

**FINAL  
ENVIRONMENTAL ASSESSMENT**

**Diamond Head Road Makai  
Recreation Master Plan  
Honolulu, Island of Oahu, Hawaii**

This document has been prepared pursuant to  
Chapter 343, Hawaii Revised Statutes

Prepared For:  
The Department of Design and Construction  
City and County of Honolulu

Prepared By:  
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November 2001

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## SECTION 1 INTRODUCTION AND SUMMARY

### 1.1 INTRODUCTION AND PURPOSE

The City and County of Honolulu proposes to improve a one and one-half (1.5) mile "makai section" of Diamond Head Road between Poni Moi Road (near Kapiolani Park) and Kahala Avenue (near Fort Ruger Mini Park, also known as Triangle Park). All construction activities will take place within the City's Diamond Head Road right-of-way, which varies between forty feet wide to eighty feet wide. The proposed project is intended to enhance the recreational experience of the variety of users who currently frequent this area. Improvements will include relocating utilities underground, widening sidewalks, installing traffic calming devices, widening planting strips, landscaping, signage, marked parking spaces at the Lookout Area parking areas, and modifying the street to accommodate bike lanes traveling in both directions. The project does not propose improvements on privately owned property. No public buildings will be constructed.

This makai section of Diamond Head Road is designated as State Urban, and is located in the Special Management Area and the Diamond Head Special District. Diamond Head Road is adjacent to the makai boundary of the State of Hawaii's Diamond Head State Monument.

### 1.2 PROJECT SUMMARY

<u>Project Name:</u>	Diamond Head Road Makai Recreation Master Plan
<u>Project Location:</u>	The 1.5 mile makai portion of Diamond Head Road located between Poni Moi Road and Kahala Avenue, extending from Kapiolani Park to Triangle Park.
<u>Proposing Agency:</u>	Department of Design and Construction City and County of Honolulu 650 South King Street, 9 <sup>th</sup> Floor Honolulu, HI 96813 Contact: Mr. Don Griffin, Project Manager Phone: 808-527-6324 Fax: 808-523-4767

- Environmental Assessment Prepared By: Townscape, Inc.  
900 Fort Street Mall, Suite 1160  
Honolulu, Hawaii 96813  
Contact: Ms. Mary O'Leary, AICP, Senior Planner  
Phone: 808-536-6999 ext. 104 Fax: 808-524-4998
- Accepting Authority: Department of Design and Construction  
City and County of Honolulu  
Contact: Ms. Rae M. Loui, P.E, Director  
Phone: 808-523-4564
- Existing Land Use: Public road right-of-way which contains an existing street (Diamond Head Road), sidewalks, landscaping strips, and parking areas.
- State Land Use District: Urban
- Primary Urban Center (PUC) Development Plan: The PUC Development Plan designates the land surrounding the project area as "Parks and Open Space," "Residential" and "Institutional."
- City Zoning: Various Portions: P-1, P-2, R-5, R-10
- Anticipated Determination: A "Finding of No Significant Impact" (FONSI) is anticipated because no significant adverse environmental impacts are expected as a result of the proposed project.

### **1.3 PROJECT LOCATION**

Diamond Head Road runs along the makai slope of Diamond Head (Leahi) Crater on Oahu. The Road encircles almost half of the Crater and actually becomes Monsarrat Avenue at its intersection with Trousseau Street on the "back side" of the Diamond Head State Monument (Figure 1-1). The "project area" of this Environmental Assessment (Figure 1-2) – which is referred to throughout this document as "Diamond Head Road Makai" - is the one and one-half (1.5) mile section of Diamond Head Road located between its intersections with Poni Moi Road (near Kapiolani Park) and Kahala Avenue (near Triangle Park). Generally, the project area is bounded by Waikiki to the northwest and Kahala to the east. All proposed improvements are located within the City's Diamond Head Road right-of-way.

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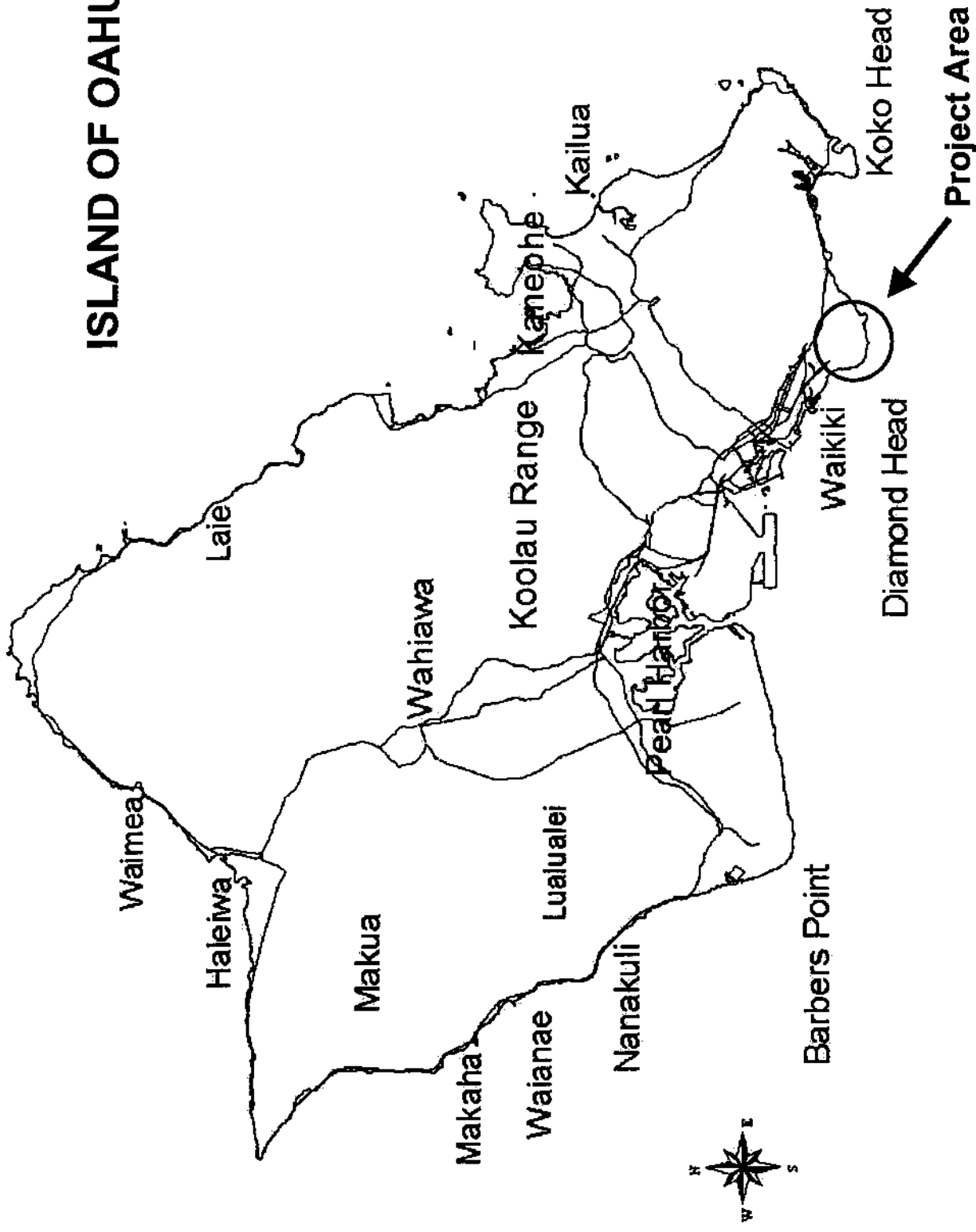


FIGURE 1-1  
DIAMOND HEAD ROAD LOCATION MAP

DIAMOND HEAD ROAD MAKAI RECREATION MASTER PLAN  
Environmental Assessment

Prepared For: The City and County of Honolulu  
Prepared By: Townscape, Inc.

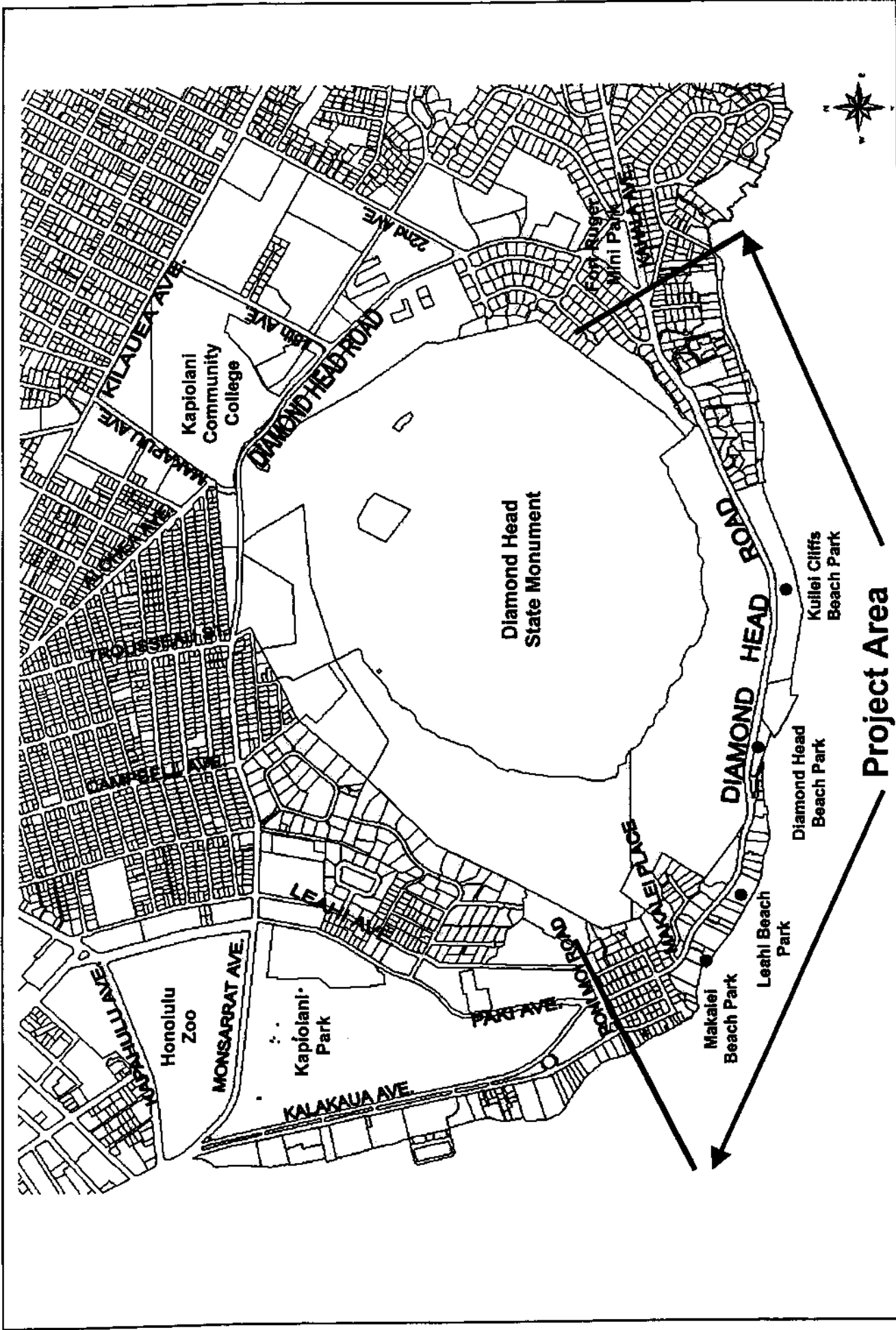


FIGURE 1-2  
DIAMOND HEAD ROAD VICINITY MAP

**DIAMOND HEAD ROAD MAKALEI RECREATION MASTER PLAN**  
Environmental Assessment

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Prepared By: Townscape, Inc.

**Project Area**



Also within the scope of the proposed project is the Diamond Head Lookout Area, which overlooks the coast near the Diamond Head Lighthouse. This Area consists of three off-street parking areas, also referred to in this document as Observation Areas, all of which are located on the makai side of Diamond Head Road. These three off-street parking areas are referred to in this Environmental Assessment as Observation Areas #1, #2 and #3, with #1 located closest to Waikiki and #3 located closest to Kahala. Four beach parks, although not within the scope of this project, are also accessible via Diamond Head Road: Makalei, Leahi, Diamond Head and Kuilei Cliffs Beach Parks.

#### **1.4 PROJECT OVERVIEW**

The Diamond Head Road Recreation Master Plan is a Fiscal Year (FY) 2000 project of Vision Team No. 17, Waikiki-Kapahulu-Diamond Head, which is part of the City and County of Honolulu's community-based "21<sup>st</sup> Century Vision" planning program. The Diamond Head Road Recreation Master Plan Community Advisory Committee and the City's Planning Consultant, Townscape, Inc., developed the plans for the proposed improvements for the 1.5-mile makai section of Diamond Head Road.

All construction activities will take place within the City's Diamond Head Road right-of-way, which varies from forty feet wide to eighty feet wide along the 1.5-mile distance. Proposed improvements include relocating utilities underground, widening sidewalks, installing traffic calming devices, widening planting strips, landscaping, signage, marking parking stalls at the Lookout Area parking areas, and modifying the street to accommodate bike lanes traveling in both directions.

The project does not propose improvements on privately owned property. No public buildings will be constructed. The improvements within the Diamond Head Road right-of-way are intended to safely accommodate the diverse range of recreational activities that people engage in along Diamond Head Road, such as walking, jogging and bicycling, in addition to vehicular traffic.

The facilities will be designed in accordance with City standards to meet the requirements of the Americans with Disabilities Act and the requirements of Section 103-50 Hawaii Revised Statues.

## **1.5 SUMMARY OF IMPACTS AND MITIGATION MEASURES**

### **1.5.1 Environmental Impacts**

The proposed project is not anticipated to have any significant negative long-term affects on the physical environment. Short-term affects will include dust and noise impacts during construction. All construction activities will be contained within the City's road right-of-way.

### **1.5.2 Social and Economic Impacts**

The proposed project improvements will enhance the recreational and aesthetic experience for users and residents who recreate and/or live in the area. During the construction phase of the project, direct and indirect jobs will be created. Relocation of utility lines underground may require area residents to pay for the cost of lateral hookups from the main lines to their homes.

### **1.5.3 Public Facilities and Services**

No permanent building-type structures are proposed. Permanent improvements will include new roadway surface, sidewalks, planting strips, streetlights, and undergrounding of utilities. Electricity will be required for the new streetlights, but no additional communication systems will be required. The existing drainage patterns will be maintained. Waikiki Police District 6 and Waikiki Fire Station #7 provide police and fire protection.

## **1.6 RELATIONSHIP TO PLANS, POLICIES AND CONTROLS**

### **1.6.1 State Land Use**

According to State Land Use maps, the entire 1.5-mile portion of the Diamond Head Road right-of-way is designated as State Urban (U). The land adjacent to the road right-of-way is designated as State Urban in the residential areas and State Conservation along the Lookout Area.

The right-of-way runs through the Conservation District along the Diamond Head Lighthouse Lookout Area - as defined by Beach Road on the Waikiki-side and the last Observation Area on the Kahala-side. On either sides of the Diamond Head Lighthouse Lookout Area, the right-of-way runs through the Urban District.

#### 1.6.2 Primary Urban Center Development Plan

The existing Primary Urban Center Development Plan designates the land immediately surrounding the project area as "Parks and Open Space," "Residential" and "Institutional." The proposed improvements will be contained completely within the public right-of-way and are not expected to affect the surrounding land uses.

#### 1.6.3 City and County of Honolulu Zoning

The Diamond Head Road right-of-way has a variety of City zoning designations that are based on adjacent land use zoning designations, including: P-1 "Restricted Preservation", P-2 "General Preservation", R-5 "Residential" and R-10 "Residential." Permission for uses in the P-1 district is subject to the appropriate city and state agencies. Public uses and structures, such as roads and utilities, are permitted uses in all of the other zoning districts.

### 1.7 **NECESSARY PERMITS AND APPROVALS**

The necessary permits and approvals to construct the proposed improvements will be acquired from the City and County of Honolulu, including a street usage permit for construction within a City street, conformance with the Diamond Head Special District standards, and compliance with the State Department of Health's noise and fugitive dust control measures.

## **1.8 ALTERNATIVES CONSIDERED**

In addition to the "No Action" alternative, three other alternatives were considered during the conceptual planning phase. The "No Action" alternative would maintain the current conditions. Bicyclists would continue to share the roadway with motorists and there would be conflicts between pedestrians and vehicles at the Lookout Area parking areas.

The other alternatives that were considered were based on input received during the community-based Diamond Head Road Recreation Master Plan process. These alternatives examined various recreational roadway configurations. The first alternative was referred to as the "Linear Park," and created a people-oriented setting. Very narrow vehicular travel lanes would induce slow vehicular speeds, thereby allowing bicyclists to more safely share the road with cars. Much wider sidewalks and planting strips would create a park-like ambiance.

A second alternative considered was to add only one bike lane in the Kahala-bound direction on the makai side of Diamond Head Road. This would allow wider vehicular travel lanes, but would not provide a mauka bike lane.

The third alternative was to designate Diamond Head Road a one-way street in the Kahala-direction for the entire 1.5-mile section of roadway with bike lanes traveling in both directions. Also considered was to designate just the Lookout Area portion as a one-way street. While the one-way street alternative would reduce through traffic, it would pose possible confusion for bicyclists and motorists traveling in opposite directions. It would also create potential vehicular traffic flow issues for Waikiki-bound traffic. Motorists traveling towards Waikiki from the Kahala area would have to find alternate routes, such as Monsarrat Avenue.

## **1.9 DETERMINATION AND FINDINGS**

Based on the material contained in this Environmental Assessment, a "Finding of No Significant Impact" (FONSI) is anticipated because no significant adverse environmental impacts are expected as a result of the proposed project.

## **SECTION 2 PROJECT DESCRIPTION**

### **2.1 OVERVIEW**

The City and County of Honolulu's Vision Team # 17, Waikiki-Diamond Head-Kapahulu, in association with City officials, advocated that a plan should be developed to address the recreational environment of Diamond Head Road. In 1999, Vision Team #17 identified the Diamond Head Road Recreation Master Plan as one of its priority projects. The Master Plan effort was conducted and funded through the City and County of Honolulu's "21<sup>st</sup> Century Oahu – A Shared Vision for the Future" planning program. A Community Advisory Committee for the Diamond Head Road Recreation Master Plan was formed and a series of meetings were held over the course of a year to develop alternative concepts, establish general consensus on the preferred concept and identify the proposed improvements. The intent of the Diamond Head Road Recreation Master Plan is to support and enhance the recreational experience for the variety of users who currently utilize the roadway corridor.

### **2.2 PROJECT DESCRIPTION**

The City and County of Honolulu proposes to improve a one and one-half (1.5) mile section of Diamond Head Road between Poni Moi Road (near Kapiolani Park) and Kahala Avenue (near Triangle Park). The objectives of the proposed improvements are to accommodate the needs of a diverse community of recreational users and to promote a reverence for Diamond Head, while maintaining the integrity of the surrounding residential neighborhoods. To achieve this goal, the proposed improvements will moderate motor vehicle speeds, expand sidewalks, add bike lanes, and provide landscaping. Relocating utility lines underground will enhance the views of Diamond Head and informational signage will educate the public about the natural and historic setting of the Diamond Head Area. Modification to the parking areas along the Lookout Area will reduce confusion and increase safety between vehicular and pedestrian traffic.

The project area is that portion of Diamond Head Road that extends approximately 6,790 linear feet – or about 1.5 miles - from Kapiolani Park on the Waikiki-side to Fort Ruger Mini Park (also known as Triangle Park) on the Kahala-side. The project area is divided into five distinct sections in the Master Plan based on the characteristics of the street right-of-way and the character of the surrounding areas (Figure 2-1). The improvements proposed for each specific section are grouped and presented below. The under grounding of utilities is common to all five sections.

### **Section 1      Diamond Head Road Between Poni Moi Road and Coconut Avenue**

Section 1 of Diamond Head Road lies between Poni Moi Road and Coconut Avenue. It is a somewhat narrow street with a 50-foot right-of-way (Figure 2-2). Relatively smaller, older cottage-type houses are situated close to the road. The objective of the improvements to Section 1 (and Section 2) is to balance safe roadway conditions, an improved recreational environment, and retention of existing residential landscaping.

Specific improvements proposed for Section 1 are as follows. The existing 12.5-foot wide travel lanes would be narrowed to 11-foot wide and the roadway would be widened an additional 5 feet in order to accommodate two 4-foot wide bike lanes on both sides of the street. Streetlights would be relocated to the makai side of the road, as the utility lines are placed underground.

A raised intersection at Coconut Avenue and Diamond Head Road is proposed as a traffic calming measure. Throughout Section 1, the makai sidewalk would be widened from 5 feet to 8 feet, and the mauka sidewalk from 4 feet to 5 feet. Existing residential landscaping that encroaches into the road right-of-way will be retained as much as possible. The plan proposes to replace the existing planting strips with street trees in tree wells in order to accommodate the new bike lanes and widened sidewalks. A “gateway”/ entrance sign could be installed within the public right-of-way on Diamond Head Road near its intersection with Poni Moi Road. This would serve to remind motorists that they are entering a special residential and recreational area.

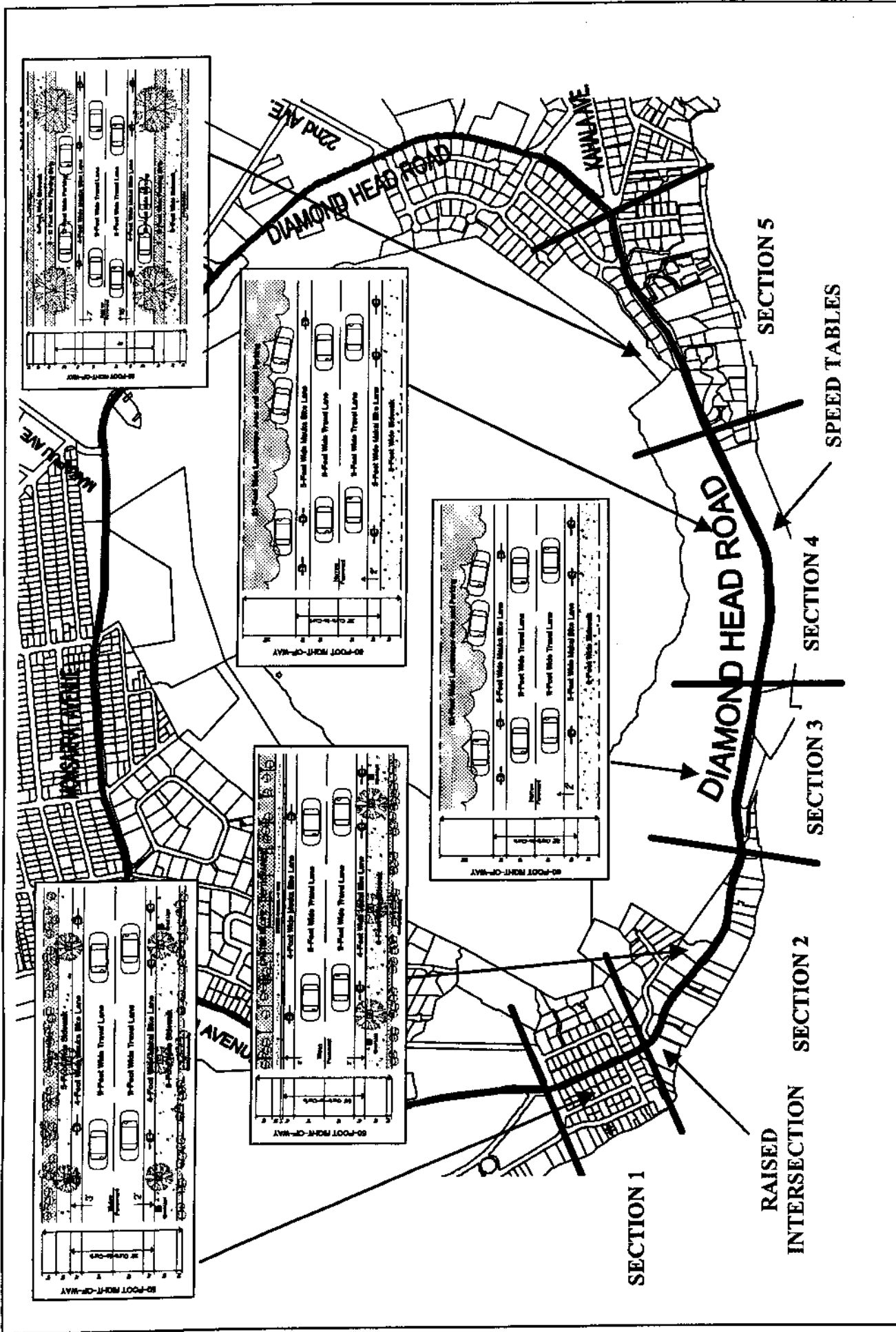


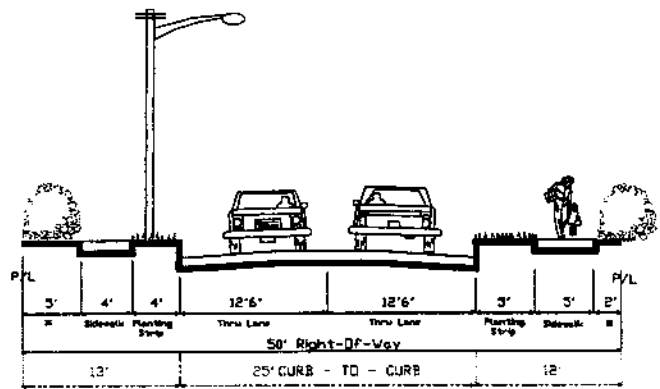
FIGURE 2-1  
MAKAI AREA SECTION MAP

**DIAMOND HEAD ROAD MAKAI RECREATION MASTER PLAN**  
Environmental Assessment

Prepared For: The City and County of Honolulu  
Prepared By: Townscape, Inc.



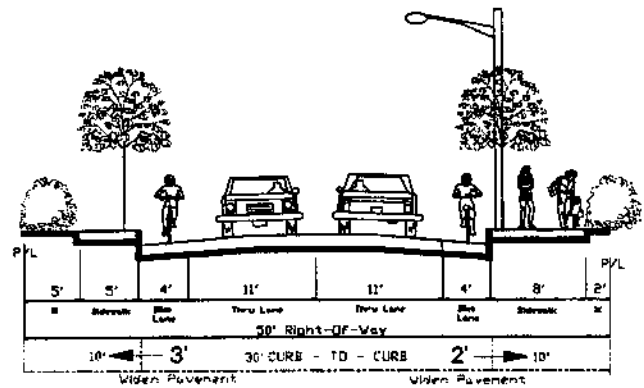
Looking towards Kahala



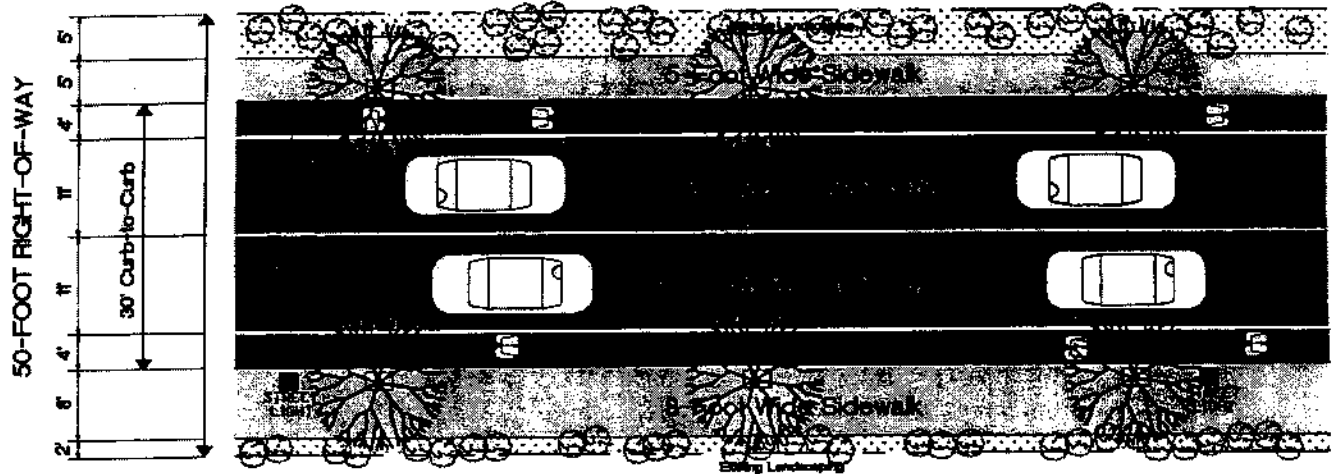
Existing Conditions



Looking towards Waikiki



Proposed Plan



Makai (Ocean)

DIAMOND HEAD ROAD MAKAI RECREATION MASTER PLAN  
Environmental Assessment

Prepared For: The City and County of Honolulu  
Prepared By: Townscape, Inc.

FIGURE 2-2  
SECTION 1 PROPOSED IMPROVEMENTS

Diamond Head Road  
Between Poni Moi Road and Coconut Avenue



### Section 1 Summary

#### Street Improvements:

- Widen Diamond Head Road by 5 feet
- Narrow vehicle lanes to 11 feet each
- Provide 2 bike lanes – 4 feet each
- Traffic Calming: install raised intersection at intersection of Coconut Avenue and Diamond Head Road

#### Pedestrian Improvements:

- Widen makai Sidewalk to 8 feet
- Widen mauka sidewalk to 5 feet

#### Landscaping Improvements:

- Retain residential landscaping, as possible within the public right-of-way
- Street trees in tree wells to replace planting strip

#### Signage Improvements:

- Install a gateway / entrance sign within the public right-of-way (not in Kapiolani Park) near the intersection of Poni Moi Road and Diamond Head Road

#### Utility Improvements:

- Underground utility lines along Diamond Head Road between Kapiolani Park and Triangle Park (1.5 miles), location to be determined
- Place new street lights on the makai side of the street in Section 1

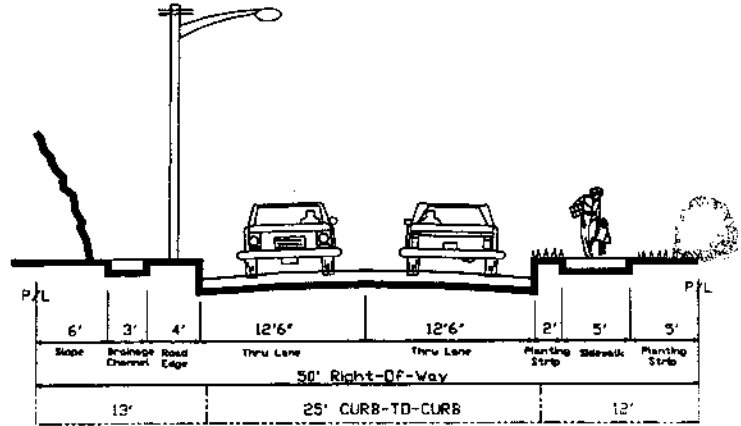
### **Section 2      Diamond Head Road Between Coconut Avenue and Beach Road**

Section 2 of Diamond Head Road, which also has a 50-foot right-of-way, is a winding stretch of roadway that follows the curves of Diamond Head's lower slopes (Figure 2-3). There are large houses and house lots on the makai side of the street and an open drainage channel on the mauka side of the street.

Similar to Section 1, vehicle lanes would be narrowed from 12.5 feet to 11 feet each and streetlights would be placed on the makai side of the street. The roadway would be extended 3 feet in the mauka direction and 2 feet in the makai direction to accommodate 4-foot wide bike lanes on both sides of the street. A high curb adjacent to the mauka drainage way is recommended. The makai sidewalk would be widened from 5-foot wide to 8-foot wide and street trees in tree wells would replace the existing planting strip.



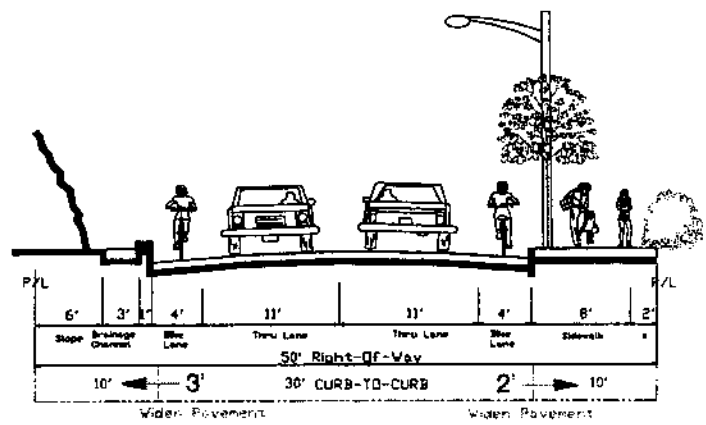
Looking towards Kahala



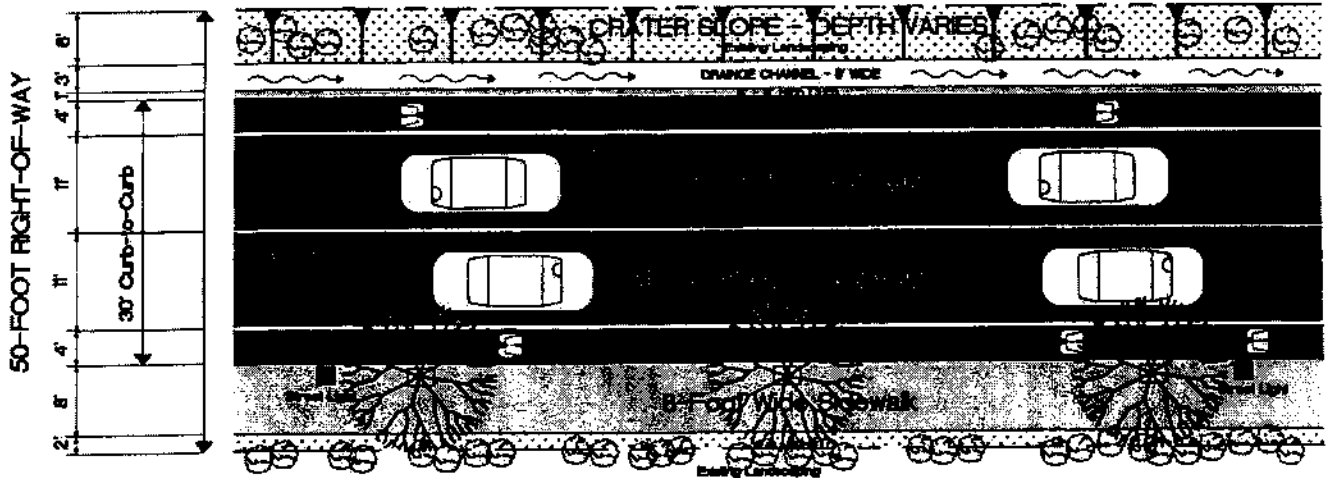
Existing Conditions



Looking towards Waikiki



Proposed Plan



Makai (Ocean)

DIAMOND HEAD ROAD MAKAI RECREATION MASTER PLAN  
Environmental Assessment

Prepared For: The City and County of Honolulu  
Prepared By: Townscape, Inc.

FIGURE 2-3  
SECTION 2 PROPOSED IMPROVEMENTS

Diamond Head Road  
Between Coconut Avenue and Beach Road

Although the Beach Parks are not within the scope of the Master Plan, it is recommended that signs be installed at Makalei and Leahi Beach Parks to provide information about area history and cultural points of interest.

### Section 2 Summary

#### Street Improvements:

- Widen Diamond Head Road by 5 feet
- Narrow vehicle lanes to 11 feet each
- Provide 2 bike lanes – 4 feet each
- Install high curb adjacent to mauka drainage way

#### Pedestrian Improvements:

- Widen makai sidewalk to 8 feet

#### Landscaping Improvements:

- Retain residential landscaping, as much as possible within the public right-of-way
- Street trees in tree wells to replace planting strip

#### Signage Improvements:

- Recommendation - install signage at Makalei and Leahi Beach Parks with information about area history and cultural points of interest

#### Utility Improvements:

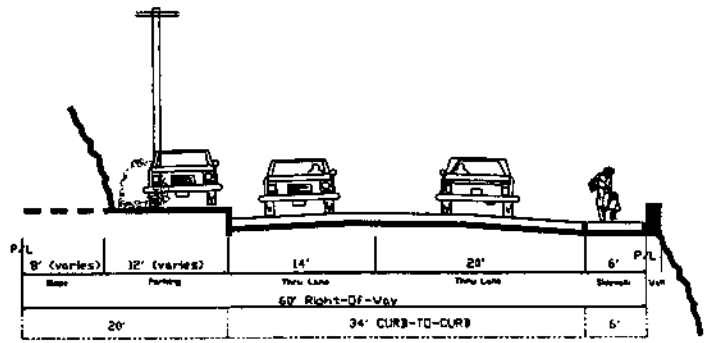
- Underground utility lines along Diamond Head Road between Kapiolani Park and Triangle Park (1.5 miles), location to be determined
- Place new street lights on the makai side of the street in Section 2

### **Section 3     Diamond Head Road Between Beach Road and the End of the Diamond Head Lookout Area**

Section 3, which has a 60-foot right-of-way, is relatively wide and inclined as it leads up to the Diamond Head Lighthouse (Figure 2-4). There is a rolled asphalt curb on the makai side of the street, which separates vehicular traffic from pedestrian traffic. The pavement between the rolled curb and the rock wall is approximately six feet wide. There is informal crushed coral off-street parking area set amongst naupaka bushes along the mauka-side of the street. Except for the U.S. Coast Guard residence associated with the Diamond Head Lighthouse, there are no houses in Section 3.



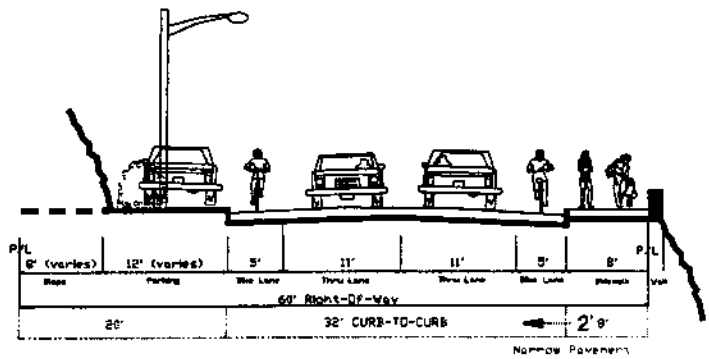
Looking towards Kahala



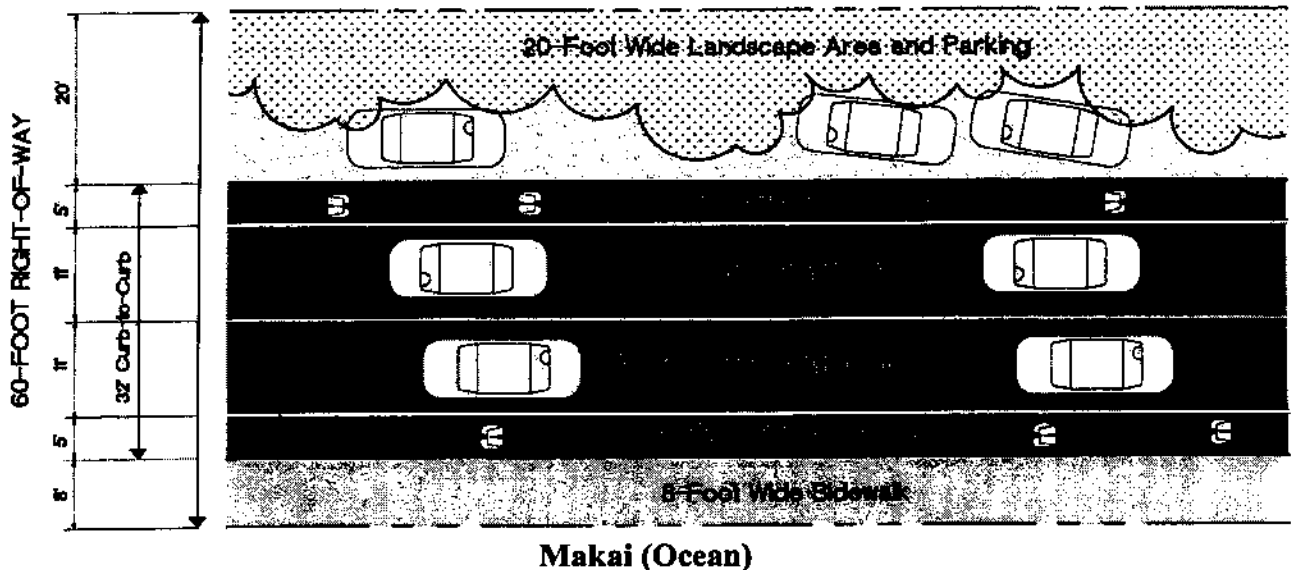
Existing Conditions



Looking towards Waikiki



Proposed Plan



DIAMOND HEAD ROAD MAKAI RECREATION MASTER PLAN  
Environmental Assessment

Prepared For: The City and County of Honolulu  
Prepared By: Townscape, Inc.

FIGURE 2-4  
SECTION 3 PROPOSED IMPROVEMENTS

Diamond Head Road  
Between Beach Road and the Diamond Head Lighthouse

The objective for Section 3 is to provide ample room for pedestrians and bicyclists by narrowing the vehicular travel lanes, and yet maintain the existing mauka off-street parking as it is. Section 3 serves as a transition zone between the lower Diamond Head Road neighborhood (Sections 1 and 2) and the Lookout Area (Section 4).

Through re-striping only, the existing vehicular travel lanes would be narrowed to 11 feet wide, consistent with the vehicle travel lanes in all Sections. In both Section 3 and Section 4 there is sufficient room to provide a 5-foot wide bike lane on both sides of the street, along with the 11-foot wide vehicular travel lanes.

A new raised 8-foot wide asphalt sidewalk would be constructed along the entire length of the makai rock wall. This would narrow the roadway area by two feet. The mauka curb line and the mauka off-street parking areas would remain. New streetlights are proposed for the mauka side of the street, as the utility lines are placed underground. The Master Plan proposes that signage be installed at the Lookout Area to highlight points of interest. No additional street trees are proposed in order to maintain sight lines for motorists.

### Section 3 Summary

#### Street Improvements:

- Narrow Diamond Head Road by 2 feet through re-striping
- Narrow vehicle lanes to 11 feet
- Provide 2 bike lanes – 5 feet each

#### Pedestrian Improvements:

- Construct a raised 8-foot wide sidewalk paved with asphalt adjacent to rock wall

#### Landscaping Improvements:

- No additional street trees
- Recommended - appropriate landscaping and maintenance of Kuilei Cliffs Beach

#### Signage Improvements:

- Install signage at Lookout Area highlighting points of interest (i.e. Diamond Head State Monument, surfing, whale watching, etc.)

#### Utility Improvements:

- Underground utility lines along Diamond Head Road between Kapiolani Park and Triangle Park (1.5 miles), location to be determined
- Place new street lights on the mauka side of the street in Section 3

#### **Section 4      “The Lookout Area” – Diamond Head Road Between the Lighthouse and the End of Observation Area #3**

Section 4 – also referred to as the Lookout Area - is relatively level, but the street forms a broad curve along the makai-face of Diamond Head Crater (Figure 2-5). This section of Diamond Head Road has a 60-foot right-of-way. The objective of the improvements is to enhance and highlight the existing park-like character of the Lookout Area by improving the pedestrian environment, slowing down traffic, providing bike lanes, and improving safety between pedestrian and vehicle traffic - especially at the three Observation Areas where currently vehicular and pedestrian traffic share the parking areas.

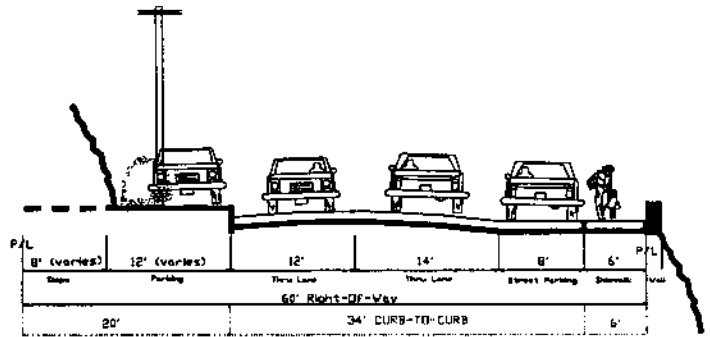
In Section 4 vehicle lanes would be narrowed to 11 feet in width and two 5-foot wide bike lanes would be provided. An 8-foot wide asphalt sidewalk would be constructed on the makai side of the street, adjacent to the rock wall as in Section 3. The new broader sidewalk would narrow the overall roadway area by two feet. The mauka curb line and the mauka off-street parking areas would remain.

The makai sidewalk would continue along the entire length of the rock wall, including Observation Areas #2 and #3. This would allow pedestrians and joggers to safely move through the Observation Areas without crossing the entrance to the parking lots as vehicles pull in and back out. The new sidewalk will also provide pedestrians a safe place to enjoy the ocean views. At Observation Area #1 – the smallest and most shallow of the three – the raised sidewalk would be constructed across the entrance to the parking area. The sidewalk could be painted to highlight its function as a pedestrian crosswalk, thereby raising the attention of drivers to watch for pedestrians.

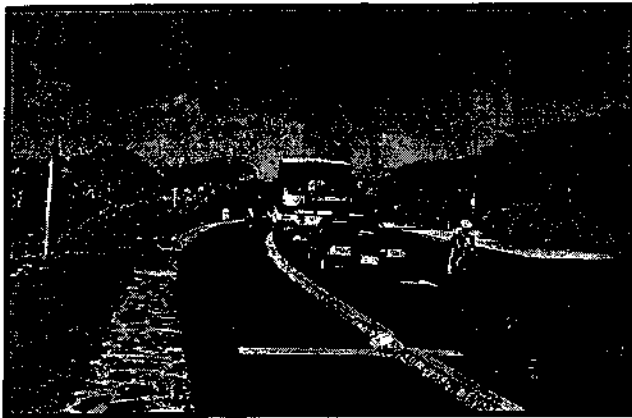
At Observation Area #3, a landscaped planting strip is recommended as a buffer between the parking stalls and the sidewalk to prevent parked cars from encroaching onto the sidewalk. New streetlights would be installed on the mauka-side of the street, as the utility lines are placed underground. No additional street trees are recommended in order to maintain sight lines for motorists. Signage is proposed at the Observation Areas to highlight points of interest and history.



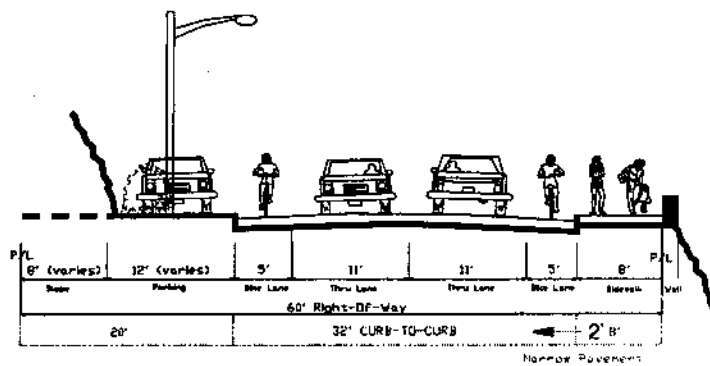
Looking towards Kahala



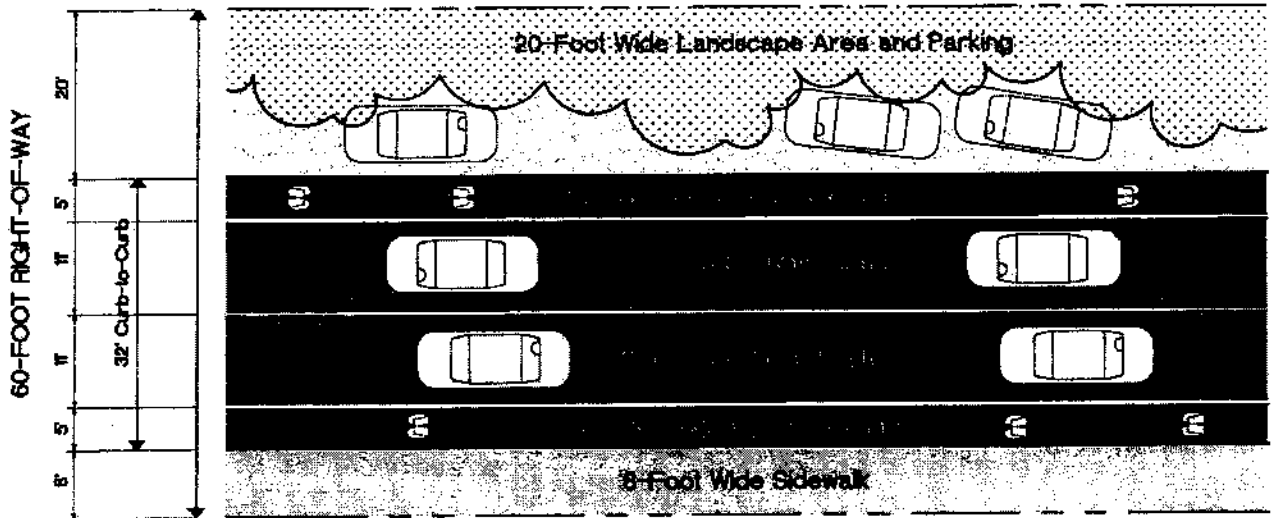
Existing Conditions



Looking towards Waikiki



Proposed Plan



Makai (Ocean)

DIAMOND HEAD ROAD MAKAI RECREATION MASTER PLAN  
Environmental Assessment

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Prepared By: Townscape, Inc.

FIGURE 2-5  
SECTION 4 PROPOSED IMPROVEMENTS

Diamond Head Road  
Between Diamond Head Lighthouse and Observation Area #3

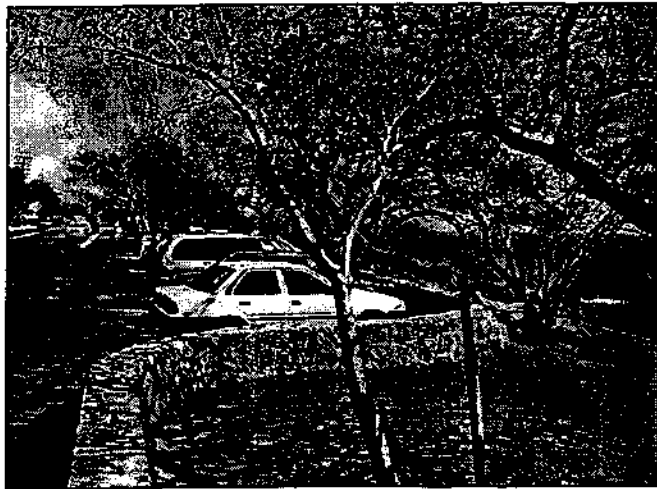
Parking in Section 4 is currently provided in three locations: (1) off-street parking for approximately 120 cars (Section 3 and 4 total) in pockets of crushed-coral nestled amongst naupaka on the mauka side of the street, (2) 48 on-street marked stalls on the makai side of Diamond Head Road, (3) three Observation Areas with off-street parking for approximately 40 cars total (Figure 2-6).

The project proposes to: (1) maintain the mauka off-street parking for approximately 120 cars, (2) eliminate the existing 48 on-street parking stalls to provide room for the bike lanes and to create open and unobstructed views of the ocean, and (3) create marked parking stalls at the three Observation Areas to eliminate the potential for cars to park at odd angles (See Figure 2-6). A total of about 30 parking stalls would be provided at the three Observation Areas. Observation Area #1 would remain in its existing configuration, requiring only striping to delineate the parking stalls. Figure 2-7 is a conceptual rendering of parking stall layouts for Observation Areas #2 and #3. The actual number of stalls to be provided will be determined during the design phase. The marked parking stalls will provide greater safety for vehicles and pedestrians entering and exiting the Observation Areas.

A new sidewalk is proposed across the entrance to Observation Area #1 (closest to the Lighthouse). At Observation Areas #2 and #3 the new sidewalk would be located adjacent to the rock wall, while parked cars and vehicular traffic would be separated from pedestrians. Observation Area #3, the deepest of the three, is proposed to have a landscaped buffer between the parking stalls and sidewalk. A landscaped traffic island is also proposed for Observation Area #3 to create a one-way ingress on the Waikiki-side and a one-way egress on the Kahala-side.

Although Kuilei Cliffs Beach Park is not within the scope of the Diamond Head Road Recreation Master Plan, a new Observation Area parking area could be accommodated at the large open space adjacent to the asphalt path that extends from Diamond Head Road down to the ocean at Kuilei Cliffs Beach Park. It is recommended that the option of developing a new Observation Area and parking area be considered in a comprehensive master plan for Kuilei Cliffs Beach Park.





Unmarked parking stalls at  
Observation Area #1.



Large tour vehicles stop near  
Observation Area #2.



Vehicles conflict with oncoming traffic  
and pedestrians when backing up at  
Observation Area #2.



Pedestrians walk between parked cars and  
moving traffic at Observation Area #3.

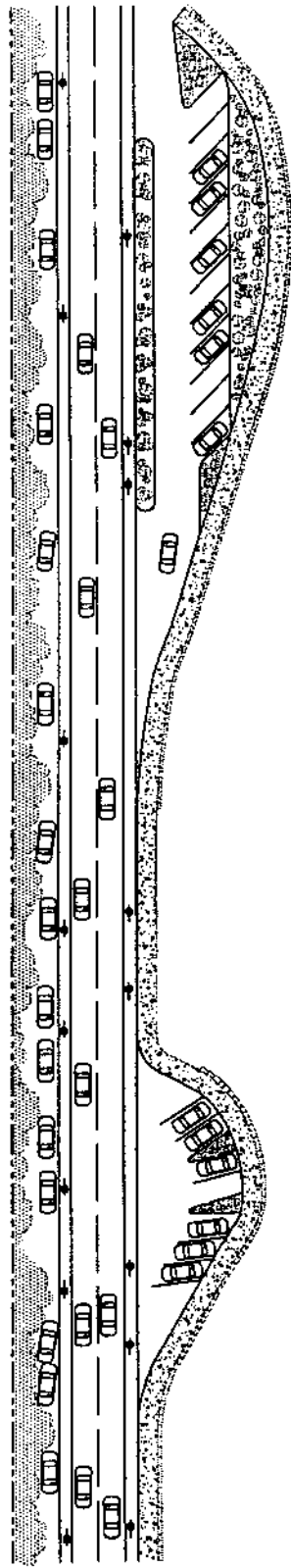
**DIAMOND HEAD ROAD MAKAI RECREATION MASTER PLAN**  
Environmental Assessment

Prepared For: The City and County of Honolulu  
Prepared By: Townscape, Inc.

**FIGURE 2-6**  
SECTION 4

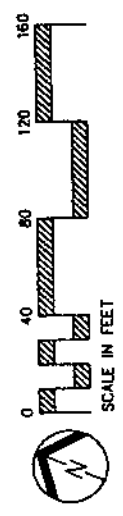
Diamond Head Road  
Observation Areas

DIAMOND HEAD ROAD  
LOOKOUT AREA PARKING



Observation Area #2

Observation Area #3



DIAMOND HEAD ROAD MAKAI RECREATION MASTER PLAN  
Environmental Assessment

FIGURE 2-7  
SECTION 4

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Lookout Area Parking Concept

Also proposed in Section 4, are two speed tables with pedestrian crossings to serve as traffic calming devices. The location of the speed tables will need to be coordinated with the City Department of Transportation Services roadway design standards. The speed tables should be located so that motorists have a safe line-of-sight and can see the pedestrian crossing in advance of approaching it. The speed tables can serve as safe pedestrian crossing zones so that people who park along the mauka side of the street have a designated crosswalk.

#### Section 4 Summary

##### Street Improvements:

- Narrow Diamond Head Road by 2 feet
- Narrow vehicle lanes to 11 feet each
- Provide 2 bike lanes – 5 feet each
- Traffic Calming: install 2 speed tables / pedestrian crossings where appropriate

##### Pedestrian Improvements:

- Construct a continuous, raised 8-foot wide sidewalk paved with asphalt, adjacent to the makai rock wall through Observation Areas #2 and #3, and across the entrance to Observation Area #1

##### Parking Improvements:

- Mark parking stalls at Observation Areas #1, #2, and #3
- Construct a traffic island at Observation Area #3
- Eliminate the 48 on-street parking stalls
- Maintain mauka off-street parking

##### Landscaping Improvements:

- No additional street trees
- At Observation Area #3, create landscaped buffer strip between parking spaces and new sidewalk
- Recommended - appropriate landscaping for and maintenance of Kuilei Cliffs Beach Park

##### Signage Improvements:

- Install signage at Observation Areas highlighting points of interest (i.e. Diamond Head State Monument, surfing, whale watching, etc.)

##### Utility Improvements:

- Underground utility lines along Diamond Head Road between Kapiolani Park and Triangle Park (1.5 miles), location to be determined
- Place new street lights on the mauka side of the street

## **Section 5      Diamond Head Road Between Observation Area #3 and                     Kahala Avenue**

Section 5 of Diamond Head Road has an 80-foot right-of-way. This extremely wide roadway (about 72 feet of the right-of-way is paved) gently slopes down from Observation Area #3 towards Kahala (Figure 2-8). There is a minimal four-foot wide mauka sidewalk along most of this section, but there is no makai sidewalk. Cars typically park along the makai side of the street, which forces pedestrians walking along the makai side to walk between parked cars and moving vehicular traffic. The paved vehicle lane on either side of the centerline is more than 30 feet wide, which encourages motorists to exceed the speed limit.

The objective of this section's improvements is to create a street that has the scale and characteristics of a typical residential neighborhood street. The proposed improvements will significantly narrow the vehicular travel lanes, create planting strips and provide broad pedestrian sidewalks on both sides of the street.

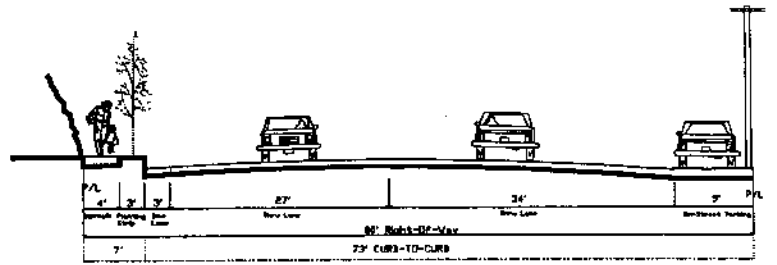
The project proposes that 11-foot wide vehicular travel lanes be defined by re-striping the street. Two 4-foot wide bike lanes will be provided.

Pockets of on-street parking areas will be created on both sides of the street between landscaped "bulbouts" that are connected by planting strips. Bulbouts can be used to provide landscaping and to calm traffic. Street trees will be planted in the bulbouts to soften and fill-in this existing broad expanse of open roadway, as well as to provide shade for pedestrians. Including new sidewalks, the total paved roadway area will be narrowed – or "filled in" - by 23 feet.

The mauka sidewalk will be widened from 4-feet to 6-feet. An 8-foot wide makai sidewalk will be constructed, providing a continuous broad sidewalk beginning in Section 1 through Section 5. Three-foot wide buffer zones will be provided between private property lines and the new sidewalks. New streetlights will be installed where appropriate.



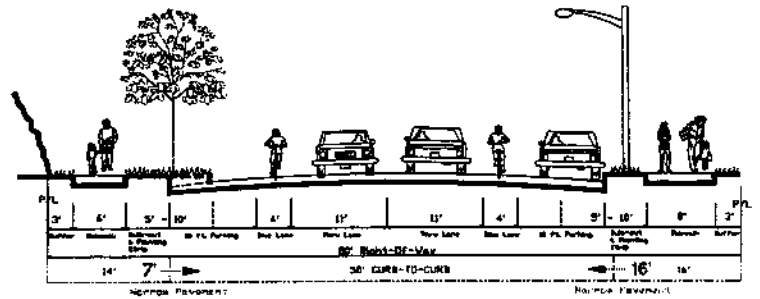
Looking towards Kahala



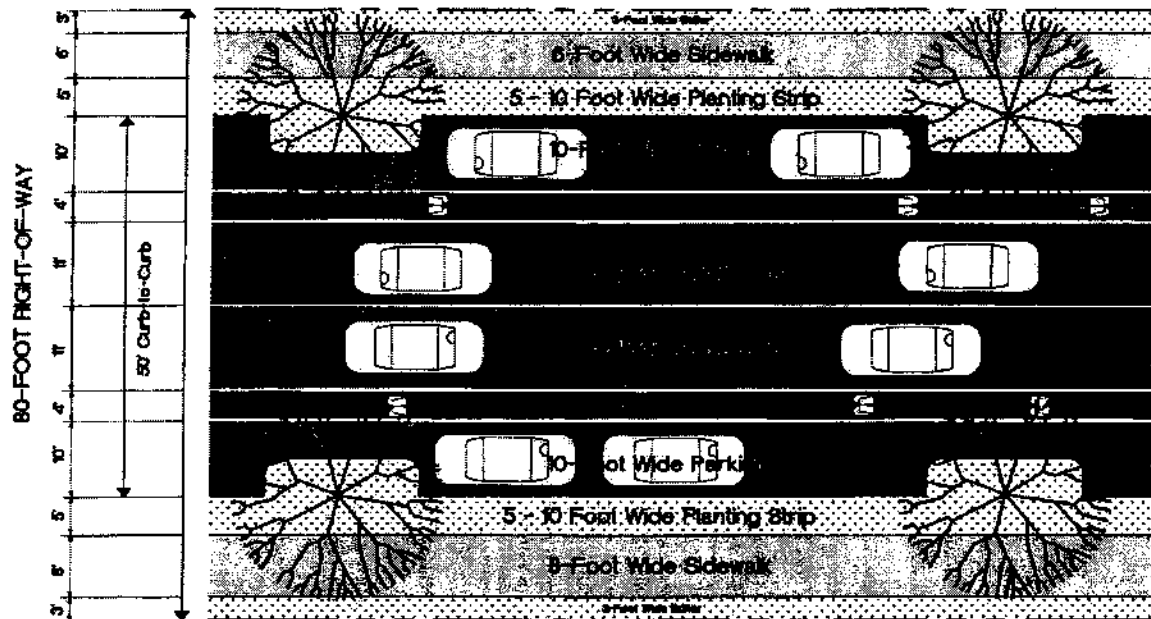
Existing Conditions



Looking towards Waikiki



Proposed Plan



Makai (Ocean)

DIAMOND HEAD ROAD MAKAI RECREATION MASTER PLAN  
Environmental Assessment

Prepared For: The City and County of Honolulu  
Prepared By: Townscape, Inc.

FIGURE 2-8  
SECTION 5 PROPOSED IMPROVEMENTS

Diamond Head Road  
Between Observation Area #3 and Kahala Avenue

### Section 5 Summary

#### Street Improvements:

- Narrow Diamond Head Road by 23 feet
- Narrow vehicle lanes to 11 feet each
- Provide 2 bike lanes – 4 feet each

#### Pedestrian Improvements:

- Construct an 8-foot wide makai sidewalk
- Widen mauka sidewalk to 6 feet

#### Parking Improvements:

- Create pockets of on-street parking on both sides of the street

#### Landscaping Improvements:

- Construct landscaped bulbouts connected by planting strips
- Plant street trees in bulbouts

#### Utility Improvements:

- Underground utility lines along Diamond Head Road between Kapiolani Park and Triangle Park (1.5 miles), location to be determined
- Place new street lights where appropriate

## **2.3 PROJECT PHASING AND COST**

The estimated total cost for the proposed Diamond Head Road Makai Recreation Master Plan improvements is \$12.287 million (Y2000 dollars) (Figure 2-9). Vision Team No. 17, Waikiki-Kapahulu-Diamond Head, has designated \$400,000 of its FY 2001 Vision funds and \$700,000 its FY 2002 Vision funds towards the first stage of implementation of this project, for an initial total of \$1.1 million. Those funding allocations have been approved by the City Council. The City has contracted with Ron Ho and Associates to begin implementation of the proposed improvements utilizing the FY 2001 funds.

The City's Department of Transportation Services had requested \$350,000 in Federal Enhancement Funds for design work. The current status of that request is in question. However, potential sources of additional funding for the remaining balance may be sought from City and State capital improvement monies, the Federal Transportation Equity Act for the 21<sup>st</sup> Century (TEA-21), and/or the Federal

# PROPOSED PLAN CONSTRUCTION COST ESTIMATES

	Improvements	Util. Undrgrnd	SUBTOTAL
SECTION 1 (560 LF) Poni Moi to Coconut	\$298,000	\$530,000	\$828,000
SECTION 2 (2,090 LF) Makalei Pl. to Beach	\$1,051,000	\$1,975,000	\$3,026,000
SECTION 3 (1,080 LF) Beach Road to	\$446,000	\$589,000	\$1,035,000
SECTION 4 (2,030 LF) Lighthouse to Last	\$1,165,000	\$1,106,000	\$2,271,000
SECTION 5 (1,030 LF) Last Lookout to Triangle	\$1,175,000	\$973,000	\$2,148,000
<i>Section Subtotals (6,790 LF)</i>	<i>\$4,135,000</i>	<i>\$5,173,000</i>	<i>\$9,308,000</i>
		Additional 20% Survey & Design	\$1,862,000
		<b>SUBTOTAL</b>	<b>\$11,170,000</b>
		10% Contingency	\$1,117,000
		<b>(Y2000 dollars) ROUNDED ESTIMATED GRAND TOTAL</b>	<b>\$12,287,000</b>

FIGURE 2-9  
CONSTRUCTION COST ESTIMATES

DIAMOND HEAD ROAD MAKAI RECREATION MASTER PLAN  
Environmental Assessment

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Prepared By: Townscape, Inc.

Transportation Enhancement funds. The City may also choose to pursue cost sharing by the utility companies.

Figure 2-10 outlines a preliminary phasing plan for the Diamond Head Road Makai Recreation Master Plan improvements. Ideally, the phasing of improvements would be implemented in a manner that is comprehensive, efficient and least disruptive to residents and users of Diamond Head Road. In other words, all improvements for a particular section of roadway should be "installed" at one time so that the street is not torn up again and again. However, this approach requires a significant amount of up-front funding, especially in those sections of Diamond Head Road where there are multiple overhead utility lines to be placed underground and where the street would be widened.

Due to relatively limited funds available at the present time - FY2001 \$400,000, and FY2002 \$700,000 – in comparison with the entire project cost estimate, the first items recommended for implementation are targeted in Section 4, which is the most scenic area and attracts a great deal of recreational users, but has relatively fewer complications because utility lines are minimal, there are no residences, and modifications to the street are primarily re-striping.



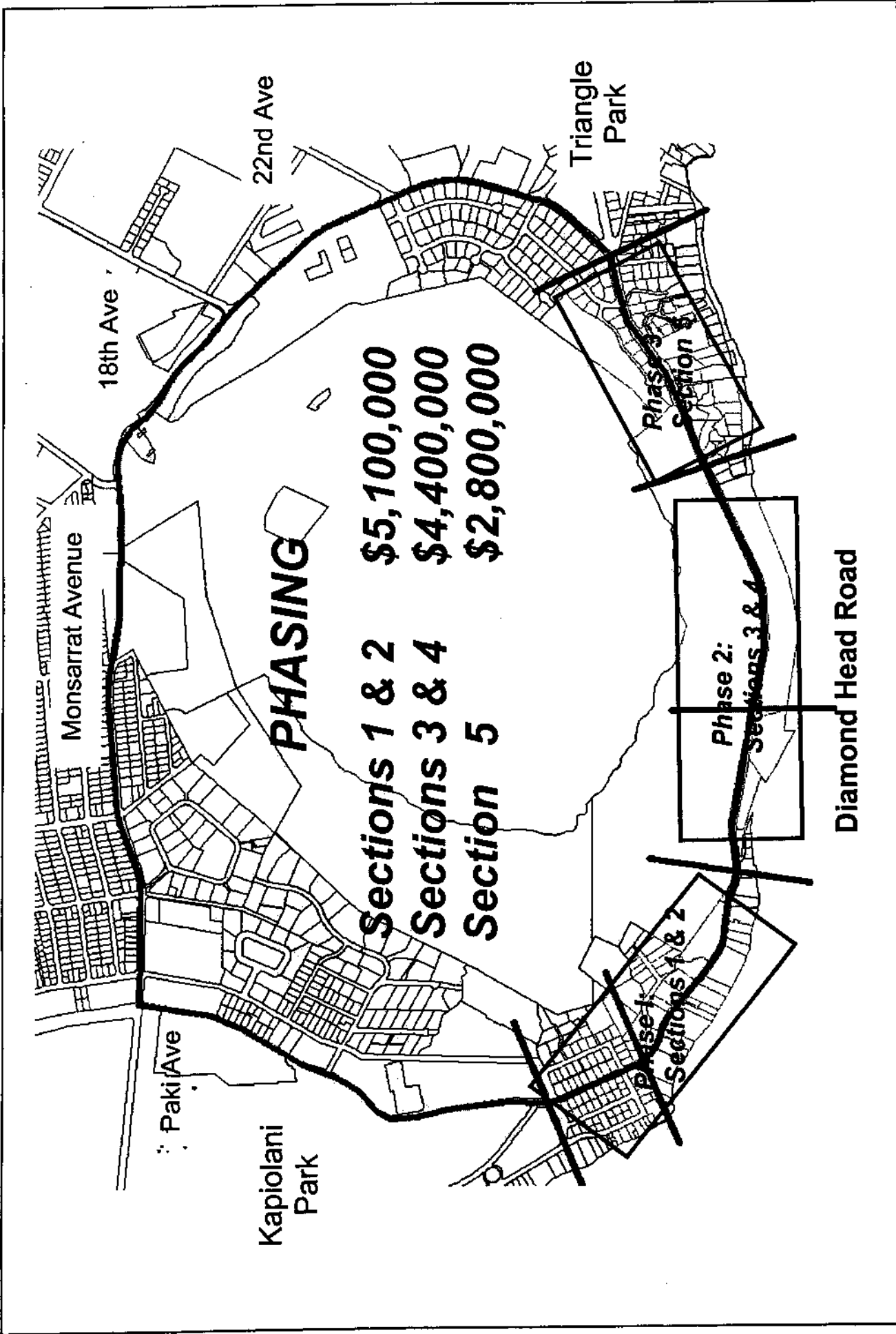


FIGURE 2-10  
PHASING PLAN

**DIAMOND HEAD ROAD MAKAI RECREATION MASTER PLAN**  
Environmental Assessment

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## SECTION 3

### EXISTING PHYSICAL ENVIRONMENT AND RELATED IMPACTS

#### 3.1 GEOGRAPHY AND CLIMATE

The project area is located on the southern shore of the island of Oahu in Honolulu. Diamond Head Road runs along the makai slopes of Diamond Head Crater (also known as Leahi) in the ahupua'a of Waikiki in Honolulu. The Crater is a tuff cone that was formed during activity associated with the Ko'olau volcanoes that created Eastern Oahu. Most of the precipitation on Diamond Head occurs from winter storms. According to the Atlas of Hawaii, the monthly rainfall for this area is generally between 20 and 30 inches with humidity ranging from 64.8% to 74.5%. Average temperatures range from 71.9°F in February to 78.4°F in August. Northeasterly trade winds may cause windy conditions at the crater summit and rim.

##### A. Impacts

No adverse impacts on the climate and geography are expected.

#### 3.2 SURROUNDING LAND USES AND OWNERSHIP

Land uses adjacent to the project site include the Diamond Head State Monument on the mauka side, Kapiolani Park on the Waikiki-side, Fort Ruger Mini Park (Triangle Park) on the Kahala-side, and four beach parks and the Coast Guard Diamond Head Lighthouse and residence along the makai side. There are also a number of private residences on both the Waikiki- and Kahala-sides of Diamond Head Road.

To better define the project area, Diamond Head Road is divided into five distinct "sections" in the Master Plan based on the characteristics of the street right-of-way and adjacent land uses. These five sections are shown in Figure 2-1:

Section 1 Poni Moi Road to Coconut Avenue

Section 2 Coconut Avenue to Beach Road

Section 3 Beach Road to the Diamond Head Lighthouse

Section 4 "The Lookout Area" – Diamond Head Lighthouse to Observation Area #3

Section 5 Observation Area #3 to Kahala Avenue

Relatively older cottage-style houses located on either side of Diamond Head Road characterize Section 1. Section 2 is characterized by large houses along the makai side of the street and the slopes of Diamond Head Crater along the mauka side. There are two City Beach Parks adjacent to Diamond Head Road in Section 2, Makalei and Leahi Beach Parks, neither of which have off-street parking facilities. Section 3 is a transition zone between the neighborhood character of Sections 1 and 2 and the scenic lookout character of Section 4. Section 3 of Diamond Head Road is adjacent to Diamond Head Beach Park, which is located along the coast at the end of Beach Road.

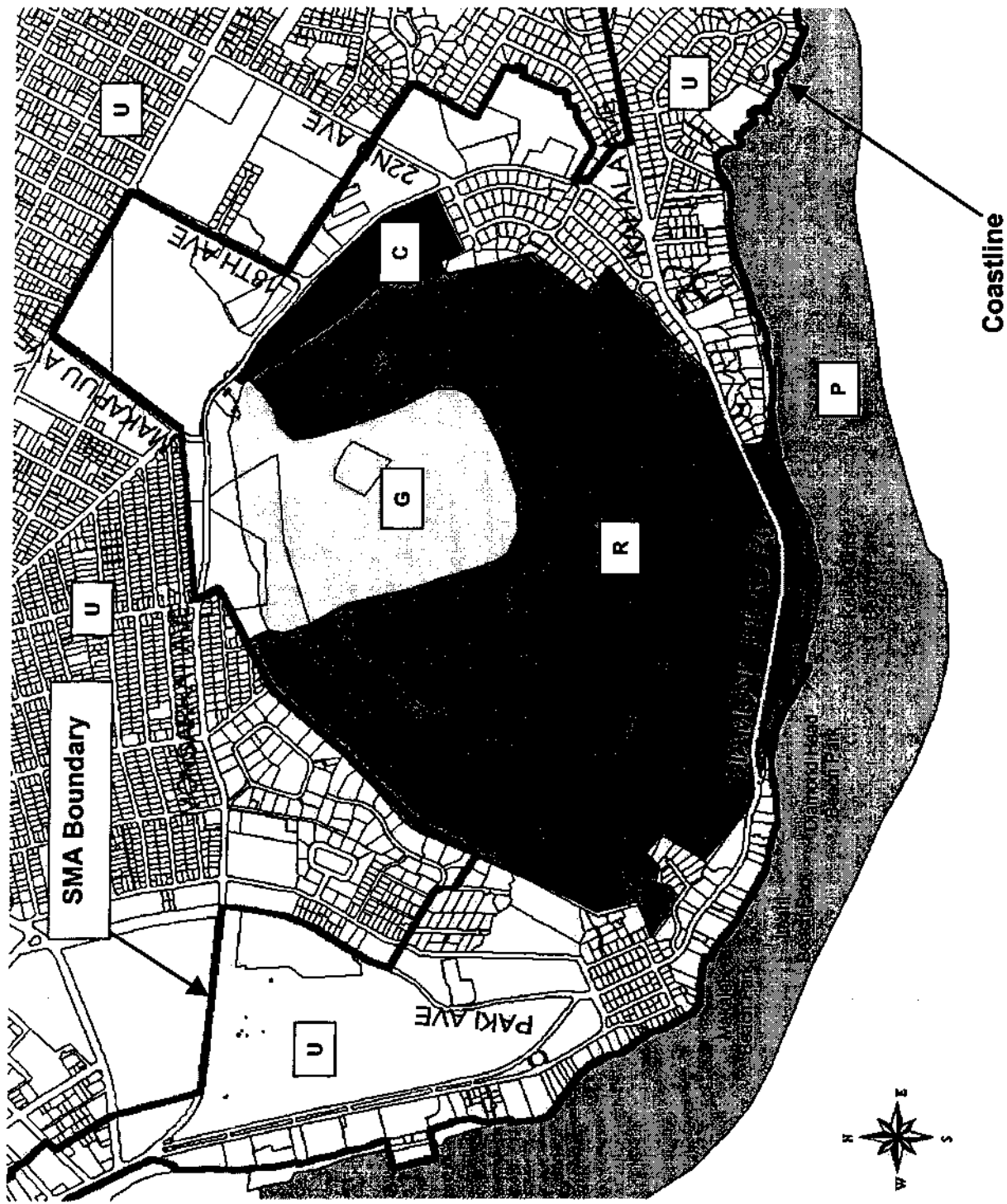
Adjacent to Section 4 of Diamond Head Road is the City's Kuilei Cliffs Beach Park and the Diamond Head Lighthouse and residence. The United States Government owns the Lighthouse and residence, which are occupied and managed by the U.S. Coast Guard. Section 5 of Diamond Head Road is characterized by a relatively modern subdivision on the mauka side of the street. On the makai side of the street there is an area of relatively large residential properties located off of long driveways or small cul-de-sacs, some of which intersect with Diamond Head Road.

### 3.2.1 State Land Use

According to State Land Use maps, the entire 1.5-mile portion of the Diamond Head Road right-of-way is designated as State Urban (U) (Figure 3-1). The land adjacent to the road right-of-way is designated as State Urban in the residential areas and State Conservation along the Lookout Area.

### 3.2.2 City and County of Honolulu Zoning

The Diamond Head Road right-of-way has a variety of City zoning designations based on adjacent land use zoning designations, including: P-1 "Restricted Preservation", P-2 "General Preservation", R-5 "Residential" and R-10 "Residential" (Figure 3-2). Beginning at the Waikiki-side of the project area, Diamond Head Road to Makalei Beach Park is zoned R-5. The portion fronting Makalei Beach Park (TMK: 3-1-36: 7) is zoned P-2. Diamond Head Road from Makalei Beach Park to Leahi Beach Park is zoned R-5. The portion fronting Leahi Beach Park (TMK: 3-1-36: 1) is zoned P-2. Diamond Head Road from Leahi Beach Park to Beach Road is zoned R-5. The portion

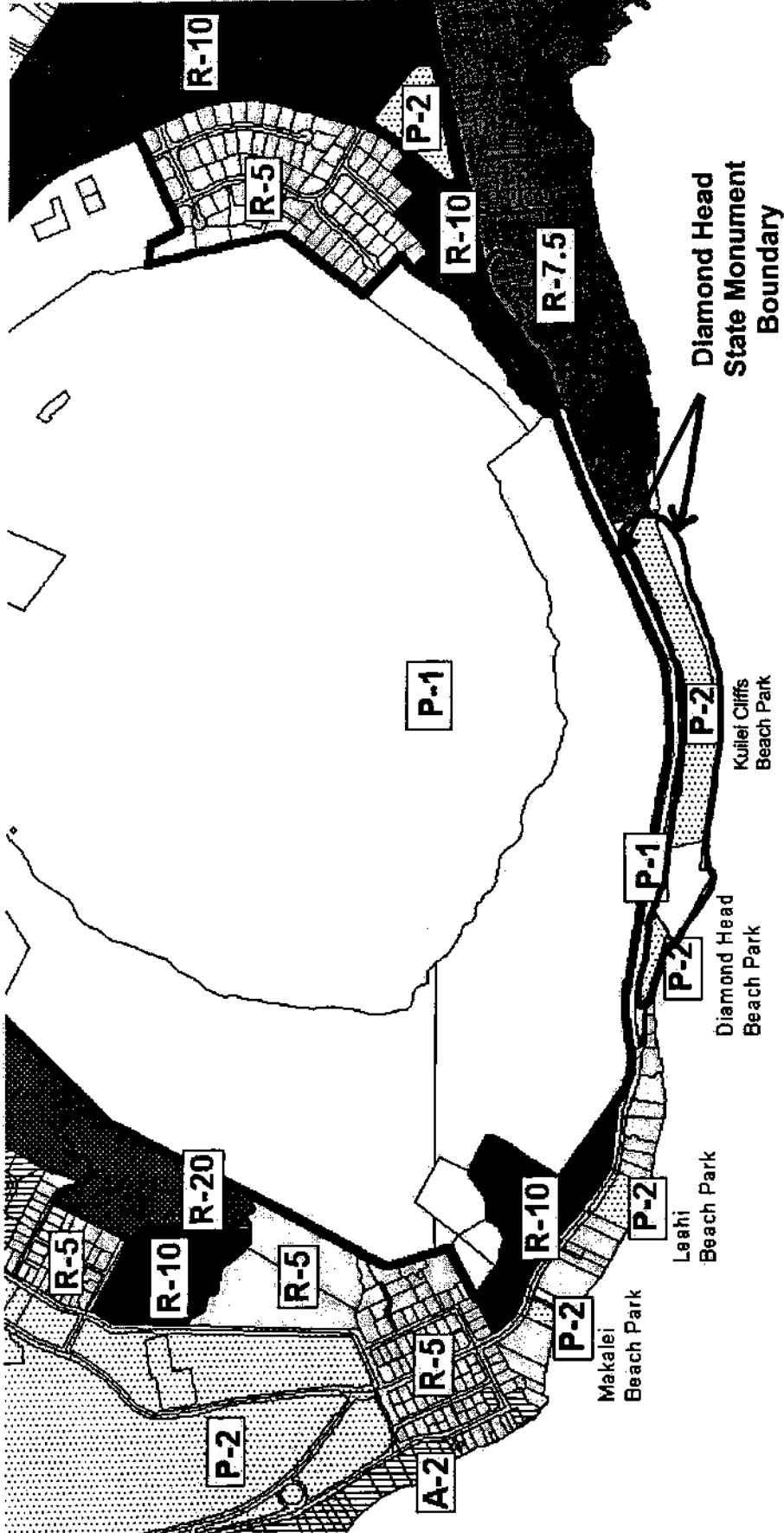


- URBAN DISTRICT**  
 U
- CONSERVATION DISTRICT**
- C - Undesignated Subzone**
- G - General Subzone**
- P - Protective Subzone**
- R - Resource Subzone**
- SPECIAL MANAGEMENT AREA (SMA) BOUNDARY**
- PARCELS**

**FIGURE 3-1**  
**STATE LAND USE DISTRICT AND SPECIAL MANAGEMENT AREA**  
**BOUNDARY MAP**

**DIAMOND HEAD MAKAI RECREATION MASTER PLAN**  
**Environmental Assessment**

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- |  |                             |  |                                      |
|--|-----------------------------|--|--------------------------------------|
|  | A-2 Apartment               |  | R-5 Residential                      |
|  | P-1 Restricted Preservation |  | R-7.5 Residential                    |
|  | P-2 General Preservation    |  | R-10 Residential                     |
|  |                             |  | Diamond Head State Monument Boundary |

FIGURE 3-2  
CITY AND COUNTY OF HONOLULU ZONING DESIGNATIONS

**DIAMOND HEAD ROAD MAKAI RECREATION MASTER PLAN**  
Environmental Assessment

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from Beach Road through Kuilei Cliffs Beach Park is zoned P-1. The remaining portion of Diamond Head Road from the Kahala-side of Kuilei Cliffs Beach Park up to Kahala Avenue is zoned R-10. The City's Diamond Head Special District overlays the entire Diamond Head State Monument, including Diamond Head Road. The District's boundaries are depicted in Figure 3-3.

### 3.2.3 Diamond Head Special District

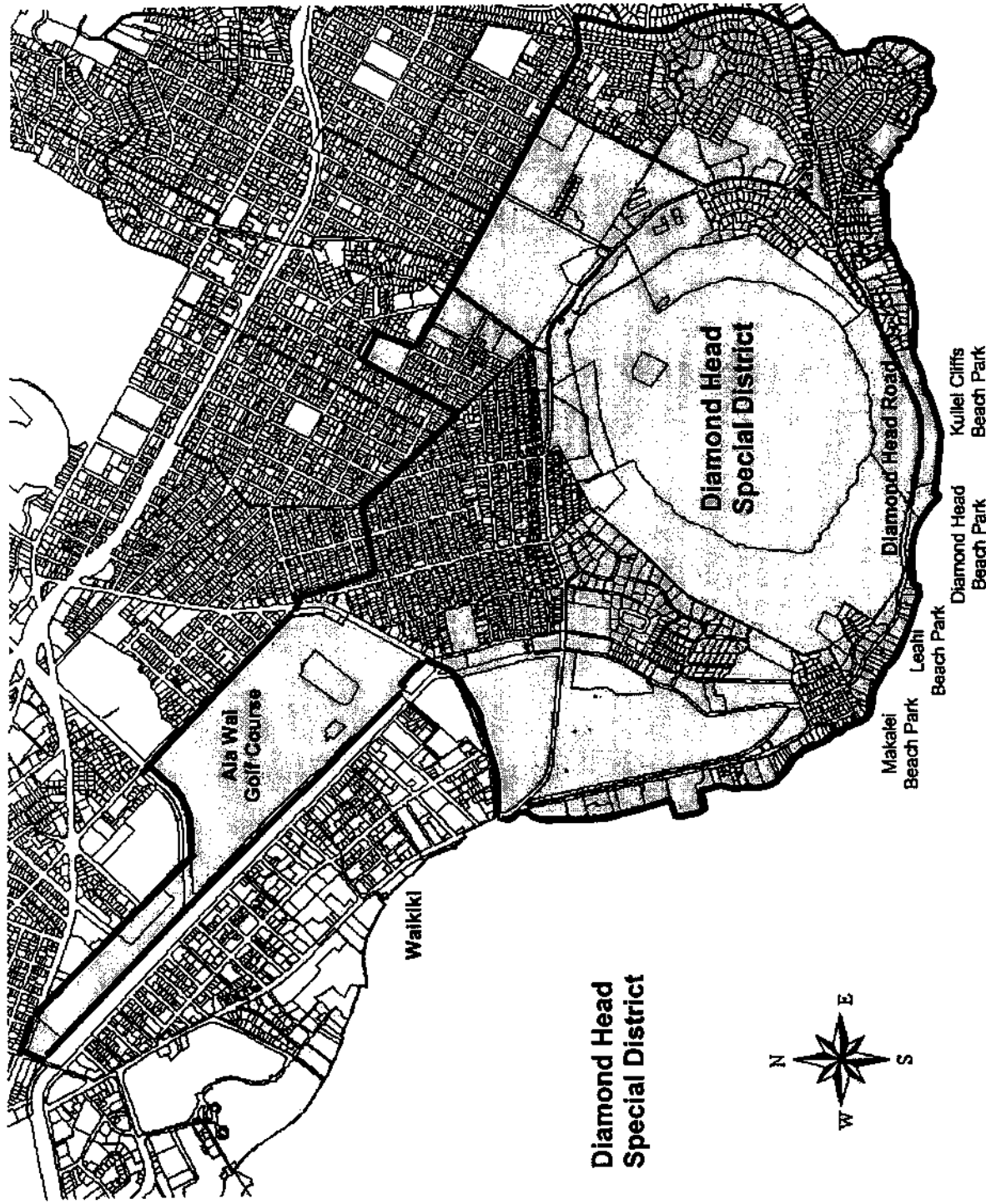
The Diamond Head Special District was established in 1972 to "preserve existing prominent public views and the natural appearance of Diamond Head" and to "preserve and enhance the park-like character of the immediate slopes of the Diamond Head monument." The Special District has established height limits and design controls for any construction project within the District's boundaries.

#### **A. Impacts**

The proposed improvements are not anticipated to have an adverse impact on surrounding land uses or ownership. Construction will be confined within the road right-of-way. The improvements should enhance the recreational environment and setting of the Diamond Head area and will need to comply with the Diamond Head Special District standards. There will be no change in the existing land use classification or in the amount of land designated as road right-of-way. Land use patterns in the area will not change as a result of the proposed project. No mitigative measures are proposed.

### **3.3 SOILS AND TOPOGRAPHY**

Soil information for the project area was obtained from the Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii, produced by the United States Department of Agriculture Soil Conservation Service and the University of Hawaii Agricultural Experiment Station, August 1972. Diamond Head Road between Poni Moi Road and Kahala Avenue is comprised of five soil types.



**FIGURE 3-3**  
**DIAMOND HEAD SPECIAL DISTRICT BOUNDARY**

**Diamond Head Road Makai Recreation Master Plan**  
**Environmental Assessment**

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Diamond Head Road from Poni Moi Road to approximately the Coconut Avenue area consists of Jaucas Sand (JaC). Diamond Head Road from Coconut Avenue to Makalei Place is comprised of Molokai Silty Clay Loam (MuB). The soils between Makalei Place and the area fronting Kuilei Cliffs Beach Park are Makalapa Clay (MdD).

The portion of Diamond Head Road fronting Kuilei Cliffs Beach Park is Rock Land (rRk). Diamond Head Road from Kuilei Cliffs Beach Park/Lookout Area to the area around Palaoa Place consists of Makalapa Clay (MdD). The final section of Diamond Head Road, from Palaoa Place to Kahala Avenue, consists of Makalapa Clay (MdC). Descriptions of each soil type are listed below:

- JaC**            **Jaucas Sand, 0 to 15 percent slopes,** are excessively drained soils found on coastal plains from sea level to 100 feet. Permeability is rapid, runoff is very slow to slow, and the water erosion hazard is light. Wind erosion hazard can be severe where vegetation has been cleared.
- MdC**            **Makalapa Clay, 6 to 12 percent slopes,** are well-drained soils found on uplands. They are formed in volcanic tuff, with elevations ranging from 20 to 200 feet. Runoff is slow to medium and the erosion hazard is slight to moderate.
- MdD**            **Makalapa Clay, 12 to 20 percent slopes,** are well-drained, upland soils that are formed in volcanic tuff. These soils are found within the 20 to 200 foot elevation range and on gently sloping to moderately steep slopes. Runoff is medium and the erosion hazard is moderate.
- MuB**            **Molokai Silty Clay Loam, 3 to 7 percent slopes,** are well-drained upland soils formed from weathered basic igneous rock. Elevations range from nearly sea level 1,000-feet. Runoff is slow to medium and the erosion hazard of slight to moderate.



**rRK**      **Rock Land**, consists of areas where exposed rock, mainly basalt and andesite, covers 25 to 90 percent of the surface. Elevations range from nearly sea level to more than 6,000 feet. Soil material often associated with the rock outcrops is very sticky and plastic, and has high shrink-swell potential.

**A.      Impacts**

No adverse impacts on soil conditions are expected, as all construction activities will be confined within the existing right-of-way. The Diamond Head Road right-of-way is a developed roadway that contains street pavement, landscaping and sidewalks. No mitigation measures are proposed.

**3.4      NOISE**

Existing man-made noise in the project area is generated by traffic on Diamond Head Road and nearby streets; recreational activities at Leahi, Makalei, Kuilei Cliffs, and Diamond Head Beach Parks, Triangle Park, Kapiolani Park, and the Waikiki Shell; and occasional flybys by aircraft. Natural sources include the wind and the pounding of the surf along the coast.

**A.      Impacts**

During the construction phase, short-term noise will be associated with construction activities and equipment. In the long term, bike lane and sidewalk improvements may encourage alternate modes of travel and therefore reduce overall vehicle noise. Traffic calming measures will slow motorist speeds and may therefore reduce noise along this makai portion of Diamond Head Road.

## **B. Mitigation**

A Department of Health Permit is required for activities where construction noise is expected to exceed maximum permissible noise levels. The requirements of the permit, such as start and curfew times and the use of mufflers on construction equipment, will be followed to maintain acceptable noise levels.

### **3.5 AIR QUALITY**

Existing sources of air pollution include vehicular traffic on Diamond Head Road and surrounding streets, and sea spray. However, the easterly trade winds that predominantly blow across the makai slopes of Diamond Head Crater maintain air quality at an acceptable level.

#### **A. Impacts**

Adjacent land uses may be temporarily impacted during the construction phase of the project. Potential pollutants include fugitive dust and air pollution emissions generated from construction activities and equipment, such as vehicular traffic and machinery emissions. The removal and addition of soil, concrete, and asphalt may also contribute to temporary air pollution. No significant difference in traffic volumes is expected as a result of the project. Therefore, the existing vehicular emissions conditions are not expected to significantly change.

#### **B. Mitigation**

Dust control practices in accordance with the applicable State Department of Health Administrative Rules, Title 11, Chapter 60.1, "Air Pollution Control" will be followed to mitigate construction-related impacts. Frequent watering of exposed soil will reduce the amount of dust emissions that are generated during construction. Landscaping should be planted as soon as possible to reduce dust emissions.

### 3.6 FLORA

The project site has been previously disturbed during the original construction of Diamond Head Road, by military operations within and around Diamond Head Crater and by residential development around the Crater's perimeter. In consulting the State's Draft Environmental Impact Statement for the Diamond Head State Monument Master Plan (2000), it has been documented that flora in the project area consists mainly of introduced species, as is typical for developed areas of urban Honolulu. Commonly found plants include kiawe (*Prosopis pallida*) and koa haole (*Leucaena leucocephala*), naupaka (*Scaevola spp.*), Bermuda grass (*Cynodon dactylon*), buffalo grass (*Cenchrus ciliaris*), Guinea grass (*Panicum maximum*), sourgrass (*Digitaria insularis*), ilima (*Sida fallax*), mimosa (*Mimosa pudica*), klu (*Acacia farnesiana*), coconut (*Cocos nucifera*), hala (*Pandanus odoratissimus*), ironwood (*Casuarina equisetifolium*), poincianas (*Delonix regia*) and lantana (*Lantana camara*). Introduced ornamentals are also common, especially in and around the residentially developed lands.

#### A. Impacts

The vegetation in the project area contains no known threatened, endangered or candidate species. All activities will be confined to the public road right-of-way. Flora in the project area consists generally of grass, weeds and some residential plantings, most of which are located within the existing planting strips. Proposed improvements include new and widened planting strips on the Kahala-side of the Lookout Area, and street trees in tree wells on the Waikiki-side of the Lookout Area. To the extent feasible, use of native plants and/or plants already associated with the area will be encouraged. No long-term adverse impacts are expected, therefore no mitigation measures are proposed.

### 3.7 FAUNA

The project site is located in a heavily developed residential area of Honolulu. In consulting the State's Draft Environmental Impact Statement for the Diamond Head State Monument Master Plan (2000), it has been documented that likely mammals include

Indian mongooses (*Herpestes auropunctatus*), roof rats (*Rattus rattus*), Norway rats (*Rattus norvegicus*), Polynesian rats (*Rattus exulans*), European house mice (*Mus domesticus*) and feral cats (*Felis catus*). Various introduced birds are also present as listed in the table below. Due to its proximity to the ocean, various seabirds such as *kolea* (*Pluvialis dominica*) and White Terns (*Gygis alba*) are also likely.

### Introduced Avifauna Likely Found in the Vicinity of Diamond Head Road

Common Name	Scientific Name
Red-vented bulbul	<i>Pycnonotus cafer</i>
Japanese bush warbler	<i>Cettia diphone</i>
Northern cardinal	<i>Cardinalis cardinalis</i>
Red crested cardinal	<i>Paroaria coronata</i>
Spotted doves	<i>Streptopelia chinensis</i>
Zebra doves	<i>Geopelia striata</i>
House finches	<i>Carpodacus mexicanus</i>
Gray Francolin	<i>Francolinus penderianus</i>
Nutmeg mannikin	<i>Lonchura punctulata</i>
Common mynahs	<i>Acridotheres tristis</i>
Common barn owl	<i>Tyto alba</i>
Parrots	<i>Psittacidae</i>
Feral pigeons	<i>Columba livia</i>
English sparrows	<i>Passer domesticus</i>
Java sparrow	<i>Padda oryzivora</i>
Common waxbill	<i>Estrilda astrild</i>
Japanese white-eye	<i>Zosterops japonicus</i>

From the State's Draft Environmental Impact Statement for the Diamond Head State Monument Master Plan (2000)

#### A. Impacts

Faunal species will temporarily be disturbed during construction activities, but no long-term adverse impacts are expected. No known endangered or threatened faunal species or habitats have been identified within the project area. Therefore, no mitigation measures are proposed.

### 3.8 ARCHAEOLOGICAL, CULTURAL, AND HISTORIC RESOURCES

Diamond Head Crater is one of the most recognizable landforms in Hawaii. Locally, it is used as both a landmark in ocean and air navigation, and as a directional aid for motorists and pedestrians. The Crater lies within Waikiki, an unusually large ahupua'a that encompasses seven valleys from Manoa to Kuli'ou'ou. Waikiki was significant in that it was considered an important political, recreational and living place for the Hawaiian chiefs.

Historically called Leahi, Diamond Head Crater is the setting of several Hawaiian legends involving Pele, Hi'iaka, and various armies and local chiefs. Previous studies indicate that there are few Hawaiian archaeological sites to be found. Most of these sites occur either at the summit or within the Crater walls. Several heiau are associated with the Crater: one on the Waikiki side of the crater, two near Kapiolani Park, one near the current Diamond Head Lighthouse, and one located at the peak of Diamond Head. For example, the Papaenaena Heiau located on the overlook below Diamond Head and the Apuakehau Heiau along the beach. In addition to the heiau, burial caves have also been found on some of the Crater's slopes, including fishing heiau on the low cliffs overlooking the ocean. (Diamond Head State Monument Draft EIS, March 2000)

The following is a portion of Dr. Kanahaele's written notes found in the Diamond Head State Monument Draft EIS, March 2000 regarding Diamond Head:

"We can safely conclude that the kapu on Diamond Head and the crater was broken years ago, when Papaenaena heiau lost its mana and when people ceased to worship there..." (Diamond Head State Monument Draft EIS, March 2000)

Diamond Head State Monument was designated an historic site in 1965 by Legislative Act 249, which made the Department of Land and Natural Resources responsible for the 77 acres included in the site. The Board of Land and Natural Resources expanded the Monument to 415 acres in 1968 when it was designated a National Natural Landmark. In 1975, the Diamond Head State Monument was included under the State Historic Preservation Law (Act 182).

Regarding military sites, the The military occupation of Fort Ruger as a coastal defense center provides most of the contemporary historic sites of Diamond Head. These

sites are primarily contained within the boundaries of the Diamond Head State Monument. Bunkers, gun mounts, battery and storage tunnels, communication rooms and observation posts were constructed in and around the crater in the early half of the 20<sup>th</sup> Century. The Fort Ruger Historical District is listed in both the State and National Register of Historic Places (NRHP).

The U.S. Coast Guard Lighthouse was originally built in 1892, and was reconstructed in 1919. It is currently the U.S. Coast Guard Admiral's residence and is also listed on the NRHP.

Previous studies suggest that there is little likelihood for pre-contact Hawaiian or post-contact archeological sites (Diamond Head State Monument Draft EIS, March 2000). According to the State Historic Preservation Division (SHPD), there are no known archaeological/cultural sites within the project corridor. However, according to SHPD, Section 1 and a portion of Section 2 of the proposed plan are underlain by Jaucas sand deposits, which are known to potentially contain traditional Hawaiian sites such as cultural layers and human burials.

#### **A. Impacts**

The proposed improvements will take place within the previously disturbed road right-of-way. It is anticipated that the proposed project will not have any adverse effects on historic or cultural resources.

#### **B. Mitigation**

As advised by the State Department of Land and Natural Resources Historic Preservation Division, archaeological monitoring is recommended during the construction phase of the proposed improvements. This monitoring is recommended for excavations, in Section 1 and Section 2 as noted above, that penetrate into or through the Jaucas Sand deposits because this sandy substrate may contain Hawaiian cultural layers or human burials. At the appropriate time, a monitoring plan should be developed and submitted to the State Historic Preservation Division for review and approval.

In the event archaeological resources are discovered within the project area, construction activities will cease immediately and the State Historic Preservation Division will be contacted for guidance.

### **3.9 AESTHETICS**

The Diamond Head area is designated in the City and County of Honolulu's Land Use Ordinance (LUO) as a Special District. As stated in the LUO, Diamond Head's "...natural appearance and prominent public views have special values of local, state, national and international significance..."

The project's Community Advisory Committee reaffirmed the desire for a handsomely maintained, scenic park-like setting along Diamond Head Road that would maintain and enhance the natural appearance and beauty of Diamond Head Crater. Accordingly, the under grounding of utilities is of high priority in order to eliminate the visual eyesore of the wires and numerous poles that interrupt views of Diamond Head.

In Sections 1 and 2, street trees would be planted in tree wells to provide shade and to serve as a buffer between pedestrians on the sidewalks and cars on the road. The Advisory Committee recommended that the relatively natural state of Diamond Head Road in the Lookout Area (Section 4) remain as it is. It is not necessary to clutter the road right-of-way with street trees and planting strips, which would ultimately obstruct views of the ocean.

New planting strips and landscaped bulbouts in Section 5 will enhance the "greenness" of the expansive pavement. Additionally, the landscaped bulbouts will soften the visual impact of parked cars along the street. As much as possible, native plants identified with the area should be used to maintain the compatibility of the project landscaping with the existing landscaping.

**A. Impacts**

The proposed improvements within the road right-of-way are intended to enhance the aesthetic, as well as, the recreational setting of Diamond Head. No adverse impacts are expected.



## **SECTION 4**

### **SOCIO-ECONOMIC ENVIRONMENT AND RELATED IMPACTS**

#### **4.1 POPULATION CHARACTERISTICS**

The estimated population for the State of Hawaii in 1999 was about 1.2 million people, with the island of Oahu accounting for approximately 870,000 people in 1995. The Honolulu District had a population of about 370,000 people, which was about 43 percent of the Oahu population. During the 5-year period of 1990 to 1995, the Honolulu District was the only District on Oahu that saw a loss in population, with a decrease of 2.0 percent compared to an Oahu population increase of 4.1 percent and a State population increase of 6.4 percent. These figures are based on estimates published in the 1999 State Data Book.

##### **A. Impacts**

No adverse affects on the population characteristics of Oahu are expected as a result of the development of the project. Therefore, no mitigation measures are proposed.

#### **4.2 ECONOMIC CHARACTERISTICS**

The civilian labor force for the island of Oahu in 1999 was estimated at approximately 424,250 people with 20,950 unemployed. In 1999, the highest number of jobs was in the Services Industry with 124,000 jobs, followed by Wholesale and Retail Trade with 96,500 jobs. The Agriculture Industry had the lowest job count of 2,200 jobs. The average annual per capita income for the island of Oahu in 1998 was \$28,670, which was higher than the State average of \$26,759.

Various visitor-related vehicles use the Lookout Area on sightseeing tours. Large tour buses, trolleys, taxis, limousines, and tour vans can all be observed within the project area, with many stopping to allow passengers to get out and enjoy the view.

## **A. Impacts**

The proposed project will create short-term benefits as a result of direct and indirect employment in the design and construction industry. Local material suppliers can also be expected to indirectly benefit from the construction activities. No mitigation measures are proposed.

### **4.3 RECREATIONAL USERS**

Diamond Head is a known visitor attraction, but it is also a very popular recreation area for local residents. The Diamond Head area is home to a unique combination of amenities including the Diamond Head State Monument – a significant Honolulu/Waikiki tourist destination, a community of neighborhoods and local institutions, and is a heavily used public outdoor recreation asset (Figure 4-1).

A study was completed during the development of the Diamond Head Road Makai Recreation Master Plan that recorded the average peak number of “people recreating” along the project area, the makai portion of Diamond Head Road, during five-hour morning periods. This study recorded over 300 walkers, over 150 runners, and over 100 bicyclists.

The makai side of Diamond Head Road between Triangle Park and the Lookout Area is one of the most heavily used by pedestrian and joggers, yet it completely lacks a sidewalk. People must walk or run on the street between parked cars and oncoming traffic. Utility poles along the mauka side of Section 4 are located relatively near the edge of the roadway, creating a physical and visual obstruction for pedestrians and motorists. In addition to its use as a recreational corridor, surfers, windsurfers, and beachgoers use Diamond Head Road to access Makalei, Leahi, Diamond Head, and Kuilei Cliffs Beach Parks. Additionally, Diamond Head Road is used for many special events including organized run/walks, cycling races, and marathons.



Bicyclist on the mauka side of Diamond Head Road Section 4.



Off-street parking along the mauka side of Diamond Head Road Section 4.



Pedestrians use the sidewalk on the makai side of Diamond Head Road Section 4.



Joggers run between parked cars and moving traffic on the makai side of Diamond Head Road Section 5.

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Environmental Assessment

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Prepared By: Townscape, Inc.

**FIGURE 4-1**  
DIAMOND HEAD ROAD RECREATIONAL WALKERS,  
RUNNERS, SURFERS AND BICYCLISTS

## **A. Impacts**

The proposed improvements will enhance the recreational environment and use of Diamond Head Road by providing safe conditions for sharing of the right-of-way between pedestrians, runners, bicyclists, and motorists. Widened sidewalks will provide adequate space for multiple users to pass slower-moving foot traffic without venturing out onto the street or trampling planting strips. The new sidewalk along the makai side of Section 5 will provide a much-needed place for runners and walkers.

Bike lanes will provide bicyclists with a designated travel area, reducing the need to compete with motor vehicles for roadway space, especially on the uphill and downhill stretches of Sections 2 and 3. Bike lanes will also provide a safer place for inexperienced bicyclists on the road. Traffic calming devices will moderate vehicle speeds, also increasing the overall safety of the area for recreational users.

## **SECTION 5**

### **PUBLIC FACILITIES AND SERVICES AND RELATED IMPACTS**

#### **5.1 FLOODING AND DRAINAGE**

The Diamond Head Crater area is typically dry, with surface water in the project area generated mainly from precipitation and landscape irrigation. However, intermittent storms may cause heavy rains and subsequent runoff on the Crater slopes due to its soil type and shallow soil depth. Inset O of Panel Number 150001 0125 B of the Federal Emergency Management Agency Flood Insurance Rate Map shows the project site to be within "Zone X - Areas determined to be outside 500-year flood plain".

##### **A. Impacts**

The improvements to Diamond Head Road will maintain the existing drainage patterns and are not expected to have a negative impact on present drainage structures or drainage patterns in the area. Therefore, no mitigation measures are proposed.

#### **5.2 POTABLE WATER**

The Board of Water Supply provides potable water service to the residential areas along Diamond Head Road. A relatively small City water line also provides service to a beach level shower at Kuilei Cliffs Beach Park.

##### **A. Impacts**

The proposed improvements to Diamond Head Road will not significantly impact potable water service in the area. Some irrigation will be required for new street trees and landscaping proposed within the road right-of-way improvements. The location of existing underground potable water lines will be surveyed and mapped during the design

phase of Diamond Head Road improvements. Therefore, no adverse impacts are expected and no mitigation measures are proposed.

### **5.3 WASTEWATER**

The City and County of Honolulu has provides wastewater service to the residential areas along both ends of the project area. However, sewer lines do not extend through Section 3 or Section 4 - The Lookout Area. The location of existing underground sewer lines will be surveyed and mapped during the design phase of Diamond Head Road improvements.

During the master plan concept development stage, some members of the Community Advisory Committee raised the issue of constructing a new comfort station at the Diamond Head Lookout Area. This project does not include the construction of a new comfort station at one of the Beach Parks located along Diamond Head Road, nor at The Lookout Area. A new comfort station was not included for two reasons: (1) the Beach Parks where a comfort station would be located, including Kuilei Cliffs Beach Park along the Lookout Area, are not included in the Diamond Head Road Makai Recreation Master Plan scope, which is focused on improvements to the road right-of-way, and (2) due to limited Vision Team funding, the Community Advisory Committee decided to concentrate available funding to the implementation of the Diamond Head Road Makai Recreation Master Plan. It is apparent, however, that there will be a continued need for a public comfort station due to the relatively high number of users of the Diamond Head Road corridor.

#### **A. Impacts**

No sewer lines or comfort station will be installed. Therefore, no additional wastewater will be generated. The design and construction of the proposed improvements will take into consideration the location of existing wastewater lines where

present. Therefore, no adverse impacts are expected and no mitigation measures are proposed.

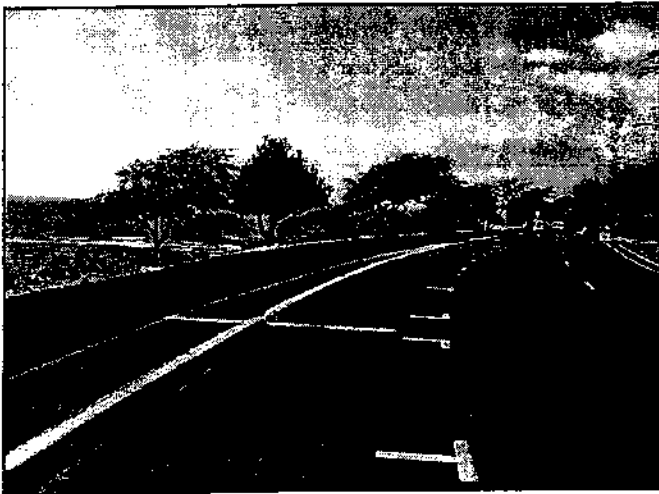
## **5.4 TRANSPORTATION**

Diamond Head Road is a two-lane, two-way street that serves as a connector between Waikiki and East Oahu via the Kahala neighborhood. It also provides access to the Diamond Head State Monument and Kapiolani Community College. Major connector roads in the immediate area include Kalakaua Avenue, Paki Avenue, Monsarrat Avenue, Makapuu Avenue, 18<sup>th</sup> Avenue, and Kahala Avenue. According to City Department of Transportation Services data, Diamond Head Road accommodates approximately 11,000 total (both directions) vehicles per day.

Large commercial and public vehicles often use Diamond Head Road. Curbside trash pickup occurs twice a week. The City Bus, route #14 St Louis/Kahala/Maunalani, services the makai portion of Diamond Head Road. Several private tour bus companies frequent the Lookout Area. Commercial trolleys also travel between Kahala and Waikiki along Diamond Head Road. Commercial vehicles such as large tour buses have been observed parking at the Observation Areas.

### 5.4.1 Mauka Parking in the Lookout Area

There are on-street and off-street parking areas along most of Diamond Head Road, except for Sections 1 and 2 where there is no parking. Along the mauka side of Diamond Head Road in Sections 3 and 4 pockets of crushed coral mauka of a rolled curb create off-street parking areas (Figure 5-1). Naupaka and telephone pole bollards roughly delineate the extent of where cars can park between the folds of the Crater's exterior slopes. Based on two separate field observations, approximately 100 to 120 vehicles can be accommodated in this unstructured mauka off-street parking area. The project proposes that the existing mauka off-street parking areas be retained. Based on field observations, 6 to 8 additional cars may be accommodated by slightly enlarging some of the existing deeper pockets.



Marked on-street parking on the makai-side of Section 4 of Diamond Head Road.



Crushed coral off-street parking on the mauka side of Section 4 of Diamond Head Road.

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**Environmental Assessment**

Prepared For: The City and County of Honolulu  
Prepared By: Townscape, Inc.

**FIGURE 5-1**  
**ON STREET AND OFF-STREET PARKING IN SECTION 4**



#### 5.4.2 Makai Parking Along the Lookout Area

In Section 4, along the makai side of Diamond Head Road between Observation Areas #1 and #2, there are 48 on-street marked parking stalls. The three Observation Areas within Section 4 also provide space for parking (Figure 2-7), but there are no marked parking stalls. Based on field observations, approximately 12 cars can be accommodated in Observation Area #1, about 12 cars in Observation Area #2, and about 16 cars in Observation Area #3, for an approximate total of 40 cars.

#### 5.4.3 Parking Along Section 5 of Diamond Head Road

In Section 5 of Diamond Head Road, just past the Lookout Area towards Kahala, on-street parking occurs regularly along the makai side of the street. Cars also park on the mauka side, but more so in the vicinity of Triangle Park.

#### **A. Impacts**

Primarily during the beginning and ending phases of construction, heavy equipment traveling to and from the project area may temporarily impact traffic flow. Vehicle movement through the construction area will also be hindered and/or rerouted. However, the improvements are intended to promote multiple modes of transportation such as bicycling, walking and running, by adding bike lanes and widening sidewalks. The long-term vehicular capacity of Diamond Head Road is not expected to be adversely affected.

The on-street and off-street parking areas along the makai-side of Section 4 can currently accommodate a total of approximately 88 cars – 48 marked on-street stalls and room for about 40 cars in the Observation Areas. The project proposes to eliminate the forty-eight marked on-street parking stalls. This is necessary in order to provide enough room for the mauka and makai bike lanes and the broader makai sidewalk. Even if the makai sidewalk is not widened to 8-feet, the on-street parking stalls must be removed to accommodate the two four-foot wide bike lanes. Removing the on-street parking would also open the views to the ocean.

If the on-street parking stalls remain and Diamond Head Road is widened along this section in the mauka direction to make room for the bike lanes, the road widening would eliminate a number of off-street parking areas because the slopes of Diamond Head do not allow for the crushed coral parking to expand much further than the current conditions.

The project proposes to create marked parking stalls at the three Observation Areas to eliminate the potential for cars to park at odd angles (See Figure 2-6). A total of about 30 parking stalls would be provided compared with the current approximate capacity for 40 cars. The marked parking stalls will provide greater safety for vehicles and pedestrians entering and existing the Observation Areas.

A new sidewalk is proposed along the entrance to Observation Area #1 (closest to the Lighthouse). Parking stalls at Observation Areas #2 and #3 would not cross the new sidewalk that would be located adjacent to the rock wall. Observation Area #3, the deepest of the three, is proposed to have a landscaped buffer between the parking stalls and sidewalk. A traffic island is also proposed for Observation Area #3 to create a one-way ingress on the Waikiki-side and a one-way egress on the Kahala side.

The project's improvements for Section 5 include landscaped bulbouts that will create pockets of on-street parking (see Figure 2-8). The current conceptual design for this on-street parking configuration would create about 80 stalls total including both mauka and makai sides. The design could be modified to provide more or less stalls, depending on the size of and distance between the landscaped bulbouts. This would provide an alternate parking area, and along with new sidewalks, a safe and convenient access to the Diamond Head Lookout Area.

## **B. Mitigation**

To reduce adverse impacts on traffic, construction activities and movement of heavy equipment will be restricted to specific start and curfew times to avoid impacting peak traffic periods. Appropriate signage will direct commercial oversized vehicles to alternate routes around Diamond Head Crater.

The elimination of on street parking in Section 4 will result in the loss of 48 stalls. However, room for a few additional cars along the mauka off-street parking areas may be accommodated by slightly enlarging some of the existing deeper pockets. Also, the improvements proposed for Section 5 may create as many as 80 on-street parking spaces, as well as new sidewalks on both sides of the street. This would provide both alternate parking areas and safe walkway areas for people to access to the Diamond Head Lookout Area.

## **5.5 POWER AND COMMUNICATIONS**

The project proposes to relocate existing utility lines underground to improve safety and to enhance the views and setting of Diamond Head, which is within the Diamond Head Special District. According to Section 21-9.20-4 of the City's Land Use Ordinance on special districts, "Notwithstanding any ordinance or regulation to the contrary, utility companies shall place their utility lines underground within any special district. The director may grant an exemption to utility lines based on the applicant's satisfactory justification that no other alternative will better achieve the district's purpose and objectives."

Electric power will be necessary to operate irrigation systems if installed for new street trees and landscaping within the right-of-way. Electric power, supplied by the Hawaiian Electric Company, will be required for new streetlights proposed for Diamond Head Road. No new communications systems are proposed.

### **A. Impacts**

No significant change in demand for electrical or communication systems are anticipated.

The design, construction and relocation of existing utility lines underground will need to be completed in a manner that will not disrupt service to customers. The location of where to place utility lines underground will need to be determined during the design phase, taking into consideration where existing underground utilities are already located.

The payment structure for under grounding utilities is outlined in the Revised Ordinances of the City and County of Honolulu, Chapter 14 Public Works Infrastructure Requirements, Article 22 Public Utility Facilities, §14-22.5(b)(2) which states that, “the difference of the costs of construction of an underground system and an overhead system in the removal, relocation, replacement or reconstruction of the existing overhead utility facilities within the public right-of-way shall be borne equally by the city and the respective utility company.” Additionally, §14-22.5(b)(4) states, “The cost of necessary changes on private property shall be borne by the respective property owners.” Another alternative may be to create an Improvement District where the costs are shared amongst those within the Improvement District.

Therefore, while the costs for under grounding the utility lines may be borne by the City and the utility companies as a part of the project costs, individual property owners may be required to pay for the new lateral connection.

## **5.6 FIRE, POLICE AND EMERGENCY MEDICAL SERVICES**

The Waikiki Fire Station #7 located on Kapahulu Avenue provides fire protection services to the Diamond Head Road area. This Station also provides emergency medical services to the project area. Police protection is provided by Police Department District #6, ~~which is located in (Waikiki), and District #7 (East Honolulu).~~

### **A. Impacts**

No adverse impacts on the fire, police or emergency medical services are anticipated as a result of this project. Therefore, no mitigation measures are proposed. Traffic calming features will be designed in consultation with City emergency services.

## SECTION 6

### OTHER PROJECTS IDENTIFIED WITHIN THE VICINITY OF THE PROJECT

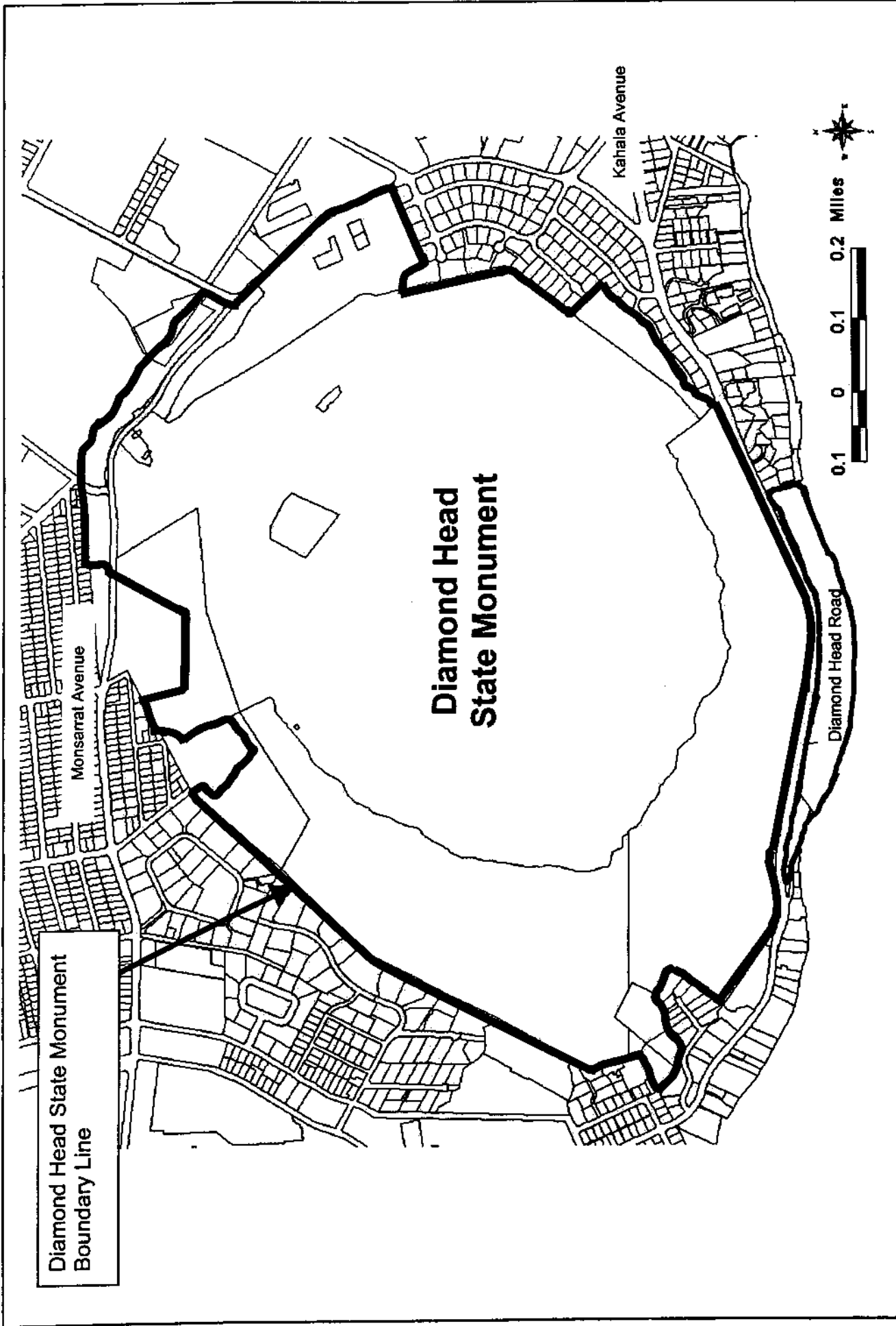
#### 6.1 DIAMOND HEAD STATE MONUMENT MASTER PLAN

The State Department of Land and Natural Resources (DLNR) prepared in 1979 a Master Plan for the Diamond Head State Monument, which focuses on the facilities and resources inside the Crater, as well as the exterior slopes. Figure 6-1 illustrates the boundaries of the Diamond Head State Monument. Diamond Head Road is outside of and adjacent to the makai boundary of the State Monument.

The 1979 Master Plan has been recently "updated" by DLNR and the Diamond Head State Monument's Citizens Advisory Committee. A "Final Diamond Head State Monument Master Plan Update" report is anticipated to be available in the fall of 2001. The Governor accepted the Final Environmental Impact Statement for the updated Master Plan on January 25, 2001.

The 2001 Diamond Head State Monument Master Plan primarily concentrates on improvements to the inside of the Crater. However, the State's Plan does propose that a pedestrian/bike path eventually be developed on the outer slopes of Diamond between Makapuu Avenue and 22<sup>nd</sup> Avenue. The pedestrian/bike path would actually be located mauka of and separate from Diamond Head Road between Makapuu Avenue and 22<sup>nd</sup> Avenue. The State's Master Plan does not specify an exact time frame when the path may be constructed. The portion of Diamond Head Road nearest the State's proposed off-road pedestrian/bike path is not within Diamond Head Road Makai Recreation Master Plan project area.

Should construction of improvements along Diamond Head Road by the State and the City occur simultaneously, coordination will be required to minimize inconvenience to motorists, pedestrians, area employees, and residents.



**FIGURE 6-1  
DIAMOND HEAD STATE MONUMENT BOUNDARY**

**DIAMOND HEAD ROAD MAKAI RECREATION MASTER PLAN  
Environmental Assessment**

Prepared For: The City and County of Honolulu  
Prepared By: Townscape, Inc.

## 6.2 HONOLULU BICYCLE MASTER PLAN

The Honolulu Bicycle Master Plan includes the makai portion of Diamond Head Road, which is the subject of the Diamond Head Road Makai Recreation Master Plan and this Environmental Assessment, as part of the Bicycle Master Plan's "Priority One Lei of Parks Projects." According to the Honolulu Bicycle Master Plan, the intent of the "Lei of Parks" is to "provide a bicycle-friendly linkage between the City's major regional parks and attractions including: Diamond Head, Kapiolani Park Ala Moana Park, Kaka'ako Waterfront Park, and Aloha Tower." The Diamond Head Road Makai Recreation Master Plan is consistent with the Honolulu Bicycle Master Plan's proposal for mauka and makai bike lanes along Diamond Head Road.

## **SECTION 7**

### **ALTERNATIVES TO THE PROPOSED ACTION**

#### **7.1 NO ACTION ALTERNATIVE**

The "No Action" alternative would maintain the existing condition of the makai portion of Diamond Head Road. Sidewalks currently are either nonexistent or inadequate to accommodate the heavy foot traffic in the area. Joggers often run in the planting strips along the sidewalk to overtake slower pedestrian traffic. Consequently, the planting strip in these areas is either trampled grass or dirt. Joggers and pedestrians must move between vehicular traffic moving into and out of the three Observation Areas along the Diamond Head Lighthouse Lookout Area, and pass between parked cars and moving vehicles along the makai side of Diamond Head Road in Section 5.

Bicyclists currently must share the travel lane with motor vehicles, sometimes causing cars to either slow down behind the bicyclist or to swerve into the oncoming traffic lane. Along most of Diamond Head Road, vehicles are often observed traveling well over the posted 25 mph speed limit. Unsightly overhead utility lines extend throughout the project area, cluttering the view of Diamond Head Crater.

The No Action alternative would not improve the existing recreational environment. The existing overhead utility lines would remain, continuing to detract from the Diamond Head Special District objective to "enhance the park-like character of the immediate slopes of the Diamond Head Monument."

#### **7.2 LINEAR PARK ALTERNATIVE**

The Linear Park alternative was an earlier alternative considered by the Diamond Head Road Makai Recreational Master Plan Community Advisory Committee. The theme for the Linear Park alternative was to create a more park-like setting by emphasizing, expanding, and enhancing the pedestrian environment, while providing limited vehicle access. The Linear Park proposed two 10-foot vehicular travel lanes to be



shared by motorists and bicyclists, a 10 to 12-foot wide makai sidewalk, wide planting strips, increased landscaping, a 15 mph speed limit, restriction of oversized vehicles, under-grounding of utilities, and relocated street lights.

The Linear Park alternative proposed to create a people-oriented setting. Vehicular access would still be maintained, but oversized vehicles would be restricted to reduce noise and visual obstruction. The slower speed limit would provide safer conditions for cars and bicyclists to share the road.

While the Linear Park alternative would accommodate safety, aesthetic, and recreational objectives, narrowing traffic lanes to 10-foot wide was viewed by the Advisory Committee as too drastic of a change from the current conditions.

### **7.3 A SINGLE KAHALA-BOUND BIKE LANE ALTERNATIVE**

The single bike lane alternative proposed that one makai-side Kahala-bound bike lane be provided on Diamond Head Road between Kapiolani Park and the Lighthouse (Sections 1, 2, 3, and 4). Two bike lanes could be provided between the Lookout Area and Triangle Park (Section 5) because Diamond Head Road is extremely wide in that area. The single bike lane was provided on the makai side of the street because bicyclists travel more slowly than vehicular traffic as they travel uphill between Beach Road and the Lighthouse, and having a designated bike lane reduces the conflict and increases the safety between motor vehicles and bicycles.

The one bike lane alternative, however, does not provide a Waikiki-bound mauka bike lane. Vehicles traveling on Diamond Head Road towards Waikiki, especially near the downhill curve near Beach Road, typically exceed the speed limit. This curved section of Diamond Head Road does not have a long sight distance for motorists or bicyclists, and so vehicles may not be able to see bicycles in the traffic lane as they come down the hill. This creates a potentially dangerous condition. Therefore, two bike lanes are recommended.

## **7.4 ONE-WAY DIAMOND HEAD ROAD ALTERNATIVE**

There have been previous discussions about making Diamond Head Road a one-way street. During the development of the Diamond Head Road Makai Recreation Master Plan, the Community Advisory Committee discussed and evaluated the alternative of making Diamond Head Road a one-way street in the Kahala direction. While this alternative reduced overall traffic volume and potential conflicts between motorist and bicyclists because there was more room to share on the road, the disadvantages were considered too significant. The one-way street alternative was not chosen in part due to the inconvenience of having to drive an alternate route around Diamond Head Crater from Kahala towards Waikiki and the potential for increased traffic volume on Monsarrat.

Another sub-alternative that was considered was to designate just the Lookout Area portion (Section 4 between the Lighthouse and the last Observation Area) as a one-way street in the Kahala direction. Two-way traffic would be maintained along the residential areas on either side of the Lookout Area. But the advantages and disadvantages were considered relatively the same as making Diamond Head Road a one-way street, because Waikiki-bound traffic would still have to find an alternate route to driving around the ocean-side of the Crater. Also, this alternative may have created a confusing and potentially hazardous traffic pattern where opposing vehicles would meet head-on at a turnaround location at the Lookout Area.

## **SECTION 8**

### **PERMITS REQUIRED**

The following is a list of permits and approvals required for the proposed project from governmental agencies, boards or commissions or other entities with jurisdiction over the project area.

#### **8.1 FEDERAL PERMITS**

No federal permits are required at this time. It may be possible that some Federal permits may be required if federal funding is sought to design and/or construct portions of the proposed improvements. The determination of whether Federal permits may be required will be made at the appropriate time if Federal funding is sought.

#### **8.2 STATE PERMITS**

The State Land Use Designation for the Diamond Head Road right-of-way is "Urban". The proposed improvements are allowable uses within the Urban Land Use District. The proposed project improvements do not require a change in State Land Use designation; the improvements are a permitted use within the Urban District. The State Department of Health's rules regarding noise and fugitive dust control will be followed.

#### **8.3 COUNTY PERMITS**

The City and County of Honolulu zoning designations for the project area have been identified in Section 3-2. Permission for uses in the P-1 district is subject to the appropriate city and state agencies. Public uses and structures, such as roads and utilities, are permitted uses in all of the other zoning districts.

The proposed project improvements will require approval by the City and County of Honolulu for construction plans, issuance of building permits, and a street usage permit for construction.

The Diamond Head Road right-of-way is located within the Diamond Head Special District and the Special Management Area. The Department of Planning and Permitting regulates the use permits for these areas.

Diamond Head Special District Permit. The Diamond Head Road right-of-way is located within the Diamond Head Special District. According to the Land Use Ordinance's Diamond Head Special District Project Classification Table 21-9.2, some of the proposed improvements such as streetscape and sidewalk paving are classified as exempt from a special district permit. Other infrastructure activities such as roadway improvements may require a Special District Minor Permit, depending on the scope of the improvements. The required permits will depend on the final design of the improvements. During the design phase, the City will review the plans and the necessary permits will be acquired.

Special Management Area. The Diamond Head Road right-of-way is located within the Special Management Area (SMA) (Figure 3-1). According to the Revised Ordinances of the City and County of Honolulu 1990, Section 25-1.3, the proposed improvements within the existing right-of-way, including the under grounding of utility lines, do not require a Special Management Area Permit. During the design phase, the City will review the plans.

## SECTION 9

### DETERMINATION, FINDINGS AND REASONS FOR SUPPORTING DETERMINATION

The following is an assessment, based on the thirteen (13) "Significance Criteria" of Title 11, Chapter 200-12 of the Department of Health Administrative Rules, to determine whether or not the proposed project will have a significant impact on the environment. Based on the foregoing reasons cited in this Environmental Assessment, a "Finding of No Significant Impact" (FONSI) is anticipated because no significant adverse environmental impacts are expected as a result of the proposed project

- 1) *Involves a loss or destruction of any natural or cultural resources;*

Development of the project is not anticipated to involve the loss or destruction of any significant natural or cultural resources in the area. Activities will be restricted to the public right-of-way, which has been disturbed and graded in the past and is currently a roadway. If cultural resources are uncovered, work will stop and the State Historic Preservation Division will be consulted. Archaeological monitoring will take place in Section 1 and Section 2 in order to mitigate any adverse effect the project might have on potential subsurface historic sites.

- 2) *Curtails the range of beneficial uses of the environment;*

Development of the project will not curtail any beneficial uses of the land. The improvements planned for the site will enhance public use of the area.

- 3) *Conflicts with the State's long-term goals or guidelines as expressed in Chapter 344, HRS;*

The proposed project is not anticipated to have any significant negative environmental impacts, and therefore does not conflict with the long-term goals or guidelines expressed in Chapter 344, HRS.

4) *Substantially affects the economic or social welfare of the community or state;*

The project is anticipated to have a positive impact on the economy. Construction of the project will result in short-term direct and indirect construction employment, which will have a positive effect on the economy. Improvements to the recreational experience of the roadway provided by the project will have a positive impact on the social welfare of the community.

5) *Substantially affects public health;*

Short-term noise and air quality impacts may occur during the construction phase of the project. However, these impacts can be adequately mitigated. The project will be developed in accordance with applicable State and County laws and regulations so that there is no adverse impact on public health.

6) *Involves substantial secondary affects, such as population changes or infrastructure demands;*

The project will not have secondary affects on population or infrastructure demands.

7) *Involves a substantial degradation of environmental quality;*

No long-term noxious uses or emissions will result from the project, and no degradation of the environmental quality is expected.

- 8) *Is individually limited but cumulatively has considerable effect on the environment, or involves a commitment to larger actions;*

Implementation of the Diamond Head Road Makai Recreation Master Plan is not anticipated to have considerable negative effect on the environment.

- 9) *Substantially affects a rare, threatened or endangered species or habitat;*

The project site has been disturbed, cleared and graded in the past. No rare, threatened or endangered species or habitat is known to inhabit the project area.

- 10) *Detrimentially affects air or water quality or ambient noise levels;*

No long-term air quality, water quality or ambient noise impacts are anticipated from the project. Short-term construction noise and air quality impacts will be mitigated as discussed in earlier sections of this Environmental Assessment.

- 11) *Affects or is likely to suffer damage by being located in an environmentally sensitive area, such as a flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, fresh water or coastal water;*

A portion of Diamond Head Road located along the coastline is in the tsunami inundation zone. The road right-of-way is in a zone determined to be outside of the 500-year flood plain as defined by the Federal Management Agency. Improvements will take place in previously significantly disturbed areas.

- 12) *Substantially affects scenic vistas and view planes identified in county or state plans or studies;*

The project improvements are intended to enhance and encourage access to scenic vistas and view planes that have been identified in County or State plans or studies.

13) *Require substantial energy consumption;*

The project will not require substantial energy consumption.



**SECTION 10**  
**LIST OF INDIVIDUALS, ORGANIZATIONS AND**  
**AGENCIES CONSULTED**

**10.1 COMMENTS**

The following is a list of agencies and organizations that were contacted while preparing the Draft EA. The purpose of the pre-consultation phase is to identify issues that may need to be discussed. Included in this section is a sample pre-consultation letter that was distributed to the following organizations and the responses that were received.

AGENCY/ORGANIZATION	PRE-CONSULTATION COMMENTS RECEIVED	DRAFT EA COMMENTS RECEIVED
<b>FEDERAL GOVERNMENT</b>		
U.S. Fish and Wildlife Service		
<b>STATE OF HAWAII</b>		
Department of Land and Natural Resources		
State Parks Division		
Land Division		
Historic Preservation Division.....X.....		
Department of Transportation.....X		
Disability and Communication Access Board.....X		
Office of Environmental Quality Control.....X		
<b>CITY AND COUNTY OF HONOLULU</b>		
Board of Water Supply.....X		
Councilmember Duke Bainum		
Department of Parks and Recreation.....X		
Department of Planning and Permitting..... LATE.....X		
Department of Transportation Services..... LATE		
Fire Department.....X		
Honolulu Board of Water Supply.....X		
Police Department.....X		
<b>OTHERS</b>		
Hawaiian Electric Company, Inc.		
Diamond Head / Kapahulu / St. Louis Heights Neigh Board.....X		
Diamond Head State Monument, Citizens Advisory Cmte.....X		
East Diamond Head Association.....X		

Kapiolani Park Preservation Society .....X  
Oceanic Cable .....X  
University of Hawaii, Environmental Center .....X  
Verizon Hawaii .....X

**INDIVIDUALS**

Ms. Michelle Matson.....X  
Mr. Rand Potts .....X

**10.2 AGENCIES AND ORGANIZATIONS CONSULTED FOR THE  
DRAFT ENVIRONMENTAL ASSESSMENT**

**US GOVERNMENT**

Coast Guard  
Fish and Wildlife Service

**STATE OF HAWAII**

Ms. Mindy Jaffe, Representative, 19<sup>th</sup> District  
Mr. Matt Matsunaga, Senator, 9<sup>th</sup> District  
Department of Health  
    Office of Environmental Quality Control  
Department of Land and Natural Resources  
    Land Division  
    Historic Preservation Division  
    Parks Division (Diamond Head State Monument)  
Department of Transportation  
Diamond Head State Monument Citizen's Advisory Committee (CAC)  
Hawaii State Library  
Kapahulu/Waikiki Public Library  
Office of Planning

**CITY AND COUNTY OF HONOLULU**

Councilmember Duke Bainum  
Board of Water Supply  
Department of Design and Construction  
Department of Facility Maintenance  
Department of Parks and Recreation  
Department of Planning and Permitting  
Department of Transportation Services  
Fire Department  
Police Department  
Diamond Head/Kapahulu/St. Louis Heights Neighborhood Board #5  
Kaimuki Neighborhood Board #4  
Waiialae/Kahala Neighborhood Board #3  
Waikiki Neighborhood Board #9

**OTHERS**

East Diamond Head Association  
Hawaii Bicycling League  
Hawaii Transportation Association  
Hawaiian Electric Company  
Kahala Community Association  
Kapiolani Park Preservation Society  
Makalei Place Association  
Oceanic Cable  
Outdoor Circle  
Verizon Hawaii  
Waikiki/Kapahulu/Diamond Head Vision Team # 17  
Project Champion, Mr. Rand Potts

## REFERENCES

City and County of Honolulu, Department of Planning and Permitting. May 1999. Land Use Ordinance.

Federal Emergency Management Agency. September 30, 1995. Flood Insurance Rate Map. City and County of Honolulu, Hawaii, Panel Number 150001 0125 B.

Hawaii State Department of Business, Economic Development and Tourism. 1999. The State of Hawaii Data Book 1999.

Pacific Planners Corporation. 1968. Diamond Head Study. Prepared for the State Department of Land and Natural Resources.

PBR Hawaii. 2001. Diamond Head State Monument Master Plan Update Final Environmental Impact Statement. Prepared for the State Department of Land and Natural Resources.

University of Hawaii at Hilo Department of Geography. 1998. Atlas of Hawaii, Third Edition. University of Hawaii Press. Honolulu.