step in the decisionmaking process. It is possible to attempt "too much" community involvement at a particular step in the decisionmaking process. In particular, many agencies have "burned out" public enthusiasm by creating a very high level of interest at the beginning of the process, where there is relatively little in which the general public can really get involved, disappointing people who might have made an important contribution in later stages of decisionmaking. This often leads to them turning off the entire process. While this applies to the general public, opportunities for early participation should certainly be offered to other local, state, and Federal agencies; identifiable interest groups; or directly impacted people. The thought process will assist you in identifying the most appropriate stages for more intense involvement of the general public.
- The participation of the public will increase as the decisionmaking process progresses. While participation waxes and wanes, the overall pattern in community involvement is that more and more people will participate as you come nearer to a decision. This is a relatively understandable phenomenon: the closer you get to a decision, the more information there is for people to react to. While representatives of organized groups might be able to participate in the early stages of community involvement, the less-organized people will be able to participate more effectively in the later stages of the process. This can be a mixed blessing. While you might feel delighted to receive more participation, you will also spend a lot of time explaining what has already taken place. People seem to assume that the program started the day they first began to participate, and feel a need to re-examine all the assumptions you've been working to build for many months. As a result, it is very important to document how people from the community have participated in the study, so that it is clear what decisions have preceded and who participated in making those decisions.

Community involvement programs must be integrated with the Installation Environmental Noise Management Program. Each step of the community-involvement program must be scheduled with an eye to what information is required from the public at each stage. Too often, community-involvement activities are scheduled "ad hoc," without any awareness of how it fits in the overall scheme of things. The result is that the information received from the public is out of sequence with the decisionmaking process. Either the information is too late, and can't be used any longer

or would require major restudy, or the community involvement is too early and asks for participation before there is really much for the community to "sink its teeth into." In either event there is frustration and damage to the credibility of the community involvement effort. As the thought process below will illustrate, community involvement activities should be designed as an integrated part of the decisionmaking process itself.

6.4.2 Community Involvement Thought Process

Community involvement techniques should not be selected on a whim, but as the result of a careful analysis of exactly what it is you wish to accomplish; with whom; and, only then, how, where, and when. The community involvement process must be integrated with and facilitate the ENMP, rather than being added onto it as a final review.

To achieve this integration of the ENMP and the community-involvement process, it is necessary to think first about the program's progress and needs, and how community involvement might meet those needs and facilitates the progress.

Identify Decisionmaking Process.

Each of the IENMP stages, as described in paragraph 1.1.5, is logically related to the stages that precedes and follows it. It is important, at the beginning of the development of the community involvement plan for each stage, to decide where in the program the community-involvement process will best fit.

- Stage 1: Quantify the installation's noise environment
- Stage 2: Identify noise-impacted areas
- Stage 3: Identify existing and potential incompatible land use
- Stage 4: Identify alternative actions to mitigate/minimize noise impacts
- Stage 5: Evaluate alternative actions
- Stage 6: Develop agreements with local communities and agencies
- Stage 7: Submit agreements for review by decisionmakers
- Stage 8: Publish final IENMP and implement agreements
- Stage 9: Update and review

Identify the Objectives

Because the community involvement plan must help the study move along rather than impede or stop it, it is important to clearly identify what it is that the program must achieve at each stage in order to move ahead. The identification of program objectives should be specific (for example, an objective might be to update the installation's database about land use surrounding the facility; another might be to verify public perception of noise in comparison to presumptions about noise impact as portrayed by the contour maps.

Identify Constraints and Opportunities

Before proceeding to identify the more specific community-involvement activities, consideration should be given to those factors that might impede or advance the program and its community involvement process at each stage. Factors such as program schedule and budget limits, or command support, will affect the scope of community-involvement action. Some installations might have considerable community controversy about noise problems, some might not. In some communities there are already groups organized to work on noise problems, in others there are not. The noise problems at some installations might have attracted the attention of powerful political figures, but this might not be so at other places.

6.5 Agreements

The installation should document the community-involvement actions taken to reach or attempt to reach agreements between the installation and the local governments on matters affecting the IENMP.

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APPENDIX A

DESCRIPTION OF THE NOISE ENVIRONMENT, NOISE EVALUATORS, AND NOISE CONTOURING PROCEDURES

APPENDIX A

DESCRIPTION OF THE NOISE ENVIRONMENT, NOISE EVALUATORS, AND NOISE CONTOURING PROCEDURES

A.1. INTRODUCTION

Noise is defined as unwanted sound. Sound is the variation of air pressure about a mean (atmospheric) pressure. These changes in the atmospheric pressure [100,000 Pascals (14.7 pounds per square inch) (psi)] vary from approximately 0.0006 Pascals for a whisper at 2 meters to 1,000 Pascals for firing an M16 rifle at the firer's ear. Because of this large range of sound pressure and the fact that the human ear responds more closely to a logarithmic scale rather than a linear scale, sound pressure level is defined as 20 times the common logarithm of the ratio of the sound pressure to the reference pressure (0.00002 Pascal). The sound pressure level is measured in decibels (dB). For example, if the sound pressure doubles from 0.2 to 0.4 Pascals, the level increases by 6 dB from 80 to 86 dB.

A characteristic of environmental noise is that it is not steady, but varies in amplitude from one moment to the next. To account for these variations in the sound pressure level with time, and to assess environmental noise in a consistent and practical manner, a statistical approach has been used to reduce the time-varying levels to single numbers. For Federal agencies, the currently accepted single-number evaluators are the equivalent sound level (LEQ) and the day-night level (DNL).

An essential concept in understanding environmental noise problems is the noise source, path, and receiver relationship. Noise emanates from a source, travels along a path, and is perceived by the receiver. The end effect of noise on the receiver can be considered the focal point of the entire system.

Before a noise problem can be resolved, however, the nature and intensity of the noise must be quantified. Because of the different types of noise, e.g., fixed- and rotary-wing aircraft flyovers, ground run-up, and explosive detonations, there are differences in the way the sound levels are measured.

In environmental noise, the sound pressure level is usually measured using one of the frequency networks of the sound level meter. Since the human ear is more sensitive to sounds of 1,000 Hertz and above than sounds of 125 Hertz and below, it is appropriate to apply a weighting function to the

noise spectrum to approximate the response of the human ear. The A-weighting frequency network of the sound level meter de-emphasizes the lower frequency portion of the noise spectrum to approximate the human ear's response to the noise. This A-weighting frequency response is specified by an American National Standards Institute (ANSI) standard (McCoy 2003). In a wide variety of published studies, the A-weighting of the frequency content of the noise signal has been found to have an excellent correlation with the human subjective judgment of annoyance of the noise. The sound pressure levels measured using the A-weighting network are expressed as dBA.

A.2. HISTORY OF NOISE EVALUATORS

Before the mid 1970s, every organization had its own set of preferred environmental noise evaluators. This resulted in a wide variety of evaluators. Since each evaluator was developed for a specific purpose, a noise environment measured with one evaluator could not be compared with an environment measured using another evaluator.

In carrying out its responsibilities under the Noise Control Act of 1972 (Public Law [PL] 92-574 1972), the U.S. Environmental Protection Agency (USEPA) recommended the adoption of a single environmental noise evaluator, the LEQ and its 24-hour version, DNL. The Department of Defense, along with most other U.S. Government agencies followed the USEPA recommendation. The DNL is the most widely accepted descriptor for environmental noise (McCoy 2003) because of the following characteristics:

- The DNL is a measurable quantity.
- The DNL is simple to understand and use by planners and the public who are not familiar with acoustics or acoustical theory.
- The DNL provides a simple method to compare the effectiveness of alternative scenarios.
- The DNL is a "figure of merit" for noise impacts which is based on communities' reactions to environmental noise.
- The DNL is the best measure of noise exposure to identify significant impacts on the quality of the human environment. By Federal interagency agreement, the DNL is the best descriptor of all noise sources for land use compatibility planning.
- The DNL is the only metric with substantial body of scientific survey data on the reactions of people to noise.

In recommending the DNL, USEPA noted that most noise environments are characterized by repetitive behavior from day to day, with some variation imposed by differences between weekday

and weekend activity, as well as seasonal variation. To account for these variations, an annual average is used.

Since annoyance is caused by long-term dissatisfaction with the noise environment, the annual average is an excellent predictor of the average community annoyance when there is not a large variation in the day-to-day or season-to-season DNL. The annual DNL is not a good predictor of noise complaints, since complaints represent the person's immediate dissatisfaction with the noise environment.

Currently, there are no guidelines for judging the land use compatibility for single noise events. Although much of the early work on annoyance was done on single events, each study was designed differently, and the results cannot be combined in a systematic fashion to form a statistically valid sample. Most of these studies were either done inside a laboratory or, if done outdoors, in controlled settings. Only recently has equipment become available which would allow subjects to register their annoyance if single events are experienced during their routine activities. There is not enough of this information available to support setting standards on single events.

A.3. LEQ/DNL/ NOISE EVALUATORS

The LEQ is defined as the equivalent steady state sound level which, in a stated period of time, would contain the same acoustic energy as the time-varying sound during the same period. The LEQ is an energy average. The energy average puts more emphasis on the higher sound pressure levels than the arithmetic average. The LEQ is usually computed for a 1-minute, 10-minute, 30-minute, 1-hour, 8-hour, or 24-hour segment of environmental noise.

To assess the added annoyance of the environmental noise during the nighttime hours (2200–0700 hours), the DNL is used. The DNL is the 24-hour LEQ, with a 10 dB penalty added to the nighttime levels.

By using the LEQ and DNL, the three important determinants of noise annoyance can be described by using a single number. The three determinants are the intensity of the noise event, the duration of the noise event, and the number of times the noise event takes place. Numerous laboratory and field studies have confirmed that the tradeoff between intensity, duration, and number is adequately described by averaging the total acoustical energy.

A.4. NOISE CONTOURS

Noise contours for all noise sources are generated using the A- DNL. The contours are computed by averaging over the time period of interest, the acoustical energy from the operations of the set of noise sources of interest. The averaging period is usually a busy day, a training cycle, or a year. The contours, representing the boundaries between the noise zones, are constructed by connecting points of equal acoustical energy. For example, the contours for an airfield are computed by averaging at many points the acoustical energy arriving at these points from aircraft operations. A 10 dB penalty is added to all nighttime operations. The contours for the airfield are constructed by connecting all points having a total acoustical energy equal to 65 dBA and connecting all points equal to 75 dBA.

Aircraft Noise. The noise contours for helicopter activity are generated using Menu 10 predicts the noise levels generated during aircraft overflight. Menu 11 predicts the noise levels generated by a single aircraft engine during ground runups and maintenance procedures. These programs can be used for comparing a variety of military and civilian aircraft (the same aircraft database available in NOISEMAP) (AFCEE 2005).

Small Arms Noise. Small arms noise contours can be generated using the Small Arms Range Noise Assessment Model (SARNAM). It incorporates the latest available information on weapons noise source models (including directivity and spectrum), sound propagation, effects of noise mitigation and safety structures (walls, berms, ricochet barriers), and community response protocols for small arms noise. SARNAM uses a more suitable noise metric than has been previously used for small arms in the U.S. It includes an extensive selection of weapons in the source library, can handle multiple ranges of various types, and is designed to maximize user productivity. The graphical output shows noise contours and range boundaries and can also display installation features.

Single Events. The noise level from a single event, such as a helicopter flying overhead, is useful to predict the annoyance and potential complaints caused by these events. The single event levels from the detonations are predicted using Menu 10. This module is used to predict the expected mean linear peak sound level and the distribution of the levels about this mean for the proposed detonation weights and selected receiver locations.

A.5. NOISE LEVEL REDUCTION

The Department of Defense has published two guides on reducing noise through architectural mitigation. The first, *Guidelines for the Sound Insulation of Residences Exposed to Aircraft Operations* (McCoy 2003), was jointly funded by the Naval Facilities Engineering Command and the

Federal Aviation Administration. This document describes the options for quieting interior rooms from aircraft noise for 26 different types of residential construction. The second, *Expedient Methods for Rattle-Proofing Certain Housing Components* (McCoy 2003), was prepared by the Army Construction Engineering Research Laboratory. This report is more limited in its scope. Rather than being a guide on how to reduce the transmission of explosive noise heard inside a house, it analyzes several different building elements to identify individual components contributing to rattle. Eliminating rattle is important because people exposed to the sound of large guns tend to complain about the rattling rather than the sound.

References

AFCEE 2005 — Air Force Center For Environmental Excellence. 2005. Noise Models. Available at < *http://www.afcee.brooks.af.mil/ec/noise/noisemodels/noisemodels.asp*>. Accessed June 2005.

McCoy 2003 — U.S. Army. 2003. *Installation Environmental Noise Management Plan for Fort McCoy*. United States Army Center for Health Promotion and Preventive Medicine.

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APPENDIX B

SARNAM INPUT DATA

CAMP ED TY2003 FIRING RANGE_104 DNL.DAT
200505061523
Formatted case file display

Receiver Grid Selection = CAMP EDWARDS
Metric Selection = 104-DAY DAY-NIGHT AVERAGE LEVEL (DNL), A WEIGHTING
Activity Table Selection = CAMP EDWARDS - TY2003

RECEIVER GRID
Southwest corner easting (m): 365063
Southwest corner northing (m): 4610186
Overall grid size east-west (m): 15000
Overall grid size north-south (m): 20000
Grid resolution (m): 50

METRIC
DNL
Assessment period (h): 2496.00
Impulsiveness penalty (dB): 12.00
Frequency weighting: A WEIGHTING

RANGES AND THEIR ACTIVITIES

T
UTM grid zone number: 19
FP#1 easting: 373717
FP#1 northing: 4621034
FP#1 height: 15.00
Azimuth from FP#1 to first target: 221.00
Dist. from firing point to target: 24.39
# of shooting lanes: 10
Dist. between shooting lanes: 4.25

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	10057.00	0.00	0.00	0.00
MG M2 .50 cal / blank	200.00	0.00	0.00	0.00

KD (SHORT)
UTM grid zone number: 19
FP#1 easting: 372317
FP#1 northing: 4616677
FP#1 height: 15.00
Azimuth from FP#1 to first target: 357.00
Dist. from firing point to target: 25.00
# of shooting lanes: 35
Dist. between shooting lanes: 2.00

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / blank	93.00	0.00	7.00	0.00
Rifle M16 5.56 mm / M193 55 gr	3923.00	0.00	295.00	0.00

KD (MID)
UTM grid zone number: 19
FP#1 easting: 372323
FP#1 northing: 4616469
FP#1 height: 15.00
Azimuth from FP#1 to first target: 358.00
Dist. from firing point to target: 299.79
# of shooting lanes: 55
Dist. between shooting lanes: 2.00

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	3923.00	0.00	295.00	0.00

KD (LONG)

UTM grid zone number: 19
FP#1 easting: 372323
FP#1 northing: 4616221
FP#1 height: 15.00
Azimuth from FP#1 to first target: 359.00
Dist. from firing point to target: 547.00
# of shooting lanes: 20
Dist. between shooting lanes: 2.00

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	3923.00	0.00	295.00	0.00

SE (MID)

UTM grid zone number: 19
FP#1 easting: 374074
FP#1 northing: 4620852
FP#1 height: 55.00
Azimuth from FP#1 to first target: 223.00
Dist. from firing point to target: 518.00
# of shooting lanes: 5
Dist. between shooting lanes: 10.00

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	3348.00	0.00	252.00	0.00

SE (LONG)

UTM grid zone number: 19
FP#1 easting: 374074
FP#1 northing: 4620852
FP#1 height: 55.00
Azimuth from FP#1 to first target: 223.00
Dist. from firing point to target: 693.00
# of shooting lanes: 5
Dist. between shooting lanes: 10.00

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	3348.00	0.00	252.00	0.00

SW (MID)

UTM grid zone number: 19
FP#1 easting: 373931
FP#1 northing: 4620954
FP#1 height: 55.00
Azimuth from FP#1 to first target: 223.00
Dist. from firing point to target: 520.00
# of shooting lanes: 5
Dist. between shooting lanes: 10.00

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	2852.00	0.00	215.00	0.00

SW (LONG)

UTM grid zone number: 19
FP#1 easting: 373931
FP#1 northing: 4620954
FP#1 height: 55.00
Azimuth from FP#1 to first target: 223.00
Dist. from firing point to target: 692.00
# of shooting lanes: 5
Dist. between shooting lanes: 10.00

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	2852.00	0.00	215.00	0.00

A

UTM grid zone number: 19
FP#1 easting: 370518
FP#1 northing: 4620651
FP#1 height: 70.00
Azimuth from FP#1 to first target: 126.00
Dist. from firing point to target: 323.80
# of shooting lanes: 4
Dist. between shooting lanes: 6.30

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
MG M2 .50 cal / blank	800.00	0.00	0.00	0.00

B

UTM grid zone number: 19
FP#1 easting: 370474
FP#1 northing: 4620529
FP#1 height: 70.00
Azimuth from FP#1 to first target: 110.00
Dist. from firing point to target: 26.60
# of shooting lanes: 55
Dist. between shooting lanes: 3.30

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	110657.00	0.00	0.00	0.00

C

UTM grid zone number: 19
FP#1 easting: 370377
FP#1 northing: 4620284
FP#1 height: 70.00
Azimuth from FP#1 to first target: 112.00
Dist. from firing point to target: 24.15
# of shooting lanes: 55
Dist. between shooting lanes: 3.30

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	69710.00	0.00	0.00	0.00

G

UTM grid zone number: 19
FP#1 easting: 370540
FP#1 northing: 4616829
FP#1 height: 65.00
Azimuth from FP#1 to first target: 55.00
Dist. from firing point to target: 25.16
# of shooting lanes: 27
Dist. between shooting lanes: 2.00

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	13520.00	0.00	0.00	0.00

H

UTM grid zone number: 19
FP#1 easting: 371062
FP#1 northing: 4616711
FP#1 height: 70.00
Azimuth from FP#1 to first target: 34.00
Dist. from firing point to target: 26.22
# of shooting lanes: 27
Dist. between shooting lanes: 2.00

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	12960.00	0.00	0.00	0.00

IBC

UTM grid zone number: 19
FP#1 easting: 373424
FP#1 northing: 4621270
FP#1 height: 70.00
Azimuth from FP#1 to first target: 205.00
Dist. from firing point to target: 60.00
# of shooting lanes: 5
Dist. between shooting lanes: 78.30

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	18685.00	0.00	0.00	0.00

I

UTM grid zone number: 19
FP#1 easting: 371622
FP#1 northing: 4616487
FP#1 height: 15.00
Azimuth from FP#1 to first target: 359.00
Dist. from firing point to target: 24.51
# of shooting lanes: 27
Dist. between shooting lanes: 2.00

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	8960.00	0.00	0.00	0.00
Pistol .45 ACP M1911A1 AL / 230 gr	3900.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	2900.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	8450.00	0.00	0.00	0.00

J

UTM grid zone number: 19
FP#1 easting: 371944
FP#1 northing: 4616331
FP#1 height: 15.00
Azimuth from FP#1 to first target: 1.00
Dist. from firing point to target: 24.44
# of shooting lanes: 18
Dist. between shooting lanes: 2.00

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	8876.00	0.00	0.00	0.00

K

UTM grid zone number: 19
FP#1 easting: 372023
FP#1 northing: 4616341
FP#1 height: 60.00
Azimuth from FP#1 to first target: 1.00
Dist. from firing point to target: 25.52
# of shooting lanes: 18
Dist. between shooting lanes: 2.00

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	840.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	2300.00	0.00	0.00	0.00

OFG

UTM grid zone number: 19
FP#1 easting: 368117
FP#1 northing: 4616528
FP#1 height: 15.00
Azimuth from FP#1 to first target: 50.00
Dist. from firing point to target: 20.00
# of shooting lanes: 6
Dist. between shooting lanes: 15.00

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Shotgun 12 Ga pump / Mag T shot	1250.00	0.00	0.00	0.00

SE (SHORT)

UTM grid zone number: 19
FP#1 easting: 374074
FP#1 northing: 4620852
FP#1 height: 55.00
Azimuth from FP#1 to first target: 223.00
Dist. from firing point to target: 252.00
# of shooting lanes: 5
Dist. between shooting lanes: 10.00

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	3348.00	0.00	252.00	0.00

SW (SHORT)

UTM grid zone number: 19
FP#1 easting: 373931
FP#1 northing: 4620954
FP#1 height: 55.00
Azimuth from FP#1 to first target: 223.00
Dist. from firing point to target: 248.00
# of shooting lanes: 5
Dist. between shooting lanes: 10.00

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	2852.00	0.00	215.00	0.00

CAMP ED PEAK-PROPOSED FIRING RANGE_104 DNL.DAT
200505191229
Formatted case file display

Receiver Grid Selection = CAMP EDWARDS
Metric Selection = 104-DAY DAY-NIGHT AVERAGE LEVEL (DNL), A WEIGHTING
Activity Table Selection = CAMP EDWARDS - PEAK SCENARIO

RECEIVER GRID
Southwest corner easting (m): 365063
Southwest corner northing (m): 4610186
Overall grid size east-west (m): 15000
Overall grid size north-south (m): 20000
Grid resolution (m): 50

METRIC
DNL
Assessment period (h): 2496.00
Impulsiveness penalty (dB): 12.00
Frequency weighting: A WEIGHTING

RANGES AND THEIR ACTIVITIES

A
UTM grid zone number: 19
FP#1 easting: 370518
FP#1 northing: 4620651
FP#1 height: 70.00
Azimuth from FP#1 to first target: 126.00
Dist. from firing point to target: 323.80
# of shooting lanes: 4
Dist. between shooting lanes: 6.30

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
MG M2 .50 cal / blank	11800.00	0.00	0.00	0.00
MG M2 .50 cal / M2 710 gr	32430.00	0.00	0.00	0.00

B
UTM grid zone number: 19
FP#1 easting: 370474
FP#1 northing: 4620529
FP#1 height: 70.00
Azimuth from FP#1 to first target: 110.00
Dist. from firing point to target: 26.60
# of shooting lanes: 55
Dist. between shooting lanes: 3.30

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	273075.00	0.00	0.00	0.00
Rifle M16 5.56 mm / blank	24472.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	3750.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	11426.00	0.00	0.00	0.00

C

UTM grid zone number: 19
FP#1 easting: 370377
FP#1 northing: 4620284
FP#1 height: 70.00
Azimuth from FP#1 to first target: 112.00
Dist. from firing point to target: 24.15
# of shooting lanes: 55
Dist. between shooting lanes: 3.30

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	261217.00	0.00	0.00	0.00
Rifle M16 5.56 mm / blank	57517.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	21612.00	0.00	0.00	0.00

G

UTM grid zone number: 19
FP#1 easting: 370540
FP#1 northing: 4616829
FP#1 height: 65.00
Azimuth from FP#1 to first target: 55.00
Dist. from firing point to target: 25.16
# of shooting lanes: 27
Dist. between shooting lanes: 2.00

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	60445.00	0.00	0.00	0.00
Rifle M16 5.56 mm / blank	19097.00	0.00	0.00	0.00
MG M60 7.62 mm / M80 147 gr	23352.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	240.00	0.00	0.00	0.00
Pistol .38 sp. Rev / 150 gr	6373.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	180220.00	0.00	0.00	0.00

H

UTM grid zone number: 19
FP#1 easting: 371062
FP#1 northing: 4616711
FP#1 height: 70.00
Azimuth from FP#1 to first target: 34.00
Dist. from firing point to target: 26.22
# of shooting lanes: 27
Dist. between shooting lanes: 2.00

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	36258.00	0.00	0.00	0.00
Rifle M16 5.56 mm / blank	18450.00	0.00	0.00	0.00
MG M60 7.62 mm / M80 147 gr	24536.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	4500.00	0.00	0.00	0.00

I

UTM grid zone number: 19
FP#1 easting: 371622
FP#1 northing: 4616487
FP#1 height: 15.00
Azimuth from FP#1 to first target: 359.00
Dist. from firing point to target: 24.51
# of shooting lanes: 27
Dist. between shooting lanes: 2.00

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	75451.00	0.00	0.00	0.00
Rifle M16 5.56 mm / blank	10800.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	5450.00	0.00	0.00	0.00
Pistol .38 sp. Rev / 150 gr	29250.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	102257.00	0.00	0.00	0.00

IBC

UTM grid zone number: 19
FP#1 easting: 373424
FP#1 northing: 4621270
FP#1 height: 70.00

Azimuth from FP#1 to first target: 205.00
Dist. from firing point to target: 60.00
# of shooting lanes: 5
Dist. between shooting lanes: 78.30

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	64228.00	0.00	0.00	0.00
Rifle M16 5.56 mm / blank	500.00	0.00	0.00	0.00
MG M60 7.62 mm / M80 147 gr	22400.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	150.00	0.00	0.00	0.00

T

UTM grid zone number: 19
FP#1 easting: 373717
FP#1 northing: 4621034
FP#1 height: 15.00

Azimuth from FP#1 to first target: 221.00
Dist. from firing point to target: 24.39
# of shooting lanes: 10
Dist. between shooting lanes: 4.25

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	10057.00	0.00	0.00	0.00
MG M2 .50 cal / blank	18520.00	0.00	0.00	0.00
MG M2 .50 cal / M2 710 gr	6400.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	34847.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	12201.00	0.00	0.00	0.00

OFG

UTM grid zone number: 19
FP#1 easting: 368117
FP#1 northing: 4616528
FP#1 height: 15.00

Azimuth from FP#1 to first target: 50.00
Dist. from firing point to target: 20.00
# of shooting lanes: 6
Dist. between shooting lanes: 15.00

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	4800.00	0.00	0.00	0.00
Shotgun 12 Ga pump / Mag T shot	6875.00	0.00	0.00	0.00

J

UTM grid zone number: 19
FP#1 easting: 371944
FP#1 northing: 4616331
FP#1 height: 15.00

Azimuth from FP#1 to first target: 1.00
Dist. from firing point to target: 24.44
# of shooting lanes: 18
Dist. between shooting lanes: 2.00

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	27503.00	0.00	0.00	0.00
Rifle M16 5.56 mm / blank	9500.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	38600.00	0.00	0.00	0.00
Pistol .38 sp. Rev / 150 gr	33092.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	33235.00	0.00	0.00	0.00

K

UTM grid zone number: 19
FP#1 easting: 372023
FP#1 northing: 4616341
FP#1 height: 60.00

Azimuth from FP#1 to first target: 1.00
Dist. from firing point to target: 25.52
# of shooting lanes: 18
Dist. between shooting lanes: 2.00

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	36080.00	0.00	0.00	0.00
Rifle M16 5.56 mm / blank	8800.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	39150.00	0.00	0.00	0.00
Pistol .38 sp. Rev / 150 gr	17575.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	95775.00	0.00	0.00	0.00

KD (LONG)

UTM grid zone number: 19
FP#1 easting: 372323
FP#1 northing: 4616221
FP#1 height: 15.00

Azimuth from FP#1 to first target: 359.00
Dist. from firing point to target: 547.00
# of shooting lanes: 20
Dist. between shooting lanes: 2.00

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	167447.00	0.00	0.00	0.00
Rifle M16 5.56 mm / blank	15210.00	0.00	0.00	0.00
MG M60 7.62 mm / M80 147 gr	24119.00	0.00	0.00	0.00
Pistol .38 sp. Rev / 150 gr	1425.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	2750.00	0.00	0.00	0.00

SE (LONG)

UTM grid zone number: 19
FP#1 easting: 374074
FP#1 northing: 4620852
FP#1 height: 55.00
Azimuth from FP#1 to first target: 223.00
Dist. from firing point to target: 693.00
# of shooting lanes: 5
Dist. between shooting lanes: 10.00

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	60597.00	0.00	0.00	0.00
MG M60 7.62 mm / M80 147 gr	87087.00	0.00	0.00	0.00
MG M2 .50 cal / M2 710 gr	75765.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	250.00	0.00	0.00	0.00

SW (LONG)

UTM grid zone number: 19
FP#1 easting: 373931
FP#1 northing: 4620954
FP#1 height: 55.00
Azimuth from FP#1 to first target: 223.00
Dist. from firing point to target: 692.00
# of shooting lanes: 5
Dist. between shooting lanes: 10.00

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	38201.00	0.00	0.00	0.00
MG M60 7.62 mm / M80 147 gr	67860.00	0.00	0.00	0.00
MG M2 .50 cal / M2 710 gr	55060.00	0.00	0.00	0.00

D

UTM grid zone number: 19
FP#1 easting: 370316
FP#1 northing: 4620055
FP#1 height: 60.00
Azimuth from FP#1 to first target: 119.10
Dist. from firing point to target: 10.83
# of shooting lanes: 8
Dist. between shooting lanes: 2.09

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
MG M60 7.62 mm / M80 147 gr	52784.00	0.00	0.00	0.00

E

UTM grid zone number: 19
FP#1 easting: 370307
FP#1 northing: 4620003
FP#1 height: 60.00
Azimuth from FP#1 to first target: 84.96
Dist. from firing point to target: 15.85
# of shooting lanes: 15
Dist. between shooting lanes: 7.99

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Pistol M9 9mm / 115 gr	18000.00	0.00	0.00	0.00
Pistol .38 sp. Rev / 150 gr	11406.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	47100.00	0.00	0.00	0.00

N

UTM grid zone number: 19
FP#1 easting: 374240
FP#1 northing: 4617787
FP#1 height: 50.00
Azimuth from FP#1 to first target: 318.57
Dist. from firing point to target: 23.97
# of shooting lanes: 55
Dist. between shooting lanes: 2.08

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / blank	6000.00	0.00	0.00	0.00
Rifle M16 5.56 mm / M193 55 gr	93252.00	0.00	0.00	0.00
MG M60 7.62 mm / M80 147 gr	10696.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	120.00	0.00	0.00	0.00
Pistol .38 sp. Rev / 150 gr	350.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	4580.00	0.00	0.00	0.00

O

UTM grid zone number: 19
FP#1 easting: 374637
FP#1 northing: 4617900
FP#1 height: 50.00
Azimuth from FP#1 to first target: 306.17
Dist. from firing point to target: 43.35
# of shooting lanes: 10
Dist. between shooting lanes: 3.27

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	5740.00	0.00	0.00	0.00
MG M60 7.62 mm / M80 147 gr	600.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	10250.00	0.00	0.00	0.00
Pistol .38 sp. Rev / 150 gr	13255.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	79550.00	0.00	0.00	0.00

P

UTM grid zone number: 19
FP#1 easting: 374664
FP#1 northing: 4618054
FP#1 height: 52.00

Azimuth from FP#1 to first target: 294.71
Dist. from firing point to target: 21.22
# of shooting lanes: 26
Dist. between shooting lanes: 2.61

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	26660.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	230.00	0.00	0.00	0.00
Pistol .38 sp. Rev / 150 gr	1010.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	15500.00	0.00	0.00	0.00

CAMP ED TY2003 FIRING RANGE_PEAK.DAT
200505061546
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Receiver Grid Selection = CAMP EDWARDS
Metric Selection = PEAK, FLAT
Activity Table Selection = CAMP EDWARDS - TY2003

RECEIVER GRID
Southwest corner easting (m): 365063
Southwest corner northing (m): 4610186
Overall grid size east-west (m): 15000
Overall grid size north-south (m): 20000
Grid resolution (m): 50

METRIC
MXPK
Assessment period (h): 0.00
Impulsiveness penalty (dB): 12.00
Frequency weighting: FLAT

RANGES AND THEIR ACTIVITIES

T
UTM grid zone number: 19
FP#1 easting: 373717
FP#1 northing: 4621034
FP#1 height: 15.00
Azimuth from FP#1 to first target: 221.00
Dist. from firing point to target: 24.39
# of shooting lanes: 10
Dist. between shooting lanes: 4.25

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	10057.00	0.00	0.00	0.00
MG M2 .50 cal / blank	200.00	0.00	0.00	0.00

KD (SHORT)
UTM grid zone number: 19
FP#1 easting: 372317
FP#1 northing: 4616677
FP#1 height: 15.00
Azimuth from FP#1 to first target: 357.00
Dist. from firing point to target: 25.00
# of shooting lanes: 35
Dist. between shooting lanes: 2.00

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / blank	93.00	0.00	7.00	0.00
Rifle M16 5.56 mm / M193 55 gr	3923.00	0.00	295.00	0.00

KD (MID)
UTM grid zone number: 19
FP#1 easting: 372323
FP#1 northing: 4616469
FP#1 height: 15.00
Azimuth from FP#1 to first target: 358.00
Dist. from firing point to target: 299.79
# of shooting lanes: 55
Dist. between shooting lanes: 2.00

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	3923.00	0.00	295.00	0.00

KD (LONG)

UTM grid zone number: 19
FP#1 easting: 372323
FP#1 northing: 4616221
FP#1 height: 15.00
Azimuth from FP#1 to first target: 359.00
Dist. from firing point to target: 547.00
# of shooting lanes: 20
Dist. between shooting lanes: 2.00

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	3923.00	0.00	295.00	0.00

SE (MID)

UTM grid zone number: 19
FP#1 easting: 374074
FP#1 northing: 4620852
FP#1 height: 55.00
Azimuth from FP#1 to first target: 223.00
Dist. from firing point to target: 518.00
# of shooting lanes: 5
Dist. between shooting lanes: 10.00

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	3348.00	0.00	252.00	0.00

SE (LONG)

UTM grid zone number: 19
FP#1 easting: 374074
FP#1 northing: 4620852
FP#1 height: 55.00
Azimuth from FP#1 to first target: 223.00
Dist. from firing point to target: 693.00
# of shooting lanes: 5
Dist. between shooting lanes: 10.00

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	3348.00	0.00	252.00	0.00

SW (MID)

UTM grid zone number: 19
FP#1 easting: 373931
FP#1 northing: 4620954
FP#1 height: 55.00
Azimuth from FP#1 to first target: 223.00
Dist. from firing point to target: 520.00
# of shooting lanes: 5
Dist. between shooting lanes: 10.00

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	2852.00	0.00	215.00	0.00

SW (LONG)

UTM grid zone number: 19
FP#1 easting: 373931
FP#1 northing: 4620954
FP#1 height: 55.00
Azimuth from FP#1 to first target: 223.00
Dist. from firing point to target: 692.00
# of shooting lanes: 5
Dist. between shooting lanes: 10.00

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	2852.00	0.00	215.00	0.00

A

UTM grid zone number: 19
FP#1 easting: 370518
FP#1 northing: 4620651
FP#1 height: 70.00
Azimuth from FP#1 to first target: 126.00
Dist. from firing point to target: 323.80
# of shooting lanes: 4
Dist. between shooting lanes: 6.30

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
MG M2 .50 cal / blank	800.00	0.00	0.00	0.00

B

UTM grid zone number: 19
FP#1 easting: 370474
FP#1 northing: 4620529
FP#1 height: 70.00
Azimuth from FP#1 to first target: 110.00
Dist. from firing point to target: 26.60
# of shooting lanes: 55
Dist. between shooting lanes: 3.30

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	110657.00	0.00	0.00	0.00

C

UTM grid zone number: 19
FP#1 easting: 370377
FP#1 northing: 4620284
FP#1 height: 70.00
Azimuth from FP#1 to first target: 112.00
Dist. from firing point to target: 24.15
# of shooting lanes: 55
Dist. between shooting lanes: 3.30

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	69710.00	0.00	0.00	0.00

G

UTM grid zone number: 19
FP#1 easting: 370540
FP#1 northing: 4616829
FP#1 height: 65.00
Azimuth from FP#1 to first target: 55.00
Dist. from firing point to target: 25.16
# of shooting lanes: 27
Dist. between shooting lanes: 2.00

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	13520.00	0.00	0.00	0.00

H

UTM grid zone number: 19
FP#1 easting: 371062
FP#1 northing: 4616711
FP#1 height: 70.00
Azimuth from FP#1 to first target: 34.00
Dist. from firing point to target: 26.22
# of shooting lanes: 27
Dist. between shooting lanes: 2.00

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	12960.00	0.00	0.00	0.00

IBC

UTM grid zone number: 19
FP#1 easting: 373424
FP#1 northing: 4621270
FP#1 height: 70.00
Azimuth from FP#1 to first target: 205.00
Dist. from firing point to target: 60.00
# of shooting lanes: 5
Dist. between shooting lanes: 78.30

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	18685.00	0.00	0.00	0.00

I

UTM grid zone number: 19
FP#1 easting: 371622
FP#1 northing: 4616487
FP#1 height: 15.00
Azimuth from FP#1 to first target: 359.00
Dist. from firing point to target: 24.51
# of shooting lanes: 27
Dist. between shooting lanes: 2.00

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	8960.00	0.00	0.00	0.00
Pistol .45 ACP M1911A1 AL / 230 gr	3900.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	2900.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	8450.00	0.00	0.00	0.00

J

UTM grid zone number: 19
FP#1 easting: 371944
FP#1 northing: 4616331
FP#1 height: 15.00
Azimuth from FP#1 to first target: 1.00
Dist. from firing point to target: 24.44
# of shooting lanes: 18
Dist. between shooting lanes: 2.00

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	8876.00	0.00	0.00	0.00

K

UTM grid zone number: 19
FP#1 easting: 372023
FP#1 northing: 4616341
FP#1 height: 60.00
Azimuth from FP#1 to first target: 1.00
Dist. from firing point to target: 25.52
# of shooting lanes: 18
Dist. between shooting lanes: 2.00

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	840.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	2300.00	0.00	0.00	0.00

OFG

UTM grid zone number: 19
FP#1 easting: 368117
FP#1 northing: 4616528
FP#1 height: 15.00
Azimuth from FP#1 to first target: 50.00
Dist. from firing point to target: 20.00
# of shooting lanes: 6
Dist. between shooting lanes: 15.00

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Shotgun 12 Ga pump / Mag T shot	1250.00	0.00	0.00	0.00

SE (SHORT)

UTM grid zone number: 19
FP#1 easting: 374074
FP#1 northing: 4620852
FP#1 height: 55.00
Azimuth from FP#1 to first target: 223.00
Dist. from firing point to target: 252.00
# of shooting lanes: 5
Dist. between shooting lanes: 10.00

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	3348.00	0.00	252.00	0.00

SW (SHORT)

UTM grid zone number: 19
FP#1 easting: 373931
FP#1 northing: 4620954
FP#1 height: 55.00
Azimuth from FP#1 to first target: 223.00
Dist. from firing point to target: 248.00
# of shooting lanes: 5
Dist. between shooting lanes: 10.00

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	2852.00	0.00	215.00	0.00

CAMP ED PROPOSED-PEAK FIRING RANGE_PEAK.DAT
200505191351
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Receiver Grid Selection = CAMP EDWARDS
Metric Selection = PEAK, FLAT
Activity Table Selection = CAMP EDWARDS - PEAK SCENARIO

RECEIVER GRID
Southwest corner easting (m): 365063
Southwest corner northing (m): 4610186
Overall grid size east-west (m): 15000
Overall grid size north-south (m): 20000
Grid resolution (m): 50

METRIC
MXPK
Assessment period (h): 0.00
Impulsiveness penalty (dB): 12.00
Frequency weighting: FLAT

RANGES AND THEIR ACTIVITIES

A
UTM grid zone number: 19
FP#1 easting: 370518
FP#1 northing: 4620651
FP#1 height: 70.00
Azimuth from FP#1 to first target: 126.00
Dist. from firing point to target: 323.80
# of shooting lanes: 4
Dist. between shooting lanes: 6.30

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
MG M2 .50 cal / blank	11800.00	0.00	0.00	0.00
MG M2 .50 cal / M2 710 gr	32430.00	0.00	0.00	0.00

B
UTM grid zone number: 19
FP#1 easting: 370474
FP#1 northing: 4620529
FP#1 height: 70.00
Azimuth from FP#1 to first target: 110.00
Dist. from firing point to target: 26.60
# of shooting lanes: 55
Dist. between shooting lanes: 3.30

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	273075.00	0.00	0.00	0.00
Rifle M16 5.56 mm / blank	24472.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	3750.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	11426.00	0.00	0.00	0.00

C

UTM grid zone number: 19
FP#1 easting: 370377
FP#1 northing: 4620284
FP#1 height: 70.00
Azimuth from FP#1 to first target: 112.00
Dist. from firing point to target: 24.15
# of shooting lanes: 55
Dist. between shooting lanes: 3.30

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	261217.00	0.00	0.00	0.00
Rifle M16 5.56 mm / blank	57517.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	21612.00	0.00	0.00	0.00

G

UTM grid zone number: 19
FP#1 easting: 370540
FP#1 northing: 4616829
FP#1 height: 65.00
Azimuth from FP#1 to first target: 55.00
Dist. from firing point to target: 25.16
# of shooting lanes: 27
Dist. between shooting lanes: 2.00

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	60445.00	0.00	0.00	0.00
Rifle M16 5.56 mm / blank	19097.00	0.00	0.00	0.00
MG M60 7.62 mm / M80 147 gr	23352.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	240.00	0.00	0.00	0.00
Pistol .38 sp. Rev / 150 gr	6373.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	180220.00	0.00	0.00	0.00

H

UTM grid zone number: 19
FP#1 easting: 371062
FP#1 northing: 4616711
FP#1 height: 70.00
Azimuth from FP#1 to first target: 34.00
Dist. from firing point to target: 26.22
# of shooting lanes: 27
Dist. between shooting lanes: 2.00

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	36258.00	0.00	0.00	0.00
Rifle M16 5.56 mm / blank	18450.00	0.00	0.00	0.00
MG M60 7.62 mm / M80 147 gr	24536.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	4500.00	0.00	0.00	0.00

I

UTM grid zone number: 19
FP#1 easting: 371622
FP#1 northing: 4616487
FP#1 height: 15.00
Azimuth from FP#1 to first target: 359.00
Dist. from firing point to target: 24.51
# of shooting lanes: 27
Dist. between shooting lanes: 2.00

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	75451.00	0.00	0.00	0.00
Rifle M16 5.56 mm / blank	10800.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	5450.00	0.00	0.00	0.00
Pistol .38 sp. Rev / 150 gr	29250.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	102257.00	0.00	0.00	0.00

IBC

UTM grid zone number: 19
FP#1 easting: 373424
FP#1 northing: 4621270
FP#1 height: 70.00

Azimuth from FP#1 to first target: 205.00
Dist. from firing point to target: 60.00
# of shooting lanes: 5
Dist. between shooting lanes: 78.30

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	64228.00	0.00	0.00	0.00
Rifle M16 5.56 mm / blank	500.00	0.00	0.00	0.00
MG M60 7.62 mm / M80 147 gr	22400.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	150.00	0.00	0.00	0.00

T

UTM grid zone number: 19
FP#1 easting: 373717
FP#1 northing: 4621034
FP#1 height: 15.00

Azimuth from FP#1 to first target: 221.00
Dist. from firing point to target: 24.39
# of shooting lanes: 10
Dist. between shooting lanes: 4.25

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	10057.00	0.00	0.00	0.00
MG M2 .50 cal / blank	18520.00	0.00	0.00	0.00
MG M2 .50 cal / M2 710 gr	6400.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	34847.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	12201.00	0.00	0.00	0.00

OFG

UTM grid zone number: 19
FP#1 easting: 368117
FP#1 northing: 4616528
FP#1 height: 15.00

Azimuth from FP#1 to first target: 50.00
Dist. from firing point to target: 20.00
# of shooting lanes: 6
Dist. between shooting lanes: 15.00

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	4800.00	0.00	0.00	0.00
Shotgun 12 Ga pump / Mag T shot	6875.00	0.00	0.00	0.00

J

UTM grid zone number: 19
FP#1 easting: 371944
FP#1 northing: 4616331
FP#1 height: 15.00

Azimuth from FP#1 to first target: 1.00
Dist. from firing point to target: 24.44
# of shooting lanes: 18
Dist. between shooting lanes: 2.00

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	27503.00	0.00	0.00	0.00
Rifle M16 5.56 mm / blank	9500.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	38600.00	0.00	0.00	0.00
Pistol .38 sp. Rev / 150 gr	33092.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	33235.00	0.00	0.00	0.00

K

UTM grid zone number: 19
FP#1 easting: 372023
FP#1 northing: 4616341
FP#1 height: 60.00

Azimuth from FP#1 to first target: 1.00
Dist. from firing point to target: 25.52
# of shooting lanes: 18
Dist. between shooting lanes: 2.00

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	36080.00	0.00	0.00	0.00
Rifle M16 5.56 mm / blank	8800.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	39150.00	0.00	0.00	0.00
Pistol .38 sp. Rev / 150 gr	17575.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	95775.00	0.00	0.00	0.00

KD (LONG)

UTM grid zone number: 19
FP#1 easting: 372323
FP#1 northing: 4616221
FP#1 height: 15.00

Azimuth from FP#1 to first target: 359.00
Dist. from firing point to target: 547.00
# of shooting lanes: 20
Dist. between shooting lanes: 2.00

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	167447.00	0.00	0.00	0.00
Rifle M16 5.56 mm / blank	15210.00	0.00	0.00	0.00
MG M60 7.62 mm / M80 147 gr	24119.00	0.00	0.00	0.00
Pistol .38 sp. Rev / 150 gr	1425.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	2750.00	0.00	0.00	0.00

SE (LONG)

UTM grid zone number: 19
FP#1 easting: 374074
FP#1 northing: 4620852
FP#1 height: 55.00
Azimuth from FP#1 to first target: 223.00
Dist. from firing point to target: 693.00
# of shooting lanes: 5
Dist. between shooting lanes: 10.00

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	60597.00	0.00	0.00	0.00
MG M60 7.62 mm / M80 147 gr	87087.00	0.00	0.00	0.00
MG M2 .50 cal / M2 710 gr	75765.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	250.00	0.00	0.00	0.00

SW (LONG)

UTM grid zone number: 19
FP#1 easting: 373931
FP#1 northing: 4620954
FP#1 height: 55.00
Azimuth from FP#1 to first target: 223.00
Dist. from firing point to target: 692.00
# of shooting lanes: 5
Dist. between shooting lanes: 10.00

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	38201.00	0.00	0.00	0.00
MG M60 7.62 mm / M80 147 gr	67860.00	0.00	0.00	0.00
MG M2 .50 cal / M2 710 gr	55060.00	0.00	0.00	0.00

D

UTM grid zone number: 19
FP#1 easting: 370316
FP#1 northing: 4620055
FP#1 height: 60.00
Azimuth from FP#1 to first target: 119.10
Dist. from firing point to target: 10.83
# of shooting lanes: 8
Dist. between shooting lanes: 2.09

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
MG M60 7.62 mm / M80 147 gr	52784.00	0.00	0.00	0.00

E

UTM grid zone number: 19
FP#1 easting: 370307
FP#1 northing: 4620003
FP#1 height: 60.00
Azimuth from FP#1 to first target: 84.96
Dist. from firing point to target: 15.85
# of shooting lanes: 15
Dist. between shooting lanes: 7.99

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Pistol M9 9mm / 115 gr	18000.00	0.00	0.00	0.00
Pistol .38 sp. Rev / 150 gr	11406.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	47100.00	0.00	0.00	0.00

N

UTM grid zone number: 19
FP#1 easting: 374240
FP#1 northing: 4617787
FP#1 height: 50.00
Azimuth from FP#1 to first target: 318.57
Dist. from firing point to target: 23.97
# of shooting lanes: 55
Dist. between shooting lanes: 2.08

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / blank	6000.00	0.00	0.00	0.00
Rifle M16 5.56 mm / M193 55 gr	93252.00	0.00	0.00	0.00
MG M60 7.62 mm / M80 147 gr	10696.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	120.00	0.00	0.00	0.00
Pistol .38 sp. Rev / 150 gr	350.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	4580.00	0.00	0.00	0.00

O

UTM grid zone number: 19
FP#1 easting: 374637
FP#1 northing: 4617900
FP#1 height: 50.00
Azimuth from FP#1 to first target: 306.17
Dist. from firing point to target: 43.35
# of shooting lanes: 10
Dist. between shooting lanes: 3.27

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	5740.00	0.00	0.00	0.00
MG M60 7.62 mm / M80 147 gr	600.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	10250.00	0.00	0.00	0.00
Pistol .38 sp. Rev / 150 gr	13255.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	79550.00	0.00	0.00	0.00

P

UTM grid zone number: 19
FP#1 easting: 374664
FP#1 northing: 4618054
FP#1 height: 52.00

Azimuth from FP#1 to first target: 294.71
Dist. from firing point to target: 21.22
# of shooting lanes: 26
Dist. between shooting lanes: 2.61

WEAPON&AMMO	DAYRNDS	%DRAPID	NIGHTRNDS	%NRAPID
Rifle M16 5.56 mm / M193 55 gr	26660.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	230.00	0.00	0.00	0.00
Pistol .38 sp. Rev / 150 gr	1010.00	0.00	0.00	0.00
Pistol M9 9mm / 115 gr	15500.00	0.00	0.00	0.00

APPENDIX C

STATE OF NEW JERSEY NOISE ORDINANCE

NOISE CONTROL

The New Jersey Department of Environmental Protection (NJDEP) promulgated noise regulations to control noise from stationary commercial and industrial sources in 1974, pursuant to the Noise Control Act of 1971, N.J.S.A. 13:1G-1 et seq. Within the noise regulations, there are established sound level standards of 50 decibels during nighttime (10:00 p.m. to 7:00 a.m.) and 65 decibels during daytime. NJDEP does not have a noise control program and does not investigate noise complaints. Noise control is handled locally by one of the following:

- Local health agencies certified by NJDEP pursuant to the County Environmental Health Act (CEHA)
- Municipal officials using a noise ordinance approved by NJDEP or using the model noise ordinance (see below)
- Municipal officials using the public nuisance code

To report a noise complaint, please contact your municipality or CEHA agency.

If you have a technical noise question, please contact Eric Zwerling, Director, Rutgers Noise Technical Assistance Center at (732) 932-1953.

If you have a question about a noise ordinance, please contact NJDEP's Office of Local Environmental Management at (609) 292-1305.

MODEL NOISE CONTROL ORDINANCE

Procedures for Approval by the Department:

(A) If a governing body of a municipality adopts this model ordinance without change, the ordinance shall be deemed to be approved by the Department. Changes in formatting, numbering, or any other changes of this type shall not be considered changes requiring review and approval by the Department.
Within 30 days after a municipality adopts this ordinance, the municipality shall submit to the Department, and the CEHA agency governing its region if one exists, a certification signed by the Township Clerk, Borough Manager or Administrator. The certification shall state:

I certify that {insert name of municipality} has adopted the Model Noise Control Ordinance without change(s). I further certify that if this statement is willfully false, I am subject to a penalty.

This ordinance shall be deemed approved upon submission by a municipality, and receipt by the Department, of the fully executed certification and duly adopted noise ordinance. In addition, in the event that a regional or county health agency is identified as the authorized enforcement agency for the purpose of enforcing this ordinance when adopted by a municipality, written consent of the regional or a county health agency must be obtained, affixed to the ordinance and made a part thereof.

Noise ordinances shall be submitted to:

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
COMPLIANCE & ENFORCEMENT
OFFICE OF LOCAL ENVIRONMENTAL MANAGEMENT
P.O. BOX 422
401 EAST STATE STREET
TRENTON, NEW JERSEY 08625

(B) If a governing body of a municipality wishes to change any provision(s) of this model ordinance or wishes to develop a noise ordinance that is not based on the model, the entire noise control ordinance including the proposed change(s) shall be submitted to the Department for review and approval, prior to adoption. The Department will review noise ordinances to determine consistency with the statewide scheme for noise control and whether the ordinance is more stringent than the State's noise code, in accordance with the Noise Control Act.

If the Department approves the change(s), the municipality shall submit a copy of the duly adopted ordinance to the CEHA agency governing its region, if one exists.

If the Department disapproves the change(s), the ordinance shall be returned to the municipality and shall be considered disapproved.

(C) The Department reserves the right to review, at any time, a noise control ordinance adopted by a municipality.

The model noise ordinance follows:

MODEL NOISE ORDINANCE

I. Definitions

The following words and terms, when used in this ordinance, shall have the following meanings, unless the context clearly indicates otherwise. Terms not defined in this ordinance have the same meaning as those defined in N.J.A.C. 7:29.

"Construction" means any site preparation, assembly, erection, repair, alteration or similar action, including demolition of buildings or structures.

"Demolition" means any dismantling, destruction or removal of buildings, structures, or roadways.

"Department" means the New Jersey Department of Environmental Protection.

"Emergency work" means any work or action necessary to deliver essential public services including, but not limited to, repairing water, gas, electricity, telephone, sewer facilities, or public transportation facilities, removing fallen trees on public rights-of-way, dredging navigational waterways, or abating life-threatening conditions.

"Impulsive sound" means either a single pressure peak or a single burst (multiple pressure peaks) that has a duration of less than one second.

"Motor vehicle" means any vehicle that is propelled other than by human or animal power on land.

"Muffler" means a properly functioning sound dissipative device or system for abating the sound of escaping gasses on equipment where such a device is part of the normal configuration of the equipment.

"Multi-dwelling unit building" means any building comprising two or more dwelling units, including, but not limited to, apartments, condominiums, co-ops, multiple family houses, townhouses, and attached residences.

"Multi-use property" means any distinct parcel of land that is used for more than one category of activity. Examples include, but are not limited to:

1. A commercial, residential, industrial or public service property having boilers, incinerators, elevators, automatic garage doors, air conditioners, laundry rooms, utility provisions, or health and recreational facilities, or other similar devices or areas, either in the interior or on the exterior of the building, which may be a source of elevated sound levels at another category on the same distinct parcel of land; or

2. A building which is both commercial (usually on the ground floor) and residential property located above, behind, below or adjacent.

"Noise control officer" means an employee of: (1) a local, county or regional health agency which is certified pursuant to the County Environmental Health Act (N.J.S.A. 26:3A2-21 et seq.) to perform noise enforcement activities; or (2) a municipality with a Department approved noise control ordinance and the employee has received noise enforcement training and is currently certified in noise enforcement. The employee must be acting within his or her designated jurisdiction and must be authorized to issue a summons in order to be considered a noise control officer.

"Plainly audible" means any sound that can be detected by a person using his or her unaided hearing faculties. As an example, if the sound source under investigation is a portable or personal vehicular sound amplification or reproduction device, the detection of the rhythmic bass component of the music is sufficient to verify plainly audible sound. The noise control officer need not determine the title, specific words, or the artist performing the song.

"Private right-of-way" means any street, avenue, boulevard, road, highway, sidewalk, alley or easement that is owned, leased, or controlled by a non-governmental entity.

"Public right-of-way" means any street, avenue, boulevard, road, highway, sidewalk, alley or easement that is owned, leased, or controlled by a governmental entity.

"Public space" means any real property or structures thereon that are owned, leased, or controlled by a governmental entity.

"Real property line" means either (a) the imaginary line including its vertical extension that separates one parcel of real property from another; (b) the vertical and horizontal boundaries of a dwelling unit that is part of a multi-dwelling unit building; or (c) on a multi-use property, the interface between the two portions of the property on which different categories of activity are being performed (e.g., if the multi-use property is a building which is residential upstairs and commercial downstairs, then the real property line would be the interface between the residential area and the commercial area).

"Weekday" means any day that is not a federal holiday, and beginning on Monday at 7:00 a.m. and ending

on the following Friday at 6:00 p.m.

"Weekends" means beginning on Friday at 6:00 p.m. and ending on the following Monday at 7:00 a.m.

II. Applicability

(A) This model noise ordinance applies to sound from the following property categories:

1. Industrial facilities;
2. Commercial facilities;
3. Public service facilities;
4. Community service facilities;
5. Residential properties;
6. Multi-use properties;
7. Public and private right-of-ways;
8. Public spaces; and
9. Multi-dwelling unit buildings.

(B) This model noise ordinance applies to sound received at the following property categories:

1. Commercial facilities;
2. Public service facilities;
3. Community service facilities;
4. Residential properties;
5. Multi-use properties; and
6. Multi-dwelling unit buildings.

(C) Sound from stationary emergency signaling devices shall be regulated in accordance with N.J.A.C. 7:29-1.3, except that the testing of the electromechanical functioning of a stationary emergency signaling device shall not meet or exceed 10 seconds.

III. Declaration of Findings and Policy

WHEREAS excessive sound is a serious hazard to the public health, welfare, safety, and the quality of life; and, WHEREAS a substantial body of science and technology exists by which excessive sound may be substantially abated; and, WHEREAS the people have a right to, and should be ensured of, an environment free from excessive sound,

Now THEREFORE, it is the policy of **{insert name of municipality}** to prevent excessive sound that may jeopardize the health, welfare, or safety of the citizens or degrade the quality of life.

This ordinance shall apply to the control of sound originating from sources within **{insert name of municipality}**.

IV. Noise Control Officers

(A) The provisions of this ordinance shall be enforced by noise control officers. A person shall be qualified to be a noise control officer if the person meets the criteria set forth in the definition above and completes, at a frequency specified by the Department in N.J.A.C. 7:29-2.11, a noise certification and re-certification course which are offered by the Department of Environmental Sciences of Cook College, Rutgers, the State University of New Jersey or any other noise certification or re-certification course which is offered by an accredited university and approved by the Department.

(B) Sound measurements made by a noise control officer shall conform to the procedures set forth at N.J.A.C. 7:29-2, except that interior sound level measurements shall also conform with the procedures set forth in sections V.(B) and V.(C) of this regulation and with the definition of "real property line" as contained herein.

(C) Noise control officers shall have the power to:

1. Coordinate the noise control activities of all departments in **{insert name of municipality}** and cooperate with all other public bodies and agencies to the extent practicable;

2. Review the actions of **{insert name of municipality}** and advise of the effect, if any, of such actions on noise control;

3. Review public and private projects, subject to mandatory review or approval by other departments or boards, for compliance with this ordinance; and

4. Investigate and pursue possible violations of this ordinance for sound levels which equal or exceed the sound levels set forth in Tables I and II, when measured at a receiving property located within the designated jurisdiction of the noise control officer, in accordance with Section VII. below.

5. Cooperate with noise control officers of adjacent municipalities in enforcing one another's municipal noise ordinances.

V. Maximum Permissible Sound Levels

(A) No person shall cause, suffer, allow, or permit the operation of any source of sound on any source property listed in II.(A) above in such a manner as to create a sound level that equals or exceeds the sound level limits set forth in Tables I and II when measured at or within the real property line of any of the receiving properties listed in Tables I and II, except as specified in (B). below.

(B) When measuring total sound or residual sound within a multi-use property, or within a residential unit when the property line between it and the source property is a common wall, all exterior doors and windows shall be closed and the measurements shall be taken in the center of the room most affected by the noise. Residual sound shall be measured in accordance with N.J.A.C. 7:29-2.9(b)2. When measuring total sound or residual sound, all sound sources within the dwelling unit must be shut off (e.g., television, stereo). Measurements shall not be taken in areas which receive only

casual use such as hallways, closets and bathrooms.

(C) Indoor measurements shall only be taken if the sound source is on or within the same property as the receiving property, as in the case of a multi-use property (e.g., sound generated within a commercial unit of a multi-use property building and received within a residential unit of the same building) or multi-dwelling unit building. In addition, indoor measurements shall be taken if the property line between the receiving property and the source property is a common wall, such as in a multi-dwelling unit building. The allowable sound level standards for indoors are as shown in Tables I and II.

(D) Impulsive Sound

{Note: either one of the following must be adopted.}

1. Impulsive sound shall not equal or exceed 80 decibels at all times.

OR

2. Between 7:00 a.m. and 10:00 p.m., impulsive sound shall not equal or exceed 80 decibels. Between 10:00 p.m. and 7:00 a.m., impulsive sound which occurs less than four times in any hour shall not equal or exceed 80 decibels. Impulsive sound which repeats four or more times in any hour shall be measured as impulsive sound and shall meet the requirements as shown in Table I.

TABLE I
MAXIMUM PERMISSIBLE A-WEIGHTED SOUND LEVELS

1. No person shall cause, suffer, allow, or permit the operation of any source of sound on any source property listed in II.(A) above in such a manner as to create a sound level that equals or exceeds the sound levels listed below.

(A). Outdoors

RECEIVING PROPERTY CATEGORY	Residential property, or residential portion of a multi-use property		Commercial facility, public service facility, non-residential portion of a multi-use property, or community service facility
TIME	7 a.m.-10 p.m.	10 p.m.-7 a.m.	24 hours
Maximum A-Weighted sound level standard, dB	65	50	65

(B). Indoors

RECEIVING PROPERTY CATEGORY	Residential property, or residential portion of a multi-use property		Commercial facility*, or non-residential portion of a multi-use property
TIME	7 a.m.-10 p.m.	10 p.m.-7 a.m.	24 Hours
Maximum A-Weighted sound level standard, dB	55	40	55

*In those instances when a commercial facility shares a common wall/ceiling/floor with another commercial facility that is producing the sound.

TABLE II

MAXIMUM PERMISSIBLE OCTAVE BAND SOUND PRESSURE LEVELS IN DECIBELS

1. No person shall cause, suffer, allow, or permit the operation of any source of sound on any source property listed in II.(A) above in such a manner as to create a sound pressure level that equals or exceeds the sound levels listed below in one or more octave bands.

2. When octave measurements are made, the sound from the source must be constant in level and character. If octave band sound pressure level variations exceed plus or minus 2 dB in the bands containing the principal source frequencies, discontinue the measurement.

Receiving Property Category	**Residential property, or residential portion of a multi-use property**		**Residential property, or residential portion of a multi-use property**		**Commercial facility, public service facility, non-residential portion of a multi-use property, or community service facility**	**Commercial facility*, or non-residential portion of a multi-use property**
	OUTDOORS		**INDOORS**		**OUTDOORS**	**INDOORS**
Octave Band Center Frequency, Hz.	**Octave Band Sound Pressure Level, dB**		**Octave Band Sound Pressure Level, dB**		**Octave Band Sound Pressure Level, dB**	**Octave Band Sound Pressure Level, dB**
Time	7 a.m.-10 p.m.	10 p.m.-7 a.m.	7 a.m.-10 p.m.	10 p.m.-7 a.m.	24 hours	24 hours
31.5	96	86	86	76	96	86
63	82	71	72	61	82	72
125	74	61	64	51	74	64
250	67	53	57	43	67	57
500	63	48	53	38	63	53
1,000	60	45	50	35	60	50
2,000	57	42	47	32	57	47
4,000	55	40	45	30	55	45
8,000	53	38	43	28	53	43

*In those instances when a commercial facility shares a common wall/ceiling/floor with another commercial facility that is producing the sound.

VI. Restricted Uses and Activities

(A) 1. Except as provided in (B) below, the provisions of this ordinance shall not apply to the exceptions listed at N.J.A.C. 7:29-1.4.

2. Construction and demolition activities are exempt from the sound level limits set forth in Tables I and II, except as provided for in (B). below.

(B) ***{Note: This section is optional; any numbered paragraph may be adopted in its entirety.}***

Notwithstanding the provisions of Tables I and II, the following standards shall apply to the activities or sources of sound set forth below:

1. Non-commercial or non-industrial power tools and landscaping and yard maintenance equipment shall not be operated between the hours of 8:00 p.m. and 8:00 a.m., unless such activities can meet the applicable limits set forth in Tables I and II. All motorized equipment used in these activities shall be operated with a muffler. At all other times, the limits set forth in Tables I and II do not apply to non-commercial or non-industrial power tools and landscaping and yard maintenance equipment;

2. Commercial or industrial power tools and landscaping and yard maintenance equipment, excluding emergency work, shall not be operated on a residential property or within 250 feet of a residential property line when operated on commercial or industrial property, between the hours of 6:00 p.m. and 7:00 a.m. on weekdays, or between the hours of 6:00 p.m. and 9:00 a.m. on weekends or federal holidays, unless such activities can meet the limits set forth in Tables I and II. In addition, commercial or industrial power tools and landscaping and yard maintenance equipment, excluding emergency work, utilized on commercial or industrial property shall meet the limits set forth in Tables I and II between the hours of 10 p.m. and 7 a.m. All motorized equipment used in these activities shall be operated with a muffler. At all other times, the limits set forth in Tables I and II do not apply to commercial or industrial power tools and landscaping and yard maintenance equipment;

3. Construction and demolition activity, excluding emergency work, shall not be performed between the hours of 6:00 p.m. and 7:00 a.m. on weekdays, or between the hours of 6:00 p.m. and 9:00 a.m. on weekends and federal holidays, unless such activities can meet the limits set forth in Tables I and II. All motorized equipment used in construction and demolition activity shall be operated with a muffler. At all other times, the limits set forth in Tables I and II do not apply to construction and demolition activities;

4. Motorized snowblowers, snow throwers, and lawn equipment with attached snow plows shall be operated at all times with a muffler;

5. An exterior burglar alarm of a building or motor vehicle must be activated in such a manner that the burglar alarm terminates its operation

within five (5) minutes for continuous airborne sound and fifteen (15) minutes for impulsive sound after it has been activated;

6. Personal or commercial vehicular music amplification or reproduction equipment shall not be operated in such a manner that it is plainly audible at a residential property line between the hours of 10:00 p.m. and 8:00 a.m.;

7. Personal vehicular music amplification equipment shall not be operated in such a manner as to be plainly audible at a distance of 50 feet in any direction from the operator between the hours of 8:00 a.m. and 10:00 p.m.;

8. Self-contained, portable, hand-held music or sound amplification or reproduction equipment shall not be operated on a public space or public right-of-way in such a manner as to be plainly audible at a distance of 50 feet in any direction from the operator between the hours of 8:00 a.m. and 10:00 p.m. Between the hours of 10:00 p.m. and 8:00 a.m., sound from such equipment shall not be plainly audible by any person other than the operator;

9. Sound levels exceeding the limits set forth in Table I, **{the following phrase is optional: "and Table II"}** shall be prohibited between residential units within the same multi-dwelling unit building. Measurements shall be taken indoors as per Section V. (B) and V.(C).

VII. Enforcement

(A) Violation of any provision of this ordinance shall be cause for an enforcement document to be issued to the violator by the noise control officer according to procedures set forth at N.J.A.C. 7:29-1.6. The recipient of an enforcement document shall be entitled to a hearing in municipal court having jurisdiction to contest such action.

(B) Any person who violates any provision of this ordinance shall be subject to a civil penalty for each offense of not more than $3,000. If the violation is of a continuing nature, each day during which it occurs shall constitute an additional, separate, and distinct offense.

(C) No provision of this ordinance shall be construed to impair any common law or statutory cause of action, or legal remedy therefrom, of any person for injury or damage arising from any violation of this ordinance or from other law.

VIII. Severability and Repealer

(A) If any provision or portion of a provision of this ordinance is held to be unconstitutional, preempted by federal or State law, or otherwise invalid by any court of competent jurisdiction, the remaining provisions of the ordinance shall not be invalidated.

(B) All ordinances or parts of ordinances which are inconsistent with any provisions of this ordinance are hereby repealed as to the extent of such inconsistencies.

APPENDIX D

BOROUGH OF SEA GIRT NOISE ORDINANCE

Be it ordained by the Mayor and Council of the Borough of Sea Girt, in the County of Monmouth and State of New Jersey, as follows:

SECTION1.DEFINITIONS.

a. PERSON – As used here in, shall included the singular and the plural and shall also mean and included any person, firm, corporation, association, club, partnership, society or any other form of associations or organization.
b. SOUND TRACK – As used herein, shall mean any type of vehicle, car, wagon, carriage or other means of transportation or locomotion, having mounted thereon or attached thereto any sound-amplifying equipment.
c. SOUND AMPLFYING EQUIPMENT – As used herein, shall mean any machine or device for the amplification of the human voice, music or any other sound.

SECTION 2. NOISE PROHIBITED

a. The creation of any unreasonably loud, disturbing and unnecessary noise in the Borough of Sea Girt is hereby prohibited. There is further prohibited any noise of such character, intensity or duration as is detrimental to the life of health of any individual.
b. It shall be unlawful for any person to make, continue, or cause to be made or continued, any loud, unnecessary or unusual noise or any noise which either annoys, disturbs, injures or endangers the comfort, repose, health peace or safety of others within the limits of the Borough of Sea Girt.
c. No persons shall use, or cause, to be used, a sound truck with its sound-amplifying equipment in operation, in the Borough of Sea Girt.

SECTION 3. NONEXCLUSIVE ENUMERATION OF PRHIBITED ACTS

a. The following acts, among other, but not by way of limitation, are declared to be loud, disturbing and unnecessary noises in violation of the ordinance, but the following enumeration shall not be deemed to be exclusive:

    1. Horns, signaling devices, etc. The sounding of any horn or signaling device of any automobile, motorcycle, bus or other vehicle on any street or public place of the Borough of Sea Girt, except as a danger warning; the creation by means of any horn or signaling device of any unreasonably loud or harsh sound, or the sounding of said horn or signaling device for any unnecessary and unreasonable period time.
    2. Radio, phonographs, etc. The playing of any radio, television, phonograph, musical instruments or any machine or device for the producing or reproducing of sound, in such a manner or with such volume, during the hours after 10 pm. and before 8 a.m. so as to unreasonably annoy or disturb the quiet, comfort or repose of persons in any dwelling, hotel or any other type of residence, or to disturb the peace, quiet and comfort of the neighboring inhabitants, or to play or operate the same with louder volume than is necessary for convenient hearing for the person or persons who are in the room or chamber in which such a machine or devices is operated.
    3. Yelling, shouting, etc. Yelling, shouting, hooting, or singing after the hour of 10p.m. and before 8a.m. or at any time or place, so as to annoy and disturb the quiet, comfort or repose of persons in any office, or in any dwelling, hotel, or other type of residence, or of any persons

in the vicinity.

4. No power equipment including but not limited to landscaping equipment (including lawn mowers, blowers, edgers, clippers and saws) shall be operated in the Borough of Sea Girt after the hour of 8 p.m. and before 8 a.m. on weekdays nor after the hours 5 p.m. nor before 8 a.m. on Saturdays, Sundays or legal holidays.
5. Construction is permitted only during the following times: Monday through Friday – 8 a.m. 6 p.m.; Saturday- 9 a.m. to 5 p.m. No commercial construction shall take place on Sundays or New Jersey public holidays, but it permitted if done solely by the property owner.

b. It shall be presumed that if any of the noises referred to in paragraph 2 and 3 Section 3a. above are emanating from any building, house or yard and are audible to persons passing on the street on which such building, house or yard is located, that such noise or noises disturbs the comfort, repose and health of others and the peace of the neighborhood.

SECTION 5. ENFORCEMENT.

It shall be the duty of the Chief of Police and members of the Police Department of the Borough of Sea Girt to determine if the ordinance has been and is being compiled with and to enforce the provisions of the ordinance against any persons found to be violating the same.

SECTION 6. VIOLATIONS AND PENALTIES

The Chief of Police, any police officers of the Borough of Sea Girt or any taxpayer or resident of the Borough may make a complaint in the Municipal Court of the Borough of Sea Girt for any violations of this ordinance of any section, paragraph or provision thereof. Any person violating this ordinance shall upon conviction be subject to a fine of not more than $1,000.00 and/or imprisonment in the County Jail for a period of not more than ninety (90) days or in lieu of imprisonment a period of community service not to exceed ninety (90) days in the discretion of the Municipal Court Judge. Each day that a violation is permitted to exist shall constitute a separate offence.

SECTION 7. SEVERABILITY

If any section, subsection, paragraph, sentence, clause, phrase, portion or provision of this ordinance shall be adjudged invalid or unconstitutional by any court of competent jurisdiction such adjudication shall apply only to the section, subsection, paragraph, sentence, clause, phrase, portion or provision so adjusted, and the remainder of the ordinance shall be deemed valid and the effective and not affected by such adjudication.

SECTION 8.

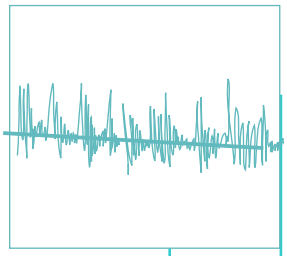
Ordinance #465 1 and all prior ordinances inconsistent with this ordinance are hereby repealed.

SECTION 9 WHEN EFFECTIVE.

This ordinance shall take effect immediately upon its final passage and publication in accordance with law.

APPENDIX E

NJ ARNG NOISE COMPLAINT PROCEDURES



Chapter 8
Noise Management

A. Program Overview

This chapter establishes local policies, assigns responsibilities, directs actions, and prescribes procedures to achieve compliance with applicable outdoor noise regulations in a manner consistent with mission accomplishment.

B. Compliance Thresholds

Under the environmental noise abatement program, the NJARNG will:

- Assess the impact of all noise that may be produced by proposed NJARNG actions/activities, and lessen harmful or objectionable impacts to the greatest extent possible
- Comply with all applicable federal, state, and local laws and regulations respecting the control and abatement of environmental noise

C. Responsibilities

Facility Managers

- Ensures the Noise Complaint Form is completed and submitted within five calendar days of receiving a complaint
- Track and maintain records of noise complaints and surveys
- Ensure the completion of follow-up action

D. Procedures

The NJARNG will perform the following:

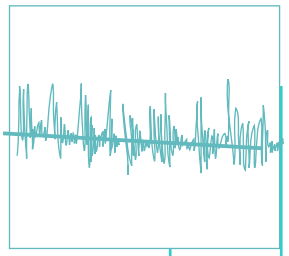
- Control environmental noise at the greatest extent possible to protect the health and welfare of military personnel and their dependents, Army civilian employees, tenants and the public adjacent to our facilities
- Reduce community annoyance from environmental noise to the extent feasible, consistent with NJARNG training and activities

Noise Complaint Reporting Procedures

A noise complaint will be processed as follows:

- The NJARNG facility receiving the complaint will complete and forward a copy of the Noise Complaint Form to the PAO within five calendar days. The Noise Complaint Form is found on the following page.
- The PAO will notify the complainant in writing within five days of receipt that the complaint has been received, an investigation is being conducted into the cause of the disturbance, and that a final response should be expected within thirty days of the incident.
- The noise-generating activity causing the complaint will complete a follow-up by identifying the cause of the noise and any action taken to correct the deficiency. A copy of the follow-up report will be forwarded to the PAO, ID-OEC and military higher HQ. ID-OEC will forward the report to the PAO and EQCC chairman.
- The noise-generating activity will maintain a log of all noise complaints.

The NJARNG facilities will handle jet aircraft noise complaints. The State Army Aviation Office (SAAO) in coordination with the EQCC, COS, and ID-OEC will handle helicopter noise complaints. However, it is up to shop-level personnel to report any noise complaint using the Noise Complaint Form.



NOISE COMPLAINT FORM

Facility:_____**Date**:_____**Time**:_____

Facility POC:_____**Telephone Number** _____

Name Of Person Making Complaint: _____

Address: _____**City:** _____**State:**____**Zip:**_____

Telephone Number: _____

Type Noise:_____

Description Of Facility Activities During Time Of Complaint:

_____

_____

Facility Commander/AO: _____ **Phone:** _____

Complaint Received By: _____ **Date:** _____

***Date Forwarded To PAO**: _____

Copy To: ID-OEC: _____**PAO**: _____

How Resolved? (List All Actions/Dates Taken To Resolve The Complaint):_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

EQCC Review Date_____

*** Must Be Within five Calendar Days Of Complaint**

E. Training

Conduct noise awareness training for all facility personnel annually.

F. Recordkeeping

Maintain the following records for at least three years.

- Document awareness training for all facility personnel
- A log of all noise complaints

APPENDIX F

NEW JERSEY RESIDENTIAL PROPERTY DISCLOSURE FORM EXAMPLE

NEW JERSEY REGISTER
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RULE ADOPTION

LAW AND PUBLIC SAFETY
DIVISION OF CONSUMER AFFAIRS
PROPERTY CONDITION DISCLOSURE FORM

SELLER'S PROPERTY CONDITION

DISCLOSURE STATEMENT

Property Address:
Seller:

The purpose of this Disclosure Statement is to disclose, to the best of Seller's knowledge, the condition of the Property, as of the date set forth below. The Seller is aware that he or she is under an obligation to disclose any known material defects in the Property even if not addressed in this printed form. Seller alone is the source of all information contained in this form. All prospective buyers of the Property are cautioned to carefully inspect the Property and to carefully inspect the surrounding area for any off-site conditions that may adversely affect the Property. Moreover, this Disclosure Statement is not intended to be a substitute for prospective buyer's hiring of qualified experts to inspect the Property.

If your property consists of multiple units, systems and/or features, please provide complete answers on all such units, systems and/or features even if the question is phrased in the singular, such as if a duplex has multiple furnaces, water heaters and fireplaces.

OCCUPANCY

Yes No Unknown

1. Age of House, if known _____
2. Does the Seller currently occupy this property? If not, how long has it been since Seller occupied the property? _____
3. What year did the seller buy the property? _____
3a. Do you have in your possession the original or a copy of the deed evidencing your ownership of the property? If "yes," please attach a copy of it to this form.

ROOF

Yes No Unknown

4. Age of roof _____
5. Has roof been replaced or repaired since seller bought the property?

6. Are you aware of any roof leaks?
7. Explain any "yes" answers that you give in this section: _____

ATTIC, BASEMENTS AND CRAWL SPACES (Complete only if applicable)

Yes No Unknown

8. Does the property have one or more sump pumps?
8a. Are there any problems with the operation of any sump pump?
9. Are you aware of any water leakage, accumulation or dampness within the basement or crawl spaces or any other areas within any of the structures on the property?
9a. Are you aware of the presence of any mold or similar natural substance within the basement or crawl spaces or any other areas within any of the structures on the property?
10. Are you aware of any repairs or other attempts to control any water or dampness problem in the basement or crawl space?
If "yes," describe the location, nature and date of the repairs: _____
11. Are you aware of any cracks or bulges in the basement floor or foundation walls? If "yes," specify location. _____
12. Are you aware of any restrictions on how the attic may be used as a result of the manner in which the attic or roof was constructed?
13. Is the attic or house ventilated by:
_____ a whole house fan?
_____ an attic fan?
13a. Are you aware of any problems with the operation of such a fan?
14. In what manner is access to the attic space provided?
_____ staircase
_____ pull down stairs
_____ crawl space with aid of ladder or other device
_____ other
15. Explain any "yes" answers that you give in this section: _____

TERMITES/WOOD DESTROYING INSECTS, DRY ROT, PESTS

Yes No Unknown

16. Are you aware of any termites/wood destroying insects, dry rot, or pests affecting the property?
17. Are you aware of any damage to the property caused by termites/wood destroying insects, dry rot, or pests?
18. If "yes," has work been performed to repair the damage?
19. Is your property under contract by a licensed pest control company?
If "yes," state the name and address of the licensed pest control company: _____
20. Are you aware of any termite/pest control inspections or treatments performed on the property in the past?
21. Explain any "yes" answers that you give in this section: _____

STRUCTURAL ITEMS

Yes No Unknown

22. Are you aware of any movement, shifting, or other problems with walls, floors, or foundations, including any restrictions on how any space, other than the attic or roof, may be used as a result of the manner in which it was constructed?
23. Are you aware if the property or any of the structures on it have ever been damaged by fire, smoke, wind or flood?
24. Are you aware of any fire retardant plywood used in the construction?
25. Are you aware of any current or past problems with driveways, walkways, patios, sinkholes, or retaining walls on the property?
26. Are you aware of any present or past efforts made to repair any problems with the items in this section?
27. Explain any "yes" answers that you give in this section. Please describe the location and nature of the problem. _____

ADDITIONS/REMODELS

Yes No Unknown

28. Are you aware of any additions, structural changes or other alterations to the structures on the property made by any present or past owners?
29. Were the proper building permits and approvals obtained? Explain any "yes" answers you give in this section: _____

PLUMBING, WATER AND SEWAGE

Yes No Unknown

30. What is the source of your drinking water?
Public
Community System
Well on Property
Other (explain) _____
31. If your drinking water source is not public, have you performed any tests on the water? If so, when? _____
Attach a copy of or describe the results.
32. Does the wastewater from any clothes washer, dishwasher, or other appliance discharge to any location other than the sewer, septic, or other system that services the rest of the property?
33. When was well installed? _____
Location of well? _____
34. Do you have a softener, filter, or other water purification system?
Leased
Owned

35. What is the type of sewage system?
Public Sewer
Private Sewer
Septic System
Cesspool
Other (explain): _____
36. If you answered "septic system," have you ever had the system inspected to confirm that it is a true septic system and not a cesspool?
37. If Septic System, when was it installed? _____
Location? _____
38. When was the Septic System or Cesspool last cleaned and/or serviced? _____
39. Are you aware of any abandoned Septic Systems or Cesspools on your property?
39a. If "yes," is the closure in accordance with the municipality's ordinance? (explain): _____
40. Are you aware of any leaks, backups, or other problems relating to any of the plumbing systems and fixtures (including pipes, sinks, tubs and showers), or of any other water or sewage related problems? If "yes," explain: _____
41. Are you aware of any shut off, disconnected, or abandoned wells, underground water or sewage tanks, or dry wells on the property?
42. Is either the private water or sewage system shared? If "yes," explain: _____
43. Water Heater:
Electric
Fuel Oil
Gas
Age of Water Heater
_____
43a. Are you aware of any problems with the water heater?
44. Explain any "yes" answers that you give in this section: _____

HEATING AND AIR CONDITIONING

Yes No Unknown

45. Type of Air Conditioning:
Central one zone
Central multiple zone
Wall/Window Unit
None
46. List any areas of the house that are not air conditioned: _____
47. What is the age of Air Conditioning System? _____
48. Type of heat:
Electric
Fuel Oil
Natural Gas
Propane
Unheated

Other
49. What is the type of heating system? (for example, forced air, hot water or base board, radiator, steam heat) _____
50. If it is a centralized heating system, is it one zone or multiple zones? _____
51. Age of furnace _____
Date of last service: _____
52. List any areas of the house that are not heated: _____
53. Are you aware of any tanks on the property, either above or underground, used to store fuel or other substances?
54. If tank is not in use, do you have a closure certificate?
55. Are you aware of any problems with any items in this section? If "yes," explain: _____

WOODBURNING STOVE OR FIREPLACE

Yes No Unknown

56. Do you have wood burning stove?
fireplace?
insert?
other
56a. Is it presently usable?
57. If you have a fireplace, when was the flue last cleaned?_____
57a. Was the flue cleaned by a professional or non-professional? _____
58. Have you obtained any required permits for any such item?
59. Are you aware of any problems with any of these items? If "yes," please explain: _____

ELECTRICAL SYSTEM

Yes No Unknown

60. What type of wiring is in this structure?
Copper
Aluminum
Other
Unknown
61. What amp service does the property have?
60 100
150 200
Other Unknown
62. Does it have 240 volt service? Which are present
Circuit Breakers *,
Fuses or Both?

63. Are you aware of any additions to the original service? If "yes," were the additions done by a licensed electrician?
Name and address: _____
64. If "yes," were proper building permits and approvals obtained?
65. Are you aware of any wall switches, light fixtures or electrical outlets in need of repair?
66. Explain any "yes" answers you give in this section: _____

LAND (SOILS, DRAINAGE AND BOUNDARIES)

Yes No Unknown

67. Are you aware of any fill or expansive soil on the property?
68. Are you aware of any past or present mining operations in the area in which the property is located?
69. Is the property located in a flood hazard zone?
70. Are you aware of any drainage or flood problems affecting the property?
71. Are there any areas on the property which are designated as protected wetlands?
72. Are you aware of any encroachments, utility easements, boundary line disputes, or drainage or other easements affecting the property?
73. Are there any water retention basins on the property or the adjacent properties?
74. Are you aware if any part of the property is being claimed by the State of New Jersey as land presently or formerly covered by tidal water (Riparian claim or lease grant)?
Explain: _____
75. Are you aware of any shared or common areas (for example, driveways, bridges, docks, walls, bulkheads, etc.) or maintenance agreements regarding the property?
76. Explain any "yes" answers to the preceding questions in this section: _____
77. Do you have a survey of the property?

ENVIRONMENTAL HAZARDS

Yes No Unknown

78. Have you received any written notification from any public agency or private concern informing you that the property is adversely affected, or may be adversely affected, by a condition that exists on a property in the vicinity of this property? If "yes," attach a copy of any such notice currently in your possession.
78a. Are you aware of any condition that exists on any property in the vicinity which adversely affects, or has been identified as possibly adversely affecting, the quality or safety of the air, soil, water, and/or physical structures present on this property?
If "yes," explain: _____
79. Are you aware of any underground storage tanks (UST) or toxic substances now or previously present on this property or adjacent property (structure or soil), such as polychlorinated biphenyl (PCB), solvents, hydraulic fluid, petro-chemicals, hazardous wastes, pesticides, chromium, thorium, lead or other hazardous substances in the soil? If

"yes," explain: _____
80. Are you aware if any underground storage tank has been tested? (Attach a copy of each test report or closure certificate if available).
81. Are you aware if the property has been tested for the presence of any other toxic substances, such as lead-based paint, urea-formaldehyde foam insulation, asbestos-containing materials, or others? (Attach copy of each test report if available).
82. If "yes" to any of the above, explain: _____
82a. If "yes" to any of the above, were any actions taken to correct the problem? Explain: _____
83. Is the property in a designated Airport Safety Zone?

DEED RESTRICTIONS, SPECIAL DESIGNATIONS, HOMEOWNERS ASSOCIATION/CONDOMINIUMS AND CO-OPS

Yes No Unknown

84. Are you aware if the property is subject to any deed restrictions or other limitations on how it may be used due to its being situated within a designated historic district, or a protected area like the New Jersey Pinelands, or its being subject to similar legal authorities other than typical local zoning ordinances?
85. Is the property part of a condominium or other common interest ownership plan?
85a. If so, is the property subject to any covenants, conditions, or restrictions as a result of its being part of a condominium or other form of common interest ownership?
86. As the owner of the property, are you required to belong to a condominium association or homeowners association, or other similar organization or property owners?
86a. If so, what is the Association's name and telephone number? _____
86b. If so, are there any dues or assessments involved? If "yes," how much? _____
87. Are you aware of any defect, damage, or problem with any common elements or common areas that materially affects the property?
88. Are you aware of any condition or claim which may result in an increase in assessments or fees?
89. Since you purchased the property, have there been any changes to the rules or by-laws of the Association that impact the property?
90. Explain any "yes" answers you give in this section: _____

MISCELLANEOUS

Yes No Unknown

91. Are you aware of any existing or threatened legal action affecting the property or any condominium or homeowners association to which you, as an owner, belong?
92. Are you aware of any violations of Federal, State or local laws or regulations relating to this property?
93. Are you aware of any zoning violations, encroachments on adjacent properties, non-conforming uses, or set-back violations relating to this property? If so, please state

whether the condition is pre-existing non-conformance to present day zoning or a violation to zoning and/or land use laws. _____
94. Are you aware of any public improvement, condominium or homeowner association assessments against the property that remain unpaid? Are you aware of any violations of zoning, housing, building, safety or fire ordinances that remain uncorrected?
95. Are there mortgages, encumbrances or liens on this property?
95a. Are you aware of any reason, including a defect in title, that would prevent you from conveying clear title?
96. Are you aware of any material defects to the property, dwelling, or fixtures which are not disclosed elsewhere on this form? (A defect is "material," if a reasonable person would attach importance to its existence or non-existence in deciding whether or how to proceed in the transaction.) If "yes," explain: _____
97. Other than water and sewer charges, utility and cable tv fees, your local property taxes, any special assessments and any association dues or membership fees, are there any other fees that you pay on an ongoing basis with respect to this property, such as garbage collection fees?
98. Explain any other "yes" answers you give in this section: _____

RADON GAS

Instructions to Owners

By law (N.J.S.A. 26:2D-73), a property owner who has had his or her property tested or treated for radon gas may require that information about such testing and treatment be kept confidential until the time that the owner and a buyer enter into a contract of sale, at which time a copy of the test results and evidence of any subsequent mitigation or treatment shall be provided to the buyer. The law also provides that owners may waive, in writing, this right of confidentiality. As the owner(s) of this property, do you wish to waive this right?
Yes No _____ _____
(Initials) (Initials)

If you responded "yes," answer the following questions. If you responded "no," proceed to the next section.

Yes No Unknown

99. Are you aware if the property has been tested for radon gas? (Attach a copy of each test report if available.)
100. Are you aware if the property has been treated in an effort to mitigate the presence of radon gas? (If "yes," attach a copy of any evidence of such mitigation or treatment.)
101. Is radon remediation equipment now present in the property?
101a. If "yes," is such equipment in good working order?

MAJOR APPLIANCES AND OTHER ITEMS

The terms of any final contract executed by the seller shall be controlling as to what appliances or other items, if any, shall be included in the sale of the property.

Which of the following items are present in the property? (For items that are not present, indicate "not applicable.")

Yes No Unknown Not Applicable

102. Electric Garage Door Opener
102a. If "yes," are they reversible?
Number of Transmitters _____
103. Smoke Detectors
Battery
Electric
Both
How many _____
Carbon Monoxide Detectors
How many _____
Location _____
104. With regard to the above items, are you aware that any item is not in working order?
104a. If "yes," identify each item that is not in working order or defective and explain the nature of the problem: _____
105. In-ground pool
Above-ground pool
Pool Heater
Spa/Hot Tub
105a. Were proper permits and approvals obtained?
105b. Are you aware of any leaks or other defects with the filter or the walls or other structural or mechanical components of the pool or spa/hot tub?
105c. If an in-ground pool, are you aware of any water seeping behind the walls of the pool?
106. Indicate which of the following may be included in the sale? (Indicate Y for yes N for no.)
Refrigerator
Range
Microwave Oven
Dishwasher
Trash Compactor
Garbage Disposal
In-Ground Sprinkler System
Central Vacuum System
Security System
Washer
Dryer

Intercom
Other
107. Of those that may be included, is each in working order? If "no," identify each item not in working order, explain the nature of the problem: _____

ACKNOWLEDGMENT OF SELLER

The undersigned Seller affirms that the information set forth in this Disclosure Statement is accurate and complete to the best of Seller's knowledge, but is not a warranty as to the condition of the Property. Seller hereby authorizes the real estate brokerage firm representing or assisting the seller to provide this Disclosure Statement to all prospective buyers of the Property, and to other real estate agents. <<+Seller alone is the source of all information contained in this statement. *If the Seller relied upon any credible representations of another, the Seller should state the name(s) of the person(s) who made the representation(s) and describe the information that was relied upon.

_____

SELLER:
_____

DATE: _____

SELLER:
_____

DATE: _____

EXECUTOR, ADMINISTRATOR, TRUSTEE

(If applicable)

The undersigned has never occupied the property and lacks the personal knowledge necessary to complete this Disclosure Statement.

_____

DATE: _____

RECEIPT AND ACKNOWLEDGEMENT

ACKNOWLEDGMENT* BY PROSPECTIVE BUYER

The undersigned Prospective Buyer acknowledges receipt of this Disclosure Statement prior to signing a Contract of Sale pertaining to this Property. Prospective Buyer acknowledges that this Disclosure Statement is not a warranty by Seller and that it is Prospective Buyer's responsibility to satisfy himself or herself as to the condition of the Property. Prospective Buyer acknowledges that the Property may be inspected by <<-three->> qualified professionals, at Prospective Buyer's expense, to determine the actual condition of the Property. Prospective Buyer further acknowledges that this form is intended to provide information relating to the condition of the land, structures, major systems and amenities, if any, included in the sale. This form does not address local conditions which may affect a purchaser's use and enjoyment of the property such as noise, odors, traffic volume, etc. Prospective Buyer acknowledges that they may independently investigate such local conditions before entering into a binding contract to purchase the property. <<+ Prospective Buyer acknowledges that he or she understands that the visual inspection performed by the Seller's real estate broker/broker-salesperson/salesperson does not constitute a professional home inspection as performed by a licensed home inspector.+>>

PROSPECTIVE BUYER: _____

DATE: _____

PROSPECTIVE BUYER: _____

DATE: _____

ACKNOWLEDGEMENT

ACKNOWLEDGMENT* OF REAL ESTATE BROKER/BROKER-SALESPERSON/SALESPERSON

The undersigned

Real Estate Broker/broker-salesperson/ salesperson

Seller's real estate broker/broker-salesperson/ salesperson acknowledges receipt of the Property Disclosure Statement form and that the information contained in the form was provided by the Seller.

The Seller's real estate broker/broker-salesperson/salesperson also confirms that he or she visually inspected the property with reasonable diligence to ascertain the accuracy of the information disclosed by the seller, prior to providing a copy of the property disclosure statement to the buyer.

The Prospective Buyer's real estate broker/broker-salesperson/ salesperson also acknowledges receipt of the Property Disclosure Statement form for the purpose of providing it to the Prospective Buyer.

SELLER'S REAL ESTATE BROKER

BROKER- SALESPERSON/SALESPERSON: _____

BROKER-SALESPERSON: _____

SALESPERSON: _____

DATE: _____

PROSPECTIVE BUYER'S REAL ESTATE BROKER/BROKER-SALESPERSON/SALESPERSON: _____

DATE: _____

APPENDIX G

LAND USE PLANNING & CONTROL TECHNIQUES

APPENDIX G

LAND USE PLANNING AND CONTROL TECHNIQUES

Several different planning and land use control techniques are normally available to local governments to prevent noise intrusions. Controls that are generally most useful for achieving compatibility, zoning, easements and development rights, and land purchase are discussed in this appendix. Other controls such as building codes (noise insulation requirements), health and housing codes, programming of public capital improvements, and cooperation of financial institutions have either less or specialized applicability. The following list has been reproduced from a report issued by the Army Construction Engineering Research Laboratory (McCoy 2003)

G.1 ZONING

The most common and useful land use control method is zoning. This method is an exercise of the police powers of state and local governments that designates the uses permitted on each parcel of land. It normally consists of a zoning ordinance that delineates the various use districts and includes a zoning map based on the land use element of the community's comprehensive general plan. At the same time, a zone is subject to change and must be monitored continually if it is to remain a viable compatibility tool.

G.1.1 USES OF ZONING

Zoning should be applied fairly and based on a comprehensive plan. Zoning ordinances implement provisions of the comprehensive plan. This plan must consider the total needs of the community along with specific needs of the installation. For example, to zone a parcel of land for industrial or warehouse usage simply because it lies within a noise impact area is not acceptable. Such an action could be considered "arbitrary, capricious, or unreasonable" and thus vulnerable in the event of judicial review. The plan must clearly demonstrate that there is a reasonable present or future need for such usage. Zoning can and should be used constructively to increase the value and productivity of land within the noise areas. Used within its limitations, zoning is the preferred method of controlling land use in noise-impacted areas.

G.1.2 LIMITATIONS OF ZONING

Zoning has several limitations that

Zoning is usually not retroactive. That is, changing a zone primarily for the purpose of prohibiting a use that already exists is normally not possible. However, if such zoning is accomplished, the use must be permitted to remain as a "nonconforming" element until the owner has had ample opportunity to recoup his/her investment.

Zoning is jurisdiction-limited. Installation impacts often span more than one zoning jurisdiction. In this case, zoning requires coordination of all involved jurisdictions. Zoning that implements, a compatibility plan will often be composed of existing and new zoning districts within each of the zoning jurisdictions covered by the plan. Each jurisdiction is likely to have a different base zoning ordinance with districts having different applicability for implementing the compatibility plan. Counties in many states do not have zoning authority; hence, land use control via zoning in these states stops at the municipal boundary.

Zoning is not permanent. In any jurisdiction, zoning can be changed by the current government body; it is not bound by prior zoning actions. Consequently, zoning that achieves compatibility is subject to continual pressure for change from both urban expansion and enterprises that might profit from such changes. When these changes are proposed, the environmental impacts may require assessment. Also, from time-to-time the entire zoning ordinance for a jurisdiction will be updated to accommodate increased growth or incorporate new land use concepts.

Cumulative zoning can permit incompatible development. Several communities still have "cumulative" type zoning districts that permit all "higher" uses (such as residential) in "lower" use districts (such as commercial or industrial), thus supporting development that may be incompatible. In these instances, it is necessary to prepare and adopt new or additional zoning districts of the "exclusionary" type that clearly specify the uses permitted and exclude all others.

Zoning Board of Adjustment actions granting variances to the zoning district or exceptions (e.g., schools or churches) written into the zoning ordinance can also permit development that may be incompatible.

G.1.3 POSITIVE FEATURES OF ZONING

The zoning ordinance may be the most attractive land use control to prevent development around installations. First, zoning is the most effective control because, by law, it can prohibit specific developments. Second, this technique normally costs the installation nothing.

G.1.4 NEGATIVE FEATURES OF ZONING

The installation must rely on the municipality's governing body for proper zoning solutions. This may involve a political struggle beyond the installation's control. Also, the municipality must be wary of "taking land without just compensation," which is an issue often raised in zoning proceedings.

G.2 EASEMENTS

Easements can be an effective and permanent form of land use control. In many instances, they may be better than zoning for the installation's compatibility issues. Easements are permanent, with the title held by the purchaser until sold or released, and work equally well within different jurisdictions. They are directly enforceable through civil courts and may often be acquired for a fraction of the cost of the land value. Another consideration is that the land is left free for full development with noise-compatible uses.

G.2.1 DEFINITION

An easement is a right of another to part of the total benefits of the real property owner. Ownership of property includes possession of a series of rights to the use of that property. Certain rights to the property are always retained by the state or the general public, i.e., police power, taxation, eminent domain, and escheat (right of the sovereign to own those properties not in the ownership of others). Other rights are retained by neighboring property owners (e.g., the flow of water across land). Rights of ownership, i.e., possession of all rights in the land except those retained by the state, general public, or neighbors, may be bought and sold separately. When property is acquired, usually all rights are purchased (i.e., in fee simple). However, it is possible to buy only selected rights that are actually needed. These rights can be acquired in the form of easements, with the other rights retained by the owner. There are many types of easements. They can be categorized as subsurface easements such as pipelines and underground utilities; surface easements, such as roads, utilities, and access; and above-surface easements, such as air rights or navigation easements. The cost of an easement is determined by the value of those rights to the land owner. If the easement will not significantly impair the owner's contemplated usage or sale of the land, the cost should be low; but, if it does, the cost will be higher.

There are two basic classes of easements - positive and negative. In positive easements, the right to do something with the property (e.g., build a road, install power line, or create high levels of noise

over the property by its owner for certain activities is acquired. These easements may include the owner's rights to erect billboards, cut timber, build above certain elevation, or perhaps use the land for any noise-sensitive use.

For noise compatibility issues, both the positive easement to make noise over the land and the negative easement to prevent the creation of an unprotected noise-sensitive use on the property may need to be acquired to ensure adequate control. The easement should give its owner the right to make noise over the property. It should also include purchase of all the property owner's rights to establish or maintain an unprotected noise-sensitive use on the property. In the case of an existing unprotected noise-sensitive use, the cost of the easement could include the cost of either soundproofing or removing the noise-sensitive use from the property. A specific list of noise-sensitive uses, based on the criteria used for the compatibility study, should be specified as sound attenuation or other protection sufficient to place the noise-sensitive uses within the sound environment specified by the criteria.

G.2.2 OBTAINING EASEMENTS

Easements can be obtained in several ways, including purchase, condemnation, and dedication. For each easement acquired, it is wise to consider including a legal description of the noise that may be created over the property and classes of uses that may be established or maintained with and without soundproofing.

Purchase. Easements can be purchased through negotiation with the price based on the value to the owner of the rights surrendered. Timing can have a significant effect on the price paid; once the subject land has come into the arena of speculation, prices tend to rise quickly. Under certain circumstances, Federal assistance may be available for such purchases.

Condemnation. Easements, as well as full rights to property, can also be obtained by condemnation. The cost, while still likely to be less than outright acquisition (fee simple), is likely to be significantly higher than similar rights obtained through negotiation. Also, the cost of any ill will generated by a condemnation action, while difficult to measure, can be significant.

Dedication. Dedication is another way to obtain easements. Two common types of dedication—subdivision and voluntary—are discussed briefly below.

Subdivision. Subdivision regulations governing the development of land for industrial or other purposes can include provision for dedicating private land or easements on private land for public

purposes. When easements for airport-environs compatibility are considered necessary and are determined to be compatible with the intended land use, the need for such easements should be a required consideration in the review and approval of subdivision dedications.

Voluntary. Land owners in un-zoned areas may sometimes be persuaded to dedicate easements voluntarily for compatibility over their undeveloped land if assured of a fixed location for noise-impact areas. Thus, when the land is eventually zoned, the easement will help assure the owner of obtaining a zoning classification compatible with the noise. This arrangement may permit a lower tax rate during the interim years and may, coincidentally, generate a higher ultimate price for the land.

G.2.3 POSITIVE FEATURES OF EASEMENTS

Easement purchases are very straightforward transactions and are almost always less expensive than fee-simple purchases. They allow the installation to retain control over adjacent land without the burden of actual ownership. They are also usable in cases for which development already surrounds the installation.

G.2.4 NEGATIVE FEATURES OF EASEMENTS

There may be difficulty in obtaining the necessary easements, particularly when many land owners are involved, because their cooperation is required. Unless otherwise specified, the rights are not automatically transferred upon a resale of the land, so further negotiations may be required.

G.3 TRANSFER OF DEVELOPMENT RIGHTS (TDR)

TDR involves separate ownership and use of various "rights" associated with a parcel of real estate. Under the TDR concept, some of the property's developmental rights are transferred to a remote location where they may be used to intensify allowable development. With TDR, for example, lands within an installation's noise-impacted area could be kept in open space or agricultural areas and their developmental rights for residential uses transferred to locations outside the area. Landowners could be compensated for the transferred rights by their sale at the new locations or the rights could be purchased by the Army. Depending on market conditions and/or legal requirements, the Army could either hold or resell the rights. The TDR approach must be fully coordinated with the community's planning and zoning office. It may be necessary for the zoning ordinance to be amended so that it permits TDR's. Also, transfers usually must be contained within single zoning jurisdictions.

G.3.1 POSITIVE FEATURES OF TDRs

The program would be inexpensive or cost-free to the installation since the local government would administer it. The program could also stimulate growth and development of the property to which developmental rights were being transferred.

G.3.2 NEGATIVE FEATURES OF TDRs

One potential problem is record keeping. Because of the complexity of the transaction, it is often difficult to keep track of the principals and the exact number of rights that are sold and bought.

G.4 LAND PURCHASE

Fee-simple purchase of noise-impacted land is the most positive form of land use control. It is also usually the most expensive. However, when combined with either resale for compatible uses or retention and use for a compatible public purpose, the net cost may be reduced greatly. As a preventive measure, purchase should usually be limited to critical locations or to cases for which other solutions would not work. Acquisition can be through negotiation with the property owner, by deed or gift, or through condemnation.

G.4.1 POSITIVE FEATURES OF LAND PURCHASE

An obvious positive feature of this method is that it allows the installation to gain complete control over the use of surrounding land. Ownership also allows eventual sale of property. This installation program reduces initial expenditures by allowing the property to be acquired over time.

G.4.2 NEGATIVE FEATURES OF LAND PURCHASE

The biggest problem with this method is the initial cost of acquiring the land. This initial outlay may prove too expensive to justify the acquisition. In addition, the cost of maintaining the property may prove too expensive in the future. Development on the property still could be prevented by restrictive or sales agreements.

G.5 BUILDING CODES

A building code prescribes the basic requirements that regulate construction of structures. The building code is adopted by the local governing body to protect the health, safety, and general welfare of the occupants of these structures. The code establishes a set of requirements covering matters such

as fire protection, building materials, lights, ventilation, exits, plumbing, and others. Although building codes are not a technique to actually prevent development, they can restrict it, especially near Army installations. A code can require that walls, partitions, and floor-ceiling construction have minimum sound transmission capabilities. The code can specify a certain sound transmission class (STC) that must be obtained. Specific construction techniques and materials can be stated in the code. Also, the code should require that certain noise levels are maintained after the structure is complete.

G.5.1 POSITIVE FEATURE OF BUILDING CODES

The positive feature of the building code is that it promotes construction and development of structures that contain noise-proofing features.

G.5.2 NEGATIVE FEATURE OF BUILDING CODE

The negative feature of building codes is that they do not prevent or restrict any type of land use around installations.

G.6 SUBDIVISION REGULATION

Subdivision regulations are a means by which local government can ensure that proper lot layout, design, and improvements are included in new residential developments. These regulations specifically set guidelines that developers must follow when constructing their subdivisions; examples are minimum requirements for road widths, lot arrangements, allocation of facilities, the relationship of the subdivision to the surrounding area, and the dedication of property. Subdivision regulations are used to ensure that the health and habitability of each new residential development are maintained.

All local government subdivision regulations require some type of dedication of open space to the public. This provision could be structured such that the space is located nearest the Army installation. Noise barriers might also be erected along these buffer areas. Also, larger buffer areas could be required for subdivisions closer to the noise source.

G.6.1 POSITIVE FEATURES OF SUBDIVISION REGULATIONS

Subdivision regulations can be used effectively diminish noise levels in a residential area. This control can be achieved by carefully locating open spaces among units in the subdivision.

G.6.2 NEGATIVE FEATURES OF SUBDIVISION REGULATIONS

Subdivision regulations alone will not prevent development around or near an installation. They are only a way to diminish the impact of noise emanating from the installation. Buffers placed in the subdivision may not be adequate to reduce the noise levels, providing only partial noise reduction. Administrative responsibility for subdivision regulations would then increase because of the additional requirements for noise attenuation. Thus, the cost to both the local government and the homeowner would increase.

G.7 HEALTH CODES

The health code in a given community sets up the requirements that protect residents from adverse elements that may endanger them. These elements include disease, poor sanitary facilities, and inadequate or unsafe water supplies. Requirements in the code encompass all types of land uses. Similar to the building code, the health code does not actually prevent development around Army installations. The codes, however, can protect people from the noise impact of a nearby installation. At standard can be built into the code that would apply to noise-sensitive uses such as homes. The developer would be required to prohibit excessive noise levels in the development or consider another use that is not noise-sensitive.

G.7.1 POSITIVE FEATURES OF HEALTH CODES

The health code could be used in areas where zoning either is not used or is not an option. In most cases, the health code would be too strict to allow residential uses near installations, thus requiring some other, more compatible land use such as a manufacturing plant.

G.7.2 NEGATIVE FEATURES OF HEALTH CODES

The health code, depending on its complexity, is often difficult to administer. Also, field checks have to be done to ensure compliance. The paperwork needed to administer the program is substantial. In addition, the time-consuming paperwork and field checks slow development.

G.8 DISCLOSURE OF NOISE LEVELS

Noise levels in the community can be measured and recorded. By making these levels public information, incompatible uses around Army installations might be prevented. Noise levels can be disclosed in several ways. One method is by an ordinance or an amendment to an existing ordinance,

which could be passed by the local governing body, requiring disclosure. Another method would be to implement a voluntary program among realtors in the community, who would inform the potential purchaser of any unacceptable noise levels. There are several ways in which such a program can be applied at the local level. First, a statement of noise levels could be included in the deed so that the purchaser of the property knows about them. Second, real estate or leasing agents could be required to inform prospective purchasers or tenants about the potential noise problem. Also, the noise level for that area could be posted on any "for sale" or "for lease" sign placed on the property. Finally, noise contours could be published on all subdivision plots and possibly all municipal, land use, and zoning maps.

G.8.1 POSITIVE FEATURES OF DISCLOSING NOISE LEVELS

The program would make information available to the public that had not been previously, including new residents who are unfamiliar with the area. The public could then make more informed choices about locating their residences and businesses.

G.8.2 NEGATIVE FEATURES OF DISCLOSING NOISE LEVELS

Simply disclosing the noise level information does not mean that the information will be used. Programs will be required to educate the public and ensure that the public remains informed in the future. Moreover, this measure could become costly and time-consuming if noise contours were required to be placed on all municipal maps.

G.9 HUD/VA REGULATIONS

Both the Department of Housing and Urban Development (HUD) and the Department of Veterans Affairs (VA) have regulations concerning noise levels in areas where they might help finance new construction. Both agencies follow the DoD guidelines concerning the IENMP. Neither agency will make loans in areas identified as having unacceptable noise levels. These areas correspond to a DNL of 75 or greater (noise zone III). Only when the DNL is less than 65 is a site totally acceptable. This control method has potential application to all DoD installations.

G.9.1 POSITIVE FEATURES OF HUD/VA REGULATIONS

The program is similar to the development loan restriction except that public money is involved. Development, mostly residential, would be prohibited near an Army installation where noise levels are unacceptable.

G.9.2 NEGATIVE FEATURES OF HUD/VA REGULATIONS

These provisions do nothing for existing developments. Also, there is no current provision to prevent loans on the resale and subsequent purchase of existing structures. This measure is primarily limited to one type of land use - residential.

G.10 LAND BANKING

The term "land banking" is defined as a system in which a government acquires a substantial fraction of land in a region available for future development for the purpose of implementing a public land use policy. Land banking prohibits the land being acquired from becoming committed to a specific use at the time of acquisition; in addition, the land must be large enough to have a substantial effect on urban growth patterns. Land banking differs from permanent acquisition in that it places the land in a temporary holding status to be turned over for development at a future date. Land banking can be used when development of a future installation is known. For example, land in excess of that required for the installation can be purchased and held for future use.

G.10.1 POSITIVE FEATURES OF LAND BANKING

The two primary arguments in favor of land banking are that it will have an anti- inflationary effect on land prices, thus preventing land speculation, and it will permit more rational patterns of development rather than urban sprawl.

G.10.2 NEGATIVE FEATURES OF LAND BANKING

Positive aspects of land banking are disputed on the basis that if there is an orderly development of land, there will be no land that is "wasted". Therefore, the functional use of each parcel of land will increase, thus raising the price of that parcel. Another factor to consider is that the program may become politically manipulated. Government officials in charge of the program could show favoritism both when lands are acquired and opened for sale on the market. In addition, an expenditure may be too large to even begin a program of land banking. Proponents claim, however, that the money can be recovered once the site is developed.

G.11 SPECIAL TAX TREATMENT

Special or preferential tax assessment of land by a local government allows an owner of a piece of property to pay lower or no property tax. By taxing land around Army installations differently, open

space can be maintained. There are three primary methods of using taxes to keep space open. First, tax exemption of open property could be encouraged. Second, preferential assessment of land would allow agricultural or open land to be taxed at a substantially lower rate. Third, tax deferral allows the owner of open property to forego property tax payments until a non-open space use is developed. Before such use is approved, however, all tax deferrals would have to be paid.

The States of Maryland and Pennsylvania have used preferential assessment in efforts to preserve open space; Virginia pioneered the tax deferral scheme. Both of these programs should be studied to determine their applicability to specific installations.

G.11.1 POSITIVE FEATURES OF SPECIAL TAX TREATMENT

These methods are, again, a way of preventing development at no cost to the Army. The preservation of existing uses, especially agriculture, is promoted as well. Property that abuts the open space will become more valuable through the amenity that open space provides. The added value translates into increased tax revenue for the local government. Because the open space is adjacent to an Army installation, the value of the amenity is somewhat diminished, however. Even if the value of the land stays constant, the tax program has worked.

G.11.2 NEGATIVE FEATURE OF SPECIAL TAX TREATMENT

The cost of the program must be absorbed by the local government, which may refuse to implement it for this reason.

G.12 CAPITAL IMPROVEMENTS PROGRAM (CIP)

Capital improvements programming is the multi-year scheduling of physical upgrades to public property. A capital improvements program (CIP) is a planning tool used by local jurisdictions to phase the installation of needed public facilities (e.g., water and sewer, roads, schools) on a priority basis. A CIP usually projects needs three to six years into the future. It specifies what public improvements will be constructed. Scheduling is based on studies of fiscal resources available and improvements needed. Many communities are starting growth management systems, of which a CIP is an important component. The CIP identifies the methods by which improvements will be financed and the source of the funds. Usually, development occurs where capital improvements are located. Extension of municipal services into an area makes that area more attractive to developers than sites without the improvements (i.e., the developer saves both time and money). Local governments

should avoid extending capital improvements into high-noise areas to avoid the possibility of incompatible uses.

G.12.1 POSITIVE FEATURES OF CIP

There are many benefits to an effective CIP. For example, the CIP can: ensure that plans for community facilities are completed; effectively schedule public improvements that require more than one year to construct; avoid improvement mismanagement; and lead to effective growth management, among other features. CIP can and should be coordinated with local zoning ordinances to provide for growth management.

G.12.2 NEGATIVE FEATURES OF CIP

Capital improvements are limited to expenditures for physical facilities with relatively long-term usefulness and permanence. Often, misuse of a CIP can lead to haphazard or unwanted development.

G.13 DEVELOPMENT LOAN RESTRICTIONS

To fund their projects, developers often need to borrow money from lending institutions. If their funds cannot be obtained, development will not occur. Restricting or prohibiting mortgage and/or other loans for certain land uses is thus a way to control development. For example, state and local governments could designate areas around Army installations for which loans to developers are prohibited. The designated areas would coincide with certain noise contours that would have already been determined. The local government would then prohibit banks and other lenders from making development funds available for those areas.

G.13.1 POSITIVE FEATURE OF DEVELOPMENT LOAN RESTRICTIONS

The attractive feature of this program is that it costs nothing for the local government to implement and still prevents development effectively.

G.13.2 NEGATIVE FEATURES OF DEVELOPMENT LOAN

RESTRICTIONS. The program usually cannot be implemented immediately because of possible court litigation. It is likely that lending institutions will sue the local government for not allowing them to use their money as they see fit, i.e., making loans to developers.

G.14 PUBLIC/PRIVATE LEASEBACK

Leaseback is a financial arrangement in which the land is acquired and controlled, but not necessarily occupied, by the owner. This method can be used by both the public and private sectors. The leaseback arrangement in the private sector requires two simultaneous steps. First, an investor purchases real estate owned and used by a business firm or government. Second, the property is leased back to the firm or government by private persons for specific uses in accordance with the approved plan for the area. Customarily, the terms of the lease ranges from 20 to 40 years.

G.14.1 POSITIVE FEATURES OF PUBLIC/PRIVATE LEASEBACK

Leaseback offers a way for public agencies to acquire land, yet provide for the continued use of the land by others. Public agencies can thus limit the land use, while acquiring some income from the property. The leaseback method is popular in the private sector because it provides capital from outside sources and is a flexible form of financing.

G.14.2 NEGATIVE FEATURES OF PUBLIC/PRIVATE LEASEBACK

Public agencies often have the usual landlord's management problems. The leaseback arrangement also keeps land off the tax roles when used by the public sector, which lowers income to the government. Problems arise in the private sector when there is no repurchase option and the value of the property appreciates. Without this option, the lessee will not share in any value increases.

G.15 SALES AGREEMENT.

An essential ingredient in transferring real estate into a valuable commodity is the written agreement. A contract is a legally binding document in which certain parties agree to do or refrain from doing some action. The sales agreement is a legal contract which can be enforced through the legal process by either of the parties if the other party does not willingly comply with contract terms.

A sales agreement is needed to establish the terms agreed upon by the seller and buyer. The buyer usually accepts the terms in the purchase agreement. Final acceptance of the purchase or sales agreement may be conditional upon proof of a clear title, rezoning to fit the land use plans of the buyer, or adequate financing from lenders. The minimum requirements for a sales contract are the parties' agreement to conditions of the sale, a description of the property, and signatures of the agreeing parties. An installation, through sales agreements, can restrict the use of surrounding lands if they own or control them. Of course, the buyer must accept the terms of the sales agreement.

G.15.1 POSITIVE FEATURES OF SALES AGREEMENTS

After signing, the sales agreement is a legally binding contract. The buyer and/or seller can seek legal recourse through the courts if the contract is broken.

G.15.2 NEGATIVE FEATURES OF SALES AGREEMENTS

Unlike the restrictive covenant, the sales agreement pertains only to the prospective buyer. The agreement does not carry over to future sales of the property unless so stated in the contract. In addition, certain areas of agreements and contracts are subject to possible misrepresentation and fraud.

G.16 DEED/COVENANTS

A deed is the document conveying ownership of land from one party to another. Restrictions (known as "covenants") can be added to become an integral part of the deed. Such covenants specify the uses which the new owner may make of the land. Deed restrictions apply in addition to any zoning laws. They may even supersede the zoning law by prohibiting a specified use that might otherwise be legal from a zoning standpoint. Restrictive covenants are known technically as "running with the land". That is, no matter how often the land is subsequently resold, these restrictions remain in effect. They are a part of the land. There is usually a time limit placed on covenants of 20 to 30 years, after which they are no longer in effect. In certain instances, restrictions that have become impractical can be legally removed by the landowner, if deemed justifiable by the courts. For deed restrictions to be an effective tool, the installation must first own or acquire the property surrounding the installation. In later reselling this property, agents can specify which uses will be permitted on the land. The government can thereby prevent residential (or otherwise incompatible) land uses for as long as the restrictions remain in effect. This method is particularly useful in controlling development on the property most vulnerable to installation noise.

G.16.1 POSITIVE FEATURES OF DEED/COVENANTS

This method is attractive because the installation retains control over surrounding land uses without needing to continue ownership of the land, thus lessening the tax burden. Deed restrictions are legally enforceable, regardless of how many times the property is resold.

G.16.2 NEGATIVE FEATURES OF DEED/COVENANTS

Some minor problems are associated with this method. The amount of land originally purchased for an Army installation must exceed the amount actually needed. This situation may present an excessive financial burden. Also, placing land use restrictions in the deed might hinder attempts to sell the land later.

G.17 PURCHASE OF DEVELOPMENT RIGHTS

A title to real property contains several rights, including that of development. By purchasing this one right, incompatible land uses near Army installations might be prevented. Purchase of development rights would resemble a fee-simple purchase in terms of actual transaction and necessary legal paperwork. The difference would be that only one right is purchased rather than all of them. The development right of any property is usually the most valuable and desirable. The cost of the right is equal to the difference between the value of that parcel at its highest and best use and its existing value. A program of purchasing development rights could be used when insufficient funds are available for fee-simple purchases of land. The program would work best where development rights of agricultural land are purchased; the land would remain productive and yet no incompatible use could be developed.

G.17.1 POSITIVE FEATURES OF PURCHASING DEVELOPMENT RIGHTS

By purchasing development rights, land uses adjoining Army installations can be kept compatible. The purchase of these rights on lands surrounding an Army installation would thus achieve the goal of preventing development of any kind. After all the purchases have been made, no more administrative work would be needed. If the program could be completed in a relatively short period of time, administrative and land acquisition costs could be reduced. Also, purchasing development rights is much less expensive, in most cases, than fee-simple purchase.

G.17.2 NEGATIVE FEATURES OF PURCHASING DEVELOPMENT RIGHTS

Such a program requires major expenditure of funds because of the amount of land that encompasses Army installations. Unwilling sellers may present a problem as well. If the highest and best use of the land is a high density one (e.g., multifamily), the price of the development rights would not be much less than that of fee-simple ownership.

G.18 EMINENT DOMAIN

Eminent domain is a police power that enables governments to condemn and subsequently acquire private property for a public use. The public purchase clause is important in eminent domain proceedings. This clause allows local governments to use eminent domain for a wide variety of acquisitions. Exercising eminent domain forces an owner to sell his/her property for just compensation, regardless of the owner's desires. The sale price is determined by independent appraisals (usually three). If an agreement cannot be reached, the courts will determine the compensation price. Eminent domain can be used to create open space in a municipality. It is usually implemented as a last resort when property cannot be acquired or controlled by other methods. Property around an installation would be condemned and subsequently purchased. By paying for the property, the Army would receive clear title to it and thus control all rights.

G.18.1 POSITIVE FEATURES OF EMINENT DOMAIN

Like other acquisition methods, eminent domain allows the government to own full rights to the property. Eminent domain powers can be delegated or legislated to units other than city or county governments, such as park districts.

G.18.2 NEGATIVE FEATURES OF EMINENT DOMAIN

Eminent domain requires an expenditure of money to control the property. Also, eminent domain proceedings often result in litigation. If so, acquisition of the property may take years, if it occurs at all. Furthermore, eminent domain can be used to obtain only that land which is necessary.

G.19 PURCHASE OPTION

An option is an agreement between the buyer and seller of a piece of property. In the agreement, the seller will hold the property for a specified time. In turn, the buyer agrees to pay a sum of money as consideration for the offer. At the time the option is granted, no real property ownership rights pass. Instead, the buyer is purchasing the right to buy at a fixed price within a specified period of time. The seller retains the money paid regardless of whether the option is exercised.

E-16 Option costs vary, but usually include the property taxes and a standard interest charge. The option can be used when funds cannot be acquired to purchase the property outright. During the period of the option, funds presumably can be obtained to make the purchase. This period can also be used to examine rezoning possibilities or other actions that would affect ownership of the property.

G.19.1 POSITIVE FEATURES OF PURCHASE OPTION

As mentioned above, an option allows the buyer time to locate and secure funds necessary to make the final purchase. Also, the option prevents others from developing the property in a way unacceptable to the installation.

G.19.2 NEGATIVE FEATURES OF PURCHASE OPTION

This technique requires expenditure of funds to purchase the option. Even more funds must be appropriated if the option is set up to be renewed continuously.

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