FIRE AND POLICE JOINT TRAINING FACILITY ENVIRONMENTAL IMPACT STATEMENT

JANUARY, 1975

SUMMARY SHEET

FIRE AND POLICE JOINT TRAINING FACILITY

( ) Draft (X) Final Environmental Impact

Responsible Office: Building Department, City and County of Honolulu

Name of Action: ( ) State ( ) Federal and State
( ) Federal ( ) Legislative

I. Description of Action (Brief Statement)

1. Environmental Impact: The construction of a joint training facility for the Honolulu Fire and Police Departments on an un-used portion of land adjacent to Waipahu Incinerator. The facility will have training exercises resulting in airborne emissions (smoke), and noise emissions (gunfire, fire trucks, helicopter, dogs, and automobiles).

2. Adverse Environmental Effects: Potentially adverse effects include smoke emissions and gunfire noise.

3. Alternatives: Alternatives to the proposed facility include: a) No facility, b) Utilization of existing private, public, or military facilities, or c) Construction of separate facilities. The evaluation of eight alternative sites based on criteria establish the proposed site as the best location. Alternative means of minimizing or eliminating adverse effects are available, and in certain instances, will be utilized.

4. Short-term Benefits vs Long-term Benefits: The proposed training facility will result in both short and long term benefits to the Waipahu Community and to the City and County of Honolulu.

5. Commitments of Natural Resources: A slightly greater use of water which will be retrievable. A long-term commitment of 15 acres of un-used land. An irretrievable commitment of labor and materials for the planning, design, and construction of the proposed facility.

6. Economic and Social Analysis: There are both economic and social benefits through the construction of the facility. Social benefits will outweigh economic benefits. There are no economic or social non-benefits.

TABLE OF CONTENTS

Table of Contents

I. INTRODUCTION

The proposed project is a joint training facility for the Fire and Police Departments of the City and County of Honolulu. It is intended to provide all of the facilities needed by the respective departments for the training of both recruits and in-service fire-fighters and law-enforcement officers. It is being planned to satisfy the two departments' training needs for the next twenty years (1975 to 1995).

The total project will occupy approximately fifteen (15) acres of land owned by the City and County of Honolulu in an area immediately mauka of the existing Waipahu Incinerator (T.M.K. 9-3-02: Portion of 9). It is bordered on the west by Waipahu Depot Road, and on the east by the Ted Makalena Municipal Golf Course. The mauka boundary of the project is adjacent to an unimproved open area, and will be determined by the fifteen acre area allotment. (See Location Map, Figure 1 and Tax Map, Figure 2).

The project will include the following: 1) Administration/Classroom Building, 2) Gymnasium, 3) Training Pool, 4) Outdoor Fire-training area with a Fire-Training Building, 5) Radiological Building, 6) Firing Range, 7) Canine-Training Building, 8) Driver-Training Course,

9) Drill Field with a helicopter landing pad, and 10) a parking area. A graphic presentation of the facility is shown in Appendix F including building heights, areas and projected personnel capacity.

The goal of the proposed facility is to provide a complete training complex which will accommodate and encourage, both presently and in the future, the development of all possible knowledge and techniques of the training of firefighters and law-enforcement officers. In order to achieve this goal, the facility has to meet the following objectives:

1. Centralization of all the various types of training facilities (i.e. classrooms, gymnasium, firing range). This would a) reduce the amount of wasted travel time between separated facilities[1], b) eliminate scheduling and logistical problems inherent in separated facilities, c) enable the sharing of certain types of facilities by both the Fire and Police Departments (i.e. classrooms, training pool, driver training course), d) enable joint fire and police training exercises to simulate actual emergency situations where both firefighters and police officers cooperate as a team.

2. Adequate amount and proper type of training facilities. This would: a) Reduce the presently overcrowded classroom conditions of the Police Department, b) Eliminate

usage of public and private facilities (i.e. Koko Head Firing Range, Manoa Recreational Pool, Hawaii Raceway Park), c) Provide necessary simulated conditions of any situations which firefighters and police officers may experience (such as heat and flame exposure), d) Assume the safety of all new and in-service trainees during training exercises.

3. Flexibility of the different types of training facilities to accommodate the development and execution of new types of firefighting and law-enforcement techniques. This would assure the long-term capacity of the facility to serve any future training techniques which may be developed.

Both the Honolulu Fire and Police Departments have needed this joint training facility for many years. The inadequacies, problems, and effects of the present training conditions of these Departments have been documented in a Report written earlier by this consultant[2]. The Honolulu City Council, recognizing this need, appropriated funds in 1970 to begin the acquisition of land, planning, design, and construction of this joint training facility. A study of the current and future needs of the training programs of the two departments[3], and an extensive evaluation of possible alternatives sites have resulted in the selection of the proposed Waipahu site. It is to this proposed site which this environmental impact statement is addressed.

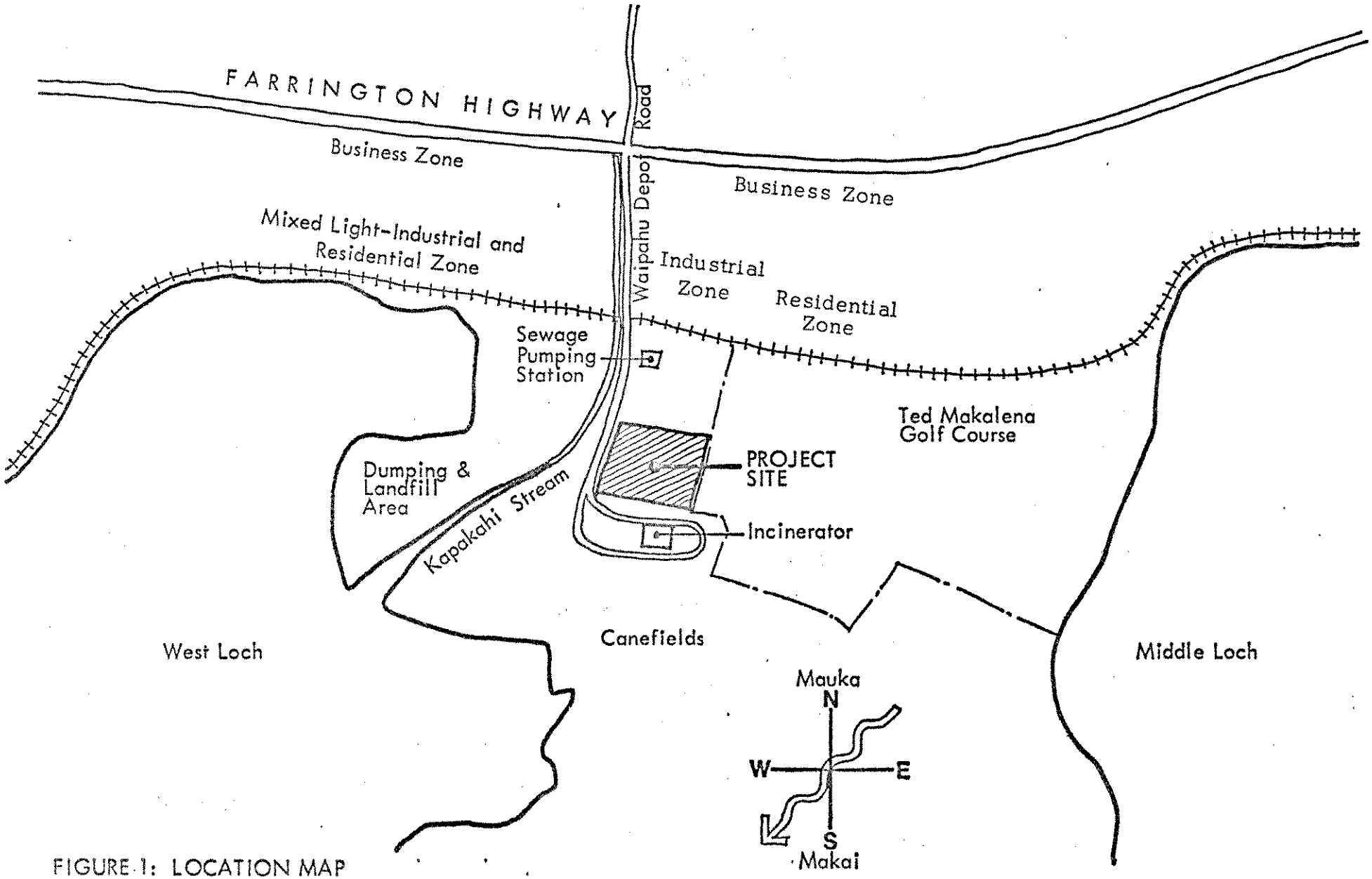


FIGURE 1: LOCATION MAP

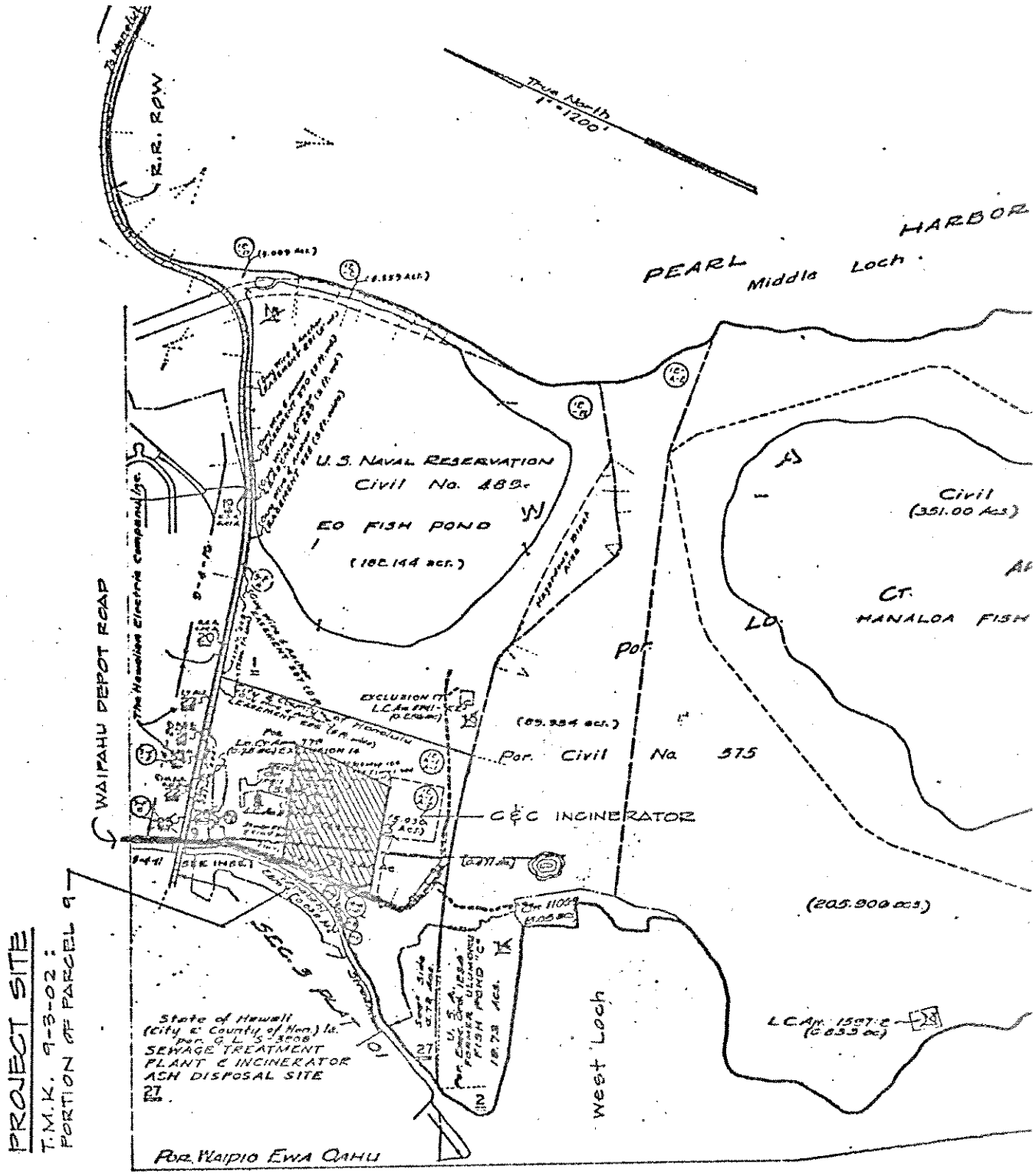


FIGURE 2: TAX MAP

II. EXISTING CHARACTERISTICS

A. Physical Characteristics

The proposed site for the training facility is a 15 acre portion of an approximately 100 acre area designated for public facility use. It is a flat, low-lying area with existing grade elevations averaging approximately 4 feet above sea level. Portions of the site which lie below sea level are constantly inundated due to the high water table in the area. There are no unique physical features to the site. The use of the area as rice ponds, and its subsequent use as a silting basin until 1962, have significantly altered the original marshy characteristics of the site.

Ash and refuse residue from the adjacent City and County Incinerator may be utilized to fill and raise the elevation of the existing ash/refuse landfill to eliminate the problem of tidal and riverine flooding. A master grading plan has been prepared of the Waipahu Refuse and Incinerator Ash Disposal Site for the City and County of Honolulu Building Department. This master grading plan includes the area west of the proposed Fire-Police Training Facility site to the shores of West Loch.[4]

The soil in the area has been classified by the State Land Study Bureau as Class E (lowest of all classes A to E). This indicates its undesirability for any agricultural type of usage. This

classification is primarily due to three factors: a) High salt content of the soil, b) High water table of the area, and c) Marshland conditions which have been alleviated somewhat by its use as a silting basin.

Test borings taken in the adjacent area (for the incinerator) show firm red silty clay down to sea level; soft gray silty clay mixed with fine gravel, decayed vegetation, coral and shell fragments between sea level and twenty feet below sea level; soft gray silty clay graduating to a hard brown silty clay between twenty feet and 100 feet below sea level. These findings confirm the original marshy conditions and the later silting operations.

The atmospheric conditions are as follows: a) Rainfall: 25 inches annual average; monthly average between 1-3 inches, b) Temperature: 73.8 degrees Fahrenheit annual average; range: 65^{o}-83^{o}, c) Wind velocity: 10 miles per hour average 75% of time, d) Wind direction: from the Northeast, 75% of the time.

The atmospheric quality in the area is affected by several factors such as the incinerator which operates on a daily basis, the sugar cane mill, the industrial types of operations, and the H-1 Freeway mauka of Waipahu. The constant tradewinds in the area tend to alleviate this atmospheric condition quite significantly.

The proposed site is bordered on the mauka side by a low-lying marshy area similar to the subject site (See Figure 1). Approximately one-fourth of a mile beyond this area is the edge of a light industrial/residential area. It is bordered on the Honolulu side by the Ted Makalena Municipal Golf Course, the makai side by the Waipahu Incinerator, and on the Ewa side by Waipahu Depot Road and the dumping/landfill area.

B. Biological Factors

On March 8, 1974, Dr. Horace Clay, PhD. Horticulture, a faculty member at Leeward Oahu Community College, was taken to identify all plant materials. His findings are as follows: a) All of the existing plant materials are exotic to Hawaii and may all be considered weeds. b) The shrubs appear to be between 5 to 10 years old. The trees (only Kiawe) appear to be 20 to 25 years old. They can all be considered relatively young plant material. c) Nothing significant or worth saving exists on the site. With the possible exception of several shallow rooted Kiawe trees, they could all be removed from the site and new landscaping brought in. A list of the plant materials identified on the site may be found in Appendix A of this EIS.

C. Land Use

With the exception of some incinerator residue and refuse around its fringes, the subject land is not presently being used for any purposes. A central portion of the site is cleared where a utility easement and lines (from the mill to the canefields on Waipio Peninsula) cross the site in a mauka-makai direction. These would have to be relocated along Waipahu Depot Road.

The State Land Use Designation for this area is Agriculture. As indicated previously, the soil type does not make it desirable for agricultural purposes and a State Land Use Special Permit is now being processed to allow the construction of the proposed facility.

The present City and County Zoning of the parcel is AG-1, under which the proposed public facility is a permitted use.

The Oahu General Plan designates this area for Public Facility use. This indicates the appropriateness of the proposed facility in terms of the comprehensive long-range plan for the area.

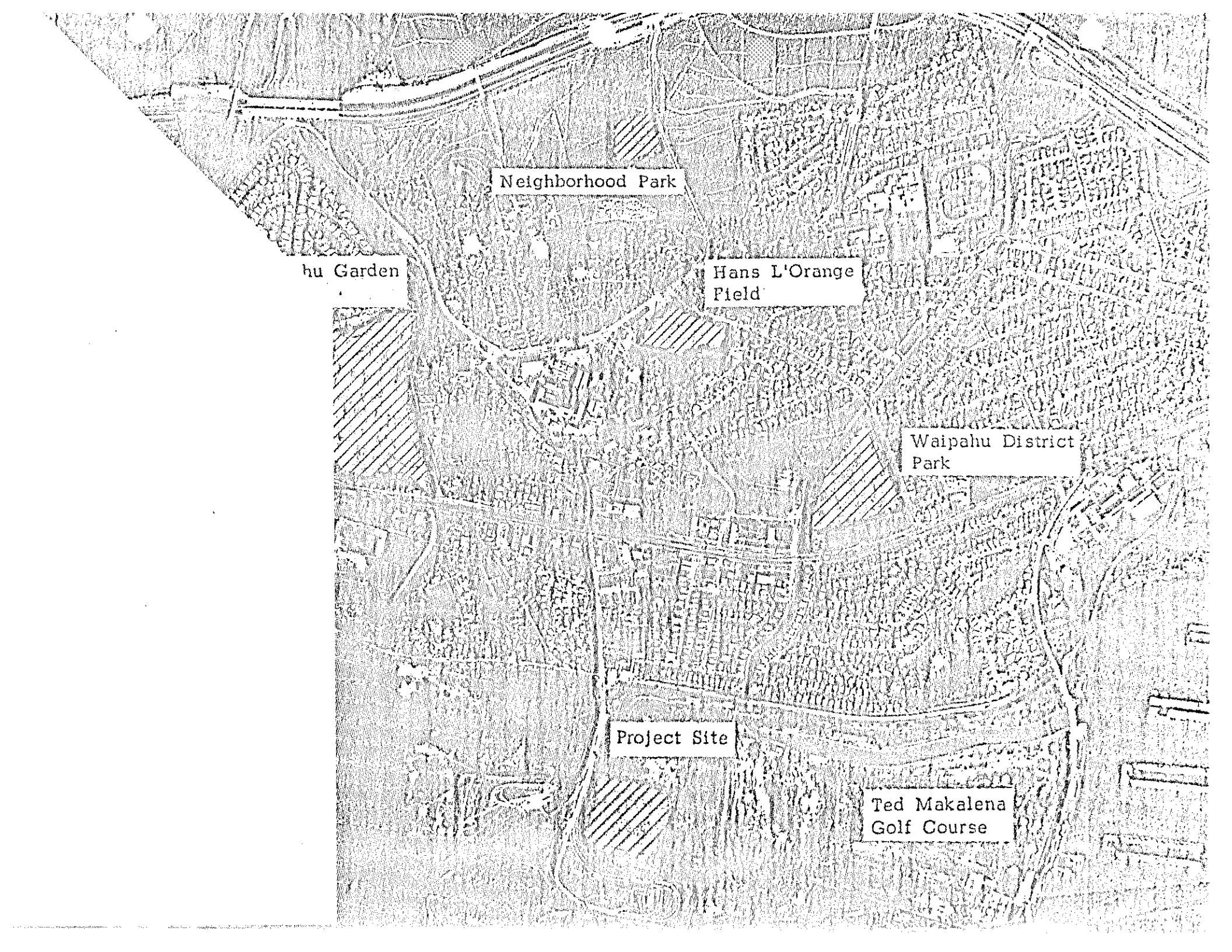
D. Cultural and Social Factors

The existing cultural and social factors may be investigated in four categories: a) Recreation, b) Aesthetics and Human Interest, c) Social Status, and d) Demography. Since there is no existing population on the proposed site or in the immediately surrounding

area, all of these factors will be discussed at the larger scale of the Waipahu area, and where applicable, the County-wide area.

The existing recreational facilities of the Waipahu area total approximately 223 acres (See Figure 3). These consist of the Ted Makalena Municipal Golf Course (200 acres), Waipahu District Park (15 acres), Hans L'Orange Field (4 acres), and the Honowai Playground (4 acres). Additional facilities presently in the planning stages consist of the Waipahu Garden Park (40 acres), 80% of which has already been acquired by the City and County to establish this Botanical/Cultural type of facility depicting the former Plantation Lifestyle, and a neighborhood park (4 acres) between the mauka edge of Waipahu Town and H-1 Freeway to serve the residential development planned for that area.

In addition, the Department of Recreation is investigating the potential of establishing a major Regional Park on the Waipio Peninsula to serve the lower Central Oahu area. Although, this possibility does not appear feasible at this time due to the use of that land by the Navy, Oahu Sugar Co., and the City and County (as ash-disposal site), it has been indicated that the proposed training facility would not adversely affect or hinder the development of this Regional Park. This is due to the following reasons: a) The proposed facility is not located along the shoreline which is considered prime land for recreational facilities, b) It is not adjacent to the


Neighborhood Park
hu Garden
Hans L'Orange Field
Waipahu District Park
Project Site
Ted Makalena Golf Course

residential areas, which means that the area between the proposed facility and the residential area could be developed for park usage to serve the immediate residents in that area, c) There is a large amount of area on the Peninsula (1900 acres), of which 15 acres for the proposed training facility is an insignificant amount, d) The major portion of the proposed facility will be large, open, landscaped areas, which would make it similar to any recreational type of development. e) Any adverse conditions such as open burning exercises can be scheduled to respect periods of highest park use such as weekends and holidays. Training exercises can be held when trade-wind conditions are directed towards Pearl Harbor West Loch, thereby minimizing the impact of smoke. The effect of this smoke upon future recreational facilities at West Loch will have less of an impact than over the residential areas in the opposite direction.

It appears, therefore, that the proposed training facility would have negligible impact on the recreational facilities in the area due to: a) the already adequate amount of existing and planned facilities in the area, and b) the long-range development of the major Regional Park, which would not be hindered by this proposal.

The site of the proposed training facility is in an area which does not possess any significant aesthetic or human interest quality. As stated earlier, the area is presently a neglected flat area used

as a disposal area for refuse and incinerator residue. Its original marshland characteristic has been modified significantly through siltation and refuse disposal. The plant material which has developed since the siltation is exotic, relatively young, and may be considered as "weed" types.

There are no specific historical or archaelogical significances on the proposed site or in the immediate surrounding area.[5] However, Pearl Harbor in general is considered a National Historic District due to its unique role in World War II. The Fire-Police Training Facility will have no effect on the natural function of the harbor, on the operations of the naval base and due to the lack of specific sites of historical or archaeological significance in the immediate area, the project site is not eligible for inclusion on the National or the Hawaii Register of Historic Places.[6]

In terms of the County-wide community, however, the Waipio Peninsula does offer potentially significant aesthetic and human interest opportunities, since it is one of the few publicly-accessible areas to Pearl Harbor. This opportunity, however, is not presently realized due to several reasons including military restrictions, unattractive polluted waters, and the neglected shorelines along this waterway. Future developments such as the major Regional Park being

investigated by the Department of Recreation could reverse this present situation and result in giving this area a significant aesthetic and human interest quality which it now lacks.

In terms of the social and demographic factors, it is appropriate to consider these at the County level due to the community-wide significance of the proposed training facility.

The population of the City and County of Honolulu (presently 650,000) has experienced a tremendous rate of growth within the past decade. Furthermore, projections by various agencies for different purposes (DPED, Dept. of General Planning) all indicate that this rate of growth can be expected to continue for the next few decades (unless drastic measures are taken), and can also be expected to result in increased densities. Both of these factors will undoubtedly have significant impacts upon the social lifestyles and well-being of the population. Effects such as overcrowding, pollution problems, housing crises, transportation woes, increased crimes, etc. have already been felt and can be expected to continue until solutions through legislative actions, governmental services, and public attitudes, etc. can be found. It is in this social and demographic context that the proposed training facility must be viewed and analyzed as to its effects upon the County-wide community.

E. Ecological Relationships

Detailed investigations have indicated no significant or threatened ecological relationships existing on the proposed facility site. The relatively young age of the plant material on the site, and the soil characteristics through test borings indicated that the existing characteristics of the area are the results of relatively recent developments which modified the original landscape.

Two Federal Wildlife Refuges are located approximately 2 miles to the east and west of the proposed training site. The east site on Pearl City Peninsula is 24.5 acres and the west site at Honouliuli is 36.6 acres. Both of these refuges which include ponds and nesting areas, guard two endangered species of waterfowl, the Alaekeokeo (Hawaiian Coot) and the Aeo (Hawaiian Stilt). These birds also feed on the mudflats near the mouth of Kapakahi Stream.[7] State Fish and Game Officials see no adverse effects to these birds resulting from the proposal facility. See Figure 4.

Pearl Harbor West Loch has been designated Class AA waters by the State of Hawaii Department of Health. Since pollution to these waters must be kept to an absolute minimum, all surface runoff from the proposed facility will be channeled to encourage percolation.

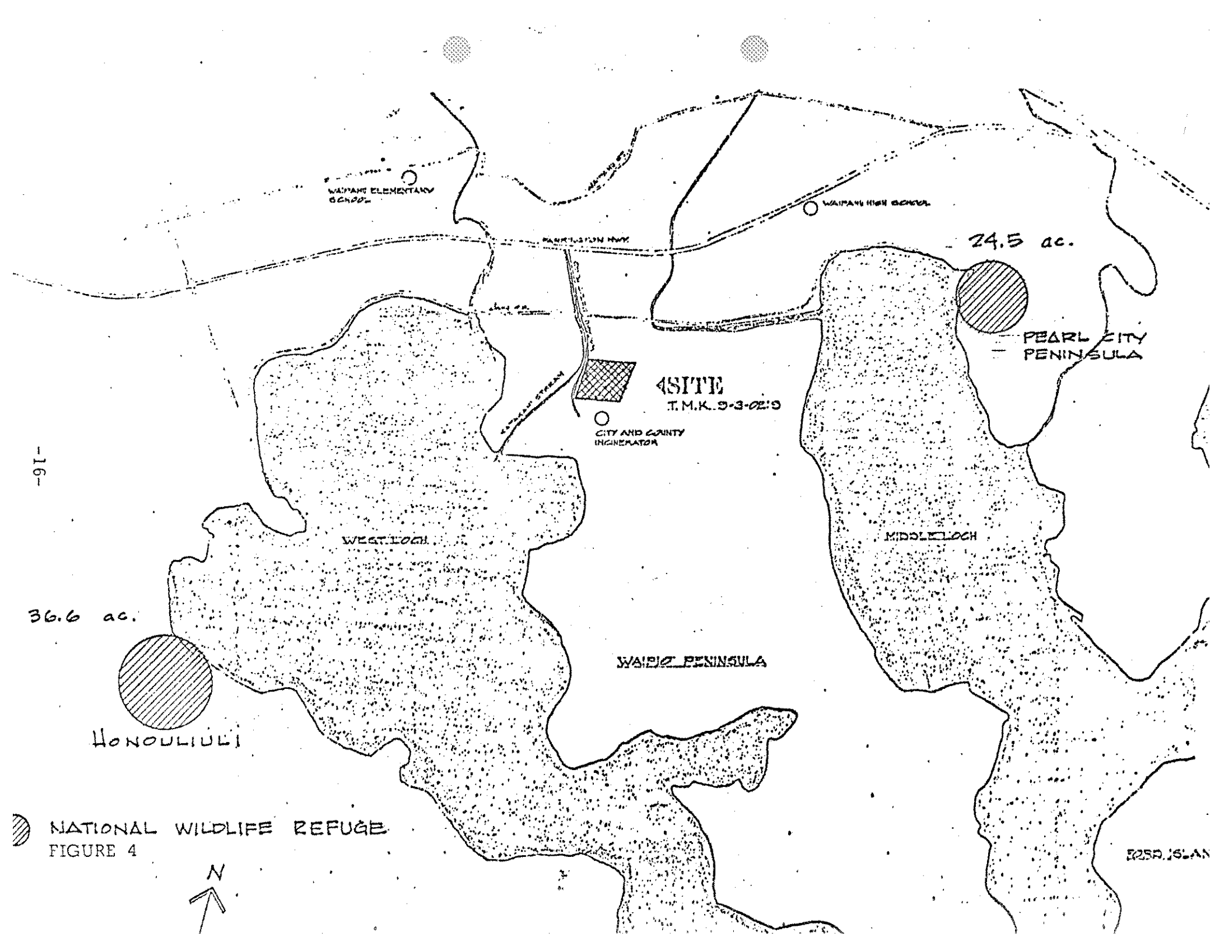

WAIPAHU ELEMENTARY SCHOOL
WAIPAHU HIGH SCHOOL
KAMEHAMEHA HWY
24.5 ac.
PEARL CITY PENINSULA
SITE
T.M.K. 9-3-02:9
KAMAKAU STREAM
CITY AND COUNTY INCINERATOR
WESTLOCH
MIDDLE LOCH
36.6 ac.
WAIPIO PENINSULA
HONOULIULI
NATIONAL WILDLIFE REFUGE
N

FIGURE 4

III. ENVIRONMENTAL IMPACT OF THE PROPOSED ACTION

A. Airborne Emissions

The airborne emissions generated at the site will be from two primary sources: a) Exhaust emissions from internal combustion engines of the automobiles and fire trucks, and b) Smoke from fire training burning exercises.

In terms of internal combustion engines, the actual daily training exercises will involve two police pursuit cars operating periodically and a maximum of six fire trucks (3 in the morning and 3 in the afternoon) for a total of five vehicles potentially operating simultaneously. The exhaust emissions from these training vehicles can be expected to be negligible.

The police driver training roadway consists of a network of "minor streets" for traffic control and accident investigation. These streets will be similar to typical paved city streets with intersections, sidewalks and fire hydrants. A longer, straight "major street" will be used for accelerated pursuit training.

In addition, there will be approximately 100-150 automobiles parked on the site during the average training day. These will be primarily private automobiles of trainees, training officers and administrators, instructors, and visitors. Since most of the circulation within the site will be pedestrial, it can be expected that these

automobiles will be operated primarily during the mornings and afternoons for commuting purposes. Therefore, the exhaust emissions from these vehicles would not occur for any prolonged period. Also, the emissions from these private automobiles are regulated by the Federal Exhaust Emission Standards.

Burning will occur at the facility as an integral part of the training drills in order to give the trainees actual exposure to heat and flames. These burning exercises will be involved in three types of facilities: a) Fire Training Building, b) Concrete slab and pit, and c) X-mas Tree. The eight-story Fire Training Building will have a series of valve-controlled natural gas pipes, which will be ignited in the interior of the building. Wood and oil fires will also be ignited in this building to simulate the full range of fire types and situations. The resulting smoke from these exercises will be contained within the building and can be released slowly to minimize the amount of dense emissions. The average exercise will take approximately a total of five minutes from the time of ignition to total extinguishment.

The concrete slab and pit (a raised concrete slab and a concrete depression), and the X-mas tree (a series of gas pipes protruding from the ground) will have oil, gasoline, and other fires ignited to simulate gas and oil leaks, debris fires, automobile fires, etc.

These exercises will consist of a 15 second pre-burn stage followed by a 40 second extinguishment stage for a total duration of approximately one minute. The projected maximum frequency of all of these burning exercises is six drills per day.

The total duration of these smoke producing fire-training exercises, including the fire-training building, will be approximately 36 minutes of an eight hour training day, of which approximately 6 minutes will be actual open burning.

During the course of a training day it is expected that a maximum of five gallons of diesel oil and 5 gallons of gasoline will be utilized in a mixed solution. The amount of fuel consumed will vary according to the time required to extinguish the fire in each separate drill.[8]

Areas around and between the fire training building, concrete slab, pit and X-mas tree will be paved for the operations of vehicles and equipment. Training exercises will be conducted with strict adherence to Fire Department safety procedures and all burning exercises will be concentrated in one particular area of the site.

Since open burning is permitted by State law only for agricultural purposes, a variance must be obtained for the Fire-Police Training Facility. This variance procedure would required approximately two months and would include: a) The variance application, b) Review by

the Pollution Investigation and Enforcement Branch, State Department of Health, c) A public hearing thirty days after a notice is given, d) A decision by the Director of the State Department of Health, e) If the decision is favorable, further approval is required by the Federal Environmental Protection Agency, Region 9.[9]

In addition to water, three types of extinguishing agents will be used by the Fire Department for these burning drills:

a. Carbon Dioxide Extinguisher: an inert gas, heavier than air, which will dilute the oxygen content of the air to a point at which there is insufficient oxygen to support combustion. It is non-toxic in open air conditions and dissipates rapidly.

b. Light Water: an aqueous film-forming foam that floats on oil fires and smothers the flame. It meets the requirement of MIL-F-24385 specifications for fire extinguishing agents, is manufactured by the 3M Company, and is a very quick acting agent. It is water soluble, biodegradeable, and non-toxic. The 3M Company declined to release its chemical composition, which is a trade secret.

c. Hi-Expansion or Protein Foam: a fluid suspension of air or gas in the form of small bubbles. It is used for combatting flammable liquid fires in three ways: 1) excluding air or oxygen, 2) eliminating vapor release, and 3) separating the flame from the fuel

surface. The manufacturer (National Foam Systems, Inc) indicated that proper usage of the foam would eliminate smoke and combustion bi-products from entering the atmosphere. The protein base type concentrates are primarily hydrolyzed protein, freezing point depressant, and organic and inorganic stabilizers. The foam is non-toxic, biodegradable and contains no phosphates, lead, mercury, or other materials identified as contaminants or pollutants. The manufacturer declined to release the specific chemical composition.[10]

The purpose of these foam extinguishing agents is to smother the fire. They do not combine with the fuel, but instead prevent oxygen from combining with the superheated vapor, thereby eliminating combustion. Thus, no airborne pollutants can be expected from the application of these foam extinguishing agents to the fires.

It should be pointed out again that all emissions from these burning exercises may be permitted after a variance is processed through the State Department of Health and The Environmental Protection Agency. In addition, to avoid any adverse environmental impact of any air-borne emissions upon any residential areas (which are upwind of the proposed facility during prevailing tradewinds), the Honolulu

Fire Department will hold all exercises involving smoke emissions only during prevailing tradewind conditions. They will not hold any of these exercises during adverse wind conditions such as Kona wind, "no-wind", or extreme trade winds (exceeding 20 mph).

B. Waterborne Effluents

The potential sources of waterborne effluents are from three fire-training exercises: a) Hose evolution drills, b) Extinguishment of wood type fires, c) Extinguishment of oil type fires. It is estimated that approximately 10,000 to 12,000 gallons of water will be used per training day (5 days a week). Also, sanitary waste disposal must be considered.

Hose evolution drills are used to give firefighters practice in all aspects of hose handling, connections, layouts, and proper applications of water streams, sprays, etc. Water from the City Board of Water Supply will be used via a 12" diameter water main (existing) and hydrant system. The resulting run-off water will be collected through a drainage system and returned to the drafting pit to be re-used. All excessive amounts of water will feed into the existing storm drainage system in the area or used to irrigate the facilities' landscaping. The run-off water from these hose evolutions will not carry any waterborne effluents and even significant excess run-off will not affect the existing adjacent sanitary land fill area if proper drainage engineering measures are utilized.

The water used to extinguish wood fires in the Fire-Training Building or at the slab or pit, will be mixed with ashes, charcoal, cinders, etc. This mixture will be drained to a sump pit, then filtered to remove debris before the water is drained to the drafting pit or storm drainage system. The debris will be cleared and removed to the adjacent incinerator for disposal. The drafting pit will be cleaned periodically to prevent odors resulting from bacterial degradation.

As pointed out in the previous section, the oil fires will be extinguished by foam. The resulting foam mixture will not enter the drafting pit, but will be washed off the slab, pit, and X-mas tree areas, starting the breakdown of the foam. This mixture could be collected in a separate drainage system, removed and disposed of by an acceptable method.

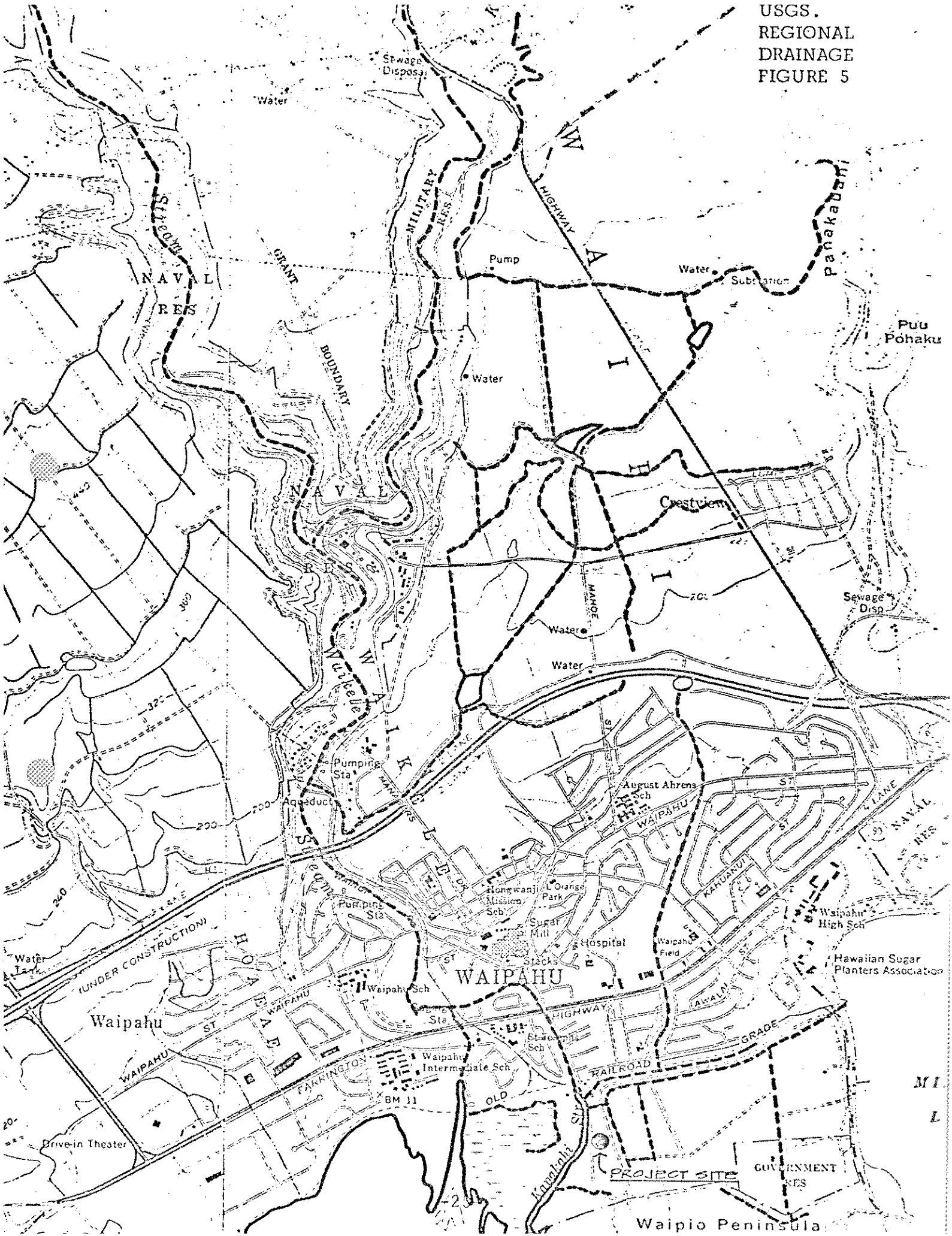
According to the City and County of Honolulu Building Department's master grading plan for the Waipahu Refuse and Incinerator Ash Disposal Site, the storm drainage system in the area utilizes Kapakahi Stream which in turn flows into Pearl Harbor West Loch, classified as Class AA water. The excess run-off from hose evolutions and some of the water used for extinguishing wood fires which does not enter the drafting pit for re-use may ultimately flow into this storm drainage system.

The run-off from hose evolution drills will not carry any waterborne effluents, but water used to extinguish wood fires will contain particles and chemicals as a result of the combustion process. Due to the nature of the Fire-Police Training Facility, there may be limited amounts of chemicals such as oil, gasoline, and extinguishing foam entering the storm drainage system regardless of the precautions taken to collect them in a separate drainage system. Oil from car and truck engines may drip on paved surfaces and could be carried by rainwater into the drainage system along with foam and other chemicals.

The quantity of pollutants resulting from the Fire-Police Training site, however, is infinitesimal when compared to the volume of drainage and pollution resulting from the surrounding region and Waipahu Town flowing into West Loch via Waikele Stream and Kapaleahi Stream. (See Figure 5)

The City and County of Honolulu Sewers Division concurred that domestic waste from the Fire-Police Training Facility, including canine waste, can be handled by an existing gravity sewer line via a new 8" line connection at an existing manhole near the Waipahu Sewage Pumping Station mauka of the training site. A permit is being processed to allow this new connection.[11]

In view of the above, there will be no unusual direct discharge of adverse waterborne effluents into Pearl Harbor West Loch.


USGS.
REGIONAL
DRAINAGE
FIGURE 5
Sewage Disposal
Water
Stream
NAVAL RES
GRANT
BOUNDARY
MILITARY RES
HIGHWAY
Pump
Water
Substation
Pahakaloni
Puu Pohaku
Water
NAVAL RES
Crestview
MAHOE
Sewage Disp
Water
Water
Waikele Stream
Pumping Sta
Aqueduct
August Ahrens Sch
WAIPAHU
KAHUANUI
NAVAL RES
Hongwanji Mission Sch
Orange Park
Pumping Sta
Sugar Mill
Hospital
Waipahu High Sch
Waipahu Field
Hawaiian Sugar Planters Association
(UNDER CONSTRUCTION)
Water Tank
HOOLAE
Waipahu Sch
WAIPAHU
Stacks
Waipahu
WAIPAHU
Sta
HIGHWAY
HAWAII
Waipahu Intermediate Sch
FARRINGTON
BM 11
OLD
RAILROAD
GRADE
Drive-in Theater
PROJECT SITE
GOVERNMENT
Waipio Peninsula

C. Noise Emissions

The potential sources of adverse noise emissions are: a) Gunfire, b) Pumper Trucks, c) Helicopter, d) Driver-training exercises, and e) Canine dogs. With the exception of the helicopter (which will land at the site only for emergency purposes and not for training exercises) all of the above will be occuring on a daily basis (5 days per week).

The Honolulu Police Department will be utilizing the firing ranges 4 nights per year to train a Special Task Group and 2 nights per year for basic recruit training. The total of 6 night firing sessions will be spaced throughout the year and will never be conducted on consecutive nights. These classes will terminate promptly at 9:00 p.m. each night. Driver training classes will not be held at night.

The Honolulu Fire Department will be conducting night training sessions on two nights for each recruit group. A maximum of three recruit groups would necessitate 6 nights of training per year. The training will basically entail entering and exiting from a darkened building utilizing simulated fire conditions to provide realism. There will be no sirens or other loud noises to disturb the residents in the area and all training will be conducted within the Fire-Police Training Facility.

Due to the significant potential impact of noise generated by the above sources at the proposed facility, actual on-site sound level measurements of these noise generators were taken by an acoustical consultant, Mr. James Chang, on February 19, 1974. His measurements, calculations, and conclusions are included in Appendix B and C as a supplement to this section of the Environmental Impact Statement.

Several findings are significant: 1) The highest sound level recorded was generated by gunfire. The sound level of all the other noise generators such as the fire trucks and helicopters were significantly lower. 2) The highest level of sound at the closest residence is within the limitations of the CZC under normal tradewind conditions. 3) A comparison to National and Military standards indicated that the highest noise level recorded would not be expected to attract public complaints or reactions.

It is important to note that the measurements were taken in an open area without any sound baffles, earth berms, or landscaping. All of these devices will be utilized for both safety and acoustical reasons in the design and construction of this facility, thereby reducing considerably the sound levels recorded that may extend beyond the site. If firing tests using many weapons to simulate an actual

training session were held at another firing range where conditions are different from the Waipahu site, the sound readings would not be representative of the new site or proposed facility.

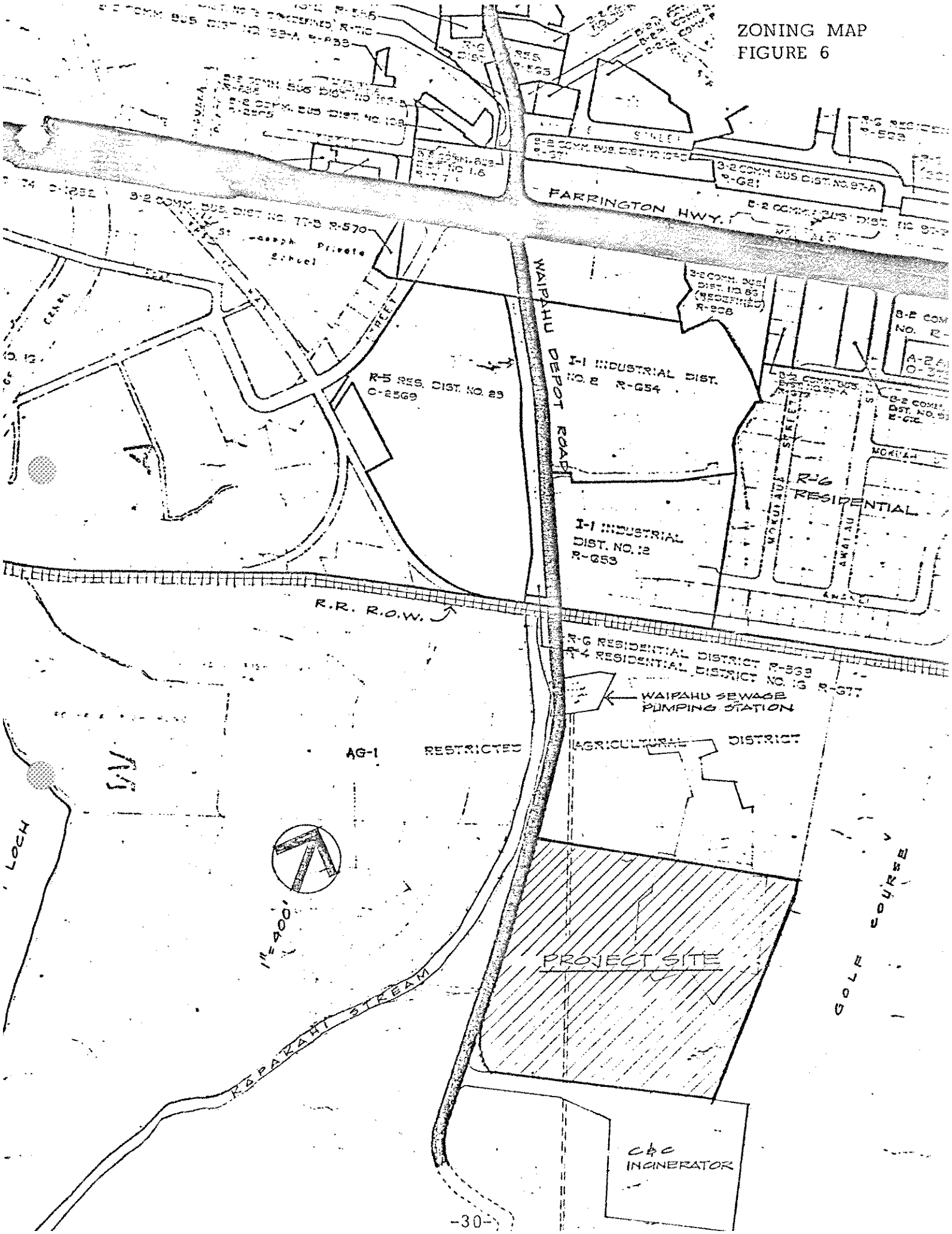
Since the highest level of sound was generated by gunfire, a major effort will be made to incorporate specific design features for the firing ranges and site characteristics for maximum sound attennuation. The Honolulu Police Department will be firing approximately 1,900 rounds of ammunition per day which will consist of 1,000 pistol, 500 shotgun and 400 AR-15 rifle rounds. These figures are based on a training class of 20 recruits. Night firing sessions can be identified as a potential worst impact condition and emphasis will be placed on achieving acceptable noise levels during this period. See Appendix C.

The design of the firing shed (facility at the position of weapon discharge) is most critical for maximum sound attenuation. Parallel surfaces will be avoided and a choice of materials such as leaded vinyl walls with a combination of fiberglass and air space insulation may be utilized. The geometric configurations of the sheds will be studied with acoustical consultants in the final design and ranges will be enclosed on all sides by earth berms topped with concrete and wood baffle fences for safety and to direct sound waves in a vertical direction. Horizontal overhead baffles will also be used above the firing range to insure adequate sound control and safety for the surrounding community.

Earth berms and other man-made or natural barriers such as dense foliage will be utilized to minimize sound disturbances to the residential area in the main noise sensitive direction mauka of the project site. See Figure 6. Under normal wind conditions from the Northeast, noise will dissipate away from residential areas. During Kona winds, which occur 25% of the time, the wind direction will be towards inhabited areas, but the high moisture content in the air will tend to lessen noise.

Locations of noise sources (such as fire engines and other vehicles used in training) relative to these barriers will be established for optimum noise control and building massing will reflect a separation of incompatible activites and patterns of angularity for maximum sound suppression within the site. Classrooms and administrative functions are intentionally placed on the mauka portion of the site and greatest noise producers such as the driver pursuit course and firing ranges will locate on the makai side farthest from the residential areas. The direction of firing will also be away from inhabited areas for maximum safety and minimum sound propagation. Interior spaces such as classrooms and offices will be designed and insulated to minimize exterior sound to recommended noise levels of 40 to 50dB with reverberation times of 1.5 to 2 seconds.[12]

ZONING MAP
FIGURE 6



Helicopters will be used for emergencies such as injuries resulting from fire or police training activities or unique circumstances such as visits by government officials or dignitaries. The Fire Department does not plan to use these aircraft in hi-rise fire fighting procedures and the Police Department will limit their training on helicopters to classroom lectures by the crew utilizing video tapes. The helicopters assigned to both departments are permanently based and maintained at the Honolulu Airport. The flight path of these infrequent helicopter landings will not violate air space over residential districts and the area around the landing pad within the training site may be enclosed by earth or dense foliage barriers for sound control. Since night training activities are limited, these flights would occur mainly during normal daylight working hours.

The canine training area is primarily a grassy area where dogs will be trained to attack, subdue and guard on command. This area will include a one-story structure containing a veterinary examining room and kennels. The dogs will normally accompany their masters to private homes after training hours so canine activities would mainly be limited to working hours. Dogs remaining at the kennels will not create a noise problem if proper sound control measures are incorporated in kennel design.

An extensive review of the preliminary environmental noise survey was conducted by Dr. John C. Burgess of the University of Hawaii Department of Mechanical Engineering. He concurred that earth berms, building location and massing, acoustical treatment, and direction of firing can be used to control noise emissions. He also stated that the proposed site has a great advantage due to only one noise sensitive direction (mauka of the site) which encourages the effective use of barriers. In his opinion there are no significant technical problems to overcome to create a negligible environmental noise impact.

The final design of the Fire-Police Training facility will incorporate a maximum input from the consultants mentioned above to insure that all Federal, State and City noise control codes are satisfied. Special emphasis will be placed on the Source-Path-Receiver relationship. Noise will be controlled at the source and maximum attentuation will be achieved along the path to the receiver.

D. Solid Waste

There are three primary sources of solid wastes: a) Debris from fire-training exercises, b) Spent cartridges and shells from the firing range, and c) Radioactive wastes from the future Radiological Building.

As noted in an earlier section, the debris from the fire training exercises will be removed to the adjacent City & County Incinerator. A significant amount of debris is not expected to be generated due to the burning exercises which would considerably reduce any combustible materials (wood) to ashes or charcoal.

The spent cartridges and shells from the firing range will be collected, reloaded, and re-used, thereby not creating any waste problem.

The radiological building is being included in this proposal for planning purposes only, and would not be built until an appropriate time in the future. At that time, the building will be designed to conform to all Atomic Energy Commission standards and specifications. At present, the nature or quantity of radioactive waste to be used in training programs is not known. The problems of handling and removing radioactive wastes, and conformance to safety and environmental standards will be determined when more information is available.

E. Resource Depletion

The proposed training facility would involve the depletion of three resources: a) Ground water supply, b) Land (15 acres), and c) Ash-residue and earthfill.

The amount of water to be used by the training facilities and training exercises such as hose evolutions is anticipated to average approximately 10,000 to 12,000 gallons per training day (5 days a week). The average daily water consumption of the Waipahu area is approximately 3.5 million gallons.[13] The proposed facility would therefore create an additional 3/10 of 1 percent increase of water usage in the area. Preliminary checks with the Board of Water Supply have indicated that the water supply for the area and the existing water main systems are sufficient to accommodate the increased demand.

It has been pointed out earlier that the water utilized for fire training exercises will be filtered, then re-cycled into the drafting pit for additional use in either training exercises or for landscape irrigation purposes. It can be assumed, therefore, that maximum use will be made of the water supply entering the facility, and that any run-off water returning to the original ground water source will contain a minimum amount of ash residue similar to natural run-off from the total ash disposal site.

The proposed facility is located on the Waipio Peninsula (approximately 1900 acres) of which 1215 acres are presently being leased to and cultivated by Oahu Sugar Company, 200 acres are

being used for the Municipal Golf Course, 400 acres are being retained by the Navy, and 100 acres are being set aside for public facility uses. The proposed facility will occupy an un-used fifteen acre portion of this 100 acre public facility area. The remaining area includes an ash disposal site and is also being considered as a future site for a refuse power generating plant. However, a recent feasibility study by the Department of Public Works states that this site is the least desirable of several alternative sites and probably will not be selected.[14]

As discussed previously, although the land is presently zoned and designated (State Land Use) for agricultural uses, the soil and water table conditions do not make it desirable, nor feasible for that purpose. The proposed usage, therefore, would not deplete any quantity of land presently cultivated or desirable for agriculture. Instead, it will utilize a presently un-used portion of land which has been designated for public facility use by the City and County General Plan, and which is adjacent to similar types of land uses such as the incinerator and ash-disposal site.

The effects of the commitment of fiteen acres of land for the proposed facility appear to be beneficial rather than adverse: a) It will make a better and higher use of land presently un-used.

b) The City and County of Honolulu will not encounter land acquisition costs due to its ownership of the subject land. Since the nature of the training facility suggests industrial zone compatibility, purchase of an equivalent amount of land in an industrial area at market prices could mean costs of approximately 7 million dollars assuming a cost of $10.70 per square foot. c) The proposed training facility can be expected to be an improvement to the present disposal area, thereby potentially raising the resource value of the area.

It is also signficant to point out that the commitment of the subject land for the proposed facility does not terminate public ownership nor pre-empt public usage of the land. Due to the continuance of City and County ownership, should another use supplant the need for the training facility in the future, the land may be reverted back to another public use. The Department of Agriculture suggests that filled land, which is not suitable for agricultural production using conventional tillage methods, could be used for nursery and greenhouse culture.

Due to low elevation of the land, approximately 117,000 cubic yards of fill will be required to raise the low-lying areas. Present strategies are to utilize ash and refuse residue from the

adjacent incinerator to provide the greater portion of this fill material. A sufficient amount of residue is being generated by the incinerator (approximately 3,000 cubic yards per week) and future deposits may be easily diverted from the ash-disposal site to fulfill the needs of the proposed facility site. An additional top layer of earthfill (approximately 24,000 cubic yards) would also be required to provide an adequate landscaping foundation. These requirements are not expected to have significant depletion of incinerator residue or earthfill resources.

Before construction of the proposed Fire-Police Training Facility, a soil analysis will be made to determine the footing conditions for the various structures. Generally quarry waste is used up to two feet below finish grade and select material is placed up to six inches from finish grade. The final six inches is topsoil for landscaping purposes. The final site elevations for the structures will be similar to the adjacent City and County Incinerator site and consultants will determine the extent and solution to the problem of tidal and riverine flooding.

If ash residue from the City and County Incinerator is used initially for the Fire-Police training site, deep burning or smoldering will not be a problem. After combustion, the ash is shifted through a

grate, given a water bath, trucked to the landfill area and spread in layers to specified elevations. Deep burning and smoldering is usually associated with spontaneous combustion when raw refuse and open dumping is allowed. These practices are currently not allowed at the Waipahu site.[15]

F. Social and Community Aspects

The proposed facility is not expected to have an adverse social or environmental impact upon the Waipahu Community. There are no existing residents or populations within the immediate area. The closest residential development is one-fourth of a mile upwind of the proposed facility site. The prevailing tradewinds and precautionary measures to be designed into the facility will assure the non-environmental impact of the facility upon these residences.

The social impact upon the Waipahu Community can be considered beneficial rather than adverse. Whereas the existence of the incinerator and rubbish dump, and the designation of the area as an ash-disposal site, has apparently committed the area to an "undesirable" type of environment, the proposed training facility can be expected to improve both the community and physical quality of the area. It will be an educational type of facility (classroom building, gymnasium, pool, etc.) with large grass-covered open areas,

landscaped berms, and perimeter trees. Being the only Fire and Police Training Facility in the County and State, it can be expected to provide an informative educational opportunity not only for fire-fighters and law officers, but also for school and citizen groups, thereby giving the Waipahu area a unique community identity.

The more significant beneficial social/community impact would be County-wide. With the increase in population and density, and the corresponding increase in crime, fire, and rescue incidences, the effectiveness of the firefighting, rescue, and law-enforcement services depends a great deal upon the type and quality of training that these public servants receive (both initially and in-service). The construction of the proposed training facility, the need of which has been evidenced by the many existing problems and shortcomings as pointed out in the Report by Tagawa, Yamachi, A.I.A. & Associates, will have a significant impact upon the effectiveness of these public services, and correspondingly can be expected to have a significant beneficial effect upon the community.

G. Economic Aspects

The economic impact of the proposed facility may be considered in two ways: a) Community and individual losses and income, and b) Governmental expenditures and revenue.

There are no expected community and individual losses. The proposed facility will not be downgrading to the area. Instead, it has been pointed out that it may actually improve the environmental quality of the area. Therefore, no decrease in property values or business activities can be expected. Since the land is presently not used, there would be no existing business or community facilities affected during the construction of the facility.

Although no direct economic benefits can be expected for the Waipahu Community, the proposed facility may have some beneficial economic windfalls such as: a) More business for Waipahu Town due to increased traffic and exposure (trainees, school and citizen groups), b) In addition to 6 new staff jobs, by 1985 there will be other governmental service positions for the maintenance and security of the facility which will be determined by fiscal policies at the time of completion.

Beyond the actual planning, construction, and maintenance costs for the proposed facility, there are no excessive governmental expenditures expected. The availability of all utilities have been preliminarily checked. The relocation of the existing water and irrigation/mud lines from the center of the site to Waipahu Depot Road can be expected to be a minor expense and a sewer connection

would have to be made to an existing gravity line near the Waipahu Sewage Pumping Station mauka of the project site. The access road (Waipahu Depot Road) is sufficient although it may have to be improved due to the excessive wear by the refuse trucks. Farrington Highway is sufficient to accommodate the additional traffic generated by the training facility. There would be no additional required governmental services such as schools, fire and police protection, recreational facilities, etc. As pointed out previously, the utilization of the proposed site for the training facility will not involve land acquisition costs for the City, thereby eliminating that potential governmental expenditure.

There are no anticipated direct governmental revenues from the construction of this facility. Federal and State funding programs have been investigated and may become a source of revenues to alleviate the initial planning and construction costs of the project to the County.

H. Safety Aspects

There are three areas of concern that require safety considerations for the surrounding community: a) Vehicular traffic, b) combustion for fire fighter training and c) gunfire.

Vehicular traffic on streets surrounding the Fire-Police Training site will conform to all City and County of Honolulu Traffic regulations. Driver training will be conducted entirely within the training complex and will present no danger to area residents.

Firefighter training which requires combustion of wood, oil or gasoline will also be confined within the training complex and will be strictly controlled through the use of specially designed facilities such as a slab, pit and fire tower. Due to the safety precautions involved and the distance to the nearest developed area, the danger of fire is negligible.

The firing ranges will conform to all safety requirements which will include earth berms, bullet stops and lateral safety baffles. Specialized ranges will be included for rifles, shotguns and handguns for additional safety and efficiency. Most important, the direction of firing will be away from inhabited areas.

IV. UNAVOIDABLE ADVERSE ENVIRONMENTAL EFFECTS

Upon investigation of all possible environmental impacts resulting from the proposed action, it has been determined that there are two potential unavoidable adverse environmental effects: a) Airborne Emissions, and b) Noise Emissions.

A. Airborne Emissions

As discussed in an earlier section, potential adverse airborne emissions are two-fold: a) Exhaust emissions from internal combustion engines, and b) Smoke from fire-training exercises.

The sources of exhaust emissions at the training site are from private vehicles used for commuting purposes, police pursuit cars, and fire trucks. It has been determined that the exhaust emissions from the operation of these vehicles would not have significant adverse environmental effects for several reasons: a) Daily training exercises will involve, at the maximum, two police pursuit cars and three fire trucks operating simultaneously. The exhaust emissions from these five vehicles can be expected to be negligible. b) The exhaust emissions of all vehicles operated on the site or used for commuting purposes are regulated by Federal Exhaust Emission Control Standards. c) The velocity of the prevailing tradewinds at the site will quickly and effectively dissipate any exhaust emissions.

The more significant potentially adverse airborne emission to be considered is smoke from the fire-training exercises. The sources of these emissions would be a) Natural gas and wood fires ignited within the fire training building, b) Oil and debris fires ignited at the concrete slab and pit, and c) Natural gas ignited at gas pipes from the X-mas tree. As discussed previously, the frequency and duration of all of these drills would amount to a total of thirty-six minutes of airborne emissions during an eight hour training day. The impact of these emissions will be minimized by the following measures: a) The greater portion of the gas and wood fires would occur within the fire training building. The resulting smoke would be contained within the enclosed structure and could be released at a controlled rate thereby maximizing the dissipation rate into the atmosphere. b) The frequency and duration of these exercises (three in the morning and three in the afternoon) indicate that these exercises can be scheduled at separated intervals, thereby reducing concentrated or continuous smoke-emissions. c) All of these smoke-producing training exercises will be held only under prevailing tradewind conditions. This will maximize the dissipation rate and guarantee that the smoke emissions will be directed towards Pearl Harbor West Loch away from any residential area.

As stated earlier, all airborne emissions will have to comply with the State Board of Health and Federal Environmental Protection Agency Standards. A variance for open burning will be submitted to both agencies. Should the above control measures fail, the following mitigation measures are possible:

a) An incinerator may be added to the fire training building. Since most of the black dense smoke visible in burning is unburned carbon, this process would re-burn the carbon before releasing it into the atmosphere. It would draw the carbon-filled smoke through a thermal oxidizing system to re-burn the combustibles to emit only CO_2 (carbon dioxide) and H_2O (water). Such incinerator devices are being used in various training facilities around the country (Orlando, Florida), and have been successful in reducing the adverse smoke emissions.[16]

b) Water sprays may be used to control the smoke emissions from the slab, pit and X-mas tree. The United States Government (Air Force and Navy) is currently experimenting with a method of controlling smoke with water sprays. Althrough their final results are not yet available, preliminary indications are that the proper application of water sprays can reduce the amount of smoke emitted into the atmosphere. When available, this water spray method may

be utilized for the training exercises at the slab, pit and X-mas tree.

c) Alternative types of burning fuels may be used. This will automatically be done as newer and cleaner fuels are developed and made available.

This investigation of the airborne emissions to be created at the proposed facility has indicated that control measures will be utilized to minimize the effects and that mitigation measures are available should these controls not be sufficient. It is important to stress that the emissions will not be allowed to adversely affect ambient air quality levels prescribed by the State of Hawaii Air Quality Standards. It is not possible at this time to quantify the expected air pollution levels which are subject to such factors as the final design of the fire training building and natural gas "X-mas tree". However if present methods are used, the pollution levels of oil fires can be estimated by the quantity of fuel consumed during a training day. This data is included in the previous section on airborne emissions.

B. Noise Emissions

The sources of noise emissions resulting from training exercises are: a) Gunfire, b) Pumper trucks, c) Driver Training, and d) Canine dogs. Helicopters will only be used for emergencies. The on-site sound level measurements taken by the acoustical consultant indicated

that the highest sound level was created by gunfire. It was also found that the highest noise level of gunfire was within the limits of the CZC at the closest residential area during normal tradewind conditions.

Nevertheless, certain controls are being considered to further reduce the possible adverse noise levels. These include: a) Direction of firing. Impact sound level studies of gunfire[17] have shown that all guns show a focusing effect in front of the muzzle of approximately 20 decibels, with an egg-shaped polar sound distribution pattern with the lowest sound level in the rear. This indicates that the sound level can be expected to be approximately 20 dbs less in the rear of the gun as compared to the front. Therefore if the direction of firing is away from the closest inhabited residential area, there can be an expected minimization of sound level of approximately 20dbs. b) Acoustical treatment of the firing sheds to absorb the gunfire noise at the point of firing. This can be expected to have a significant effect on the attenuation of the sound level. c) Earth berms will be utilized for both sound attenuation and safety factors. The total enclosure of the ranges by landscaped earth berms to prevent any stray bullets from accidental firings or richocheting, will also contain the gunfire noise and direct the sound waves upward to be dissipated by normal tradewinds away from the upwind residential areas. The high moisture content of Kona winds (which exist 25% of the time in the

opposite direction) significantly reduces the amount of sound carried. d) Artifical and natural landscaping elements such as earth-filled berms and dense foliage will be carefully located to maximize sound attenuation in the Mauka direction toward populated areas. It has been found that these landscaping elements could reduce sound levels by approximately 6 dbs per 100 feet (ground distance).[18] e) The location of buildings will be carefully studied to utilize them as possible sound attenuators. For example, the upwind location of significant building masses such as the classroom/administration and gymnasium buildings between the firing ranges and the residential areas one-fourth of a mile away will aid to attenuate the sound levels. f) Enclosed, air conditioned classrooms and offices will eliminate any potential disturbance that training exercises or gunfire may have upon the functioning of these spaces.

Should any of these control measures be insufficient in reducing the gunfire noise to an acceptable level, several alternative mitigation measures are available, though not desirable. The pistols and rifles may use "silencer" attachments which would reduce the noise levels almost completely. This measure, however, would add bulk and weight to a weapon and would normally not be used on the job.

Another alternative mitigation measure is to completely enclose the firing ranges, thereby making them indoor ranges. Since most of

the actual shooting associated with law enforcement is done outdoors, the artificial lighting and controlled atmosphere would create an unrealistic situation and the additional construction costs of completely enclosing the ranges (especially the rifle range) can be expected to be quite significant. Finally, the use of other military and public ranges has been found to be unacceptable by the Honolulu Police Department due to inflexibility of scheduling. Therefore, these three possible mitigation measures should only be regarded as "last-resort" alternatives.

In conclusion, the on-site measurements indicated that the maximum sound levels are within the CZC standards under normal conditions, and the additional control measures to be utilized to further reduce the noise levels significantly can be expected to render negligible the adverse environmental noise emissions generated at the training facility.

V. ALTERNATIVES TO THE PROPOSED ACTION

The alternatives to the proposed action may be investigated in three categories: a) Alternatives to the proposed training facility which may be possible means of attaining the stated goals and objectives, b) The alternative sites considered for the location of the proposed facility, c) Alternatives available to minimize or eliminate any significant adverse environmental effects.

A. Alternatives to the Proposed Training Facility

The alternatives to the proposed training facility which have been considered as possible means of attaining the stated goals and objections of the project are: a) Continuation of the existing training conditions (no-facility-alternative), b) Investigation of existing facilities which may be utilized, and c) Construction of separate facilities.

The continuation of the existing training conditions which utilize crowded classrooms, public facilities, public streets, etc., and the problems which arise from this practice has been documented in the TYA Report and need not be reiterated here. It is significant only to point out that the lack of sufficient and adequate facilities, not only fails to meet the goals and objectives of the proposed facility, but also has restricted the goals and objectives of both the Fire

and Police Departments. Their goal of providing the best-trained and most informed firefighters and law-enforcement officers is simply not possible without adequate training facilities.

The investigation of existing facilities which may be utilized is an alternative which has already been attempted during the past years. Due to the lack of their own training facilities, the Training Divisions of both Departments have had to obtain permission, and schedule classes or training exercises at various public, private, and military facilities such as: Kuakini Hospital, Kewalo Basin, Pearl Harbor Naval Shipyard, Kapahulu Library, Ft. Ruger Armory, Hickam Air Force Base, etc. The continued usage of these facilities on a regular and predictable basis has not been possible due to other prioritive needs of the private, public, and military sectors. Formerly utilized facilities such as the Pearl Harbor Naval Shipyard, and Hawaii Raceway Park are such examples no longer available. The use of these facilities (should they become available on a continuous basis) has further problems: a) The use of separated, disjointed facilities does not meet the objectives of having a centralized facility where various types and phases of training can take place. Difficulties due to scheduling, travel time, etc. still would not be resolved, b) The use of public, private, and military facilities, even if they are available, do not meet the programmatic and physical needs of

the desired training programs. Classrooms at a public school, for example, most often do not have audio-visual equipment available. The equipment, therefore, which is an essential part of training (especially for police officers) has to be carried and set-up for every instructional session.

Another example is the existing fire training facility at the Pearl Harbor Naval Shipyard. Due to its specialized nature as a naval training facility for shipboard fires, it is not appropriate for civilian types of fire training exercises which involve highrises, residences, rescue operations, etc. This facility is no longer operational and will be replaced by a new Navy fire training complex which has a proposed completion date in mid-1976 and an estimated cost of $4.8 million. The new complex will have four classrooms and will include enclosed structures such as a boiler room simulator, flight deck simulator and gas chamber which are shipboard mock-ups. There will be no open burning since all combustion will take place within these structures and emissions will be consumed by after burners. The fuel and operating expenses of these burners (pollution control) will cost approximately $157,000 per year.[19]

The new Navy facility will be operational 5 days per week, Monday thru Friday from 7:30 a.m. to 4:00 p.m. with approximately 2/3 of the training conducted within the classroom and 1/3 devoted to

practical exercises. The highly specialized firefighting procedures of shipboard fires differ considerably from building-type fires. A Navy fire team must go immediately to the source of the fire which is often in closed quarters such as a boiler room or under a flight deck. These fires usually involve volatile liquids such as gasoline or oil.

The site of the new Navy facility is approximately 3 acres compared to 15 acres for the proposed City and County training site. The physical layout of the Navy facility would be very impractical for civilian firetruck and ladder operations due to limited maneuverability. There is no provision for a high structure to simulate high rise fires and helicopters will not be used in training operations. See Appendix E.

Therefore, the highly specialized training and intensive schedule of Navy training discounts the joint use of this facility on a full-time basis with the Honolulu Fire Department. This facility, however, may be used to train civilian firefighters for shipboard fires. City firemen experience this type of training only once in their careers, but these civilian classes must be scheduled not to interfere with Navy operations.

It is concluded that this second alternative of using private, public and military facilities has been attempted in the past and besides

creating, scheduling and other problems, the facilities themselves do not meet the training needs of both departments.

The construction of separate facilities is another alternative which was considered. As pointed out previously, separated facilities (such as classrooms at one location, gymnasium at another, firing range at a third) create many problems and do not meet the goals and objectives of the Training Programs. The possibility of separate training facilities for the Fire Department and Police Department was also considered. Although this remains a possible alternative, the many advantages of a joint facility in which certain facilities such as the gymnasium, classrooms, etc. could be shared (thereby reducing the construction costs for duplicate facilities), and also the potential of holding joint training exercises, favor the construction of a joint, centralized training facility.

In conclusion, the three alternatives to the proposed training facility have been considered and have been found to be undesirable. Besides not meeting the goals and objectives of the Fire and Police Departments, these alternatives guarantee the continuation of programmatic, scheduling, physical, and economic problems. Therefore, the proposed training facility was considered to be the most desirable and logical alternative to meet the training needs of both Departments.

B. Alternative Sites Considered

An evaluation study to select the most appropriate location of eight possible alternative sites available for the training facility was completed in 1972 by this consultant.[20] The results of that study indicated that of all eight alternatives, the Koko Head Firing Range was the most suitable (due primarily to the existence of its firing range). However, this Koko Head site had certain disadvantages which included its location in a State Conservation District and its General Plan Designation for Park use. Also, an indenture between the Bishop Estate and the City and County of Honolulu which transferred the ownership of the land to the City, designated its use for a park. These were the disadvantages to which several citizen groups (including The Honolulu Rifle Association and the Outdoor Circle) reacted and which led to its withdrawal as the site for the training facility.

The subject proposed Waipahu Incinerator site, which was not among the eight original alternative sites considered, became available after the site study was completed. If it had been available earlier, it would have been selected above these eight original alternative sites. In order to assure its appropriateness and to ascertain its selection as the best alternative site available, the subject site was evaluated by the same criteria and compared to

the other alternative sites. This section, therefore, will summarize the evaluation criteria used and the eight other alternative sites considered for the proposed training facility.

Evaluation Criteria[21]

1. Size: A minimum of 14 acres for the total facility. If the firing range is located elsewhere, 11.2 acres required with an accessory site of 2.8 acres for the range.

2. Location: As close as possible to Central Honolulu (Central Fire Station) to minimize traveling time for instructors, trainees, and majority of fire trucks.

3. Environmental: Generally one-half mile from any incompatible types of inhabited areas (residential, apartment, business, resort). Compatible types of areas include industrial agricultural, and preservation. This distance may be reduced dependent upon unique factors such as topography, existing landscaping, wind direction, etc.

4. Topography: As level as possible to minimize grading costs, maximum slope: 10%.

5. Utilities: All utilities available on site or nearby within reasonable, economically-feasible range.

6. Zoning: No incompatible zones within environmental effect range. No negative impact on surrounding zones in terms of land values and future developments.

7. Accessibility: Easily accessible from major thoroughfare on improved road of sufficient width capable of handling heavy use. Access road through compatible types of zones.

8. Availability: Land should be available. Owned by City and County of Honolulu or acquirable at a reasonable cost.

The locations of the eight alternative sites evaluated by this criteria are shown in Figure 7. The reason for the rejection of each alternative site is summarized below. The detailed assessments and evaluations of each site may be found in the TYA Report.

1. Fort Barrette: Located the farthest from Central Honolulu (32 minutes via freeway). Due to topography, 28 acres would have to be purchased to obtain 14 acres of reasonably sloped, usable area.

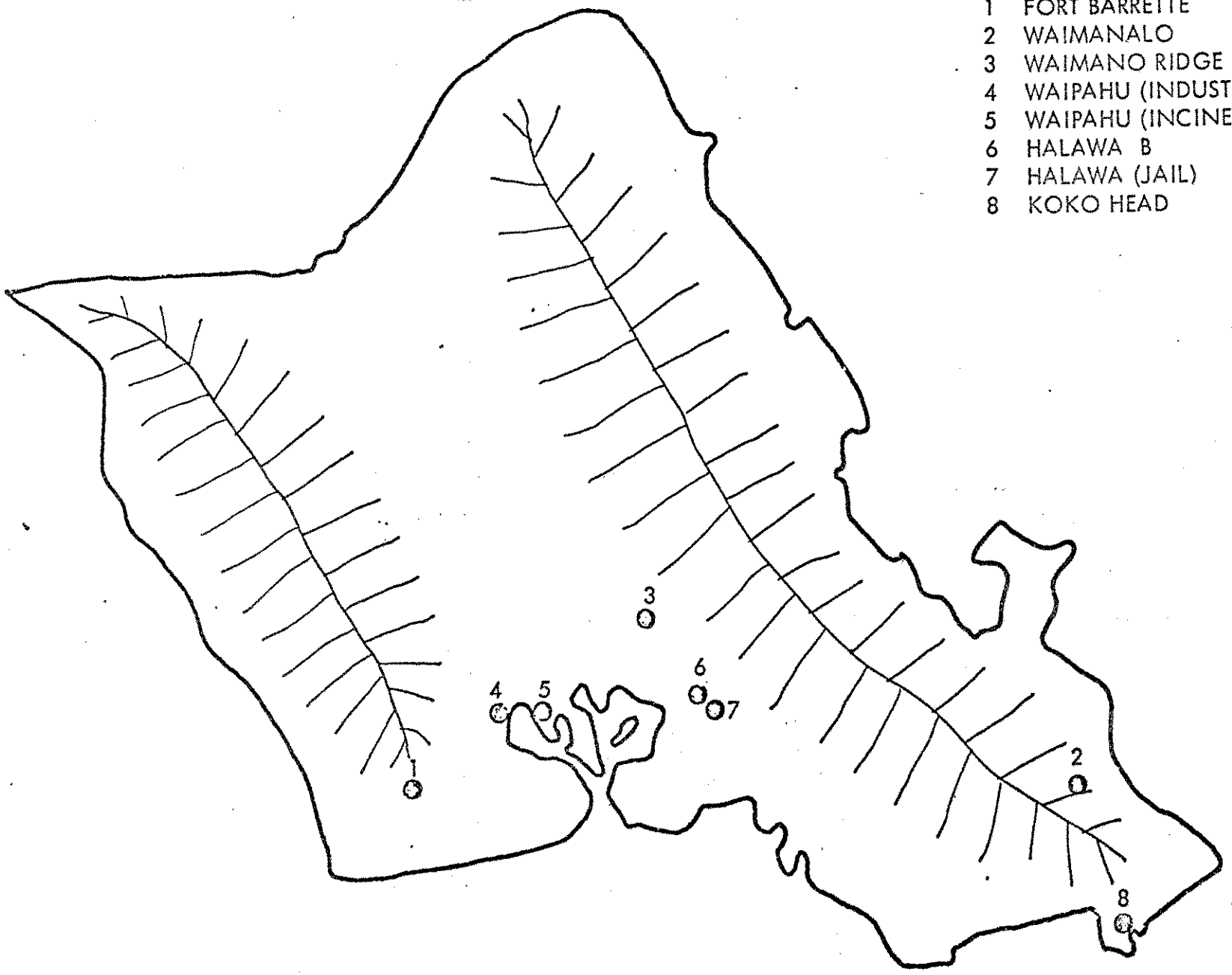


FIGURE 7: ALTERNATIVE SITES

2. Waimanalo (Mauka Lands): Located on the windward side, with only access over the Pali, thereby putting additional, unnecessary wear on fire trucks. Environmentally not desirable: surrounded by residential-zoned areas.

3. Waimano Ridge: Environmentally not desirable: located adjacent to Waimano Home facility. Only access to the site is through Waimano Home.

4. Waipahu: (Industrial Site): The topography of the site is extremely steep along the Pearl Harbor side. Wedge-shape parcel renders portion of site unusable. Of total available 14 acres, a significant portion is unusable, therefore, the site would not be large enough to accommodate the facility.

5. Waipahu (Incinerator Site): This is <u>not the same site</u> presently under consideration. It is located Ewa of Waipahu Depot Road, closer to the mauka residential areas and adjacent to Pearl Harbor West Loch. This site was rejected primarily because of its low-lying elevation which made it subject to flooding due to tidal fluctuations. It is also close to the residential areas.

6. Halawa B (Below Board of Water Supply Station): Adverse environmental impact upon residential areas 1/8 mile downwinds. Fairly steep topography requiring significant amount of grading.

7. Halawa A (Below Jail): Potential adverse environmental impacts. Adjacent to Halawa Jail. Residential area 3/4 mile downwind but also up on ridge. Any landscaping or earth berms would not prevent sound from rising and reaching this residential area. Since the TYA Report was completed, this parcel was assigned to the Dept. of Public Works for a Corporation Yard. Therefore, it is no longer available.

8. Koko-Head Firing Range: One of the more desirable sites. Disadvantage: located in Conservation area, and designated for park-usage. Public reactions including those from Honolulu Rifle Association (which wants to retain the crater for future expansion of the firing facilities) and the Outdoor Circle has resulted in the withdrawal of this site for the proposed facility.

The evaluation of the subject Waipahu site indicated that it is the best alternative of all the available alternative sites previously discussed. The results of this evaluation based on the eight criteria follows:

1. Size: There is a total of approximately 100 acres in the area designated for public facility. The 14 acre requirement for the training facility can readily be accommodated, occupying only a small percentage of the total area available for other public facilities. (A total of 15 acres was set aside for this facility to ensure adequate functional configurations).

2. Location: It is centrally located on Oahu and approximately 15 miles from Central Honolulu. It is within reasonable driving time from Honolulu (approximately 20 minutes) and centrally-located in terms of all Fire Stations on Oahu (from which all fire trucks will originate).

3. Environmental: The closest residential area is approximately 1/4 mile mauka of the proposed site. Although this is less than the general 1/2 mile criteria, the prevailing tradewinds and flat open area will direct any adverse airborne or noise emission away from the residential area. In the downwind direction, the site is bordered by compatible types of areas:

incinerator, dump area, canefields, and Pearl Harbor West Loch. All other environmental concerns have been discussed in detail in previous sections of this Report.

4. Topography: The existing land is basically a flat, open area. Its elevation is fairly low and will have to be raised by filling. The availability of incinerator residue from the adjacent incinerator relieves this potential problem.

5. Utilities: All required utilities (water, electricity, telephone, sewage system, solid waste disposal) are available along Waipahu Depot Road which adjoins the proposed site.

6. Zoning: The area is presently zoned Agriculture but designated for Public Facility use in the General Plan. The proposed facility would not have any negative impact upon the surrounding areas in terms of land values or future developments.

7. Accessibility: The proposed site is easily accessible from two H-1 Freeway Off-ramps which feed unto Farrington Highway (a divided highway) to Waipahu

Depot Road. The distance between Waipahu Depot Road and the freeway off-ramps are: Kunia Interchange (2.1 miles) and Waipahu Interchange (1.1 miles). The site is approximately 1/2 mile from Farrington Highway along Waipahu Depot Road which has just recently been improved for 1/4 mile and is of sufficient width to accommodate the additional traffic.

8. Availability: The proposed training facility site is owned by the City and County of Honolulu and will not incur any acquisition costs.

In conclusion, the alternative sites have been considered and evaluated on an established set of criteria. This evaluation has shown that the proposed site fulfills all of the criteria, and has confirmed that the proposed Waipahu site is the most desirable and reasonable location for the training facility.

C. Alternatives Available to Minimize or Eliminate Any Significant Adverse Environmental Effects.

As discussed in Section IV. Unavoidable Adverse Environmental Effects, the only potential adverse effects are: a) Smoke emissions from the fire training exercise and b) Noise emissions from gunfire.

Alternatives available to minimize the smoke emissions from the fire training exercises are a) the use of an incinerator attachment to the training building, which would re-burn the carbon content of the smoke, b) the use of water sprays to control the emissions into the atmosphere from the concrete slab and pit, and c) the use of cleaner types of fuels for burning exercises. All of these alternatives and their effects on minimizing smoke emissions have been discussed in the previous section.

There are two alternatives available to eliminate the potential adverse smoke emissions resulting from this proposed training facility: a) Hold elsewhere those fire training exercises which involve the generation of smoke, or b) Eliminate all burning types of exercises completely. Both alternatives are contrary to the goals and objectives of the training facility. The first would physically separate burning drills from other types of drills. Since these burning drills are integral parts of the different types of training, its separation will result in loss of effectiveness of training and in loss of time (due to traveling of fire companies between different training facilities). The second would eliminate one of the most crucial parts of training: exposure to actual heat, flames, and smoke. This has been one of the major deficiencies of the present training conditions, and to construct a new training facility which does not fulfill this specific need of training is unrealistic and self-defeating.

Therefore, there are alternatives available to minimize the potentially adverse smoke emissions. Two of these (water spray and cleaner fuels) will be utilized when they become available. The third (incinerator) involves additional costs to the facility, but may still be utilized should the controlled smoke emissions from the Training Building (through slower release of smoke) prove to be ineffective. The two alternatives available to eliminate the potentially adverse smoke emissions are contrary to the goals, objectives, and to an extent, successful functioning of the proposed training facility, and therefore should be considered only as "last-resort" measures.

The noise emissions from gunfire can be minimized by several alternatives. The use of acoustical treatment, earth berms, landscaping, building locations and massing, and the direction of firing have all been discussed in detail in Section IV, under B. Noise Emissions. As pointed out, these control devices can be expected to further reduce the measured sound levels (which already meet the CZC Standards under normal conditions). Other available alternatives discussed previously are the use of silencers or the enclosure of the ranges. Although these measures would ensure the minimum sound levels, they are not desirable for training purposes and should also be considered only as "last-resort" measures.

Another alternative which was considered is the re-location of the firing ranges elsewhere such as at the existing Koko Head Firing Range, the Army's Schofield Range, and the Kaneohe Marine Corps Range. These alternatives were rejected by the Police Department due to the integral part of weapons instruction and practice towards the total training of law-enforcement officers. The use of the firing ranges is linked very closely to other training facilities such as classrooms, canine training, etc. Their separation, besides creating scheduling problems is also contrary to the goals and objectives of the proposed centralized training facility.

The Honolulu Police Department weapons firing program extends throughout the year since all police officers must participate in weapons familiarization and qualification once per year. To accomplish this goal, firing programs will be conducted daily (5 days per week) and this intensive schedule would eliminate the practicality of sharing facilities with the military which will have first priority to satisfy their own requirements. In the past, the Honolulu Police Department has been utilizing the Koko Head Range on a shared basis with civilians and Wahiawa police officers have been permitted the use of the Army's Schofield Range on a limited basis. The Honolulu Police Department has not been extended an invitation to use the Kaneohe Marine Corps Range.[22]

In conclusion, there are several alternatives available to minimize any adverse smoke or noise emissions from the proposed training facility. Many of these alternatives such as the use of water sprays, cleaner fuels for smoke emissions, and earth berms, acoustical treatment, landscaping, etc. for gunfire, will be incorporated into the design of the facility, and should be effective in minimizing or eliminating the potential impact upon the surrounding areas. Should any of these measures not be sufficient to meet present or future standards, "last-resort" measures may be taken to assure compliance.

VI. RELATIONSHIP BETWEEN LOCAL SHORT TERM USES AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

A. Expected Long-range Function or Use of the Proposed Facility

The proposed facility is being planned to accommodate the training needs of both the Fire and Police Departments to the year 1995. As defined previously, one of the objectives of the proposed facility (due to the rapid changes in the knowledge and techniques of firefighting and law-enforcement) is to be flexible, thereby continually responsive to any future needs or modifications.

The proposed facility, therefore, will have to meet both short-term and long-range needs of both Departments. It will have to satisfy the immediate and urgent needs of firefighting and law-enforcement training. It will also have to satisfy these needs for the next twenty years, and be responsive to any needs beyond that which are difficult to predict at this time. In this way, there can be an expected long-range function and use of the proposed facility. In addition, the facility should also result in long-term benefits for the whole City and County since governmental services such as fire and police protection (the efficiency and success of which depend greatly upon training) will always serve important functions in the County operations.

B. Optional Uses Available for Future Choice and Implementation

The proposed facility will occupy the land for a minimum of twenty years, and should be considered a long-term commitment of the 15 acre parcel for that specific use. For that 20 year period, therefore, no other options will be available for any other alternative uses. After 1995, the land may be converted for another use such as a public facility since the land ownership will still be retained by the City and County. This possibility, however, does not seem realistic, since the need for such a training facility will, in all probability, always be present.

In another sense, however, there will be certain types of options available for future choices during the twenty year period. As indicated in the previous section, one of the objectives of the training facility is to maintain a certain degree of flexibility to accommodate any changes or modifications in training needs. In this way, the options of alternative training methods which may be developed in response to changing needs will be available and may be implemented into this facility, thereby assuring the long-term maintenance of properly-trained firefighters and law-enforcement personnel.

Another option available, though not foreseeable at this time, is the conversion of the proposed training facility from strictly a

fire and police type of function to other types of educational and/or training activities. Facilities such as the classrooms, gymnasium, training pool, drill field, driver training are "general-use" types of educational facilities which may accommodate a variety of different functions such as those required by community colleges, trade schools, etc. However, this does not seem feasible nor desirable at this time.

C. Present and Future Contributions to Economic Productivity and Social Welfare

There will be significant immediate and future contributions to economic productivity and social welfare as a result of the proposed facility. These may be considered in two ways: a) For the surrounding Waipahu Community, and b) For the County-wide population.

As discussed previously, the Waipahu Community may experience some indirect economic windfalls such as an increase in business activities due to the increased exposure to the area, and some governmental service positions for the maintenance and security of the training facility. The potential social contributions would be the improvement of the area and also a favorable community image due to the uniqueness of the proposed facility.

The contributions to the County-wide population are much more significant. The most significant will be towards the Fire Insurance Ratings and premium rates.

"The American Insurance Association (AIA), formerly the National Board of Fire Underwriters, has emphasized the importance of training as a significant contributor to an effective fire protection service. This non-profit association of fire insurance companies has set up standards by which a city is graded for insurance ratings in terms of water supply, building codes, police department, fire department, etc. Besides being an indicator of adequate protection for all citizens, this grading system effects the insurance rates for residents and private and public agencies. "The gradings that are established are used by rating bureaus as an aid in determining basis rates in a state. The rating bureau will advise city officials as to the approximate reduction in rates due to an improvement in the grade of protection." In their latest complete report for the City and County of Honolulu (1962), the city as a whole was rated in Third Class. The Fire Department, however, was rated in Fourth Class due to a number of deficiencies of which the most significant was the lack of adequate training facilities. In 1970, a supplementary evaluation and report reappraised the Fire Department to account for improvements made by that agency. However, a Fourth Class rating was still retained, again due primarily to the lack of adequate training facilities. The acquisition of adequate training facilities would upgrade the Fire Department rating to place them in Third Class. Conceivably, this could favorably affect the insurance rates of the County.23

Another significant economic contribution of the proposed facility would be the results of improved fire-fighting services. Although difficult to actually measure, losses due to fire and particularly due to firefighting efforts, can be reduced by more knowledgeable and well-trained firefighters. One such example is the amount of damage in the aftermath of a fire attributable to water. It has been pointed out by the Fire Training Chief that with proper training, a firefighter can use a minimum amount of water to extinguish a flame

incident, thereby reducing the amount of potential water damage. The Fire Department presently does not have adequate facilities to train and familiarize its firefighers on the practice and development of such techniques.

The County-wide social contribution of better trained law-enforcement officers is obvious. As the population of the County continues to grow, the importance of the maintenance and the constant availability of well-informed and skilled officers becomes more critical. Recently publicized "police brutality" and other similar reports indicate the problems arising in this area. The proposed training facility, by providing the means for a more intensive program for both new recruits and in-service officers, can be expected to provide an effective law-enforcement agency, a better community sense of well being, and possibly also improve the image of the police officer.

The economic and social contributions of the proposed facility, therefore, can be expected to be both short and long term. It may provide some short term windfalls to be the surrounding Waipahu area, but more significantly, it can be expected to have long-term benefits to all citizens of the City and County.

D. Possible Retardation or Enhancement of Future Uses by the Implementation of the Proposed Action

As discussed previously, the proposed facility is expected to

improve the quality of the existing dumping and incinerator area. This will enhance the area and make it much more attractive for other future uses such as recreational or public-use facilities.

There are no anticipated adverse effects (such as down-zoning or decrease in land values) which would retard the future use of the area for similar types of public facilities.

As discussed previously, the future development of a large Regional Park on the Waipio Peninsula would not be hindered by the construction of the proposed training facility.

VII. ANY IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES WHICH WOULD BE INVOLVED IN THE PROPOSED ACTION

There are four possibly irreversible and irretrievable commitments of resources which should be considered: a) A 15 acre parcel of land, b) The ground water supply which will be utilized in the training exercises, c) The incinerator ash-residue and earth-fill, and d) The materials and labor involved in the construction of the proposed facility.

The proposed facility will commit 15 acres of land to a specific use for a period of at least 20 years. As discussed, although certain optional uses of the facilities will remain available, the land for all purposes will be committed, therefore making it irreversible and irretrievable during this period. Should the need for the training facility expire (either during or at the termination of this 20 year period), and another prioritive need becomes apparent, or should the useful age of the physical facilities become dated and obsolete, the facilities may be demolished, thereby retrieving the land for another use. Although such an action does not seem realistic nor probable at this time, the retention of land ownership by the City and County of Honolulu assures this possiblilty.

A certain amount of ground water supply (10,000-12,000 gallons per day) will be depleted by this facility. As discussed earlier, the water will be utilized to its fullest possiblities through filtration

and re-cycling, then used for landscaping irrigation purposes before returning unpolluted (through evaporation and percolation), to its original source. In this sense, the ground water to be depleted will not be an irretrievable commitment of that resource.

Approximately 117,000 cubic yards of incinerator ash-residue will be used to raise the grade elevation of the proposed site. Presently, this residue is being deposited in the dump area and is not being used for any purpose. The use of this material for the proposed facility will actually be making a better use of this waste resource, therefore it may actually be considered as a retrievable process, of solid waste. An additional commitment of approximately 24,000 cubic yards of earthfill (top soil) will be committed for landscaping purposes, and may be considered irretrievable.

The most significant irreversible and irretrievable commitment of resources will be the materials and labor required for the construction of the proposed facility which will cost an estimated $10. million. The time and energy of individuals doing the planning, design, and construction of the facility, once expended, are not retrievable. Likewise, the materials used in the construction cannot be returned to its natural state, and therefore, are irreversible and irretrievable commitments of these resources.

VIII. ECONOMIC AND SOCIAL ANALYSIS

A. Economic Analysis

There are no anticipated non-beneficial economic effects resulting from the proposed action.

In terms of the surrounding Waipahu area, the potential adverse economic effects have been investigated and found to be non-existent. The surrounding land values, zoning, environmental, quality, and land use would not have any adverse or downgrading effects. Instead, the proposed action can be expected to improve the quality and potential use of the area. Some beneficial economic windfalls for the area have been discussed and are not unrealistic possibilities.

In terms of the County-wide economic benefits or non-benefits, the total cost of the planning, design, and construction of the facility will have to be weighed against all of the potential benefits such as stable and possibly lower fire-insurance rates, long-range savings of property and lives due to improved firefighting and law-enforcement methods, more efficient training programs and scheduling by the two Departments. In weighing these two factors, it appears that, although the potential benefits are by no means guaranteed, and for the most part are unmeasurable, the greater beneficial economic impact to the community as a whole and as individuals, would be

realized through the commitment of the funds for the construction of the proposed facility.

B. Social Analysis

Since the site of the proposed facility is presently unoccupied and un-used, and the potential adverse environmental and economic effects upon the surrounding area have been determined to be negligible, there are no anticipated adverse or non-beneficial social effects.

Instead, the social effects of the proposed action can be expected to be mostly beneficial. As discussed previously, the uniqueness of the training facility, and the anticipated wide exposure to schools, citizen groups, and visitors may give Waipahu a new and improved community image unlike any other community.

County-wide, the proposed facility will socially benefit all citizens. The tremendous growth of the County's population and density, and the resulting problems which have been surfacing (such as increasing crime rates) will have to be solved. The proposed training facility is one solution which, through the improved training of firefighters and law-enforcement officers, and the utilization of better firefighting and law-enforcement knowledge and techniques, can be expected to increase the safety and sense of well-being for all citizens.

FOOTNOTES

1 The existing conditions and problems involving wasted travel time is discussed in detail in the Report by Tagawa, Yamachi and Associates, titled Fire and Police Training Facility, Basis for Request to Amend the General Plan, 1972.

2 Report by Tagawa, Yamachi and Associates, 1972.

3 Ibid

4 Stanley Shimabukuro & Associates, "Waipahu Refuse and Incinerator Ash Disposal Site Waikele and Waipio, Ewa, Oahu, Hawaii", prepared for the Building Department, City and County of Honolulu.

5 Sterling, Elspeth P., Sites of Oahu, Bernice P. Bishop Museum, 1962.

6 Letter from Historic Preservation Officer, State of Hawaii Department of Land and Natural Resources, December 24, 1974.

7 Meeting with Ron Walker, Chief of Wildlife Branch and Widlife Biologists Dave Woodside and Ralph Saito, State Department of Fish and Game, December 2, 1974.

8 Telephone interview with Deputy Chief Anthony Lopez, Honolulu Fire Department, January 2, 1975.

9 Telephone interview with Paul Aki, State Department of Health, Pollution Investigation and Enforcement Branch, December 9, 1974.

10 Letter from L.R. DiMaio, Manager of Technical Service, National Foam System, Inc., March 22, 1972.

11 Meeting with Jerry Kami and George Richardson, Engineers, City and County of Honolulu, Division of Sewers, December 26, 1974.

12 Meeting with James K. C. Chang, Acoustical Consultant, January 9, 1975.

13 Source: Honolulu Board of Water Supply.

14 Telephone interview with Herbert Minakami, person-in-charge of Proposed Refuse Power Generating Plant Feasibility Study, Department of Public Works, December 24, 1974.

15 Telephone interview with Wally Miyahira, Deputy Director, Department of Public Works, January 2, 1975.

16 Further information is available through Combustion Equipment Associates, New York.

17 National Rifle Association, see correspondence letter in Appendix D.

18 Ibid

19 Meeting with Pearl Harbor Naval Officers and Staff: Lt. Commander R. L. Neesley (in charge of firefighting school), Lt. Commander L. W. Lonnon (in charge of shore training), Hall Technician Chief C. A. Jaap (Senior Instructor) January 6, 1975.

20 Report by Tagawa, Yamachi and Associates, 1972.

21 The basis for these criteria may be referred to in the TYA Report.

22 Letter from Major Bernard Suganuma, Training Division, Honolulu Police Department, December 26, 1974.

23 Report by TYA, 1972, Page 10.

APPENDIX

FIRE AND POLICE TRAINING FACILITY
WAIPAHU SITE
SURVEY OF EXISTING PLANT MATERIAL

Survey Taken By: Dr. Horace Clay, PhD. Horticulture
Date of Survey: March 8, 1974, 8:30 a.m.

The following plant materials were found on the proposed Fire and Police Training Facility Site:

1. BATIS (Pickle-weed or akulikuli-kai): Salty plant, grows in marshy conditions.
2. PLUCHEA (Indian): Exotic weed
3. CALIFORNIA GRASS
4. SALT-BUSH: Salty soil required.
5. "LOVE-IN-A-MIST": Wild Passion Fruit
6. KIAWE TREES
7. HAOLE KOA
8. COCKLE-BURR
9. NICANDRA (Apple of Peru): Related to tomato plant.
10. SPINY AMARANTH
11. DESMANTHUS (Slender Mimosa)
12. PENNISETUM (Fountain Grass)
13. WILD MORNING GLORY (White and Pink)
14. POPOLO: Berry Plant
15. SONCHUS: Snow Thistle
16. SWOLLEN FINGER GRASS
17. KLU: Weed
18. TOMATO
19. BERMUDA GRASS
20. NATAL RED GRASS
21. HEARTSEED (Cardiospermum)

PRELIMINARY ENVIRONMENTAL NOISE SURVEY of PROPOSED WAIPAHU FIRE and POLICE TRAINING FACILITY and RANGE

I. PURPOSE

The purpose of this preliminary survey was to assess the environmental impact of a proposed Waipahu Fire and Police Training Facility and Rifle Range upon the adjacent community.

II. FIELD INVESTIGATION

A field investigation and noise survey was conducted on February 19, 1974 with the cooperation of the Honolulu Fire and Police Departments to evaluate the acoustical characteristics of existing ambient and of the potential impact the proposed facility would have.

A. Weapons

Acoustical data was obtained for three representative weapons expected to be fired on the proposed range.

TABLE 1: WEAPON CHARACTERISTICS

Weapon/Model	Manufacturer	Ammunition
Pistol - Model 151 Chief's Special	Smith & Wesson	38 Special
Shotgun Model 870 12 gauge	Remington	00-Buck & Slugs
Rifle Model AR-15 30 caliber	Colt	223

B. Ammunition

Standard ammunition was utilized for each of the three weapons to simulate representative range firing conditions.

C. Test Site

All field data was obtained at the proposed outdoor site located just below the Waipahu Dump.

D. Instrumentation

An Impulse Precision Sound Level Meter, Type 2204, manufactured by Bruel and Kjaer was used for measuring the peak sound pressure level. The microphone assembly attached to the Impulse Meter consisted of a one-half inch Bruel and Kjaer Type 4134, cathode follower Type 2614, and Model UA-0052 Nose Cone. All field calibration before and after measurements were performed with Bruel and Kjaer Type 4220 Pistonphone.

E. Measurement Procedures

Sound level measurements were taken at six points including the firer's position, and at 100, 200, and 300 yard intervals down range, closest residence, and also at Kumukahi Street of Lower Village.

F. Meteorological Data

Meteorological data between the hours of 9:00 A.M. and 12:00 P.M. on February 19, 1974 were obtained from Honolulu International Airport and the U.S. Weather Bureau.

Temperature	68 degrees
Humidity	85%
Wind Velocity	8 miles
Wind Direction	NE

III. ENVIRONMENTAL IMPACT

A. Acoustical Findings

The average peak sound level in decibels for each weapon at the measuring points are presented in the following table.

TABLE 2: ACOUSTICAL DATA

Weapon	Measuring Points				
	Firer's Position	100 yds	200 yds	300 yds	Closest Residence
38 Pistol	122 dB	88 dB	87 dB	78 dB	53 dB
Shotgun 12 gauge	153 dB	113 dB	113 dB	87 dB	61 dB
Rifle 30 caliber	159 dB	126 dB	119 dB	98 dB	77 dB

The highest level of sound at the closest residence on private land would be well within the limitations of the CZC. However, with baffling for safety, landscaping, etc., further sound reduction would result.

B. Environmental Impact: Human

Field data was compared to the National Academy of Science, National Research Council and the U.S. Army criteria for damage risk. The peak sound level of those weapons, beyond the firer's position, was not found to be hazardous to hearing.

Presently there are no final Federal or State guidelines for impulse noise, however, criteria do exist for calculating the possible annoyance level for impulsive noise sources.

Under Section 6 of the Noise Control Act of 1972, the EPA will develop and publish noise emissions standards by April 1974 which will have to be met and complied with at this proposed firing range and training facility.

1. Aberdeen Proving Ground

For its weapons testing program, Aberdeen Proving Ground, Maryland, has established operational criteria based on their past experience to predict community complaints. Their maximum allowable sound level for impulse noise without the use of hearing protection is 138 dB using the NAS - NRC criteria, and 140 dB using the U.S. Army criteria.

TABLE 3: ANNOYANCE CRITERIA FOR WEAPONS FIRE

Decibel Level	Expected Complaints
Less than 100 dB	None
100 - 108 dB	Possible
Greater than 108 dB	Definite

2. U. S. Air Force

The U. S. Air Force has developed operational criteria for estimating the effects of impulse noise (Sonic Boom) on

people. Sound overpressures up to 1 lb. per sq. ft. of 128 dB do not generate significant public reaction day or night.

TABLE 4: EFFECTS OF SONIC BOOM ON PEOPLE*

Sound Overpressure lbs. per sq. ft.	Peak Decibel Level	Predicted Effect
Less than 1.0	up to 128 dB	No significant reaction day or night
1.0 - 1.5	128 - 130 dB	Probable public reaction
1.5 - 1.75	131 - 132 dB	Significant public reaction
1.75 - 2.0	133 - 134 dB	Significant public reaction day or night

Neither of these criteria would be exceeded, therefore, the adjacent community population at large would not be expected to complain.

* C.W. Nixon and P. Borsky: "Effects of Sonic Booms on People", Journal Acoustical Society of America, Vol. 39, No. 5, May 1966.

C. Environmental Impact: Animal

Based upon existing evidence prepared for the U.S. Environmental Protection Agency* the effects of noise on wildlife and other animals would not be of sufficient intensity to alter the normal patterns of animal behavior outside the proposed Waipahu Range.

* "Effects of Noise on Wildlife and Other Animals", U.S. Enfironmental Protection Agency, Dec. 31, 1971, Report NTID 300.5.

D. Fire Engine Noise

With engine and pumps at full throttle, sound level 10 ft. from engine measured 94 dB; with engine and pumps idling, sound level measured 85 dB.

E. Fire Department Helicopter

Landing, take-off and hovering at 500 ft. of the Fire Department helicopter measured between 85 and 90 dB.

F. Police Department Squad Car

The Police Department squad car practicing high speed skids and turns generated sound levels of 90 dB peak at 20 ft.

G. Vehicular Noise

The Garbage Department trucks going to and from the dump site at approximately 40 miles per hour generated peak sound levels of 90 dB.

IV. CONCLUSION

The proposed Waipahu Fire and Police Training Facility and Range under consideration should not constitute an environmental impact problem.

NEW MINIMUM ACCEPTABLE NOISE LEVELS

The minimum acceptable noise level of the proposed range will have to comply with OSHA and the CZC. As of this date, OSHA's limitation is set at 140 dB peak sound pressure level.

Transposing the old CZC Octave Band into the current center frequencies mandates compliance with the following:

Octave Band	Sound Pressure Level
31.5	
63	79 dB
125	74
250	66 dB
500	59
1000	53
2000	47
4000	41
8000	39

During the evening hours of 6:00 P.M. to 12:00 P.M. the Sound Pressure Level should be 6 dB lower and during the morning hours of 12:00 P.M. to 6:00 A.M. the Level should be 10 dB lower than the above figures.

Information obtained from
James K. C. Chang, Acoustical
Consultant, January 9, 1975.

NATIONAL RIFLE ASSOCIATION OF AMERICA

Publishers of THE AMERICAN RIFLEMAN

1600 Rhode Island Avenue, N.W. • Washington, D. C. 20036 783-6505

February 9, 1972

Mr. Gordon D. C. Tyau, Architect
Group '70 Lab
1186 Fort Street Mall
Honolulu, Hawaii 96813

Dear Mr. Tyau:

Fortuantely, we have done a fair amount of work on the problem of the noise of shooting and its attendant problems.

First, the sound pressure levels (SPL) generated. These levels are peak SPL and cannot be measured by the ordinary sound survey meter since they are impact type sound. The measurements made by NRA were as close to free-field as possible. The formula, $SPL = 20\log_{10} {}^{P_1}/_{P_o}$ can be used to describe these measurements. P_1 is the SPL at 1 meter from the source; and P_o = 0.0002 dynes per square centimeter.

It should be noted that all guns show a focusing effect in front of the muzzle of approximately 20dB. This falls off in a nice even predictable manner as the polar pattern is plotted. As a result you have an egg-shaped polar pattern with the lowest SPL directly to the rear.

The SPL measured are (All SPL are 1 meter in front of the muzzle)

Cal. 7.62mm NATO, M118 match=172dB

.38 Special Wadcutter (148gr.)=148dB

12 gauge Shotgun, trap load=160dB

Equipment used: General Radio type 1551-C Sound Level meter with type 1556-B Impact Noise Analyzer.

Guns used were: a US Rifle, M-1 converted to Cal. 7.62mm NATO; a Smith & Wesson Model 10 Military and Police w/4" bbl., and a Remington 1100 shotgun with 26" bbl.

The radius of audibility is not readily determinable. Ambient noise level, differing meteorological conditions, physical placement of the range itself, in relation to the surrounding landforms; and physical characteristics of the range will all affect the radius of audibility, and of course, any impact on a nearby community.

Ideally, a range should be located in a narrow wooded valley. The direction of firing should be away from and downwind of any inhabited areas. Placement in a wooded valley allows the sound to be reflected from the valley slopes into the air. Vegetation does attenuate sound-a good average figure for Hawaii is about 6dB per 100 feet (ground distance) of trees since your trees have foliage the year around. Firing in a direction away from habitation simply uses the fact of the 20dB focusing previously referred to in order to lower the sound directed at habitation by 20dB. Placing a range downwind actually allows the sound to be blown away from dwellings.

If a range is baffled for safety, it is also baffled for sound. For example, NRA has an Experimental Range. It is located in a shallow (100 feet at most) valley, and is safety baffled. There are dwellings within 2000 feet crosswind of the range. The local county Police Department utilizes the range for their firearms training, and rarely is the sound of firing even audible at the closest dwellings. The combination of baffling and the shallow valley have cut the noise level completely. It should be noted, however, that both high power rifles and shotguns can be heard at the dwellings. It is only the .38 and .45 cal. pistol that cannot be heard.

Several surveys of residential areas near ranges have been conducted. It has been found that if a range is set up properly for maximum sound attenuation, many residents are not even aware of the existence of the range. Others hear it, but get used to it, as people who live close to a jet airport get used to the far greater noise generated there.

We have found that many normal household sounds either mask range noise, or are louder. Television sets, hi fi, children playing, dogs barking, or screen doors slamming all have a tendency to cover the noise of a range.

Some residents, of course, convince themselves that guns are bad, therefore the noise is bad, and they are annoyed. Some also claim hearing damage. While there is no way to tell a man he is not annoyed, it is possible to tell him his hearing cannot be damaged. The Walsh-Healey Act has set federal criteria to exposure to noise for hearing damage. A gunshot lasts in the order of a millisecond. The least amount of time allowed for high noise level damage by Walsh-Healey is about 15 minutes. Therefore, 15,000 rounds would have to be fired continuously and consecutively, with a man standing close by in order for his hearing to be damaged. It is hardly likely that this situation would ever occur.

As you may have heard, sound attenuates as it gets further from its source by 6dB each time the distance is doubled. This is more properly known as the Spreading Loss Law, and may be described mathematically as follows:

$$\text{Spreading Loss} = 20\log_{10} {}^{R_1}/_{R_o}$$

R_1 = distance of observation

R_o = reference distance, usually 1 meter.

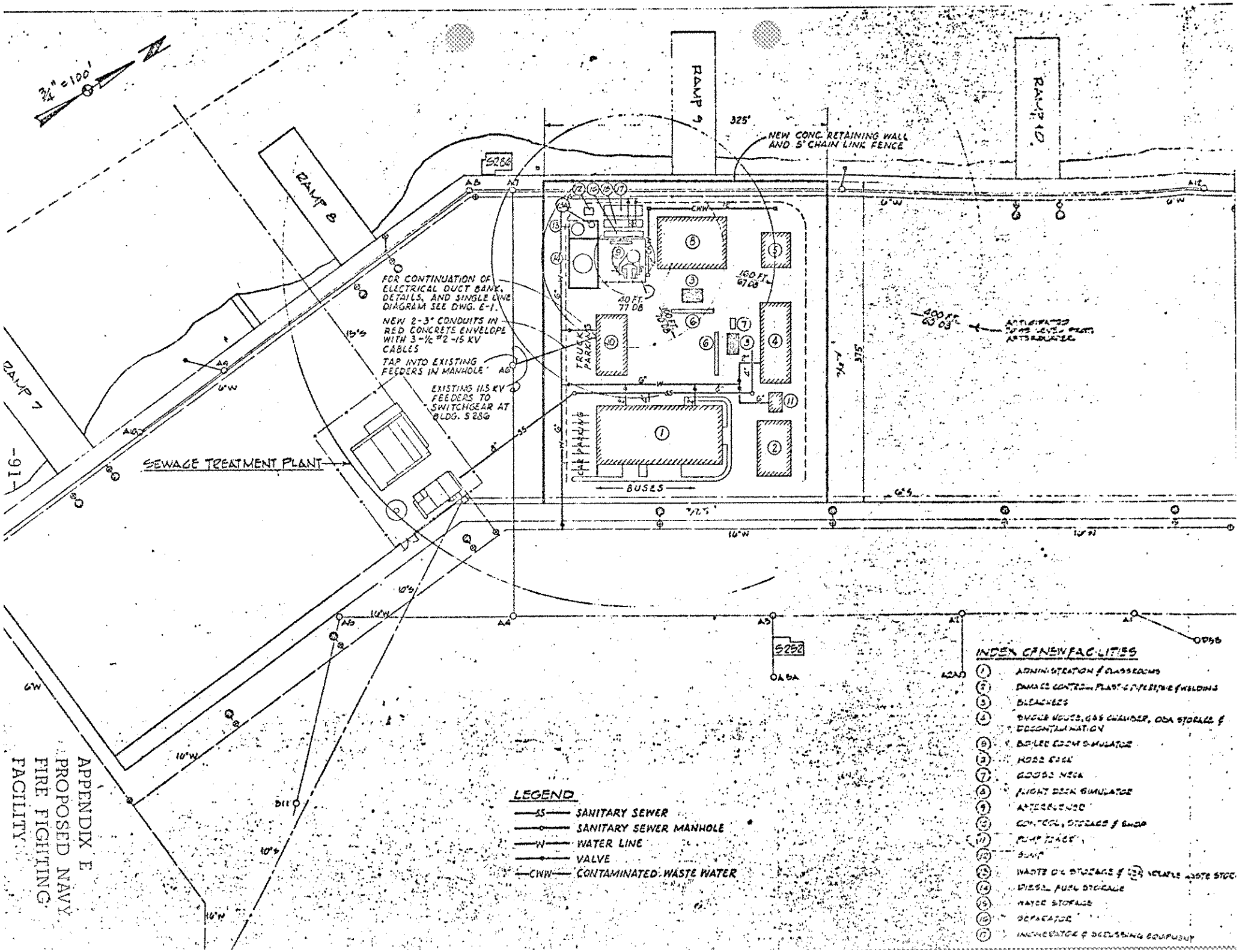
This equation can be used in predicting noise levels out to about 2000 feet, or 600 meters. After that, the atmosphere and its effects destroys any reliable prediction.

We sincerely hope that this information is in a useable form for you. If you have any questions, please do not hesitate to contact us again.

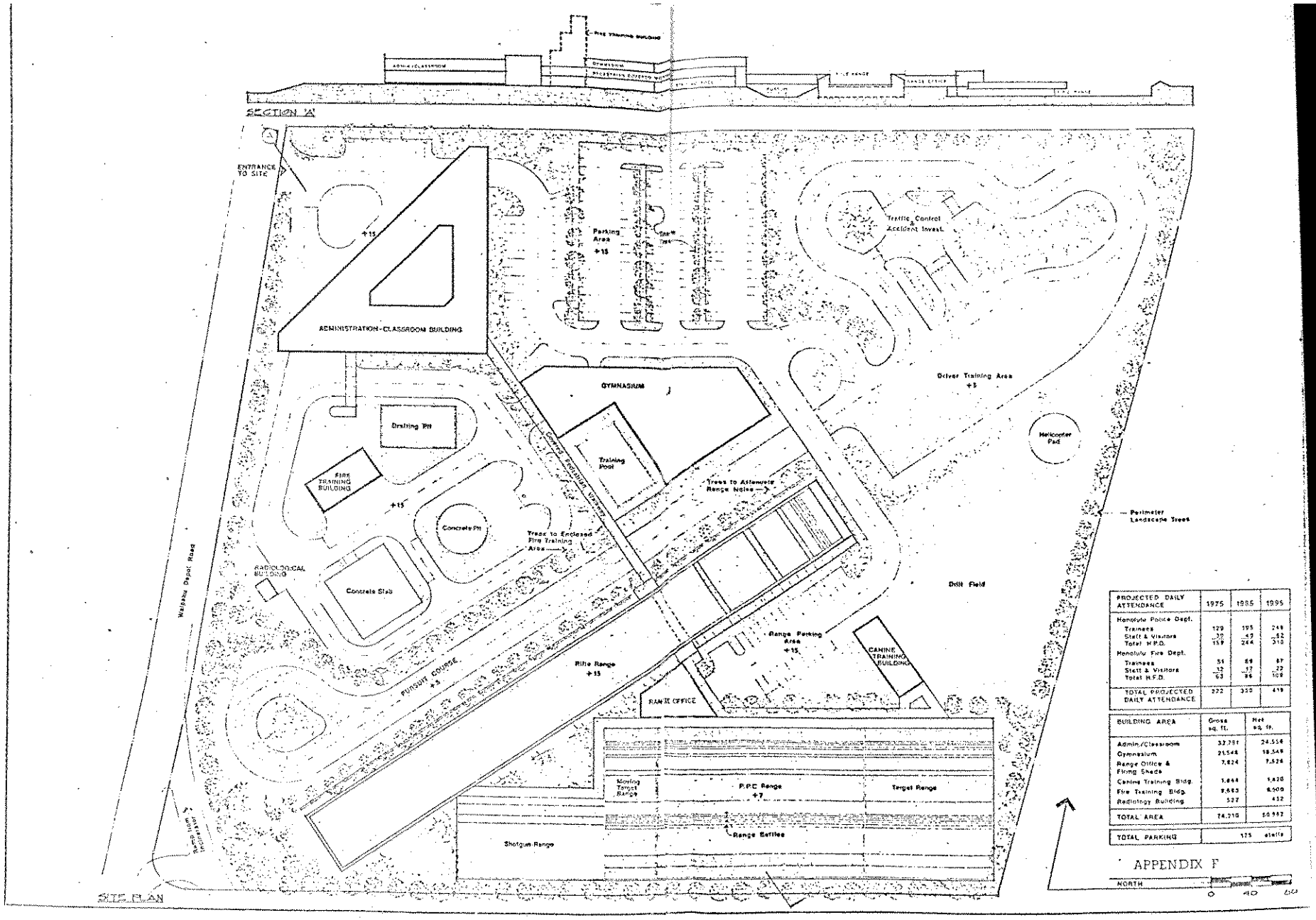
Sincerely,

Edward D. Andrus, Manager
Range Facilities Department

EDA/dn



APPENDIX E
PROPOSED NAVY
FIRE FIGHTING
FACILITY



PROJECTED DAILY ATTENDANCE	1975	1985	1995
Honolulu Police Dept.			
Trainees	129	195	248
Staff & Visitors	35	49	62
Total H.P.D.	159	244	310
Honolulu Fire Dept.			
Trainees	51	69	87
Staff & Visitors	12	17	22
Total H.F.D.	63	86	109
TOTAL PROJECTED DAILY ATTENDANCE	222	330	419

BUILDING AREA	Gross sq. ft.	Net sq. ft.
Admin./Classroom	32,781	24,556
Gymnasium	21,548	18,349
Range Office & Firing Shade	7,824	7,524
Canine Training Bldg.	1,644	1,620
Fire Training Bldg.	9,685	8,909
Radiology Building	527	452
TOTAL AREA	74,210	60,982
TOTAL PARKING		175 stalls

APPENDIX F

Appendix G

Draft Environmental Impact Statement Comments From Various Agencies and Responses by Building Department

BUILDING DEPARTMENT

CITY AND COUNTY OF HONOLULU

HONOLULU, HAWAII 96813

NK F. FASI
MAYOR

PAUL DEVENS
MANAGING DIRECTOR

ERNEST T. YUASA
DIRECTOR AND BUILDING SUPERINTENDENT

ROBERT O. TSUMURA
DEPUTY DIRECTOR

August 8, 1974

RECEIVED
AUG 9 1974
GROUP ARCHITECTS
COLLABORATIVE, INC.

Group Architects Collaborative, Inc.
926 Bethel Street, Second Floor
Honolulu, Hawaii 96813

Gentlemen:

SUBJECT: Fire and Police Training Facilities
Draft - Environmental Impact Statement

Please take action on the attached comments made by the Office of Environmental Quality Control and various other agencies on the subject statement.

Very truly yours,

Ernest T Yuasa

ERNEST T. YUASA
Director and Building Superintendent

TH: kh
Attach.
cc: J. Harada

APPENDIX G
AGENCY COMMENTS

JOHN A. BURNS
GOVERNOR

RICHARD E. MARLAND, PH.D.
INTERIM DIRECTOR

TELEPHONE NO.
548-6915

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
OFFICE OF THE GOVERNOR
550 HALEKAUWILA ST.
ROOM 301
HONOLULU, HAWAII 96813

PLEASE RETURN
FOR FILING

JUL 31 11 03 AM '74
REFERRED TO
Jimmy 8/6
1-31-74

July 25, 1974

Ernest T. Yuasa
Director and Building Superintendent
Building Department
City and County of Honolulu

SUBJECT: Draft Environmental Impact Statement for Police and Fire Training Facilities at Waipahu

Dear Mr. Yuasa,

As of this date, this Office has received sixteen responses to the proposed project. An attached sheet lists the responding agencies.

In our evaluation of the draft EIS (dEIS) and comments provided, this Office finds several areas in which the final EIS should expand discussion. The following comments are offered:

I. INTRODUCTION

This Office recommends the use of a tax map to pinpoint the exact location of the site area. This would avoid confusion. Reference to the Location Map should include the page number. Also, City & County's ownership of the land should be recognized in the second paragraph.

One important part of the dEIS was omitted. A description of the buildings should be included in the final EIS. Information should include building heights, number of buildings, square footage, use of the buildings, and personnel capacity.

Canine training and driver training courses have not been mentioned at all. What kind of training is involved?

Are there going to be any environmental effects, such as noise and air pollution? A discussion of the above subjects should be included in the final EIS.

II. EXISTING CHARACTERISTICS

The dEIS states on page 10, "...proposed training facility would not have any effect on the recreational facilities in the area..." It states further in the dEIS that fire training will be conducted when tradewind conditions are directed towards Pearl Harbor West Loch (page 29). This means smoke will blow over the proposed park. Thus, these statements contradict one another.

Corps of Engineers recommends a discussion of the low-lying area's susceptibility to both tidal and riverine flooding in this section, since it is assumed that land filling elevates the ground and will eliminate some of the flooding.

III. ENVIRONMENTAL IMPACT OF THE PROPOSED ACTION

Most comments received pertain to this section. Please consult individual letter for further information since only a brief summary will be presented.

A. Airborne Emissions

Because burning will be an integral part of the training exercises, a description of the training building, and concrete slab and pit should be provided. Safety precaution measures should be mentioned within the final EIS. Also, this Office recommends emission measurement be taken.

Environmental Center feels that there has been no attempt to quantify emissions. A study of this matter is recommended.

Department of Agriculture recommends that the quantity of fuel consumed for burning exercises be estimated to determine emission values and data.

Department of Health indicates that burning exercises may not comply with present legislation. Although experiments have been conducted, acceptable methods of control are not in sight. A variance might be required. They also point out that complete

combustion of wood will take longer than five minutes. (p. 15 of dEIS)

Extinguishing agents to be used is another area of concern. Water Resources Research Center at the University of Hawaii points out that any water containing biodegradable and/or non-toxic would constitute pollution since something is added. They further question the composition of the foam which is water soluble and biodegradable. Does it contain nitrates and/or phosphates? Manufacturer's claim does not necessarily mean non-polluting.

Department of Health questions whether bacterial degradation may give rise to odors and other problems from the resulting foam of oil fires. The discharge of this effluent through a storm drainage system may be in violation of State Water Quality Standards and P.L. 92-500.

B. Waterborne Effluents

The statement, "The run-off water from these hose evolutions will not carry any waterborne effluents and therefore would not have any significant environmental effects," does not explain the quantity of run-off which could be a problem if there is significant excess because of the land-fill.

Department of Health finds this section confusing. These questions and factors should be considered. The resulting run-off from hose evolution going into the drafting pit or storm drainage is unclear. This section should also include discharges of sanitary wastes. Since there is a moratorium on new connections to Waipahu oxidation pond, will this delay the project or an on site sewage treatment plant? Canine waste disposal should also be mentioned.

C. Noise Emission

This section has brought substantial comments from other agencies and the Waipahu Community Association. Reference to the appended letters should be made before the final EIS is submitted.

In the Appendix under acoustical data, do the numerical values represent actual noise emission during a practice session? Data for each weapon is noted but

more than one gun will be fired during a practice session and more noise will be produced. Thus, from the given figures, minimum noise factors are represented rather than the maximum. Therefore, a discussion on noise reduction should be included in the final EIS.

•University of Hawaii's Department of Engineering discusses this subject in great detail. The major concern is the gunfire noise measurements and impact. Discussion of the design and operational features should be included in the final EIS. (See letter for details.)

Department of Health feels this section should include a discussion concerning night training on firing range and other noise generating activities. All regulations regarding noise must be complied with during construction and operation of this proposed project.

Department of Land and Natural Resources has no objections to the proposed project. However, the Division of Fish and Game requests that the final EIS provide more information of noise impact on the wildlife presently in that area. There is a bird refuge in that area.

The United States Navy finds the noise coverage adequate. But the question of safety is not discussed. They suggest a separate section titled "Safety Aspects" be written in. This Office finds this a very good recommendation and concurs strongly with them.

Waipahu Community Association suggests an alternative to this section. An open invitation at Kaneohe Marine Corps Air Station has been extended to the Police Department for use of their firing range. Has this possibility been checked into?

One additional point concerns the employees who will work there. What will the noise levels be for the workers inside the buildings? Special design is needed to reduce the noise impact.

D. Solid Waste

Since one of the solid wastes will be radioactive, there are a few things that should be noted. The

radiological building must conform to Atomic Energy Commission standards and specifications. If there is more than the regulated quantity permitted, a certified person from AEC must be present to supervise any action. Although this Office realizes that the dEIS states the building is only planned, we feel it is important that some data be given in the final EIS concerning this subject.

Board of Water Supply notes on page 20, the existing 16-inch sewer cannot handle wastes generated because it is a force main. Connection cannot be made to it. Offsite sewer construction is necessary. Thus, it is recommended to discuss this section separately from solid waste to include sewage collection and disposal.

The dEIS states on page 21 that debris from the fire training exercises will be removed to an existing dump area. However, Department of Public Works says the existing dump across from Waipahu Depot Road may not be available for disposal of debris. Under these circumstances, debris will have to be removed to a sanitary landfill.

Department of Health comments that solid wastes resulting from the exercises should be disposed at the incinerator.

E. Resource Depletion

Although the dEIS states that ash residue will be used for landfill, it does not indicate what kind of cover soil will be used. Discussion should be expanded to include the process of packing and filling, the support capacity of the landfill, the elevation of the filled land, and the precautions taken to avoid "fire holes".

Department of Public Works adds useful information concerning a feasible study for refuse power generation in Waipahu area. If the Waipahu site is selected, some adjustment to the project site boundary may be necessary. They also comment on the sewage treatment plant on pages 22, 23, and 25 of the dEIS.

Department of Agriculture proposes another alternative for the land. Without additional fill and grading, the land is suitable for nursery and greenhouse culture.

F. Social and Community Aspects

This Office has found many references made to Report by Tagawa, Yamachi, A.I.A. & Associates, as illustrated on page 25. Please provide this Office with a brief summary or the report itself if it is available.

This section has brought strong criticism from the Waipahu Community Association. Rather than being beneficial to the community, they find it undesirable. (See letter)

IV. UNAVOIDABLE ADVERSE ENVIRONMENTAL EFFECTS

B. Noise Emissions

The discussion on page 33, first paragraph needs improvement. The statement that trainees will be given "full and actual experience of firing a weapon" and noise is a major consideration is misleading. It is required that all personnel firing a gun must wear an ear protection device to avoid hearing loss. The other alternative mentioned is to enclose the range. This would allow some safety and noise control. If the two alternatives are "last resort", then what are other reasonable alternatives? These other alternatives should be included in the final EIS.

VII. ANY IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES WHICH WOULD BE INVOLVED IN THE PROPOSED ACTION

Although the proposed facility is committed for specific use in a period of twenty years, the dEIS seems to indicate that the facility will be permanent. The projected time period seems rather short for a major facility.

Additional comments from this Office

There are a few questions and points that this Office feels shcould be addressed. Cost of the project should be mentioned. How many people will this facility accomodate? Impact on wildlife in the area needs discussion. Footnotes need page numbers. Are there any historical or archeological sites? This must be documented. Also, Environmental Center comments on the numerous grammatical errors. We recommend editing.

RECOMMENDATIONS

We recommend that (1) written responses be sent to all commentators including this Office, indicating how specific concerns were considered, evaluated and disposed; (2) all comments and your responses should be incorporated as an appendix to the final EIS; and (3) a copy of the final EIS should be sent to those individuals that provided substantive comments to the draft EIS.

We trust that these comments will prove to be helpful to you in preparing the final EIS. Thank you for the opportunity to review the draft EIS. Also thank you for the extension granted in order to do a complete review.

Sincerely,

Richard E. Marland
Interim Director

Attachment

January 31, 1975

Dr. Richard Marland, Interim Director
Office of Environmental Quality Control
550 Halekauwila Street
Honolulu, Hawaii 96813

Dear Dr. Marland:

Subject: Draft Environmental Impact Statement
Fire and Police Joint Training Facility

Our response to your comments submitted on July 3, 1974 pertaining to the subject EIS is as follows:

I. Introduction

A. A tax map is included on page 5 of the final EIS.

B. City and County ownership of the subject parcel is recognized in the second paragraph of page 1.

C. A description of the buildings, including building heights, number of buildings, square footage, use of the buildings, and personnel capacity is graphically submitted in the Appendix on page 92.

D. Canine training is described on page 31 and driver training is included on page 17.

II. Existing Characteristics

A. The City and County Department of Recreation has found the EIS acceptable. Smoke from fire-training exercises will be

emitted during tradewind conditions and would have negligible effect on the proposed park if burning is scheduled to respect periods of highest park use such as weekends and holidays. It will have less of an impact than over the residential areas in the opposite direction. See page 12.

B. Ash and refuse residue from the adjacent City and County Incinerator will be utilized to raise the elevation of the existing landfill according to a recently prepared Master Grading Plan. Consultants will determine the extent and solution to the problem of tidal and riverine flooding. See pp. 6, 36-37.

III. Environmental Impact of the Proposed Action

A. Airborne Emissions

1. A description of the training building, concrete slab and pit is included on pages 18-19. Safety precaution measures are discussed on pages 41-42.

2. It is not possible at this time to quantify the expected air pollution levels which are subject to such factors as the final design of the fire training building and natural gas "X-mas tree". However, if present burning practices are used, the pollution levels of oil fires can be estimated by the quantity of fuel consumed during a training day. It is expected that a maximum of 5 gallons of diesel oil and 5 gallons of gasoline will be utilized in a mixed solution. The amount of fuel consumed will vary according to the time required to extinguish the fire in each separate drill.

3. Since open burning is permitted by State law only for agricultural purposes, a variance must be obtained for the burning during training exercises. This variance procedure is outlined on pages 19-20.

4. Debris remaining after extinguishment of wood fires will be disposed of at the adjacent incinerator.

5. Extinguishing agents, including their composition and disposal, are discussed on pp. 20-25 of the final EIS.

B. Waterborne Effluents

1. The 10,000 to 12,000 gallons of water used per training day will not affect the land fill if proper drainage engineering measures are utilized.

2. Hose evolution drills are primarily used to train firefighters in the proper application of water streams, sprays etc. The drafting pit will collect most of the water for re-use.

3. Canine and human sanitary waste will be handled by a new connection to an existing system as mentioned on page 24. A permit is being processed to allow this new connection.

C. Noise Emission

1. The numerical values on page 83, Appendix B, represent the average peak sound level in decibels for each weapon at designated measuring points on the proposed site. If firing tests using many weapons to simulate an actual training session were held at another firing range where conditions are different from the Waipahu site, the sound readings would not be representative of the new site or proposed facility.

2. Design and operational features to minimize noise impact are discussed on pages 28-32.

3. Night training activities for the Honolulu Fire Department and Honolulu Police Department are discussed on page 26. Minimum acceptable noise levels for evening and early morning hours are given on page 87 in Appendix C.

4. A discussion of Federal Wildlife Refuges in the area is included on pages 15-16.

5. A new section entitled "Safety Aspects" has been incorporated on pages 41-42.

6. The possibility of sharing the Kaneohe Marine Corps Air Station Firing Range is discounted on page 66.

7. Expected building interior noise levels for the proposed facility are included on page 29.

D. Solid Waste

1. The proposed Radiological Building and its conformance to Atomic Energy Standards is discussed on page 33.

2. Discussion of sewage collection and disposal is included under the heading of "Waterborne Effluents" on page 24.

3. Debris from the fire training exercises will be removed to the adjacent City and County Incinerator for disposal.

E. Resource Depletion

1. Site preparation, including packing and filling, cover soil, elevations and precautions taken to avoid "fire holes" is discussed on pages 36 through 38 in the final EIS.

2. The probability of a refuse power generating plant locating near the Fire-Police Training Facility is discussed on page 35. The parcels previously designated for a sewage treatment plant have been re-assigned as ash disposal sites.

3. An alternative use of filled land for nursery and greenhouse culture is mentioned on page 36.

F. Social and Community Aspects

1. A copy of the report titled Fire and Police Training Facility, Basis for Request to Amend the General Plan, by Tagawa, Yamachi and Associates, 1972, will be included with this letter to OEQC.

2. A letter has been sent to the Waipahu Community Association addressing their concern for the proposed facility locating in the neighborhood.

IV. Unavoidable Adverse Environmental Effects

B. Noise Emissions

1. The sentence which states that noise is an important factor in weapons training has been deleted.

2. Proposed alternatives to reduce the noise impact of gunfire at the project site are discussed on pages 48-49.

VII. Any Irreversible and Irretrievable Commitments of Resources Which Would Be Involved in the Proposed Action

A. Proposed uses of the subject facility after twenty years are mentioned on pages 68-70 and 74.

Additional Comments from OEQC

1. The cost of the project has been estimated at 10 million dollars.

2. The projected daily attendance for the proposed facility is included in the chart on page 92.

3. Impact on wildlife in the area is discussed on pp. 15-16 and historical or archaelogical significance is discounted on page 13.

Recommendations

1. Written responses will be sent to all commentators.

2. All comments and our responses to these comments will be incorporated as an appendix to the final EIS.

3. A copy of the final EIS will be sent to agencies that provided substantive comments to the draft EIS.

ATTACHMENT

List of Responding Agencies

Federal

U.S. Navy	July 3, 1974
Department of the Army (Corps of Engineers)	July 3, 1974
*Department of Army	July 10. 1974

State

UH Water Resources Research Center	June 25, 1974
*Department of Planning & Economic Development	June 27, 1974
Department of Land and Natural Resources	July 3, 1974
Department of Agriculture	July 9, 1974
Department of Health	July 9, 1974
Environmental Center	July 15, 1974
UH Department of Mechanical Engineering	July 5, 1974
*Department of Transportation	July 18, 1974

City & County

*Department of Transportation Services	June 26, 1974
Board of Water Supply	July 1, 1974
Department of Public Works	July 5, 1974
Department of Land Utilization	July 10, 1974
*Department of Recreation	May 22, 1974

Private Organizations

Waipahu Community Association	July 15, 1974
John Moriyama (Private Citizen)	Sept. 4, 1974

*Offers no comments

FEDERAL

HEADQUARTERS
FOURTEENTH NAVAL DISTRICT
BOX 110
FPO SAN FRANCISCO 96610

IN REPLY REFER TO:
48:09F:SH:mm
Ser 1913

8 JUL 1974

Dr. Richard E. Marland
Director
Office of Environmental Quality Control
Office of the Governor
550 Halekauwila Street
Honolulu, Hawaii 96813

Proposed Fire and Policy Training Center

Dear Dr. Marland:

The Draft Environmental Impact Statement for the Proposed Fire and Police Training Facilities to be located on Waipio Peninsula has been reviewed. The U. S. Navy has property near the proposed site.

A letter to Mr. Ernest T. Yuasa, Director and Building Superintendent, Building Department, City & County of Honolulu, on 9 April 1974 pointed out the importance of lateral safety baffles for the firing ranges and assumed that adequate baffling would be incorporated into the final design.

The question of Noise is covered on pages 31-34 and 48, but the general question of safety aspects of this project, including lateral safety baffles, is not discussed. As a suggestion, it is recommended that a new section (111-G) entitled "Safety Aspects" be written into the Final Environmental Impact Statement.

Thank you for the opportunity afforded for review of, and comments upon, this Draft Environmental Impact Statement.

Sincerely,

L. G. TIMBERLAKE
CAPTAIN, CEC, USN
DISTRICT CIVIL ENGINEER
BY DIRECTION OF THE COMMANDANT

January 31, 1975

District Civil Engineer
Headquarters, Fourteenth Naval District
Box 110
FPO San Francisco 96610

Dear Sir:

Subject: Draft Environmental Impact Statement
Fire and Police Joint Training Facility

Our response to Caption L.G Timberlake's comments submitted on July 3, 1974 pertaining to the subject EIS is as follows:

1. Lateral safety baffles have been included in the design of the firing ranges. These baffles are mentioned on pages 28, 42 and are graphically shown on the schematic architectural drawings on file at the City and County Building Department.

2. A new section titled "Safety Aspects" has been added in the final EIS on pp. 41-42.

DEPARTMENT OF THE ARMY
PACIFIC OCEAN DIVISION, CORPS OF ENGINEERS
BUILDING 96, FORT ARMSTRONG
HONOLULU, HAWAII 96813

PODED-P

3 July 1974

Dr. Richard E. Marland, Interim Director
Office of Environmental Quality Control
State of Hawaii
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Dr. Marland:

We have reviewed the draft Environmental Impact Statement for the Proposed Fire and Police Training Facilities and find it to be thorough and detailed in its discussion of impacts. Our comments are as follows:

a. In the discussion of alternative actions on pages 42 and 43, the statement mentions tidal flooding problems as a reason for eliminating the Waipahu (incinerator site) from consideration. Since the 15-acre recommended site is also a low-lying area in the same general vicinity, its susceptibility to both tidal and riverine flooding might be discussed in Section II Existing Characteristics. It is assumed that the purpose of the proposed filling of low lands described on page 24 is to raise the ground elevation and reduce the probability of flooding.

b. It is not clear why the proposed action is designated a Federal-State one (See "Name of Action" on summary sheet) since the project is for City and County facilities on land owned by the City and County of Honolulu. This apparent inconsistency should be clarified.

Sincerely yours,

E. Roy Chinn

ELROY CHINN
Acting Chief, Engineering Division

January 31, 1975

Department of the Army
Pacific Ocean Division, Corps of Engineers
Fort Shafter, Hawaii 96558

Gentlemen:

Subject: Draft Environmental Impact Statement
Fire & Police Joint Training Facility

Our response to Mr. Elroy Chinn's comments submitted on July 25, 1974 pertaining to the subject EIS is as follows:

1. The susceptibility of the project site to both tidal and riverine flooding is discussed on pages 36-37 together with proposed methods to eliminate the problem.

2. Federal and State funding programs have been investigated and may become a source of revenue to alleviate the initial planning and construction costs of the project to the County.

DEPARTMENT OF THE ARMY
HEADQUARTERS UNITED STATES ARMY SUPPORT COMMAND, HAWAII
APO SAN FRANCISCO 96557

10 JUL 1974

HCFE-PS

Office of Environmental Quality Control
Office of the Governor
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Gentlemen:

We have reviewed the following Draft Environmental Impact Statements:

a. Proposed City and County of Honolulu Corporation Yard,

b. Proposed Fire and Police Training Facilities, and

c. Mahelona Hospital Sewerage System.

We have no comments to offer.

Sincerely,

CHARLES S. VARNUM
Colonel, CE
Director of Facilities Engineering

STATE

UNIVERSITY OF HAWAII
Water Resources Research Center
Office of the Director

MEMORANDUM

June 25, 1974

MEMO TO: Richard E. Marland
Interim Director, OEQC

FROM: Reginald H. F. Young
Asst. Director, WRRC

SUBJECT: Draft EIS, Fire and Police Training Facilities

The subject draft EIS was reviewed in this office principally by Henry Gee and myself and the following comments are submitted for your consideration:

Reference has been made that maximum usage of the water supply will be made and that any runoff water will be returned to the original ground water source in a non-polluted condition. Several points are in error in this statement.

1. Any water used for extinguishing fires or used to flush off foam will contain dissolved chemicals (whether biodegradable and/or non-toxic or not) and would constitute pollution in the sense that something has been added.

2. The water actually used will dissipate to other sinks other than the original source which includes evaporation to the atmosphere, percolation through the aquifer to the ocean instead of the basal ground water lens, retention in an enclosed aquifer not used for water supply or overland flow to reach Kapakahi Stream and West Loch.

An existing storm drainage system was mentioned on page 18 for the disposal of all excessive amounts of water. Does this system discharge into Kapakahi Stream and eventually into West Loch? If so, what is the composition of the foam which is water soluble and biodegradable? A manufacture's claim of a product being biodegradable and non-toxic doesn't necessarily mean it is non-polluting. Will there be any contribution of nutrients such as nitrates and phosphates to the adjacent Class AA waters by these foams?

RHFY:jmn
cc: H. Gee
J. Johnson

January 31, 1975

Mr. Reginald H.F. Young
Assistant Director
Water Resources Research Center
University of Hawaii
Honolulu, Hawaii 96822

Dear Mr. Young:

Subject: Draft Environmental Impact Statement
Fire and Police Joint Training Facility

Our response to your comments submitted on June 25, 1974 pertaining to the subject EIS is as follows:

1. Water used for extinguishing fires or used to flush off foam will be considered as polluted and handled according to methods mentioned on pages 22-25 of the final EIS.

2. The quantity of pollutants resulting from the Fire-Police Training site, however, is infinitesimal when compared to the volume of drainage and pollution resulting from the surrounding region and Waipahu Town flowing into West Loch via Waikele Stream and Kapakahi Stream.

3. The existing storm drainage system in the area utilizes Kapakahi Stream which in turn flows into Pearl Harbor West Loch. The foam-water mixture can be collected in a separate drainage system and disposed of by an acceptable method.

4. The composition of the foam, as given by the manufacturers, is included on pages 20-21.

DEPARTMENT OF PLANNING
AND ECONOMIC DEVELOPMENT

JOHN A. BURNS
Governor

SHELLEY M. MARK
Director

EDWARD J. GREANEY, JR.
Deputy Director

250 South King St. / Honolulu, Hawaii 96813 / P. O. Box 2359 / Honolulu, Hawaii 96804

June 27, 1974

Ref. No. 1140

MEMORANDUM

TO: Dr. Richard E. Marland, Interim Director
Office of Environmental Quality Control

FROM: Shelley M. Mark, Director

SUBJECT: Review of Draft EIS for the City & County Fire and Police Training Facilities

We have reviewed the above subject draft and feel that it is an adequate evaluation of the probable environmental effects the proposed facilities will have on the subject site, as well as on its abutting land uses.

This draft EIS appears to be quite comprehensive and objective in its coverage. We consider it to be one of the better EIS prepared for this type of public facilities.

JOHN A. BURNS
GOVERNOR OF HAWAII

DIVISIONS:
CONVEYANCES
FISH AND GAME
FORESTRY
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P. O. BOX 621
HONOLULU, HAWAII 96809

July 3, 1974

MEMORANDUM

TO: Hon. R. E. Marland, Interim Director
Office of Environmental Quality Control

FROM: Sunao Kido, Chairman
Board of Land and Natural Resources

SUBJECT: Comments on Environmental Impact Statements

Proposed City and County of Honolulu's Proposed Corporation Yard in Kalawa Valley, Oahu

This department has reviewed this draft EIS and find that the project will not have adverse effects on any proposed projects of this department for that area.

We have no objections to the proposed Corporation Yard.

Proposed Fire and Police Training Facilities, Waipahu, Oahu

This department has no objections to the proposed Fire and Police Training Facilities at Waipahu, Oahu. The Division of Fish and Game, however, requests that the final EIS provide more reference to the impact of noise on the wildlife presently in the area.

Draft EIS covering the Honolulu District Court Site Selection at Honolulu, Hawaii

This department has no objections to the recommended site selections for the new Honolulu District Court Building as proposed in the EIS submitted by the Dept. of Accounting and General Services.

We note that this department will be involved in acquiring the property at the proposed District Court site.

BOARD OF LAND AND NATURAL RESOURCES

Sunao Kido

SUNAO KIDO
Chairman and Member

January 31, 1975

Chairman
State of Chairman
Department of Land and Natural Resources
P.O. Box 621
Honolulu, Hawaii 96809

Dear Sir:

Subject: Draft Environmental Impact Statement
Fire and Police Joint Training Facility

Our response to Mr. Sunao Kido's comments submitted on July 3, 1974 pertaining to the subject EIS is as follows:

Two Federal Wildlife Refuges are located approximately 2 miles to the east and west of the proposed training site. The impact of the proposed facility on the wildlife in the area is considered negligible. We have included a discussion of endangered waterfowl and a map showing Wildlife Refuge locations on pp. 15-16 in the final EIS.

JOHN A. BURNS
GOVERNOR

FREDERICK C. ERSKINE
CHAIRMAN, BOARD OF AGRICULTURE

WILLIAM E. FERNANDES
DEPUTY TO THE CHAIRMAN

STATE OF HAWAII
DEPARTMENT OF AGRICULTURE
1428 SO. KING STREET
HONOLULU, HAWAII 96814

July 9, 1974

MEMORANDUM

TO: Dr. Richard E. Marland, Interim Director
Office of Environmental Quality Control

SUBJECT: Environmental Impact Statement for the
Proposed Fire and Police Training Facilities
City and County of Honolulu, Building Department

The Department of Agriculture has reviewed this draft statement for agricultural impact and finds it complete and correct except for quantification of smoke emissions. While the proposed site on filled land is not suitable for agricultural production using conventional tillage methods, without additional fill and grading it would be suitable for nursery and greenhouse culture methods which is a possible alternative use.

The Department requests that analysis of airborne emissions recognize the impact of increased vehicular traffic and burning exercises in general terms. It is recommended that quantities of fuel consumed be estimated rather than expressing emissions on the basis of duration of burning exercises. Such quantification of fuel would make it possible to estimate emission values for the incinerator, sugar mill and cane burning activities centered on Waipahu.

The Department does not oppose location of this training center on Ag-1 land. The need for improved training facilities is a vital aspect of public safety programs.

Thank you for the opportunity to comment on this matter.

Frederick C. Erskine
Chairman, Board of Agriculture

January 31, 1975

Chairman, Board of Agriculture
State of Hawaii
Department of Agriculture
1428 South King Street
Honolulu, Hawaii 96814

Dear Sir:

Subject: Draft Environmental Impact Statement
Fire and Police Joint Training Facility

Our response to Mr. Federick C. Erskine's comments submitted on July 9, 1974 pertaining to the subject EIS is as follows:

1. The final EIS discusses the possibility of using filled land for nursery and greenhouse culture as an alternative use on page 36.

2. Airborne emissions due to vehicular traffic are recognized in general terms on page 17.

JOHN A. BURNS
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 3378
HONOLULU, HAWAII 96801

WALTER B. QUISENBERRY, M.P.H., M.D.
DIRECTOR OF HEALTH

WILBUR S. LUMMIS JR., M.S., M.D.
DEPUTY DIRECTOR OF HEALTH

In reply, please refer to:
EPHSD-NR

July 9, 1974

To: Dr. Richard E. Marland, Interim Director
Office of Environmental Quality Control

From: Director of Health

Subject: Comments Regarding the Draft Environmental Impact Statement for the Proposed Fire and Police Training Facilities on an Un-used Portion of Land Adjacent to Waipahu Incinerator

1. It is expected that all pertinent statutes and regulations regarding the control of air, water, solid waste and noise be complied with during construction and in the operation of these facilities.

2. However, regarding the air emissions during burning exercises, it is indicated that the facility may not be able to comply with all details relative to present legislation. We note that experiments are being conducted by the military. However, indications are that an acceptable method of control is not in sight. The Air Force, for example, hopes to have a control method in January, 1977. Therefore, this might require a variance.

3. The EIS fails to discuss the fact that a portion of Waipio Peninsula is now used as a bird sanctuary. Discussion in the EIS should include but not be limited to:

   a. Bird sanctuary location, size in species inhabiting the area. Rare or endangered species should be identified. Eco-description should be provided.

   b. Effects of air, water and noise pollution on the sanctuary.

   c. Cumulative effects of water, air and noise pollution on the sanctuary due to the proposed facility, incinerator, open dumping and sewage stabilization pond.

4. Section II.B. "Water Borne Effluents" is confusing and a number of questions and factors need to be considered and/or answered.

   a. Is the run-off resulting from hose evolution going into a drafting pit for reuse and irrigation, or into the storm drainage system? This is unclear.

b. Foam resulting from oil fires are said to be bio-degradable and non-toxic and will be left on the ground to evaporate and degrade. This is contradictory to the statements concerning drainage around the slab and pit area in the preceding paragraphs. Also, should this effluent be stored in sump or drafting pit, bacterial degradation may give rise to odors and other problem.

c. Discharge of a bio-degradable effluent through a drainage system and into a storm drain may be a violation of State Water Quality Standards.

d. This section should include discharges of sanitary sewage. It should be pointed out that there is a moratorium on new connections to the Waipahu Oxidation Pond. Does this mean a delay in the project or an on site sewage treatment plant?

e. No mention of disposal of canine waste is made.

5. In Section II.C "Noise Emissions," a discussion should be made concerning night training on the firing range and other noise generating activities.

6. In Section II.D "Solid Waste," it is stated that a significant amount of debris is not expected to be generated due to the combustion of the material. Combustion time given in the EIS is only 5 minutes/drill, much too short for complete combustion of wood. Solid waste generated in this exercise should be disposed of at the incinerator.

7. All statutes and regulations regarding noise, including those of the City and County of Honolulu's Comprehensive Zoning Code and others, must be complied with during construction and operation of this facility.

Walter B. Quisenberry

WALTER B. QUISENBERRY, M.D.

January 31, 1975

Director of Health
State of Hawaii
Department of Health
P.O. Box 3378
Honolulu, Hawaii 96801

Dear Sir:

Subject: Draft Environmental Impact Statement
Fire and Police Joint Training Facility

Our response to Dr. Walter Quisenberry's comments submitted on July 9, 1974 pertaining to the subject EIS is as follows:

1. All pertinent statutes and regulations regarding the control of air, water, solid waste and noise will be complied with during construction and operation of the subject facility.

2. The open burning associated with fire training exercises will require a variance. The variance procedure is discussed on pages 19 and 20 of the final EIS.

3. Two Federal Wildlife Refuges are located approximately 2 miles to the east and west of the proposed training site. The impact of the proposed facility on the wildlife in the area is considered negligible. We have included a discussion of endangered waterfowl and a map showing Wildlife Refuge locations on pp. 15-16 in the final EIS.

4. Waterborne Effluents

   a. Most of the water resulting from hose evolution drills will enter the drafting pit for re-use. Excess water will enter the drainage system to Kapakahi Stream and will contain no pollutants since burning is not involved in hose evolution drills.

b. The foam and water mixture after oil fires will be collected in a separate drainage system and disposed of by an acceptable method.

c. All discharges will conform to State Water Quality Standards.

d. Discharges of sanitary sewage has been included in this section. The City and County Division of Sewers has confirmed the possibility of a new connection to the existing sewage system as stated on page 24 of the final EIS.

e. Canine waste will be handled by the new connection to the existing sewage system as stated on page 24 of the final EIS.

5. Night training activities by both Fire and Police Departments are discussed on page 26 in Section III C. "Noise Emissions".

6. Fire training involving wood fires will not allow the complete combustion of materials. Solid waste generated by these exercises will be disposed of at the adjacent City and County Incinerator.

7. All statutes and regulations pertaining to noise, including the CZC and OSHA, will be complied with during construction and operation of this facility. New minimum acceptable noise levels are included in Appendix C on page 87 of the final EIS.

University of Hawaii at Manoa

Environmental Center
Maile Bldg. 10 • 2540 Maile Way
Honolulu, Hawaii 96822
Telephone (808) 948-7361

Office of the Director

July 15, 1974

MEMORANDUM

TO: Richard E. Marland, Director, OEQC

FROM: Jacquelin N. Miller, Environmental Center JM

RE: Draft EIS for the Proposed Fire and Police Training Facilities

The Environmental Center has solicited a review of the above cited environmental impact statement from two members of the University faculty, Drs. John Burgess, Noise Task Force and Anders Daniels, Air Pollution Task Force, of the Environmental Center. The comments of Dr. John Burgess, Department of Mechanical Engineering, are quite detailed and thus are transmitted here in their entirety.

Dr. Daniels comments are confined to the air pollution aspects of the proposed facility:

> There are no attempts to quantify the expected emissions from the proposed facilities. This is unfortunate as it is only with such information that one can get a realistic estimate of the resulting concentrations downwind. Since the training exercises to be conducted at the facilities probably are identical to those at similar facilities on the mainland, quantitative emission data are more than likely available. Such data should then be combined with a realistic diffusion model to produce a concentration estimate which, when added to existing air pollution levels, would yield the information necessary for an unbiased evaluation of the air pollution potential of the project.
>
> It is furthermore erroneous to assume as stated on page 31 that "the emissions will not be allowed to exceed

State Department of Health standards, and therefore would not reach any harmful level," as emission standards do not necessarily guarantee ambient air quality levels. Such levels are prescribed by the State of Hawaii Air Quality Standards.

It is therefore recommended that a study of the proposed facility be undertaken which produces quantitative estimates of the expected air pollution levels.

The Center is in accord with the opinions expressed by Drs. Burgess and Daniels. In addition to their comments regarding noise and air pollution, some comment on the general presentation of the EIS seems necessary. We realize this is a "Draft" statement and that a review should be an evaluation of the content, not grammatical form of an EIS. However, the number of actual errors in word usage, incomplete sentences, repetition, word omissions, redundancy and inconcisely written text does not generate a positive attitude toward an appraisal of the content of the EIS. We suggest that this EIS be carefully edited prior to preparation of the final statement and that pages, 3, 6, 23, 26, 38 and 39, to mention a few, be examined for grammatical errors.

cc: J. Burgess
A. Daniels

January 31, 1975

Ms. Jacquelin N. Miller
Environmental Center
University of Hawaii at Manoa
Maile Bldg. 2540 Maile Way
Honolulu, Hawaii 96822

Dear Ms. Miller:

Subject: Draft Environmental Impact Statement
Fire and Police Joint Training Facility

Our response to your comments submitted on July 15, 1974 pertaining to the subject EIS is as follows:

1. It is not possible at this time to quantify the expected air pollution levels which are subject to such factors as the final design of the fire training building and natural gas "X-mas tree". However, if present training methods are used, the pollution levels of oil fires can be estimated by the quantity of fuel consumed during a training day.

   The expected amount of fuel consumed will vary according to the time required to extinguish the fire in each separate drill. A maximum of 5 gallons of diesel oil and 5 gallons of gasoline will be utilized in a mixed solution during the course of a normal training day.

2. The erroneous statement that "the emissions will not be allowed to exceed State Department of Health standards, and therefore would not reach any harmful level" has been deleted. Emissions will not be allowed to adversely affect ambient air quality levels prescribed by the State of Hawaii Air Quality Standards as stated on page 46 of the final EIS.

3. A separate letter will be sent to Dr. John C. Burgess in response to his comments on Noise Impact from the proposed facility.

University of Hawaii at Manoa

Department of Mechanical Engineering
Holmes Hall 302 • 2540 Dole Street • Honolulu, Hawaii 96822

July 5, 1974

MEMORANDUM

TO: Dr. Jerry M. Johnson, Acting Director
Environmental Center

FROM: John C. Burgess

SUBJECT: Review of Noise Assessment, Draft EIS, Proposed Fire and Police Training Facilities[1]

The draft EIS identifies noise emissions from gunfire, fire trucks, helicopters, dogs, and automobiles as having potential environmental impact. The site recommended, adjacent to the Waipahu incinerator, is stated to be flat, open, and about 1/4 mile downwind (normal trades) from the closest residential area. The draft includes a report on measurements made at the proposed site of noise emissions from gunfire and some vehicles.[2] The principal conclusion stated is that noise emissions will have a negligible environmental impact on people and animals outside the proposed site. This conclusion appears to be based strongly on a noise consultant's opinion[3] that "the highest level of sound at the closest residence would be well within the limitations of the CZC".[4] The draft also suggests various structural and operational features that can provide noise reduction at locations outside the proposed site.

Summary of Reviewer's Conclusions

1. Gunfire noise measurements reported by the consultant show that two of the three firearms tested probably created noise levels 6 dB and 22 dB in excess of the impact noise limits of the CZC. This opinion is contrary to that of the consultant.

---

[1]Draft, "Environmental Impact Statement for the Proposed Fire and Police Training Facilities", Submitted by Building Department, City and County of Honolulu, Prepared by Group Architects Collaborative, Inc., May, 1974.

[2]"Preliminary Environmental Noise Survey of Proposed Waipahu Fire and Police Training Facility and Range", Consultant's report included as an appendix to draft EIS.

[3]Ref (2), p. 3

[4]Comprehensive Zoning Code, City and County of Honolulu, Sections 21-231 and 21-232.

2. Gunfire noise measurements reported by the consultant show anomalous sound propagation effects. The absence of these effects could have resulted in sound levels at the nearest residence up to 40 dB higher than those measured.

3. Vehicular noise measurements reported by the consultant show that ground vehicle operation may violate the CZC noise provisions at the nearest residential lot boundary. Noise from helicopter operation is likely to exceed CZC limits by 20 to 30 dB..

4. The primary conclusion of negligible environmental noise impact in existing residential areas appears to be valid provided that the facility is properly designed, fabricated, and operated.

5. A cost-effective approach suggests that initial design, fabrication, and operation of the facility to achieve significant reduction of noise emissions can not only reduce noise impact in the surrounding community, but can reduce the cost of noise control features required for satisfactory classroom and kennel operations.

6. The reviewer feels that the Final EIS should identify and recommend specific design and operational features for noise control, rather than just provide a catalog of possible features. The Final EIS should identify the "worst impact condition" in the surrounding area, and it should identify the expected noise levels and their impact under all normal (not just trade wind) weather conditions.

Discussion of Reviewer's Conclusions

1. Gunfire Noise Measurements Show Probable CZC Violation

The consultant reported "average peak sound level" measurements for a 38-tal. pistol, a 12-gauge shotgun, and a 30-cal. rifle. The levels were reported for the firer's position (taken by the reviewer to be 1 yd.), 100 yds, 200 yds, 300 yds, and at the "closest residence" (taken by the reviewer to be 1/4 mile).

The consultant's report does not identify what he means by "average peak sound level." The B and K 2204 Impulse Precision Sound Level Meter measures a maximum rms level with any of several standard frequency weightings. For gunfire measurements, the most logical combination would be "impulse hold" with "linear" weighting. The reviewer will call a reading made with this combination an "impulse" level and assumes that the consultant measured impulse levels.

The impulse level is not the "impact" level required to determine conformance with the CZC. The response time constant for the impulse level measurement is about 35 milliseconds, while that for the impact measurement is 50 microseconds. Within 1/4 mile of a gun, the observed rise time of gunfire sound is probably of the order of 100 microseconds or less. The meaning of this

is that the true impact levels required for comparison with the CZC for gunfire may be 10 dB or so higher than those reported. If the consultant used any weighting network other than "linear", the true impact levels will be still higher.

The levels reported by the consultant appear to be "overall" levels. The CZC requires octave band levels to determine conformance. The reviewer used published data to estimate the spectrum of gunfire noise[5] and used the consultant's "impulse" level as if it were an "impact" level. The reviewer concludes that the critical octave band for gunfire is the 2400 to 4800 Hz band. The reviewer's calculations suggest that the sound from the 30-cal. rifle exceeded the CZC octave band limit at the nearest residence by about 22 dB, that from the 12-gauge shotgun by about 6 dB, while the 38-cal. pistol sound may have been marginal. These values can be increased significantly under different, normal, weather conditions (see next section). They can be decreased significantly by use of structures designed for noise control. Since the consultant's report does not identify the direction of firearm aim during the noise tests, it is not clear to what extent the reported data are affected by the "focussing" effect.[6]

2. Measurements Show Anomalous Sound Propagation Effects.

The gunfire sound levels reported as functions of distance from the firing point can be compared with the predictions of the spherical spreading law.[7] The comparison shows the measured sound levels to be about 6 dB greater (less attenuation) than expected out to 200 yds for all three firearms. At 300 yds, the measured level of the sound from the 38-cal. pistol was about 6 dB greater (less attenuation) than expected, while that from the 12-gauge shotgun was about 16 dB lower (more attenuation) than expected, and that from the 30-cal. rifle was about 11 dB lower than expected. At the nearest residence, the measured sound levels were about 16 dB lower (more attenuation) than expected for the 38-cal. pistol, about 39 dB lower than expected for the 12-gauge shotgun, and about 29 dB lower than expected for the 30-cal. rifle. If excess attenuation by atmospheric absorption is taken into account, the last three values could be corrected by subtracting a few decibels. They could also be corrected by adding a few decibels to account for the difference between the impulse level measured and the impact level required.

The reviewer feels that the most likely explanation for the excess attenuation experienced for distances greater than 200 yds. is that temporary wind and temperature gradients placed the microphone in a sound "shadow." Under slightly different, and normal, weather conditions, the actual impact sound levels experienced at the nearest residence could be as much as 40 dB greater than the impulse levels measured. The critical octave band impact levels from all three firearms could then be very greatly (possibly up to about 60 dB) in excess of the corresponding level specified as a limit in the CZC.

---

[5] Galloway, W.J., Watters, B.G., and Baruch, J.J., "An Explosive Noise Source", J. Acous. Soc. Am. 27, 2, pp. 220-223, March 1955. (provides 1/3 octave band spectrum for 10-gauge blank shotgun shell)

[6] Letter from E.D. Andrus, National Rifle Association of America, February 9, 1972, included as an appendix to Draft EIS[1]

[7] Identified in Ref. 6 as usable for gunfire sound level predictions out to 200

3. Vehicular Noise Measurements Suggest Possible CZC Violation

The sound levels reported for the operation of ground vehicles and their auxiliary equipment are equivalent to a range of 79 to 90 dB at 20 ft. (presumably dBA, but not so identified). Helicopter sound levels are reported to be 85 to 90 dB (again, presumably dBA) at 500 ft. Assuming spherical spreading, the corresponding levels at the nearest residence would be about 36 dB lower for the ground vehicles and about 8 dB lower for the helicopter.

Taking into account the spectrum of vehicular noise, a realistic A-weighted equivalent for the CZC octave band limits on noise in a residential area is probably not greater than 50 dBA. Noise from the operation of ground vehicles may thus exceed the CZC limits by a few dB, while that from helicopter operation will exceed the limits by 20 to 30 dB. Since most of the power in the noise from all these vehicles is in the low frequency range, excess attenuation caused by atmospheric absorption will not be significant.

Proper construction and operational use of ground barriers can decrease the noise levels resulting from ground vehicle operation to conform with the CZC. Reduced helicopter noise will require less noisy helicopters.

4. Negligible Environmental Noise Impact Possible,

5. Cost-Effective Design Approach, and

6. Suggested Objectives for Final EIS

The draft EIS is correct in pointing out that earth berms, building location and massing, acoustical treatment, and direction of firing can be used to control noise emissions. Conventional landscaping, however, will have only a cosmetic effect; it has a negligible effect on noise. To the list of means for effective noise control could be added other aspects of training operations, such as locations for fire engines and other vehicles relative to barriers. The proposed site has a great advantage in that there appears to be only one noise-sensitive direction. Barriers can thus be used effectively.

In the reviewer's opinion, there are no significant technical problems to be overcome in achieving a facility operation of which creates a negligible environmental noise impact, except for helicopter operations. The impact from helicopter operations may be small provided that they are used only occasionally (every other week or so) and only during normal daytime working hours.

Consideration given during initial design to control of noise effects within the site may easily lead to cost-effective features which will also reduce environmental noise impact outside the site. The noise from gunfire can interfere not only with expected classroom activities, but may have also a serious effect on animals kept within the site. Although police dogs may be trained to react favorably to occasional gunfire, steady exposure of the kennels to such noise may be counterproductive to training and breeding. The literature on the effects of

moderate noise levels on animals is scarce[8] but such literature as does exist suggests that sharp sounds are likely to stimulate the startle reaction in animals, as they do in humans, with undesirable emotional responses.

Construction designed to reduce the sound emissions from gunfire and other operations can be expected not only to reduce the cost of structures on the site for which interior noise levels must be kept low, but to reduce considerably the expected environmental noise impact in the nearby community. The cost of designing such control into the original site improvements can be significantly less than that of corrective measures taken after construction is completed.

Some words of caution may be appropriate concerning estimation of community reaction to noise. Although there are many physical measures of noise intensity, none have shown a perfect correlation with community reaction. Such reaction may be viewed on average as the logical response of intelligent beings. With the great increase in the past few years of public awareness of legal remedies available for treating excessively noisy operations, it is risky to assume that such operations can be safely planned today to meet standards found acceptable in the past, in different communities, and with different noise sources. For example, the reviewer doubts that an American residential community today would passively accept continual exposure to impact sounds, such as sonic booms with peak overpressures of 128 dB, or 100 dB, or even 60 dB in a quiet neighborhood.

The Final EIS should identify the specific structural and operational configurations recommended, the specific expected noise levels in nearby areas, and the specific worst impact conditions allowed by existing or expected zoning and land use in these areas.

---

[8] "Effects of Noise on Wildlife and Other Animals", U.S. Env. Prot. Agency Report NTID 300.5, Dec. 31, 1971. See especially pp. 15, 18, and 27.

January 31, 1975

Dr. John C. Burgess
Department of Mechanical Engineering
University of Hawaii at Manoa
Holms Hall 302
2540 Dole Street
Honolulu, Hawaii 96822

Dear Dr. Burgess:

Subject: Draft Environmental Impact Statement
Fire and Police Joint Training Facility

Our response to your comments submitted on July 5, 1974 pertaining to the subject EIS is as follows:

1. Section III C. "Noise Emissions" has been revised and expanded according to information obtained from Mr. James K.C. Chang, Acoustical Consultant. We have identified the worst impact condition and included specific design and operational parameters for the proposed facility to facilitate minimum sound propagation. This is discussed on pages 26-32 in the final EIS.

2. Proposed methods to reduce sound are further discussed on pages 46-49 including "last resort" alternatives.

3. New minimum acceptable noise levels which comply to both CZC and OSHA were provided by Mr. James K.C. Chang and are included in Appendix C, page 87 of the final EIS.

5. The final design of the Fire-Police Training facility will incorporate a maximum input from consultants to insure that all Federal, State and City noise control codes are satisfied.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813

IN REPLY REFER TO:
ATP 8.2645

July 18, 1974

Dr. Richard E. Marland
Interim Director
Office of Environmental
Quality Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Dr. Marland:

Subject: Draft Environmental Impact Statement
Proposed Fire and Police Training Facilities

We have reviewed the subject environmental statement and have no comments to offer as it relates to and affects our Department's transportation program.

Sincerely,

Douglas S. Sakamoto
for E. ALVEY WRIGHT
Director

CITY AND COUNTY

DEPARTMENT OF TRANSPORTATION SERVICES

CITY AND COUNTY OF HONOLULU

CITY HALL ANNEX
HONOLULU HAWAII 96813

FRANK F. FASI
MAYOR

PAUL DEVENS
MANAGING DIRECTOR

GEORGE C. VILLEGAS
DIRECTOR

ROY A. PARKER
DEPUTY DIRECTOR

June 26, 1974

PL-2588-74

Dr. Richard Marland
Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Dr. Marland:

Subject: Draft EIS for the Proposed Fire and Police Training Facilities

The Department of Transportation Services has no comment on the subject draft.

Very truly yours,

GEORGE C. VILLEGAS
Director

TRANSPORTATION PLANNING
HARLAN [illegible], P.E.

BUS SYSTEMS
HERBERT A. NORTHCUTT
ACTING
PH. 548-7881

TRAFFIC ENGINEERING
CLIFFORD NOHARA, P.E.
PH. 546-3260

ELECTRICAL & MAINTENANCE SERVICES
KENNETH THONG, P.E.
PH. 546-2800

SAFETY & EDUCATION
ROBERT H. DING JR.
PH. 545-2534

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA
POST OFFICE BOX 3410
HONOLULU, HAWAII 96843

July 1, 1974

Dr. Richard E. Marland
Interim Director
Office of Environmental Quality Control
550 Halekauwila Street
Honolulu, Hawaii 96813

Dear Dr. Marland:

SUBJECT: Draft Environmental Impact Statement for the Proposed Fire and Police Training Facilities

Thank you for sending us the environmental impact statement for our review and comments.

The proposed project is not anticipated to adversely affect our present and future groundwater resources or facilities in the area. However, we have the following comments regarding the sewage system.

(1) The impact statement should discuss the disposal of sewage separately rather than under the title of "Solid Waste".

(2) A discussion on the offsite sewer construction required to service the proposed development should be included in the statement. The 16-inch sewer line mentioned on page 20 is a force main and connection cannot be made to it.

(3) A discussion of the project's impact on the existing and proposed Waipahu force main should also be included. There is an existing force main along the road fronting the project site. A new force main is also proposed along the same route.

If you have any further questions on this matter, please call Mr. Satoru Matsuda at 548-5221.

Very truly yours,

Edward Y. Hirata
Manager and Chief Engineer

January 31, 1975

Mr. Edward Y. Hirata
Manager and Chief Engineer
Board of Water Supply
630 South Beretania Street
P.O. Box 3410
Honolulu, Hawaii 96843

Dear Mr. Hirata:

Subject: Draft Environmental Impact Statement
Fire and Police Joint Training Facility

Our response to your comments submitted on July 1, 1974 pertaining to the subject EIS is as follows:

1. The final EIS discusses the disposal of sewage under Section III B. "Waterborne Effluents" instead of "Solid Waste".

2. The City and County of Honolulu Sewers Division concurred that domestic waste from the Fire-Police Training Facility, including canine waste can be handled by an existing gravity sewer line via a new 8" line connection at an existing manhole near the Waipahu Sewage Pumping Station mauka of the training site. A permit is being processed to allow this new connection.

3. Since the new connection will be made to an existing gravity line there will be no impact on the existing Waipahu force main.

DEPARTMENT OF PUBLIC WORK
CITY AND COUNTY OF HONOLULU
HONOLULU, HAWAII 96813

ANK F. FASI
MAYOR

PAUL DEVENS
MANAGING DIRECTOR

KAZU HAYASHIDA
DIRECTOR AND CHIEF ENGINEER

WALLACE S. MIYAHIRA
DEPUTY DIRECTOR AND
DEPUTY CHIEF ENGINEER

ENV 74-143

July 5, 1974

Office of Environmental Quality Control
Office of the Governor
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Gentlemen:

Subject: Draft Environmental Impact Statement for the Proposed Fire and Police Training Facilities

We have reviewed the draft statement and have the following comments.

1. Waterborne Effluents (pg. 18): The statement does not adequately address or discuss the probable impact on the existing drainage condition of the area by the proposed fill. The proposed drainage improvement should also be elaborated upon.

2. Solid Waste (pg. 20): The discussion on sewage collection and disposal would be more appropriate under subparagraph III B, Waterborne Effluents instead of Solid Waste.

   (pg. 21): The existing dump area across Waipahu Depot Road may not be available for the disposal of debris from the fire training exercises. Under this circumstance, the debris will have to be removed to a sanitary landfill.

3. Resource Depletion (pg. 22): A feasibility study for refuse power generation, to be undertaken by the Department of Public Works, AMFAC, Inc., and the Hawaiian Electric Company, Inc., will determine whether a proposed refuse power generating plant should be located in the Waipahu area. The feasibility study will be completed in December 1974. In the event the Waipahu site is selected, some adjustment in the boundary of the fire and police training site may be necessary.

4. Sewage Tratment Plant (pgs. 22, 23, 25): The parcels earmarked for a sewage treatment plant will be redesignated for ash disposal, inasmuch as the proposed wastewater treatment plant serving the area from Halawa to Honouliuli will be located adjacent to the Barbers Point Naval Air Station.

Very truly yours,

KAZU HAYASHIDA
Director and Chief Engineer

cc: Div. of Engineering
Div. of Refuse Collection and Disposal

January 31, 1975

Mr. Kazu Hayashida
Director and Chief Engineer
Department of Public Works
City and County of Honolulu
Honolulu, Hawaii

Dear Mr. Hayashida:

Subject: Draft Environmental Impact Statement
Fire and Police Joint Training Facility

Our response to your comments submitted on July 5, 1974 pertaining to the subject EIS is as follows:

1. A master grading plan has been prepared by Stanley Shimabukuro and Associates, titled "Waipahu Refuse and Incinerator Ash Disposal Site Waikele and Waipio, Ewa, Oahu, Hawaii". The existing drainage condition of the area will be improved if this plan is followed.

2. Discussion on sewage collection and disposal has been included under Section III B. "Waterborne Effluents" in the final EIS.

   Debris remaining after fire training exercises will be disposed of at the adjacent City and County Incinerator.

3. The feasibility study by the Department of Public Works for a proposed refuse power generating plant states that the Waipahu site is the least desirable of several alternative sites and probably will not be selected.

4. The parcels earmarked for a sewage treatment plant have been redesignated for ash disposal in the final EIS.

DEPARTMENT OF LAND UTILIZATI
CITY AND COUNTY OF HONOLULU
~~650 PUNCHBOWL STREET~~
HONOLULU, HAWAII 96813

FRANK F. FASI
MAYOR

PAUL DEVENS
MANAGING DIRECTOR

GEORGE S. MORIGUCHI
DIRECTOR

WILLIAM E. WANKET
DEPUTY DIRECTOR

LU6/74-1777(BA

July 10, 1974

MEMORANDUM

TO : DR. RICHARD E. MARLAND, INTERIM DIRECTOR
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

FROM : GEORGE S. MORIGUCHI, DIRECTOR OF LAND UTILIZATION

SUBJECT : DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR FIRE AND POLICE TRAINING FACILITY, WAIPAHU

We have no objections to the above proposal. The selected site is shown for public facility use on the General Plan and is zoned AG-1 Restricted Agricultural District. The proposed use is permitted within the zoning district.

It is noted, however, that the proposed site is within a state-designated agricultural district. A special permit from the State Land Use Commission will be required.

GEORGE S. MORIGUCHI
Director

GSM:sk

January 31, 1975

Mr. George Moriguchi
Director
Department of Land Utilization
City and County of Honolulu
Honolulu, Hawaii

Dear Mr. Moriguchi:

Subject: Draft Environmental Impact Statement
Fire and Police Joint Training Facility

Our response to your comments submitted on July 10, 1974 pertaining to the subject EIS is as follows:

1. The subject site is shown for public facility use on the General Plan and is zoned AG-1 Restricted Agricultural District. Although the proposed use is permitted within the AG-1 designation it is not allowed within the State Land Use Agricultural District.

2. Therefore, a special permit is now being processed to allow this facility within the State Agricultural District.

CITY AND COUNTY OF HONOLULU
1455 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96814

FRANK F. FASI
MAYOR

PAUL DEVENS
MANAGING DIRECTOR

YOUNG SUK KO
DIRECTOR

RAMON DURAN
DEPUTY DIRECTOR

May 22, 1974

Mr. Norman Hong
Group Architects
Collaborative, Inc.
765 Amana Street
Honolulu, Hawaii 96814

Dear Mr. Hong:

SUBJECT: EIS ON PROPOSED FIRE AND POLICE TRAINING FACILITY AT WAIPAHU

The EIS statement made regarding the recreational facilities in the Waipio Peninsula is acceptable.

Sincerely,

Ramon Duran
for YOUNG SUK KO, Director

PRIVATE ORGANIZATIONS

Waipahu Community Association

HONOLULU SAVINGS AND LOAN BUILDING
94-229 WAIPAHU DEPOT STREET
WAIPAHU, HAWAII 96797

TELEPHONE 677-4950

July 15, 1974

Mr. Ernest T. Yuasa,
Director and Building Superintendent
Building Department
City and County of Honolulu
Honolulu, Hawaii 96813

Dear Mr. Yuasa:

Subject: Fire and Police Training Facility at the Waipahu Incinerator Site.

We have carefully reviewed your letter of response dated May 13, 1974 and the accompanying Environmental Impact Statement in regards to the above subject matter. While many of your comments are true and worthy of this community's consideration, we do not agree that the points made are the only ones to be considered. With all due respect for your findings, our review of the matter reveals that there are much deeper and underlying problems and possibilities open for further study.

Both the letter and the Environmental Impact Statement indicate that the main concern is the centralization of the Fire and Police Training Facilities. The need as described is a matter for conjecture, particularly if there is any doubt in regards to the monetary savings and undesirable impact on the communities involved. Bearing this in mind, we begin by referring to the statement, bottom, page 3, of the Environmental Impact Statement: "... an extensive evaluation of possible alternative sites have resulted in the selection of the proposed Waipahu site."

Even as this evaluation and selection were in progress, the Waipahu community was naively dreaming of the sanitary landfill (dump) area on West Loch including the 15 acres now under discussion, as the possible site of the much needed Regional Park. Young Suk Ko, Director of the Department of Recreation, indicated in a letter addressed to you, dated April 4, 1974, that there was such a long range plan to develop the park that he did not feel that the proposed subject facilities would adversely affect the plans.

However, on site evaluations and conversations by and between state officials and representatives of the Waipahu Community Association reveals that the sanitary landfill area may indeed be unsuitable for park consideration due to the danger inherent in continuous deep burning and smoldering

Waipahu Community Association

HONOLULU SAVINGS AND LOAN BUILDING
94-229 WAIPAHU DEPOT STREET
WAIPAHU, HAWAII 96797

TELEPHONE 677-4950

of underground dump materials beneath the landfill crust. This may then leave for park use ONLY the 15 acres you propose to undertake for the subject facilities, with perhaps many years hence the obtaining of beach areas further out on the penninsula! Middle Loch can hardly be considered, for not only is it being used by the Navy, but it is receiving the run-off waters of the sewage treatment plant.

Even though the subject side, zoned Agriculture, is only designated on the Oahu General Plan as "Public Facility", there were plans made for development of a park. Though, not as specifically indicated for park use as was the Koko Head site, we feel we are entitled to the same consideration and right to object to its being taken away from us as was given the citizen committees of Koko Head, or any other community who did not welcome the subject facilities within their midst.

There are several glaring, undesirable aspects glossed over by the Environmental Impact Statement:

A. Reference is made on pages 18, 21, 24 and 45 for the use and disposition of debris and solid waste materials. Utilizing ash and refuse residue from the adjacent incinerator to raise the land elevation may be a noble gesture, but once completed, the problem of the disposal of waste materials will be compounded by the addition of another facility unfortunately bound to be categorized the same as the unwanted and undesirable incinerator.

And where is this waste to go? Indications are, it will be disposed of onto the adjacent and existing dump area across Waipahu Depot Road. It is questionable how this fits in with any community plans for a park in, near or throughout that area!

In regards to sewage disposal, the State Department of Health is at present not permitting further hookups to the existing sewage system. Indications are that the C/C of Honolulu may be faced with the need to construct more ponds. This they may well not be able to do unless the Navy, who controls the land, and the community which is already disenchanted with the sewage facilities in its midst, permits them to do so. Already, housing developments and schools are being faced with the unavailability of sewage hook-ups and the subject facility will only compound the problem.

B. Reference to smoke omissions on pages 28, 29 and 30 lead to the possibility of the addition of an incinerator should certain control measures fail. The Waipahu Community feels it doesn't need another incinerator -- for whatever reason! One fiasco of that sort is enough!

It should also be pointed out that any open burning may result in a great amount of inconvenience to the subject facility. A recently enacted law forbids such without a permit. So far as is known, only Campbell Industrial Park is exempt.

Waipahu Community Association

HONOLULU SAVINGS AND LOAN BUILDING
94-229 WAIPAHU DEPOT STREET
WAIPAHU, HAWAII 96797

TELEPHONE 677-4950

C. Noise, page 19 and traffic, pages 14, 20, 26 and 27 are considerations that unless tests for which are made under actual conditions, may prove invalid. It is to be assumed that dogs will be the least of the problems since the very nature of their work precludes their silence except under certain necessary conditions. Gunfire, muffled, would probably not affect the ears, though it well might affect the nerves of many because of what it represents.

However, trucks, automobiles and helicopters are all LOUD noise producers. In addition, trucks and automobiles will be expected to use the narrow Waipahu Depot Road. Already overburdened by trucks, cars and garbage trucks going to and from the incinerator, in the light industrial area, and of necessity lined with parked cars of industrial workers. The street is barely passable. Add to this an additional 100 to 150 vehicles moving in and out, morning and evening, plus heavy fire equipment whose very weight creates a rumble wherever they go, and the picture is one of noisy chaos.

In addition, traffic in Waipahu Town is increasing daily and can be expected to increase even more if and when additional housing is made available. 100 to 150 cars adding to the congestion of Farrington Highway is not felt to be needed. Businesswise, it can be expected that merchants will not benefit to any extent from people not of the area.

Helicopters cannot be expected to add anything to the benefit of the townspeople, but WILL produce noise to assault the ears, vibrations to affect television sets and danger to residents (and park users if such is ever developed on West Loch.) With approaches planned for the Pearl Harbor West Loch area, there remains the question, what if "prevailing wind conditions" are not in that direction?

D. Reference is made on page 23 to the possible saving of some 7 million dollars by utilizing the already exising C/C owned land in Waipahu. If saving taxpayer's money is of any concern, the several alternatives that have been, are and will be available free for the use of the police department and as early as September, 1975, for the fire department, should be given more serious consideration. Also a suggestion that helicopters be used jointly with the military be looked into.

On pages 36 and 37, you give reasons for not making use of these alternatives, such as lack of centralized facilities, travel time and scheduling difficulties. May we suggest that perhaps in your desire to build one facility you have not made a really concerted effort to utilize what is available? All classes must be scheduled, regardless of where they are held. Is a firing range for a military policeman that much different from that of a civilian? Perhaps the new planned fire fighting Navy complex might prove adequate for your purposes!

Waipahu Community Association

HONOLULU SAVINGS AND LOAN BUILDING
94-229 WAIPAHU DEPOT STREET
WAIPAHU, HAWAII 96797

TELEPHONE 677-4950

Bids are being accepted now for the building of a complete fire training complex including classrooms at Pearl Harbor by Semptember, 1975, for the specific purpose of training firefighters. It will be built, we are informed, under the strictest of environmental law guidelines and the facilities will be available free for the use of the C/C of Honolulu. The classrooms may also be available for police use.

From the element of time alone, the utilization of these facilities are a much nearer concept. From a monetary standpoint, they can hardly be brushed aside. Undoubtedly the complex will be the best obtainable anywhere and the taxpayers will have already paid for them through federal taxes. Further money from the C/C would not be required.

The C/C facilities as described would necessitate the allocation of a large amount of funds to create a double burden for taxpayers. Futhermore, we feel a 7 or 8 story training structure leaves something to be desired in preparing firefighters for battling 30-story blazes! The use of helicopters and training from this standpoint would seem to be more in keeping with the realities of the problem.

Which takes us to the suggestion for joint use of helicopters with the military. Helicopters use and training, whether for police work or fire fighting, must require a tremendous outlay of money. Heliports, machines, and necessary equipment would, in all probability create a training expenditure far beyond that of which the C/C can cope with. Yet, without it, the C/C can hardly be giving its people the proper protection in regards to high-rise fires!

The police department has had available since last year the use of a pistol and rifle range which they had only to share on a scheduled basis with the military. They would not have to share with civilians as with the Koko Head range. And yet, they have not seen fit to give it maximum use. According to knowlegeable personnel at Kaneohe Marine Corp Air Base, Police Chief Keala was invited as of last year to use that range, but their response has been minimal. As with the fire facilities, the range is free to the C/C of Honolulu.

Another possibility is the range at Schofield in Wahiawa, though personnel contacted there would appreciate more information on group size, targets and equipment required before making a committment.

With a complex available to firefighters; with a joint helicopter program with the U.S. military possible if it is pursued further; and with classrooms and a range available to the police, all of which would save the taxpayers many hundred of thousands of dollars and keep Waipahu free of another unwanted burden, it would appear that the few other requirements might be minimal.

Policemen have to travel to their cars from some point to some point

Waipahu Community Association

HONOLULU SAVINGS AND LOAN BUILDING
94-229 WAIPAHU DEPOT STREET
WAIPAHU, HAWAII 96797

TELEPHONE 677-4950

regardless of where it might be. Classes are always subject to scheduling. A gun, and a victim, civilian or military, tend to be aimed toward the same end. It would appear that a central location is not as prime a necessity as we are being led to believe. Oahu by its general characteristics and roadway systems put none of us in a central location unless we never leave the City of Honolulu.

Failing all else, consideration might be given to a suggestion that a request be made to the State of Hawaii for land for subject facility use such as that of Campbell Industrial Park.

We, of the Waipahu Community Association feel that the points made here are worthy of your consideration and that the suggestions are valid means by which the same purposes could be accomplished with a maximum use and minimum outlay of taxpayers money, while sparing the community of Waipahu the undesirability of the subject facility being built in their midst.

Respectfully yours,

Mits Shito

Mits Shito
President

MS:tr

January 31, 1975

Mr. Mits Shito
President
Waipahu Community Association
Honolulu Savings and Loan Building
94-229 Waipahu Depot Street
Waipahu, Hawaii 96789

Dear Mr. Shito:

Subject: Draft Environmental Impact Statement
Fire and Police Joint Training Facility

Our response to your comments submitted on July 15, 1974 pertaining to the subject EIS is as follows:

1. Deep burning or smoldering will not be a problem if ash residue from the City and County Incinerator is used as fill material. This is further discussed on pages 37-38 of the final EIS.

2. Waste (ash residue) from the City and County Incinerator will be distributed on Waipio Peninsula according to a master grading plan prepared for the City and County of Honolulu Building Department. This master grading plan includes the area west of the proposed Fire-Police Training Facility site to the shores of West Loch. The utilization of ash materials will not prevent future park development in the area.

3. The sanitary wastes from the proposed Fire-Police Training Facility will be accommodated by a new connection to an existing gravity line. A permit is currently being processed to allow this new connection. This is discussed on page 24 of the final EIS.

4. Open burning is permitted by State law only for agricultural purposes. Therefore a variance must be obtained for combustion during fire training exercises. The variance application procedure is explained on pages 19-20 of the final EIS.

5. Noise measurements of traffic and gunfire taken under actual conditions at another site would not be representative of the new site or proposed training facility where different conditions exist.

6. Waipahu Depot Road can be improved to accommodate the additional traffic generated by the proposed facility.

7. Helicopters will be used for emergencies only and will not be directly involved in training exercises. A discussion of helicopter operations and measures to minimize noise impact is included on page 31 of the final EIS.

8. Joint use of helicopters with the military has been discounted due to the different types of aircraft used and varied operational requirements. The Fire and Police Departments currently maintain their own helicopters and station their respective crews at Honolulu International Airport.

9. A new Navy Fire Training Complex is planned with a proposed completion date in mid-1976. Meetings with Navy officials have confirmed that this facility will be highly specialized for shipboard fire training and not suitable for the broad exposure to various types of fires required by civilian firefighters. A detailed discussion is presented on pages 52-53 of the final EIS.

10. According to Fire Department officials, helicopters will not be used in high-rise fire training exercises. The proposed eight-story fire training tower is considered adequate for high-rise training since the basic procedure for each floor is identical.

11. Joint use of private and military firing ranges is inadequate according to Police Department training requirements. The training schedules of the military and the intensive use of public ranges does not permit the Police Department full implementation of its training program. A discussion of shared use of ranges and its inadequacies is presented on page 66 of the final EIS.

12. It has been stated that a central location for the Fire-Police Training Facility is not a prime necessity. This argument is discussed in Section V "Alternatives to the Proposed Action" on pages 50-54 in the final EIS.

13. Your suggestion to use Campbell Industrial Park for the proposed facility was considered, but the high cost of land discounted this proposal.

September 4,1974

Mr. Richard E. Marland, Interim Director
Office of Environmental Quality Control
550 Halekauwila St. Room 301
Honolulu, Hawaii 98613

Dear Mr. Marland,

I have reviewed a copy of the "Draft Environmental Impact Statement for the Proposed Fire and Police Training Facilities" submitted by the City and County of Honolulu Building Department, and would appreciate it if the following questions and comments would be considered during the review.

USE OF HELICOPTERS

1) The EIS states that helicopters landing on the heli-pad would occur only during emergencies and not during training exercises. What events would constitute such emergencies?

2) The goal of the proposed facility is to provide a complete training complex which will accommodate the development of all possible knowledge and techniques of the training of firefighters and law enforcement officers. Does this training include high rise fires? Would such a facility such as a mock high rise structure be vital for such training? Would helicopters also be used?

3) Two statements seem inconsistent:

"With the exception of the helicopter (which will land at the site only for emergency purposes and not for training exercises..." p. 19

"The sources of noise emissions resulting from training exercises are: a) Gunfire, b) Pumper trucks, c) Helicopters..."

COMMITMENT TO THE FUTURE

1) The facility is planned to be useful for at least 20 years. What new type of equipment and techniques are being presently considered for this site? The EIS fails to provide such a list. What will be the environmental impacts of these techniques?

2) The facility will occupy 14 acres out of the 100 acres available in the area. By committing ourselves to this training facility, the area will soon house the ash disposal site, the incinerator, and the training center. What other type of public facility would be compatible with these undesirable facilities? Will we have committed ourselves to only permitting a limited type of facilities on the remaining 86 acres? What is the full, long range impact of permitting this training center to the area?

3) The EIS argues that the training facility would not adversely affect or hinder the development of the planned regional park in the same area. However, it fails to convince anyone that open air burning of oil and other fuel, a radiological building, and gunfire from such weapons as the AR-15 would not adversely affect the users of this park. The facility commits the area to a certain limited land use, but this impact has not been addressed.

NOISE

1) In the noise survey in the appendix of the EIS, sounds were measured with an impulse precision sound level meter. In the CZC, Section 21-232, "sounds of short duration, as from forge hammers and punch presses, which cannot be measured accurately with a sound level meter, shall be measured with the impact noise analyzer..." If gunfire belongs to the same category as "sounds of short duration" should not an impact noise analyzer be used in this case?

2) How does the noise to be generated from the training facility compare to the new noise emission standards that were just approved this year?

3) How heavily will the firing range be used? # of rounds of firing per day?

4) Does gunfire travel a longer distance when it is fired with the direction of the wind? Will target practice be postponed during kona winds?

SMELLS

Presently, Wailani subdivision residents suffer from smells generated from the incinerator and the settling ponds during kona weather. The EIS fails to mention the potential smells that would result from the training facility. What types of smells could be expected from 1) the burning of various fuels, 2) the extinguishing materials, 3) the sump pit? According to the EIS, the Waipahu area experiences kona weather 25% of the time.

FILL

1) Fill is planned to be added to build up the low lying area. What has been the historical success or failure in the use of such materials? Has any complications or extra expense resulted?

2) 24,000 cubic yards of top soil is proposed for the landscaping of the site. How many truck trips could this be translated into? The daily refuse truck traffic already taxes Farrington Highway and adds noise to the residents who live adjacent to the highway.

3) How stable will the fill be? Could it support such a critical structure as the radiological building?

RADIOLOGICAL BUILDING

Would a separate EIS be necessary prior to the construction of this building? What is the purpose of such a building to be included in the training facility? What is the potential danger of locating such a building next to a firing range where ricocheting bullets might fly?

OTHER COMMENTS

The EIS states that "purchase of any equivalent amount of land in an industrial type of area at market prices could mean costs of approximately 7 million dollars." Where is the documentation for this statement? Why was an industrial type land used for the study? The Waipahu site is located on Ag - 1 zoned, Public Facility general planned land.

The location map on page four neglects to label the residences situated between Farrington Highway and the Ted Makalena Golf Course. These residents would be directly affected by this facility.

One of the central arguments showing the need for such a training facility is that it will help to solve the present scheduling problem. The projected maximum frequency of all the burning exercises is six drills a day, or a total of 36 minutes per day. Is it difficult to schedule for this?

Would there be any kind of scheduling problem if no exercises involving smoke emission will be held during adverse wind conditions? Prevailing winds blow only 75%of the time.

Why must the firing range be out in the open? Under actual conditions, aren't a lot of firing done indoors; therefore if they want to create a realistic condition, perhaps an enclosed firing range might be appropriate.

How many new governmental service positions will result from opening this facility?

The EIS fails to show any real benefit to the residents of Waipahu for locating a training facility in their neighborhood. The only argument is that the entire island would benefit, ergo, Waipahu will too. Such statements as:

"the proposed training facility can be expected to be an improvement to the aesthetic quality of the present dump area..."

does not belong in an EIS.

This concludes my questions and comments. I appreciate the opportunity to comment on this environmental impact statement. Thank you.

Sincerely yours,

John Moriyama

John Moriyama
P.O. Box 1095
Waipahu, Hawaii
96797

January 31, 1975

Mr. John Moriyama
P O. Box 1095
Waipahu, Hawaii 96797

Dear Mr. Moriyama:

Subject: Draft Environmental Impact Statement
Fire and Police Joint Training Facility

Our response to your comments submitted on September 4, 1974 pertaining to the subject EIS is as follows:

A. Use of Helicopters

1. Helicopters will be used for emergencies such as injuries resulting from fire or police training activites or unique circumstances such as visits by government officials or dignitaries.

2. Training for hi-rise fires will be conducted at the eight-story fire training tower. Helicopters will not be used in these exercises.

3. Helicopters will be mainly used for emergencies. This has been clarified on pages 26 and 46 of the final EIS.

B. Commitment to the Future

1. The joint training facility for firemen and police officers will help to develop greater coordination between the departments during emergencies. Structures such as the 8-story fire training tower will enable firemen to develop skills needed to control hi-rise fires. The proposed Radiological Building will familiarize both departments with the handling of radioactive substances should an emergency arise.

To summarize, the training programs and experiences in the field will be in close proximity to the classrooms. Theory and practical experience with experimentation will hopefully lead to the development of new techniques to combat the rise in crimes and fires.

2. The ash disposal sites near the water may be converted to park use if they are properly treated and landscaped. A refuse power generating plant has also been considered for that area, but is considered a last alternative to other sites.

   The Department of Agriculture has suggested nursery and greenhouse culture for the filled land.

   The full, long range impact of permitting the subject facility on Waipio Peninsula is discussed on pages 69-73.

3. The Department of Recreation finds the EIS for the proposed facility acceptable and does not foresee conflict with plans for a regional park.

C. Noise

1. James K.C. Chang, the acoustical consultant, used an impulse precision sound level meter which has been factory modified to perform similarly to an impact noise analyzer.

2. New minimum acceptable noise levels which comply to both CZC and OSHA standards have been included in Appendix C of the final EIS.

3. The Honolulu Police Department will be firing approximately 1,900 rounds of ammunition per day which will consist of 1,000 pistol, 500 shotgun and 400 AR-15 rifle rounds. These figures are based on a training class of 20 recruits. The design of the facility will minimize the noise levels to conform to all Federal, State and City regulations.

4. The location and orientation of the firing ranges will greatly aid in minimizing noise impact. The direction of firing will be away from residential areas in the direction of prevailing winds. Kona Winds, which occur 25% of the time in the opposite direction toward residential areas, contain a high moisture content which will tend to lessen noise

D. Smells

1. Since open burning will occur during favorable tradewind conditions the odors associated with oil and gasoline fires will be dissipated away from residential areas.

2. The drafting pit which collects water for re-use, will be cleaned periodically to prevent odors resulting from bacterial degradation.

E. Fill

1. The use of fill materials will not create a problem if proper engineering methods are employed. A master grading plan has been prepared for the area including the project site and the treatment of fill material is discussed on pages 36-38 of the final EIS.

2. Translated into truck trips of 30 cubic yards per truck, 24,000 cubic yards of top soil would require 800 truck trips.

3. Filled land will support structures if it is adequately prepared and if proper building foundations are utilized.

F. Radiological Building

1. A separate EIS would not be required but an Environmental Assessment may be appropriate.

2. The Radiological Building will train both departments in the equipment and techniques needed to deal with radioactive substances during emergencies.

3. The location of the proposed Radiological Building and the safety factors designed into the firing ranges exclude the possibility of danger from ricocheting bullets.

G. Other Comments

1. Since the nature of the training facility suggests industrial zone compatibility, purchase of an equivalent amount of land in an industrial area at market prices could mean costs of approximately 7 million dollars assuming a cost of $10.70 per square foot.

2. The illustrations on pages 4, 11 and 30 have labeled the residences situated between Farrington Highway and the Ted Makalena Golf Course.

3. Open burning exercises at the Waipahu Fire-Police Training Facility will be scheduled only during favorable tradewind conditions. The new Navy Facility, designed for shipboard fires will have complete smoke abatement devices which will provide an unrealistic simulation of civilian building-type fires.

4. During actual police operations, gunfire usually occurs outdoors. Therefore the artificial lighting and controlled atmosphere of indoor ranges would create an unrealistic situation and a significant increase in construction cost.

5. The proposed facility will create 6 new staff positions by 1985 in addition to other governmental jobs for maintenance and security.

6. The statement that "the proposed training facility can be expected to be an improvement to the aesthetic quality of the present dump area..." has been deleted.