The Honorable Russel S. Nagata  
Comptroller  
Department of Accounting and General Services  
State of Hawaii  

Dear Mr. Nagata:

Based upon the recommendation of the Office of Environmental Quality Control, I am pleased to accept the Final Environmental Impact Statement for the new Pahoa Elementary School, Pahoa, Hawaii, as satisfactory fulfillment of the requirements of Chapter 343, Hawaii Revised Statutes. This environmental impact statement will be a useful tool in the process of deciding whether the action described therein should be allowed to proceed. My acceptance of the statement is an affirmation of the adequacy of that statement under applicable laws and does not constitute an endorsement of the proposed action.

When the decision is made regarding the proposed action itself, I expect the proposing agency to weigh carefully whether the societal benefits justify the environmental impacts which will likely occur. These impacts are adequately described in the statement, and, together with the comments made by reviewers, provide a useful analysis of the proposed action.

With kindest regards,

Sincerely,

JOHN WAIHEE

cc: Hon. John C. Lewin  
Mr. Marvin T. Miura
Site Selection Report
and Final Environmental
Impact Statement
for
The New Pahoa Elementary School
Pahoa, Hawaii

Prepared For:
State of Hawaii Department of
Accounting & General Services

Prepared By:
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PREFACE</td>
<td></td>
</tr>
<tr>
<td>I. SUMMARY</td>
<td>I - 1</td>
</tr>
<tr>
<td>II. PROJECT NEED AND DESCRIPTION</td>
<td>II - 1</td>
</tr>
<tr>
<td>A. Existing Facilities</td>
<td>II - 1</td>
</tr>
<tr>
<td>B. Projected Enrollment</td>
<td>II - 1</td>
</tr>
<tr>
<td>C. Limitations</td>
<td>II - 1</td>
</tr>
<tr>
<td>D. Proposal</td>
<td>II - 3</td>
</tr>
<tr>
<td>III. PROJECT SETTING</td>
<td>III - 1</td>
</tr>
<tr>
<td>A. Regional Overview</td>
<td>III - 1</td>
</tr>
<tr>
<td>B. Service Area</td>
<td>III - 1</td>
</tr>
<tr>
<td>1. Existing Land Uses</td>
<td>III - 1</td>
</tr>
<tr>
<td>2. Climate</td>
<td>III - 2</td>
</tr>
<tr>
<td>3. Flora</td>
<td>III - 2</td>
</tr>
<tr>
<td>4. Fauna</td>
<td>III - 2</td>
</tr>
<tr>
<td>5. Wetlands</td>
<td>III - 2</td>
</tr>
<tr>
<td>6. Soils and Agricultural Potential</td>
<td>III - 4</td>
</tr>
<tr>
<td>7. Natural Hazards</td>
<td>III - 4</td>
</tr>
<tr>
<td>8. Scenic Characteristics</td>
<td>III - 5</td>
</tr>
<tr>
<td>9. Archaeological/Historic Sites</td>
<td>III - 6</td>
</tr>
<tr>
<td>10. Geology/Hydrology</td>
<td>III - 7</td>
</tr>
<tr>
<td>11. Topography</td>
<td>III - 7</td>
</tr>
<tr>
<td>12. Water Quality</td>
<td>III - 8</td>
</tr>
<tr>
<td>C. Socioeconomic Characteristics</td>
<td>III - 8</td>
</tr>
<tr>
<td>1. Population</td>
<td>III - 8</td>
</tr>
<tr>
<td>2. Employment and Income</td>
<td>III - 8</td>
</tr>
<tr>
<td>3. Public Services</td>
<td>III - 8</td>
</tr>
<tr>
<td>a. Recreation</td>
<td>III - 8</td>
</tr>
<tr>
<td>b. Schools</td>
<td>III - 9</td>
</tr>
<tr>
<td>c. Police Protection</td>
<td>III - 9</td>
</tr>
<tr>
<td>d. Fire Protection</td>
<td>III - 9</td>
</tr>
<tr>
<td>e. Health Care Facilities</td>
<td>III - 9</td>
</tr>
<tr>
<td>f. Transportation</td>
<td>III - 9</td>
</tr>
<tr>
<td>D. Infrastructure</td>
<td>III - 10</td>
</tr>
<tr>
<td>1. Water</td>
<td>III - 10</td>
</tr>
<tr>
<td>2. Sewerage</td>
<td>III - 10</td>
</tr>
<tr>
<td>3. Electrical/Telephone</td>
<td>III - 10</td>
</tr>
<tr>
<td>4. Drainage</td>
<td>III - 11</td>
</tr>
</tbody>
</table>
SITE SELECTION REPORT AND
FINAL ENVIRONMENTAL IMPACT STATEMENT
FOR THE
NEW PAHOA ELEMENTARY SCHOOL
PAHOA, HAWAII

This environmental document is prepared pursuant
to Chapter 343, Hawaii Revised Statutes

Proposing Agency:
Department of Accounting and General Services
State of Hawaii

Accepting Authority:
Governor, State of Hawaii

Responsible Official:
RUSSEL S. NAGATA, COMPTROLLER

Prepared by:
Wilson Okamoto and Associates, Inc.
Planners, Engineers, Architects
Honolulu, Hawaii
IV. RELATIONSHIP TO PLANS, POLICIES AND CONTROLS .......... IV - 1
   A. Plans ........................................ IV - 1
      1. Hawaii State Plan ......................... IV - 1
      2. State Education Functional Plan ........ IV - 1
      3. Hawaii County General Plan ............ IV - 1
   B. Land Use Policies .......................... IV - 2
      1. State Land Use Designation ............. IV - 2
      2. County Zoning ............................ IV - 2
   C. Landownership ............................... IV - 3

V. IDENTIFICATION OF CANDIDATE SITES ...................... V - 1
   A. Site Selection Methodology ................... V - 1
      1. Minimum Criteria Evaluation ............... V - 1
         a. Natural Hazards ........................ V - 2
         b. Central Location Along Major Roadway  V - 2
         c. Historical ............................. V - 4
         d. Agricultural Nuisances ................. V - 4
         e. Water Service .......................... V - 6
      2. Site Delineation Criteria ................... V - 6
         a. Acreage ................................ V - 6
         b. Shape ................................ V - 6
         c. Timing ................................ V - 9
         d. Displacement ......................... V - 9
         e. Noise Sources ........................ V - 9
   B. Candidate Sites ............................... V - 9
      1. Candidate Site 1 .......................... V - 9
      2. Candidate Site 2 .......................... V - 11
      3. Candidate Site 3 .......................... V - 11

VI. DETAILED EVALUATION OF CANDIDATE SITES ............... VI - 1
   A. Detailed Site Evaluation Criteria .......... VI - 1
      1. School Site Criteria ...................... VI - 1
         a. Environmental Characteristics .......... VI - 1
         b. Roadways and Utilities ................... VI - 2
         c. Accessibility .......................... VI - 3
2. Community Criteria .......... VI - 4
   a. Government .......... VI - 4
   b. Community Effects .... VI - 4
3. Cost Considerations .......... VI - 5
   a. Land Acquisition .......... VI - 5
   b. Off-Site Development .......... VI - 5
   c. On-Site Development .......... VI - 6
B. Summary of Evaluations .......... VI - 6
   1. Summary of School Site Criteria Evaluation .......... VI - 6
   2. Summary of Community Criteria Evaluation .......... VI - 8
   3. Summary of Cost Considerations .......... VI - 10
   4. Overall Evaluation Summary .......... VI - 12

VII. PROBABLE IMPACTS AND MITIGATIVE MEASURES .......... VII - 1
A. Short-Term Site Impacts .......... VII - 1
   1. Noise .......... VII - 1
   2. Air Quality .......... VII - 1
B. Long-Term Impacts .......... VII - 3
   1. Flora .......... VII - 3
   2. Fauna .......... VII - 3
   3. Traffic .......... VII - 3
   4. Public Health and Safety .......... VII - 4
   5. Surrounding Land Uses .......... VII - 4
   6. Displacement .......... VII - 4
   7. Agriculture .......... VII - 5
   8. Off-Site Infrastructure .......... VII - 5
   9. Archaeology .......... VII - 6

VIII. ALTERNATIVES TO THE PROPOSED ACTION .......... VIII - 1
A. No Action .......... VIII - 1
B. Busing to Schools Outside the School Service Area .......... VIII - 1
C. Relocating the Elementary Program to a New School .......... VIII - 1
D. Expanding the Capacity of the Existing School .......... VIII - 1
IX. THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY ......................... IX - 1
   A. Short-Term Uses .................................. IX - 1
   B. Long-Term Productivity ............................ IX - 1
X. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES .............................. X - 1
XI. LIST OF NECESSARY APPROVALS ......................... XI - 1
XII. AGENCIES, ORGANIZATIONS, AND INDIVIDUALS CONSULTED IN THE PREPARATION OF THE EIS ........................................ XII - 1
XIII. SITE SELECTION REPORT AND ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE COMMENTS AND RESPONSES ........................... XIII - 1
XIV. SITE SELECTION REPORT AND DRAFT ENVIRONMENTAL IMPACT STATEMENT COMMENTS AND RESPONSES ...................................... XIV - 1
XV. LIST OF PREPARERS OF THE EIS DOCUMENT ................ XV - 1
REFERENCES
APPENDIX A - CANDIDATE SITE EVALUATIONS AND RESULTS
APPENDIX B - ARCHAEOLOGICAL RECONNAISSANCE SURVEY
<table>
<thead>
<tr>
<th>FIGURE NO.</th>
<th>TITLE</th>
<th>PAGE NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Existing Pahoa Service Area and New Pahoa Elementary School Service Area</td>
<td>II - 2</td>
</tr>
<tr>
<td>2</td>
<td>New Pahoa Elementary School Service Area</td>
<td>II - 4</td>
</tr>
<tr>
<td>3</td>
<td>Major Roadways</td>
<td>V - 3</td>
</tr>
<tr>
<td>4</td>
<td>Existing Agricultural Land Uses</td>
<td>V - 5</td>
</tr>
<tr>
<td>5</td>
<td>Existing Water Lines</td>
<td>V - 7</td>
</tr>
<tr>
<td>6</td>
<td>Preliminary Site Areas</td>
<td>V - 8</td>
</tr>
<tr>
<td>7</td>
<td>Site 1</td>
<td>V - 10</td>
</tr>
<tr>
<td>8</td>
<td>Site 2</td>
<td>V - 12</td>
</tr>
<tr>
<td>9</td>
<td>Site 3</td>
<td>V - 13</td>
</tr>
</tbody>
</table>
## LIST OF TABLES

<table>
<thead>
<tr>
<th>TABLE NO.</th>
<th>TITLE</th>
<th>PAGE NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Predominant Flora Found in the Open Area Surrounding Pahoa</td>
<td>III - 3</td>
</tr>
<tr>
<td>2</td>
<td>Historic Sites in the Puna Region</td>
<td>III - 7</td>
</tr>
<tr>
<td>3</td>
<td>Summary of School Site Criteria Evaluation</td>
<td>VI - 7</td>
</tr>
<tr>
<td>4</td>
<td>Summary of Community Criteria Evaluation</td>
<td>VI - 9</td>
</tr>
<tr>
<td>5</td>
<td>Cost Estimate Summary</td>
<td>VI - 11</td>
</tr>
<tr>
<td>6</td>
<td>Summary of Criteria Evaluation and Cost Estimates</td>
<td>VI - 12</td>
</tr>
</tbody>
</table>
PREFACE

This environmental document is prepared pursuant to the requirements of Chapter 343, Hawaii Revised Statutes, and Chapter 200 of Title 11, Administrative Rules, Environmental Impact Statement (EIS) Rules.

The document incorporates the methodology and results of the Site Selection Report which was undertaken to identify candidate school sites for the proposed new Pahoa Elementary School. The Site Selection Report identifies three (3) candidate sites, all of which are assessed with regard to EIS report requirements. In this regard, the Site Selection Report does not recommend a preferred site, but identifies the relative advantages and disadvantages of the sites to facilitate discussion and decision-making on a final site.
I. SUMMARY

A. Project Description

The State Department of Education (DOE) is proposing to construct a new elementary school and to designate a new corresponding service area to relieve projected overcrowding at Pahoa High and Elementary School.

This EIS discusses potential environmental impacts of three candidate school sites which have been identified through a site selection methodology which is documented herein. Through the site selection process, many of the potentially adverse environmental impacts were minimized. However, unavoidable impacts such as those related to construction operations remain and are discussed accordingly.

B. Candidate Sites

Based on a set of minimum site criteria and other additional criteria necessary for reducing the field of potential sites, three candidate sites were selected. The Former Pahoa Air Strip Site (Site 1) is located along Keau-Pahoa Road, mauka of the Pahoa Air Strip which is not in use. Site 2, the Kahakai Boulevard Site, is located makai of Keau-Pahoa Road and existing agricultural use, and mauka of residential use. The Pahoa By-Pass Road Site (Site 3) is situated mauka of Keau-Pahoa Road, near Pahoa town.

C. Project Setting

Hawaii County, coextensive with the Island of Hawaii, is the largest county in the State, encompassing an area of 4,034 square miles. With a resident population of approximately 109,500 in 1985, Hawaii County is the second most populous County in the State.

The proposed service area has been designated within the existing Pahoa High and Elementary School service area. Pahoa is a chief town within the Puna District of the Island of Hawaii. Existing land uses in the Pahoa area are representative of land uses typically found in a rural community which is dependent on agriculture production. Tree crops, including papaya groves, and nursery products, including anthuriums and orchids are produced in the Pahoa area. A geothermal power station is located approximately 3 miles southeast of Pahoa town. Commercial uses are found in Pahoa with residences situated nearby. Much of the area is vacant, neither developed nor utilized for agriculture.
D. Relationships to Plans, Policies and Controls

Land use considerations pertinent to the candidate school sites are as follows:

- State Land Use Classification
- County General Plan
- County Zoning

Plans, policies and controls are considered in the site evaluation process.

E. Probable Impacts

1. Regional impacts include those associated with the economy and social and cultural environments.

2. Short-term construction related site impacts include those associated with noise, air quality, traffic, and public health and safety.

3. Long-term site impacts include those associated with flora, fauna, and infrastructure.

F. Alternatives Considered

1. The "no action alternative is considered to be unacceptable as the existing school is presently operating beyond capacity, and continued population growth is projected for the region. Additionally, the elementary program at the existing school is already much too large for a tri-level school.

2. Busing to schools outside the service area, at Keau and Mountain View, is similarly considered infeasible as these facilities are also experiencing growth problems and are operating at capacity.

3. Retaining the existing school for grades 7-12 while relocating grades K-6 to a new school is considered a less preferable alternative to the proposed action as a very large new elementary school would be required to accommodate the projected enrollment.

4. Expanding the capacity of the existing elementary school is not considered viable due to the lack of sufficient land area to accommodate required new facilities.
G. Relationship Between Local Short-Term Uses of Man's Environment and the Maintenance and Enhancement of Long-Term Productivity

1. Implementation of the proposed project will include local short-term uses of man's environment during the construction phase of the project. Over the long-term, however, the new school will assure the continued maintenance and enhancement of public education and social welfare by providing an essential educational service and facility that will meet the enrollment requirements of the region.

H. Irreversible and Irretrievable Commitments of Resources

1. Irretrievable resources committed to the project will include fuel, labor, funding and materials to implement construction of the new school. Development of the proposed project will involve the commitment of land for school use.
II. PROJECT NEED AND DESCRIPTION

The State Department of Education (DOE) is proposing to construct a new elementary school and to designate a new corresponding service area to relieve projected overcrowding at Pahoa High and Elementary School. The existing service area is shown in Figure 1. The proposal to build a new school is based on an assessment of existing facilities and projected needs as discussed below.

A. Existing Facilities

Pahoa High and Elementary School is a three level school complex, providing educational services for grades Kindergarten through 12th. Of the total student population of 1,716, 985 were in the elementary grades K-6, while 731 were at the secondary level in September, 1987.

The 25.26 acre campus is located on Keaau-Pahoa Road at the southern end of Pahoa town. It is divided by Homestead Road (Kaohe Road) with the 2.98 acre Elementary Division occupying the western portion and the Intermediate and High School in the eastern portion.

The elementary campus of 2.98 acres is designed for 500 students and is far below DOE standards for its current enrollment.

B. Projected Enrollment

The projected enrollment for the Elementary Division is 1,250 students in 2005. The projected growth is based on historic trends dominated by an increase in housing development in the subdivisions in the Pahoa area. As reflected in school enrollment, between 1970 and 1980, the total enrollment at Pahoa Elementary and High School increased by 227 percent, from 364 to 1,192. By 1991, growth is projected to reach 1,934, a twenty year increase of 431 percent.

The land area encompassed by the Pahoa service area makes it one of the largest in the State. It is larger than the entire Honolulu school district on Oahu. Within the school district are thousands of subdivided fee simple lots. While still sparsely populated by urban standards, and constrained by the availability of water, roads, electricity and communications, residential development in the area was nevertheless spurred in the 1970's by relatively low land prices. It is anticipated that this trend will extend into the future as land prices continue to remain low.

C. Limitations

The present campus is comprised of a large wooden building and 32 portable classrooms and is experiencing a problem

II - 1
FIG. 1
Existing Pahoa Service Area and
New Pahoa Elementary School Service Area

NOT TO SCALE

NEW PAHOA
ELEMENTARY SCHOOL AREA
(approximate boundaries)

EXISTING PAHOA
SERVICE AREA

DEPARTMENT OF ACCOUNTING & GENERAL SERVICES
WILSON OKAMOTO & ASSOCIATES, INC.
NEW PAHOA ELEMENTARY
SCHOOL SERVICE AREA

JOB NO. 11-15-0034

NEW PAHOA ELEMENTARY SCHOOL SITE
SELECTION & ENVIRONMENTAL
IMPACT STATEMENT

PREPARED FOR:
DEPARTMENT OF ACCOUNTING
& GENERAL SERVICES

PREPARED BY:
WILSON OKAMOTO & ASSOCIATES, INC.
accommodating short-range growth due to limited land space. Before- and after-school traffic congestion occurs along Kamehameha Highway. The road accesses the school parking lot used by the high school students, the school bus loading area, and is the primary drop-off and pick-up area for the elementary students. Much pedestrian crossing also occurs during these times.

Tri-level schools such as Pahoa were established due to projected limited enrollment at all grade levels. In this configuration, school administrators can effectively and efficiently manage the various program and support needs, provided that enrollment is limited to design levels. Pahoa High and Elementary School was never intended to accommodate the over 900 elementary students currently enrolled.

The current design capacity of the campus is 1,500 students (1,000 secondary and 500 elementary). The long-range projection (year 2005) is for 1,000 secondary and 1,260 elementary students.

Several alternatives to relieve present overcrowding and projected growth were considered. Busing to other schools was not deemed feasible as both Keaau and Mountain View schools are also at capacity and experiencing growth problems. Relocating all students in grades K-6 to a new school is considered a less preferable alternative to the proposed action as a very large new school would be required to accommodate the projected enrollment. Both the State Board of Education and Legislature have been concerned about very large elementary schools. Expansion of the elementary division is not considered viable due to the lack of sufficient land area to accommodate required new facilities.

Therefore, the DOE recommends construction of a new elementary school. The new elementary school is projected to accommodate 350 students when it is opened and will be designed to accommodate 750 students with additional potential for accommodating 900 students at peak enrollment. At the same time, the present elementary school will be maintained, with enrollment fixed at 500 students.

D. Proposal

The DOE proposes to construct a new elementary school and has designated a new corresponding service area within the existing service area (see Figures 1 and 2).

The new elementary school will ultimately be comprised of 42 classrooms, including 33 permanent classrooms and 3 portable classrooms to accommodate a design enrollment of 750 students, and another 6 portable classrooms to accommodate a peak enrollment projection of 900 students.
The cost of the proposed elementary school, including planning and facility construction, is estimated to be approximately $11,850,000 (in 1988 dollars).

The proposed elementary school will not change the feeder system of students graduating from elementary to intermediate to high school in the existing service area. All elementary students from the existing campus and the new campus will feed into the secondary school program at Pahoa.
### TABLE 1
PREDOMINANT FLORA FOUND IN THE OPEN AREA SURROUNDING PAHOA

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Koa Haole</td>
<td>Leucaena latisiliqua</td>
</tr>
<tr>
<td>2. Lantana</td>
<td>Lantana camara</td>
</tr>
<tr>
<td>3. Guava</td>
<td>Psidium guajava</td>
</tr>
<tr>
<td>4. Strawberry Guava</td>
<td>Psidium cattleianum</td>
</tr>
<tr>
<td>5. Ironwood</td>
<td>Casuarina spp.</td>
</tr>
<tr>
<td>6. Christmas Berry Tree</td>
<td>Schinus terebinthifolius</td>
</tr>
<tr>
<td>7. Jamaica Vervain (Oi)</td>
<td>Stachytarpheta spp.</td>
</tr>
<tr>
<td>8. Wiliwili</td>
<td>Erythrina spp.</td>
</tr>
<tr>
<td>9. Morning Glory</td>
<td>Ipomoea sp.</td>
</tr>
<tr>
<td>10. Philippine or Wild Orchid</td>
<td>Spathoglottis plicata</td>
</tr>
<tr>
<td>12. Glory-Bush</td>
<td>Tibouchina semidecandra</td>
</tr>
<tr>
<td>13. Ti Plant</td>
<td>Cordyline terminalis</td>
</tr>
<tr>
<td>14. Ohia Lehua</td>
<td>Metrosideros collina</td>
</tr>
<tr>
<td>16. False Staghorn Fern</td>
<td>Gleicheniaceae Dicranopteris sp.</td>
</tr>
<tr>
<td>17. Small Tree Fern</td>
<td>Sadleria catheodes</td>
</tr>
<tr>
<td>18. White Ginger</td>
<td>Hedychium coronarium</td>
</tr>
<tr>
<td>19. Yellow Ginger</td>
<td>Hedychium flavescens</td>
</tr>
</tbody>
</table>

Adapted from: U.S. Department of Transportation, Federal Highway Administration and State of Hawaii, Department of Transportation, Land Transportation Facilities Division, Final Environmental Impact Statement, Keaau-Pahoa Road, Pahoa By-Pass, Project No. RS-130(17), February, 1979.

III - 3
near the edge of the lake. Slopes surrounding the crater are densely forested.

6. **Soils and Agricultural Potential**

There are two distinct soil associations within the existing service area. The soil association prevalent in the northern half of the service area is identified as the Lava Flows association. This association describes soils which are gently sloping to steep, excessively drained, nearly barren lava flows which are located on uplands. This soil association is used primarily for grazing, wildlife habitat and recreation.

The majority of the southern half of the existing service area, including Pahoa town, is located on soils of the Kekake-Keei-Ki'oa association. This association is characterized by very shallow, gently sloping to steep, well-drained organic soils over a'a or pahoehoe lava, located on uplands. Uses of this soil association include pasture, woodland, watershed, recreation, and macadamia nut and papaya cultivation.

The State Department of Agriculture has identified Agricultural Lands of Importance for the State of Hawaii (ALISH) and categorizes these into three groups. "Prime" agricultural lands are those which have the soil quality, growing season and moisture supply needed to produce sustained high yields of crops economically, when treated and managed according to modern farming methods. "Unique" agricultural lands have a special combination of soil quality, location, growing season and moisture supply currently used to produce sustained high quality and/or high yields of a specific crop when treated and managed according to modern farming methods. "Other" important agricultural lands include agricultural lands which have not been rated "prime" or "unique". The Pahoa area consists of rural and urban developments which are not classified as agricultural lands. "Other" agricultural lands are located immediately south, southwest and southeast of Pahoa town. Scattered areas of "prime" agricultural lands are found nearby Pahoa to the southwest and northeast.

7. **Natural Hazards**

The Pahoa area, located about 5 miles north of the Kilauea East Rift Zone, is considered to be within a relatively high volcanic hazard area. Rift zones are described as "long, narrow belts of structural weakness that include cracks, fissures, craters, spatter cones and cinder cones" in the U.S. Department of the Interior, Geological Survey's
1976 publication entitled Natural Hazards on the Island of Hawaii. Pahoa town is within the "E" designation with respect to volcanic hazards. The "E" designation describes an area within which 0.5 to 3.0 percent of the land has been buried by lava during various 20-year intervals (since 1800), leaving 97.0 to 99.5 percent of the land unaffected. The "E" designation is discussed in the 1976 U.S. Department of the Interior publication, as follows:

"Area E includes the flanks of Kilauea and Mauna Loa that lie directly downslope from the summit areas and rift zones where lava flows originate. Land labeled E is susceptible to burial by lava flows erupted within the summit and rift areas labeled F. In addition, vents along minor rift zones on Mauna Loa have erupted a few times within area E. Degree of risk within this area varies widely, but in general, it becomes less with increasing distance from the summits and major rift zones."

The Hawaii County General Plan Facilities Map also indicates Kilauea and Mauna Loa rift zones, and fault zones (see Section IV.A.3.)

With respect to flood hazard, the majority of the service area is designated Zone X (areas determined to be outside of the 500-year flood plain) on the Federal Flood Insurance Rate Map (FIRM). Portions of the service area near the shoreline are within 100-year flood areas or Coastal High Hazard areas (tsunami inundation areas) as delineated on Federal Flood Boundary and Floodway Maps (FLOODWAY).

Since the makai communities in the Pahoa area are generally served by a single road off of the State highway, these communities rely on these roads as evacuation routes in the event of an emergency.

Recent brush fires in the area of Kahakai Boulevard have drawn public attention to possible fire hazards. The Hawaii County Civil Defense Agency, however, does not identify the area as particularly hazardous in this regard.

8. Scenic Characteristics

The gentle slopes of the Pahoa area affords little or no scenic views. On a clear day, however, Mauna Kea and Mauna Loa may be seen. In general, the undeveloped nature and agricultural use of the surrounding area contribute to the open space and scenic natural resources of Pahoa.
9. **Archaeological/Historic Sites**

As indicated in the Final Environmental Impact Statement, Keau-Pahoa Road, Pahoa By-Pass (U.S. Department of Transportation and State of Hawaii Department of Transportation, February 1979), the potential for historical/archaeological sites in certain areas around Pahoa exists. Although the report documents that the Pahoa Historic and Commercial District, Hawaii Island Site No. 7388, is adjacent to the present roadway in Pahoa town, this district is not listed on the State or National Register of Historic Places. Historic sites identified by the State’s Hawaii Register of Historic Places in the service area and the nearby region are listed on Table 2.

As documented in the Final Environmental Impact Statement, Keau-Pahoa Road, Pahoa By-Pass (U.S. Department of Transportation and State of Hawaii, 1979), an archaeological reconnaissance survey was conducted in the vicinity of alternate by-pass road alignments. Two sites, and old slaughter house and a modified lava tube, were found east of the existing Pahoa High and Elementary School and Pahoa-Kalapana Road.

10. **Geology/Hydrology**

The Island of Hawaii is the youngest island in the Hawaiian group. The island was formed by five volcanoes: 1) Kohala, 2) Mauna Kea, 3) Hualalai, 4) Mauna Loa, and 5) Kilauea. The Kilauea volcano, which formed the Pahoa area, originated on the southern slopes of Mauna Loa. Lava flows from Kilauea are primarily olivine basalt. Volcanic activity continues at Kilauea, forming new land mass in the Kalapana-Kapoho region south of Pahoa.

The basalts which compose the service area are extremely permeable and there is no surface water available, even during periods of precipitation. The water table within the service area is located near sea level. There are no perennial streams within the Pahoa area.

Pahoa is at least 6 miles inland from the shoreline. Normally, the filtration of rainfall and surface runoff through the ground purifies the water prior to subterranean transport to the shoreline areas.

11. **Topography**

The topography of the Island of Hawaii reflects its relatively recent volcanic origin. In general, the service area can be described as gently sloping. Pahoa town is situated about 20.5 miles south of Hilo at an elevation of
<table>
<thead>
<tr>
<th>SITE NAME</th>
<th>HAWAII REGISTER REGISTERED</th>
<th>NATIONAL REGISTER RECOMMENDED</th>
<th>NATIONAL REGISTER REGISTERED</th>
<th>TMK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kurtistown Jodo Mission</td>
<td>4-29-74</td>
<td></td>
<td></td>
<td>1-7-17:60</td>
</tr>
<tr>
<td>Honolulu Landing Habitation Complex</td>
<td>1-7-74</td>
<td></td>
<td></td>
<td>1-4-3:19</td>
</tr>
<tr>
<td>Makuu Petroglyphs</td>
<td>1-7-74</td>
<td></td>
<td></td>
<td>1-5-10:9, 15, 16</td>
</tr>
<tr>
<td>Kapoho Petroglyphs</td>
<td>1-7-74</td>
<td></td>
<td></td>
<td>1-4-2:16</td>
</tr>
<tr>
<td>Ahalanui Complex 1</td>
<td>1-7-74</td>
<td></td>
<td></td>
<td>1-4-2:73, 49</td>
</tr>
<tr>
<td>Ahalanui Complex 2</td>
<td>1-7-74</td>
<td></td>
<td></td>
<td>1-4-2:7</td>
</tr>
<tr>
<td>Laepaoo Enclosure</td>
<td>1-7-74</td>
<td></td>
<td></td>
<td>1-4-2:7</td>
</tr>
<tr>
<td>Pohoiki Warm Spring</td>
<td>1-7-74</td>
<td></td>
<td></td>
<td>1-3-8:5</td>
</tr>
<tr>
<td>Hale Park Complex</td>
<td>1-7-74</td>
<td></td>
<td></td>
<td>1-3-8:4, 16</td>
</tr>
<tr>
<td>Keahialaka Spring and Pond</td>
<td>1-7-74</td>
<td></td>
<td></td>
<td>1-3-8:15</td>
</tr>
<tr>
<td>MacKenzie Petroglyphs</td>
<td>1-7-74</td>
<td></td>
<td></td>
<td>1-3-8:1, 1-3-7:26</td>
</tr>
<tr>
<td>King’s Highway (Mackenzie State Park)</td>
<td>1-7-74</td>
<td></td>
<td></td>
<td>1-3-7:26</td>
</tr>
<tr>
<td>Kumakahio Grave Sites</td>
<td>1-7-74</td>
<td></td>
<td></td>
<td>1-4-2:1</td>
</tr>
<tr>
<td>St. Benedict’s Catholic Church</td>
<td>8-15-87</td>
<td>8-15-87</td>
<td></td>
<td>1-3-4:18</td>
</tr>
<tr>
<td>Opihikao Evangelical Church Residence</td>
<td>5-31-79</td>
<td></td>
<td></td>
<td>1-5-6:1</td>
</tr>
</tbody>
</table>

approximately 600 feet above sea level. Located about 6 miles west of the shoreline, Pahoa is situated about 22 miles northeast of Kilauea Volcano which formed the area. Lands with slopes of 20 percent or more are found south of Pahoa town.

12. Water Quality

There are 123 perennial streams on the Island of Hawaii, none of which are within the service area. An intermittent stream is located near the Hawaiian Acres subdivision.

The coastal waters offshore of the service area are designated Class AA by the State of Hawaii Department of Health.

C. Socioeconomic Characteristics

1. Population

The resident population of Hawaii County has increased from 63,468 in 1970 to 92,053 in 1980. In 1985, the resident population of Hawaii County was estimated at 109,500. The percent change in resident population of the County was 45.0 percent from 1970 to 1980 and 19.0 percent from 1980 to 1985.

The service area for the proposed school is within the Puna District of Hawaii County. The 1970, 1980 and estimated 1985 resident population of the Puna District was 5,154, 11,751 and 17,522, respectively. The percent change in resident population of the District was 128.0 percent from 1970 to 1980 and 49.1 percent from 1980 to 1985. The resident population of Pahoa town in 1980 was 923 persons.

2. Employment and Income

The industries which employed the most Hawaii County workers in 1980 were: 1) retail trade, 2) professional and related services, and 3) agriculture, forestry, fisheries and mining. The unemployment rate for Hawaii County in 1980 was 6.2 percent. The median household income for the County was $16,975 in 1979.

3. Public Services

a. Recreation

The existing service area offers various recreational opportunities. In Pahoa, recreational facilities include the Pahoa Community Center and the Pahoa High and Elementary School.
b. **Schools**

The Pahoa High and Elementary School serves the existing Pahoa service area. There are no other public educational institutions within the service area.

The Malamalama School (grades K to 8), is a private educational institution located in Hawaiian Paradise Park. The Kamehameha Schools Early Education program (K.E.E.P.) is available for Pahoa School students from grades K to 3.

c. **Police Protection**

The Pahoa service area is served by the Keaau Station of the Hawaii County Police Department. The station is located in Keaau, approximately 11 miles northwest of Pahoa. It has a staff of 25 personnel, with 4 officers on duty at a time.

A police substation is planned for development in Pahoa town. The substation is anticipated to be operational by mid-1988.

d. **Fire Protection**

Fire protection for the existing service area is provided by the Pahoa Station of the Hawaii County Fire Department which is located in Pahoa town. The station has one tanker truck and one engine pumper. A staff of 4 persons provides 24-hour protection.

e. **Health Care Facilities**

There are no hospitals serving residents within the existing Pahoa service area. Hospitals are located in Hilo and Kau. The Pahoa Family Health Center, a branch of the Hilo Medical Group, is a clinic located in the Pahoa Village Center.

f. **Transportation**

The existing service area is served by the Keaau-Pahoa-Kalapana-Kapoho Road, a State highway. The Keaau-Pahoa-Kalapana-Kapoho Road provides service for commuters traveling between the Keaau, Kapoho and Kalapana areas. The highway is referred to as the Keaau-Pahoa Road, north of Pahoa, and the Pahoa-Kalapana and Pahoa-Kapoho Roads, south of Pahoa.
Construction of a by-pass road, Keau-Pahoa Road (Pahoa By-Pass), is proposed by the State of Hawaii to alleviate heavy traffic conditions through Pahoa town. This roadway would extend from the vicinity of the intersection of the existing Keau-Pahoa Road and Kahakai Boulevard, and would connect to the existing Pahoa-Kalapana and Pahoa-Kapoho Roads in the vicinity of the existing Pahoa High and Elementary School. The Keau-Pahoa Road (Pahoa By-Pass) is scheduled for completion in 1989.

The County bus transit system provides service for the Island of Hawaii.

Air service for the Island of Hawaii is provided by State airports at Hilo and Keahole. These airports serve as terminals for inter-Island and freight traffic. Charter and air taxi services are also available.

Deep-water ports servicing Hawaii County are located at Hilo and Kawaihae. Hilo Harbor provides Roll On-Roll Off container service. Both ports provide barge service.

D. Infrastructure

1. Water

Water for the existing service area is supplied by the Hawaii County Department of Water Supply, a privately-owned water supply company in the Hawaiian Beaches Subdivision, and individual catchment systems. A system of transmission and distribution mains (which include line sizes of 12, 8 and 6-inches) are located in the service area. Storage facilities include County-maintained storage tanks of 0.1, 0.3 and 0.5 million gallons (mg) in the Pahoa area. Water consumption within the County system in the Pahoa area is approximately 0.4 million gallons per day (mgd).

2. Sewerage

The existing service area is serviced by individual cesspools. In compliance with State and County rules and regulations, a facility such as the proposed school will require an individual wastewater treatment and disposal system.

3. Electrical/Telephone

Electrical power for residential and commercial use in Hawaii County is provided by the Hawaii Electric Light.

Telephone service for the existing service area, as for the rest of the State, is provided by the Hawaiian Telephone Company.

4. **Drainage**

Existing storm drainage facilities in the service area consist primarily of localized culverts. In general, the overlying soil in the region allows for percolation of rainwater into the ground.
IV. RELATIONSHIP TO PLANS, POLICIES AND CONTROLS

A. Plans

1. Hawaii State Plan

The Hawaii State Plan establishes a statewide planning system that provides goals, objectives, and policies which detail priority directions and concerns of the State of Hawaii. The proposed project is consistent with the following State objective and policy:

- Planning for the State's socio-cultural advancement with regard to education shall be directed towards achievement of the objective of the provision of a variety of educational opportunities to enable individuals to fulfill their needs, responsibilities, and aspirations.

- To achieve the education objective, it shall be the policy of this State to:

  Ensure the provision of adequate and accessible educational services and facilities that are designed to meet individual and community needs.

2. State Education Functional Plan

The State Education Functional Plan is prepared in compliance with Chapter 226, Hawaii Revised Statutes, by the State Department of Education. This State functional plan helps to implement the Hawaii State Plan, provide high priority directions for the Department of Education, and improve the quality of public education in Hawaii.

The proposed project is consistent with the following State policies, State priority guidelines, Board of Education concerns, and/or State Education Functional Plan Advisory Committee concerns regarding educational support services:

- Ensure the provision of adequate and accessible educational services and facilities that are designed to meet individual and community needs.

- Provide a safe and secure environment for schools and libraries.

3. Hawaii County General Plan

The Hawaii County General Plan is the policy document for the long-range comprehensive development of the Island of Hawaii. With respect to the proposed project, the April
1987 Draft of the General Plan notes that the State Department of Education is currently conducting a site selection study to meet the present and future elementary student projection needs. The General Plan discusses the fourfold increase in the Pahoa complex student population within the past 15 years, due to the in-migration to subdivision areas. As documented in the General Plan, a course of action for the Puna district is to "Encourage the implementation for relocation and development of a new elementary complex in Pahoa."

The general location of various land uses in relation to each other are indicated on the General Plan Land Use Pattern Allocation Guide Map (LUPAG) to guide the direction and quality of future developments. The Pahoa town area is designated Medium and Low Density Urban Development, and Alternate Urban Expansion. The surrounding region is designated primarily Orchards and Conservation, with scattered Urban Development and Agricultural uses.

The General Plan Facilities Map for the Puna District indicates geological features, public and cultural facilities and public utilities, safety and transportation. Kilauea and Mauna Loa rift zones and fault zones are indicated on this map.

B. Land Use Policies

1. State Land Use Designation

The State Land Use Law regulates the classification and uses of State lands to accommodate growth and development, and to retain the natural resources of the area. All State lands are classified by the State Land Use Commission, with consideration given to the General Plan of the County, as either Urban, Rural, Agricultural or Conservation. Pahoa town is within the State Urban District. The surrounding area is primarily designated Agricultural with scattered Urban, Rural and Conservation designations.

2. County Zoning

The Zoning Code of the County of Hawaii, identified as Chapter 25, guides development within the County and is administered within the framework of the Hawaii County General Plan. Zoning maps prepared by the County indicate land use district designations. Zoning districts in Pahoa town are primarily village commercial, single family residential and agriculture. The majority of the area surrounding Pahoa town is zoned agriculture, with scattered residential and open, conservation districts.
C. Landownership

In 1986, approximately 8.9 percent of the lands on the Island of Hawaii were owned by the Federal government while State ownership accounted for 31.5 percent and private ownership 59.6 percent. County ownership of lands on the Island of Hawaii is about 0.05 percent.
V. IDENTIFICATION OF CANDIDATE SITES

A. Site Selection Methodology

A site selection study was performed to determine the most suitable sites for the proposed Pahoa Elementary School. General guidelines set forth by the DOE, (Board of Education Policy 6/00) for site selection and facility layout formed the general basis for the selection of potential elementary school sites. These guidelines recommend the following:

- Sites in a quiet location are preferred over sites adjacent to existing and foreseeable noise generators such as airports, freeways, and heavy industries.
- Sites upwind of noisy sources are preferred over sites downwind of noisy sources.
- Sites exposed to the wind to provide natural ventilation of facilities are preferred over sites without natural ventilation because of the cost of mechanical ventilation.
- Sites in medium rainfall areas are preferred over sites in a low or high rainfall area.
- Sites shaded by tall trees or mountains during part of the school day are preferred over sites without such shading.
- Sites free from specular heat reflections from water are preferred over sites subject to such reflections.

While the above guidelines were generally observed, the site selection process recognized the large region encompassed by the new school service area and the need to systematically locate areas which would be sufficient, suitable, and acquirable for development into a school site. In this regard, three levels of analysis were established involving: 1) minimum criteria, 2) site delineation criteria, and 3) detailed site criteria.

The first step in the site selection methodology is a broad assessment of the new service area to identify potential areas for the school. The second step delineates candidate sites within the potential school areas. The third step assesses the advantages and disadvantages of each candidate site with respect to environmental and community concerns, and cost considerations, including those for land acquisition, on-site and off-site development and bus subsidies.

1. Minimum Criteria Evaluation

Potential school site areas were broadly identified through selected minimum criteria. These include those established
by the DOE, some of which were modified, and new criteria, developed through review and analyses of conditions most likely to enhance the viability and compatibility of potential site areas for educational activities. The minimum criteria used for evaluation are discussed below along with the rationale for development of these criteria.

a. Natural Hazards

The following DOE-established minimum criteria regarding potential tsunami, flood and landslide hazards were not modified:

Criteria: The site must not be in a tsunami inundation zone as established by an authorized agency recognized by the State of Hawaii.

Criteria: The site must not be in a major flood plain if adequate drainage provisions cannot be made at reasonable cost.

Criteria: The site must not be located within a known or potential landslide area.

In addition to the natural hazards discussed above, portions of the region are considered to be within relatively high volcanic hazard areas. A new criteria was, therefore, developed as follows:

Criteria: The site must not be located within rift or fault zones.

b. Central Location Along Major Roadway

The service area population for the proposed elementary school is uniquely distributed. A majority of the student population, approximately 70 percent, reside in the Hawaiian Beaches, Hawaiian Parks and Hawaiian Shores subdivisions along the eastern extent of Kahakai Boulevard. Most of the remainder, approximately 30 percent, reside in the large area north of Ainaloa Drive. To minimize the distance students must commute to school, the campus should not be located at either extremes of these two population groups. To address this concern, the school should be located between the centers of the two major populated areas.

In addition, the school should be located along a major roadway to facilitate transportation. Major roads are considered to be public roads with a minimum right-of-way of 50 feet. These roads are depicted in Figure 3.
III. PROJECT SETTING

A. Regional Overview

Hawaii County, coextensive with the Island of Hawaii, is the largest county in the State, encompassing an area of 4,034 square miles. With a resident population of approximately 109,500 in 1985, Hawaii County is the second most populous County in the State.

Hawaii County’s principal industries are sugarcane growing and milling, tourism, diversified agriculture and cattle ranching, and astronomy. The only coffee industry in the United States, and the largest orchid growing enterprise in the world are also located on the Island of Hawaii. The export of macadamia nuts, papayas, tropical flowers and foliage are expanding industries.

There are no separate municipal governments within Hawaii County, and like Hawaii’s other Neighbor Island Counties, the County is governed by a Mayor-County Council form of government.

The City of Hilo is the seat of the County Government, as well as the fourth largest city in the State. Kailua, Captain Cook, Honokaa and Pahala are major population centers on the Island of Hawaii.

The existing and proposed service area are located within the Puna District of the Island of Hawaii. The towns of Pahoa and Keaau are the major population centers of the District. Smaller towns located along Mamalahoa Highway include Mountain View, Kurtistown and Glenwood, as well as the many subdivisions which have access off of the highway south of Hilo to Volcano. South of Pahoa on Kaimu-Kapoho Road are the towns of Opiehikao, Kehena, Kaimu and Kalapana.

B. Service Area

1. Existing Land Uses

The chief towns within the Puna District of the Island of Hawaii are Pahoa and Keaau. Existing land uses in the Pahoa area are representative of land uses typically found in a rural community which is dependent on agriculture, including tree crops and nursery production. Large acreages of wasteland also exist. Papaya groves, anthurium and orchid farms are also located in the Pahoa area. A geothermal power station is located approximately 3 miles southeast of Pahoa town. Commercial uses are found in Pahoa with residential uses situated nearby.
2. Climate

The climate of the Island of Hawaii is characterized by wide variations in temperature and rainfall as a result of the range of elevation and location found on the island. Located on the windward side of the island, the Pahoa area receives a relatively large amount of rainfall annually, averaging between 150 to 175 inches. The annual temperature varies between 75°F to 80°F. Tradewinds, which blow from the northeast, are predominant.

3. Flora

Flora characteristic of the undeveloped Pahoa area are closed guava forests with shrubs. Flora found within the area include guava (Psidium guajava), Boston fern (Nephrolepis exaltata bostoniensis), Hilo grass (Paspalum conjugatum), basket grass (Opismenus hirtellus), false staghorn fern (Dichanopteris linearis), kukui (Aleurites moluccana) and hala (Pandanus odorattissimus).

Vegetation in the Pahoa area includes agricultural crops. Flora predominant of the open areas surrounding Pahoa town are identified in Table 1.

4. Fauna

Fauna found in the Pahoa area include mongoose, house mice, Norway rats, roof rats and Polynesian rats. Domesticated dogs and cats are likely to be found in Pahoa. Feral dogs and cats may also inhabit the area.

Birds found in the vicinity include the cardinal, barred dove, spotted dove, i’iwi, mockingbird, mynah, golden plover, pueo, ricebird, house sparrow and white-eye.

5. Wetlands

The Kapoho Fishpond and Green Lake are two wetland sites located in the Kapoho area. Kapoho Fishpond is located in a bay near Kapoho Point at the eastern extent of the existing service area. This pond is a coastal tidepool that was walled off historically. The water within Kapoho Fishpond is highly saline, although partially spring fed. The water level within the pond fluctuates with tidal influence. The wetland at this site occupies the area immediately inland from the fishpond walls.

Green Lake is located about one mile west of Kapoho Fishpond, in Kapoho Crater. Dense algal growth and floating waterweed covers the majority of the surface area.
MAJOR ROADWAYS

JOB NO. 11-16-0034

FIG. 3

NEW PAHOA ELEMENTARY SCHOOL SITE
SELECTION & ENVIRONMENTAL
IMPACT STATEMENT

PREPARED FOR:
DEPARTMENT OF ACCOUNTING
& GENERAL SERVICES

PREPARED BY:
WILSON OKAMOTO & ASSOCIATES, INC.
Criteria: The school site must be located along a major roadway between the centers of population served by the school.

c. Historical

The minimum criteria regarding historic sites, similar to that developed by the DOE, would be used to determine preliminary site areas:

Criteria: The acquisition and development of the site must be such that no buildings or sites designated as historic and deserving of preservation by the State Historic Preservation Office will be destroyed.

d. Agricultural Nuisances

The rural town of Pahoa is historically an agricultural community, economically based on sugar production. Since the closing of the sugar mill, however, agriculture has shifted to much smaller scale production of diversified crops, including anthuriums, papayas and truck crops. Recently, the State established an agricultural subdivision along Kahakai Road to promote diversified agriculture. Agricultural activities such as these pose a potential nuisance to schools, primarily in relation to the spraying of pesticides which are associated with odor and potential health problems. Existing agricultural land uses within the new school service area are shown on Figure 4.

Toward protecting agricultural activities from nuisance complaints by encroaching development, such as the proposed school, the State Legislature enacted the Hawaii Right-to-Farm Act (Chapter 165, Hawaii Revised Statutes). The Act limits the circumstances under which an agricultural activity may be deemed a nuisance. Essentially, any agricultural activity established for a year or more would be protected from being deemed a nuisance. To avert potential conflict with existing agricultural activities, potential school sites should be located at a sufficient distance from such activities. While the State has no standards for determining what this minimum distance is, the State of California has established one-fourth mile as the minimum distance between agricultural operations and uses such as schools and hospitals. For the purposes of this site selection study, this
EXISTING AGRICULTURAL LAND USES

JOB NO. 11-16-0034 FIG. 4
NEW PAHOA ELEMENTARY SCHOOL SITE SELECTION & ENVIRONMENTAL IMPACT STATEMENT

PREPARED FOR:
DEPARTMENT OF ACCOUNTING & GENERAL SERVICES

PREPARED BY:
WILSON OKAMOTO & ASSOCIATES, INC.
LEGEND

- Field Crops: F-2 Flowers

Source: State of Hawaii, Department of Agriculture
distance is considered suitable and sufficient. Occasionally, however, periods of adverse wind conditions could subject a school more than one-fourth mile away from an agricultural operation to short-term dust, noise or pesticide problems.

Criteria: The site must be located at least one-fourth mile away from existing agricultural operations.

e. **Water Service**

Development of a school within portions of the new service area would require extensive water system development or extension. To minimize costly development of service connections for water, the site should be located near an existing water line corridor. A distance of 1,500 feet is regarded as the maximum feasible distance the school should be located from water service lines. Figure 5 depicts the alignment of water lines in the service area.

Criteria: The site must be located within 1,500 feet of an existing water line.

Application of the above minimum criteria resulted in the delineation of broad preliminary site areas as shown on Figure 6.

2. **Site Delineation Criteria**

Following identification of broad preliminary site areas in the first step of site evaluation, candidate sites were delineated within these areas. The criteria used to delineate these sites include modified DOE minimum criteria as well as new criteria which reflect conditions unique to the service area.

a. **Acreage**

The DOE maximum elementary school area is 8 acres. Thus, all candidate sites are 8 acres in size.

Criteria: The candidate sites shall be 8 acres in size.

b. **Shape**

According to DOE criteria, the length to width ratio of the site must not exceed 2.5 to 1.0. A ratio of 1.5 to 1.0 was considered optimal for a new school.
Criteria: The candidate sites shall have a length to width ratio of 1.5 to 1.0.

c. Timing

The DOE-established minimum criteria for timing was not modified:

Criteria: The acquisition of the site must be possible early enough to allow enough construction time to meet DOE's scheduled school opening date.

d. Displacement

The DOE specifies that the school site must be obtained without mass relocation of families. Due to the large available land area, acquisition of a site owned by the State or by only one landowner is preferred.

Criteria: The candidate site should be unoccupied.

Criteria: Ownership of the candidate site must be held by the State or a single landowner.

e. Noise Sources

Highway traffic noise is detrimental to the learning environment. To address this concern regarding broad preliminary site areas encompassing a highway, a new criteria was developed to setback the school location from a highway to reduce potential noise nuisances. This new criteria specifies that schools should be located at least 500 feet away from highways to minimize noise nuisances.

Criteria: The candidate site will be located at least 500 feet away from a highway to minimize noise nuisances.

B. Candidate Sites

Based on the site delineation criteria, the following candidate sites were delineated within the preliminary site areas.

1. Candidate Site 1

Adjacent to the abandoned Pahoa Air Strip, Site 1 (TMK: 1-5-10: por. 3) is approximately 500 feet makai of Keau-Pahoa Road (see Figure 7). Site 1 is about 5,000 feet northwest of the proposed Pahoa By-Pass. Keonepoko Homesteads lands which support existing agricultural
operations are located 1,400 feet south of Site 1 and could occasionally expose the site to associated odors during adverse wind conditions.

Located on State-owned land, this site is currently undeveloped and is overgrown with trees, shrubs and grasses.

2. **Candidate Site 2**

Candidate Site 2 (TMK: 1-5-09: por. 9) is located along Kahakai Boulevard and is 5,000 feet makai of an existing agricultural park (see Figure 8). Site 2 is about 2.3 miles makai of the proposed Pahoa By-Pass.

Site 2 is situated on State-owned land. Vegetation within the undeveloped site includes grasses, shrubs, flowers and a few trees.

3. **Candidate Site 3**

Candidate Site 3 (TMK: 1-5-08: por. 1,6) is situated along the County's Pahoa By-Pass Road (see Figure 9). This site is located about 2,200 feet mauka of the Keaau-Pahoa Road and 900 feet north of the County's Solid Waste Transfer Station. Site 3 is situated approximately 2,500 feet south of the connection of Keaau-Pahoa Road and the proposed Pahoa By-Pass. The site is 1,400 feet downwind of an existing agricultural operation and could occasionally be exposed to dust, noise or pesticide drift associated with agricultural operations during adverse wind conditions.

Site 3 is located on State-owned lands. This undeveloped site is overgrown with trees and shrubs.
VI. DETAILED EVALUATION OF CANDIDATE SITES

A. Detailed Site Evaluation Criteria

Having met the minimum and additional criteria which formed the first and second levels of site selection, respectively, the candidate sites were evaluated with respect to three separate evaluation considerations which comprised the third level of analysis, as follows:

- School Site Criteria
- Community Criteria
- Cost Considerations

School site criteria are physical parameters which identify site development and school operational constraints and opportunities. Community criteria are factors which enable evaluation of school development in terms of governmental/land use compatibility and the relationship of the school to its surrounding community. Finally, cost considerations involve an assessment of school development and operational costs.

School site criteria and community criteria and their associated rating scales are outlined below.

1. School Site Criteria

   a. Environmental Characteristics

      - Slope: (Computed by analyzing the overall slope of the site and taking an average)

         Good - The average slope of the site is between 1 and 3 percent.

         Fair - The average slope of the site is between 4 and 10 percent.

         Poor - The average slope of the site is greater than 10 percent.

      - Soil:

         Good - The site is composed of non-rocky soil with a depth greater than 10 feet or coral or rocky soil with a depth greater than 15 feet. These soils would facilitate installation of underground utilities, lot grading and road building.
Fair - The site is composed of non-rocky soil with a 6 to 10-foot depth or coral or rocky soil with a depth of 11 to 15 feet.

Poor - The site is composed of (1) non-rocky soil with a 0 to 5-foot depth or (2) coral or rocky soil with a depth of less than 11 feet or (3) marshy soil or (4) lava.

- Natural Beauty:

  Good - The site has some natural beauty in the form of trees, plants, rock formations, etc. which can be preserved and integrated into the school campus. The site is not crossed by overhead utility lines.

  Fair - The site generally lacks natural beauty but still has the potential for beautification through proper landscaping. The site is not crossed by overhead lines.

  Poor - The site has no natural beauty whatsoever. The site is crossed by overhead lines.

b. Roadways and Utilities

- Adequacy of Roadways:

  Good - The site has adequate roadways to meet ultimate school needs. The minimum road right-of-way required is 60 feet.

  Fair - The site is served by roadways requiring widening or other improvements to meet the interim and ultimate needs of the school. The minimum road right-of-way required is 50 feet.

  Poor - The site is proximate to a roadway with a right-of-way less than 50 feet.

- Adequacy of Water Service:

  Good - The site has adequate water pressure and capacity available to meet ultimate school needs.

  Fair - The existing water service is insufficient but adequate service can be provided by the addition of transmission improvements and/or increasing storage capacity which will meet interim and ultimate needs of the school.
Poor - The site will require extensive development of a water system, including source development, to specifically meet school needs.

0 Adequacy of Power and Communications:

Good - The site has, or is proximate to, adequate existing power and communications lines which are available to service the school.

Fair - The site requires some off-site improvements which will provide for adequate power and communications to serve interim and ultimate needs of the school.

Poor - The site has insufficient power or communications available and will require extensive off-site improvement of these services to serve school needs.

c. Accessibility

0 Pedestrian Access:

Good - The site has pedestrian access from two sides.

Fair - The site has pedestrian access from one side.

Poor - The site has no pedestrian access.

0 Pedestrian Safety:

Good - Adequate and safe walkways/shoulders to the site are available.

Fair - Safe walkways/shoulders to the site may be provided along the school access road.

Poor - The site may require traffic signals and/or pedestrian overpasses in addition to walkway/shoulder improvements.

0 Automobile Access:

Good - The site will have roadways along one short side and one long side.

Fair - The site will have roadways along one long side or two short sides.

VI - 3
Poor - The site will have a roadway only along one short side.

o Traffic Flow:

Good - The site is proximate to a highway passing through the service area.

Fair - The site is adjacent to a major roadway.

Poor - Access to the site is via a dead end roadway.

2. Community Criteria

a. Government

o State Land Use District Map Designation:

Good - The site is within the Urban District.

Fair - The site is within the Rural District.

Poor - The site is in the Agricultural or Conservation District.

b. Community Effects

o Proximity to Commercial Centers:

Good - The site is more than a half mile from those commercial enterprises that may attract students during school hours.

Fair - The site is reasonably far (0.25 to 0.5 mile) from potentially distracting commercial enterprises.

Poor - The site is within a quarter mile of potentially distracting commercial enterprises.

o Aesthetic Value:

Good - The site is not an aesthetic asset to the community and will not interfere with scenic vistas when it is developed as a school.

Fair - The site has little aesthetic value to the community or may partially obstruct scenic vistas when it is developed as a school.
3. Cost Considerations

a. Land Acquisition

Determination of the relative costs associated with land acquisition involve consideration of the following items:

i. Land Acquisition - Estimated fair market value of the building, land, and easement obtained by using the Tax Office appraised value of the building and land together with an analysis of recent sales in the area.

ii. Relocation of Displaced - Relocation payments to all tenants, owners, farms, and businesses that are displaced.

b. Off-Site Development

The following items are considered in the cost analysis to account for the differences in off-site development required for each candidate site:

i. Utilities - Cost of providing additional lines for or increasing sizes of existing utility system facilities due to additional loads imposed by the school.

ii. Drainage - Cost of constructing additional drainage facilities to accommodate added storm runoff resulting from development of the school.

iii. Access Roads - Cost of constructing necessary access roadways to the site if none are available.

c. On-Site Development

To account for the differences in required on-site improvements for each candidate site, the following items were included in the cost analysis:

i. Grading and Clearing - Cost of grading necessary to adapt the existing topography for buildings, play areas, and other facilities; cost of removing existing structures and heavy foliage.
ii. **Utilities** - Additional costs of making utility connections.

iii. **Drainage** - Cost of constructing major drainage facilities.

iv. **Foundation** - Additional foundation cost due to adverse subsurface conditions.

v. **Soundproofing** - Cost of soundproofing classrooms if predicted noise levels inside the classroom will exceed allowable limits.

B. **Summary of Evaluations**

This section summarizes the results of the evaluation based on school site criteria, community criteria and cost considerations. Evaluation ratings and detailed explanations of cost considerations are presented in Appendix A. It should be noted that the intent of the Site Selection Report is not to recommend a single preferred site. Rather, results are intended for use as a basis for discussing the relative advantages and disadvantages of each site in order to facilitate selection of a preferred site.

1. **Summary of School Site Criteria Evaluation**

The results of the school site criteria evaluation are summarized in Table 3.

With respect to environmental considerations, all sites were rated "poor" due to on-site soils which consist of pahoehoe lava that may present difficulty during installation of underground utilities, lot grading and other construction operations. The average slopes of the former Pahoa Air Strip and Pahoa By-Pass Road Sites (Sites 1 and 3) are steeper than that of the Kahakai Boulevard Site (Site 2). All three candidate sites were considered to possess natural beauty in the form of trees, plants, etc. which can be preserved and integrated into the school campus. The sites are not crossed by overhead utility lines.

With regard to roadways and utilities, the Pahoa By-Pass Road Site (Site 3) would require the most extensive development of infrastructure. All three candidate sites would require water service development. The former Pahoa Air Strip and Pahoa By-Pass Road Sites (Sites 1 and 3) would require some off-site power and communications improvements. The Pahoa By-Pass Road Site (Site 3) received a "fair" rating with respect to the adequacy of roadways criteria which is based primarily on right-of
### TABLE 3
SUMMARY OF SCHOOL SITE CRITERIA EVALUATION

<table>
<thead>
<tr>
<th>Criteria Evaluation</th>
<th>Former Pahoa Air Strip SITE 1</th>
<th>Kahakai Boulevard SITE 2</th>
<th>Pahoa By-Pass Road SITE 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Fair</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Poor</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

| Roadways & Utilities |                                |                          |                           |
| Good                | 1                              | 2                        | 0                         |
| Fair                | 2                              | 1                        | 3                         |
| Poor                | 0                              | 0                        | 0                         |

| Accessibility       |                                |                          |                           |
| Good                | 1                              | 1                        | 0                         |
| Fair                | 2                              | 3                        | 4                         |
| Poor                | 1                              | 0                        | 0                         |

| TOTALS              |                                |                          |                           |
| Good                | 3                              | 5                        | 1                         |
| Fair                | 5                              | 4                        | 8                         |
| Poor                | 2                              | 1                        | 1                         |
-way width. The other two candidate sites received "good" ratings with respect to adequacy of roadways.

Automobile access to all three candidate sites is available along one long side of the sites. With regard to pedestrian safety, safe walkways/shoulders to all candidate sites are not available. The Former Pahoa Air Strip Site (Site 1) lacks pedestrian access. Two pedestrian accessways may be available to service the Kahakai Boulevard Site (Site 2). Pedestrian access to the Pahoa By-Pass Road Site (Site 3) is available along one side of the site. Traffic flow was considered "good" at the Former Pahoa Air Strip Site (Site 1) which is proximate to a State highway, and "fair" at the other two candidate sites.

2. Summary of Community Criteria Evaluation

The results of the community criteria evaluation are summarized in Table 4.

All three candidate sites are within the State Land Use Agricultural District where State law allows the County Planning Commission to issue a Special Permit for the establishment of a public school. Neither a General Plan amendment nor a zone change will be required for school development at any of the three candidate sites. A public hearing in conjunction with the Special Permit will afford the public an opportunity to comment on the selected school site.

Potential effects of developing the school at any of the three candidate sites are not likely to be adverse to the community. Students are not likely to be distracted by the presence of nearby commercial centers. The Former Pahoa Air Strip and Pahoa By-Pass Road Sites (Sites 1 and 3) are not considered to be aesthetic assets to the community and will not obstruct scenic vistas if developed as schools.

The Kahakai Boulevard Site (Site 2) may have little aesthetic value to the community but may partially obstruct scenic vistas if it is developed as a school.

3. Summary of Cost Considerations

Cost estimates discussed in this section are for purposes of comparing the relative costs of the alternative sites and determining the least costly alternative site. Off-site development and on-site development costs are addressed for this purpose. A more detailed explanation of cost parameters is presented in Appendix A.
<table>
<thead>
<tr>
<th>Criteria Evaluation</th>
<th>Former Pahoa Air Strip SITE 1</th>
<th>Kahakai Boulevard SITE 2</th>
<th>Pahoa By-Pass Road SITE 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Governmental</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Fair</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Poor</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td><strong>Community Effects</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Fair</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Poor</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Fair</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Poor</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
Land acquisition costs were not addressed for this study as all three candidate sites are State-owned lands of the same size (8 acres). Therefore, a determination of the relative costs associated with land acquisition could not be considered. There will also be no relocation costs associated with the proposed project.

An allowance for bus transportation is provided for students who reside more than one mile in walking distance from school. The number of students within walking distance of the three candidate sites is considered insignificant with respect to the anticipated design enrollment. As nearly all students will qualify for bus subsidy, a relative bus subsidy cost for the three candidate sites could not be calculated. Therefore, bus subsidy costs for the three candidate sites were not assessed.

A summary of off-site and on-site development costs for each candidate site is provided in Table 5. With respect to off-site improvements, the Pahoa By-Pass Road Site (Site 3) would incur the highest cost for development.

All sites will require development of off-site water service improvements. Improvements consist of additional storage capacity and transmission lines for the former Pahoa Air Strip and Kahakai Boulevard Sites (Sites 1 and 2). The Pahoa By-Pass Road Site (Site 3) will require off-site water transmission improvements.

While off-site electrical power/communications and roadway costs are not anticipated at the Kahakai Boulevard Site (Site 2), improvements are anticipated at the other two candidate sites.

On-site improvement costs, based on a typical layout plan, are assumed to be the same for all three candidate sites.

4. Overall Evaluation Summary

Overall results obtained from the criteria evaluation and cost estimates are summarized in Table 6.
TABLE 5
COST ESTIMATE SUMMARY*

<table>
<thead>
<tr>
<th></th>
<th>Former Pahoa Air Strip SITE 1</th>
<th>Kahakai Boulevard SITE 2</th>
<th>Pahoa By-Pass Road SITE 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development Costs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Off-Site Improvements</td>
<td>$0.75</td>
<td>$1.23</td>
<td>$1.55</td>
</tr>
<tr>
<td>On-Site Improvements</td>
<td>0.99</td>
<td>0.99</td>
<td>0.99</td>
</tr>
<tr>
<td>Subtotal</td>
<td>$1.74</td>
<td>$2.22</td>
<td>$2.54</td>
</tr>
<tr>
<td>Contingencies (20%)</td>
<td>0.35</td>
<td>0.44</td>
<td>0.51</td>
</tr>
<tr>
<td>Total Estimated Cost</td>
<td>$2.09</td>
<td>$2.66</td>
<td>$3.05</td>
</tr>
</tbody>
</table>

*Costs, expressed in millions of 1988 dollars, are for planning evaluation purposes only.
TABLE 6
SUMMARY OF CRITERIA EVALUATION AND COST ESTIMATES*

<table>
<thead>
<tr>
<th></th>
<th>Former Pahoa Air Strip SITE 1</th>
<th>Kahakai Boulevard SITE 2</th>
<th>Pahoa By-Pass Road SITE 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>School Site Criteria Total</td>
<td>3</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>(G)</td>
<td>5</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>(F)</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Community Site Criteria Total</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>(G)</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>(F)</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

G = Good
F = Fair
P = Poor

Cost Considerations (cost expressed in millions of 1988 dollars)

<table>
<thead>
<tr>
<th>Development Costs</th>
<th>Site 1</th>
<th>Site 2</th>
<th>Site 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Off-Site Improvements</td>
<td>$0.75</td>
<td>$1.23</td>
<td>$1.55</td>
</tr>
<tr>
<td>On-Site Improvements</td>
<td>0.99</td>
<td>0.99</td>
<td>0.99</td>
</tr>
<tr>
<td>Subtotal</td>
<td>$1.74</td>
<td>$2.22</td>
<td>$2.54</td>
</tr>
<tr>
<td>Contingencies (20%)</td>
<td>0.35</td>
<td>0.44</td>
<td>0.51</td>
</tr>
<tr>
<td>Total Estimated Cost</td>
<td>$2.09</td>
<td>$2.66</td>
<td>$3.05</td>
</tr>
</tbody>
</table>

*Cost estimates are intended to provide relative cost requirements for each site.
VII. PROBABLE IMPACTS AND MITIGATIVE MEASURES

A. Short-Term Site Impacts

This section describes anticipated short-term impacts which may affect candidate sites or lands proximate to the candidate sites as a result of the school development. Short-term impacts are those associated with construction activities such as grading, utility installation, construction of structures and landscaping.

The significance of short-term impacts for the three candidate sites will depend on the types of uses nearby each of the sites. The Kahakai Boulevard Site (Site 2), for example, is situated near residential use. In this regard, construction activities at this site may result in a relatively higher degree of disruption and nuisance.

The Former Pahoa Air Strip and Pahoa By-Pass Road Sites (Sites 1 and 3), on the other hand, are located in undeveloped areas where impacts to the immediate surrounding environs are anticipated to be less significant.

The following sections describe, in general, the anticipated noise, air quality, water quality, erosion, traffic, public health and safety, and archaeological impacts associated with construction.

1. Noise

Noise levels will increase during construction. There are no residences or other urban uses proximate to the candidate sites which are anticipated to be affected by noise, with the exception of the Kahakai Boulevard Site (Site 2). Residences nearby this site may be anticipated to be affected by noise during construction. Noise will be generated by construction equipment, including heavy vehicles required to excavate and remove spoil material and import construction materials, and other power equipment.

It shall be the contractor's responsibility to minimize construction noise impacts through compliance with all applicable regulations. In this regard, the contractor shall be responsible for properly maintaining all construction equipment to minimize noise during construction operations. Construction activities will be limited to daylight hours.

2. Air Quality

Ambient air quality is expected to temporarily decrease as a result of dust generated during construction activities,
particularly during grading operations. In keeping with State Department of Health and County rules and ordinances, the contractor will be required to implement measures minimizing airborne particulates. Adherence to approved erosion control plans and use of methods such as water sprinkling will reduce the potential for adverse air quality impacts during site work.

Emissions from construction equipment could also degrade ambient air quality. With proper maintenance by the contractor, however, the adverse impacts of emissions from equipment can be minimized.

3. Water Quality

Construction of the proposed elementary school development should not adversely affect the water quality of the area. There are no streams or coastal waters proximate to any of the three candidate sites.

4. Traffic

During construction, trucks, heavy equipment and other construction-related vehicles will use existing roads to haul away and import materials. Traffic along local roadways may occasionally encounter minor delays. Of short duration, such delays will be primarily limited to periods of vehicle ingress and egress to and from the project site. The contractor shall be responsible for providing necessary traffic controls and precautions to maintain traffic safety on roadways bordering the construction site.

5. Public Health and Safety

Necessary measures to assure public health and safety will be provided throughout all phases of construction. During non-work hours (nights, weekends, holidays) construction areas will be secured by adequate safety signs and other safety devices as required by State and County regulations.

6. Flora/Fauna

There are no known rare or endangered species of flora or fauna within or in the immediate vicinity of the candidate sites.

7. Economy

The short-term economic impacts resulting from construction include expansion of job opportunities to local
construction personnel. Local material suppliers and retail businesses may also benefit from the increased construction activities.

B. Long-Term Impacts

1. Flora

No rare or endangered species of flora are known to exist at any of the candidate sites. Any loss of vegetation due to necessary clearing and grubbing will be effectively mitigated by landscaping of the new school campus.

2. Fauna

No rare or endangered species of fauna are known to inhabit any of the three candidate sites. Impact to existing fauna is anticipated to be minimal and unavoidable. Landscaping associated with new school development should provide an adequate nesting and feeding environment for the birds that are commonly found within the area. Displacement of mammals such as mice and rats is not regarded as an adverse impact.

3. Traffic

Additional traffic will be generated by the new Pahoa Elementary School. Conditions along local roadways were qualitatively evaluated for traffic congestion, traffic hazards, and alternate access routes.

Access to the Former Pahoa Air Strip Site (Site 1) would be off of Keau-Pahoa Road, a State highway. A school at this site would create more local traffic congestion than one adjoining a sparsely-travelled local roadway. Alternate routes to the site are not available. Implementation of traffic control measures at the intersection of the school access road and Keau-Pahoa Road should be considered to minimize potential traffic hazards.

An elementary school at the Kahakai Boulevard Site (Site 2) would increase traffic along Kahakai Boulevard, the proposed access to the site. Kahakai Boulevard is the primary road serving an existing agricultural park, and the Hawaiian Beaches, Hawaiian Parks and Hawaiian Shores subdivisions from Keau-Pahoa Road. While Kahakai Boulevard is more heavily travelled than other local roadways, local traffic congestion created by a new school is anticipated to be less than if the school were adjoining a highway, such as Keau-Pahoa Road. Implementation of traffic control measures at the intersection of Kahakai Boulevard and Keau-Pahoa Road should be considered to

VII - 3
minimize potential traffic hazards. Use of an alternate access to the site, a roadway within the Hawaiian Parks and Hawaiian Beaches subdivisions, is not recommended due to a narrow right-of-way width.

Access to the Pahoa By-Pass Road Site (Site 3) would be along Pahoa By-Pass Road, a sparsely-travelled local roadway which extends mauka from Keaau-Pahoa Road. A school at this site would create less local traffic congestion than one adjoining a heavily-travelled roadway. Alternate routes to the site are not available. The speed limit along Keaau-Pahoa Road at its intersection with Pahoa By-Pass Road is lower than that for its intersections with accessways to the other two sites. However, to minimize potential traffic hazards, implementation of traffic control measures should be considered at the Pahoa By-Pass Road intersection with Keaau-Pahoa Road.

4. Public Health and Safety

The candidate sites are generally free of flood, tsunami, erosion and landslide hazards. All three candidate school sites are within areas designated Zone X (areas determined to be outside of the 500-year flood plain) on the Federal Flood Insurance Rate Map (FIRM).

5. Surrounding Land Uses

Development of a school at any of the three candidate sites is considered compatible with surrounding land uses which consist primarily of undeveloped lands. School use is considered compatible with residential uses which are located nearby the Kahakai Boulevard Site (Site 2) and approximately one-fourth mile makai of the Pahoa By-Pass Road Site (Site 3). Moreover, the Former Pahoa Air Strip Site (Site 1) is located near 177 planned homesteads by the Department of Hawaiian Home Lands, State of Hawaii.

The County's Solid Waste Transfer Station, located about 900 feet downwind of Site 3, is not anticipated to adversely impact school use. Sites 1 and 3 may occasionally experience dust, noise or pesticide drift under adverse wind conditions due to agricultural use located about 1,400 feet from the sites. Site 2 is not anticipated to be affected by existing agricultural operations.

6. Displacement

All three candidate sites are undeveloped. Therefore, no homes or other facilities will be displaced to develop the school on these sites.

VII - 4
7. **Agriculture**

All three candidate sites are within the State Agricultural District but are not used for any agricultural purpose. The sites are not classified according to the Agricultural Lands of Importance to the State of Hawaii (ALISH) system. The Soil Conservation Service Soil Survey identifies the soils at the sites as Pahoehoe lava flow (rlW) which was limited agricultural potential in its natural state. The Land Survey Bureau Overall Productivity Rating for the three sites is E306, indicating poor agricultural productivity potential. Construction of a school at any of the three sites will have little or no impact on agricultural resources in the area.

8. **Off-Site Infrastructure**

Preliminary evaluation of off-site infrastructure systems, such as drainage, water, and sewerage systems were conducted for each of the candidate sites. None of the candidate sites requires off-site drainage improvements. Runoff can be accommodated by percolation into the ground. On-site drainage improvements will be designed to maintain existing drainage patterns as much as possible.

Existing water facilities are available to service the proposed school. Nonetheless, all sites will require off-site water improvements. Improvements consist of additional storage capacity and transmission lines for the Former Pahoa Air Strip and Kahakai Boulevard Sites (Sites 1 and 2). The Pahoa By-Pass Road Site (Site 3) will require off-site water transmission improvements.

There is no County sewerage system in the Pahoa area. All homes are served by cesspools. The new school will, therefore, require an individual wastewater treatment and disposal system. The design average wastewater flow for the new school with a peak enrollment of 900 students is presently estimated at 30,000 gallons per day based on the Design Standards of the Division of Wastewater Management, Volume 1 (City and County of Honolulu, Department of Public Works, February 1984). The proposed wastewater treatment and disposal system will meet all applicable requirements of Act 282, SLH 1985 as amended by Act 302, SLH 1986. The final selection of a wastewater treatment and disposal system will be determined during the project design phase in consultation with and approval of the State of Hawaii Department of Health. One alternative is to install a system with a septic tank and a percolation blanket or leaching field.
9. **Archaeology**

An archaeological reconnaissance survey was conducted in accordance with guidelines of the State of Hawaii Department of Land and Natural Resources (DLNR) at each candidate site (see Appendix B). No historic sites were found at any of the candidate sites. Development of a school at any of the three alternative project sites will have "no effect" on significant historic sites. If historic sites are found during construction, the DLNR's Historic Sites Section will be contacted directly to assess the significance of the site and expedite any needed mitigation plans.
VIII. ALTERNATIVES TO THE PROPOSED ACTION

A. No Action

The existing school is presently operating beyond capacity, and continued population growth is projected for the region. Additionally, the elementary program at the existing school is already much too large for a tri-level school. Planning for the existing facility was based on Pahoa remaining rural with a small elementary school program. A "no action" alternative would, therefore, preclude the DOE's goal of ensuring the provision of adequate and accessible educational services and facilities.

B. Busing to Schools Outside the School Service Area

Busing to schools outside the service area, at Keaau and Mountain View, is similarly considered infeasible as these facilities are also experiencing growth problems and are operating at capacity.

C. Relocating the Elementary Program to a New School

Retaining the existing school for grades 7-12 while relocating grades K-6 to a new school is considered a less preferable alternative to the proposed action. A very large new elementary school would be required to accommodate the projected enrollment. Both the State Board of Education and Legislature have been concerned about very large elementary schools.

D. Expanding the Capacity of the Existing School

Expanding the capacity of the existing elementary school is not considered viable due to the lack of sufficient land area to accommodate required new facilities.
IX. THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN’S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

A. Short-Term Uses

The implementation of the proposed project will include local short-term uses of man’s environment during the construction phase of the project. Construction activities associated with the new Pahoa Elementary School will create minor disruptions and nuisances in the vicinity of the project site. Temporary economic benefits will result from construction expenditure and employment opportunities.

B. Long-Term Productivity

The new Pahoa Elementary School will assure the continued maintenance and enhancement of public education and social welfare by providing an essential educational service and facility that will meet the enrollment requirements of the region. Long-term economic benefits would be associated with employment required for the operation and maintenance of the school.
XIII. SITE SELECTION REPORT AND ENVIRONMENTAL IMPACT STATEMENT PREPARATION
NOTICE COMMENTS AND RESPONSES

The following agencies and government official provided comments on
the Site Selection Report and EIS Preparation Notice. A total of 11
comment letters were received.

A double asterisk (**) indicates those which submitted written
comments requiring substantive responses. The comment and response
letters are reproduced in this section.

A single asterisk (*) indicates those which submitted written
comments not requiring substantive responses. The comment letters
are reproduced in this section.

A. FEDERAL AGENCIES

**1. Department of the Army, U.S. Army Engineer District,
Honolulu
*2. U.S. Department of Agriculture, Soil Conservation Service

B. STATE AGENCIES

**1. Department of Agriculture
**2. Department of Business and Economic Development
*3. Department of Education
**4. Department of Health
**5. Department of Land and Natural Resources
**6. Department of Transportation

C. COUNTY OF HAWAI'I AGENCIES

**1. Department of Parks and Recreation
**2. Department of Water Supply

D. GOVERNMENT OFFICIAL

**1. Mr. Stephen Yamashiro, Chairman - Hawaii County Council
November 17, 1987

Mr. Russell S. Nagata
State Comptroller
Department of Accounting and
General Services
1151 Punchbowl Street
P.O. Box 119
Honolulu, HI 96810

Dear Mr. Nagata:

Subject: Pahoa Elementary School, EIS Consultation Phase

We have no comments to offer at this time but appreciate the opportunity to
review the draft EIS on this project.

Sincerely,

[Signature]

RICHARD M. DUCHEN
State Conservationist
MEMORANDUM

To: Mr. Russell S. Nagata, State Comptroller
   Department of Accounting and General Services (DAGS)

Subject: Pahoa Elementary School Environmental Impact Statement (EIS) Preparation Notice
   Department of Accounting and General Services
   DAGS: 1/5-08: 01 (per.) 06
   1/5-09: 09
   1/5-10: 10
   Pahoa, Hawaii
   Acres: 8.0 (each site)

The Department of Agriculture has reviewed the subject EIS Preparation Notice and has the following comments to offer.

The DAGS is considering three possible sites for a new Pahoa elementary school to accommodate the projected overcrowding at Pahoa High and Elementary School. All three sites are within the State Agricultural District but are not used for any agricultural purposes.

The proposed sites are not classified according to the Agricultural Lands of Importance to the State of Hawaii (ALISH) system.

The Soil Conservation Service Soil Survey identifies the soils as Pahoahe Lava flow (ZHM) which has limited agricultural potential in its natural state.

The proposed sites have a Land Study Bureau Overall Productivity Rating of E06. By this method of classification, the sites have poor productivity potential for most agricultural uses.

If any of the selected sites are chosen, it appears that there would be little or no impact on the agricultural resources of the area. However, we do note that there is an existing farm operation 1,400 feet from proposed Site 3. A site downslope of a farm may experience dust, noise or pesticide drift resulting from normal agricultural operations. This farm constitutes a pre-existing farming activity and, as such, is protected by the Hawaii Right-to-Farm Act (Chapter 165, HRS), which limits the circumstances under which normal farming activities may be deemed a nuisance.

Thank you for the opportunity to comment.

Sincerely,

Susan D. Peterson
Chairperson, Board of Agriculture
Honorable Suzanne D. Peterson
Chairperson
Department of Agriculture
State of Hawaii
Honolulu, Hawaii

Dear Ms. Peterson:

Subject: New Pahoa Elementary School
       EIS Consultation Phase

       Thank you for your November 17, 1987 comments on the
       subject project.

       The EIS document will be revised to include your
       comments on the Land Study Bureau Overall Productivity
       Rating and the ALISH soil classification of the alternative
       sites.

       The location of Alternative Site 3 was set by applying
       a 0.25-mile minimum distance to the existing agricultural
       operation. This distance was selected after discussion with
       your staff, as a reasonable distance to avoid potential
       conflict. The EIS will, however, note the downwind location
       of Alternative Site 3 with respect to the existing agricul-
       tural operation, and disclose the possible dust, noise or
       pesticide drift that may be experienced at the site under
       adverse wind conditions.

       Very truly yours,

       [Signature]

       State Comptroller
MEMORANDUM

TO: The Honorable Russel S. Nagata, State Comptroller
      Department of Accounting and General Services

FROM: Roger A. Ulveling

SUBJECT: EIS Preparation Notice, Konawena Elementary and Pahoa Elementary Schools

We have reviewed the subject Environmental Impact Statement preparation notice and offer the following comments.

Hawaii’s Coastal Zone Management policies advocate managing land and water uses to comply with State water quality standards in order to protect coastal waters. The notice indicates that possible school sites are within the Pahoa and Kaluha-Area areas. The coastal waters of these areas are designated Class AA by the Department of Health. Since there are no public sewer systems available to service the proposed schools, individual wastewater systems will be employed. The Draft Environmental Impact Statement should discuss this situation in detail and assess alternative approaches to sewage treatment and wastewater disposal to assure minimizing adverse impacts on coastal receiving waters.

Thank you for the opportunity to comment on these preparation notices.

Sincerely,

Roger A. Ulveling
for Director

Honorable Roger Ulveling
Director
Department of Business and Economic Development
State of Hawaii
Honolulu, Hawaii

Subject: New Pahoa Elementary School
EIS Consultation Phase

Thank you for your December 3, 1987 comments on the subject project.

The EIS will be revised to indicate that an individual wastewater treatment system, such as the Cavite system, will be required as part of the school sewer improvements to meet applicable State and County rules and regulations.

Very truly yours,

Russel S. Nagata
State Comptroller
MEMO TO: Honorable Russel S. Nagata, State Comptroller
Department of Accounting and General Services

FROM: Charles T. Sugatai, Superintendent
Department of Education

SUBJECT: PANDA ELEMENTARY SCHOOL
EIS Consultation Phase

We have reviewed the Site Selection Report and EIS Preparation Notice that was transmitted by your letter dated November 4, 1987.

We have no comments to offer at this time.

CC: S. Imai, OBS
A. Carson, Hawaii Dist.

AN AFFIRMATIVE ACTION AND EQUAL OPPORTUNITY EMPLOYER
MEMORANDUM

To: Honorable Roxel S. Nagata, State Comptroller
   Department of Accounting and General Services

From: Director of Health

Subject: EIS Consultation Phase
   (1) Pahoa Elementary School
   (2) Konawaena Elementary School

The primary concern is the wastewater generated from the schools and the proposed means of treatment and disposal of the wastewater. Our Underground Injection Control (UIC) rules, Chapter 23, Administrative Rules, Title 11, Hawaii State Department of Health restricts the disposal of wastewater in amounts greater than a thousand gallons (1,000) per facility in areas where drinking water sources need to be protected. It is the intent of the Department to support the treatment of wastewater from public facilities and restrict the use of cesspools for publicly owned facilities. We would like to recommend a meeting involving your engineering consultants with our UIC and wastewater staff and Chief Sanitarian, Hawaii District, to discuss the wastewater concerns.

John C. Levin, M.D.

cc: Chief Sanitarian, Hawaii

Honorable John Levin
Director
Department of Health
State of Hawaii
Honolulu, Hawaii

Dear Dr. Levin:

Subject: New Pahoa Elementary School
EIS Consultation Phase

Thank you for your November 30, 1987 comments on the subject project.

The EIS will be revised to indicate that an individual wastewater treatment system, such as the Cavitec system, will be required as part of the school sewer improvements to meet applicable State and County rules and regulations. DAGS consultant will be meeting with your staff to discuss the project during the planning and design phases.

Very truly yours,

John C. Levin, M.D.

Chief Sanitarian, Hawaii

John C. Levin, M.D.

STATE OF HAWAII
DEPARTMENT OF HEALTH

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES

JAN 12 1988
Honorable Russell S. Nagata

Since this is an undertaking by a State agency, this project must comply with the State's historic preservation law (Chapter 6E). Also, if Federal funds are involved, compliance with the National Historic Preservation Act must occur. In either case, coordination with our Historic Preservation Office (the Historic Sites Section) is needed to obtain concurrence that historic preservation review steps have been completed.

Thank you for your consideration of our concerns.

Very truly yours,

WILLIAM W. PATY, Chairperson
Board of Land and Natural Resources

---

John Smith
Director of Public Works

Honorable Russell S. Nagata, Controller
Department of Accounting and General Services
1151 Punchbowl Street
P.O. Box 119
Honolulu, Hawaii 96810

Dear Mr. Nagata:

SUBJECT: Environmental Impact Statement (EIS) Preparation Notice - New Fahn Elementary School

Thank you for the opportunity to review the EIS preparation notice cited above. We offer the following comments:

Historic Sites Concerns:

Historic preservation concerns are covered on pp. III-9 & 10 and VII-4. The listing of historic sites in the Puna region (III-10) is a very incomplete list of the historic sites in this district and of the significant historic sites in this district. However, it is indicated that an archaeological survey will be conducted for the candidate sites and, if required, mitigation measures will be implemented. We will await the findings.

DBED has coordinated with our office on the proposed scope of work. We have emphasized that the aim of this survey must be to determine if historic sites are present and, if so, to see that adequate information is gathered on each site to enable the evaluation of their significance according to Hawaiian and National Register Historic Places. If significant sites are present, then the impacts to these sites must be stated. And if these sites will be affected, then an acceptable mitigation plan must be presented under mitigation measures.
Honorable William W. Paty  
Chairperson  
Department of Land and Natural Resources  
State of Hawaii  
Honolulu, Hawaii  

Dear Mr. Paty:  

Subject: New Pahoa Elementary School  
EIS Consultation Phase  

Thank you for your December 14, 1987 comments on the subject project.  

The listing of historic sites on page III-10 of the EIS Preparation Notice reflects information contained in the Hawaii Register of Historic Places which was published by the Hawaii Historic Places Review Board in June 1979 plus the September 24, 1979 addition. Your State Historic Preservation Office will be consulted for a more complete listing of historic sites.  

The intent of the archaeological survey is to determine if historic sites are present on the candidate school sites and, if so, to gather information required to evaluate their significance. If significant sites are present, then potential impacts to these sites will be disclosed and a mitigation plan developed, as appropriate.  

The proposed project will comply with the State's Historic Preservation Law (Chapter 6E) and any archaeological work will be coordinated with your Historic Preservation Office to assure compliance.  

We appreciate your input for this project.  

Sincerely,  

[Signature]  
RUSSEL N. NAGATA  
State Comptroller  

JAN 15 1989
MEMORANDUM

TO: The Honorable Russell S. Hagata, Comptroller
   Department of Accounting and General Services

FROM: Director of Transportation

SUBJECT: Pahoa Elementary School
         EIS Consultation Phase

A Traffic Impact Analysis Report should be conducted to
determine the effects of the proposed school project on our
highway facility. The study should also identify specific
mitigation measures that the developer should implement. In this
regard, all plans for work within the State highway right-of-way
must be coordinated with and approved by our Highways Division.

Edward Y. Hirata

Honorable Edward Hirata
Director
Department of Transportation
State of Hawaii
Honolulu, Hawaii

Dear Mr. Hirata:

Subject: New Pahoa Elementary School
         EIS Consultation Phase

Thank you for your December 7, 1987 comments on the
subject project.

We anticipate that highway improvements such as
widening for traffic channelization in front of the school
will be needed. However, the extent of the improvements
will be made during the design phase of the project,
followed by the selection of a school site.

We appreciate your input for this project.

Very truly yours,

Russell S. Hagata
State Comptroller
December 1, 1987

State of Hawaii
Department of Accounting and General Services
Division of Public Works
P.O. Box 319
Honolulu, HI 96810

Ms. Patricea Engelhard
Director
Department of Parks and Recreation
County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720

Dear Ms. Engelhard:

Subject: New Pahoa Elementary School
EIS Consultation Phase

We have reviewed the EIS Preparation Notice and foresee no adverse impact resulting from any of the proposed school sites on the County's recreational facilities or resources.

Thank you for the opportunity to review the document.

[Signature]
Patricea Engelhard
Director

Thank you for your December 1, 1987 comments confirming that development of a school on the candidate sites will not have foreseeable adverse impact on the County's recreational facilities.

Very truly yours,

[Signature]
TUDANE TOWHIA
State Public Works Engineer

* 25 AUPUNI STREET * Hilo, HAWAII 96720 * TELEPHONE 961-8311
Mr. Russel S. Hagata  
State Department of Accounting  
and General Services  
P.O. Box 119  
Honolulu, HI 96810-0119

PROPOSED PAHOA ELEMENTARY SCHOOL  
EIS CONSULTATION PHASE

The comments and requirements for the adequacy of water for the proposed  
school are as stated in the report done by Wilson Okamoto & Associates, Inc.

William M. Higasa  
H. William Sewake  
Manager  
ES


Mr. H. William Sewake  
Manager  
Department of Water Supply  
County of Hawaii  
25 Aupuni Street  
Hilo, Hawaii 96720

Dear Mr. Sewake:

Subject: New Pahoa Elementary School  
EIS Consultation Phase

Thank you for your November 24, 1987 comments confirming  
the adequacy of water for the proposed school, as documented  
in the Site Selection Report and Environmental Impact State- 
ment Preparation Notice.

Very truly yours,

Touane Tominaga  
State Public Works Engineer

Date: 29 DEC 1987

--- Water brings progress... ---
November 13, 1987

Mr. Russel S. Nagata, State Comptroller
State of Hawaii
Dept. of Accounting & General Services
P.O. Box 115
Honolulu, HI 96810

Dear Mr. Nagata:

This is to acknowledge receipt of your letter and the EIS Preparation Notice, informing the Hawaii County Council of your pending efforts for the Pahoa Elementary School.

Your communication has been referred to our Committee on Planning and will be deliberated upon at its meeting scheduled for Monday, November 23, 1987.

As requested, we will be responding to convey our thoughts on this project, and we thank you for this opportunity to do so.

Very truly yours,

Richard K. Yamashiro
COUNCIL CHAIRMAN

cc: Committee on Planning
XIV. SITE SELECTION REPORT AND DRAFT ENVIRONMENTAL IMPACT STATEMENT
COMMENTS AND RESPONSES

The following agencies and government officials provided comments on
the Site Selection Report and EIS Preparation Notice. A total of 17
comment letters were received.

A double asterisk (**) indicates those which submitted written
comments requiring substantive responses. The comment and response
letters are reproduced in this section.

A single asterisk (*) indicates those which submitted written
comments not requiring substantive responses. The comment letters
are reproduced in this section.

A. FEDERAL AGENCIES

*1. Department of the Navy
*2. U.S. Department of Agriculture, Soil Conservation Service

B. STATE AGENCIES

**1. Department of Agriculture
*2. Department of Business and Economic Development
*3. Department of Business and Economic Development, Housing,
Finance and Development Corporation
**4. Department of Business and Economic Development, Land Use
Commission
*5. Department of Defense, Office of the Adjutant General
*6. Department of Education
**7. Department of Hawaiian Home Lands
**8. Department of Health
**9. Department of Land and Natural Resources
**10. Department of Land and Natural Resources, State Parks,
Outdoor Recreation and Historic Sites
**11. Department of Transportation
**12. University of Hawaii, Environmental Center

C. COUNTY OF HAWAII AGENCIES

*1. Department of Parks and Recreation
**2. Planning Department
Dr. Marvin T. Miura, Interim Director
Office of Environmental Quality Control
465 South King Street
Honolulu, HI 96813

Dear Dr. Miura:

The Draft Environmental Impact Statement for the New Pahoa Elementary School has been reviewed and we have no comments to offer. Since we have no further use for the EIS, it is being returned to your office.

Thank you for the opportunity to review the Draft.

Sincerely,

Enclosure

Copy to:
/Mr. Mark Yamabe
Public Works Division
Eqpt. of Accounting & General Services
P. O. Box 119
Honolulu, Hawaii 96810
April 10, 1988

Dr. Haruo Y. Niiura, Interim Director
Office of Environmental Quality Control
445 S. King Street, Room 104
Honolulu, HI 96813

Dear Dr. Niiura:

Subject: Draft Environmental Impact Statement (EIS) - New Pahoa Elementary School, Pahoa, Hawaii

We have no comments to offer at this time, however, we would appreciate the opportunity to review the final EIS.

Sincerely,

[Signature]

RICHARD H. DUNCAN
State Conservationist

CC:
Mr. Mark Yamaka, Public Works Division, Dept. of Accounts and General Services, P.O. Box 119, Honolulu, HI 96810

[Handwritten note]
Dr. Marvin T. Miura, Interim Director
Office of Environmental Quality Control
465 South King Street, Room 104
Honolulu, Hawaii 96813


Dear Dr. Miura:

We have reviewed the referenced Environmental Impact Statement, and have no comments to offer at this time.

We appreciate this opportunity to comment.

Sincerely yours,

Ernest Koba
Ernest Koba, Field Supervisor
Office of Environmental Services
Pacific Islands Office

cc: Dept. of Accounting & General Services
Dr. Marvin T. Hiera, Interim Director
Office of Environmental Quality Control
465 South King Street, Room 104
Honolulu, Hawaii 96813

Dear Dr. Hiera:

Subject: Pahoa Elementary School Site Selection Report and Draft Environmental Impact Statement (DEIS)
Department of Accounting and General Services
THK: 1-5-66; por. 1, 6
1-5-69; por. 9
1-5-10; por. 3, Pahoa, Hawaii
Ares: approximately 8 acres each

The Department of Agriculture has reviewed the subject Report and DEIS and has no additional comments to offer. We would like to reiterate that proposed site 3 is approximately 1,400 feet from an existing farm operation. A site downwind of a farm may experience dust, noise or pesticide drift resulting from normal agricultural operations. Chapter 165 (Hawaii Right-to-Farm Act) limits the circumstances under which normal farming activities may be deemed a nuisance.

Thank you for the opportunity to consent.

Sincerely,

[Signature]

Suzanne D. Peterson
Chairperson, Board of Agriculture

cc: Mr. Mark Yamabe, Public Works Division, DAG\OEQC

Honorable Suzanne D. Peterson
Chairperson
Department of Agriculture
State of Hawaii
Honolulu, Hawaii

Subject: New Pahoa Elementary School
Public Review Phase

Thank you for your May 5, 1988 comments on the subject project.

As indicated in the DEIS, we scrutinized the rationale of the Hawaii Right-to-Farm Act (Chapter 165, Hawaii Revised Statutes) and developed a site selection methodology that would eliminate sites having potential conflicts with existing agricultural activities. The discussions are included in Section V. Identification of Candidate Sites and more specifically in Sections V.A.1.d. Agricultural Uses, V.B.3. Candidate Site 3 and V.II.B.5. Surrounding land uses. Therefore, we feel that Site 3 is a viable site. However, please be assured that your concerns will be considered in the selection of the site for the school.

We appreciate your input for this project.

Very truly yours,

[Signature]

Russell S. Nagata
State Comptroller
DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, HONOLULU
BUILDING 230
FT. SHAFTER, HAWAII 96768-5440

November 19, 1987

Russel S. Nagata
State Comptroller
Department of Accounting and
General Services
P.O. Box 119
Honolulu, Hawaii 96810

Dear Mr. Nagata:

Thank you for the opportunity to review the Site
Selection Report and Environmental Impact Statement
Preparation Notice for the New Pahoa Elementary School,
Pahoa, Hawaii. The following comments are offered:

a. Since no construction work will be done in waters
of the United States or adjacent wetlands, a Department of
the Army permit is not required.

b. According to the Flood Insurance Study for Hawaii
County, the alternative sites are all located in Zone X,
unshaded (areas outside of the 500-year flood plain).

Sincerely,

Rikuk Cheung
Chief, Engineering Division

Mr. Kiusuk Cheung
Chief, Engineering Division
U.S. Army Engineer District, Honolulu
Department of the Army
Fort Shafter, Hawaii 96858-5440

Dear Mr. Cheung:

Subject: New Pahoa Elementary School
EIS Consultation Phase

Thank you for your November 19, 1987 comments that none
of the alternative sites will require a Department of the
Army permit application.

Very truly yours,

Russel S. Nagata
State Comptroller
Dr. Marvin T. Hiura, Director
Office of Environmental Quality Control
465 South King Street, Room 104
Honolulu, Hawaii 96813

Dear Dr. Hiura:

SUBJECT: Draft EIS -- New Pahoa Elementary School

Keoua Place & Keoua Street, Pahoa, Hawaii

Thank you for the opportunity to comment on this project.

We have reviewed the document cited above and have the following comments to offer:

Our concern is on page VII-5. An archaeological survey of the three alternative project areas took place, and no historic sites were found. Thus, the project at any of these locations will have "no effect" on significant historic sites. We recommend that such wording be used in the EIS.

On page VII-5, it is indicated that if historic sites are found during construction "archaeological consultation will be sought immediately in accordance with DLNR guidelines." It is vital that DLNR's Historic Sites Section be contacted directly (548-7460) to ensure that the significance of the site is assessed and any needed mitigation plans will need to be expedited.

Thank you for the opportunity to comment on this project.

Very truly yours,

WILLIAM W. PATY, Chairperson
Board of Land and Natural Resources

cc: Mark Yasabe

Honorable William Paty
Chairperson
Department of Land and Natural Resources
State of Hawaii
Honolulu, Hawaii

Subject: New Pahoa Elementary School
Public Review Phase

Thank you for your April 25, 1988 comments on the subject project.

The EIS will be revised to include the following:

1. Development of a school at any of the three alternative project sites will have "no effect" on significant historic sites.

2. If historic sites are found during construction, the Historic Sites Section will be contacted directly to assess the significance of the site and expedite any needed mitigation plans.

We appreciate your input for this project.

Very truly yours,

RUSSEL M. WAKA
State Comptroller
June 28, 1988

Dr. Marvin Hiura, Director
Office of Environmental Quality Control
465 South King Street, Room 115
Honolulu, Hawaii 96813

Dear Dr. Hiura:

SITE SELECTION REPORT AND
DRAFT ENVIRONMENTAL IMPACT STATEMENT (EIS)
NEW PAHALA ELEMENTARY SCHOOL

to have the following comments on the subject proposal:

1. A Traffic Impact Analysis Report (TIAR) should be prepared and made part of the EIS. It should assess
the traffic impacts of the generated project trips on our roads and identify any mitigation measures required
to alleviate traffic congestion as well as to improve safety where applicable. To expedite our
review, the calculations in deriving values used in the TIAR should be submitted.

2. The existing drainage patterns should be maintained as
such as possible. Potential drainage (flooding) hazard for Site #2 should be investigated. Corrective actions
should be incorporated in the EIS and in the design

3. Plans for all work within the State highway right-of-way
must be submitted for our review and approval. The
developer/applicant shall bear all costs for any
improvements.

Thank you for this opportunity to provide comments.

Very truly yours,

Edward Y. Hirata
Director of Transportation

Subject: New Pa`elahia Elementary School
Public Review Phase

In response to your June 28, 1988 comments on the
subject project, we provide the following:

1. TIAR - Previous experience with school projects of
similar nature indicates that traffic impacts can
be mitigated with proper design measures such as
widen the highway in front of the school for
traffic channelization. However, the extent of
traffic mitigation measures cannot be determined
until more detailed information such as ingress
and egress points, number of lanes, etc. are known.
Therefore, we plan to do the TIAR in accordance
with DOT requirements after the selection of a
school site.

2. Drainage
   a. Site 2 is not located within a flood hazard
   area. In accordance with the Flood Insurance
   Rate Maps prepared by the Federal Insurance
   Administration of the Federal Emergency
   Management Agency, Site 2 is in Zone X -
   unshaded, an area determined to be outside of
   the 500-year flood plain.

   b. On-site drainage improvements will be designed
to maintain existing drainage patterns as much
   as possible.
Page 2

To: Honorable Edward Hixson

Lett. No. (9)1775.4

3.

Re: Appr. of Plans for all work with the State Emergency Plan of Co-op will be submitted to the State Department of Transportation for review and appro

We appreciate your input for this project.

[Signature]

State Coordinator
Dear Dr. Hiura:

Draft Environmental Impact Statement and Site Selection Report
Panama Elementary School
Pahoa, Hawaii

The above referenced document has been reviewed with the assistance of P. Brian Griffin, Anthropology; George Taoka, Civil Engineering; Peter Flachsbart, Urban and Regional Planning; and Nancy Kanyuk, Environmental Center. The project proposes the construction of a new elementary school at one of three candidate school sites identified through a site selection methodology.

The DRAFT EIS and Site Selection Report neglects to adequately address the crucial issues of traffic, air quality and wastewater.

Traffic

Construction of a school necessitates a detailed examination of traffic impacts, both in terms of road usage and in terms of safety. The existing document provides no traffic impact study and no mention, in locational reference, as to what traffic impacts will be (see p. V-23(b), p. VII-3.1A). The two paragraphs provided do not represent an adequate discussion of traffic concerns. The findings of the qualitative evaluations for "conditions along local roads" relative to "traffic congestion, traffic hazards, and alternate access routes. (p. VII-3.1B)."

Air Quality

Increased traffic may also adversely affect the ambient air quality of the surrounding area and therefore require review examination. The Final EIS should also include a discussion of nearby agricultural activities and consider the potential health and safety conflicts from pesticide spraying. Wind roses, which indicate temporal or seasonal frequency and direction of the winds could be used for the three potential sites to evaluate and rate each site. These might be useful in assessing the possibility of potential air borne contaminants under various climatic, and agricultural conditions in addition to specifying distance from agricultural operations.

Wastewater

Although the need for an individual wastewater treatment system is considered, the Final EIS should provide a specific statement on the feasibility of the cavittera system under consideration as well as the possible impacts, characteristics, and suitability of the existing soils to handle the disposal of the treated wastewater.

The Final EIS will require substantive revisions to address these deficiencies if it is to be considered an acceptable statement.

Thank you for the opportunity to comment on this DRAFT EIS. We hope our comments will be helpful in preparing the final document.

Yours truly,

Jacquelin N. Miller
Associate Environmental Coordinator

L. Stephen Lau
Public Works, DACS
George Taoka
P. Brian Griffin
Peter Flachsbart
Nancy Kanyuk
Ms. Jacquelin N. Miller
Associate Environmental Coordinator
University of Hawaii
2530 Campus Road, Crawford 317
Honolulu, Hawaii 96822

Dear Ms. Miller:

Subject: New Pohana Elementary School
Public Review Phase

In response to your May 9, 1988 comments on the subject project, we offer the following:

1. Traffic - Previous experience with school projects of a similar nature indicates that traffic impacts can be mitigated with proper design measures such as widening the highway in the front of the school for traffic channelization. However, the extent of traffic mitigation measures cannot be determined until more detailed information such as ingress and egress points are known and a traffic analysis prepared. Therefore, we plan to do the traffic analysis after the selection of a school site.

2. Air Quality - Since the project should result in an overall reduction of commuting distances, air pollution from automobiles should decrease and result in better air quality around Pohana High and Elementary School and its service area. However, air quality in the immediate vicinity of the new school is expected to increase because of the traffic generated by the school.

With respect to agricultural nuisances, the State has no standards for determining the desired minimum distance between schools and agricultural operations. However, discussions with the State Department of Agriculture have indicated that one-fourth mile is a reasonable minimum distance between agricultural operations and uses such as schools and hospitals and is the current standard for the State of California. Accordingly, we have used this distance to evaluate agricultural nuisances.

As indicated by the Atlas of Hawaii (University of Hawaii, Department of Geography, 2nd ed., 1983) the strong winds in the Pohana area are from the northeast while the light winds are from the southwest. With respect to the strong winds, Sites 1 and 2 are not downwind of any existing agricultural land uses.

3. Wastewater - The State of Hawaii, Department of Health has been consulted to assure that concerns regarding wastewater treatment and disposal are properly addressed. Preliminary consultation indicated that possible wastewater treatment system alternatives may be a septic tank with a percolation blanket or leaching field. It is noted that septic tanks were recently installed at the existing Pohana High and Elementary, and Waiakea Intermediate Schools. The wastewater treatment and disposal system to be utilized will be selected during the project design phase and will comply with the Department of Health Rules and Regulations.

We appreciate your input for this project.

Very truly yours,

[Signature]
State Comptroller
SEP 15 1988

Ms. Jacqueline N. Miller
Associate Environmental Coordinator
University of Hawaii
2550 Campus Road, Crawford 317
Honolulu, Hawaii 96822

Dear Ms. Miller:

Subject: New Pahoa Elementary School
Public Review Phase

This is a follow-up to our September 1, 1988 response to your comments regarding the subject matter. We would like to correct a misstatement made in the first paragraph of item No. 2 of our response. The statement should have read, "However, air quality in the immediate vicinity of the new school is expected to decrease because of the traffic generated by the school."

We regret any misunderstandings that may have occurred.

If there are any questions on this matter, please have your staff contact Mr. Mark Yamabe of the Public Works Division at 548-7669.

Very truly yours,

RUDOLPH N. MABAYA
State Controller
April 7, 1988

Dr. Marvin T. Miura, Interim Director
Office of Environmental Quality Control
465 South King St., Room 104
Honolulu, HI 96813

Subject: New Pahoa School - Site Selection Report and Draft EIS

Dear Dr. Miura:

We have reviewed the subject report and Draft EIS and have no adverse comments to offer.

Thank you for the opportunity to review the document.

Sincerely,

Patricia Engelhard
Director

cc: DACS - Attn: Mr. Mark Yanabe
April 28, 1988

Mr. Marvin Miura
Office of Environmental
Quality Control
465 S. King Street
Honolulu, HI 96813

Dear Mr. Miura:

FIS New Pahoa Elementary School

The following are our comments on the subject EIS.

General comments: Since the proposed action is the selection and construction of a new elementary school and the designation of a new corresponding service area, the EIS should include discussions of criteria for the designation of the new service area. The maps should also include the complete service area so that it is possible to evaluate the selection of a new site in relation to both the existing and potential population. In this respect, we note that the evaluation of candidate sites did not include results from potential population within the service area. For example, site A appears to be centrally located if one assumes future rapid growth in the non-conforming subdivisions; site through 12 Pahoa school complex.

Page 1: 1985 population data should be used for consistency with other data.

Page 1: The geothermal power plant is located in the Pohoiki/Kapoho area rather than the Pahoa area.

Page II-1, Item A: There are current daily student body counts readily available from the school.

Page III-1: The section on regional overview should discuss the Puna district in its entirety, describing Puna also includes such areas as Mountain View, Kurtistown, Volcano, and the many non-conforming subdivisions which take their access from the Hilo to Volcano Highway (and which do not appear to be within the school service area).

Page VI-4, Item 2: Community Criteria - Government. This characterization of the various land use districts conveys incorrect information when the report grades them as "good-fair-poor".

Schools can be established on State Land Use Agriculture districts by applying for a Special Permit from the County Planning Commission. In urban areas, schools may be allowed by applying for a Use Permit from the Planning Commission. In conservation lands, a Use Permit may be applied for from the Department of Land and Natural Resources. A public hearing is required for each of the permits.

The different types of permits should not be relegated a grade "good, fair or poor", as the time and effort involved in the various applications is about the same for each. The merits of the particular sites are the qualifying factors, and not the land use designation. The General Plan, furthermore, does not locate school sites as the text implies rather, it sets goals, standards and policies for establishing them. The consultant should contact our office to clarify this entire section.

Page V-2, Item b: "Majority of the student body, approximately 70%..." A breakdown of the student body by school (elementary/intermediate/high) should be extracted to present a better picture of the situation.

Page VI-4, Item 2: Community Effects. Is a half mile distance from commercial center a significant item for even elementary schools?

Page VI-8, Item 2: The second paragraph of this item is totally erroneous. Please have the consultant contact us for a proper description for this and any other related reference.
XV. LIST OF PREPARERS OF THE EIS DOCUMENT

WILSON OKAMOTO & ASSOCIATES, INC.

Earl Matsukawa: Director, Planning Department
University of Hawaii, MURP, 1983, Land Use and Environmental Planning
Western Washington University, 1975, B.S., Environmental Planning
Area of Expertise for Project: Project Management, Land Use and
   Environmental Planning

Nami Hamaguchi: Planner and Civil Engineer
University of Hawaii, BSCE, 1984, Civil Engineering
Engineer-in-Training Phase of Hawaii Board regular examination for
   registration, Part I - Fundamentals of Engineering, 1987
Area of Expertise for Project: Land Use and Environmental Planning

Barry Toyota: Civil Engineer
University of Hawaii, BSCE, 1980, Civil Engineering
Registered Professional Engineer, 1983, Hawaii, Civil Engineering
Area of Expertise for Project: Civil Engineering

Gregory Lee: Civil Engineer
University of Hawaii, BSCE, 1986, Civil Engineering
Engineer-in-Training Phase of Hawaii Board regular examination-for
   registration, Part I - Fundamentals of Engineering, 1987
Area of Expertise for Project: Civil Engineering

Malcolm Ching: Graphic Designer
Leeeward Community College, A.S., 1986, Graphic Arts
Leeeward Community College, Certificate in Graphic Arts, 1986
Area of Expertise for Project: Maps, Figures, and Production
GOVERNMENT OFFICIALS - Continued

Mr. Russell Kokubun
Councillor, Puna District
Hawaii County Council
P. O. Box 357
Volcano, Hawaii 96785

Mr. Richard Henderson, Senator
1st Senatorial District
P. O. Box 655
Hilo, Hawaii 96720

Mr. Andrew Levin, Representative
1st Representative District
167 Keawe Street
Hilo, Hawaii 96720

UTILITY COMPANIES

Hawaii Electric Light Co., Inc.
1200 Kilauea Avenue
Hilo, Hawaii 96720

Hawaiian Telephone Company
161 Kinoole Street
Hilo, Hawaii 96720

The Gas Company
945 Kalanianaole Street
Hilo, Hawaii 96720

ORGANIZATIONS & INDIVIDUALS

Center for Development of
Early Education, Kamehameha
Schools
Attention: Ms. Jinny Elen
Kapalama Heights, Honolulu 96817

Mr. Winston Towata, Principal
Pahoa High and Elementary School
P. O. Box 3
Pahoa, Hawaii 96778

Ms. Collette Nakamatsu
Pahoa P.T.S.A.
P. O. Box 3
Pahoa, Hawaii 96778

XII - 3
XI. LIST OF NECESSARY APPROVALS

All three candidate sites are located within the State Land Use Agricultural District where State law allows the County Planning Commission to issue a Special Permit for the establishment of a public school. Neither a General Plan amendment nor a zone change will be required for school development at any of the three candidate sites. A public hearing in conjunction with the Special Permit will afford the public an opportunity to comment on the selected school site.

None of the sites are within the County Special Management Area.

The proposed project has been found to be in compliance with the State's Historic Preservation Law (Chapter 6E) by the State Department of Land and Natural Resources Historic Sites Section.

Plans for all work within the State highway right-of-way will be submitted to the State Department of Transportation for review and approval.
XII. AGENCIES, ORGANIZATIONS, AND INDIVIDUALS CONSULTED IN THE PREPARATION
OF THE EIS

FEDERAL AGENCIES

District Planning Office
U.S. Department of Transportation
United States Coast Guard
Commander, Fourteenth Coast
Guard District
300 Ala Moana Boulevard
Honolulu, Hawaii 96850

Soil Conservation Service
U.S. Department of Agriculture
P. O. Box 5004
Honolulu, Hawaii 96850

U.S. Army Support Command Hawaii
Attention: Environmental Management
Office
Fort Shafter, Hawaii 96858-5000

Corps of Engineers
U.S. Department of the Army
Honolulu District
Building 230
Fort Shafter, Hawaii 96858-5440

Office of Ecological Services
Fish and Wildlife Service
U.S. Department of Interior
P. O. Box 50167
Honolulu, Hawaii 96850

Commander Naval Facility
Command Pacific Division
U.S. Department of the Navy
Pearl Harbor, Hawaii 96860

STATE AGENCIES

Department of Business and Economic Development
State of Hawaii
P. O. Box 2359
Honolulu, Hawaii 96804

Department of Agriculture
State of Hawaii
1420 South King Street
Honolulu, Hawaii 96814-2512

Department of Defense
Office of the Adjutant General
State of Hawaii
3949 Diamond Head Road
Honolulu, Hawaii 96816-4495

Department of Education
State of Hawaii
P. O. Box 2360
Honolulu, Hawaii 96814

Mr. William Waters
Board of Education
Department of Education
State of Hawaii
1390 Miller Street
Honolulu, Hawaii 96813

Dr. Alan Garson
District Superintendent
Hawaii District Office
Department of Education
State of Hawaii
75 Aupuni Street
Hilo, Hawaii 96720

Mr. Herbert Watanabe
District Business Specialist
Hawaii District Office
Department of Education
State of Hawaii
75 Aupuni Street
Hilo, Hawaii 96720

Department of Health
State of Hawaii
P. O. Box 3378
Honolulu, Hawaii 96801
STATE AGENCIES - Continued

Office of Hawaiian Affairs
Kawaiahao Plaza Suite 100
557 S. King Street
Honolulu, Hawaii 96813

Department of Land and Natural Resources
State of Hawaii
1151 Punchbowl Street
Honolulu, Hawaii 96813

Department of Social Services and Housing
State of Hawaii
1390 Miller Street, #209
Honolulu, Hawaii 96813

Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813

Environmental Center
University of Hawaii
Crawford 317
2250 Campus Road
Honolulu, Hawaii 96822

Office of Environmental Quality Control
State of Hawaii
465 South King Street, Room 115
Honolulu, Hawaii 96813

Water Resources Research Center
University of Hawaii
Holmes Hall 283
2540 Dole Street
Honolulu, Hawaii 96822

COUNTY AGENCIES

Department of Water Supply
County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720

Planning Department
County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720

Department of Parks and Recreation
County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720

Department of Public Works
County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720

Police Department
County of Hawaii
349 Kapiolani Street
Hilo, Hawaii 96720

Fire Department
County of Hawaii
466 Kinoole Street
Hilo, Hawaii 96720

Department of Research and Development
County of Hawaii
34 Rainbow Drive
Hilo, Hawaii 96720

GOVERNMENT OFFICIALS

Mayor Dante Carpenter
Office of the Mayor
County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720

Mr. Stephen Yamashiro, Chairman
Hawaii County Council
25 Aupuni Street
Hilo, Hawaii 96720
Mr. Harvin Miura
April 28, 1988
Page 3

Page VI-2, Item 13: Roadways. The road standards described appear to be those of Honolulu. Hawaii County's standard road widths are 80 ft. for collector streets; 50 ft. for minor streets. Lesser widths are only permitted for private driveways or accesses to limited density development, and would not be allowed for public roadways which a public school would be required to have.

Page VII-3: There may be potential impacts from the surrounding agricultural activities where herbicides and pesticides are commonly used. An agricultural park and Hawaiian Homes farm leases are in the proximity of site 1 and site 2.

Page VII-3, Item 8.3: We believe a traffic analysis report would have a bearing on the choice of sites also and therefore should be conducted before selecting a site rather than "following the selection of a school site."

In the list of agencies and organizations to be consulted, we suggest that the following also be contacted:

1. State Department of Hawaiian Homes Land - adjoining landowner to candidate site #3 and has planned an agricultural subdivision in the area.

2. Hawaii County Civil Defense Agency - brush fire hazards in the area of candidate site 2 and evacuation routes in the school service areas. We would also note that there have been two major brush fires in the area of candidate site #2.

3. Subdivision community associations.

Thank you for the opportunity to comment on the New Pahoa Elementary School EIS.

Sincerely,

ALBERT LONO LYMAN
Planning Director

抄送: Mark Yamada, DAGS Public Works Division
抄送: Mayor's Road File
1. General Comments

a. Criteria for service area.

The Department of Education set the boundaries of the new school service area by splitting the existing service area for Pahoa Elementary School. In setting this boundary, they considered many items such as:

1) Distance between schools.
2) Distribution and location of student population.
3) Proposed developments.
4) Proximity of student population to school.
5) Bussing provisions.
6) Disruption to community.

The service area selected provides the DOE with the most flexibility in adjusting the boundaries between the Keau, Pahoa and the New Pahoa schools as the schools grow and when another elementary school is added in the future.

b. Map of service area.

Since the portion of the service area not shown in Figure 2 contains only a small percentage of the students, Figure 1 will be revised to show the total service area carved out from the existing service area for Pahoa Elementary.

c. Distance from potential population.

The evaluation of alternative sites in relation to the existing and potential population was not deemed appropriate because (1) the alternative sites were selected to be centrally located to the existing population, (2) the service area is so large that substantial residential developments can take place anywhere in it, and (3) the DOE has several options in redefining the service area boundaries when the area develops and another elementary school is required in the Keau-Pahoa area.

2. Page I-1. The Hawaii County population for 1985 will be used.

3. Pages I-1 and III-1. The location of the geothermal power station will be updated to indicate that it is approximately 3 miles southeast of Pahoa Town.

4. Page I-1, Item A. The Pahoa High and Elementary student population data will be updated to September 1987 figures as follows:

<table>
<thead>
<tr>
<th>Grades</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>K-6</td>
<td>985</td>
</tr>
<tr>
<td>7-12</td>
<td>731</td>
</tr>
<tr>
<td>Total</td>
<td>1,716</td>
</tr>
</tbody>
</table>

5. Page III-1. Additional information on the Puna District will be included in the section on regional overview in the EIS document as follows:

"The existing and proposed service area are located within the Puna District of the Island of Hawaii. The towns of Pahoa and Keau are the major population centers of the District. Smaller towns located along Kamaehoa Highway include Mountain View, Kuoitun and Glenwood, as well as the many subdivisions which have access off of the highway from Hilo to Volcano. South of Pahoa on Kaino-Ranaho Road, are the towns of Ohikao, Kekaha, Keau and Kapalama."

6. Page VI-4, Item 2. The different ratings assigned to the land use designations are only minimally based on the types of permits required for the school or the time and effort involved in processing the various applications. Instead, it is intended to rate compliance with the State Land Use policy of preserving conservation-zoned lands and utilizing agricultural-zoned lands only when urban-zoned lands are unavailable or unsuitable.
that existing agricultural operations could occasion-ally expose Site 1 and Site 3 to dust, noise or pestic-ide drift under adverse wind conditions. Site 2 is not anticipated to be affected by existing agricultural operations.

12. Page VII-3, Item B, 3. We acknowledge your concerns regarding traffic impacts of school development. These concerns have been discussed in various sections of the EIS document.

The minimum criterion discussed previously, Central Location Along Major Roadway, addressed traffic concerns. In addition, the advantages and disadvantages of each candidate site were assessed with respect to adequacy of roadways, pedestrian access, pedestrian safety, automobile access and traffic flow.

Long-term traffic impacts of new school development are qualitatively evaluated in the EIS document. It is anticipated that roadway improvements such as widening for traffic channelization in front of the school will be needed. However, the extent of the improvements will be determined during the design phase of the project, following the selection of a school site.


We sent a copy of the draft EIS to the agency and received comments on the development of a homestead community at Hakau. Our consultant will contact the Department of Hawaiian Home Lands regarding plans for this homestead community.

13b. Hawaii County Civil Defense Agency.

The Hawaii County Civil Defense Agency will be contacted regarding potential brush fire hazards in the area of Site 2, and evacuation routes in the proposed school service area. It is noted that the new school will meet County fire code requirements.

13c. Subdivision Community Associations.

The community was afforded the opportunity to attend two meetings regarding the new elementary school as follows:
Attachment to Ltr. No. (P)16658
New Pachoa Elementary - Responses to Comments

a) September 11, 1987. Discussion of the project
need and the site selection methodology.

b) November 12, 1987. Discussion of potential school
sites.

Concerns expressed at both meetings have been consid-
ered in the planning process for the new school.
April 10, 1988

MEMORANDUM

TO: Dr. Marvin T. Miura, Director
Office of Environmental Quality Control

FROM: Roger A. Udvelling

SUBJECT: Site Selection Report and Draft Environmental Impact Statement (DEIS) for the New Pahoa Elementary School, Pahoa, Hawaii

We have reviewed the subject document and do not have any comments to offer at this time. Thank you for the opportunity to review this DEIS.

cc: Mr. Kirk Yamada,
Public Works Division, DGS
March 30, 1988

Dr. Harvin T. Hiura, Interim Director
Office of Environmental Quality Control
465 South King Street, Room 104
Honolulu, Hawaii 96813

Dear Dr. Hiura:

Re: Site Selection Report & Draft Environmental Impact Statement (EIS) on the New Pahoa Elementary School

Thank you for the opportunity to review the draft EIS for the subject project. We have no comments to offer.

Sincerely,

[Signature]
Joseph L. Caymont
Executive Director

cc: Mr. Mark Yamabe
April 11, 1988

Dr. Marvin T. Miura, Interim Director
Office of Environmental Quality Control
465 South King Street, Room 104
Honolulu, Hawaii 96813

Dear Dr. Miura:

Subject: Draft EIS for the New Pahoa Elementary School, Pa'auilo, Hawaii

We have no comments to offer except that all three proposed sites are located within the State Land Use Agricultural District.

Thank you for this opportunity to comment.

Sincerely,

ESTHER UDIIA
Executive Officer

cc: Mark Yamabe, DAGS
RECEIVED
Ala 88 20th, '88
DIV. OF ENG. & WORKS

Engineering Office

Dr. Horace T. Hiura, Interim Director
Office of Environmental Quality Control
465 South King Street, Room 106
Honolulu, Hawaii 96813

Dear Dr. Hiura:

Kawakami Elementary School
Pahoa, Hawaii

Thank you for providing us the opportunity to review the above subject project.

We have no comments to offer at this time regarding this project.

Sincerely,

[Signature]

Jerry H. Nakasone
Mayor, Hilo City
National Guard
Chief of Staff, Office

Enclosure

cc:
Mr. Mark Kamehe
April 11, 1988

MEMORANDUM

TO: The Honorable Marvin T. Mieko, Interim Director
   Office of Environmental Quality Control

FROM: Ilima A. Piliano, Chairman
       Hawaiian Homes Commission

SUBJECT: EIS - Pahoa Elementary School

Thank you for transmitting a copy of the Site Selection Report and Draft EIS for the new Pahoa Elementary School in Pahoa, Hawaii.

As the proposed sites are not on Hawaiian Home Lands, we have no comments on the EIS portion of the report. However, we do support the site alternatives selected and are particularly pleased with Alternative I as it is near our developing homestead community at Makuu. Presently, we have 128 new homestead lessees at Makuu. It is expected that within the next five to eight years infrastructure improvements will be made for the lots which will focus interest in homestead activity in the area.

If we can provide any additional information, please contact us. Thank you for the opportunity to respond.

IAP: HSich

cc: Mark Yamabe, Public Works Division, OAHU

Honorable Ilima A. Piliano
Director and Chairman
Department of Hawaiian Home Lands
State of Hawaii
Honolulu, Hawaii

Dear Ms. Piliano:

Subject: New Pahoa Elementary School
Public Review Phase

Thank you for your April 11, 1988 comments on the subject project.

The EIS will be revised to include the information on your development of a homestead community at Makuu. In addition, your support of the three proposed school sites and preference for Alternative I will be made a part of the information provided to the Governor for final site selection.

We appreciate your input for this project.

RUSSELL S. NADADA
State Comptroller
MEMORANDUM

To: Dr. Marvin T. Miura, Director
Office of Environmental Quality Control

From: Deputy Director for Environmental Health

Subject: Site Selection Report and Draft Environmental Impact Statement (DEIS) for New Pahoa Elementary School, Pahoa, Hawaii

May 6, 1988

Thank you for allowing us to review and comment on the subject DEIS. We provide the following comments with regard to wastewater disposal.

As indicated in the subject DEIS, the proposed elementary school will have a projected student enrollment of approximately 750-900 students. The DEIS fails to provide details of the projected waste flow, the type of treatment plant, or the type of disposal system to be used.

There are no existing municipal treatment facilities in the Pahoa area. Injection wells will probably not be allowed due to the possibility of ground water contamination. The applicant must address the wastewater disposal issue in the EIS. The sewage system proposed must meet all applicable requirements of Act 282, SLH 1985 as amended by Act 302, SLH 1986.

BRUCE S. ANDERSON, PH.D.

cc: Mr. Mark Yamasaki, DAGS

Dr. Bruce S. Anderson
Deputy Director
Department of Health
State of Hawaii
Honolulu, Hawaii

Dear Dr. Anderson:

Subject: New Pahoa Elementary School
Public Review Phase

Thank you for your May 6, 1988 comments on the subject project. The EIS will be revised to include the following:

1. Projected Wastewater Flow - The design average wastewater flow for a peak enrollment of 900 students is presently estimated at 30,000 GPD based on the Design Standards of the Division of Wastewater Management, Volume 1 (City and County of Honolulu, Department of Public Works, February 1984).

2. Requirements - The proposed wastewater treatment and disposal system will meet all applicable requirements of Act 282, SLH 1985 as amended by Act 302, SLH 1986.

3. Type of Disposal System - The final selection of a wastewater treatment and disposal system will be determined during the project design phase with consultation and approval of your Department. One of the alternatives is the system which has a septic tank with a percolation blanket or leaching field.

We appreciate your input for this project.

Very truly yours,

BRUCE S. ANDERSON
State Comptroller

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 31, HONOLULU, HAWAII

JUN 23 1988

LETTER NO. P91527.8
MEMORANDUM

TO: Teunoe Tominaga, State Public Works Engineer, Division of Public Works, DAG

FROM: Ralston N. Nagata, State Parks Administrator


Thank you for submitting the revised archaeological report to our office for review (P. Rosenah 1998. Archaeological Reconnaissance Survey for Environmental Impact Statement (EIS). Pahoa Elementary School.).

Our review of the report indicates that the project areas were adequately surveyed and that no historic sites were present. Thus, the New Pahoa Elementary School project, if constructed at any of these three locations, will have "no effect" on significant historic sites.

A copy of this memorandum should be kept in your files as evidence of completion of Chapter 6E. R.B.E., review. Thank you for coordinating with our Historic Sites Section.

Very truly yours,

State Public Works Engineer

Mr. Ralston Nagata
State Parks Administrator
State Parks, Outdoor Recreation and Historic Sites
Department of Land and Natural Resources
State of Hawaii
Honolulu, Hawaii

Dear Mr. Nagata:

Subject: New Pahoa Elementary School Archaeological Reconnaissance Survey DA OS Job No. 11-16-0351

As discussed with Dr. Ross Cordy of your staff, we are submitting a copy of the subject report for your review and comments.

If there are any questions on this matter, please have your staff call Mr. Mark Tumbee of the Planning Branch at 548-7660.

Very truly yours,

State Public Works Engineer

[Signature]

Attachment
MAY 31, 1988

Mr. Ralston M. Nagata
State Parks Administrator
State Parks, Outdoor Recreation
and Historic Sites
Department of Land and
Natural Resources
State of Hawaii
Honolulu, Hawaii

Dear Mr. Nagata:

Subject: New Pa`oa Elementary School
Public Review Phase

Thank you for your April 4, 1988 comments on the
archaeological report of the subject project.

As indicated in the report, no historic sites were
found in the proposed sites. Therefore, the EIS will be
revised to indicate that the development of a school at any of
the three alternative project sites will have "no effect" on
significant historic sites.

We appreciate your input for this project.

Very truly yours,

[Signature]

Eveline L. Nabeta
State Comptroller
X. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Implementation of the proposed action would involve the commitment of fuel, labor, funding and materials for the construction of the new school. Labor, materials, and utilities would also be required for operation and maintenance of the proposed project.

Development of the proposed project will involve the commitment of land for school use which will preclude other land use options for the selected site.
### TABLE A-1

OFF-SITE IMPROVEMENT COSTS (in millions of dollars)

<table>
<thead>
<tr>
<th>Improvements</th>
<th>Former Pahoa Air Strip SITE 1</th>
<th>Kahakai Boulevard SITE 2</th>
<th>Pahoa By-Pass Road SITE 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>$0.65</td>
<td>$1.23</td>
<td>$1.21</td>
</tr>
<tr>
<td>Roadway</td>
<td>$0.09</td>
<td>$0.00</td>
<td>$0.32</td>
</tr>
<tr>
<td>Elec./Tel.</td>
<td>$0.01</td>
<td>$0.00</td>
<td>$0.02</td>
</tr>
<tr>
<td>TOTAL</td>
<td>$0.75</td>
<td>$1.23</td>
<td>$1.55</td>
</tr>
</tbody>
</table>

2. On-Site Improvement Costs

On-site improvement costs, based on a typical layout plan, are assumed to be the same for all three candidate sites. Improvement costs were estimated with respect to roadways, parking, grading, drainage, and landscaping, as well as various utilities such as sewerage, water, electrical power/communications and gas (see Table A-2).

Roadway improvements are estimated to cost $0.09 million for driveway, drop-off and parking areas. Grading cost for each site is estimated at $0.23 million. On-site drainage costs, consisting of drainage pipe required to transport runoff to appropriate discharge points is estimated at $0.11 million. On-site landscaping improvements estimated at $0.19 million assumes the need for topsoil, grassing and an irrigation system for half of the landscaped area.

Sewerage costs are based on the need to provide individual wastewater treatment and disposal systems which are estimated at $0.23 million. The design average wastewater flow for a peak enrollment of 900 students is presently estimated at 30,000 gallons per day based on the Design Standards of the Division of Wastewater Management, Volume 1 (City and County of Honolulu, Department of Public Works, February 1984). The proposed wastewater treatment and disposal system will meet all applicable requirements of Act 282, SLH 1985 as amended by Act 302, SLH 1986. The final selection of a wastewater treatment and disposal system will be determined during the project design phase in consultation with and approval of the State of Hawaii Department of Health. One of the alternatives is to install a system with a septic tank and a percolation blanket or leaching field.

Water system improvements, including the installation of meters, 12-inch and 2-inch pipes, and fire hydrants are expected to total about $0.06 million. The installation of lines and cables
for the electrical and telephone system is estimated at $0.07 million. The gas system, including gas lines and a 2,000 gallon tank are estimated to cost $0.01 million.

No additional foundation cost due to adverse subsurface conditions is anticipated for the candidate sites. The cost of soundproofing classrooms was not included in the cost analysis as the school sites have been sited to minimize noise nuisances.

Table A-3 provides a summary of combined off-site and on-site costs for improvements at each of the sites.
<table>
<thead>
<tr>
<th>Improvements</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roadway</td>
<td>$0.09</td>
</tr>
<tr>
<td>Grading</td>
<td>$0.23</td>
</tr>
<tr>
<td>Drainage</td>
<td>$0.11</td>
</tr>
<tr>
<td>Landscaping</td>
<td>$0.19</td>
</tr>
<tr>
<td>Sewer</td>
<td>$0.23</td>
</tr>
<tr>
<td>Water</td>
<td>$0.06</td>
</tr>
<tr>
<td>Elec./Tel.</td>
<td>$0.07</td>
</tr>
<tr>
<td>Gas</td>
<td>$0.01</td>
</tr>
<tr>
<td>TOTAL</td>
<td>$0.99</td>
</tr>
<tr>
<td>Improvements</td>
<td>Former Pahoa Air Strip SITE 1</td>
</tr>
<tr>
<td>------------------</td>
<td>-------------------------------</td>
</tr>
<tr>
<td>Water</td>
<td>$0.71</td>
</tr>
<tr>
<td>Roadway</td>
<td>$0.18</td>
</tr>
<tr>
<td>Elec./Tel.</td>
<td>$0.08</td>
</tr>
<tr>
<td>Grading</td>
<td>$0.23</td>
</tr>
<tr>
<td>Drainage</td>
<td>$0.11</td>
</tr>
<tr>
<td>Landscaping</td>
<td>$0.19</td>
</tr>
<tr>
<td>Sewer</td>
<td>$0.23</td>
</tr>
<tr>
<td>Gas</td>
<td>$0.01</td>
</tr>
<tr>
<td>Subtotal</td>
<td>$1.74</td>
</tr>
<tr>
<td>20 Percent Contingency</td>
<td>$0.35</td>
</tr>
<tr>
<td>TOTAL</td>
<td>$2.09</td>
</tr>
</tbody>
</table>
APPENDIX B

ARCHAEOLOGICAL RECONNAISSANCE SURVEY
ARCHAEOLOGICAL RECONNAISSANCE SURVEY
FOR ENVIRONMENTAL IMPACT STATEMENT (EIS)
PAHOA ELEMENTARY SCHOOL SITES

Puna, Island of Hawaii

March 1988

305 Mohouli Street • Hilo, Hawaii 96720 • (808) 969-1763 or 966-8038
ARCHAEOLOGICAL RECONNAISSANCE SURVEY
FOR ENVIRONMENTAL IMPACT STATEMENT (EIS)
PAHOA ELEMENTARY SCHOOL SITES

Puna, Island of Hawaii

March 1988
RATING TOTALS

Good .................. 1
Fair .................. 2
Poor .................. 0

3. Accessibility

a. Pedestrian Access .................. Poor
   No pedestrian access is available.

b. Pedestrian Safety .................. Fair
   Safe walkways/shoulders to the site may be
   provided along the school access road.

c. Automobile Access .................. Fair
   The site is set back 500 feet from Keeaumoku
   Road, with one long side of the site
   parallel to the highway. Access is assumed
   to be available along one long side of the
   site.

d. Traffic Flow .................. Good
   The site is proximate to Keeaumoku Road, a
   State highway.

RATING TOTALS

Good .................. 1
Fair .................. 2
Poor .................. 1

Community Criteria

1. Government

a. State Land Use Map Designation .................. Poor
   The site is in the "Agricultural" District.
   A Land Use Boundary Amendment to designate
   the site "Urban" will be required.

RATING TOTALS

Good .................. 0
Fair .................. 0
Poor .................. 1
2. Community Effects

a. Proximity to Commercial Centers ................. Good
   The site is approximately 1.7 miles
   northwest of commercial uses.

b. Aesthetic Value .............................. Good
   The site is not an aesthetic asset to the
   community and development of a school will
   not obstruct scenic vistas.

RATING TOTALS

   Good .................... 2
   Fair .................... 0
   Poor .................... 0
SITE 2: KAHAKAU BOULEVARD SITE

School Site Criteria

1. Environmental Characteristics
   a. Slope ........................................ Good
      Average slope of the site is between 1 and 3 percent.
   b. Soil ......................................... Poor
      The site is composed of pahoehoe lava.
   c. Natural Beauty ............................. Good
      Existing trees, plants: Yes.
      Potential for beautification: Yes.
      Crossed by overhead lines: No.

RATING TOTALS

<table>
<thead>
<tr>
<th>Rating</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>2</td>
</tr>
<tr>
<td>Fair</td>
<td>0</td>
</tr>
<tr>
<td>Poor</td>
<td>1</td>
</tr>
</tbody>
</table>

2. Roadways and Utilities
   a. Adequacy of Roadways ...................... Good
      The site is served by Kahakai Boulevard which has a right-of-way width of 60 feet nearest the site. Automobile access from another nearby road within the residential subdivision is not recommended due to its narrow right-of-way width of 40 feet.
   b. Adequacy of Water Service ................ Fair
      The existing water service is insufficient but adequate service can be provided by the addition of transmission improvements and increasing storage capacity to meet interim and ultimate needs of the school.
   c. Adequacy of Power and Communications .... Good
      Existing power and communications lines are available to service the school.

RATING TOTALS

<table>
<thead>
<tr>
<th>Rating</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>2</td>
</tr>
<tr>
<td>Fair</td>
<td>1</td>
</tr>
<tr>
<td>Poor</td>
<td>0</td>
</tr>
</tbody>
</table>
3. Accessibility
   a. Pedestrian Access .................................. Good
      Number of sides pedestrian access is available: 2.
   b. Pedestrian Safety .................................. Fair
      Safe walkways/shoulders to the site may be provided along the school access road.
   c. Automobile Access .................................. Fair
      The access road, Kahakai Boulevard, runs along one long side of the site. Automobile access from the residential subdivision is not recommended.
   d. Traffic Flow .......................................... Fair
      The site is proximate to Kahakai Boulevard, a major roadway.

RATING TOTALS
   Good ...................... 1
   Fair ...................... 3
   Poor ...................... 0

Community Criteria
1. Government
   a. State Land Use Map Designation .................. Poor
      The site is in the "Agricultural" District.
      A Land Use Boundary Amendment to designate the site "Urban" will be required.

RATING TOTALS
   Good ...................... 0
   Fair ...................... 0
   Poor ...................... 1

2. Community Effects
   a. Proximity to Commercial Centers ................ Good
      The site is approximately 2.5 miles northeast of commercial uses.
   b. Aesthetic Value ...................................... Fair
      The site has little aesthetic value to the community but development of a school may partially obstruct scenic vistas.
<table>
<thead>
<tr>
<th>Rating</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>1</td>
</tr>
<tr>
<td>Fair</td>
<td>1</td>
</tr>
<tr>
<td>Poor</td>
<td>0</td>
</tr>
</tbody>
</table>
SITE 3: PAHOA BY-PASS ROAD SITE

School Site Criteria

1. Environmental Characteristics
   a. Slope ................................................. Fair
      Average slope of the site is between 4 and 10 percent.
   b. Soil .................................................. Poor
      The site is composed of pahoehoe lava.
   c. Natural Beauty ................................. Good
      Existing trees, plants: Yes.
      Potential for beautification: Yes.
      Crossed by overhead lines: No.

RATING TOTALS

   Good......................... 1
   Fair........................... 1
   Poor......................... 1

2. Roadways and Utilities
   a. Adequacy of Roadways ......................... Fair
      The site is served by Pahoa By-Pass Road
      which has a right-of-way width of 50 feet.
   b. Adequacy of Water Service ..................... Fair
      The existing water service is insufficient but adequate service can
      be provided by the addition of transmission improvements to
      meet interim and ultimate needs of the school.
   c. Adequacy of Power and Communications .... Fair
      The site requires some off-site improvements
      to meet interim and ultimate power and communications
      needs of the school.

RATING TOTALS

   Good......................... 0
   Fair........................... 3
   Poor......................... 0

3. Accessibility
   a. Pedestrian Access ............................ Fair
      Number of sides pedestrian access is available: 1.
b. **Pedestrian Safety** ... Fair
Safe walkways/shoulders to the site may be provided along the school access road.

c. **Automobile Access** ... Fair
The access road, Pahoa By-Pass Road, runs along one long side of the site.

d. **Traffic Flow** ... Fair
The site is proximate to Pahoa By-Pass Road, a major roadway.

**RATING TOTALS**

<table>
<thead>
<tr>
<th>Rating</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>0</td>
</tr>
<tr>
<td>Fair</td>
<td>4</td>
</tr>
<tr>
<td>Poor</td>
<td>0</td>
</tr>
</tbody>
</table>

**Community Criteria**

1. **Government**

   a. **State Land Use Map Designation** ... Poor
   The site is in the "Agricultural" District.
   A Land Use Boundary Amendment to designate the site "Urban" will be required.

   **RATING TOTALS**

<table>
<thead>
<tr>
<th>Rating</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>0</td>
</tr>
<tr>
<td>Fair</td>
<td>0</td>
</tr>
<tr>
<td>Poor</td>
<td>1</td>
</tr>
</tbody>
</table>

2. **Community Effects**

   a. **Proximity to Commercial Centers** ... Good
   The site is approximately 0.6 mile west of commercial uses.

   b. **Aesthetic Value** ... Good
   The site is not an aesthetic asset to the community and development of a school will not obstruct scenic vistas.

   **RATING TOTALS**

<table>
<thead>
<tr>
<th>Rating</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>2</td>
</tr>
<tr>
<td>Fair</td>
<td>0</td>
</tr>
<tr>
<td>Poor</td>
<td>0</td>
</tr>
</tbody>
</table>
APPENDIX A

CANDIDATE SITE EVALUATIONS AND RESULTS

This technical appendix document lists results of the candidate site evaluations relative to school site and community criteria, and cost considerations. Descriptions of the criteria are contained in Chapter VI of the EIS document.

A. School Site and Community Criteria Results

SITE 1: FORMER PAHOA AIR STRIP SITE

School Site Criteria

1. Environmental Characteristics
   
   a. Slope ........................................... Fair
      Average slope of the site is between 4 and 10 percent.
   
   b. Soil .............................................. Poor
      The site is composed of pahoehoe lava.
   
   c. Natural Beauty ................................. Good
      Existing trees, plants: Yes.
      Potential for beautification: Yes.
      Crossed by overhead lines: No.

   RATING TOTALS
      Good ............................................. 1
      Fair ............................................. 1
      Poor ............................................. 1

2. Roadways and Utilities
   
   a. Adequacy of Roadways ............................. Good
      The site is served by Keaau-Pahoa Road which has a right-of-way width of 80 feet.
   
   b. Adequacy of Water Service ....................... Fair
      The existing water service is insufficient but adequate service can be provided by the addition of transmission improvements and increasing storage capacity to meet interim and ultimate needs of the school.
   
   c. Adequacy of Power and Communications ........ Fair
      The site requires some off-site improvements to meet interim and ultimate power and communications needs of the school.
B. Cost Considerations

1. Off-Site Improvement Costs

Off-site improvement costs were estimated for each site with respect to roadway requirements, as well as for utility needs such as water and electrical power/communications (see Table A-1). None of the candidate sites required off-site improvements for drainage, sewer, grading, landscaping or gas. Runoff from all sites is assumed to percolate into the ground as the overlying soil in the region affords percolation of rainwater into the ground. County sewerage service is unavailable in the region. All three candidate sites will, therefore, require an individual wastewater treatment and disposal system. Grading and landscaping were regarded as unnecessary since slope and natural landscape features offered by the surrounding terrain were judged to be adequate. The provision of gas lines was also considered unnecessary as none of the sites are near existing gas lines. Instead, gas would be trucked in and stored in tanks.

All sites will require development of off-site water improvements. Improvements consist of additional storage capacity and transmission lines for the Former Pahoa Air Strip and Kahakai Boulevard Sites (Sites 1 and 2) at estimated costs of $0.65 million and $1.23 million, respectively. The Pahoa By-Pass Road Site (Site 3) will require off-site water transmission improvements at an estimated cost of $1.21 million.

Two candidate sites will require development of off-site roadway improvements. An access roadway to the Former Pahoa Air Strip Site (Site 1) is estimated to cost about $0.09 million. Costs to upgrade the roadway to the Pahoa By-Pass Road Site (Site 3) is estimated at $0.32 million. Off-site roadway improvements are not anticipated at the Kahakai Boulevard Site (Site 2).

Off-site electrical power/communications costs are not anticipated at the Kahakai Boulevard Site (Site 2). Off-site improvements to provide for adequate power and communications at the Former Pahoa Air Strip and Pahoa By-Pass Road Sites (Sites 1 and 3) are estimated at $0.01 million and $0.02 million, respectively.
ARCHAEOLOGICAL RECONNAISSANCE SURVEY
FOR ENVIRONMENTAL IMPACT STATEMENT (EIS)
PAHOA ELEMENTARY SCHOOL SITES

Puna, Island of Hawaii
(TM:1-5-10;Por.3; 1-5-09;Por.9; 1-5-08;Por.1,6)

by
Margaret L.K. Rosendahl, B.A., S.O.P.A.
Supervisory Archaeologist

Prepared for
Department of Accounting and General Services
State of Hawaii

and
P.O. Box 3530
Honolulu, Hawaii 96811

March 1988

305 Mohouli Street • Hilo, Hawaii 96720 • (808) 969-1763 or 966-8038
INTRODUCTION

BACKGROUND

At the request of Mr. Earl Matsukawa of Wilson Okamoto & Associates, Inc., for their client, State of Hawaii—Department of Accounting and General Services, Paul H. Rosendahl, Ph.D., Inc. (PHRI) recently conducted an archaeological reconnaissance survey of three parcels under consideration as possible sites for the new Pahoa Elementary School. All three parcels (TMK: 1-5-10:Por.3; 1-5-09:Por.9; 1-5-08:Por.1,6) are located in the District of Puna, Island of Hawaii. The primary objective of the reconnaissance survey was to make a general assessment, in conjunction with the preparation of an Environmental Impact Statement (EIS), concerning the presence or absence of, and potential impacts of the project on, any sites of possible archaeological significance within the immediate project areas.

Approximately 24 man-hours of labor were expended in conducting the field work. Upon completion of field work, findings and preliminary conclusions—including tentative evaluations and recommendations—were discussed with Dr. Ross Cordy, chief archaeologist in the Department of Land and Natural Resources-Historic Sites Section (DLNR-HSS) (February 9, 1988), and with Ms. Connie Kiriu, staff planner in the Hawaii County Planning Department (HCPD). Dr. Cordy and Ms. Kiriu will formally review project findings upon submission of this final report.

SCOPE OF WORK

The basic objective of the reconnaissance survey was to identify—to discover and to locate on available maps—sites and features of potential archaeological significance. A reconnaissance survey comprises the initial level of archaeological investigation. It is extensive rather than intensive in scope, and is conducted basically to determine the presence or absence of archaeological resources within a specified project area. A reconnaissance survey indicates the general nature of and variety of archaeological remains present, and the general distribution of such remains; it permits a general significance assessment of the archaeological resources, and facilitates formulation of realistic recommendations and estimates for such further work that might be necessary or appropriate. Such further work could include intensive survey—data collection involving detailed recording of sites and features—and selected test excavations; and possibly mitigation—data recovery research excavations, construction monitoring, interpretive planning and development, and/or preservation of sites and features with significant scientific research, interpretive, and/or cultural values.
The specific objectives of the Pahoa Elementary School project were (a) to review and evaluate available archaeological and historical literature relevant to the project area, (b) to conduct a surface reconnaissance survey to determine the presence/absence of significant archaeological sites within the immediate project area, and (c) to assess what effect, in any, the elementary school construction project might have on existing archaeological sites.

The reconnaissance survey was conducted in accordance with the minimum requirements for reconnaissance-level survey as recommended by the Society for Hawaiian Archaeology (SHA). These standards are currently used by the DLNR-HSS and HCPOD as guidelines for the review and evaluation of archaeological reconnaissance survey reports submitted in conjunction with various development permit applications.

PROJECT AREA DESCRIPTION

The Pahoa Elementary School project area is comprised of three parcels (Sites 1, 2, and 3) situated in the town of Pahoa, District of Puna, Island of Hawaii (Figure 1). Each parcel consists of c. 80 contiguous acres. Site 1 (TMK:1–5–10; Por. 3, Figure 2) is situated in the shupua'a of Keonepoko Nui, at about 580 ft AMSL (above mean sea level). The parcel is located adjacent to the northwest side of the abandoned Pahoa Air Strip, and c. 500 ft southeast of Keau-Pahoa Highway. Site 1 is rectangular and measures c. 420 ft (128 m) (NW-SE) by 840 ft (256 m) (NE-SW). Vegetation within Site 1 consists of scattered chi'a-lehua (Metrosideros collina (Forst.) Gray subsp. polymorpha (Gaud.) Rock) and a dense understory of uluho (false staghorn fern, Discranopteris linearis (Burn.) Underw.) and melastoma (Melastoma malabathricum L.). The terrain of Site 1 is comprised of undulating pahoehoe. Average annual rainfall within the vicinity of Site 1, as well as within the vicinity of Sites 2 and 3, is 150–200 inches (Armswood 1983:63).

Site 2 (TMK:1-5-09; Por. 9) is within the shupua'a of Keonepoko Iki, at an elevation of c. 350 ft AMSL. It is situated immediately north of Kahakai Boulevard, adjacent to the entrance to Hawaiian Beaches Subdivision (Figure 3). Site 2 is bounded to the east by the Hawaiian Beaches Subdivision and to the north and west by residences and undeveloped land. The site is rectangular and measures c. 420 ft (128 m) (E-W) by 840 ft (256 m) (N-S). Several years ago a fire swept through the site, as a result, the level terrain of the site is very open, with only a low grass cover.

Site 3 (TMK:1-5-08; Por. 1, 6) is situated in the shupua'a of Keonepoko Iki, c. 2,200 ft inland of Keau-Pahoa Road and c. 500 ft north of a Hawaii County Solid Waste Transfer Station (Figure 4). The site borders Pahoa By-Pass Road and extends to the northwest. Site 3 is rectangular and measures c. 420 ft (128 m) (NW-SE) by 840 ft (256 m) (NE-SW). The terrain of the site consists of undulating pahoehoe, while the vegetation consists of scattered chi'a-lehua and a dense understory of uluho and melastoma.
Figure 1. PROJECT LOCATION MAP

Archaeological Reconnaissance Survey
Pahoa Elementary School Sites
Puna, Island of Hawaii
(TM:1-5-10:Por.3; 1-5-09:Por.9; 1-5-08:Por.1.6)

FHRI Project 87-382    February 1988

(Map taken from Macdonald and Abbott 1970:288.)
REFERENCES

City and County of Honolulu, Department of Public Works, Design Standards of the Division of Wastewater Management, Volume 1, February, 1984.

County of Hawaii, Planning Department, Draft Hawaii County General Plan, April 1987.


United States Department of Transportation, Federal Highway Administration and State of Hawaii, Department of Transportation, Land Transportation Facilities Division, Final Environmental Impact Statement, Keaau-Pahoa Road, Pahoa By-Pass, Project No. RS-130 (17), February, 1979.

PREVIOUS ARCHAEOLOGICAL WORK

Archaeological records available at HCFD and DLNR-HSS indicate that there are a number of caves present in ahupua'a adjacent to Keonepoko Nui and Keonepoko Iki (in which Sites 1, 2, and 3 are situated). The records also indicate that no archaeological work has been conducted within Sites 1 and 2, and that only one investigation has been conducted within Site 3. The investigation within Site 3 was a 1979 study (Pahoa By-Pass Road Survey) conducted for the U.S. Dept. of Transportation and State of Hawaii Dept. of Transportation (1979). The 1979 investigation did not identify any sites within Site 3.

Based on a review of available maps, Site 3 is near an unlisted HRHP site—Site 7388a (Pahoa Historic and Commercial District), a site comprised of residential and business buildings lining both sides of Keau-Pahoa Road. According to Dr. Don Hibbard, director at DLNR-HSS, an HRHP site form was completed for Site 7388, but the site was never formally reviewed. Because the limits of Site 7388 were never clearly defined, it cannot be determined exactly where the site stands in relation to the present Site 3. However, Site 3 is comprised of unmodified forested land—land which is definitely peripheral to the Pahoa commercial area; it certainly cannot be considered part of Site 7388.

FIELD METHODS

Field work was conducted on February 3, 1988 by FHRI Supervisory Archaeologist Margaret L.K. Rosendahl and FHRI Field Archaeologists Lawrence Tales and Steven Tachera. Sites 1, 2, and 3 were inspected (100% coverage ground reconnaissance) by means of pedestrian sweeps. Sweeping crew members were spaced at intervals of five to 15 m, depending on terrain and vegetation encountered. To facilitate the survey, crew members used copies of tax maps (scale 1"=2,000') showing parcels, streets, and project area boundaries, and USGS Orthophotoquads (7.5 minute series, scale 1":24,000').

FINDINGS

No archaeological sites of any kind were identified during the surface reconnaissance survey of Pahoa Elementary School Sites (Sites 1, 2, and 3) project area. Sites 1 and 3 are extremely overgrown and appear to be pristine, unmodified areas; Site 2, very open because of a recent forest fire, did not evidence any cultural modifications.

*Hawaii Register of Historic Places (HRHP) site designation system; all four-digit site numbers prefixed by 50-10-55- (50=State of Hawaii, 10=Island of Hawaii, 55=USGS 7.5' series quad map ['Pahoa South, Hawaii']).
CONCLUSION

Based on the negative results of the surface archaeological reconnaissance survey, it is concluded that no further archaeological work of any kind is necessary within Pahoa Elementary School Sites (Sites 1, 2, and 3) project area; and it is recommended that the sites be granted full archaeological clearance. It should be noted that the evaluations and recommendation given here have been made on the basis of a surface reconnaissance survey. There is always the possibility, however remote, that previously unidentified subsurface cultural features or deposits of significance might be encountered in the course of subsequent land modification activities. In such a situation, archaeological consultation should be sought immediately.

REFERENCES CITED

Armstrong, R.W. (ed.)

Macdonald, C.A., and A.T. Abbott


U.S. Department of Transportation-Federal Highway Administration and State of Hawaii Department of Transportation-Land Transportation Facilities Division
1979 Final Environmental Impact Statement, Keaau-Pahoa Road, Pahoa By-Pass Project No. RS-130(17).