November 8, 1978

MEMORANDUM

TO: Honorable Ryokichi Higashionna, Director
    Department of Transportation

SUBJECT: Environmental Impact Statement for Proposed Farrington Highway Widening

Based upon the recommendation of the Office of Environmental Quality Control, I am pleased to accept the subject document as satisfactory fulfillment of the requirements of Chapter 343, Hawaii Revised Statutes, and the Executive Order of August 23, 1971. This environmental impact statement will be a useful tool in the process of deciding whether or not the action described therein should or should not be allowed to proceed. My acceptance of the statement is an affirmation of the adequacy of that statement under the applicable laws, and does not constitute an endorsement of the proposed action.

When you make your decision regarding the proposed action itself, I hope you will 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, will provide you with a useful analysis of alternatives to the proposed action.

[Signature]

George R. Ariyoshi

bcc: Mr. Richard L. O'Connell
     Mr. Donald A. Bremner, EQC
REVISED ENVIRONMENTAL IMPACT STATEMENT
FOR THE PROPOSED
FARRINGTON HIGHWAY WIDENING
Lualualei Homestead Road to Jade Street
Project No. 93B-01-75

Waianae District, Island of Oahu
State of Hawaii

September, 1978

Land Transportation Facilities Division
Department of Transportation
State of Hawaii

September 28, 1978

Director
Department of Transportation
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I. SUMMARY

A. Proposed Action

The proposed action involves the widening of a 2.4 mile section of Farrington Highway from Lualualei Homestead Road to the vicinity of Jade Street. The present two-lane, undivided highway will be widened to a four-lane, undivided highway. The highway will be widened within the existing 60 or 80 foot right-of-way. Additional lands will be required to increase some portions of the 60 foot right-of-way to an 80 foot right-of-way. The lands to be acquired for this purpose are owned either by the State or Federal government, and are vacant.

Other improvements include reconstruction of the drainage system, installation of highway lights and traffic signals, utility and driveway adjustments, widening of one bridge, replacement of one bridge, and all roadside improvements. A bike route is also planned.

B. Need for the Proposed Action

In 1969, the average daily traffic (ADT) between Kaupuni Bridge and Waianae Valley Road was 11,131; in 1973, the ADT increased by 52 percent to 16,932. It is estimated that the present ADT at Lualualei Homestead Road to Waianae Valley Road is 20,900. The Department of Transportation's traffic projections indicate that by 1980 and 1998, the ADT will be 21,800 and 36,800, respectively, at this location.

The widening project is being proposed because the present two-lane capacity of Farrington Highway is becoming severely congested during peak hours. Urban growth, (i.e. residential and commercial development, resort development) along with the expansion and improvement of beach parks in the area, has resulted in significantly increasing the number of vehicles traveling along this section of Farrington Highway.

C. Summary of Impacts

1. Construction activities will result in the following adverse environmental impacts: creation of fugitive dust during grading activities; potential erosion if heavy rainfall occurs during construction; noise from construction activities; traffic detours and congestion due to construction and related activities. These impacts are temporary and localized, and will constitute a nuisance to adjacent activities and residences, but should not result in any long-term significant adverse impacts.

2. Infiltration of rainfall will be reduced over the
highway due to additional paving. Some pollutants caused by cars (e.g. litter, rubber from tires) will be left on or alongside the road, these pollutants will likely enter the drainage system when there is heavy rainfall. The amount of increased water runoff will be negligible (due to the low rainfall) and the quality of the runoff is expected to be similar to other urban runoff presently being drained from the area served. Additionally, it is noted that the quantity and quality of the runoff is not only attributable to the highway, but that of other residential and recreational developments in the same area which also affect water quality. The widening will not affect any source of potable water.

3. The proposed project will have an insignificant impact on vegetation and wildlife. For the most part, the right-of-way is devoid of wildlife and vegetation. Other areas contain weed, shrub growth or cultivated plants.

4. Air quality will, in the long-term, be improved over the present condition. At one location, the State's one hour carbon monoxide standard is already being exceeded during peak hour periods. With less congestion envisioned for the four-lane highway, and the stricter automobile emission standards, compliance with the State's standards should be met by 1998 at this location. A no action alternative would result in more significant air emissions.

5. Noise levels, associated with traffic using the proposed four-lane highway, will increase. This increase will affect two portable classrooms at Waianae High School which are now located 83 feet from the highway's present curb. The noise consultant has recommended noise abatement measures to reduce noise levels in these classrooms to an acceptable level (L10 = 50 dBA).

6. No residences and businesses will be displaced. No private lands will be acquired for the additional right-of-way.

7. The widening will provide savings over a no action alternative. The savings will accrue in the area of time savings and savings in operational costs.

8. The monies spent for construction will benefit, to a small degree, Hawaii's economy due to the construction costs and its multiplier effect.

9. The highway is not expected to significantly alter the present or future growth of the community, land use, and land use policies. The widening project is not expected to act as a primary catalyst to population growth or urbanization. It is felt that the urban designations and residential zoning are the primary catalyst to growth.
The project is consistent with the present land use of the roadway and surrounding area. The adjacent area is zoned primarily for residential use and the remaining uses are generally urban (this includes those areas identified for public uses). Unfortunately, although the highway is being widened to improve the existing traffic flow, it also will enhance decisions to urbanize the area it serves.

10. The highway widening will lessen the traffic congestion for both residents of the immediate area and for islandwide users of the Waianae beaches and recreational areas. The widening of the highway will accommodate an increase in traffic volume and may result in voluntary speeding between traffic signals.
II. PROJECT DESCRIPTION

A. Location and Project Background

The proposed action consists of widening approximately 2.4 miles of Farrington Highway (Lualualei Homestead Road to Jade Street) from its present two lanes to four lanes, undivided. The project is located in the Waianae District on the island of Oahu from Waianae Town to Makaha, as shown in Figures 1 and 2.

Farrington Highway serves the Waianae Coast, and is the main vehicular arterial between the Waianae Coast and the rest of Oahu. The highway runs in a north-south direction from the terminus of H-1 (west end) to Makua where it ends. Farrington Highway consists of a four-lane highway from the terminus of H-1 to the intersection of Lualualei Homestead Road; from that point it narrows to two lanes.

Presently, the proposed portion to be widened consists primarily of an 80-foot right-of-way (a portion of the highway from Lualualei Homestead Road to beyond Kaupuni Bridge consists of a 60-foot right-of-way). From Lualualei Homestead Road to Kaupuni Bridge, the highway consists of a pavement of 35 to 40 feet with two lanes of travel; the remaining pavement is used for on-street parking. The highway from Kaupuni Bridge to Jade Street has a pavement width of 20 to 21 feet with 6 to 8 feet of unpaved shoulders on both sides.

The existing highway within the project bounds passes primarily through residential areas with numerous driveways and roads connecting onto the existing highway. It was observed that much of the weekday traffic is generated from residential areas located in the Waianae and Makaha valleys. During the weekends and holidays, much of the traffic generated is by beach park users.

B. Description of the Proposed Action

The proposed action will be State funded. The proposed project includes installation of highway lights and traffic signals, overhead utilities (i.e. telephone, electricity) will be relocated with easements for their guys and anchors (no monies from project funds are available for the undergrounding of utilities), driveway adjustments, widening of Kaupuni Bridge, replacement of East Makaha Stream Bridge, and all roadside improvements. Signalized intersections will include: Lualualei Homestead Road, Old Government Road, Waianae High School, Waianae Intermediate School, and Makaha Valley Road. A bike route along the highway is also planned. (There will be no physical separation between the widened highway and bikeway.) Refer to page 6, Figure 2 (Vicinity Map) for bike route.

During the review period for the Draft EIS several comments were made relating to the improvement of the drainage system. The project will include minor adjustments to the drainage system but will not alter the current drainage conditions and problems.
Figure 1

Location of Project, Island of Oahu
Figure 1: Vicinity Map, Farrington Highway Widening. Lualualei, Homestead Road to Jade Street

- Arrows represent bike route (shared roadway between Waianae Valley Road and Koapuni Channel, one way bicycle lane on paved shoulders with no parking permitted between Koapuni Channel and Jade Street).

- Circles represent proposed traffic signals.

- Lines represent existing and proposed crosswalks.
The Design Classifications are as follows:

- Design speed 40 mph
- Posted speed:
  - Through town, school areas 25 mph
  - Elsewhere 35 mph
- Maximum superelevation 6%
- Minimum superelevation 2%
- Maximum profile grade 1.5%
- Minimum profile grade 0.4%
- 4-11 foot lanes 44 feet
- Shoulder width 6 feet*
- Concrete gutters 2 feet
- Sidewalks 10 feet
- 6 feet (for 60' right-of-way)

*Planned for areas with 80' right-of-way

C. Statement of Objectives and Traffic Assignments

The widening project is proposed because this portion of Farrington Highway is becoming severely congested during peak hours due to the increased traffic volume generated by urban growth and recreational use. (See Figure 4, Traffic Summary).

The basis for the project limit is when the project was initiated, (middle 1960's) the information available indicated that the widening between Lualualei Homestead Road and the vicinity of Jade Street would accommodate the residential trips generated in this area. At that time there were few residential destination points beyond Jade Street. Although there may be need to extend the project limits this is not being proposed.

To provide an indication of such growth, the recent Department of Planning and Economic Development's report, "Population and Housing Unit Estimates for Oahu Census Tracts, 1970-1975", Report CTC-36 September 27, 1977, provides the following information relating to housing and population for Census Tracts 97 and 98 in which the project is located.

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**Figure 4**

Traffic Summary
Island of Oahu
1973
Makaha Section

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<tr>
<td>8,325</td>
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<tr>
<td>6,688</td>
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<td>0.7</td>
<td>6,688</td>
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<tr>
<td>4,957</td>
<td>9.7</td>
<td>5.8</td>
<td>0.7</td>
<td>4,957</td>
</tr>
<tr>
<td>4,390</td>
<td>9.7</td>
<td>5.8</td>
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</tr>
<tr>
<td>0.46</td>
<td>9.7</td>
<td>5.8</td>
<td>0.7</td>
<td>0.46</td>
</tr>
</tbody>
</table>

Furthermore, Figure 5, Projects in the Waianae-Makaha Area, shows the major projects recently completed and/or planned for the lands which the highway serves. These major projects are also briefly described below:

1. Hawaii Housing Authority, Waianae Community Development, (Ulu Wehi) residential dwellings located adjacent to Waianae Intermediate School (identified by "A"). This residential subdivision consists of 382 units in a two and three story building.

2. The Waianae Small Boat Harbor is planned to be located within the Waianae Regional Park. It will replace the mooring facilities at Pokai Bay. The ultimate plans for the Waianae Small Boat Harbor call for 300 berths, 7 boat launching lanes and 200-300 car/trailers.

The Waianae Small Boat Harbor and the Waianae Regional Park (discussed below) will create vehicular traffic in form of beachgoers and boaters. The launching ramps will also attract many boating enthusiasts who will transport their boats via trailer to the Harbor. Although this increase will occur (this increase has been accounted for in the traffic projections), it should be noted that a significant proportion of the boaters will travel on the roads during off peak hours, subsequently, they are not expected to create severe or significant problems relating to traffic movement.

3. The Waianae Regional Park (identified by "C" on Figure 5.) Aside from the proposed small boat harbor, the Waianae Regional Park is also planned to be improved as follows:

1st increment: Construction in fiscal year 1977 of a Recreational Center Complex with shower-locker building to serve both gymnasium, boxing room, weight-lifting room, physical fitness room, game room, arts and crafts room, community meeting room with kitchen facilities and restrooms.

2nd increment: Four tennis courts and tennis court lighting (8 courts).

3rd increment: Swimming pool, diving tank, wading pool, filter room and bleachers for approximately 250 spectators.

4th increment: Additional playcourts, ballfields, and open field.

5th increment: Camp sites, trailer parking and picnic sites.

4. Makaha Valley condominiums and hotel (identified as "D" in Figure 5). This area is presently designated Urban by the State. It is anticipated that further condominium and possibly hotel expansions can occur in the near future. Presently, these condominium units are being completed and are now being sold.
Figure 5
Projects in the Waianae-Makaha Area

Legend

A: Hawaii Housing Authority Waianae Community Development (Ulu Wehi) residential dwellings located adjacent to Waianae Intermediate School.

B: Waianae Small Boat Harbor

C: Waianae Regional Park

D: Makaha Valley condominiums and hotel

E: Makaha Beach Park   F: Makaha Meadows Subdivision
5. Makaha Beach Park (identified as "E" in Figure 5). In the past, there have been several proposals to improve and expand the beach park facilities. Congestion of the beach park is especially noticeable during its world-famous surfing championship competition. Improvements being considered include acquiring additional land area, increasing park facilities, and improving the recreational facilities.

6. Makaha Meadows Subdivision (identified as "F" in Figure 5). Although an improved subdivision has been created, the dwelling units have not been constructed. At this time, it is felt that approximately 320 units can be built within the project site. The subdivision is being developed in conjunction with the Hawaii Housing Authority.

In addition to these six major projects which have recently been completed, or under construction, it is noted that other projects in the area include: an elementary school site, drainage improvements, commercial buildings, public and community buildings, sewers and water projects. Cumulatively, these projects are felt to characterize the development of the area.

The growth of average daily trips is shown on Figure 4. In 1969, the average daily traffic (ADT) between Kaupuni Bridge and Waianae Valley Road was 11,131; in 1973, the ADT increased by 52% to 16,932. It is estimated that in 1978, the ADT at Lualualei Homestead Road to Waianae Valley Road will be 20,900 (see Table 1 for traffic projections.)

In addition to the current established need for the proposed project, the Land Transportation Facilities Division (formerly the Highways Division), State Department of Transportation, has projected that in 1998, the ADT for the portion of the roadway from Waianae Valley Road to Lualualei Homestead Road will be 36,800. Table 1 shows the current estimated ADT and the projected ADT.

D. Public Funds and Phasing of the Proposed Project

The project is expected to be completed in two phases. The first phase will be the widening of the highway from Lualualei Homestead Road to Ala Waiua Street. The second phase will continue from that point to Jade Street.

The total construction time for the proposed widening will be about two years. The construction schedule has been tentatively set so that the first phase will be initiated in early 1979. The second phase for construction will depend on the availability of funds.

The cost of the total project is estimated to be approximately $9,000,000. The State will fund the proposed widening project. At this time, no Federal or County funds are expected to be utilized.
The widening of the highway will take place within the present right-of-way (generally 80-feet). A portion of the highway (from the Makaha side of Kaupuni Bridge to approximately Ala Akau Street) consists of a 60 foot right-of-way. Plans call for the acquisition of lands in this 2,500 feet portion so that there will be an 80-foot right-of-way. These additional lands are owned by either the State or Federal government and are vacant; they are a portion of the following Tax Map Keys (TMK): 8-5-28:40, 8-5-28:41, 8-5-28:42, 8-5-02:11, 8-5-02:12, 8-5-02:42, 8-5-02:44, and 8-5-02:48.
Table 1
Traffic Projections

<table>
<thead>
<tr>
<th>Location</th>
<th>Year</th>
<th>Average Daily Traffic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Makaha Valley Road at intersection with</td>
<td>1978</td>
<td>5,600</td>
</tr>
<tr>
<td>Farrington Highway</td>
<td>1980</td>
<td>6,000</td>
</tr>
<tr>
<td>*Kam=6.0 Kpm=8.0</td>
<td>1998</td>
<td>10,000</td>
</tr>
<tr>
<td>**Dam=55/45 Dpm=55/45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Farrington Highway, south of intersection with</td>
<td>1978</td>
<td>11,200</td>
</tr>
<tr>
<td>Jade Street</td>
<td>1980</td>
<td>12,000</td>
</tr>
<tr>
<td>with Km=7.0 Kpm=7.5</td>
<td>1998</td>
<td>20,200</td>
</tr>
<tr>
<td>**Dam=55/45 Dpm=55/45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Farrington Highway, south of intersection with</td>
<td>1978</td>
<td>16,000</td>
</tr>
<tr>
<td>Makaha Valley Road</td>
<td>1980</td>
<td>17,400</td>
</tr>
<tr>
<td>with Kam=7.0 Kpm=7.5</td>
<td>1998</td>
<td>29,200</td>
</tr>
<tr>
<td>**Dam=55/45 Dpm=50/50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Farrington Highway, south of intersection with</td>
<td>1978</td>
<td>20,200</td>
</tr>
<tr>
<td>Waianae Valley Road</td>
<td>1980</td>
<td>21,800</td>
</tr>
<tr>
<td>with Km=8.0 Kpm=7.5</td>
<td>1998</td>
<td>36,800</td>
</tr>
<tr>
<td>**Dam=55/45 Dpm=55/45</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Kam and Kpm refer to the percent of daily traffic in the peak during am and pm hours, respectively.

**Dam and Dpm refer to the directional proportion of flow during am and pm peak hours, respectively.

III. DESCRIPTION OF THE ENVIRONMENTAL SETTING

A. General Site Conditions

Photographs 1 through 5 show the present conditions of the project area.

B. Physical Features

1. Geography

The portion of Farrington Highway proposed to be widened is located within the coastal portion of Waianae Valley and Makaha Valley. This level coastal area was generally established by either coral outcrops (created at a time when the sea level was much higher than present), alluvial deposits formed by silt deposited by the streams, and rock slides occurring during the erosional processes. The coastal area is level due to the grading and clearing for urbanization.

2. Soils

The soils of the project area have been identified and are described in Table 2.

3. Climate

The project area is, climatically, subject to land-and-sea air circulation patterns. The characteristics of land-and-sea air circulations have been described by Blumenstock and Price as:

"...These circulations have a well-marked diurnal rhythm, in response to the day-to-night reversal in the temperature contrast between land and sea. Between forenoon and early evening, air moves inland on a sea breeze. Sometimes these sea breezes are fairly brisk. During night and until shortly after sunrise the air drifts back from land to sea. The return drift is usually very gentle, so gentle that it can barely be felt."

The area receives a relatively small amount of rainfall,

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Photo 1: Kaupuni Stream bridge. Looking toward the Nanakuli direction (southward).
Photo 2: East Makaha Stream bridge before coming into the Makaha Valley Road entrance from Farrington Highway. Looking toward the Nanakuli direction (southward).
Photo 3: Taken from the access of Makaha Valley Road onto Farrington Highway. Looking toward the Kaena Point direction (northward).
Photo 4: Taken from the access of Orange Street onto Farrington Highway. Looking toward the Makaha direction (northward).
Photo 5: Taken from the entrance of Jade Street onto Farrington Highway. Looking toward the Nanakuli direction (southward).
Table 2
LIST OF SOIL TYPES WITHIN THE PROPOSED
FARRINGTON HIGHWAY WIDENING AREA

1. Waialua silty clay, 0 to 3 percent slopes (WkA)
2. Mamala stony silty clay loam, 0 to 12 percent slopes (MnC)
3. Hanalei silty clay, 0 to 2 percent slopes (HnA)
4. Mokuleia clay (Mtb)
5. Coral outcrop (CR)
6. Pulehu clay loam, 0 to 3 percent slopes (PSA)

SOIL ASSOCIATION

Lualualei-Fill land-Ewa association: Deep, nearly level to
moderately sloping, well-drained soils that have a fine textured
or moderately fine textured subsoil or underlying material, and
areas of fill land; on coastal plains.

(For more information on soils and their location within the affected
area, see Exhibit V., Information on Soils Type in the Highway

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1 U. S. Department of Agriculture, Soil Conservation Service in
cooperation with the University of Hawaii Agricultural Experiment
Station. Issued August, 1972. Soil Survey of the Islands of
Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii.
averaging 20 inches annually.\textsuperscript{1} There are distinct dry and wet seasons, May through September, and December to February, respectively. The mean annual temperature is 75.4\degree F, with the mean maximum temperature of 85.2\degree F and the mean minimum temperature of 66.8\degree F.\textsuperscript{2}

4. Flora and Fauna

Flora and fauna in the affected area is sparse because of the previous disturbance (e.g. clearing, grading) to the highway's right-of-way and the present condition of the area (primarily the area of the widening is found in the existing paved and unpaved shoulders). Because of the recent disturbance of the shoulders (due to a utility project), the flora in the affected area consists predominantly of weed-type growths such as pitted beardless, sandbur, star grass, Bermuda grass, crabgrass, hakonokono grass, and pakai kuku. Additionally some cultivated plants within the highway's right-of-way will be cleared. These include ornamental plants (hibiscus), lawn grasses, and other cultivated plants adjacent to the store fronts and residences which infringe on the highway's right-of-way. Several trees within the right-of-way are located along Mauna Lalahahi Park; these trees include, coconut trees, a kiawe tree, and hau trees. At this time it is felt that the coconut trees can be relocated to another location rather than being cleared.

Fauna in the affected right-of-way would be limited to such commonly observed animals as the house mouse, rat, and possibly mongoose.

5. Tsunami and Flood Hazard Zones

Because of the highway's proximity to the coast and its low elevation (5 to 15 feet above mean sea level), the 2.4 mile section to be widened lies within the designated 100-year tsunami inundation limits. Historically, tsunami runup elevations ran from 8 to 16 foot above mean sea level. It can be anticipated that should there be a major tsunami or flood event, portions of the highway my be flooded as it is presently.

The portion of Farrington Highway proposed for widening is located in the Special Management Area (SMA) as indicated by Ordinance No. 4529, City and County of Honolulu. It is noted that Farrington Highway (at this location) is being used as the physical boundary for delineating the SMA zone on the ordinance map.


\textsuperscript{2} Data obtained from the National Weather Services, U. S. Department of Commerce for the Waianae District.
C. Socioeconomic Background

The Waianae Coast area is primarily rural in character and is represented by a series of small coastal "towns". Beginning from the south (Honolulu end) of the coast there is Nanakuli, then Maili, Waianae, and Makaha. In total, there is estimated (in 1975) to be 27,000 people living along this Coast. This represented approximately 4% of the island's population. Trends indicate that the district will continue to witness moderate growth. The Coast is also very well known for its shore resources, as well as boat harbor (Pokai Bay and presently being constructed the Waianae Small Boat Harbor), sandy beaches, and other water oriented sports (e.g. fishing, swimming, surfing). The area is popular and beach park users go to the Waianae Coast from throughout Oahu.

As stated above, in 1975, there were about 27,000 people residing in 7,100 households in the four Census tracts that compose the Waianae District. The highway section to be widened serves as a main arterial between the rest of Oahu and the portions of Waianae along this section as well as beyond Jade Street. Present highway traffic levels at the Jade Street end of the project constitutes about 40 percent of the use levels, thus a considerable amount of traffic feeds into the project bounds from side streets.

The Waianae households located between Honolulu and the Lualualei Homestead Road end of the project would be less affected by the project. Using the area served by the bounds of the project and the area beyond Jade Street, the households most affected by the project (estimated from 1974 aerial photographs) number slightly over 3,000 households, or about 42 percent of the residents of the Waianae District.

This highway segment is also used by residents elsewhere on the island who travel to various locations beyond the Lualualei Homestead Road intersection for recreation, primarily beach use. Such travel is particularly high on weekends and holidays, but no reliable data have been available to estimate such use levels.

In addition to trip generation for employment, shopping, and recreation, use patterns indicate considerable traffic during midday periods that may reflect other less structured vehicular use of a type that cannot be specified from available data.

1. Population Characteristics

The best available data concerning the impacted population includes the Waianae District as a whole, but since the population of the District is fairly homogeneous, such data are reliable indicators of the Characteristics of the residents of the area most impacted by the proposed project.
As shown in Table 3, the Waianae District was estimated to contain over 7,100 households in 1975. Households in Waianae generally contained more people per household that was true of Oahu as a whole. The age distribution figures shown on Table 3 clearly indicate that this larger household size was due to larger numbers of children per household than was the case for Oahu as a whole.

One reasonable means of forecasting population levels for the area is to accept the "II-F" projections for Oahu as prepared by the Department of Planning and Economic Development and further assume that the Waianae District will expand to 4 percent of Oahu's population by the year 2000. (This is the procedure that was followed by the Hawaii Water Resources Regional Study.) As shown in Table 3, this would mean that the 1970 population of 23,507 would increase to 36,696 in the year 2000. The increase in traffic levels would likely be commensurate with this level of population increase. However, this assumes that the road around Kaena Point is not built. In the event that it is decided to build this road, major changes in traffic flows could be assumed. Since the likelihood, the timing, and the nature of such a major project is not known with any useful degree of certainty, it will be assumed that such a development will not take place within the time period of concern in examining the impact of the proposed highway widening project.

Various other population characteristics are also shown in Table 3. People of Hawaiian ethnic background are shown to be a far greater proportion of the Waianae District population than is true for Oahu as a whole. Conversely, those of Japanese and Caucasian (haole) ethnicity are not as large a percentage of the Waianae population. The differences between the populations in terms of marital status, household size, and household structure can generally be attributed to the larger percentage of children in Waianae's population. The median age of Waianae residents is 20.5 years in comparison with 25.9 for all of Oahu.

A comparatively higher proportion (see Table 3) of Waianae residents: (1) are permanent residents; (2) were born in Hawaii; (3) were lifetime residents of Oahu and the State. The birthrate for the Waianae District averaged 25.9 per 1,000 population during the period 1970 through 1974. This was one-third higher than for Oahu as a whole.

2. Educational and Income Characteristics

As would be expected in any semi-rural environment, the education levels of Waianae residents (see Table 4) tend to be somewhat lower than Oahu's overall population. The type of employment offered in the region generally does not require a college degree, and the professional who works in downtown Honolulu typically can afford to live closer to the downtown work site in equally desirable living conditions.
### Table 3

**Basic Characteristics of Waianae Versus Oahu Residents**

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Waianae</th>
<th>Oahu</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>POPULATION</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1970 Census Count</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Persons</td>
<td>23,507</td>
<td>630,528</td>
</tr>
<tr>
<td>Number of Households</td>
<td>5,633</td>
<td>174,742</td>
</tr>
<tr>
<td>Persons per Household</td>
<td>4.17</td>
<td>3.61</td>
</tr>
<tr>
<td>1975 DPED Estimates</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Persons</td>
<td>26,926</td>
<td>704,455</td>
</tr>
<tr>
<td>Number of Households</td>
<td>7,106</td>
<td>209,676</td>
</tr>
<tr>
<td>Persons per Household</td>
<td>3.79</td>
<td>3.24</td>
</tr>
<tr>
<td>OEO 1975 Census Update Survey</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Households (1974)</td>
<td>7,936</td>
<td>204,718</td>
</tr>
<tr>
<td>Persons per Household</td>
<td>4.29</td>
<td>3.43</td>
</tr>
<tr>
<td>Percent Males</td>
<td>51.4</td>
<td>50.7</td>
</tr>
<tr>
<td>Percent Age 0-4</td>
<td>11.8</td>
<td>9.0</td>
</tr>
<tr>
<td>Percent Age 5-9</td>
<td>12.6</td>
<td>9.0</td>
</tr>
<tr>
<td>Percent Age 10-14</td>
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<td>9.9</td>
</tr>
<tr>
<td>Percent Age 15-19</td>
<td>10.7</td>
<td>9.7</td>
</tr>
<tr>
<td>Percent Age 20-24</td>
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<td>10.6</td>
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<tr>
<td>Percent Age 25-29</td>
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</tr>
<tr>
<td>Percent Age 30-34</td>
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<td>7.4</td>
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<tr>
<td>Percent Age 35-39</td>
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<td>5.7</td>
</tr>
<tr>
<td>Percent Age 40-44</td>
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<td>Percent Age 45-49</td>
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<td>Percent Age 50-54</td>
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<td>Percent Age 55-59</td>
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<td>Percent Age 60-64</td>
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<tr>
<td>Percent Age 65-59</td>
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<td>2.1</td>
</tr>
<tr>
<td>Percent Age 70 and over</td>
<td>2.1</td>
<td>3.4</td>
</tr>
<tr>
<td><strong>POPULATION PROJECTIONS (HWRRS)</strong></td>
<td></td>
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</tr>
<tr>
<td>4 Percent of DPED's &quot;II-F&quot; Series for 2000 A.D.</td>
<td>36,696</td>
<td>917,400</td>
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</table>

**ETHNICITY (percent)**

<table>
<thead>
<tr>
<th>Ethicity</th>
<th>Waianae</th>
<th>Oahu</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part-Hawaiian</td>
<td>43.4</td>
<td>14.4</td>
</tr>
<tr>
<td>Hawaiian</td>
<td>4.1</td>
<td>0.9</td>
</tr>
<tr>
<td>Filipino</td>
<td>11.8</td>
<td>10.2</td>
</tr>
<tr>
<td>Caucasian</td>
<td>11.4</td>
<td>27.9</td>
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<tr>
<td>Japanese</td>
<td>7.5</td>
<td>24.6</td>
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<td>Portuguese</td>
<td>4.9</td>
<td>2.6</td>
</tr>
<tr>
<td>Samoan</td>
<td>2.1</td>
<td>1.0</td>
</tr>
<tr>
<td>Puerto Rican</td>
<td>0.9</td>
<td>0.6</td>
</tr>
<tr>
<td>Chinese</td>
<td>0.5</td>
<td>5.6</td>
</tr>
<tr>
<td>Korean</td>
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<td>1.5</td>
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<tr>
<td>Black</td>
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<td>1.4</td>
</tr>
<tr>
<td>Mixed (Not Part-Hawaiian)</td>
<td>12.1</td>
<td>8.2</td>
</tr>
<tr>
<td>Characteristics</td>
<td>Waianae</td>
<td>Oahu</td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>---------</td>
<td>-------</td>
</tr>
<tr>
<td><strong>MARITAL STATUS (Age 14 and Over)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percent Now Married</td>
<td>58.4</td>
<td>62.4</td>
</tr>
<tr>
<td>Percent Widowed</td>
<td>3.4</td>
<td>3.8</td>
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<tr>
<td>Percent Divorced</td>
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<td>3.0</td>
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<tr>
<td>Percent Separated</td>
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<tr>
<td>Percent Never Married</td>
<td>32.2</td>
<td>30.1</td>
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<tr>
<td><strong>HOUSEHOLD SIZE (percent)</strong></td>
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<td></td>
</tr>
<tr>
<td>1 - Person</td>
<td>3.0</td>
<td>9.5</td>
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<tr>
<td>2 - Person</td>
<td>19.1</td>
<td>24.5</td>
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<td>3 - Person</td>
<td>22.1</td>
<td>20.4</td>
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<td>4 - Person</td>
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<td>5 - Person</td>
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<td>6 - Person</td>
<td>10.3</td>
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<tr>
<td>7 - Person</td>
<td>7.7</td>
<td>3.0</td>
</tr>
<tr>
<td>8 - Person</td>
<td>4.5</td>
<td>1.6</td>
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<td>9 - Person</td>
<td>2.3</td>
<td>0.6</td>
</tr>
<tr>
<td>10 or more Persons per Household</td>
<td>2.1</td>
<td>0.8</td>
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<td><strong>RELATIONSHIP TO HEAD OF HOUSEHOLD</strong></td>
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<tr>
<td>Household Head</td>
<td>22.8</td>
<td>28.2</td>
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<tr>
<td>Spouse of Head</td>
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<td>21.6</td>
</tr>
<tr>
<td>Child of Head or Spouse</td>
<td>46.5</td>
<td>40.4</td>
</tr>
<tr>
<td>Grandchild of Head or Spouse</td>
<td>3.3</td>
<td>1.7</td>
</tr>
<tr>
<td>Parent of Head or Spouse</td>
<td>1.3</td>
<td>1.5</td>
</tr>
<tr>
<td>Other Relative of Head or Spouse</td>
<td>4.6</td>
<td>2.3</td>
</tr>
<tr>
<td>Unrelated Individuals</td>
<td>3.9</td>
<td>3.6</td>
</tr>
<tr>
<td><strong>SEX OF HEAD OF HOUSEHOLDS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males (percent)</td>
<td>84.3</td>
<td>86.6</td>
</tr>
<tr>
<td>Females (percent)</td>
<td>15.7</td>
<td>13.4</td>
</tr>
<tr>
<td><strong>DEPENDENTS PER HOUSEHOLD (percent)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
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<tr>
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<td>23.0</td>
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<tr>
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<td>18.9</td>
</tr>
<tr>
<td>Three</td>
<td>16.6</td>
<td>17.5</td>
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<td>7.2</td>
<td>10.1</td>
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<td>Five</td>
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<td>5.1</td>
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<td>2.0</td>
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<td>Seven</td>
<td>3.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Eight</td>
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<td>0.2</td>
</tr>
<tr>
<td>Nine or More</td>
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</tr>
<tr>
<td><strong>RESIDENCY (percent)</strong></td>
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<td></td>
</tr>
<tr>
<td>Permanent Resident of Hawaii</td>
<td>95.0</td>
<td>85.2</td>
</tr>
<tr>
<td>Born on Oahu</td>
<td>66.0</td>
<td>48.9</td>
</tr>
<tr>
<td>Born Elsewhere in Hawaii</td>
<td>9.4</td>
<td>9.7</td>
</tr>
<tr>
<td>Born Elsewhere in U.S.</td>
<td>17.7</td>
<td>28.4</td>
</tr>
<tr>
<td>Born in Foreign Country</td>
<td>6.8</td>
<td>13.1</td>
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</table>
Table 3
(continued)

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Waianae</th>
<th>Oahu</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. Citizen</td>
<td>94.4</td>
<td>92.8</td>
</tr>
<tr>
<td>U.S. National</td>
<td>3.1</td>
<td>1.0</td>
</tr>
<tr>
<td>Foreign Citizen</td>
<td>2.5</td>
<td>6.1</td>
</tr>
<tr>
<td>Lifetime Oahu Resident</td>
<td>61.0</td>
<td>44.7</td>
</tr>
<tr>
<td>RESIDENCE ONE YEAR AGO (percent)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Same House</td>
<td>72.7</td>
<td>75.8</td>
</tr>
<tr>
<td>Elsewhere on Oahu</td>
<td>18.2</td>
<td>11.4</td>
</tr>
<tr>
<td>Elsewhere in Hawaii</td>
<td>0.8</td>
<td>0.5</td>
</tr>
<tr>
<td>RESIDENCE FIVE YEARS AGO</td>
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</tr>
<tr>
<td>Same House</td>
<td>40.4</td>
<td>43.1</td>
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<tr>
<td>Elsewhere on Oahu</td>
<td>32.2</td>
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</tr>
<tr>
<td>Elsewhere in Hawaii</td>
<td>0.7</td>
<td>1.4</td>
</tr>
<tr>
<td>LIVE BIRTHS (per 1000 population)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1970</td>
<td>28.7</td>
<td>21.5</td>
</tr>
<tr>
<td>1971</td>
<td>26.2</td>
<td>20.2</td>
</tr>
<tr>
<td>1972</td>
<td>26.8</td>
<td>18.8</td>
</tr>
<tr>
<td>1973</td>
<td>24.9</td>
<td>18.2</td>
</tr>
<tr>
<td>1974</td>
<td>22.9</td>
<td>18.1</td>
</tr>
<tr>
<td>Five-Year Average</td>
<td>25.9</td>
<td>19.4</td>
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<tr>
<td>ILLEGITIMATE BIRTHS (percent)</td>
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</tr>
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<td>1970</td>
<td>18.4</td>
<td>9.2</td>
</tr>
<tr>
<td>1971</td>
<td>17.3</td>
<td>8.8</td>
</tr>
<tr>
<td>1972</td>
<td>20.3</td>
<td>9.0</td>
</tr>
<tr>
<td>1973</td>
<td>19.7</td>
<td>10.0</td>
</tr>
<tr>
<td>1974</td>
<td>19.3</td>
<td>10.4</td>
</tr>
<tr>
<td>Five-Year Average</td>
<td>19.0</td>
<td>9.5</td>
</tr>
<tr>
<td>DEATHS (per 1000 population)</td>
<td></td>
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<tr>
<td>1970</td>
<td>5.2</td>
<td>4.6</td>
</tr>
<tr>
<td>1971</td>
<td>5.2</td>
<td>4.7</td>
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<tr>
<td>1972</td>
<td>6.0</td>
<td>4.7</td>
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<tr>
<td>1973</td>
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<td>4.6</td>
</tr>
<tr>
<td>1974</td>
<td>5.2</td>
<td>4.6</td>
</tr>
<tr>
<td>Five-Year Average</td>
<td>5.5</td>
<td>4.6</td>
</tr>
<tr>
<td>INFANT DEATHS 9 per 1000 live births)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1970</td>
<td>26.1</td>
<td>18.5</td>
</tr>
<tr>
<td>1971</td>
<td>7.7</td>
<td>15.3</td>
</tr>
<tr>
<td>1972</td>
<td>23.7</td>
<td>16.5</td>
</tr>
<tr>
<td>1973</td>
<td>7.9</td>
<td>12.4</td>
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<tr>
<td>1974</td>
<td>16.9</td>
<td>15.6</td>
</tr>
<tr>
<td>Five-Year Average</td>
<td>16.5</td>
<td>15.7</td>
</tr>
<tr>
<td>Characteristics</td>
<td>Waianae</td>
<td>Oahu</td>
</tr>
<tr>
<td>-----------------</td>
<td>--------</td>
<td>------</td>
</tr>
<tr>
<td>ELECTIVE ABORTIONS (per 1000 live births)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1971</td>
<td>114.0</td>
<td>283.7</td>
</tr>
<tr>
<td>1972</td>
<td>128.9</td>
<td>316.2</td>
</tr>
<tr>
<td>1973</td>
<td>135.9</td>
<td>312.4</td>
</tr>
<tr>
<td>1974</td>
<td>133.4</td>
<td>270.0</td>
</tr>
</tbody>
</table>

School enrollment in the Waianae District for 1976 is shown in Table 5. The projected school enrollment for 1982 is slightly less than 6 percent above the 1976 enrollment level.

As shown in Table 6, median household income of Waianae residents was about 89 percent of that of Oahu residents. The incidence of families below the Federal government's officially defined "poverty line" is shown in Table 7. Except for the largest households, the incidence of poverty among Waianae's households far exceeded that among Oahu's residents.

3. Employment Characteristics

The higher incidence of poverty in the Waianae District does not seem to be adequately explained by high unemployment rates nor by considerable part-time employment (see Table 8). A greater source of the poverty problem seems to be derived from the occupational and industrial structure of employment, as well as from the earlier discussed tendency of Waianae households to have larger numbers of children in residence. As shown in Table 8, relatively few Waianae residents work in high paying professional, technical, managerial, clerical, or sales positions. Relatively large numbers work in structural construction, which has experienced considerable problems of sporadic employment. Also, relatively large numbers work in agriculture which has often not been financially rewarding.

4. Housing

Housing costs in 1975 in the Waianae District were considerably less than for Oahu as a whole. The median monthly cost (excluding maintenance and utilities) for owner-occupied housing in Waianae was $162 per month versus $256 for Oahu. The median utilities costs for owner-occupied housing in Waianae was $49 per month in comparison to $82 for Oahu. The median rental costs were $186 monthly in Waianae versus $197 on Oahu. The ranges in costs for both owners and renters are shown in Table 9. About half the homes in both cases are owner-occupied. Of these, about two-thirds held the land in fee simple, as also shown in Table 9.

Although extensive housing data were not gathered specifically for this report, the limited primary data that were gathered indicate that housing costs in Waianae were about 80 percent of those experienced for equivalent quality in neighborhoods such as Makiki and Moiliili.

Housing in Waianae more commonly consists of one-story single-family detached dwellings than is true for Oahu as a whole. Although data have not been available, it appears that many of the condominiums in the area are used for vacation purposes rather than as primary residences.
### Table 4
Educational Characteristics of Waianae Versus Oahu Residents

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Waianae</th>
<th>Oahu</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EDUCATION, AGE 6 AND OVER (percent)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>2.9</td>
<td>2.0</td>
</tr>
<tr>
<td>First through Seventh Grades</td>
<td>29.7</td>
<td>20.7</td>
</tr>
<tr>
<td>Eighth Grade</td>
<td>7.8</td>
<td>5.2</td>
</tr>
<tr>
<td>Ninth through Eleventh</td>
<td>21.2</td>
<td>13.8</td>
</tr>
<tr>
<td>Twelfth</td>
<td>24.6</td>
<td>28.2</td>
</tr>
<tr>
<td>Some College</td>
<td>7.5</td>
<td>15.0</td>
</tr>
<tr>
<td>Bachelor's Degree</td>
<td>1.7</td>
<td>7.8</td>
</tr>
<tr>
<td>Some Graduate Work</td>
<td>0.7</td>
<td>1.4</td>
</tr>
<tr>
<td>Graduate Degree</td>
<td>0.4</td>
<td>3.2</td>
</tr>
<tr>
<td>Business/Trade School</td>
<td>1.5</td>
<td>2.2</td>
</tr>
<tr>
<td><strong>EDUCATION, AGE 18 AND OVER (percent)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>1.8</td>
<td>1.0</td>
</tr>
<tr>
<td>First through Seventh Grades</td>
<td>10.8</td>
<td>6.8</td>
</tr>
<tr>
<td>Eighth Grade</td>
<td>7.1</td>
<td>4.1</td>
</tr>
<tr>
<td>Ninth through Eleventh</td>
<td>22.1</td>
<td>9.9</td>
</tr>
<tr>
<td>Twelfth</td>
<td>37.8</td>
<td>37.2</td>
</tr>
<tr>
<td>Some College</td>
<td>11.7</td>
<td>20.1</td>
</tr>
<tr>
<td>Bachelor's Degree</td>
<td>2.6</td>
<td>10.4</td>
</tr>
<tr>
<td>Some Graduate Work</td>
<td>1.0</td>
<td>1.9</td>
</tr>
<tr>
<td>Graduate Degree</td>
<td>0.6</td>
<td>4.3</td>
</tr>
<tr>
<td>Business/Trade School</td>
<td>2.3</td>
<td>2.9</td>
</tr>
<tr>
<td>At Least Through High School</td>
<td>57.7</td>
<td>77.9</td>
</tr>
<tr>
<td><strong>EDUCATION, AGE 25 AND OVER (percent)</strong></td>
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<td></td>
</tr>
<tr>
<td>None</td>
<td>2.4</td>
<td>1.3</td>
</tr>
<tr>
<td>First through Seventh Grades</td>
<td>13.0</td>
<td>8.4</td>
</tr>
<tr>
<td>Eighth Grade</td>
<td>9.6</td>
<td>5.1</td>
</tr>
<tr>
<td>Ninth through Eleventh</td>
<td>21.6</td>
<td>9.6</td>
</tr>
<tr>
<td>Twelfth</td>
<td>32.4</td>
<td>36.2</td>
</tr>
<tr>
<td>Some College</td>
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<td>15.5</td>
</tr>
<tr>
<td>Bachelor's Degree</td>
<td>3.5</td>
<td>11.3</td>
</tr>
<tr>
<td>Some Graduate Work</td>
<td>1.2</td>
<td>2.2</td>
</tr>
<tr>
<td>Graduate Degree</td>
<td>0.8</td>
<td>5.4</td>
</tr>
<tr>
<td>Business/Trade School</td>
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<td>3.3</td>
</tr>
<tr>
<td>At Least Through High School</td>
<td>50.6</td>
<td>73.7</td>
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Source: OEO 1975 Census Update Survey-Oahu
Table 5
Waianae School Enrollment

<table>
<thead>
<tr>
<th>School</th>
<th>1976-Actual</th>
<th>1982-Projected</th>
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<tbody>
<tr>
<td>Maili (K-6)</td>
<td>1016</td>
<td>1126</td>
</tr>
<tr>
<td>Makaha (K-6)</td>
<td>870</td>
<td>1035</td>
</tr>
<tr>
<td>Nanaikapono (K-6)</td>
<td>1216</td>
<td>975</td>
</tr>
<tr>
<td>Nanakuli 2nd (K-6)</td>
<td>----</td>
<td>455</td>
</tr>
<tr>
<td>Nanakuli Hi-Inter. (7-12)</td>
<td>1341</td>
<td>1177</td>
</tr>
<tr>
<td>Waianae (K-6)</td>
<td>1400</td>
<td>1510</td>
</tr>
<tr>
<td>Waianae Int. (7-8)</td>
<td>1008</td>
<td>1068</td>
</tr>
<tr>
<td>Waianae High (9-12)</td>
<td>1815</td>
<td>1828</td>
</tr>
</tbody>
</table>

Source: Department of Education
Table 6
Income Characteristics of Waianae Versus Oahu Residents

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Waianae</th>
<th>Oahu</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PERSONAL INCOME, AGE 16 AND OVER (percent)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No Income</td>
<td>28.6</td>
<td>25.7</td>
</tr>
<tr>
<td>Less than $2,000</td>
<td>11.8</td>
<td>9.3</td>
</tr>
<tr>
<td>$ 2,000-2,999</td>
<td>7.1</td>
<td>5.4</td>
</tr>
<tr>
<td>3,000-3,999</td>
<td>3.8</td>
<td>4.7</td>
</tr>
<tr>
<td>4,000-4,999</td>
<td>5.4</td>
<td>4.7</td>
</tr>
<tr>
<td>5,000-5,999</td>
<td>6.1</td>
<td>5.4</td>
</tr>
<tr>
<td>6,000-6,999</td>
<td>6.5</td>
<td>5.3</td>
</tr>
<tr>
<td>7,000-7,999</td>
<td>4.7</td>
<td>4.6</td>
</tr>
<tr>
<td>8,000-8,999</td>
<td>2.5</td>
<td>4.1</td>
</tr>
<tr>
<td>9,000-9,999</td>
<td>3.5</td>
<td>4.0</td>
</tr>
<tr>
<td>10,000-11,999</td>
<td>6.0</td>
<td>7.0</td>
</tr>
<tr>
<td>12,000-14,999</td>
<td>7.6</td>
<td>7.7</td>
</tr>
<tr>
<td>15,000-19,999</td>
<td>4.5</td>
<td>6.1</td>
</tr>
<tr>
<td>20,000-24,999</td>
<td>1.0</td>
<td>2.7</td>
</tr>
<tr>
<td>25,000 and above</td>
<td>0.8</td>
<td>3.1</td>
</tr>
<tr>
<td>Mean</td>
<td>$5,917</td>
<td>$7,470</td>
</tr>
<tr>
<td>Median</td>
<td>3,645</td>
<td>5,019</td>
</tr>
<tr>
<td>Median (&quot;Zero&quot; incomes excluded)</td>
<td>6,223</td>
<td>7,489</td>
</tr>
</tbody>
</table>

**HOUSEHOLD INCOME (percent)**

| Less than $2,000                                        | 2.7     | 2.1  |
| $ 2,000-2,999                                           | 4.3     | 2.7  |
| 3,000-3,999                                             | 3.6     | 2.6  |
| 4,000-4,999                                             | 2.9     | 2.5  |
| 5,000-5,999                                             | 5.1     | 3.5  |
| 6,000-6,999                                             | 5.5     | 4.0  |
| 7,000-7,999                                             | 5.0     | 3.9  |
| 8,000-8,999                                             | 4.1     | 3.6  |
| 9,000-9,999                                             | 3.0     | 3.7  |
| 10,000-11,999                                           | 6.7     | 7.7  |
| 12,000-14,999                                           | 14.3    | 11.5 |
| 15,000-19,999                                           | 15.8    | 13.7 |
| 20,000-24,999                                           | 9.1     | 10.8 |
| 25,000 and above                                        | 9.1     | 16.7 |
| Mean                                                    | $13,664 | $16,273 |
| Median                                                  | 12,566  | 14,139 |
Table 6
(continued)

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Waianae</th>
<th>Oahu</th>
</tr>
</thead>
<tbody>
<tr>
<td>FAMILY INCOME (percent)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than $2,000</td>
<td>2.4</td>
<td>2.1</td>
</tr>
<tr>
<td>$ 2,000-2,999</td>
<td>5.0</td>
<td>2.6</td>
</tr>
<tr>
<td>3,000-3,999</td>
<td>4.6</td>
<td>2.4</td>
</tr>
<tr>
<td>4,000-4,999</td>
<td>4.8</td>
<td>2.7</td>
</tr>
<tr>
<td>5,000-5,999</td>
<td>5.5</td>
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<td>6,000-6,999</td>
<td>6.0</td>
<td>4.5</td>
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<td>5.3</td>
<td>4.3</td>
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<td>4.2</td>
<td>4.0</td>
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<tr>
<td>9,000-9,999</td>
<td>3.4</td>
<td>4.1</td>
</tr>
<tr>
<td>10,000-11,999</td>
<td>7.4</td>
<td>8.6</td>
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<td>12,000-14,999</td>
<td>14.1</td>
<td>13.1</td>
</tr>
<tr>
<td>15,000-19,999</td>
<td>17.0</td>
<td>15.7</td>
</tr>
<tr>
<td>20,000-24,999</td>
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<td>12.6</td>
</tr>
<tr>
<td>25,000 and above</td>
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<td>20.0</td>
</tr>
</tbody>
</table>

Source: OEO 1975 Census Update Survey-Oahu
<table>
<thead>
<tr>
<th>Household Size</th>
<th>Percent of Households in Poverty</th>
<th>Waianae</th>
<th>Oahu</th>
</tr>
</thead>
<tbody>
<tr>
<td>One</td>
<td></td>
<td>22.2</td>
<td>15.0</td>
</tr>
<tr>
<td>Two</td>
<td></td>
<td>21.1</td>
<td>8.8</td>
</tr>
<tr>
<td>Three</td>
<td></td>
<td>19.5</td>
<td>8.8</td>
</tr>
<tr>
<td>Four</td>
<td></td>
<td>15.1</td>
<td>7.9</td>
</tr>
<tr>
<td>Five</td>
<td></td>
<td>11.4</td>
<td>8.5</td>
</tr>
<tr>
<td>Six</td>
<td></td>
<td>24.8</td>
<td>12.5</td>
</tr>
<tr>
<td>Seven</td>
<td></td>
<td>21.2</td>
<td>14.6</td>
</tr>
<tr>
<td>Eight</td>
<td></td>
<td>21.3</td>
<td>21.4</td>
</tr>
<tr>
<td>Nine</td>
<td></td>
<td>29.6</td>
<td>22.9</td>
</tr>
<tr>
<td>Ten</td>
<td></td>
<td>0.0</td>
<td>16.7</td>
</tr>
<tr>
<td>Eleven and above</td>
<td></td>
<td>100.0</td>
<td>34.7</td>
</tr>
<tr>
<td>All Households</td>
<td></td>
<td>19.9</td>
<td>10.0</td>
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</table>

Source: OEO 1975 Census Update Survey-Oahu
Table 8

Employment and Occupational Characteristics of Waianae Versus Oahu Residents, Percent

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Waianae</th>
<th>Oahu</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EMPLOYMENT STATUS, AGE 14 AND OVER</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employed full- or part-time</td>
<td>41.4</td>
<td>49.9</td>
</tr>
<tr>
<td>Employed, but laid off, on strike,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>or on leave</td>
<td>1.5</td>
<td>1.5</td>
</tr>
<tr>
<td>Unemployed, looking for work</td>
<td>6.1</td>
<td>4.4</td>
</tr>
<tr>
<td>Not in the labor force</td>
<td>36.7</td>
<td>27.6</td>
</tr>
<tr>
<td>In the military service</td>
<td>5.6</td>
<td>7.2</td>
</tr>
<tr>
<td>Retired</td>
<td>8.5</td>
<td>9.1</td>
</tr>
<tr>
<td><strong>HOURS WORKED LAST WEEK, EMPLOYED,</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AGE 14 AND OVER</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-14</td>
<td>6.0</td>
<td>5.6</td>
</tr>
<tr>
<td>15-34</td>
<td>11.7</td>
<td>12.1</td>
</tr>
<tr>
<td>35-39</td>
<td>4.4</td>
<td>5.6</td>
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<tr>
<td>40</td>
<td>56.9</td>
<td>59.3</td>
</tr>
<tr>
<td>41 or more</td>
<td>17.7</td>
<td>13.7</td>
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<tr>
<td><strong>WEEKS WORKED LAST YEAR, EMPLOYED,</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AGE 14 AND OVER</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13 or less</td>
<td>11.3</td>
<td>6.3</td>
</tr>
<tr>
<td>14 to 26</td>
<td>7.3</td>
<td>4.7</td>
</tr>
<tr>
<td>27 to 39</td>
<td>6.2</td>
<td>5.4</td>
</tr>
<tr>
<td>40 to 47</td>
<td>6.5</td>
<td>5.9</td>
</tr>
<tr>
<td>48 to 49</td>
<td>10.3</td>
<td>11.2</td>
</tr>
<tr>
<td>50 to 52</td>
<td>55.3</td>
<td>64.3</td>
</tr>
<tr>
<td><strong>OCCUPATION OF EMPLOYED POPULATION,</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AGE 16 AND OVER</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professional, technical, managerial</td>
<td>20.4</td>
<td>30.8</td>
</tr>
<tr>
<td>Clerical, sales</td>
<td>13.4</td>
<td>25.8</td>
</tr>
<tr>
<td>Service</td>
<td>16.0</td>
<td>15.7</td>
</tr>
<tr>
<td>Farming, fishing, forestry</td>
<td>9.7</td>
<td>1.8</td>
</tr>
<tr>
<td>Processing</td>
<td>0.7</td>
<td>1.4</td>
</tr>
<tr>
<td>Machine trade</td>
<td>7.4</td>
<td>3.6</td>
</tr>
<tr>
<td>Bench work</td>
<td>0.3</td>
<td>2.5</td>
</tr>
<tr>
<td>Structural work</td>
<td>21.9</td>
<td>10.2</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>9.2</td>
<td>7.1</td>
</tr>
<tr>
<td><strong>INDUSTRY OF EMPLOYED POPULATION,</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AGE 16 AND OVER</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agriculture</td>
<td>8.8</td>
<td>1.8</td>
</tr>
<tr>
<td>Fishing, hunting</td>
<td>0.0</td>
<td>0.1</td>
</tr>
<tr>
<td>Mining</td>
<td>0.0</td>
<td>0.0</td>
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<tr>
<td>Construction</td>
<td>16.3</td>
<td>9.5</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>3.8</td>
<td>6.9</td>
</tr>
<tr>
<td>Transportation, communication, gas</td>
<td>6.6</td>
<td>8.8</td>
</tr>
<tr>
<td>Wholesale</td>
<td>0.6</td>
<td>1.5</td>
</tr>
<tr>
<td>Retail</td>
<td>14.2</td>
<td>17.8</td>
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### Table 8
(continued)

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Waianae</th>
<th>Oahu</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INDUSTRY OF EMPLOYED POPULATION, AGE 16 AND OVER (Cont'd)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finance, insurance</td>
<td>1.5</td>
<td>6.7</td>
</tr>
<tr>
<td>Service</td>
<td>17.9</td>
<td>20.8</td>
</tr>
<tr>
<td>Government</td>
<td>26.4</td>
<td>22.3</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>2.3</td>
<td>2.3</td>
</tr>
<tr>
<td><strong>WEEKS UNEMPLOYED FOR UNEMPLOYED, AGE 14 AND OVER</strong></td>
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<td></td>
</tr>
<tr>
<td>One day-one week</td>
<td>1.0</td>
<td>0.9</td>
</tr>
<tr>
<td>2-3 weeks</td>
<td>1.1</td>
<td>1.9</td>
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<tr>
<td>4-13 weeks</td>
<td>5.6</td>
<td>4.5</td>
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<tr>
<td>14-26 weeks</td>
<td>2.5</td>
<td>3.9</td>
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<tr>
<td>27-52 weeks</td>
<td>8.1</td>
<td>7.9</td>
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<tr>
<td>53-78 weeks</td>
<td>1.7</td>
<td>1.6</td>
</tr>
<tr>
<td>79-104 weeks</td>
<td>1.1</td>
<td>1.6</td>
</tr>
<tr>
<td>Longer than 2 years</td>
<td>5.5</td>
<td>8.5</td>
</tr>
<tr>
<td>Never employed</td>
<td>72.4</td>
<td>67.9</td>
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<tr>
<td>(Median Weeks of Unemployment, excluding those &quot;never employed&quot;)</td>
<td>(37)</td>
<td>(41)</td>
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<tr>
<td><strong>UNEMPLOYMENT, AGE 16 AND OVER</strong></td>
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</tr>
<tr>
<td>Unemployed and looking for work</td>
<td>11.9</td>
<td>7.5</td>
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<tr>
<td>Employed</td>
<td>88.1</td>
<td>92.5</td>
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<tr>
<td><strong>OCCUPATION OF UNEMPLOYED, AGE 16 AND OVER</strong></td>
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</tr>
<tr>
<td>Professional, technical, managerial</td>
<td>14.0</td>
<td>19.2</td>
</tr>
<tr>
<td>Clerical, sales</td>
<td>23.3</td>
<td>32.1</td>
</tr>
<tr>
<td>Service</td>
<td>19.9</td>
<td>23.4</td>
</tr>
<tr>
<td>Farming, fishing, forestry</td>
<td>7.7</td>
<td>2.1</td>
</tr>
<tr>
<td>Processing</td>
<td>1.1</td>
<td>2.3</td>
</tr>
<tr>
<td>Machine trade</td>
<td>2.3</td>
<td>1.0</td>
</tr>
<tr>
<td>Bench work</td>
<td>0.0</td>
<td>2.8</td>
</tr>
<tr>
<td>Structural work</td>
<td>18.2</td>
<td>6.1</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>8.1</td>
<td>5.7</td>
</tr>
<tr>
<td><strong>INDUSTRY OF UNEMPLOYED, AGE 16 AND OVER</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agriculture</td>
<td>3.3</td>
<td>2.3</td>
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<tr>
<td>Fishing, hunting</td>
<td>0.0</td>
<td>0.1</td>
</tr>
<tr>
<td>Construction</td>
<td>13.8</td>
<td>6.0</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>2.5</td>
<td>6.9</td>
</tr>
<tr>
<td>Transportation, communication, gas</td>
<td>9.6</td>
<td>4.4</td>
</tr>
<tr>
<td>Wholesale</td>
<td>0.0</td>
<td>0.8</td>
</tr>
<tr>
<td>Retail</td>
<td>21.9</td>
<td>26.6</td>
</tr>
<tr>
<td>Finance, insurance</td>
<td>1.1</td>
<td>5.4</td>
</tr>
<tr>
<td>Service</td>
<td>16.7</td>
<td>22.7</td>
</tr>
<tr>
<td>Government</td>
<td>26.0</td>
<td>16.7</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>1.4</td>
<td>1.9</td>
</tr>
</tbody>
</table>

Source: OEO 1975 Census Update Survey-Oahu
The figures at the end of Table 9 indicate that a larger proportion of the housing in Waianae was in need of repair (rated "fair") or was in need of major repair (rated "poor") than was the case for all of Oahu's housing. As a further means of comparison, of the 25 "districts" used in the source cited in the table, only Upper Kalihi has a smaller proportion of houses (54.5 percent) in the "good" category. The Aina Haina-Hawaii Kai "district" had 99.2 percent of its housing in the "good" category. The percentage of housing in the "poor" category was exceeded in five other "districts" Upper Kalihi, Waipahu, Wahiawa, North Shore-Waialua, and Waimanalo.

Publicly subsidized housing is being planned in the area by the Hawaii Housing Authority (HHA) and the Department of Hawaiian Home Lands. The HHA is presently constructing the 320-unit Makaha Meadows project just past the Jade Street end of the proposed highway-widening project. Also, the Department of Hawaiian Home Lands anticipates that as many as 500 single family units may be constructed near Waianae Valley Road. Other possible housing projects exist as previously cited, but their timing is still highly uncertain. Even if these two projects are the only ones constructed in the next 10 years, their impact on traffic will be significant, for they would increase by about one-fourth the present level of households using the highway segment being considered as a means of traveling toward Honolulu.

5. Miscellaneous Social Data

Crime statistics are generally unreliable, but data compiled by the Honolulu Police Department suggest that crimes reported in the Waianae region are about half as frequent per resident as is true for Oahu as a whole. Welfare recipiency data is often also unreliable,¹ but as shown in Table 10, the incidence of recipients in the impacted area of various types of welfare assistance tends to be substantially above that of the island as a whole. This appears to be the case for the two Census Tracts in which the proposed project is located.

6. Public Transportation

City bus service along the proposed project is quite extensive. Service is scheduled 20 hours per day during the week, running half an hour apart during most of the time, but every fifteen minutes during the busiest periods and an hour apart during the late evening hours. Weekend and holiday schedules are considerably less frequent due to lower passenger demands.

¹ Based on the experience of the socioeconomic consultants.
Table 9
Housing Characteristics of Waianae District Compared with Oahu, Percent

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Waianae</th>
<th>Oahu</th>
</tr>
</thead>
<tbody>
<tr>
<td>OCCUPANCY TYPE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Owned or being purchased</td>
<td>49.0</td>
<td>44.3</td>
</tr>
<tr>
<td>Condominium owned or being purchased</td>
<td>0.3</td>
<td>3.5</td>
</tr>
<tr>
<td>Rented for cash rent</td>
<td>48.3</td>
<td>50.0</td>
</tr>
<tr>
<td>Occupied without payment of rent</td>
<td>2.4</td>
<td>1.7</td>
</tr>
<tr>
<td>MORTGAGE AND TAX EXPENSE, OWNER-OCCUPIED</td>
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<td></td>
</tr>
<tr>
<td>Mortgage paid</td>
<td>5.8</td>
<td>1.6</td>
</tr>
<tr>
<td>Under $100 per month</td>
<td>26.3</td>
<td>15.1</td>
</tr>
<tr>
<td>$100-199 per month</td>
<td>23.7</td>
<td>17.3</td>
</tr>
<tr>
<td>$200-299 per month</td>
<td>19.4</td>
<td>17.3</td>
</tr>
<tr>
<td>$300-399 per month</td>
<td>8.7</td>
<td>16.9</td>
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<tr>
<td>$400-499 per month</td>
<td>7.8</td>
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</tr>
<tr>
<td>$500 or more per month</td>
<td>1.4</td>
<td>6.6</td>
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<tr>
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<td>6.9</td>
<td>11.3</td>
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<tr>
<td>MONTHLY RENTAL EXPENSE</td>
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<tr>
<td>Less than $100</td>
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<td>11.8</td>
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<tr>
<td>$100-149</td>
<td>16.8</td>
<td>11.8</td>
</tr>
<tr>
<td>$150-199</td>
<td>22.0</td>
<td>25.8</td>
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<td>$200-249</td>
<td>18.3</td>
<td>16.1</td>
</tr>
<tr>
<td>$250-299</td>
<td>16.0</td>
<td>13.5</td>
</tr>
<tr>
<td>$300-349</td>
<td>7.2</td>
<td>8.7</td>
</tr>
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<td>$350 or more</td>
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<td>No data</td>
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<td>4.2</td>
</tr>
<tr>
<td>LAND TENURE, OWNER-OCCUPIED</td>
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<td></td>
</tr>
<tr>
<td>Leasehold</td>
<td>28.8</td>
<td>31.6</td>
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<tr>
<td>Fee simple</td>
<td>70.6</td>
<td>66.7</td>
</tr>
<tr>
<td>No data</td>
<td>0.6</td>
<td>1.7</td>
</tr>
<tr>
<td>NUMBER OF ROOMS PER UNIT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>One</td>
<td>1.4</td>
<td>3.5</td>
</tr>
<tr>
<td>Two</td>
<td>3.6</td>
<td>5.7</td>
</tr>
<tr>
<td>Three</td>
<td>5.6</td>
<td>9.2</td>
</tr>
<tr>
<td>Four</td>
<td>19.6</td>
<td>20.5</td>
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<td>Five</td>
<td>41.5</td>
<td>27.3</td>
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<td>Six</td>
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<td>18.0</td>
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<td>Seven</td>
<td>7.1</td>
<td>8.8</td>
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<tr>
<td>Eight</td>
<td>3.2</td>
<td>4.1</td>
</tr>
<tr>
<td>Nine or more</td>
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<td>2.9</td>
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<tr>
<td>TYPE OF STRUCTURE</td>
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<tr>
<td>Single-Family Detached</td>
<td>63.9</td>
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<tr>
<td>Duplex</td>
<td>0.2</td>
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<tr>
<td>Townhouse</td>
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<td>3.4</td>
</tr>
<tr>
<td>Apartment or Condominium</td>
<td>35.9</td>
<td>32.8</td>
</tr>
</tbody>
</table>

41


Table 9
(continued)

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Waianae</th>
<th>Oahu</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>UNITS BY NUMBER OF STORIES IN STRUCTURE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>One</td>
<td>87.9</td>
<td>57.6</td>
</tr>
<tr>
<td>Two to three</td>
<td>8.3</td>
<td>30.0</td>
</tr>
<tr>
<td>Four or more</td>
<td>3.8</td>
<td>12.4</td>
</tr>
<tr>
<td><strong>UNITS PER NUMBER OF UNITS IN STRUCTURE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>One</td>
<td>85.1</td>
<td>57.1</td>
</tr>
<tr>
<td>Two</td>
<td>8.1</td>
<td>5.9</td>
</tr>
<tr>
<td>Three to ten</td>
<td>2.9</td>
<td>17.9</td>
</tr>
<tr>
<td>Eleven or more</td>
<td>3.9</td>
<td>19.1</td>
</tr>
<tr>
<td><strong>CONDITION OF UNIT</strong></td>
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<td></td>
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<tr>
<td>Good</td>
<td>64.2</td>
<td>85.6</td>
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<tr>
<td>Fair</td>
<td>29.9</td>
<td>11.5</td>
</tr>
<tr>
<td>Poor</td>
<td>5.9</td>
<td>1.9</td>
</tr>
</tbody>
</table>

Source: OEO 1975 Census Update Survey-Oahu
7. Public Recreation Patterns

According to the Statewide Comprehensive Outdoor Recreation Plan (SCORP), the predominant outdoor recreation in the Waianae District is picnicking and swimming/sunbathing. Almost all of the outdoor recreation activities pursued by Waianae District residents take place within the district. Over half of the "activity occasions" within the District are undertaken by non-residents of the District. About 85 percent of the "activity occasions" in the Waianae District take place along the shoreline or offshore areas. Eighty-one percent (81%) of the picnicking and swimming/sunbathing activities are pursued by individuals who reside outside the Waianae District. The major recreational supply deficiencies noted in this region were beach camp sites and boat launching ramps.

Existing recreation sites within the District are shown on Figure 6. The Waianae Regional Park presently has 8 tennis courts, a softball field, and comfort station. A gymnasium, a swimming pool, volleyball and basketball courts, and picnic facilities are either being added or are planned for in the near future. Use of these facilities will be primarily by residents of the area.

D. Historical and Archaeological Sites

The widening will take place within primarily disturbed paved and unpaved shoulders, and vacant lands. No historical or archaeological sites are known to exist within or adjacent to this project area.

During the EIS Review Period, Jane Silverman, the State Historic Preservation Officer stated (letter, May 30, 1978 to the Office of Environmental Quality Control): "The proposed undertaking will have no effect upon any known historic or archaeological site on or likely to be eligible for inclusion on the Hawaii Register and/or National Register of Historic Places. This office has no reservations for the project to proceed." The last paragraph of her letter also states: "In the event that any unanticipated sites or remains are encountered, please inform the applicant to contact this office immediately."
Table 10
Welfare Recipients as Percentages of Oahu's Welfare Assistance

<table>
<thead>
<tr>
<th>Type of Assistance Expenditure</th>
<th>Census Tract 97</th>
<th>Census Tract 98</th>
<th>Waianae District</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Percent of Total Oahu Population)</td>
<td>(1.20)</td>
<td>(0.76)</td>
<td>(3.87)</td>
</tr>
<tr>
<td>General Assistance</td>
<td>3.54</td>
<td>3.85</td>
<td>13.29</td>
</tr>
<tr>
<td>AFDC, ABD1/</td>
<td>3.49</td>
<td>2.74</td>
<td>12.10</td>
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<tr>
<td>Aid to Unemployed Parent</td>
<td>5.30</td>
<td>4.53</td>
<td>18.23</td>
</tr>
<tr>
<td>Medical Assistance</td>
<td>1.74</td>
<td>1.14</td>
<td>9.00</td>
</tr>
<tr>
<td>Food Stamps Only</td>
<td>3.94</td>
<td>0.71</td>
<td>6.82</td>
</tr>
<tr>
<td>Foster Care</td>
<td>2.88</td>
<td>-1.53</td>
<td>20.71</td>
</tr>
</tbody>
</table>

1/ Includes aid to families with dependent children (AFDC), and aid to the aged, blind, and disabled (ABD).

Source: Calculated from Oahu Welfare Summary, Department of Social Services and Housing, July, 1977.
Figure 6

Public Recreational Areas Within Waianae

1. Makaha Playground
2. Makaha Beach
3. Hauna Lahilahi Beach Park
4. Waianae Regional Park
5. Waianae Pililaau Field
6. Pokai Bay Beach Park
7. Lualualei Beach Park
8. Maili Beach Park
9. Maili Playground
10. Ulehawa Beach Park
11. Nanakuli Beach Park
12. Kahe Point Beach Park
IV. THE RELATIONSHIP OF THE PROPOSED ACTION TO LAND USE PLANS, POLICIES, AND CONTROLS FOR THE AFFECTED AREA

A. General Plan, City and County of Honolulu, January 18, 1977

A review of the General Plan's "Objectives and Policies" identifies two major objectives for the Waianae area. The first is that the Waianae Coast will have a population of 39,000 or 3.8 percent of Oahu's total population by the year 2000. Secondly, the Waianae Coast is designated a rural area in which growth is least desirable. (The General Plan designates 13 areas, the higher the number the lower the area's priority for urbanization; i.e. the Honolulu area is designated 1, the Waianae Coast is designated 13.)

In 1975, the population of the Waianae Coast was estimated to be 27,496; this means that a population growth of about 11,500 would be desirable by the year 2000. This would assume an average net population increase of 525 persons per year. However, based on correspondence from the State's Hawaii Housing Authority (dated August 4, 1977, see Exhibit III) and the State's Department of Hawaiian Home Lands (dated August 3, 1977, see Exhibit IV), these agencies in the near future (+5 years) plan to construct 1,202 and 500 dwelling units in the area affected by this project, respectively. Assuming a household size of 3.6 persons and the occupancy of the 1,702 dwelling units, the population would increase by 6,145 persons in the next 5 years alone. Therefore, unless population increase is severely curtailed after 1983, it appears that the General Plan's population goal for Waianae is low.

The widening project is not expected to act as a primary catalyst to population growth or urbanization. It is felt that the urban designations and residential zoning are the primary catalyst to growth. Next to this, are the economic considerations (e.g. land values, construction costs, housing costs) and the limitation of governmental services and facilities (e.g. water, sewer lines). In many cases the availability of (or improvement to) infrastructures enhances any decision for higher zoning. Unfortunately, although the highway is being widened to improve the existing traffic flow, it will also be a positive factor if lands are being considered for

1 Because of its generalized nature, the General Plan does not cover specific courses of action within the Waianae District.

2 This is below the 1975 Waianae household size of 3.79 persons/household.
higher zoning.

Because the improvement is not considered to be the primary catalyst to population growth or urbanization, it is unwarranted to include an evaluation of the urbanization of Waianae in this Revised EIS.1

It should be further noted that the widening project would also benefit the users of recreational areas (primarily the Waianae beaches) along the coast. This includes the Waianae Small Boat Harbor, Pokai Bay, Makaha Beach, and the proposed Makua-Kaena State Park. Because users of these recreational areas are largely from parts of Oahu other than Waianae, the widening project will beneficially affect these recreational users. (It should be pointed out, however, that the widening will end at Jade Street, approximately 1.5 miles before Makaha Beach. Subsequently, one can expect that traffic congestion will continue to occur when surfing championships are held at Makaha Beach.) The development of recreational areas along the Waianae coast is desirable from both the City and County's and State's recreational plans.2 Therefore, the widening to serve these areas is felt to benefit these recreation plans.

The proposed project is consistent with the present Detailed Land Use Map (DLUM) for the area. In 1976, an amendment to the General Plan (Ordinance 4658 and 4659) deleted the mauka realignment for Farrington Highway as it was originally planned. For additional discussion on this mauka realignment see page 77, VII., A.

B. Shoreline Management Area (SMA) Ordinance 4529

As previously indicated, portions of the project are within the Shoreline Management Area. It is felt that the project will be consistent with the shoreline management policies (identified in Ordinance 4529); it will enhance the opportunity to the public to utilize the recreational resources developed and being planned for the adjacent area.

Issuance of the Shoreline Management Area Permit is granted by the City Council.

C. Bikeplan Hawaii, A State of Hawaii Master Plan

The project includes a bike route which conforms to the Bikeplan.

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1 In terms of the additional studies, monies and time which would be required.

2 Based on future City and County development plans for beaches in the subject area, and the State Comprehensive Outdoor Recreational Plan (SCORP).
D. Land Use Designations and Zoning

The project is consistent with the present land use of the area (roadway). Additionally, Figure 7 identifies the surrounding zoning of the area served by this project. As shown on Figure 7 the area is zoned primarily for residential use, the remaining uses are generally urban, this includes those areas identified for public uses.
Figure 7

Land Use
Farrington Highway
Widening
Lualualei to Jade Street

ABBREVIATIONS:
Com. Commercial
LDA Low-Density Apartments
MDA Medium-Density Apartments
P Park
S School
STP Sewage Treatment Plant

NOTES:
The information shown in this map was obtained from the City and County of Honolulu General Plan, Detailed Land Use Map of Wai'anae, Lualualei, Waianae, and Makaha, and represents future development.
V. THE PROBABLE IMPACT OF THE PROPOSED ACTION ON THE ENVIRONMENT

Three technical reports were prepared for this Environmental Impact Statement, these reports include:


These studies will be available at the Land Transportation Facilities Division, Department of Transportation, and the Office of Environmental Quality Control. Anyone wishing to review these studies should contact these agencies. Where appropriate, portions of these studies have been included in this Section without the use of quotations.

A. Physical Impact

No significant or adverse impacts are foreseen in the areas of flora and fauna, historical sites, geology, and microclimate.

This determination is based on the following: (1) the widening will take place within lands which have been previously disturbed and/or vacant; (2) the subject area (within the right-of-way) does not have any unique or rare physical, biological or cultural features; and (3) the geology and microclimate are not expected to alter due to the relatively small scale of this project.

Additionally, improved access to public facilities such as schools, the civic center, and recreational areas, would result. Utilities will be relocated as necessary; no adverse impact is foreseen because of this relocation.

B. Air Quality Impact

1. Existing Ambient Air Quality

The nearest permanent State of Hawaii Department of Health ambient air quality monitoring station is located at Barbers Point, about 12 miles southeast of the project site.
The Barbers Point monitoring station is located near Campbell Industrial Park, Oahu's major industrial area; air pollutant measurements there are higher than those that are likely to prevail in the project area. On the other hand, the readings at Barbers Point are not likely to include the effect of emissions from the large oil-fired steam electric plant at Kahe Point. Under certain wind conditions, these emissions could affect the Waianae project area. In any case, the measurements at Barbers Point constitute the nearest long-term record of ambient air pollution and are thus summarized in Table 11 as an indication of existing air quality along the Waianae coast. Unfortunately, carbon monoxide and hydrocarbons are not measured at the Barbers Point station. Furthermore, particulate sampling at this site was discontinued in December, 1975. Sampling for nitrogen oxides ended at all Oahu stations in April, 1976. For that reason, the 1975 data are summarized in Table 11.

Between November 1, 1976 and April 20, 1977, a short-term carbon monoxide monitoring project was conducted for the State Department of Health by a private consulting firm. One hour CO measurements were carried out at several sites on Oahu. The site nearest to Waianae was Aiea Elementary School, about 20 air miles from the project site. Of the 41 days of sampling conducted at this site, the average of maximum peak one-hour CO readings was only 2.8 mg/m$^3$, a value far less than the State of Hawaii one-hour limit of 10 mg/m$^3$. The State one-hour limit was never exceeded at this sampling site during times when measurements were being recorded. The highest recorded hourly CO value at Aiea Elementary School was 7.9 mg/m$^3$ between 0700 and 0800 on November 29, 1976.

2. Impact of the Proposed Widening on Ambient Air Quality

a. Short-term Particulate Emissions

During the construction phase of the project, the pollutant of primary concern will be suspended particulate matter. Emission rates for particulates will vary depending on the amount of cutting, filling, and grading required. Since all the work will take place within the immediate or adjacent area there should be no need to carry out the amount of earth moving usually associated with construction of new roadways. Particulate emissions should consequently be somewhat lower than the levels that normally occur in road construction areas.

Specific mitigation measures that are normally employed by the contractor to minimize the amount of particulates generated by road construction include watering down the dust in work areas, using dust palliatives, restricting the daily area of operation, paving construction lanes, and if necessary, curtailing activities.
Table 11

Existing Ambient Air Quality Levels At Barbers Point
(Summary - 1975)

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Annual Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Particulate Matter</td>
<td>13</td>
<td>137</td>
<td>52</td>
</tr>
<tr>
<td>Sulfur Dioxide</td>
<td>&lt;5</td>
<td>11</td>
<td>&lt;5</td>
</tr>
<tr>
<td>Nitrogen Dioxide</td>
<td>&lt;20</td>
<td>25</td>
<td>11</td>
</tr>
</tbody>
</table>

NOTE: All values are in μg/m³; minimum and maximum figures are for 24-hour time periods.

during dry, high wind conditions.

The Waianae area has a rather dry climate and constant vigilance will be required to keep daily particulate emissions as low as possible. The construction phase of the project should last for only a short time at any given location along the route. Ambient air levels of particulate generated by the project should not cause suspended particulate concentrations in excess of the allowable State of Hawaii 24-hour standard for particulates unless the mitigation measures described above are consistently ignored.

b. Long-term Vehicular Sources of Air Pollutants

The primary air pollutants emitted by motor vehicles are carbon monoxide (CO), hydrocarbons (HC), and nitrogen oxides (NO₂). Of these the hydrocarbons and nitrogen oxides react under the influence of sunlight in the atmosphere to produce photochemical oxidants, or smog. The rate at which these atmospheric reactions occur depends on many factors and it is not now possible to predict expected down-wind concentrations of photochemical oxidants using simple models of atmospheric pollutant dispersion. Carbon monoxide, on the other hand, is relatively stable and several methods of assessing down-wind concentrations of CO using mathematical models have been developed. Carbon monoxide is also the most abundant of the pollutants generated by motor vehicles and a thorough analysis of CO impact provides a very good indicator of the environmental acceptability of any proposed highway project.

Following the mandate of the National Environmental Policy Act of 1969, pursuant policies were issued by the U.S. Environmental Protection Agency (EPA). The EPA, in their Guidelines for Review of Environmental Impact Statements, Volume I: Highway Projects recommended that mathematical analysis of highway air pollution impact include investigation at two levels: (1) an area-wide (mesoscale analysis) and (2) a highway corridor (microscale analysis).

(1) Mesoscale Emissions Analysis

Predicted traffic loadings for the project area are given in Table 1, page 17. Segment loadings for 1988 were determined by linear interpolation between the 1978 and 1998 values. The highway distance from Jade Street to Makaha Valley Road is approximately 0.5 mile; from Makaha Valley Road to Waianae Valley Road is about 1.8 miles; and from Waianae Valley Road to Lualualei Homestead Road is about 0.1 mile.

Predicted vehicle miles traveled and mesoscale
emissions for the project are shown in Table 12. Air pollutant emission factors are from EPA, Compilation of Air Pollutant Emission Factors, Appendix D, Table D.7-1, December, 1975. Emission values listed in the EPA table have thus been interpreted in the light of expected delays in implementing these standards. Since the same number of vehicles are expected to travel over the project route on a daily basis whether it is widened or not, the only difference in mesoscale emissions between the alternatives of widening or not widening the roadway will be based on differences in speed. If the roadway is not widened then, during peak traffic hours, there might be stop and go traffic conditions at major intersections along the route. This would mean that some vehicles would spend a longer period of time in the project area during peak hours that emissions for those conditions might be slightly higher than would occur if the roadway is widened. This difference would be too slight to be described in a mesoscale analysis, however, and for practical purposes, mesoscale emissions for the project area can be considered to be nearly the same whether the roadway is widened or not.

From Table 12, it can be seen that emissions for all the major automobile-generated pollutants except NO₂ are expected to decrease continually throughout the 20-year period considered. This is because maximum new automobile emission controls are not expected to be achieved until the mid-1980's and all the automobiles with higher emission levels are not expected to be out of the vehicle fleet until 1998 or later.

To assess the potential impact of these emissions, the following highly unlikely, worst case situation, and all day temperature inversion at an average height of only 10 meters above the ground; a daily average windspeed giving a 0.5 m/sec flow in the crosswind direction. Based on these assumptions, the 211 kg of NO₂ predicted for the project route in 1988 will produce ambient concentrations of only 127 μg/m³ for a 24-hour worst case average. This further assumes no atmospheric reactions with other pollutants that would tend to decrease this concentration. By 1998, the expected daily NO₂ emissions of 151 kg would produce 24-hour worst case averages of only 90 μg/m³. This value is far below the State of Hawaii 24-hour standard of 150 μg/m³.
<table>
<thead>
<tr>
<th>Year</th>
<th>Vehicle Miles Traveled (VMT)</th>
<th>Emission Factor (g/VMT)</th>
<th>CO Total Emissions (kg)</th>
<th>Emission Factor (g/VMT)</th>
<th>HC Total Emissions (kg)</th>
<th>Emission Factor (g/VMT)</th>
<th>NO₂ Total Emissions (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1978</td>
<td>41,470</td>
<td>61.1</td>
<td>2,534</td>
<td>8.8</td>
<td>365</td>
<td>4.8</td>
<td>199</td>
</tr>
<tr>
<td>1988</td>
<td>58,505</td>
<td>31.0</td>
<td>1,814</td>
<td>5.4</td>
<td>316</td>
<td>3.6</td>
<td>211</td>
</tr>
<tr>
<td>1998</td>
<td>75,540</td>
<td>11.3</td>
<td>854</td>
<td>1.9</td>
<td>144</td>
<td>2.0</td>
<td>151</td>
</tr>
</tbody>
</table>
(2) Microscale Carbon Monoxide Analysis

The microscale carbon monoxide analysis is based on a technique described in EPA's Guidelines for Air Quality Maintenance Planning and Analysis, Volume 9: Evaluating Indirect Sources. There are several assumptions inherent in the procedure:

1. Motor vehicle emission rates are based on a 1975 vehicle mix containing 88% automobiles, with 20% of all vehicles operating under "cold start" conditions at low altitude with outside air temperature between 68°F and 86°F. These values are similar to the situation at Waianae except that the vehicle mix contains about 96% automobiles and daytime temperatures sometimes exceed 86°F. The over abundance of automobiles in the vehicle mix would tend to produce slightly higher emissions than assumed by the method, but the warmer outside air temperatures should mean that few vehicles operate in the pollution-producing "cold start" mode for very long.

2. A worst-case wind direction and speed (1m/sec) with atmospheric stability Category D are assumed for diffusion calculations. These are the least favorable meteorological conditions from an air pollution standpoint that are likely to occur in the daytime in an urbanized area. The Waianae area is more suburban in nature and it is possible that more stable atmospheric conditions could occur there. Recent traffic counts show, however, that peak hour traffic occurs near the middle of the day rather than in early morning when more stable conditions would likely occur. For that reason, the assumption of stability, Category D seems appropriate for the diffusion calculations performed here.

3. Computed CO concentrations are determined using a set of graphs, the interpretation and interpolation of which limits precision of results for any given receptor site to about ±0.5 mg/m³.

For all calculations, an existing background CO concentration of zero was assumed since Farrington Highway is the major roadway in the area and motor vehicles constitute the primary source of CO in the project area.

Two primary sites coinciding with the most recent traffic counts for the project were selected as receptor sites for the microscale peak hour carbon monoxide analysis. Site 1 is located on the northeast corner of Farrington Highway and Waianae
Valley Road (see Figure 8). This site was selected for analysis because it presently has the only traffic signal and thus would be expected to have the highest CO concentrations in the project area. The green to cycle ratio for this signal is about 0.8 in the Farrington Highway direction. Current and forecast peak hour traffic loadings for this intersection are shown in Table 1. The current loadings for Waianae Valley Road were based on a daytime traffic count for the site taken on Wednesday, September 14, 1977. This date is about one full week after the start of classes at public schools within or near the project site and the count is thus considered to be representative of traffic at this location throughout the 1977-78 school year. The peak hour traffic occurs around midday. Meteorological conditions for the dispersion of air pollutants are usually most favorable at that time of day.

Results of the CO analysis with just two lanes of the proposed four lane widening of Farrington Highway are shown in Table 13. Downstream from the traffic light vehicle speeds were assumed to be 25 mph consistent with posted speed limits for the area.

To estimate 8-hour average concentrations, the EPA Guidelines suggest that multiplying the one-hour estimate by a "meteorological persistence factor" of 0.6 is a viable approach. The 8-hour CO estimates based on this assumption are shown in Table 14. (The mean traffic volume for an eight-hour period was not provided as input for this study. With just peak hour and average daily volume estimates available it seemed most prudent and conservative to base the 8-hour analysis on the peak hour traffic volumes.)

Site 2 is located immediately adjacent to the roadway opposite from the Waianae Model Community Center (see Figure 8). The capacity of Farrington Highway at this point was assumed to be 1,400 vehicles per hour at level of Service E. Results of the microscale CO analysis at this site are also shown in Tables 13 and 14.

One hour Federal carbon monoxide standards are expected to be met at all receptor sites within the project area whether the widening of Farrington Highway is undertaken or not. The eight hour Federal CO standard is likely to be exceeded under worst case peak hour conditions at the traffic light on Waianae Valley Road through 1988 with or without the widening project, but by the early 1990's this situation would be alleviated more quickly by widening the highway.

Under worst case conditions at receptor Site 1 (near the intersection of Waianae Valley Road), the State of Hawaii one-hour carbon monoxide standard is
Figure 8

Vicinity Map and Receptor Sites

Farrington Highway Widening

Lualualei Homestead Road to Jade Street
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Two Lane</td>
<td>32.0</td>
<td>22.1</td>
<td>10.5</td>
<td>10</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Four Lane</td>
<td>29.8</td>
<td>21.3</td>
<td>9.1</td>
<td>10</td>
<td>40</td>
</tr>
<tr>
<td>2</td>
<td>Two Lane</td>
<td>9.9</td>
<td>8.7</td>
<td>6.1</td>
<td>10</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Four Lane</td>
<td>8.5</td>
<td>6.3</td>
<td>2.9</td>
<td>10</td>
<td>40</td>
</tr>
</tbody>
</table>

*See Figure 8 for location of receptor sites.*
### Table 14

**EXPECTED WORST CASE EIGHT HOUR CARBON MONOXIDE CONCENTRATIONS (mg/m³) AT SELECTED RECEPTOR SITES**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Two Lane</td>
<td>19.2</td>
<td>13.3</td>
<td>6.3</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Four Lane</td>
<td>17.9</td>
<td>12.8</td>
<td>5.5</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>Two Lane</td>
<td>5.9</td>
<td>5.2</td>
<td>3.7</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Four Lane</td>
<td>5.1</td>
<td>3.8</td>
<td>1.7</td>
<td>5</td>
<td>10</td>
</tr>
</tbody>
</table>

*See Figure 8 for location of receptor sites.*
likely to be exceeded through 1998 if Farrington Highway is not widened, but widening the highway could enable the achievement of this standard by the mid-1990's. At points other than at this intersection, however, widening Farrington Highway should result in achievement of both one and eight hour State of Hawaii CO standards by the early 1980's. These conclusions are all based on the assumption that the U.S. Congress will not legislate even greater delays in achievement of strict automobile emission controls than those considered in this study.

C. Water Quality Impact

The 2.4 mile section to be widened crosses two streams. The first, on the Waianae end of the project (see Figure 2) is Kaupuni Stream (the present bridge crossing the stream is called Kaupuni Channel Bridge). This "stream" should be more appropriately identified as a concrete lined drainage channel. This trapezoidal channel is approximately 80 feet wide at the base; plans call for the bridge to be widened. Kaupuni Stream drains an area of 3.58 miles; an annual maximum gage height of 6.59 feet and discharge of 1,730 cubic feet per second (1976). The second stream is located just before the intersection of Farrington Highway and Makaha Valley Road. This stream is identified as the East Makaha Stream and is approximately 7 feet wide with no improvements. East Makaha Stream is dry except during periods of storm runoff and is not navigable.

The proposed action will replace the existing East Makaha Stream Bridge. Kaupuni Bridge will be widened, providing the same navigational clearance, with no effect on the few non-motorized rafts using the Channel.

Water quality will be affected on both a short-term and long-term basis. For the short-term period, construction, at some point, will occur on the bridges; increased amounts of fugitive dust and construction material may accidently enter these streams. A berm (in the stream) may be used by the contractor to keep the work area dry.

On a long-term basis, the widening of the roadway will add additional hard surfaces, increasing surface water runoff and various foreign matter (e.g. rubber from tires, grease, oil) will be discharge into the drainage system. This impact was not quantified because it was felt that the additional amounts of pollutants from the roadway will be minimal, and that the roadway widening

---

impact cannot be measured as an isolated effect due to the implementation of several planned and scheduled residential and recreational improvements in the adjacent area which will be implemented at about the same time (e.g. Waianae Small Boat Harbor, subdivisions).

The proposed widening will not alter the existing drainage conditions. The existing drainage problems will not be mitigated by this proposed widening.

Both the U.S. Coast Guard and the Department of the Army have indicated (see Exhibits I and II) that no permits under their purview will be required for the bridges' reconstruction.

D. Noise Impact

1. Noise Criterion

The U.S. Department of Transportation recommends L10 = 70 dBA for land use category B which includes, among others, residences, schools, and churches. The U.S. Department of Housing and Urban Development (HUD), on the other hand, classifies an area where the noise level exceeds 65 dBA for more than 8 hours per 24 hour period as "discretionary - normally unacceptable". In addition to the above, the State of Hawaii's Department of Health's noise control regulation, "Community Noise Control for Oahu," Public Health Regulations, Chapter 44B regulates noise during construction. It also sets 50 dBA as the maximum allowable traffic noise inside a school classroom, hospital, or convalescent home.

2. Existing Noise

Noise level measurements were taken at seven selected locations between Lualualei Homestead Road and Jade Street (see Figure 9a and 9b). These noise measurements are felt to represent the average and peak hour usage of the highway. A continuous 24 hour recording of the noise at Waianae Neighborhood Community Center and Waianae High School were taken. Noise measurements at other locations were taken at 30 minute intervals from 8 a.m. and 4 p.m. on two consecutive weekdays, with hand-held sound meters. The meter was read every 10 seconds until a 90 to 95 percent confidence level was obtained.

The noise levels at L10 for each of the selected locations from a distance of 100 feet from the nearest curb are provided in Table 15. Based on the sum of these readings, the present noise level in this area during normal daytime traffic falls in the 60 to 65 dBA range. During peak traffic hours, the noise levels range between 66 to 71 dBA at certain locations.

3. Future Noise Levels

Future noise levels were calculated on the basis of the Department of Transportation's traffic projections (see Table
Table 15

FARRINGTON HIGHWAY NOISE LEVEL

100 FEET FROM NEAREST CURB, NOISE LEVEL IN dBA (L₁₀)

Station 1: Lualualei Homestead Road

<table>
<thead>
<tr>
<th>Time</th>
<th>7/19/77</th>
<th>7/20/77</th>
</tr>
</thead>
<tbody>
<tr>
<td>0700-0800</td>
<td>61.9</td>
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</tr>
<tr>
<td>0800-0900</td>
<td>65</td>
<td>63.4</td>
</tr>
<tr>
<td>0900-1000</td>
<td>65</td>
<td>65</td>
</tr>
<tr>
<td>1000-1100</td>
<td>64.8</td>
<td>65.3</td>
</tr>
<tr>
<td>1100-1200</td>
<td>64.3</td>
<td>---</td>
</tr>
<tr>
<td>1200-1300</td>
<td>66</td>
<td>65</td>
</tr>
<tr>
<td>1300-1400</td>
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<td>---</td>
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<tr>
<td>1400-1500</td>
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<td>Average</td>
<td>64.4</td>
<td>64.7</td>
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</tbody>
</table>

Station 2: Old Government Road

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<tr>
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</thead>
<tbody>
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<td>67.8</td>
</tr>
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<td>0940-1040</td>
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<td>1040-1140</td>
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<td>1340-1440</td>
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<td>1440-1540</td>
<td>69</td>
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<tr>
<td>Average</td>
<td>68.5</td>
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Station 3: Waianae Intermediate School

<table>
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<tbody>
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<td>1200-1300</td>
<td>64.9</td>
</tr>
<tr>
<td>1300-1400</td>
<td>65.5</td>
</tr>
<tr>
<td>1400-1500</td>
<td>67.5</td>
</tr>
<tr>
<td>1500-1600</td>
<td>65.6</td>
</tr>
<tr>
<td>Average</td>
<td>65.7</td>
</tr>
</tbody>
</table>

Station 4: Waianae High School

<table>
<thead>
<tr>
<th>Time</th>
<th>7/19/77</th>
</tr>
</thead>
<tbody>
<tr>
<td>0730-0830</td>
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</tr>
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<td>65.5</td>
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<td>1030-1130</td>
<td>64.3</td>
</tr>
<tr>
<td>1130-1230</td>
<td>67</td>
</tr>
<tr>
<td>1230-1330</td>
<td>64.9</td>
</tr>
<tr>
<td>1330-1430</td>
<td>65.2</td>
</tr>
<tr>
<td>1430-1530</td>
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<tr>
<td>Average</td>
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Table 15
(continued)

Station 5: Makaha Valley Road

<table>
<thead>
<tr>
<th>Time</th>
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<th>7/20/77</th>
</tr>
</thead>
<tbody>
<tr>
<td>1200-1300</td>
<td>66.9</td>
<td></td>
</tr>
<tr>
<td>1300-1400</td>
<td>67.2</td>
<td></td>
</tr>
<tr>
<td>1400-1500</td>
<td>66</td>
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<td>Average</td>
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<td></td>
</tr>
<tr>
<td>0700-0800</td>
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</tr>
<tr>
<td>0800-0900</td>
<td></td>
<td>70</td>
</tr>
<tr>
<td>0900-1000</td>
<td></td>
<td>67</td>
</tr>
<tr>
<td>1000-1100</td>
<td></td>
<td>67.9</td>
</tr>
<tr>
<td>1100-1200</td>
<td></td>
<td>---</td>
</tr>
<tr>
<td>1200-1300</td>
<td></td>
<td>67.5</td>
</tr>
<tr>
<td>1300-1400</td>
<td></td>
<td>67</td>
</tr>
<tr>
<td>Average</td>
<td></td>
<td>67.7</td>
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</table>

Station 6: Jade Street

<table>
<thead>
<tr>
<th>Time</th>
<th>7/19/77</th>
<th>7/20/77</th>
</tr>
</thead>
<tbody>
<tr>
<td>0700-0800</td>
<td>61.5</td>
<td>---</td>
</tr>
<tr>
<td>0800-0900</td>
<td>59.8</td>
<td>61.4</td>
</tr>
<tr>
<td>0900-1000</td>
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<tr>
<td>1000-1100</td>
<td>59.6</td>
<td>63</td>
</tr>
<tr>
<td>1100-1200</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>1200-1300</td>
<td>---</td>
<td>63</td>
</tr>
<tr>
<td>1300-1400</td>
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<td>61</td>
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<tr>
<td>1400-1500</td>
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<td>60.9</td>
</tr>
<tr>
<td>Average</td>
<td>60.5</td>
<td>62.5</td>
</tr>
</tbody>
</table>

Station 7: Waianae Neighborhood Community Center

<table>
<thead>
<tr>
<th>Time</th>
<th>7/23/77 to 7/24/77</th>
<th>Time</th>
<th>7/23/77 to 7/24/77</th>
</tr>
</thead>
<tbody>
<tr>
<td>0700-0800</td>
<td>63.5</td>
<td>2000-2100</td>
<td>59</td>
</tr>
<tr>
<td>0800-0900</td>
<td>63.5</td>
<td>2100-2200</td>
<td>59.5</td>
</tr>
<tr>
<td>0900-1000</td>
<td>64.5</td>
<td>2200-2300</td>
<td>65.5</td>
</tr>
<tr>
<td>1000-1100</td>
<td>66</td>
<td>2300-2400</td>
<td>65</td>
</tr>
<tr>
<td>1100-1200</td>
<td>69</td>
<td>2400-0100</td>
<td>65.7</td>
</tr>
<tr>
<td>1200-1300</td>
<td>68.5</td>
<td>0100-0200</td>
<td>63.5</td>
</tr>
<tr>
<td>1300-1400</td>
<td>64</td>
<td>0200-0300</td>
<td>61.5</td>
</tr>
<tr>
<td>1400-1500</td>
<td>62.5</td>
<td>0300-0400</td>
<td>55</td>
</tr>
<tr>
<td>1500-1600</td>
<td>62.5</td>
<td>0400-0500</td>
<td>56</td>
</tr>
<tr>
<td>1600-1700</td>
<td>62.5</td>
<td>0500-0600</td>
<td>59</td>
</tr>
<tr>
<td>1700-1800</td>
<td>62.5</td>
<td>0600-0700</td>
<td>66</td>
</tr>
<tr>
<td>1800-1900</td>
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<td>0700-0800</td>
<td>67.5</td>
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<tr>
<td>1900-2000</td>
<td>60.5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
1). The noise consultant provided a summary of 1998 estimated noise levels \( (L_{10}) \) in Table 16.

Table 16 gives the daytime and nighttime 1998 outdoor noise levels calculated for various distances and vehicular speeds. The results show that the predicted 1998 traffic noise level will be acceptable to people with homes 50 feet or more from the center line of the nearest lane of the highway. At 50 feet, the daytime indoor noise level will be close to 55 dBA. The nighttime indoor noise level will be approximately 45 dBA. Actually, by 1998, the noise level will be lower by at least 6 dBA because existing noisy vehicles will be replaced by quieter ones.\(^1\)

If the widening of the highway between Lualualei Homestead Road and Makaha Valley Road will move the center line of the outer lane of the highway to 25 feet from any residence, the noise level at the residence will increase immediately by 5 to 6 dBA above the existing normally acceptable level. After the initial increase, the noise level is expected to remain nearly the same till about 1990 when it is expected to start decreasing to an acceptable level by 1998.

The widening of the highway between Makaha Valley Road and Jade Street will not increase the noise level noticeably for residents of this area.

4. Potential Noise Problem Areas

Farrington Highway passes in front of two schools and three churches. The State Department of Health's regulation requires the noise level inside these institutions be 50 dBA or lower.

a. Schools

Waianae Intermediate School is located approximately 500 feet from the highway. Widening of the highway will not create a noise problem at the school. No corrective measure is necessary.

Waianae High School portable classrooms P-8 and P-9 are located 83 feet from the existing curbing of the highway. Widening of the highway will aggravate the already noisy condition in these classrooms. The existing noise levels in these classrooms were measured. Truck

---

\(^1\) Recent survey of automobile and truck industries shows that most manufacturers will be able to reduce the noise levels of automobiles by 6 dBA and of trucks by 10 dBA by 1978. This alone will reduce the traffic noise level by 6 to 9 dBA by 1990 when most of the existing noisy vehicles would be replaced.
Table 16
1998 AVERAGE NOISE LEVEL (ESTIMATED) FARRINGTON
HIGHWAY*

<table>
<thead>
<tr>
<th>Location</th>
<th>Daytime 7 AM - 10 PM</th>
<th>Nighttime 10 PM - 7 AM</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>25'</td>
<td>50'</td>
</tr>
<tr>
<td>Lualualei Homestead Rd. to Government Road</td>
<td>76.5</td>
<td>73.1</td>
</tr>
<tr>
<td>Government Road to Makaha Valley Road</td>
<td>76.8</td>
<td>73.4</td>
</tr>
<tr>
<td>Makaha Valley Road to Jade Street</td>
<td>74.9</td>
<td>71.5</td>
</tr>
</tbody>
</table>

* Based on $L_{10}$, and a speed of 35 MPH
noise inside the classrooms range between 60 and 70 dBA. Automobile noise varied between 55 and 66 dBA. The average noise level inside the classrooms measured 59 dBA. Ten percent of the time, the noise level exceeded 66 dBA. Obviously the existing noise level is already 9 dBA above the Department of Health’s standard. In spite of this, the regulation requires the reduction of the noise level inside these classrooms to 50 dBA or less.

The cost of abating the noise will be included in the cost of the road widening project. The highway section affecting Waianae High School will not be widened in the initial phase.

Construction noise and interruption of traffic access to and from Waianae Intermediate and High Schools appear to be unavoidable. Construction noise must comply with Chapter 44B, Public Health Regulations.

b. Churches

Noise readings inside the churches were not taken because access to the churches was not available at the time of measurement, therefore, these noise levels were estimated. Waianae Baptist Church is located approximately 100 feet mauka of the highway. The existing noise levels inside the church is 52 dBA, slightly above the Department of Health's requirement. Future noise levels are not expected to rise above this level. Corrective measures may not be necessary because a 2 dBA reduction would not be noticeable.

Waianae United Methodist Church is located approximately 150 feet makai of the highway. No corrective measure is anticipated here because the traffic noise inside the church is not expected to rise above 50 dBA.

The third church is located approximately 60 feet mauka of the highway near Jade Street. The existing noise level inside the church is 45 dBA. The widening of the highway is not expected to raise the noise level inside the church above the 50 dBA level until 1998. If the expected decrease in vehicular noise by 1990 is accounted, the noise level inside the church will not rise above 50 dBA. Corrective measures may not be necessary.

c. Residences

Most of the residences along the highway are located more than 50 feet from the highway. The widening of the highway will increase the noise level but not enough to raise the noise substantially above the normally acceptable level.

There is a possibility that few residences may require noise reduction treatment. The need depends on whether or not the center line of the widened highway is moved closer to residences which are less than 50 feet from the curbing of the existing highway. No corrective measure is necessary if the center line of the improved highway is not shifted toward residences which are 50 feet or less from existing curbing.
5. Corrective Measures

Corrective measures may take one of two forms, attenuating the noise level of the source or sound proofing the receiver building. Residences and classrooms may be sound proofed by closing the window or jalousie opening and installing window air conditioners. Noise entering residences and classrooms may be attenuated by installing acoustic louvers or acoustic filters. Acoustic louvers may be used where the reduction necessary is less than 10 dBA. For larger noise reduction, acoustic filters are necessary.

E. Impact on the Existing View Planes and Aesthetics

The determination of whether an area has scenic value or is aesthetically pleasing is subjective. Presently, the 2.4 mile section does have a view of the mauka side of the highway beyond the homes and uses adjacent to the highway. The view consists of the Waianae Mountain Range and the various ridges and valleys in this area. The makai side of the highway, on the other hand, affords views of the various houses, institutions and vegetation cover; a view of the shoreline area is only periodically available.

The widening will provide the same view of the surrounding area and is not expected to alter the present view planes.

F. Socioeconomic Impact

1. Assessment of Economic Justifiability

The estimated benefits and costs of this proposed project are summarized in Table 17. The project appears economically justifiable, since the present value of benefits exceeds the present value of costs. (This assumes that the assumptions used in making these estimates, as detailed in the Socioeconomic Report, are accurate.) Since benefits are approximately equal to costs, changes in these assumptions obviously might affect the conclusion that the project is economically justified.

The small changes in travel time will unquestionably induce some further travel into the area abutting the proposed project. However, with the present state of art, given the small percentage of changes in travel time, the extent of this effect cannot be estimated usefully. Not only can the amounts not be estimated accurately, but an unpredictable portion will consist of traffic to the area by people living elsewhere; a portion will consist of travel by residents new to the area; and some will be increased travel by present residents. These impacts may be undesirable to some, but it must be remembered that highway improvements
Table 17
Present Value of Benefits and Costs,
Farrington Highway Widening

<table>
<thead>
<tr>
<th>Item</th>
<th>Benefits or Costs*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction and Maintenance Costs</td>
<td>- $5,039,000</td>
</tr>
<tr>
<td>Travel Time Savings</td>
<td>+ 4,343,000</td>
</tr>
<tr>
<td>Savings in Operating Costs</td>
<td>+ 2,243,000</td>
</tr>
<tr>
<td>Accident Costs</td>
<td>- 1,248,000</td>
</tr>
<tr>
<td>Air Pollution Costs</td>
<td>Negligible</td>
</tr>
<tr>
<td>Noise Costs</td>
<td>Unable to quantify</td>
</tr>
</tbody>
</table>

*Benefits are shown with a positive and costs with a negative sign. It should also be noted that the benefits and costs were derived from mathematical calculations with discount formulas and present day costs. They are not direct calculations of figures presented in the text. For example, the $5,039,000 costs for Construction and Maintenance is based on taking the $8,000,000+ construction cost of the project and discounting its salvage value at the end of a 20-year period, and adding the net costs for maintenance of the widened portion of the highway.
are designed to enhance accessibility for people to recreational attractions, commercial outlets, job locations, and desirable housing. In other words, as some people experience these benefits, their doing so may affect the lifestyles and recreational patterns of others in a manner the latter consider undesirable. One's viewpoint thus determines whether the changes are desirable, and thus are considered as either costs or benefits.

It is also worthy of note that State and County land use controls place greater constraints on land uses and are more significant than the enhanced accessibility created by the proposed project. In this respect, the community has at least some voice in determining the future course of land changes in the impacted areas.

In contrast to a new roadway or other such major transportation disturbance in the area, the simple widening of an existing thoroughfare does not create changes of a sufficient magnitude to usefully estimate the impact of traffic changes on property values and businesses in the area, particularly since no displacement of businesses, homes or public facilities is to occur. About all that can be indicated with useful accuracy is the general socioeconomic nature of the impacted region, which is provided in Section III.

One further economic impact can be estimated with useful accuracy, e.g. the impact on jobs and income of the construction phase of the project. By using the state's interindustry model, and based on a total project cost estimate of $7.2 million for earthwork, grading, et cetera and $1.3 million for utilities relocation, approximately 180 man-years of work would be created in Hawaii's construction industry. If we allow for the full multiplier effects of this construction activity, approximately 190 additional man-years of employment would occur within the state, for a total impact of about 370 man-years of employment. Income in the form of wages, profits, dividends, et cetera, thus occurring within the construction industry would be approximately $4.3 million, with a further repercussive effect in the state's economy of $2.7 million in income.

2. Relevant Public Opinion

No systematic attempt has yet been made to sample the opinions of residents of the impacted area concerning their preferences for the highway widening project. Furthermore, public hearings are not often reliable means of reflecting such a cross-section of opinions. Unstructured discussions with a number of people in leadership positions within the Waianae District (by the socioeconomic consultants) frequently reflected their concern that the widening might lead to increased traffic accidents due to increased motorist speed. They also frequently expressed support for more traffic
lights at key intersections and pedestrian crossings (which is included in the proposed project).

Many of these individuals also indicated concern that the project might also induce further residential development and beach use by "outsiders." Such effects were considered to be disruptive of the community's social fabric. This attitude seems to be in direct contrast with the results of a March, 1977 survey by the City's Department of General Planning. This survey of residents of the area seemed to show majority support for a number of public and commercial developments along the Waianae Coast. Perhaps the most revealing statistic was that 75 percent of the Waianae respondents being in favor of extending Farrington Highway around Kaena Point. [The reliability of this mail survey is also questionable. For example, 82 percent of the Waianae respondents were homeowners, whereas only half of the households in the District are owner-occupied. Nevertheless, it is probably the best available reading of relevant opinions of the residents of the region.]

Ultimately, the only completely valid way to determine public opinion concerning the highway widening project would be to conduct an educational program concerning the negative and beneficial impacts of the project followed by a reliable sample of relevant public reactions to the proposal. Even then there would be a very debatable question of whose opinions are relevant, i.e., residents of all parts of Oahu have legitimate concerns in addition to the concerns held by residents of the area geographically impacted.

G. Impact on Land Use

In terms of land use patterns, the most direct impact of the project would be on the land parcels immediately abutting the project. The present uses of these parcels are shown in Table 18. Since no taking will be involved, it can only be assumed that the land values would not be negatively impacted. It is not possible to usefully estimate the beneficial economic impacts of the project on these abutting parcels. (Land values, in the Waianae District, as valued for tax purposes generally run about $6.00 per square foot for commercial and multi-family use, about $3.00 per single-family residential use, and about $.50 per square foot for agricultural lands.)

H. Impact on Costs of Traffic Accidents

The socioeconomic consultants included, in their cost-benefit model, accident costs. A review of literature indicated that accident rates and thus, costs, are generally greater for a four-lane undivided highway than a two-lane undivided highway. This difference is likely due to the differences in the traffic speeds
Table 18
Use and Assessed Value of Land Parcels Abutting Proposed Project

<table>
<thead>
<tr>
<th>General Land Use Classification</th>
<th>No. of Parcels</th>
<th>Total Acreage</th>
<th>Assessed Value/sq.ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Family Dwelling</td>
<td>55</td>
<td>23.86</td>
<td>$3.28</td>
</tr>
<tr>
<td>Duplex Residential</td>
<td>8</td>
<td>6.94</td>
<td>2.24</td>
</tr>
<tr>
<td>Duplex Residential (Public Housing)</td>
<td>29</td>
<td>2.20</td>
<td>2.90</td>
</tr>
<tr>
<td>Condominium</td>
<td>2</td>
<td>7.80</td>
<td>10.99*</td>
</tr>
<tr>
<td>Townhouse</td>
<td>3</td>
<td>.12</td>
<td>4.29</td>
</tr>
<tr>
<td>Hawaiian Telephone Use</td>
<td>1</td>
<td>.24</td>
<td>5.78</td>
</tr>
<tr>
<td>Super Market</td>
<td>4</td>
<td>.71</td>
<td>6.61</td>
</tr>
<tr>
<td>General Merchandise</td>
<td>1</td>
<td>2.14</td>
<td>6.02</td>
</tr>
<tr>
<td>Apparel and Accessories</td>
<td>2</td>
<td>.47</td>
<td>6.62</td>
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<tr>
<td>Gasoline Service Station</td>
<td>6</td>
<td>2.44</td>
<td>5.23</td>
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<tr>
<td>Motor Vehicle Sales and Service</td>
<td>1</td>
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</tr>
<tr>
<td>Hardware Stores</td>
<td>1</td>
<td>.23</td>
<td>6.62</td>
</tr>
<tr>
<td>Eating and Drinking Places</td>
<td>8</td>
<td>3.64</td>
<td>6.20</td>
</tr>
<tr>
<td>Drug Stores</td>
<td>1</td>
<td>.64</td>
<td>6.48</td>
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<tr>
<td>Miscellaneous Retail</td>
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<td>1.00</td>
<td>6.34</td>
</tr>
<tr>
<td>Personal Apparel Sales and Service</td>
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<td>6.44</td>
</tr>
<tr>
<td>Financial, Insurance and Real Estate</td>
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<td>1.42</td>
<td>6.54</td>
</tr>
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<td>Legal, Engineering and Accounting</td>
<td>1</td>
<td>.17</td>
<td>6.62</td>
</tr>
<tr>
<td>Governmental Administrative</td>
<td>2</td>
<td>4.42</td>
<td>1.68</td>
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<tr>
<td>Public Safety</td>
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<td>.57</td>
<td>6.60</td>
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<tr>
<td>Automotive Repair</td>
<td>2</td>
<td>.82</td>
<td>6.47</td>
</tr>
<tr>
<td>Miscellaneous Business Services</td>
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<td>.23</td>
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<tr>
<td>Educational Institutions</td>
<td>12</td>
<td>59.48</td>
<td>1.20</td>
</tr>
<tr>
<td>Cultural Centers</td>
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</tr>
<tr>
<td>Religious Institutions</td>
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<td>1.60</td>
<td>2.26</td>
</tr>
<tr>
<td>Educational/Religious Institutions</td>
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<td>15.53</td>
<td>.91</td>
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<tr>
<td>Outdoor Public Recreation</td>
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<td>58.25</td>
<td>3.08</td>
</tr>
<tr>
<td>Indoor Public Recreation</td>
<td>1</td>
<td>-----**</td>
<td>-----*</td>
</tr>
<tr>
<td>Private Vacant Land</td>
<td>23</td>
<td>12.30</td>
<td>3.38</td>
</tr>
<tr>
<td>State-owned Vacant Land</td>
<td>4</td>
<td>17.07</td>
<td>2.48</td>
</tr>
<tr>
<td>&quot;Planting&quot; Strip</td>
<td>6</td>
<td>1.88</td>
<td>-----*</td>
</tr>
<tr>
<td>Undevelopable Open Space</td>
<td>2</td>
<td>-----**</td>
<td>-----*</td>
</tr>
<tr>
<td>Roadways</td>
<td>4</td>
<td>-----**</td>
<td>-----*</td>
</tr>
</tbody>
</table>

* One or more parcels not valued for tax assessment purposes.
** Not calculated.
experienced. The consultants tried various econometric techniques to estimate forecasted accident rates, but they judged the results to be unsatisfactory. Consequently, a simple "averaging" approach on other portions of Farrington Highway was used to estimate future accident results.

After evaluating various accidents and their costs, it was estimated that the average cost per accident is $4,861.50. Using this cost estimate along with the 1975 and 1976 accident rates on existing two- and four-lane sections of FAP 93 (Farrington Highway), the expected number of accidents for the existing highway and the proposed widening were calculated. Differences in the future time stream of accident costs between the two options (retaining the existing highway versus the widening of the highway) when discounted at 10 percent gave the "present value" of the increase attributable to the proposed project equal to $1,248,000.

I. Impact on On-Street Parking

During the review period for the Draft EIS, several reviewers expressed concern about the proposed project's impact on the existing on-street parking. Presently on-street parking is permitted along the Waianae town section of the highway. The proposed project would have eliminated this parking (used basically by customers of various stores alongside the highway). Upon reviewing this impact it was decided that curbside parking in the Waianae commercial area will be permitted from 8:30am to 3:30pm (on a trial basis). Also, in regards to parking it is noted that the staff of the Department has met with the Waianae Businessmen's Association regarding the improvement which will be made to the highway. At that meeting there was no opposition to the project. The ingress and egress to these businesses will not be significantly modified.

Parking within the highway's right-of-way is also occurring along Mauna Lalahahi Park. Parking for park users is presently taking place along the Park (both straight and parallel parking, approximately fifteen to twenty cars can park in the right-of-way). The proposed project will eliminate this parking. The elimination of on-street parking is unavoidable and no monetary loss has been assigned to this impact. The Department of Parks and Recreation, City and County of Honolulu, will be responsible to provide parking for users of Mauna Lalahahi Park.
VI. ANY PROBABLE ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

Construction will cause a number of adverse environmental impacts. These impacts include: noise generated by construction equipment and building activity; fugitive dust from grading activities; potential erosion during the grading activities; traffic congestion when temporary detours are necessary and because of the movement of light and heavy construction equipment vehicles; and visual disruption caused by the ongoing construction activity. However, these construction impacts will be local and temporary.

As indicated in Section V, the long-term, adverse environmental impacts include:

1. Under worst case conditions near the intersection of Farrington Highway and Waianae Valley Road, the State of Hawaii one hour carbon monoxide standard is not being presently met. However, this would be the case even if the highway widening is not implemented.

2. At Waianae High School, two portable classrooms are located 83 feet from the existing curbing of the highway. Widening of the highway will aggravate the already noisy condition in these classrooms. Although the recommended noise standard (L10 - 50 dBA) is already being exceeded, corrective measures must be taken to reduce the noise in these classrooms. The noise consultant recommends that the classrooms be sound proofed by either: (1) closing the window or jalousie opening and installing window air conditioners; (2) installing acoustic louvers or acoustic filters.
VII. ALTERNATIVES TO THE PROPOSED ACTION

A. Realigning the Existing Highway - Mauka

The mauka realignment of Farrington Highway was, in 1968-69, the original recommended proposal by the State Department of Transportation. However, after several public meetings, the proposal was eliminated because of strong public opposition.

This proposed realignment alternative, mauka of the existing Farrington Highway was shown at one time on the City and County Detailed Land Use Map for Makaha, adopted on August 24, 1967 by the City Council (see Figure 10). The bypass realignment begins in the vicinity of Pokai Bay running mauka behind Waianae Town; it runs parallel to the coastline about a quarter mile inland, all the way to Makaha and tying into the existing route in the vicinity of Makaha Beach Park.

Figure 10, shows the location of the mauka realignment alternative.

As stated above, there was strong public opposition to this project, as such, the proposal was withdrawn. The State Department of Transportation requested that the Detailed Land Use Map (DLUM) be amended to exclude the mauka realignment of Farrington Highway to Kili Drive (beyond Jade Street). This amendment was adopted in 1976 and is identified as Ordinance 4659.

B. Realigning and Widening the Existing Highway

The second alternative considered and presented at a 1974 public hearing consists of realigning a portion of Farrington Highway from Kaulawaha Road to Jade Street. The realigned roadway would consist of two-lanes and be located mauka of the existing road. Farrington Highway from Kaulawaha Road to Lualualei Homestead Road would be widened to four-lanes (see Figure 10).

Opposition to this alternative was also voiced in the 1974 public hearing. Furthermore, should this alternative now be reconsidered, the following adverse impacts would be probable.

1. Increase accessibility and significantly enhance urbanization in the area served.

2. Increase vehicular air and noise pollution in adjacent areas along the bypass portions of the new roadway.

3. Affect the existing aesthetics and possibly the view planes.

4. Increase the project cost by several times as well as dislocate a number of homes and businesses.
5. Result in the construction of new bridges.

C. No Action

The no action alternative versus the proposed widening was evaluated extensively in the socioeconomic cost-benefit study. Table 17 on page 71 summarizes the differences between both alternatives. Additionally, a no action alternative would have resulted in these adverse impacts:

1. A gradual increase of traffic congestion so that by 1998, traffic congestion during peak hours would be severe.

2. Greater vehicular air emissions (due to the traffic congestions).

3. Possible constraints on the usage of recreational areas served by this project.
Figure 10
PROPOSED ALTERNATES
FARRINGTON HIGHWAY
IMPROVEMENT
1 inch = 3,700 feet

LOCATION MAP

OAHU

MAKAHA

KAULANAHA RD

ALTERNATIVE E

ALTERNATIVE E-W

FARRINGTON HIGHWAY

POKAI BAY

MAKAHA BEACH PARK

LOCATION MAP

OAHU

MAKAHA

KAULANAHA RD

ALTERNATIVE E

ALTERNATIVE E-W

FARRINGTON HIGHWAY

POKAI BAY

MAKAHA BEACH PARK

PROPOSED WIDENING.
VIII. THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The proposed widening is expected to enhance the long-term productivity of this segment of Farrington Highway. As previously stated, the project will accommodate a greater number of vehicles which will be created by the population growth of the area and development of recreational sites. Without the proposed action, the highway will become severely congested during weekday peak hours and weekend recreational oriented traffic peaks. Over a 20-year period, the productivity of the highway in terms of carrying capacity and time-savings is expected to be beneficial from both an economic and social standpoint.

The lands in question (present and future right-of-way) are owned by the State or Federal government. Therefore, the property is not expected to affect land value or revenue. The present usage of the project area will continue as a public roadway.
IX. MITIGATION MEASURES PROPOSED TO MINIMIZE AVERSE IMPACTS

Mitigation measures relating to specific environmental aspects were discussed in Section V., The Probable Impact of the Proposed Action on the Environment. Therefore, in this section discussion is limited to the overall, general mitigation measures which will be employed during the construction phase of the project.

Air pollution resulting from highway construction activity is always a possibility. Specific measures to control dust during construction include non-burning techniques for the disposal of grubbed debris; frequent waterings; use of dust palliatives; restricting the area of operation; paving of construction lanes and curtailing of activities during dry and/or strong wind conditions.

The noise created by site clearing and construction will be minimized in the form of limiting heavy construction work during daylight hours. In this way, the construction schedule will coincide with the part of the day in which most of the residents are at work.

Erosion and siltation during construction will be kept to a minimum.

Procedural and standard measure contained in the State's "Standard Specifications for Road and Bridge Construction" will insure the minimization of erosion.

During the EIS consultation period, the Department of Transportation Services, City and County of Honolulu (letter dated May 5, 1977, see page 108) noted that the following provisions should also be included in this section:

"1. The contractor shall provide, install, and maintain all necessary signs and other protective facilities, which shall conform to the 'Rules and Regulations Governing the Use of Traffic Control Devices at Work Site on or Adjacent to Public Streets and Highways', adopted by the Highway Safety Coordinator.


These provisions will be included in the contractor's contract terms. Further, the relocation of utilities, improvement of drainage facilities, realignment of driveways (public and private), replacement of signs, and the replacement of chain-link fences, walkways, etcetera will be coordinated with the various public agencies, private utilities, and private individuals involved.
Construction activities must also comply with the provisions of the various Public Health Regulations, including Chapter 44B, Community Noise Control for Oahu.

In addition to these mitigation measures (and those indicated or recommended in Section V), other control measures, unique to the project, can be included as part of the contract's special provisions. These control measures will be determined upon finalizing the plans for the roadway widening.
X. ANY IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

It is anticipated that the proposed action will commit the necessary construction materials, land, and human resources. For the most part, these resources are easily available, but once utilized, irretrievable.

Construction materials in form of asphaltic concrete, rock, sand, concrete, wood, steel, et cetera, will be used in widening the roadway. These materials are readily available and will not constitute a significant depletion of a valuable resource. Once utilized, these materials will not likely be reused or recycled.

The additional lands to be acquired for the right-of-way will also be committed to a roadway use. These lands are already in public use (the lands in question are owned either by the State or Federal government) and are vacant. However, once the lands are acquired for the highway's right-of-way, the land will be committed to roadway use.

Human resources in form of labor (e.g. planning, designing, engineering, construction labor, and maintenance) will also be expended. This resource is felt to be available and beneficial for the community. It will provide employment for the construction industry during the construction phases, as well as provide employment for maintenance personnel working for the State.

There are no known physical or cultural resources which will be adversely affected or committed within or adjacent to the project bounds.
XI. AN INDICATION OF WHAT OTHER INTEREST AND CONSIDERATIONS OF GOVERNMENTAL POLICIES ARE THOUGHT TO OFFSET THE ENVIRONMENTAL EFFECTS OF THE PROPOSED ACTION

At this time, there are no known governmental policies or plans which would affect the proposed action. There are, however, several governmental projects in the Waianae area which would be served by the project. These projects have been identified and described elsewhere in the text, and it should suffice to note that these projects include development of public housing and Hawaiian Homes housing, assistance in developing low and/or moderate income housing, expansion of regional and state beach parks, improvement of new beach parks, improvement of utilities, and extension of sewage lines. It is felt that the widening of Farrington Highway will benefit these projects by: (1) providing for improved accessibility and time-savings to and from the area to be served; (2) lessening traffic congestion during weekday and weekend traffic peaks; (3) accommodating the future projected growth (both population and increased recreational usage) for this segment of the Waianae Coast; and (4) by doing all of the above, the widening will also enhance the usage of the sand beaches and recreational areas along the Waianae Coast.

It is felt that the proposed four-lane widening is consistent with the State land use designation (Urban) and the City and County of Honolulu's zoning of the area served by the proposed project.
XII. ORGANIZATIONS AND PERSONS CONSULTED

The EIS Preparation Notice for the proposed Farrington Highway Widening was reported in the EQC Bulletin on April 8, 1977 (Volume III, No. 7). Deadline for requests to be consulting parties was May 9, 1977. During this period, only one party, the Waianae Coast Business Association, made a request to become a consulting party.

A total of thirty-one (31) agencies were consulted in the preparation of the Environmental Impact Statement. These agencies (identified below) received a copy of the EIS Preparation Notice and were requested to review and provide comments on the Preparation Notice. A total of 21 agencies responded; agencies providing a response are asterisked and the date of their response is shown in parenthesis.

Federal Agencies

* Department of the Air Force, Headquarters 15th Air Wing (May 10, 1977)
* Department of Transportation, U.S. Coast Guard (Commandant) (May 6, 1977)
* U.S. Department of Agriculture, Soil Conservation Services (April 26, 1977)
* Department of the Army, U.S. Army Support Command Hawaii (April 22, 1977)
* Department of the Army, Pacific Ocean Division, Corps of Engineers (May 5, 1977)

State Agencies

* Department of Planning and Economic Development (April 29, 1977)
* Department of Accounting and General Services (April 20, 1977)
* Department of Defense (April 12, 1977)
  University of Hawaii, Environmental Center
  University of Hawaii, Water Resources Research Center
* Department of Health (May 3, 1977)
* Department of Education (April 18, 1977)
* Department of Land and Natural Resources
* Department of Agriculture (May 12, 1977)
* Department of Hawaiian Home Lands (April 13, 1977)
* Department of Social Services and Housing (April 25, 1977)
* Land Use Commission (June 1, 1977)
  Office of Environmental Quality Control

County Agencies

* Department of General Planning (May 2, 1977)
  Fire Department
* Police Department (April 19, 1977)
* Board of Water Supply (May 2, 1977)
* Department of Parks and Recreation (April 26, 1977)
* Department of Housing and Community Development (April 13, 1977)
* Department of Transportation Services (May 5, 1977)
* Department of Public Works (April 15, 1977)

Other Organizations

Hawaiian Electric Company
Waianae Commission Neighborhood Board
Neighborhood Commission Board
Waianae Coast Business Association**
Park Engineering, Inc.***

Section XIII includes the reproduction of the letters received and responses provided to those agencies providing comments.

** Mr. Anson O. Rego submitted a request (dated April 13, 1977) to be a consulted party in the preparation of the EIS. No comments were received after the transmittal of the EIS Preparation Notice. Later, Mr. Rego corresponded to the Department of Transportation requesting that the Waianae Business Coast Association be involved prior to the plans being finalized. Subsequently, discussions with the Association prior to the finalization of plans will occur.

*** Park Engineering, Inc. requested a copy of the EIS Preparation Notice, no response was received thereafter.
XIII. REPRODUCTION OF COMMENTS AND RESPONSES MADE DURING THE CONSULTATION PROCESS

Section XII, identified those agencies contacted during the EIS consultation process. Pages 89 through 113, are copies of the letters received during the consultation period. Where the letter contained comments and/or suggestions, a response was provided by the Department of Transportation. This response is found following the agency's letter. In the cases where a "no comment" letter was received, no response was provided by the Department of Transportation.

The agencies providing letters are identified below in the order they appear; those agencies with "no comments" are indicated by an asterisk.

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20. U.S. Department of Transportation, U.S. Coast Guard (May 6, 1977) 110
22. Department of Agriculture, State of Hawaii (May 12, 1977) 112
*23. Land Use Commission, State of Hawaii (June 1, 1977) 113
Mr. Herbert Tao  
Department of Transportation  
869 Punchbowl Street  
Honolulu, Hawaii 96813  

Dear Mr. Tao:

Farrington Highway Widening, Lualualei  
Homestead Road to Vicinity of Jade Street  

Thank you for sending us a copy of the "Farrington Highway Widening, Lualualei Homestead Road to Vicinity of Jade Street" Environmental Impact Statement. We have received the publication and have no comments to offer.

Yours truly,

[Signature]

Enclosure
April 13, 1977

State Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Attention: Mr. Herbert Tao

Gentlemen:

Subject: Farrington Highway Widening
Lualualei Homestead Road
to Vicinity of Jade Street
Waianae District, Oahu

Please send one (1) copy of the EIS Preparation Notice for the subject project to:
Park Engineering, Inc.
190 South King Street, Suite 205
Honolulu, Hawaii 96813

Attention: Mr. Glenn Hirano

Sincerely yours,

PARK ENGINEERING, INC.

Mr. E. Alvey Wright
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Re: Project No. 93B-01-75
Farrington Highway Widening

Dear Mr. Wright:

Will you please include the newly formed Waianae Coast Business Association, 85-833 Farrington Highway, Waianae 96792 as one of the organizations to be consulted in the preparation of the E. I. S. of the Farrington Highway widening.

Thank you very much.

Very truly yours,

ANSON O. REGO

April 13, 1977
July 22, 1977

Mr. E. Alvey Wright, Director
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Wright:

SUBJECT: Request for Comments on EIS Preparation Notice, Farrington Highway Widening, Lualualei Homestead Road to Vicinity of Jade Street, Project No. 938-01-75

The proposed project does not directly affect lands owned by this Department. The Department, however, does support the purpose of the project—accommodating increased traffic volume.

Should there be any questions, please contact Mr. William Blaisdell, telephone 548-2644.

Owau no me ka ha'a'aha'a,
(I am, humbly yours)

[Signature]

(MRS.) BILLIE BEARER, CHAIRMAN
Mr. B. Alvey Wright, Director
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Wright:

Subject: EIS Preparations Notice for the
            Farrington Highway Widening,
            Laaulu Homestead Road to the
            Vicinity of Jade Street
            Project No. 938-01-75

With reference to your letter LT-DS 2.16662, we have reviewed
the subject matter and have the following comments:

1. A sewer improvement district project (Makaha Sewers, Section
   1) will be initiated shortly along Farrington Highway between
   Jade Street and Kauluwela Road to serve properties on the
   mauka side of the highway. Please coordinate your work with
   our Sewers Division.

2. As drainage will be involved in your project, this phase
   should be coordinated with the Drainage Section of the
   Division of Engineering.

Very truly yours,

[Signature]

WALLACE MIYAHIRA
Director and Chief Engineer

cc: Div. of Engineering
Div. of Sewers

Mr. Wallace Miyahira
Director and Chief Engineer
Department of Public Works
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Miyahira:

Subject: EIS Preparations Notice, Farrington
            Highway Widening, Laaulu Homestead
            Road to Vicinity of Jade Street,
            Project No. 938-01-75

Thank you for your letter of April 14, 1977 regarding
the above indicated EIS preparation notice. We have reviewed
these comments and provide the following dispositions:

1. We will coordinate the highway widening
   project with the sewer improvement district project. We
   anticipate, however, that your project will be completed
   prior to construction of the widening project and will
   verify this with Sewers Division staff

2. The drainage plans will be coordinated with
   the approval by the Drainage Section of the Division of
   Engineering.

Your comments as well as our response will be incorporated
into the EIS, which is anticipated to be completed in the
latter part of this year.

Very truly yours,

[Signature]

B. ALVEY WRIGHT
Director

cc: Environmental Communications, Inc.,
   (w/copy of letter dated April 15, 1977)
April 18, 1977

HONORABLE E. ALOAYE WRIGHT
Director
Department of Transportation
State of Hawaii
Honolulu, Hawaii

Dear Admiral Wright:

Subject: Waianae Intermediate School
         Farrington Highway Widening Project

This is in response to your letter No. HAY-RY 3.42224
dated February 2, 1976 to the Department of Education. Attached
herewith is a copy of the February 19, 1976 Memorandum from
the DOS commenting on the subject project.

We have reviewed the proposed widening project and have
the following comments to offer:

Waianae Intermediate

The existing fire hydrant, water meter, valves and chain-
link fence shown on the attached plan should be relocated as
required.

Waianae Library

1. The existing lawn sprinkler heads within the proposed
   roadway right-of-way as shown on the attached plan should be
cut and plugged.

2. The existing water meter, valves, telephone booth,
   sign post, and coconut trees should be relocated as required.

3. The existing lawn sprinkler heads within the proposed
   slope pavement should be raised as required and the vacuum
   breakers should be adjusted accordingly.

Attachment
4. The existing library walkway access off of Farrington Highway should be modified as required to maintain a ramp grade of less than 8.3%. Thank you for the opportunity of reviewing the proposed project. If there are any questions, please call us.

Very truly yours,

M. Nakasone
State Controller

cc: Mr. C. Clark
Mr. L. Viduya

Mr. Charles C. Clark
Superintendent
State of Hawaii
Department of Education
P.O. Box 2360
Honolulu, Hawaii 96804

Dear Mr. Clark:

Subject: Environmental Impact Statement
Preparation Notice, Farrington Highway Widening, Ewa Techtonic Fault to Vicinity of Jadecrest Project No. 998-01-73

Thank you for your letter of April 16, 1977, regarding the above indicated Environmental Impact Statement (EIS) preparation notice. We would like to respond to the comments made by the Department of Accounting and General Services that were attached to your letter. Dispositions to each of the items brought up are provided below:

1. Waimea Intermediate
   Engineering plans for the proposed project will include relocation of the existing fire sprinkler, water meter, valves, and chain link fence for that portion of the roadway which will affect Waimea Intermediate School.

2. Waimea Liberty
   a. Please call for the existing lawn sprinkler heads to be cut and plugged within the proposed roadway right-of-way.
b. The existing water meter, valves, telephone booth, sign post, and coconut trees will be appropriately relocated.

c. The existing lawn sprinkler heads within the proposed slope easement will be raised as required under vacuum breakers adjusted accordingly.

d. The existing driveway off of Farrington Highway will be modified to maintain a steep grade of less than 9.33%.

Thank you for your comments.

Very truly yours,

[Signature]

E. ALVEY WRIGHT
Director

Mr. Charles G. Clark
July 22, 1977
Page 2

Mr. E. Alvey Wright, Director
State of Hawaii
Department of Transportation
809 Punchbowl Street
Honolulu, Hawaii 96813

Subject: Request for Comments on EIS Preparation Notice, Farrington Highway Widening, Lualualei Homestead Road to Vicinity of Jade Street, Project No. 93B-01-75

We have reviewed the proposed widening of Farrington Highway, from Lualualei Homestead Road to the vicinity of Jade Street. The street widening will definitely assist in the movement of vehicular traffic, and the problems of speeding and merging into a two-lane roadway beyond Jade Street in the Kaena direction may be anticipated.

Although there will be an increase in traffic and other calls for service, we do not anticipate any immediate need for additional police officers for the near future.

Very truly,

[Signature]

FRANCIS KEALA
Chief of Police
July 1, 1977

Dear Chief Keala:

Subject: BIS Preparation Notice, Farrington Highway Widening, Lualualei Homestead Road to Vicinity of Jade Street, Project No. 938-01-72

Thank you for your comments dated April 19, 1977, regarding the above indicated BIS Preparation Notice. Your comments will be incorporated into the EIS which is anticipated to be completed at the end of this year. We note that in addition to the technical studies, which are being prepared, we are also preparing as part of the environmental impact study the potential impact this project will have on safety. The results of this study will be incorporated into the EIS.

Again, our appreciation for your comments.

Very truly yours,

[Signature]

Director

cc: Environmental Communications, Inc.
   (w/copy of letter dated April 19, 1977)
2. Air quality and noise study in the vicinity of the schools should be conducted.

3. The design of the highway should not in anyway pose drainage problems in any of the DAOGS-serviced facilities.

4. The design of the highway should not in anyway pose a danger to the vehicles ingressing or egressing from the DAOGS-serviced facilities.

5. The design must provide for an entrance to the proposed Waianae Civic Center.

We also would like to refer to our letters No. (P)1397.6 dated April 13, 1976 and No. (P)1655.6 dated June 16, 1976 in which other comments were made.

Because our comments are general in nature without the benefit of any preliminary plans, we would appreciate it if we can obtain a copy of such plans for our review.

Very truly yours,

VIDEO MURAKAMI
State Comptroller

July 27, 1977

Mr. Hideo Murakami
Comptroller:
State of Hawaii
Department of Accounting
and General Services
P. O. Box 119
Honolulu, Hawaii 96810

Dear Mr. Murakami:

Subject: Environmental Impact Statement
Preparation Notice, Farrington Highway Widening, Ewa Hills Homestead Road to Vicinity of Jade Street
Project No. 93-01-75

Thank you for your comments of April 20, 1977 on the above mentioned project. We have responded to each of your comments on an itemized basis below.

1. Special speed-limit signs (relating to school hours) will be posted.

2. The air quality and noise studies presently being prepared include receptor sites along the roadway and in the vicinity of the schools (the portion fronting the roadway). The results of both studies will be provided in the environmental impact statement; additionally, copies of both studies will be provided to your Department for your review.

3. Because this section of Farrington Highway traverses through a flood-prone area without adequate drainage to the ocean, the proposed roadway drainage will reduce but not eliminate areas currently impacted by floodwaters.
4. The widening will accommodate additional vehicles, allowing for a better movement of traffic and decreasing travel time. The highway design should also provide adequate safety precautions relating to vehicular ingress and egress from public facilities.

5. The highway plans will provide for an entrance to the proposed Waianae Civic Center, and the location will be coordinated with your office.

We hope that we have adequately responded to your comments.

If we can provide further information, please contact Mr. Herbert Tao (353-6532) of our Technical Design Services Office, Land Transportation Facilities Division.

Very truly yours,

[Signature]
E. ALVEY WRIGHT
Director

cc: LT-DS
Paul I. Taniguchi, Ltd. w/ey of ltr dtd 4/20/77
Environmental Communications, Inc. w/ey of ltr dtd 4/20/77

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

Gentlemen:

Reference is made to Environmental Impact Statement (EIS) Preparation Notice for Widening of Farrington Highway in Waianae from Lualualei Homestead Road to the vicinity of Jade Street which was forwarded by your letter LT-DS 2,36662, dated 5 April 1977.

The document has been reviewed and we have no comments on the environmental aspects of the project. US Army Support Command, Hawaii strongly supports the project for improved safety and increase in traffic capacity.

The opportunity to review the EIS preparation notice is appreciated.

Sincerely yours,

[Signature]
CARL P. PETTLOHM
Colonel, CE
Director of Facilities Engineering
TO: Office of Environmental Quality Control
750 Holomua St., Room 301
Honolulu, Hawaii 96813

FROM: Andrew T. Chang, Director
Department of Social Services and Housing

SUBJECT: Farrington Highway Widening, Waimanalo Homestead Road to Vicinity of Jade Street, Project No. 930-01-75

April 25, 1977

We have reviewed the subject EIS Preparation Notice for the widening of Farrington Highway.

The Hawaii Housing Authority presently has projected plans for approximately 1,100 dwelling units to be constructed in the Waimanalo Coa area during the next three/five years. Approximately 350 units of the total will be situated in Makaha off Water Street.

The subject widening project, which will result in increased accessibility, will accommodate and enhance our projected housing plans in the Waimanalo area and may future plans for further urbanization.

Attachment

cc: DOT, Land Transportation Facilities Division
Governor, State of Hawaii
Hok, Attn: Mr. Kurimoto/Mr. Wong

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
440 Alexander Young Building, Honolulu, HI 96813

April 26, 1977

Mr. E. Alvey Wright
Director, Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Wright:

Subject: Farrington Highway Widening, Waimanalo Homestead Road to Vicinity of Jade Street, Project No. 930-01-75

We have reviewed the above-mentioned EIS preparation notice and have no comments to offer.

Thank you for the opportunity to review this preparation notice.

Sincerely,

Jack F. Kamai
State Conservationist
April 26, 1977

Mr. E. Alvey Wright, Director
Department of Transportation
669 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Wright:

SUBJECT: EIS PREPARATION NOTICE
FARRINGTON HIGHWAY WIDENING

We have reviewed the subject project and find your proposal to be acceptable.

Sincerely,

Young Suk Ko, Director

The Honorable E. Alvey Wright
Director
Department of Transportation
State of Hawaii
Honolulu, Hawaii

Dear Mr. Wright:

Subject: Environmental Impact Statement Preparation Notice
Farrington Highway Widening, Lualualei Homestead Road to Jade Street, Project No. 333-01-75

We have reviewed the subject EIS Preparation Notice and wish to offer the following comments:

1) Section IV, "General Description of the Action's Technical, Economic, Social and Environmental Characteristics," should contain additional information regarding the physical characteristics of Farrington Highway as a major vehicular arterial from/to the urban boundaries of Honolulu. Data such as vehicular capacity, AADT estimates, pavement width, and time/distance travel estimates would enable reviewers to gain a better understanding of how the subject widening project might impact existing conditions.

2) In developing Section V-B, "Social and Land Use Considerations," we suggest that you explore information supplied in the following two publications:
   a) 1975 Census Update, Oahu - Office of Economic Opportunity (OEO)
   b) Employment By Place of Work, 1974 - Department of Planning and Economic Development/Department of Health, State of Hawaii

3) An analytical investigation of potential land use impacts resulting from the widening project should include a review of the Oahu General Plan and City and County of Honolulu Interim Zoning Control Ordinance. Maps detailing existing land use and
zoning of Moku'a Valley, for example, indicate that a substantial amount of acreage is presently zoned for residential, apartment, or hotel use. Much of this land is currently undeveloped. The subject EIS should identify whether the widening project will significantly induce development of urban vacant or underdeveloped lands in the Waianae area in an environmental and socio-economic considerations.

4) Specific information should be supplied in the subject EIS regarding the bicycle component of the highway widening construction project. Bikeplan Hawaii, prepared by the Department of Transportation, has identified Waianae as an area where bicycle facilities should be constructed. In accordance with Bikeplan Hawaii recommendations, bicycle AADT counts (weekly/weekend) should be taken prior to construction of any bicycle facility in order to assess cost/benefit ratios and to serve as a basis for monitoring bicycle use after the bicycle is constructed. Consultation with the Hawaii Bicycling League during the bicycle location and design stage may also be desirable.

We have no further comments to offer at this time but appreciate this opportunity to review the EIS Preparation Notice.

Sincerely,

HIKIKO Kono

cc: Office of Environmental Quality Control

July 22, 1977

Mr. Kono, Director
Department of Planning and Economic Development
250 South King Street
Honolulu, Hawaii 96813

Subject: EIS Preparation Notice, Farrington Highway of the Waianae Ranch, Ewa, and the Employment by Place of Work, 1974, will be reviewed and appropriately utilized in describing present socio-economic conditions and socio-economic impact.

1. In the EIS we will attempt to discuss the project's technical, economic, social, and environmental characteristics with such detailed data as vehicular capacity, present estimated AADT, pavement width, rights-of-way, and time/distance travel estimates.

2. Both the 1975 Census Update, Oahu, and the Employment by Place of Work, 1974, will be reviewed and appropriately utilized in describing present socio-economic conditions and socio-economic impact.

3. Presently the socio-economic study will entail the possible impact, direct and indirect, on land use. Understandably, this socio-economic aspect (secondary urban impact) is difficult to evaluate, one of the principle reasons for this difficulty in evaluation is that the Waianae Coast is undergoing many types of changes. This includes the projected residential unit growth of 1,000 in the next five years, the construction of the Waianae Small Boat Harbor, the impact of growth of Campbell Industrial Park and the adjacent Kaa district, as well as the development of the Waianae Beach Area. With several large developments of this nature taking place concurrently, it is difficult to aggregate their individual impact on land use and therefore
on population growth. We feel that the socioeconomic study now underway will be one of the first of this nature prepared in the state. For this reason, we hope that upon its completion, we can provide your department a study in its entirety so that the methodology presented can be reviewed and evaluated by your department's planners. At this time we anticipate completion of the socioeconomic study in November.

4. In the area of bikeways, we will consult with the existing bikeway plans to determine where coordination can be incorporated and included within the scope and funding of this project.

We hope that we have provided adequate responses to your comments, and if we can be of further assistance, please contact Herbert Lee (946-8942) of our Technical Design Services Office, Land Transportation Facilities Division.

Very truly yours,

[Signature]

E. Alvey Wright
Director

Cc: Environmental Communications, Inc.
(w/copy of letter dated April 29, 1977)

Dear Admiral Wright:

Subject: Request for Comments on EIS Preparation Notice, Farrington Highway Widening, Lualualei Homestead Road to Vicinity of Jade Street, Project No. 93B-01-75

This confirms that our proposed 20-inch main along Farrington Highway from Lualualei Homestead Road to Kualuwaha Road will be constructed in conjunction with your project. We will pay for the costs incurred by our new main installation. A copy of the negative declaration previously transmitting this information to you is enclosed.

In order to protect our existing water systems in the project area, we request that the highway widening construction plans be coordinated with us.

Please call Mr. Lawrence Whang at 548-5221 if further information is needed.

Very truly yours,

Edward Y. Misita
Manager and Chief Engineer

Enc.
project should, at the least, extend beyond the developed area of Makaha. The major constraint seems to be funding.


The EIS merely indicates that widening from a two-lane to a four-lane undivided highway is proposed within a proposed 80-foot right-of-way (expanded from 60 feet), with signalized intersections. ADT's for 1969, 1975 and 1998 are provided.

The EIS should indicate existing and projected peak-hour traffic volumes; typical pavement widths; highway capacity; what intersections will be signalized; pedestrian crossings; speed limits; slow zones; whether parking will be permitted; how access to abutting properties will be handled; where left turn lanes, if any, will be provided to major land users; and exit lanes for dispersal of traffic onto slower speed streets. Appropriate maps and diagrams should be provided in the EIS.

The EIS should also include estimated costs, estimated start of construction and estimated time of completion or completion date.

4. Population, Housing and Land Use. The EIS should provide information on population and housing in the district as well as the project area or vicinity, i.e., Waianae Valley and Makaha Valley. What kind of growth has occurred? How much? Where? What is the projected growth and where is this growth expected? These should be related to the ADT's and peak hour volumes; i.e., the EIS should show existing as well as projected land use and indicate what land use pattern was the basis for the projected ADT's for 1998.

Population counts are available from the census and the Department of Planning and Economic Development estimates. Housing counts are also available from the census. Housing authorizations and land use data are available from the Data Systems Branch of the Department of General Planning. Population projections for the Waianae District are available in the revised General Plan. The 1975 OEO Census update provides updated socio-economic data. 1970 and 1975 comparisons can be made.

5. Geology and Soils. The section on Geography has little relevance to the discussion. It should be revised to relate to the nature of urban development in Waianae, to the development of Farrington Highway along the coast, and to later discussion of alternate highway proposals.

The EIS should include a general discussion of soils in the highway right-of-way. The presence, if any, of clayey soils with high shrink-swell potential should be indicated.

6. Drainage. Major streams or drainage channels should be identified and mapped, particularly if they require bridges or culverts. The EIS should indicate the ultimate fate of drainage from the highway and the impact at those locations to which drainage waters ultimately will flow.

The EIS should indicate what portions of the project are in designated tsunami or flood prone areas.

7. Network. The EIS should show that the proposed project is an element of an overall transportation network for the comprehensively planned development of the area.

In this regard, the EIS should indicate, on appropriate maps, what network configurations have been officially adopted by City Council beginning with the General Plan of 1964, and following up with discussions of various amendments up to the present time, and indicating what currently is the officially adopted transportation network for this area. The EIS should indicate projected ADT's and peak hour traffic volumes for the major elements of the network.

Sincerely,

Robert R. May
Chief Planning Officer

BMIB11:14
July 21, 1977

Mr. Edward Y. Hirota
Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu
630 South King Street
Honolulu, Hawaii 96813

Subject: EIS Preparation Notice, Farrington Highway Widening, Iwakua Homestead Road to Vicinity of Jade Street, Project No. 938-01-75

Dear Mr. Hirota:

Thank you for your letter of May 2, 1977 regarding the above-mentioned EIS Preparation Notice. We will continue to coordinate with your staff the proposed installation of the 20" water main along Farrington Highway from Iwakua Homestead Road to Kaauka Road. It is our understanding that the installation of this water main will be in conjunction with this project and that your department shall provide funds for the cost incurred by this new installation.

Again, thank you for your comments.

Very truly yours,

[Signature]

Mr. E. Alvey Wright, Director
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813

cc: Environmental Communications, Inc.
(w/copy of letter dated May 2, 1977)

May 2, 1977

Mr. E. Alvey Wright, Director
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Wright:

Farrington Highway Widening—Iwakua Homestead Road to Vicinity of Jade Street, Project No. 938-01-75

Request for Comments on EIS Preparation Notice,

April 5, 1977

DOT Ref. LT- DS 2, 36662

We offer the following comments and suggestions:

1. Maps. If maps are included in the EIS, they should relate to the text. Figure 1 of the EIS Preparation Notice is inappropriate. It is an old map and does not show what the text indicates—"...the major highway system on the island of Oahu." It would be better if you used the typical road maps available at the major service stations at an approximate scale of 1" = 4 miles, or a portion of a Rand McNally map at an approximate scale of 1" = 3 miles.

Also, if more than one map is used, the maps should face the same way to the reader. When Figures 2 and 3 are placed side-by-side, one of the maps reads upside down because the labels are printed inconsistently.

2. Project Limits. The basis for the project limits should be explained. Farrington Highway is a four-lane facility up to Iwakua Homestead Road. The project starts here and ends at Jade Street, about halfway through Makaha.

The EIS should indicate why it ends here rather than a few blocks further north or at or beyond Makaha Beach Park. The
July 27, 1977

Mr. Robert R. Hay
Chief Planning Officer
Department of General Planning
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Hay:

Subject: Farrington Highway Widening, Eualualo Homestead Road to Vicinity of Jade Street, Project No. 938-01-75, EIS Preparation Notice

Thank you for your letter of May 2, 1977 regarding the above indicated EIS Preparation Notice. We have reviewed your comments and suggestions and would like to provide the following dispositions:

1. Maps. One of the maps which will be included in the EIS is a 1976 map which shows the major highway system for the project area. We feel that this would be a more updated map. The most recent USGS map for this area will also be provided in the EIS. The USGS map will have a scale of 1" = 4,000'.

In regard to your comment on the consistency of the maps in terms of direction, we will attempt to secure maps which consistently read with the north arrow facing up.

2. Project Limits. The basis for the project limit is because of the average daily traffic demands. Our information indicates that the widening between Eualualo Homestead Road and the vicinity of Jade Street will accommodate the residential trips generated in this area. Beyond Jade Street there appear to be few residential destination points. We do recognize, however, that there are recreational destination points beyond the project limits which are congested several times during the year.

3. Project Characteristics. We have reviewed specific items which you identify as part of the action's general description. We note that wherever possible, we will attempt to include these concerns in the EIS.

4. Population, Housing and Land Use. Presently the socioeconomic study for the affected area is being conducted. One of the objectives of this socioeconomic study is to determine population, housing and land-use trends. We will provide this information in the EIS.

A literature research will be conducted to determine the available population and housing data for the Waianae District. Amongst the references to be used will be the 1975 OEO Census update.

5. Geology and Soils. The section on geography was included as a general discussion of the site's geographic characteristic. For this reason, there was no attempt made to go into detail on soils and geological features. In the EIS, a section on geology and soils will be provided. Additionally, urban development in Waianae will be treated as a separate item and will likely be discussed under the section Urban Characteristics of the Project Area.

6. Drainage. As you have suggested, we will identify the major streams and drainage channels which are affected.

The EIS will contain a project entitled Natural Hazards which reviews the project area in terms of whether it lies within designated tsunami or flood-prone areas.

7. Notation. As we understand this comment, this aspect refers to the long-range plans for the development of a transportation system in the Waianae area. In this regard we will endeavor to identify the relationship of this proposed project with the long-range comprehensive plan for the area.
Mr. Robert R. May
Page 3
July 27, 1977

We hope that we have provided sufficient responses to your comments and find that your concerns and suggestions will provide useful guidelines in our preparation of the EIS.

Very truly yours,

E. Alvey Wright
Director

Environmental Communications, Inc.

Mr. E. Alvey Wright
Director
Department of Transportation
809 Punchbowl St.
Honolulu, Hawaii 96813

Dear Mr. Wright:

Subject: Request for Comments on Proposed Environmental Impact Statement (EIS) for Farrington Highway Widening, Kualoa Road to Vicinity of Jade Street, Project
No. 936-01-75

Thank you for allowing us to review and comment on the subject proposed EIS. The following are comments from our staff:

1. The construction activities must comply with Public Health Regulations, Chapter 44B, Community Noise Control for Oahu.
   a. An application for community noise permit must be filed and approved by the Department of Health.
   b. Construction activities must comply with the provisions of the conditional use permit as stated in Public Health Regulations, Chapter 44B and the conditions of the permit.

2. The highway must meet the design conditions as stated in Section 4.2-8 Highway Noise, of Public Health Regulations, Chapter 44B.

We realize that the statements are general in nature due to preliminary plans being the sole source of discussion. We, therefore, reserve the right to impose future environmental restrictions on the project at the time final plans are submitted to this office for review.

Sincerely,

James S. Kimagai, Ph.D.
Deputy Director for
Environmental Health
July 12, 1977

Mr. E. Alvey Wright, Director
Department of Transportation
State of Hawaii
869 Punchbowl St.
Honolulu, HI 96813

Dear Sir:

We have reviewed the Environmental Impact Statement Preparation Notice for the Farrington Highway Widening as requested in your letter LT-185 2.35662 of 5 April 1977.

We suggest that the impact on water quality during construction of the replacement bridges at Kaunui Bridge and East Makaha Stream Bridge be discussed. If the construction involves placement of fill material in the stream, a Department of the Army permit may be required.

Thank you for the opportunity to review this document.

Sincerely yours,

[Signature]

Chief, Engineering Division

cc: Environmental Communications, Inc. (w/copy of letter dated May 3, 1977)
July 22, 1977

Mr. Kauk Cheung, Chief
Engineering Division
Department of the Army
Pacific Ocean Division
Corps of Engineers
Building 230, Fort Shafter
ARO San Francisco 96858

Dear Mr. Cheung:

Subject: Environmental Impact Statement
Preparation Notice, Farrington Highway Widening, Lualualei Homestead Road to Vicinity of Jade Street
Project No. 938-01-75

We have received and reviewed your comments of May 3, 1977, regarding the above indicated Environmental Impact Statement (EIS) Preparation Notice. At this time, we anticipate providing water quality data for Kaupuni Stream and Kaa Makaha Stream. However, this information will be limited to that which is available through various water quality data publications. It is felt that the construction of replacement bridges will not significantly affect the water quality in the streams; however, this potential will be evaluated.

We anticipate that there will be placement of fill material in the stream, and thus, a Department of Army permit will be applied for.

We appreciate your comments and hope that we have adequately responded to them.

Very truly yours,

Kazu Hayashida
Director

cc: LT-D3
Environmental Communications, Inc. w/cy of ltr dtd 5/3/77

May 5, 1977

Mr. E. Alvey Wright, Director
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Wright:

Subject: Request for Comments on EIS Preparation Notice,
Farrington Highway Widening, Lualualei Homestead Road to Vicinity of Jade Street,
Project No. 938-01-75

We recommend that Section VIII, page 7, "Proposed Mitigation Measures" include the following provisions:

1. The contractor shall provide, install, and maintain all necessary signs and other protective facilities, which shall conform to the "Rules and Regulations Governing the Use of Traffic Control Devices at Work Site on or Adjacent to Public Streets and Highways" adopted by the Highway Safety Coordinator.


Very truly yours,

Kazu Hayashida
Director
Mr. Kazu Hayashida
Department of Transportation Services
City and County of Honolulu
610 South King Street
Honolulu, Hawaii 96813

Dear Mr. Hayashida:

Subject: Environmental Impact Statement Preparatory Notice, Farrington Highway Widening, Kuuleia Holmes Road to Vicinity of Jade Street Project No. 938-61-75

Thank you for your comments of May 3, 1977, regarding the above indicated Environmental Impact Statement (EIS) Preparatory Notice. As you have recommended, we will include in the "Proposed Mitigation Measures" section of the EIS the following provisions:

1. "The contractor shall provide, install, and maintain all necessary signs and other protective facilities, which shall conform to the rules and regulations governing the use of Traffic Control Devices at work sites on or adjacent to public streets and highways as adopted by the Highway Safety Coordinator."

2. That the following regulations and standards will be complied with:

Mr. Kazu Hayashida
July 22, 1977

LT-US 2.36821


Again, thank you for your comments.

Very truly yours,

R. Negahbani

E. Alvey Wright
Director

cc: LT-US
Environmental Communications, Inc. w/cy of ltz dtd 5/5/77
Paul T. Tsunoguchi, Ltd. w/cy of ltz dtd 5/5/77
July 22, 1977

Captain J. V. Caffrey
United States Coast Guard
Chief of Staff
Fourteenth Coast Guard District
677 Ala Moana
Honolulu, Hawaii 96813

Subject: Environmental Impact Statement Preparation Notice, Farrington Highway Widening, Including Homestead Road to Vicinity of Jade Street, Project No. 936-01-75

We have received and reviewed your comments of May 6, 1977, on the above indicated Environmental Impact Statement (EIS) Preparation Notice. Please be assured that the indicated need for a Coast Guard Bridge Permit application will be pursued. We will also address the horizontal and vertical navigational clearances of both the existing and proposed bridge structures (Kaapuni Stream and East Hakai Stream) in the EB. It should be noted that the proposed plans for the replacement bridges indicate that there would be no impact on the existing navigational use of these watercourses. At present, navigational uses are primarily limited to small, non-motorized rafts used by children living in this area.

Thank you for your comments and a copy of the booklet, "Permits for the Construction of Bridges Across Navigable Waters of the United States."

Sincerely,

J. V. Caffrey
Captain, U. S. Coast Guard
Chief of Staff
Fourteenth Coast Guard District

Encl: (1) Booklet-"Permits for the Construction of Bridges Across Navigable Waters of the United States"

Copy to: (less enclosure)
HQ CG Hawaii
CGHQ Washington DC
Commandant (6-WEP-7)
Waters of the United States”. Upon completion of the EIS, a copy will be sent to your office for your further review and comments.

Very truly yours,

R. Realty Andrews

cc: LT-U-2
Environmental Communications, Inc. w/ly of ltr dt 5/6/77
May 12, 1977

MEMORANDUM

To: Mr. E. Alvax Wright, Director
Department of Transportation

Subject: EIS Preparation Notice, Farrington Highway Widening, Lualualei Homestead Road to Vicinity of Jade Street, Project No. 918-01-75
Ref: LT-35 2.36662

The Department of Agriculture has reviewed the subject EIS Preparation Notice. We strongly support the socio-economic impact study being proposed to identify the secondary or indirect impacts of the project on the community. Our agency's most immediate concern would be related to the impact of the project upon agriculture and water supply.

Enclosed for your use is a copy of "Analysis of Changes in Agricultural Activities, A Case Study of Waimau Inland Region," which was prepared as part of the State of Hawaii analytical training program.

If we may be of any further assistance to your consultants, please let us know. Thank you for the opportunity to comment.

John Farias, Jr.,
Chairman, Board of Agriculture

Enclosure

July 22, 1977

Mr. John Farias, Jr.
Chairman, Board of Agriculture
1428 South King Street
Honolulu, Hawaii 96814

Subject: EIS Preparation Notice, Farrington Highway Widening, Lualualei Homestead Road to Vicinity of Jade Street, Project No. 915-01-75

We have received your comments of May 12, 1977 on the above indicated EIS Preparation Notice. Presently we are preparing a socio-economic impact study which will identify the potential impact of the widening project on agriculture. We will utilize the information in the publication "An Analsis of Changes in Agricultural Activities, A Case Study of Waimau Inland Region." We would also like to point out that one of the consultant's socio-economic consultants participated in this case study and thus would be very familiar with agricultural problems in the Waimau region.

Thank you for your comments, and please be assured that we will provide information on agricultural impact of the proposed project.

Very truly yours,

E. Alvax Wright
Director

Cc: Environmental Communications, Inc.
(w/copy of letter dated May 12, 1977)
The Honorable K. Alvey Wright, Director  
Department of Transportation  
State of Hawaii  
869 Punchbowl Street  
Honolulu, Hawaii 96813

Dear Mr. Wright:

Subject: EIS Preparation Notice, Farrington Highway Widening, Lualualei Homestead Road to Vicinity of Jade Street,  
Project No. 930-01-75

Thank you for your letter of April 5, requesting our comments regarding the subject EIS Preparation Notice.

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

Sincerely,

GORDON Y. FURUTANI  
Executive Officer

GORDYF
XV. LIST OF NECESSARY APPROVALS

The following approvals/permits will be required prior to implementing the proposed widening:

1. Shoreline Management Area Application. Submitted to the Department of Land Utilization, City and County of Honolulu, this application is necessary under Ordinance 4529, relating to the protection and enhancement of shoreline areas around Oahu. The City Council provides approval of the application.

2. Grading Permit. Issued by the Department of Public Works, City and County of Honolulu.

3. Building Permit. Issued by the Building Department, City and County of Honolulu.

4. An application for a community noise permit must be filed and approved by the State Department of Health.

As indicated in Exhibits I and II, no permits for this project will be required by the Coast Guard and the U.S. Army Corps of Engineers.
XVI. REPRODUCTION OF THE LETTERS RECEIVED DURING THE
DRAFT ENVIRONMENTAL IMPACT STATEMENT REVIEW
PERIOD AND THE RESPONSES PROVIDED

The review period for the Draft Environmental Impact State-
ment was set by the Environmental Quality Commission. This re-
view period was from May 22, 1978 through June 22, 1978. During
this period, a total of twenty six (26) agencies provided written
responses. Of this total, thirteen (13) provided responses indi-
cating that they had no comments to offer at this time on the
Draft EIS.

In this section, copies of each of the letters received and,
where appropriate, the letter of disposition from the State Depart-
ment of Transportation follows. The agencies providing letters
with "no comments" are indicated by an asterisk (*)

*1. Department of Public Works, City & County of Honolulu (May 24, 1978)

*2. State Department of Planning and Economic Development
(May 25, 1978)

*3. Department of Housing and Community Development, City & County
of Honolulu (May 26, 1978)


5. Division of State Parks, State Department of Land and Natural
Resources (May 30, 1978)

*6. Office of the Adjutant General, State Department of Defense
(May 30, 1978)

*7. State Department of Health (May 31, 1978)

(June 1, 1978)

(June 2, 1978)

10. Department of Parks and Recreation, City & County of Honolulu
(June 2, 1978)

(June 2, 1978)

12. Building Department, City & County of Honolulu (June 5, 1978)

*13. Headquarters 15th Air Base Wing (PACAF), U.S. Department of
the Air Force (June 6, 1978)
*14. Fourteenth Naval District Headquarters, U.S. Department of the Navy (June 6, 1978)

15. State Department of Land and Natural Resources (June 7, 1978)

*16. State Department of Accounting and General Services (June 8, 1978)

*17. State Department of Social Services and Housing (June 9, 1978)

18. Department of Land Utilization, City & County of Honolulu (June 9, 1978)

*19. Board of Water Supply, City & County of Honolulu (June 13, 1978)

20. Department of General Planning, City & County of Honolulu (June 14, 1978)


22. State Department of Education (June 22, 1978)

23. Department of Transportation Services, City & County of Honolulu (June 22, 1978)


25. Environmental Center, University of Hawaii at Manoa (June 22, 1978)

26. State Office of Environmental Quality Control (June 27, 1978)

Copies of these responses (reduced) appear in the same order they are listed in, on the following pages.
May 24, 1978

Environmental Quality Commission
State of Hawaii
550 Helekaunui Street, Room 301
Honolulu, Hawaii 96813

Gentlemen:

Subject: EIS for the Farrington Highway Widening, Lualualei Homestead Road to Vicinity of Jade Street, Waimanalo, Hawaii

We have reviewed the subject EIS and have no additional comments.

Very truly yours,

WALLACE MIYAHITO
Director and Chief Engineer

cc: DOT, Land Transportation Facilities Div.

The Honorable Ryokichi Higashinuma
Director
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Dr. Higashinuma:

Subject: Environmental Impact Statement
Farrington Highway Widening, Lualualei Homestead Road to Jade Street, Waimanalo, Oahu

Our review of the above document finds that the concerns expressed in our letter of April 29, 1977, as well as the probable adverse impacts which may result from the project have been addressed satisfactorily.

Thank you for the opportunity to provide comments.

Sincerely,

HIDEO KOJO
May 26, 1978

Environmental Quality Commission
State of Hawaii
550 Malakauila Street, Rm. 301
Honolulu, Hawaii 96813

Gentlemen:

Subject: Farrington Highway Widening
Lualualei Homestead Road to
Vicinity of Jade Street
Environmental Impact Statement

We have reviewed the subject Environmental Impact Statement and have no comments.

Thank you for allowing us the opportunity of reviewing the statement.

Sincerely,

TYRONE I. KUSAO
TYRONE T. KUSAO
Director

Office of Environmental Quality Control
Department of Transportation

To:
Office of Environmental Quality Control

Subject: EIS for Farrington Highway Widening, Lualualei Homestead Road to Vicinity of Jade Street, Wai'anae District, Oahu

The Department of Agriculture has reviewed the Draft EIS for the proposed Farrington Highway project. The lands that will be acquired to increase portions of the right of way are vacant lands under the ownership of either the State or Federal government. Agriculturally productive lands will not be adversely affected.

Our concerns lie in "Section XIII, Reproduction of Comments and Responses made during the Consultation Process," on pages 98 and 99. It is acknowledged there that this project will be done in conjunction with the Board of Water Supply's installation of a 20-inch water main. The impact of this new main should be stated, clarified and examined in the final EIS as it will undoubtedly affect the community and agricultural enterprises in the area.

JOHN FARAAS, JR.
Chairman, Board of Agriculture

cc: Department of Transportation

DEPARTMENT OF TRANSPORTATION

OFFICE OF THE GOVERNOR

DEPARTMENT OF AGRICULTURE

DEPARTMENT OF HUMAN RESOURCES DEVELOPMENT

DEPARTMENT OF HEALTH

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT

DEPARTMENT OF LAW

DEPARTMENT OF REVENUE

DEPARTMENT OF TRANSPORTATION
Mr. John Farias, Jr., Chairman
Board of Agriculture
Department of Agriculture
State of Hawaii
1428 South King Street
Honolulu, Hawaii 96814

Dear Mr. Farias:

Subject: Draft EIS for the Proposed Farrington Highway Widening Project, Lualualei Homestead Road to Jade Street, Project No. 93B-01-75

Thank you for your letter of May 30, 1978 commenting on the above-mentioned Draft EIS. In response to your concern about the Board of Water Supply's installation of a 20-inch water main being done in conjunction with this project, we note that in April 1975, the Board of Water Supply submitted to our Department a Negative Declaration for the installation of the 20-inch water main. The two projects were being combined so that the disruption to traffic movement would be minimized. We will include this information in the Revised EIS.

Very truly yours,

R. Higashionna

cc. Mr. Ryokichi Higashionna, Director
    Department of Transportation
    Land Transportation Facilities Division
Dear Reviewer:

Attached for your review is an Environmental Impact Statement (EIS) prepared pursuant to Chapter 343, Hawaii Revised Statutes and its Rules and Regulations:

Farrington Highway Widening, Lualualei Homestead
Title: Road to Vicinity of Jade Street
Location: Wai'anae District, Oahu
Classification: Agency Action

We would appreciate your comments or acknowledgement of no comments. Please submit one copy each to:

1) Accepting Authority: Office of Environmental Quality Control
   Address: 520 Punchbowl Street
   Room 301
   Honolulu, HI 96813

2) Proposing Party: Dept. of Transportation
   Address: 520 Punchbowl Street
   Honolulu, HI 96813

Your comments must be received or postmarked by: June 22, 1978

If you have no future use for this document, please return the EIS to the Commission. (Comments or acknowledgement of no comments should be directed to both the accepting authority and proposing party.

Thank you for your participation and cooperation in the EIS process!

2 June 1978

Patricia A. Greene
Colonel, ANC
Chief, Preventive Medicine Activity
Directorate of Health Services

Office of the Environmental Quality Commission
Office of the Governor
520 Punchbowl Street, Room 301
Honolulu, Hawaii 96813

Gentlemen:

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT ON THE PROPOSED FARRINGTON HIGHWAY WIDENING, LUALUALEI HOMESTEAD ROAD TO JADE STREET, PROJECT NO. 938-01-72, WAI'ANAE, OAHU

Having reviewed the proposed project as it affects the parks in the project area, we would like to bring to your attention the area along Mauna Lāhilihi Beach Park (between Makaha Valley Road and Orange Street).

Within your right-of-way fronting this park, there are several existing trees (6 Coconut, 1 Hau) as shown on our most current survey. We hope that this area could be reviewed in further detail in your planning so that those trees that do exist could be saved or relocated.

This area along the existing highway is also being utilized by park users for off-street parking. With the development of this area and the exclusion of on-street parking, the project will have a negative impact on the accessibility to the park.

We hope that you will look further into the details of this area so that these conflicts will be resolved.

Thank you for giving us the opportunity to review this proposal.

Sincerely,

[Signature]

Robert T. Fukuda, Director

CC: Department of Transportation (State of Hawaii)
September 5, 1978

Mr. Robert T. Fukuda, Director
Department of Parks and Recreation
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Fukuda:

Subject: Draft EIS for the Proposed Farrington Highway Widening Project, Anahulu Homestead Road to Jade Street, Project No. 93B-01-75

We have received your letter of June 2, 1978 on the above-mentioned Draft EIS. Below, dispositions on your comments are provided:

1. Several coconut, hau, and kiawe trees appear to be within 40 feet of the existing Farrington Highway right-of-way (along Mauna Lahihi Beach Park). If these trees are within the right-of-way, they must be removed; otherwise, they will pose a hazard to vehicles. Should this be the case, the coconut trees will be relocated to other State projects. Wherever possible, consideration will be made to save the trees which will not impose a traffic hazard and are a safe distance from the widened highway.

2. Presently, the parking of vehicles on the highway's right-of-way is being allowed. However, with the widening of Farrington Highway into this right-of-way, parking will not be available. We realize that this is a negative impact on Mauna Lahihi Beach Park and we will take steps to resolve this in the Revised EIS; however, it is unavoidable.

It should also be recognized that Mauna Lahihi Beach Park will be affected in the second phase of the project. At this time, no funds are available for the second phase; it may be several years before construction begins. This may
Dear Dr. Higashionna:

Subject: Farrington Highway Widening, Lualualei Homestead Road to Vicinity of Jade Street, Project No. 935-01-75

We reviewed the subject draft environmental impact statement and have no comments to offer.

Thank you for the opportunity to review this document.

Sincerely,

Jack P. Kanalz
State Conservationist

cc: Office of Environmental Quality Control
550 Hikea Street, Room 301
Honolulu, Hawaii 96813

Department of Transportation
Land Transportation Facilities Division
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813

Gentlemen:

Subject: Environmental Impact Statement
Farrington Highway Widening, Lualualei Homestead Road to Vicinity of Jade Street

We have reviewed the EIS for the subject project.

We suggest you consider the effect of the storm water runoff from the Waianae Intermediate School, the Waianae Neighborhood Center and adjacent areas. Presently, the water flows across Farrington Highway, then ponds within the makai area. The culvert crossing the highway has no outlet. It appears logical that you include provisions with the Kupunui Bridge and highway construction to divert the flow for a short distance into Kupunui Channel.

Thank you for giving us this opportunity to review the EIS.

Very truly yours,

Howard M. Shima
Director and Building Superintendent

cc: Office of Environmental Quality Control
J. Hafada
Mr. Howard M. Shima  
Director and Building Superintendent  
Building Department  
City and County of Honolulu  
650 South King Street  
Honolulu, Hawaii 96813

Dear Mr. Shima:

Subject: Draft EIS for the Proposed Farrington Highway Widening Project, Lualualei Homestead Road to Jade Street, Project No. 93B-01-75

Thank you for your letter of June 5, 1979 commenting on the above-mentioned Draft EIS. In response to your concern about improving the existing drainage situation along the highway at the area in question, we would like to point out that the existing ponding condition on the makai side of Farrington Highway, as referenced in your letter, is not attributable to the highway construction and conditions will not be aggravated with the proposed improvements.

We appreciate your concern but the correction of this ponding condition is outside of our highway right-of-way and beyond the jurisdiction of this Department.

Very truly yours,

R. Higashionna

R. Higashionna
Office of Environmental Quality Control
Office of the Governor
State of Hawaii
550 Halekauila Street
Room 301
Honolulu, Hawaii 96813

Gentlemen:

Draft Environmental Impact Statement (DEIS) for the proposed Farrington Highway Widening, Waianae District, Island of Oahu.

The subject Draft Environmental Impact Statement, which was forwarded by your letter of May 13, 1978, has been reviewed, and it has been determined that the project does not affect U.S. Navy property. Therefore, no comments are submitted.

Thank you for the opportunity to review this DEIS.

Sincerely,

I. H. Rupp
Captain, CEC, USN
District Civil Engineer
By Direction of the Commandant

Copy to:
Land Transportation Facilities Division
State Department of Transportation
800 Punchbowl Street
Honolulu, Hawaii 96813

June 7, 1978

Honorable George R. Ariyoshi
Governor of Hawaii
550 Halekauila St.
Honolulu, HI 96813

Dear Sir:

We have reviewed the draft EIS for the widening of Farrington Highway in Waianae.

The draft is well written and thorough. The draft, however, lacks a general description of the coastal town of Waianae. It also lacks baseline data on pedestrian use of the right-of-way, in particular data on pedestrian crossings.

Very truly yours,

W. Y. Thompson
Chairman of the Board
Mr. W. Y. Thompson  
Chairman of the Board  
Department of Land and Natural Resources  
State of Hawaii  
Post Office Box 621  
Honolulu, Hawaii 96809

Dear Mr. Thompson:

Subject: Draft EIS for the Proposed Farrington Highway Widening Project, Lualualei Homestead Road to Jade Street, Project No. 93B-01-75

We have received your letter of June 7, 1978 on the above-mentioned Draft EIS. In response to your concern, we have included in the Revised EIS:

1. A general description of Waimanalo Town, and
2. Identification of pedestrian crossings.

Unfortunately, no data is available on pedestrian use of the right-of-way.

Thank you for your comments.

Very truly yours,

R. Higashionna

R. Higashionna
MEMORANDUM

TO: Donald Brenner
Environmental Quality Commission

FROM: Andrew L. T. Chang, Director
Department of Social Services and Housing

SUBJECT: E.I.S. Review - Farrington Highway Widening, Lualualei Homestead Road to Vicinity of Jade Street

We have reviewed the attached E.I.S. for the subject project and can offer no comments relating to the proposed development.

Thank you for allowing us to comment on this matter.

Andrew L. Chang
Director

CC: DOT

Draft Environmental Impact Statement for the proposed Farrington Highway Widening Lualualei Homestead Road to Jade Street

We have reviewed the draft EIS for the project noted above and would like to offer some specific comments.


   Comment: We question the inclusion of the mail survey results in the EIS document. Although the reliability of the results are questioned in the text, their appearance in the discussion may cause the reader to give them credence. It might be better to remove this section of the text entirely and indicate that no reliable data currently exist. Further, it may be wise to commission a survey which would produce worthwhile results.

2. Reference: Page 67 (Table 17, Present Value of Benefits and Costs, Farrington Highway Widening).

   Comment: Although some explanatory material is presented below Table 17, there is no direct reference to methodology used. No such documentation exists in appendix form.


   Comment: There is no reference or documentation for the
method used to derive the figures presented. Methodology for multiplier effects is often convoluted, and different results may be generated by different models. There needs to be some clearer justification for using the "State's interindustry model."

   
   Comment: The text mentions that one reasonable method of population estimates is to use the "E-2" projections prepared by the Department of Planning and Economic Development (DPED). These figures have been revised by DPED as of March 1, 1978. These revisions may alter the population figures presented in the EIS.

   Furthermore, no mention is made of the population projections for the Waiarnae Coast in the General Plan for Oahu. The highway project should be related to County planning policies.

5. Reference: Page 21 (Table 2, LIST OF SOIL TYPES WITHIN THE PROPOSED PARRINGTON HIGHWAY WIDENING AREA).
   
   Comment: As described, the information on soils is inadequate. More specific information on erosion hazard and soil permeability should be included.

   
   Comment: It is mentioned that Waiarnae Regional Park presently has four tennis courts. We believe that as of this date, there are eight tennis courts in the park.

   We wish to point out that the proposed relocation of overhead utilities may be in conflict with the policies and guidelines of the Shoreline Protection Ordinance. Undergrounding, particularly in areas of high scenic value may be necessary. Also, standards for lighting fixtures may be evaluated in terms of their consistency with Ordinance No. 4529.

   As a final comment, we feel it is essential to quote or make reference to specific sources when using non-primary source material. This should be a standard procedure. Second, the inclusion of a bibliography is likewise important for reference and for the reviewer. A document such as an EIS cannot be considered complete with the absence of a bibliography.
Mr. George S. Moriguchi  
Page 2  
September 5, 1978

4. **Page 69 (Table 2).** Detailed information on the soil types (including a map and identification of the soils' characteristics) will be provided in the Revised EIS.

5. **Page 70.** [Public Recreation Patterns]. The Revised EIS will be revised to indicate that there are eight courts presently at Waianae Regional Park. At this time, no monies are available for undergrounding of utilities (e.g., telephone, electric). The relocation of these utilities is felt to have the same impact as present and no further adverse impacts are foreseen.

6. **References and Bibliography.** Appropriate references and a bibliography will be included in the Revised EIS.

Very truly yours,

R. Higashihonna
Mr. Richard O'Connell, Director
Office of Environmental Quality Control
850 Haleakulana Street, Suite 301
Honolulu, Hawaii 96813

June 13, 1978

Dear Mr. O'Connell:

Environmental Impact Statement for Farrington Highway Widening, Lualualei Homestead Road to Vicinity of Jade Street Waianae, Oahu

We have no objections to the proposed project. We plan to install a new 20-inch main in conjunction with the project.

If further information is needed on this matter, please call Lawrence Wang at 548-5221.

Very truly yours,

EDWARD Y. HIRATA
Manager and Chief Engineer

June 14, 1978

Dr. Ryokichi Higashiya, Director
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii

Dear Dr. Higashiya:

Draft Environmental Impact Statement for Proposed Farrington Highway Widening – Lualualei Homestead Road to Jade Street, Project No. 938-01-75, Dated May 19, 1978

Comments Requested May 19, 1978

We offer the following comments:

Population and Housing Estimates

The draft EIS provides population and housing estimates for 1970, 1974 and 1975 from a publication, "Population and Housing for Oahu Census Tract (Big)" without giving the proper citation. (P. 9.) The data are from a DPED report, "Population and Housing Unit Estimates for Oahu Census Tracts, 1970-1975", Report CTC-32, April 26, 1976. A more recent report is available from DPED, presenting estimates to 1976, Report CTC-36, September 27, 1977. The draft EIS should provide the most recent available data.

Population Forecasts

The draft EIS assumes that Waianae District population will expand to 4 percent of Oahu's population by the year 2000 and further increase to 5 percent of Oahu's population by 2020. (P. 23.) The increase to 5 percent seems high.

Waianae's population increased considerably in the 1950's because of the low population base. The rate of increase declined considerably in the 1960's and is declining further. Waianae accounted for 6.7 percent of the increase in Oahu's population.
Ms. Jane L. Silverman
Historic Preservation Officer
Department of Land and Natural Resources
Division of State Parks
State of Hawaii
Post Office Box 621
Honolulu, Hawaii 96809

Dear Ms. Silverman:

Subject: Draft EIS for the Proposed Farrington Highway
        Widening Project, Lualualei Homestead Road to
        Jade Street, Project No. 93B-01-75

We have received your letter of May 30, 1978 on the above-
mentioned Draft EIS. In your last paragraph you stated: "In
the event that any unanticipated sites or remains are encountered,
please inform the applicant to contact this office immediately." Although no historical/archaeological sites are anticipated to
be found, we will contact your office immediately if any sites
or remains are encountered.

Thank you for informing us of your concern on this matter.

Very truly yours,

R. Higashinuma

R. Higashinuma
MEMORANDUM

To: Mr. Ryokichi Bigashionna, Director
   Department of Transportation

From: Deputy Director for Environmental Health

Subject: Environmental Impact Statement (EIS) for Farrington Highway Widening, Lualualei Homestead Road to Vicinity of Jade Street, Waianae District, Oahu

May 31, 1978

Thank you for allowing us to review and comment on the subject EIS. On the basis that the project will comply with all applicable Public Health regulations, please be informed that we have no objections to this project.

We realise that the statements are general in nature due to preliminary plans being the sole source of discussion. We, therefore, reserve the right to impose future environmental restrictions on the project at the time final plans are submitted to this office for review.

Sincerely yours,

Maurice H. Taylor
Field Supervisor

CC: HA

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

Re: Farrington Highway
Road Widening
Lualualei Homestead Road to Vicinity of Jade St., Waianae, Oahu, Hawaii

June 1, 1978

United States Department of the Interior

FISH AND WILDLIFE SERVICE

360 ALA MOANOA BOULEVARD
P.O. BOX 50183
HONOLULU, HAWAII 96850

DEPARTMENT OF ECOSYSTEM SERVICES
Room 5302

June 1, 1978

JAMES A. H. HAY
DEPUTY DIRECTOR FOR PLANNING

CONSERVE AMERICA'S ENERGY

Save Energy and You Serve America!
between 1950 and 1960; 6.0 percent of Oahu's population increase between 1960 and 1970; but only 4.0 percent of Oahu's increase between 1970 and 1974.

The Waianae District accounted for 2.0 percent of Oahu's population in 1950. This increased considerably to 3.3 percent by 1960; but to only 3.9 percent by 1970. Between 1970 and 1976, this declined slightly to 3.8 percent, even with the impacts of five years of the Model Cities program. (The Revised General Plan indicates that Waianae will maintain this 3.8 percent to the year 2000.)

Accordingly, we feel that the expectation that Waianae will account for 5 percent of Oahu's population seems high. If traffic assignments were made on this basis, they should be revised downward.

Soils

The list of soil types in the project area and the soil associations are indicated. (p. 21.) The soil associations are of little importance. The characteristics of the soil types listed are important and should be discussed.

We note that the soil erosion hazard is "no more than slight" or "slight to moderate"; while the Mokuleia clay (Mtb) is a sticky, plastic clay whose workability is difficult. (Soil Conservation Service, "Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii", August 1972, p. 95.)

Welfare Data

The statement is made that "Welfare recipiency data is often also unreliable..." (p. 39), but the draft EIS does not indicate the basis of the statement.

The fact that the Waianae District accounts for a disproportionately higher welfare caseload relative to its share of Oahu's population may account in part for the recent slower population growth in Waianae.

Bike Route

It is indicated that "the project includes a bike route which conforms to the Bikeplan." (p. 44.)

The typical Road Sections (pp. 7-8) do not show the bike route.

Project Limits

In our May 2, 1977 review of the EIS preparation notice, we asked for an explanation of the project limits. We questioned why the project was to terminate at Jade Street rather than at the Nakaha Beach Park, beyond the developed area of Makaha. (p. 99.)

The Department of Transportation response of July 27, 1977 (p. 101) indicated

"The basis for the project limit is because of the average daily traffic demands. Our information indicates that the widening between Lualualei Homestead Road and the vicinity of Jade Street will accommodate the residential trips generated in this area. Beyond Jade Street there appear to be few residential destination points." (Underlining is added.)

We cannot agree with the response. A cursory glance at the map of the area which is enclosed will show a considerable number of residential lots beyond Jade Street. In addition, the Makaha Meadows project of 320 Hawaii Housing Authority units will be beyond Jade Street.

The draft EIS should indicate how many units presently exist beyond Jade Street to substantiate the statement made in the July 27, 1977 response. The Department of General Planning's Data Systems Branch has maps showing existing land use and can help you in this regard (Francis Lau, Ph. 523-4404).

Thank you for affording us the opportunity of reviewing your impact statement.

Sincerely,

RAMON DURAN
Chief Planning Officer

RD:fmt
cc: OEQC
Enclosure
September 5, 1978

Mr. Ramon Duran, Chief Planning Office
Department of General Planning
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Duran:

Subject: Draft EIS for the Proposed Farrington Highway Widening Project, Lualualei Homestead Road to Jade Street, Project No. 93B-01-75

We have received your letter of June 14, 1978 on the above mentioned Draft EIS. Below we provide dispositions to your comments on an item by item basis:

1. Population and Housing Estimates. Page 9 will be corrected to include the appropriation citation and the most recent information available.

2. Population Forecast. The forecast (on page 23) was based on DPED's H-2 population projections. Traffic assignments were not based on population because of the heavy recreationally oriented traffic in this area.

3. Soils. Detailed information on the soil types (including a map and identification of the soils' characteristics) will be provided in the Revised EIS.

4. Welfare Data. The basis for the statement: "Welfare recipiency data is often also unreliable..." was the researcher's (in this case the socioeconomic consultant) experience in dealing with data of this nature. A footnote will be provided to indicate this.

5. Bike Route. The bike route will be provided in the Revised EIS in map form.
6. Project Limits. The statement made in our letter of July 27, 1977 should further be clarified by noting that at the time the project was initiated (middle 1960's) there were few residences beyond Jade Street to warrant widening the highway further. Funding was sought for only the section now being covered in the EIS. Although there is a likely need for extending the project limits, the future plans do not call for this extension.

Thank you for your letter.

Very truly yours,

R. Higashionna
R. Higashionna

Dr. R. Higashionna, Director
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Dr. Higashionna:

We have reviewed the Draft Environmental Statement for the Farrington Highway Widening, Lualualei Homestead Road to Jade Street Section, that was forwarded to us by the State Office of Environmental Quality Control on 19 May 1978. Your project does not affect any U. S. Army Corps of Engineers projects in the Waihao District.

We note that nearly the entire length of the proposed project lies within the 100-year tsunami inundation limits as shown in enclosure 1, which is a portion of the Federal Insurance Administration Flood Boundary and Floodway Map. Tsunami runup elevations range from 8 feet to 16 feet above mean sea level.

The construction of the bridge over Kaupuni and East Makaha Streams may require U. S. Coast Guard permits. Our regulations specify that fill material incidental to the construction of the bridges across tidal waters, including cofferdams, cofferdams, foundation fills and temporary construction and access fills, does not require a Department of the Army permit, if the following conditions are met:

a. The fill material will not be placed in close proximity to a public water supply intake.

b. The fill material will not be placed in areas of concentrated shellfish production.
c. The discharge will not destroy a threatened or endangered species identified under the Endangered Species Act or critical habitats for those species.

d. The fill will consist of suitable material free from toxic pollutants in other than trace quantities.

e. The fill created will be properly maintained to prevent erosion and other non-point sources of pollution.

f. The fill will not be placed in any component of the National Wildlife and Scenic River System or component of the State Wild and Scenic River System.

g. The fill will not disrupt the movement of those species of aquatic life indigenous to the waterbody.

As the draft environmental statement does not provide any specific bridge details, we request that plans be submitted for our review to determine conformance to the above conditions and for a formal determination of the need for a Department of the Army permit. In addition, information which identifies the work to be done in the stream, the type of fill to be placed in the stream, the source of the fill material, the presence or absence of toxic material in the fill, the erosion controls to be implemented to prevent any fill from being carried into the water and the measures being taken to prevent disrupting movement of aquatic life in the stream course, should also be provided.

We thank you for the opportunity to participate in the Environmental Impact Statement review process.

Sincerely yours,

[Signature]

R. R. Schlapak
Le Col, Corps of Engineers
Deputy Division Engineer

CP (w/incl)
Environmental Quality Commission
State of Hawaii
550 Waikele Street, Room 301
Honolulu, Hawaii 96813
September 5, 1978

Lt. Col. B. R. Schlupak
Deputy Division Engineer
Department of the Army
Pacific Ocean Division, Corps of Engineers
Building 230
Fort Shafter, Hawaii 96858

Dear Lt. Col. Schlupak:

Subject: Draft EIS for the Proposed Farrington Highway Widening Project, Lualualei Homestead Road to Jade Street, Project No. 938-01-75

Thank you for your letter of June 14, 1978 on the above-mentioned Draft EIS. Dispositions on your comments, on an item by item basis, are provided below:

1. The Revised EIS will be changed to indicate that the proposed project lies within the 100-year tsunami inundation limits, and that tsunami runup elevations ran from 8 to 16 feet above mean sea level.

2. As indicated in page 111 on the Draft EIS (as well as Exhibits I and II), no permits for the bridge construction will be required by the U. S. Coast Guard. Additionally, the work will not require a Department of the Army permit and meets the conditions (a through g) identified in your letter.

We also note that plans for the construction of the bridges were provided to your staff several months ago. Further detailed information regarding the type of fill, source of fill material, erosion controls, etc., is not available at this stage of the project. However, our Department will continue to coordinate plans for the bridge construction with the Corps.
Compliance with all applicable requirements regarding the quantity, quality, and placement of fill material will be observed. Also, we will coordinate with your office the final construction plans and specifications.

Thank you for your review and comments.

Very truly yours,

[Signature]
R. Higashionna

Mr. Albert Q. Y. Tom
Chairman
Environmental Quality Commission
550 Hakaawili Street, Room 301
Honolulu, Hawaii 96813

Dear Mr. Tom:

SUBJECT: Environmental Impact Statement
Farrington Highway Widening, Lualualei Homestead

We have reviewed the Farrington Highway Widening E.I.S. and concur with the following comments:

1. The comments noted in prior correspondence (see Exhibits on pages 89, 90 and 91) are still appropriate.

2. The noise pollution study has identified two portable classrooms, P-8 and P-9 at Waianae High School as having a noisy condition which will be aggravated by the widening of the highway. It is suggested that the cost of providing noise abatement devices for these two classrooms should properly be included in the cost of the road widening project.

Thank you for the opportunity to review and comment on the subject E.I.S.

Sincerely,

[Signature]
CHARLES G. CLARK
Superintendent

CGC:HL:jl

cc Office of Environmental Quality Control
Dept. of Transportation, Land Transportation Division
Leeward Oahu District
Mr. Keichi H. Tokushige

AN EQUAL OPPORTUNITY EMPLOYER
September 5, 1978

Mr. Charles G. Clark
Superintendent
Department of Education
State of Hawaii
Post Office Box 2360
Honolulu, Hawaii 96804

Dear Mr. Clark:

Subject: Draft EIS for the Proposed Farrington Highway Widening Project, Lualualei Homestead Road to Jade Street, Project No. 930-01-75

Thank you for your letter of June 22, 1978 commenting on the above-mentioned Draft EIS. We have reviewed your concerns and we provide the following responses:

1. The comments sent to us earlier (pages 89, 90 of the Draft EIS) were responded to and included in the Draft EIS (pages 90, 91, letter dated July 22, 1978 to the Department of Education). As stated, the items noted by the Department of Accounting and General Services (addressing DOH facilities) were considered and we concurred with these adjustments and improvements.

2. As noted in the Draft EIS, the anticipated highway widening will aggravate the existing noisy conditions at Waianae High School's two portable classrooms, P-8 and P-9. The cost of abating the noise will be included in the cost of the second phase of our road widening project. We will include this discussion in the revised EIS.

Your concern in this matter is understandable, and we will continue to review this potential noise problem in continuing this project.

Very truly yours,

R. Hisashionna

R. Hisashionna

Environmental Quality Commission
550 Haleiwa St., Room 301
Honolulu, Hawaii 96813

Gentlemen:

Draft Environmental Impact Statement for the Proposed Farrington Highway Widening, Lualualei Homestead Road to Jade Street, Project No. 930-01-75

We have reviewed the subject draft Environmental Impact Statement for the project and request that consideration be given to the following:

3. Provisions for left turn storage lanes and two-way left turn lanes.

Thank you for the opportunity to review the Draft EIS.

Very truly yours,

R. Hisashionna

R. Hisashionna

CC: State DOT
OEQC
September 5, 1978

Mr. Kazu Hayashida, Director
Department of Transportation Services
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Hayashida:

Subject: Draft EIS for the Proposed Farrington Highway Widening Project, Lualualei Homestead Road to Jade Street, Project No. 93B-01-75

We have received your letter of June 22, 1978 commenting on the above mentioned Draft EIS. Dispositions to your comments, on an item by item basis, are provided below:

1. "Provisions for pull-out bays for bus stops." The paved shoulders could be utilized to pull into and out of bus stops.

2. "Provisions for a 10-foot by 20-foot area for future bus shelters at bus stops." When the County has funds available to provide bus shelters, our staff engineers will assist your Department in designating appropriate locations for these shelters.

3. "Provisions for left turn storage lanes and two-way left turn lanes." Space is not available within the present and proposed right-of-way to provide these left turn storage and two-way left turn lanes.

Thank you for your concerns.

Very truly yours,

R. Higashionna

R. Higashionna
AMERICAN LUNG ASSOCIATION
OF HAWAII

ENVIRONMENTAL IMPACT STATEMENT REVIEW
... an air quality assurance program

Project: FARRINGTON HIGHWAY WIDENING, Project No. 93B-01-75  Date: June 22, 1978

1. Page 50. It is stated in the first paragraph on this page that there would be very little difference in total vehicle emissions whether the highway was widened or not. We question this statement on the grounds that a change in average route speed brings about a larger change in the composite emission factor. For example, a reduction in average route speed from 30 mph to 20 mph results in approximately a 50% increase in the composite emission factor (EP). Since this EP is multiplied times total vehicle miles traveled (VMT), it would therefore result in a 50% increase in total emissions. Furthermore, the projected traffic reported in the EIS (p. 14) indicates increases on the order of 80% or more between 1978 and 1998. That magnitude of increase would surely lower the average route speed if the highway were not widened; thus, it seems logical to expect a rather significant difference between total emissions from the widened or unwidened highway.

2. Page 52. "The over abundance of automobiles in the vehicle mix would tend to produce slightly higher emissions than assumed by the method..."

This statement is incorrect since the greater percentage of automobiles implies a lower percentage of light duty trucks which have higher EP's than the cars; thus, the inherent assumptions of the screening method result in a slight overestimation of CO concentrations.

3. Page 53. "To estimate 8-hour average concentrations, the EPA Guidelines suggest that multiplying the one-hour estimate by a 'meteorological persistence factor' of 0.6 is a viable approach."

This statement is only partially correct. The 0.6 persistence factor is applied to CO estimates which have been based on the mean hourly volume demand for the 8-hour period, not the peak-hour traffic. Thus, the 8-hour CO concentrations in Table 14 have been substantially overestimated, and discussion relating to these should be revised.


5. Finally, we would note that the Environmental Protection Agency has recently (March, 1978) published an updated compendium of motor vehicle emission factors based on the latest measurements of in-use vehicles. Generally, these are of substantially greater magnitude than those presented in Supplement 5 to AP-42. Thus, estimates based on Supplement 5 EP's would be on the low side, at least through the early 1990's. It is recognized that the EIS preparer did account to some extent for these differences in his analysis.

Mr. James W. Morrow, Director
Environmental Health
American Lung Association
245 North Kuikui Street
Honolulu, Hawaii 96817

Dear Mr. Morrow:

Subject: Draft EIS for the Proposed Farrington Highway Widening Project, Luaualii Homestead Road to Jade Street, Project No. 93B-01-75

Thank you for your letter of June 22, 1978 on the above-mentioned Draft EIS. The air quality consultant, Barry Root, for the project reviewed your comments and provided the following responses:

1. The criticism is valid. An increase in route width would be likely to increase average route speed, thus decreasing the total vehicle emissions that could be expected from a widened roadway.

2. A greater percentage of automobiles in the vehicle mix implies a lower percentage of both light duty trucks and heavy-duty diesel-powered vehicles. In 1977, carbon monoxide emissions per mile were much lower for heavy-duty diesels than for automobiles. It is probably true, however, that for this case "the inherent assumptions of the screening method result in a slight overestimation of the CO concentrations."

3 & 4. The mean traffic volume for an 8-hour period was not provided as input for this study. With just peak hour and average daily volume estimates available it seemed most prudent and conservative to base the 8-hour analysis on the peak hour traffic volumes. This point should have been emphasized in the discussion, however, since it does provide a mitigating explanation for the somewhat high 8-hour CO values shown in Table 14.
5. This study was completed in December, 1977. It is unreasonable for a reviewer to expect that data from a March, 1978, EPA publication be included in the analysis. In any case, the method used in the analysis to account for recent changes in emission standards is in good agreement with the March, 1978 EPA data.

Very truly yours,

R. Higashionna

R. Higashionna

Office of the Director
June 22, 1978

Mr. Richard L. O'Connell
Office of Environmental Quality Control
550 Halekauila Street
Honolulu, Hawaii 96813

Dear Mr. O'Connell:

Draft Environmental Impact Statement for the Proposed Farrington Highway Widening
Lualualei Homestead Road to Jade Street

The Environmental Center's review of the above cited EIS has been prepared with the assistance of Tamotsu Sahara, Physical Planning; Costakis Papacostas, Civil Engineering; Jacqueline Miller, Environmental Center; and Margaret Klammer and Barbara Vogt, Pacific Urban Studies Planning Program.

In general, the document covers many of the known and potentially significant environmental impacts that can be expected to occur as a result of this project. The areas in which our reviewers would suggest clarification or expansion include the following:

1. In the summary, comments on the socio-economic impacts should be included. For example, how will the widening of the highway affect small businesses adjacent to the roadside? How will altering ingress and egress patterns affect commercial activity? What will be the social impacts of geographically dividing the community? The possible impacts on commercial activity should be discussed in further detail.

2. Page 2, Item 4: The controlling factor on achieving the State carbon monoxide standard is apparently the stricter automobile emission standards since compliance with the standards is not expected to be met prior to 1998 and the highway will presumably be in use in late 1980 some 16 years earlier. If the 1998 date is correct, it is inappropriate to imply that the highway construction is the primary controlling factor on air emissions.

3. Page 2, Item 9: The statement that "the highway is not expected to significantly alter the present or future growth of the community" is unrealistic and misleading. The widened highway is likely to act as a catalyst to rapidly developing this area, especially if the cost of homes are lower than for other locations on Oahu and the driving time is reduced.

AN EQUAL OPPORTUNITY EMPLOYER
Mr. Richard O'Connell
Office of Environmental Quality Control
550 Halekauwiki Street
Honolulu, Hawaii 96813

Dear Mr. O'Connell:

Draft Environmental Impact Statement for the Proposed Farrington Highway Widening
Ilauaulei Homestead Road to Jade Street

The Environmental Center's review of the above cited EIS has been prepared with the assistance of Taniotika Seo, Physical Planning; Costakis Papacosas, Civil Engineering; Jacqueline Miller, Environmental Center; and Margaret Kimerer and Barbara Vogt, Pacific Urban Studies Planning Program.

In general, the document covers many of the known and potentially significant environmental impacts that can be expected to occur as a result of this project. The areas in which our reviewers would suggest clarification or expansion include the following:

1. In the summary, comments on the socio-economic impacts should be included. For example, how will the widening of the highway affect small businesses adjacent to the roadside? How will altering ingress and egress patterns affect commercial activity? What will be the social impacts of geographically dividing the community? The possible impacts on commercial activity should be discussed in greater detail.

2. Page 2, Item 4: The controlling factor on achieving the State's carbon monoxide standard is apparently the strictest automobile emission standards since compliance with the standards is not expected to be met prior to 1998 and the highway will presumably be in use in late 1980 some 10 years earlier. If the 1986 date is correct, it is inappropriate to imply that the highway construction is the primary controlling factor on air emissions.

3. Page 2, Item 9: The statement that "the highway is not expected to significantly alter the present or future growth of the community" is unrealistic and misleading. The widened highway is likely to act as a catalyst to rapidly developing this area, especially if the cost of homes are lower than for other locations on Oahu and the driving time is reduced.

4. Page 3, Item 10: The decrease in congestion would be an advantage, but what about the increase in volume and speed? A map should be included showing signalized intersections and pedestrian crossings for the residents of the immediate area.

5. Page 4, Item 8: A bikeway is being planned along the highway but there are no indications of where it will be placed. Provision of bikeways might well be considered a benefit of the proposed highway improvements.

The juxtaposition of bicycles, pedestrians, and automobile traffic presents inevitable hazards. Problems are reduced by provision of distinct lanes including provision of physical separations such as grass strips or curbs. If there can be only one set of separations it should be between the motor vehicle roadways and the bikeways, and not between the bikeways and the sidewalks. There seems to be no compelling reason why the sidewalks and bikeways should not be separated from the roadways by gutters.

6. Page 15, Section III-Description of the Environmental Setting: The section on the description area and in particular the socio-economic background is quite detailed. It seems to be almost totally lacking is a discussion of the relevance of this information to the proposed project. For example, the soil types are listed in Table 2. No information is given as to where these types exist in relation to the highway nor of their significance to the construction. Some 14 pages are devoted to population characteristics yet there is no discussion of the pertinence of the data to the highway expansion. Clearly, some population statistics such as traffic counts versus worker destinations are obvious. What, however, is the rationale behind including such statistics as illegitimate births, elective abortions, education, income, hours worked last week, weeks unemployed, etc.? 

7. Page 15, Item 4-Flora and fauna: To support the statement that the flora in the project's vicinity are weeds, the list of species should be included with the dominant plant types. This also applies to fauna.

8. Page 43, Item A-General Plan: In discussing the General Plan, contradictory goals are set forth. One goal justifies the highway expansion project on the projected traffic increase. The State's goal, however, is to limit the number of cars on Oahu as well as growth particularly in the Waianae area. We also note the reference to inaccuracies in the population projections for the Waianae area. A brief discussion of the rationalization of these conflicting projections should be included in the final EIS.

9. Page 63, Item 4-Noise: The DEIS adequately addresses the final noise impacts on Waianae Intermediate and High Schools. It does not specifically address noise impacts during the actual construction phases which will logically occur during school hours. What mitigating effects will be used during school hours?
10. Page 69, Item H: Impact on Costs of Traffic: Although an evaluation of traffic accidents and their costs are made, there is no discussion on measures to reduce accidents. What steps will be taken to ensure proper safety precautions are observed in the design?

Thank you for the opportunity to review this document.

Sincerely,

[Signature]

Dr. Don C. Cox
Director
Environmental Center
University of Hawaii at Manoa
Crawford 317/2550 Campus Road
Honolulu, Hawaii 96822

Dear Dr. Cox:

Subject: Draft EIS for the Proposed Farrington Highway Widening Project, Lualualei Homestead Road to Jade Street, Project No. 338-01-75

We have received your letter of June 22, 1978 on the above-mentioned Draft EIS. Dispositions to your comments, on an item by item basis, are provided below:

1. We have met with the Waianae Businessmen's Association regarding the improvement which will be made to the highway. At that meeting there was no opposition to the project. The ingress and egress to these businesses will not be significantly modified and curbside parking in the Waianae commercial area will be permitted from 8:30 a.m. to 3:30 p.m. (on a trial basis).

2. Page 2, Item 4. The statement summarizes the findings of the air quality study. It does not imply that the purpose of the highway widening is to lessen air emissions.

3. Page 2, Item 9. The statement summarizes the findings in the Draft EIS. On page 43 of the Draft EIS, it was stated that: "The widening project is not expected to act as a primary catalyst (emphasis added) to population growth or urbanization. It is felt that the urban designations and residential zoning are the primary catalyst to growth. (The paragraph continues in support of the first sentence.) We recognize that in many situations the availability of (or improvement to) infrastructures enhances any decision for higher zoning. Unfortunately, although the highway is being widened to improve the existing traffic flow, it also will indirectly enhance urbanization of the Waianae area. This will be so stated in the Revised EIS."
4. Page 3, Item 10. The summary will also note that the widening project will accommodate an increase in traffic volume and may result in voluntary speeding between the signals. Additionally, the Revised EIS will include a map showing the signalized intersections and pedestrian crossings.

5. Page 4, Item B. The bikeway being planned will be located on the shoulder section of the highway. There will be no physical separation between the widened highway and bikeway.

6. Page 15, Section III. The proposed section of Farrington Highway which will be widened crosses several soil groups. (A map showing these soil groups will be provided in the Revised EIS.) No soil problems or adverse impacts are foreseen; the existing highway also crosses these same soil groups. We also note that the proposed widening will not alter the existing drainage conditions. Therefore, the existing drainage problems will not be mitigated. We will include this information on drainage in the Revised EIS. The information relating to population statistics was given in order to provide the characteristics of the area. This information was necessary in the first part of the socioeconomic study which was provided to and available at the office of the Environmental Quality Commission.

7. Page 15, Item 4. More detailed information on the plant types and fauna will be provided in the EIS. We will also identify trees which will be removed (if necessary) for the highway widening.

8. Page 43, Item A. Population projections whether produced by the City and County or the State are sometimes incorrect and, therefore, are modified from time to time. A rationalization for these conflicting population projections would not be within the scope of the EIS. It was acknowledged, however, that the present population projections for the Waianae area appear to be conservative when one considers the number of proposed dwelling units for this area.

9. Page 63, Item 4. The impact of construction noise at Waianae Intermediate and High Schools will be addressed in the Revised EIS. The inconvenience of construction noises and interruption of traffic access to and from Waianae Intermediate and High Schools appear to be unavoidable.

10. Page 69, Item H. The highway design will take into consideration the appropriate safety standards which apply to highways. It is noted that a significant number of accidents are related to an individual's driving habits (e.g., speeding, driving under the influence of alcohol, judgement), subsequently, highway design per se is usually not the major factor in contributing to accidents.

Thank you for your comments.

Very truly yours,

R. Higashionna
MEMORANDUM

TO: R. Higashionna, Director
Department of Transportation

FROM: Richard L. O'Connell, Director
Office of Environmental Quality Control

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT FOR PROPOSED HIGHWAY WIDENING - LUAUALEY HOMESTEAD ROAD TO JADE STREET PROJECT NO. 938-01-75

June 27, 1978

We have reviewed the subject environmental impact statement and offer the following comments for your consideration:

1) P. 13. The location of Ala Waiwaua Street should be shown on one of the figures.

2) P. 21. More details should be provided regarding the soils within the project area and the proposed bridges. Where will drainage from the roadway be directed? Will neighboring properties be affected?

3) P. 23. Are the average daily traffic estimates based upon the DPED E-11 projection? Would the new lower F-2 projections affect these estimated ADT's? Will the same road design be required based upon these new estimates?

4) P. 43. The statement that occupancy of the proposed 1,702 dwelling units would increase the Waianae population by over 6,000 persons fails to take into account the percentage of persons that would only relocate within the area rather than move into Waianae from other parts of Oahu.

We note that the statement on page 73 of the EIS refers to an alternative route in the project area. It is growth in the Waianae area that should be evaluated and not just the impacts on those properties abutting the project's right-of-way. We therefore recommend a thorough discussion of this topic in the revised EIS.

5) P. 46. The impacts of removing on-street parking should be discussed.

6) P. 57. The channel is 80 feet wide, not deep.

7) P. 65 and 66. Who will implement the noise mitigation measures? Are the costs involved covered by the project funds?

8) A list of references should be included in the EIS.

As of this date, we have received a total of twenty-four (24) comments as indicated on the attached list.
We have not attempted to summarize the comments of other reviewers but recommend that each comment be given consideration.

The EIS Regulations allow the accepting authority or his authorized representative to consider responses received after the fourteen day response period. We will exercise the option and will consider responses after the fourteen day period.

Thank you for allowing us to review this EIS. We trust that our comments will prove useful in the revision of the document.

Attachment

September 5, 1978

Mr. Richard O'Connell, Director
Office of Environmental Quality Control
Office of the Governor
State of Hawaii
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Mr. O'Connell:

Subject: Draft EIS for the Proposed Farrington Highway Widening Project, Lualualei Homestead Road to Jade Street, Project No. 93B-01-75

We have received your letter of June 27, 1978 on the above-mentioned Draft EIS. Dispositions to your comments, on an item by item basis, are provided below:

1. Page 13. A new location map will be added. The location of Ala Waiola Street will be provided on this new location map.

2. Page 21. The proposed section of Farrington Highway which will be widened crosses several soil groups. (A map showing these soil groups will be provided in the Revised EIS.) No soil problems or adverse impacts are foreseen; the existing highway also crosses these same soil groups. We also note that the proposed widening will not alter the existing drainage conditions. Therefore, the existing drainage problems will not be mitigated. We will include this information on drainage in the Revised EIS.

3. Page 23. The traffic estimate was not based on population projections. Because of the number of beaches in the area and Waianae's distance from Honolulu, the traffic patterns differ considerably from other areas on Oahu. Traffic volume increases significantly during weekends and holidays, and peak hour traffic occurs in the early afternoon during weekdays. Traffic estimations were based on the past traffic volume increases.
4. Page 43. It was felt that the number of replacement homes provided in the proposed 1,702 dwelling units would be minimal. In addition, a figure of 1,702 dwelling units is felt to be conservative and thus, an increase of 6,000 people is likely. The entire sentence relating to the impact of the proposed widening was not quoted. On page 43 of the Draft EIS, it was stated that: "The widening project is not expected to act as a primary catalyst (emphasis added) to population growth or urbanization. It is felt that the urban designations and residential zoning are the primary catalyst to growth."

The paragraph continues in support of the first sentence. We recognize that in many situations the availability of (or improvement to) infrastructures enhances any decision for higher zoning. Unfortunately, although the highway is being widened to improve the existing traffic flow, it also will be a positive factor if lands are being considered for higher zoning. This will be so stated in the Revised EIS. Because the improvement is not considered to be the primary catalyst to population growth or urbanization, it would be inappropriate for our Department to evaluate the impact of future growth in the Waianae area. Such an in-depth analysis would require considerable time and monies which are not available in the funding of this project.

5. Page 46. On-street parking is presently occurring within the highway's right-of-way. The removal of on-street parking, especially in the Waianae commercial area and Mauna Lahihi Park will likely have a negative impact on certain shopkeepers and park users, respectively. However, the elimination of on-street parking is unavoidable and no monetary loss has been assigned to this impact. It also should be noted that parking in Waianae Town from 8:30 to 3:30 will be provided on a trial basis. This will be along the curbs on both sides of Farrington Highway. The trial basis will be tested for an undetermined period of time.

6. Page 57. The statement will be corrected to read: "This trapezoidal channel is approximately 80 feet wide; plans call for the bridge to be widened."

7. Page 65 and 66. As noted in the Draft EIS, the anticipated highway widening will likely aggravate the existing noisy conditions at Waianae High School (two portable classrooms, P-8 and P-10). If this impact does occur, the cost of abating

the noise will be included in the cost of the road widening project. Because the section affecting Waianae High School will not be widened in the initial phase, the noise abate problem may not exist since the federal vehicular noise reduction mandates will have effectively mitigated car noise, thus ambient noise level may be reduced significantly. We will include this information in the Revised EIS.

8. A Bibliography will be included in the Revised EIS.

Very truly yours,

[Signature]

R. Higashionna
BIBLIOGRAPHY


And other publications as cited in the text.
EXHIBITS
Mr. Tetsuo Harano
Chief, Highways Division
State of Hawaii
Dept. of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Harano:

Concerning the State's project to widen Farrington Highway from Lualualei Homestead Road to Jade Street, this letter is in response to a letter from Paul Taniguchi, Ltd.

After review of the planned project, it has been determined that because East Makaha Stream is dry except during periods of storm runoff, and because Kaupuni Stream Bridge is to be replaced with a wider bridge providing the same navigational clearances, with no effect on the few non-motorized rafts that sometimes use the watercourse, a permit to replace these two bridges will not be necessary.

As previously stated, the Coast Guard has no authority to render official decisions relating to matters involving permit determinations to parties other than those that have the authority to construct bridges. It is preferable that the Coast Guard deal directly with the State of Hawaii on matters such as these rather than through the consultant firms engaged by the State.

Thank you for the opportunity to comment.

Your consideration and attention is appreciated.

Sincerely yours,

[Signature]

Captain, U.S. Coast Guard
Chief, Aids to Navigation Branch
Fourteenth Coast Guard District

Copy to:
Paul Taniguchi, Ltd.
1700 Kapiolani Blvd., Suite 203
Honolulu, Hawaii 96814
Paul T. Taniguchi, Ltd.
1700 Kapiolani Blvd., Suite 203
Honolulu, Hawaii 96814

Gentlemen:

This is in response to your letter dated 4 November 1977 concerning the Kaupuni Channel Bridge and East Makaha Stream Bridge construction for the Farrington Highway Widening Project.

The construction of the bridges will not require Department of the Army (DA) permits. However, permits from the Coast Guard may be required. The construction of temporary earthen berms or such other working platforms within the channel or stream for pile driving purposes will not require DA permits.

Our regulations specify that fill material incidental to the construction of bridges across tidal waters including, cofferdams, abutments, foundation seals, piers, and temporary construction and access fills does not require DA permits. The following conditions must be satisfied: (1) the fill material will not be located in the proximity of a public water supply intake; (2) the fill material will not occur in areas of concentrated shellfish production; (3) the discharge will not destroy a threatened or endangered species as identified under the Endangered Species Act, or endanger the critical habitat of such species; (4) the fill will not disrupt the movement of those species of aquatic life indigenous to the waterbody; (5) the fill will consist of suitable material free from toxic pollutants in other than trace quantities; (6) the fill created will be properly maintained to prevent erosion and other non-point sources of pollution; (7) the fill will not
PODCO-0
Paul T. Taniguchi, Ltd.

occur in a component of the National Wild and Scenic River System or in a
compartment of a State wild and scenic river system. We recommend that the
above conditions be provided in the contract.

Thank you for the opportunity to review the plans and for your cooperation.

Sincerely yours,

B. R. SCHLAPAK
Lt Col, Corps of Engineers
Deputy District Engineer

Copy furnished:
14th Coast Guard District w ltr Taniguchi 4 Nov 77 wo incls
EXHIBIT III

July 22, 1977

Mr. Andrew I. T. Chang
Director
Department of Social Services
and Housing
P. O. Box 339
Honolulu, Hawaii 96809

Attention Mr. Harold Kurihara
Hawaii Housing Authority

Dear Mr. Chang:

Subject: EIS Preparation Notice, Farrington Highway Widening, Lualualei Homestead Road to Vicinity of Jade Street, Project No. 93B-01-75

Thank you for your comments of April 25, 1977 regarding the above indicated EIS Preparation Notice. The information provided by your department will be useful in determining approximately how many future homes will be serviced by the proposed road widening project. We would, however, appreciate further information from your staff regarding the following:

1. The number of existing dwelling units served by Farrington Highway from Lualualei Homestead Road to Jade Street.

2. Your department's plans to construct or acquire housing units in this vicinity and in Makaha.

3. A location map which shows the location of the existing and future homes planned to be constructed by your department over the next five years.

This information would be most appreciated, and if we can provide clarification, please contact Herbert Tao (548-6932) of our Technical Design Services Office, Land Transportation Facilities Division.

Very truly yours,

E. Alvey Wright
Director

cc: Environmental Communications, Inc. (w/cpy of ltr dtd 4/25/77)
MEMORANDUM:

TO: E. Alvey Wright, Director  
Department of Transportation

FROM: Franklin Y. K. Sunn, Executive Director

SUBJECT: EIS Preparation Notice, Farrington Highway Widening,  
Lualualei Homestead Road to Vicinity of Jade Street,  
Project No. 93B-01-75

August 4, 1977

This is in reference to your letter of July 22, 1977 on the above- 
named subject.

We do not know the number of existing dwelling units served by  
Farrington Highway from Lualualei Homestead Road to Jade Street.  
However, our present inventory in the Waianae coast area are as  
follows:

<table>
<thead>
<tr>
<th>Projects Committed but Not Yet Under Construction</th>
<th>Number of Scheduled Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waianae Kai</td>
<td>300</td>
</tr>
<tr>
<td>Kahakai Nani</td>
<td>500</td>
</tr>
<tr>
<td>Maili Court</td>
<td>40</td>
</tr>
<tr>
<td>Maile Sands</td>
<td>42</td>
</tr>
<tr>
<td>Sub Total</td>
<td>882</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Projects Presently Under Construction</th>
<th>Number of Scheduled Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Makaha Meadows</td>
<td>320</td>
</tr>
<tr>
<td>Total</td>
<td>1,202</td>
</tr>
</tbody>
</table>

Attached are location maps of the above-mentioned projects.
Please contact Norman Wong (848-3211) of the Hawaii Housing Authority if you have further questions.

FRANKLIN Y. K. SUNN  
Executive Director

Attachments
LOCATION MAP

TAX MAP KEY: 8-7-03:10

MAILE COURT

proposed Subdivision

EXHIBIT A E-9
The irregular shaped parcel consolidation is identified as Tax Map Keys 8-7-07:04 and 8-7-33:14 and 19\% and contains a total area of 53.266 acres with a 1,762\# roadway easement. Tax Map Key 8-7-33:14 is situated along Farrington Highway and contains an area of 1.246 acres. It has 188.00 feet of frontage along Farrington Highway, its southwesterly property line. Parcel 14 is 186.91 wide along its northeasterly and rear property line

1/ See also Exhibit 1 of the Addenda, "Tax Maps Of The 53.266-Acre Kahakai Nani Property."
EXHIBIT IV

July 22, 1977

Mrs. Billie Beamer
Chairman
Department of Hawaiian
Home Lands
P. O. Box 1879
Honolulu, Hawaii 96805

Dear Mrs. Beamer:

Subject: EIS Preparation Notice, Farrington Highway
Widening, Lualualei Homestead Road to Vicinity
of Jade Street, Project No. 93B-01-75

Thank you for your response of April 13, 1977, on the above
indicated EIS Preparation Notice. At this time we would like to
request your assistance in providing us with information on the
existing number of Hawaiian homes and future plans for constructing
homes utilizing Farrington Highway as an access in the project
area (Lualualei Homestead Road to Jade Street). This would
help us determine the existing number of homes which will be
served by the proposed road widening section. A map of the
existing Hawaiian homes and future area to be constructed
(over the next five years) would also be of assistance.

We look forward to your Department's response, and if
we can provide further clarifications, please contact
Herbert Tao (548-6932) of our Technical Design Services Office,
Land Transportation Facilities Division.

Very truly yours,

E. ALWEY WRIGHT
Director

cc: Environmental Communications, Inc.
(w/copy of letter dated April 13, 1977)
MEMORANDUM

TO: E. Alvey Wright, Director
   Department of Transportation

FROM: (Mrs.) Billie Beamer, Chairman

SUBJECT: EIS Preparation Notice, Farrington Highway
    Widening, Lualualei Homestead Road to Vicinity
    of Jade Street, Project No. 93B-01-75

August 3, 1977

In response to your letter dated July 22, 1977, regarding the
subject EIS Preparation Notice, please find attached a map
indicating the location (cross hatched) of future home con-
struction by this Department. You will notice that the primary
means of ingress and egress fall within your project area.

The area can accommodate approximately 600 single family units,
however, only 500 are projected for occupancy within the next
five (5) years. The remainder should be occupied shortly
thereafter. Initial occupancy of the first 500 units is
scheduled for September of this year.

Should there be any questions, please contact William Blaisdell,
telephone 548-2684.

(MRS.) BILLIE BEAMER, CHAIRMAN

Enc.
EXHIBIT V. INFORMATION ON SOILS TYPE IN THE HIGHWAY RIGHT-OF-WAY

Engineering interpretations: Review of the soils type in the area reveals that highway construction on these soils are acceptable in most instances. Some flooding (local) may be encountered in the Hanalei silty clay, 0 to 2 percent slopes (HnA) and Pulehu clay loam, 0 to 3 percent slopes (PsA). (Refer to the following map for the location of these soil types along the project area.)

Specifically the engineering interpretation for each soils type (for highway construction) is provided below.

**Coral Outcrop** - This land type is used for military installations, quarries, and urban development. Vegetation is sparse. It consists of kiawe, koa haole, and fingergrass.

**EmB** - All features favorable for highway location.

**HnA** - High water table; subject to flooding.

**Mtb** - Loose sand at a depth of 20 inches.

**PsA** - Subject to flooding in low areas

No significant or adverse impact on soils is anticipated due to this widening. The present highway already travels through these soils type and no severe problems have been encountered.

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1 Information obtained from USDA Soil Conservation Service in cooperation with the University of Hawaii Agricultural Experiment Station, Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii, issued August 1972.