

## 3.15 VISUAL RESOURCES

### 3.15.1 Resource Definition

Visual resources include scenic areas, vistas, or thoroughfares and locations that provide natural-appearing or aesthetically pleasing places or views. This includes natural views such as shorelines, seascapes, and cliffs, and man-made views such as unique buildings, landscaping, parks, and other types of cultural features. Typically, visual resource descriptions focus on those that are recognized as highly valued and deemed worthy of preservation. Visual resources are readily visible from higher elevations and public properties (e.g., parks, scenic lookouts).

Visual resources are an important part of the quality and sensory experience of an area. Users often encounter an area first and foremost through a visual interaction or their “view” of a place. Visual resources are also recognized as views and vistas that people are accustomed to seeing and often take for granted as a general part of the landscape. Views are generally composed of, and often described in terms of, foreground, middle-ground, and background depending on the site. For analysis purposes, visual resources are composed of the following:

- Dominant landscape features (e.g., a towering geologic feature in a landscape otherwise composed of low vegetation);
- Diversity (e.g., rows of residential development adjacent to beach park with the ocean as a backdrop);
- Elements of line, color, form, and texture; or
- Distinctive visual edges (e.g., a housing tract adjacent to a forested area).

### **Terrestrial including Shoreline**

Visual resources in a terrestrial setting refer to visual elements that form the character of the terrestrial portion of the planning area. Examples include, but are not limited to, mountain ranges, lush vegetation, geologic features, settlements, agricultural plains, shoreline, and the ocean view.

### **Marine**

Visual resources in a marine setting refer to visual elements that form the character of the marine portion—from the shoreline to the nearshore waters. Examples include, but are not limited to, islets and buoys. Examples outside of the nearshore waters include neighboring islands visible from a project area.

### 3.15.2 Regulatory Setting

Implementation of an undersea power cable system must be found in compliance with the scenic (visual) resource elements found in the following statutes:

- Coastal Zone Management Plan (Hawai'i Scenic and open space resources, HRS Chapter 205A-2.b.3.a);
- Hawai'i State Plans, Objective and policies for the physical environment-scenic, natural beauty, and historic resources, HRS Chapter 226-12.b Special Management Area (SMA) Guidelines (HRS Chapter 205A-26); and
- SMA, HRS Chapter 205A-26.

### 3.15.3 Region of Influence

The ROI for each landing site area is the area that is contained within a viewshed from identified or recognized vantage points.

### 3.15.4 Affected Environment

#### General

Throughout the state of Hawai'i, no point of land is more than 30 miles from the ocean; therefore, a definite land-to-sea, or "*mauka* (toward the mountain)-to-*makai* (seaward)," connection exists (State of Hawai'i DEBDT 2009). There are features between *mauka* and *makai* that strengthen and enhance that sense of connection. Examples include coastal roads, nearby developments on the foothills of mountains, lush vegetation along roadways, prominent geologic features, lookout points that contain an expansive view of the area, and valleys. Figure 3.15-1 shows *mauka-to-makai* (looking from Punchbowl toward Diamond Head/Waikiki) view corridors. It is a common goal by respective planning agencies (i.e., county) throughout the state to preserve and strengthen the existing *mauka-to-makai* connection against development or other change (City and County of Honolulu 2004; County of Maui 2009; Hawai'i County Planning Department 2005; Maui County Planning Department 1998; Maui County Planning Department 2001; Kauai County Planning Department 2000).

## Maui County-O'ahu Routing Specific

### Maui

#### *Maui-Kahului Harbor*

##### Terrestrial

The topography and slope of the Maui-Kahului Harbor landing site area are shown in Figure 3.15-2. The landing site area is composed of the towns of Waihee-Waiehu, Wailuku, and Kahului on the northern part of the island's isthmus. Parts of Waihee-Waiehu are situated on the foothills of Mauna Kahalawai, or the West Maui Mountains, and range from 10 feet to 100 feet in elevation. On the descent of Mauna Kahalawai is the town of Wailuku, the center of the county civic activities and otherwise a densely developed residential community. Kahului, the center of Maui's commercial, institutional, industrial, and tourism activities, composes the remainder of the landing site area. Located nearly at the sea level, Kahului borders Kahului Deep Harbor to the north, the Kanaha Pond State Wildlife Sanctuary and the Kahului Airport to the east, and expanses of farmlands to the near south.

Its peaks reaching nearly 5,788 feet in elevation, Mauna Kahalawai serves as a backdrop for the landing site area, which is densely developed and is among the more urbanized parts of Maui. Buildings are generally moderate in height—usually one to three stories along the *makai* side of major thoroughfares (Routes 340, 32, 380, and 37)—and up to mid-height along the *mauka* side. The nearly uniform building heights generally provide a feeling of openness along the *makai* side of roads. Other visual resources in the landing site area include verdant vegetation on Mauna Kahalawai and the Pacific Ocean. The landing site area contains designated scenic corridors: (1) Parts of Route 340 in Waihee-Waiehu, where the road meets Route 3400 toward northerly direction, classified as Medium; and (2) Route 36 in Kahului, the beginning of Hana Highway (more popularly known as “the road to Hana”), classified as High. Figure 3.15-3 shows Kahului and Wailuku towns as seen from Kahului Deep Harbor.

##### State Waters

There are no visual resources in the nearshore waters.

#### *Maui-Kapalua (West Maui)*

##### Terrestrial

The topography and slope of the Maui-Kapalua landing site area are shown in Figure 3.15-4. The landing site area is nestled between the verdant foothills of Mauna Kahalawai and the coast setting along Kapalua in West Maui. Except for some agricultural activities along the northwest

part, the landing site area in Kapalua is rife with a master planned community containing a high-end resort development and related features such as vacation-residences, shops, and championship golf courses. The elevation ranges from 300 feet to the sea level; the main thoroughfare, Route 30, is located on the higher end of the range between 200 feet to 300 feet (approximate). Mauna Kahalawai appears prominently in the background of the landing site area. The *makai* side visual resources include views of the bays (Oneloa, Honokahua, Makuleia, and Honolua), the shoreline, and the Pacific Ocean. There are two scenic corridor designations on Route 30: (1) from Mokuleia Bay to a segment along the road in the southwesterly direction, classified as Medium; and (2) from Mokuleia Bay to a segment along the road in the northeasterly direction, classified as Exceptional (County of Maui 2009).

### State Waters

Visual resources include views of east Molokaʻi and north Lānaʻi.

### Lānaʻi

#### *Terrestrial*

The topography and slope of the Lānaʻi landing site area are shown in Figure 3.15-5. The development on Lānaʻi is concentrated at Lānaʻi City near the island's center and two Four Seasons hotel developments—adjacent to Lānaʻi City and on the south part of the island. Outside of these areas, which include the landing site area, the island is mostly undeveloped. The landing site area is located along the western and parts of the northern perimeters of the island along the coast. The elevation change ranges from 500 feet to the sea level. Generally speaking, the landing site area is undisturbed (devoid of man-made development). There is considerable wind erosion on the island and expanses of land with little or some vegetation (SOEST Coastal Geology Group 2011). Notable visual resources include dramatic sea cliffs delineating the coastal boundaries of the landing site area. Figure 3.15-6 shows the view of Molokaʻi as seen from Keahikawelo (Garden of the Gods).

### *State Waters*

A prominent view of southern portion of Molokaʻi can be seen off of the waters of the northern part of the landing site area.

### Molokaʻi

The island center is located at Kaunakakai, along the south side of the island. Outside of Kaunakakai, settlements are scattered throughout the island. The island's only east-west thoroughfare commences in Kaunakakai, diverging eastbound to Route 450 (Kamehameha Highway) and westbound to Route 460 (Mauna Loa Highway). The roads provide contrasting

views of the windward and leeward sides of the island. Route 450 is located along the coast, with the Kamakou Mountain Ranges and the Moloka'i Forest Reserve serving as constant backdrops, while the views of the shoreline and the ocean, as well as the islands of Lāna'i and Maui, are ever-present. Also visible are many of the island's traditional fishing ponds. Route 460 is mostly landlocked, and between the Hoolehua Airport and the town of Maunaloa, visual resources are limited to rural characteristics. Route 470, running north and south, provides views of verdant windward valleys.

#### *Moloka'i-Kaluakoi (West Moloka'i)*

##### Terrestrial

The topography and slope of the Moloka'i-Kaluakoi landing site area are shown in Figure 3.15-7. The landing site area in Kaluakoi contains the remnants of a former resort and a golf course; present today are time-share units and condominiums, interspersed ocean front residences, and overgrown remnants of the resort and the golf course. The elevation ranges from 100 feet to the sea level, and there are several promontories with viewsheds containing the 3-mile, 100-yard-wide Papohaku Beach and Kawakiu Bays—Kawakiu Nui ("big") and Kawakiu Iki ("small"), shoreline, and ocean view. Figure 3.15-8 shows the landing site area as seen from a promontory.

##### State Waters

On clear days, Diamond Head on O'ahu is visible; on clear nights, city lights from east O'ahu can be seen.

#### *Moloka'i-Kaunakakai (South Moloka'i)*

##### Terrestrial

The topography and slope of the Moloka'i-Kaunakakai landing site area are shown in Figure 3.15-9. The landing site area is located outside of the island center in Kaunakakai, south of the Hoolehua Airport. The notable feature in the area is a broodstock hatchery. The area is otherwise undeveloped. The elevation of the landing site area ranges from 10 feet to the sea level, and the views of the shoreline and ocean are not readily attained from the main access roadway—Ulili Street off of Route 460. There is a promontory located to the southwest of the landing site area where the viewshed can be accessed.

##### State Waters

The northern part of Lāna'i can be seen in the background off the waters of south Moloka'i.

## O'ahu

O'ahu is the state's most populated and urbanized. Two major mountain ranges—Koolau and Waianae Mountain Ranges—form north-south spines along the island's windward (side of an island subject to the prevailing wind, and thus wetter) and leeward (side of the island protected by the elevation on the island from the prevailing wind, and thus drier) sides, respectively. These mountain ranges provide backdrops to the island's burgeoning urbanized setting. Notable visual resources include picturesque coastlines outlining the island, the central plateau featuring agricultural activities, urban skylines, densely developed residential communities, and geologic formations.

### *O'ahu-MCBH at Kāne'ōhe Bay*

#### Terrestrial

The topography and slope of the MCBH at Kāne'ōhe Bay landing site area are shown in Figure 3.15-10. The landing site area is composed of the eastern half of MCBH at Kāne'ōhe Bay and the densely developed residential communities of Kailua and Lanikai on the windward side of O'ahu ("windward side"). Because the windward side receives so much rain relative to other parts of the island, it is perennially wet and green. The *mauka* views of the landing site area include the Koolau Mountain Ranges and their precipitous peaks that provide prominent backdrops to the landing site area. The *makai* visual elements include the views of the Kailua Bay and its long beach and islets. The topography of the landing site area is nearly at the sea level, with the exception of the Mokapu Peninsula located on-base at Kāne'ōhe Bay, reaching up to 640 feet in elevation. For this reason, vantage points providing an expansive view of the landing site area are located on higher elevation, outside of the landing site area, along Route 61 ("Pali") and H-3 (Interstate Highway 3, "John A. Burns Freeway"). Figure 3.15-11 shows part of the landing site area at MCBH at Kāne'ōhe Bay.

#### State Waters

Notable visual resources in the waters off of the Kailua Bay include islets: the Mokolea Rock, Popoia Island, and Mokulua Islands.

### *O'ahu-Pearl Harbor*

#### Terrestrial

The topography and slope of the O'ahu-Pearl Harbor landing site area are shown in Figure 3.15-12. The landing site area consists of eclectic facets of urbanized setting: the master planned community of Ewa Beach; parts of JBPHH; the *makai* portion of Honolulu International

Airport; Honolulu Harbor, Downtown, and Kakaako Makai. Together, these areas represent some of the most urbanized and built out environments on O‘ahu and the state.

Important *mauka* features include the Waianae Mountain Ranges, the Koolau Mountain Ranges, and the Ewa Plains. *Makai* visual resources include the shorelines/coasts along Pearl Harbor, Keehi Lagoon, Kapalama Basin, Honolulu Harbor, Kewalo Basin, and Ala Wai Harbor (City and County of Honolulu 2004b). The elevation in the landing site area ranges from 10 feet to the sea level. Figure 3.15-13 shows part of the landing site area located in metropolitan Honolulu.

### State Waters

Common visual elements on offshore waters include recreational/commercial boats (motor, sail) and ships (military, patrol, cruise, commerce).

### Federal Waters

#### *BOEM Jurisdiction*

There are no visual resources in the federal waters.

#### *NOAA Jurisdiction*

There are no visual resources in the federal waters.

### **3.15.5 Potential Impacts of Cable System Implementation**

#### **Description of Impact Types**

Short-term impacts would be associated with the installation of the undersea power cable system; long-term impacts would be operations associated with cable system implementation—energy transmission via cables and converter station operation. A specific project may cause impacts to existing visual resource if found to:

- Substantially alter the views or scenic quality associated with particularly significant and/or publicly recognized vistas, viewsheds, overlooks, or features (FHWA 1988). Is the visual relationship or quality between a cable system and specific elements of its surroundings altered? Are there contrasts? Do cable system components block views?
- Substantially decrease the visual quality of the environment (FHWA 1988). Do cable system visual characteristics decrease the visual quality of the environment (landing site area)?

- Substantially change the light, glare, or shadows within a given area. A cable system would be thought to create impact to existing setting if, as the result of cable system implementation, there would be increased, as an example, a shadow effect (e.g., new buildings with excessive heights). Conversely, a cable system that would result in the replacement of tall structures with buildings with lower heights would result in increased light—a beneficial impact.

## **Maui County-O‘ahu Routing Specific Description of Impact Types**

### Maui

#### *Maui-Kahului Harbor*

##### Terrestrial

The landing site area contains designated scenic corridors; siting the cable system in an area that is a part of the viewsheds from these designated vantage points, may result in significant impact to the existing visual resources. Notably, the existing views and scenic quality associated with the landing site area would be altered. The nature and the appearance of a cable system are more akin to existing harbor and industrial uses found in Kahului. The placement of similarly appearing uses would likely minimize impacts to existing visual characteristics of the landing site area because there would be less of a visual contrast.

##### State Waters

View impairments caused by installation of a cable are short term and not expected to have lasting impacts on the existing visual resources and landing site area character.

#### *Maui-Kapalua (West Maui)*

##### Terrestrial

Similar to the Maui-Kahului Harbor landing site area, the Maui-Kapalua landing site area also contains designated scenic corridors, except that they are rated higher. The degree of impact on the visual resources would depend on where a converter station is sited, but, generally speaking, a converter station in the landing site area would create a substantial visual contrast to the existing character, and would result in alteration and erosion of the scenic quality associated with the area known for high-end resort development.

## State Waters

View impairments caused by installation of a cable are short-term and not expected to have lasting impacts on the existing visual resources and landing site area character.

### Lānaʻi

#### *Terrestrial*

Because the landing site area is devoid of man-made development, the cable system implementation—regardless of where sited—would result in creating a substantial contrast to the existing visual character. Although the cable system could be sited outside of a viewshed to avoid impairing existing visual resources, the visual characteristic of the landing site area would be sharply decreased. The degree of impacts would be even greater if the cable system is sited along the north side, which has a prominent and unobstructed view of Molokaʻi.

#### *State Waters*

Because the elevation of the landing site area increases with the distance from the shoreline, installation of a cable would not likely be readily apparent, unless looking out at a distance or at the sea level near the shoreline.

### Molokaʻi

#### *Molokaʻi-Kaluakoi (West Molokaʻi)*

#### *Terrestrial*

The cable system implementation may create a notable visual contrast because, although parts of the landing site area are interspersed with development, there are no similarly appearing structures.

#### *State Waters*

View impairments caused by cable system implementation are short-term and not expected to have lasting impacts on the existing visual resources and landing site area character.

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### *Moloka'i-Kaunakakai (South Moloka'i)*

#### Terrestrial

Although the landing site area is not free of development, a cable system implementation would create a sharp visual contrast with the existing rural environment and significantly alter the visual characteristics.

#### State Waters

View impairments caused by cable system implementation are short-term and not expected to have lasting impacts on the existing visual resources and landing site area character.

### O'ahu

#### *O'ahu-MCBH at Kāne'ōhe Bay*

#### Terrestrial

Outside of the base in the landing site area are mostly single-family residential communities. Placing a cable system would create a dominant landscape feature in an area that is otherwise homogeneous in visual characteristics. The visual contrast that would be created would ultimately decrease the scenic qualities associated with the area, as seen from vantage points outside of the landing site area, as well as looking at the cable system from inside of the landing site area. Because of the homogeneous characteristics of the residential communities in the landing site area, the degree of impacts may be comparable regardless of where the cable system is ultimately sited.

#### State Waters

View impairments caused by cable system implementation are short-term and not expected to have lasting impacts on the existing visual resources and landing site area character.

#### *O'ahu-Pearl Harbor*

#### Terrestrial

Although the degree of impacts to existing visual resources and scenic qualities/characteristics of an environment would depend on where a cable system is sited, the landing site area is in a heavily urbanized environment with parts of it currently hosting industrial uses. There are areas in the landing site area that are more conducive to accommodating a cable system because of similarities in appearances and the nature of use. The degree of impacts would be lesser in

areas where similarly appearing facilities are sited together. Examples include Honolulu Harbor, the vicinity of Honolulu International Airport at the Keehi Lagoon; nearby industrial uses in Sand Island; and parts of the landing site area in proximity of JBPHH.

#### State Waters

View impairments caused by cable system implementation are short-term and not expected to have lasting impacts on the existing visual resources and landing site area character.

#### Federal Waters

##### *BOEM Jurisdiction*

There are no visual resources in the federal waters.

##### *NOAA Jurisdiction*

There are no visual resources in the federal waters.

### **3.15.6 General Siting Criteria and Special Conservation and Construction Measures**

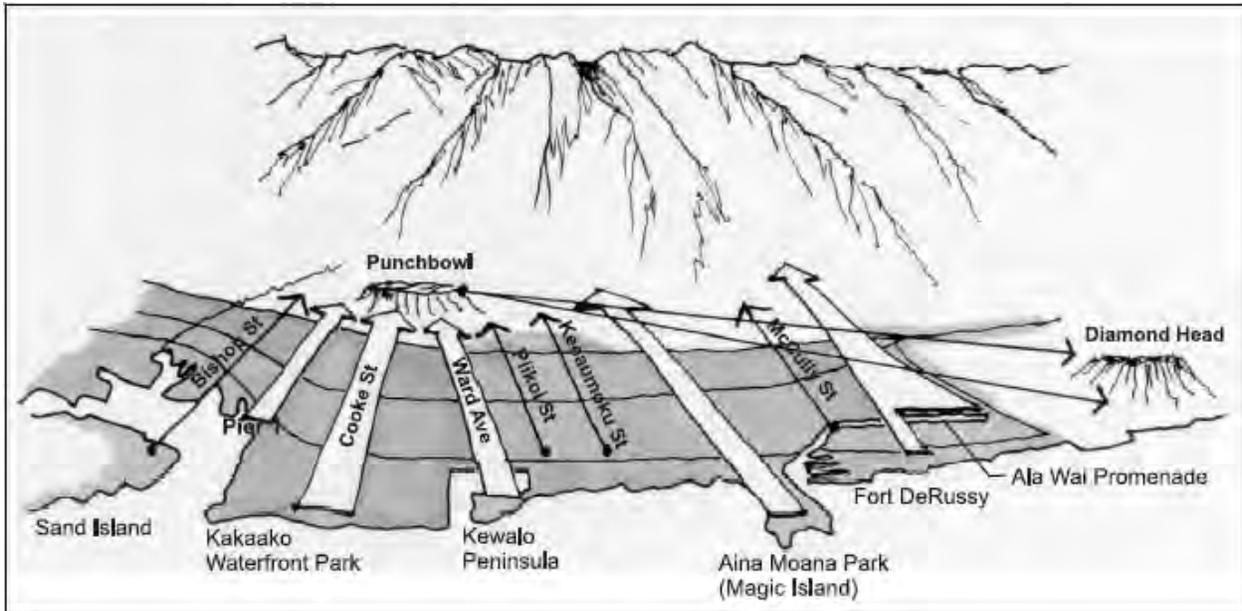
#### **General Level Special Conservation and Construction Measures**

- VR-1 It is recommended that viewshed analysis be conducted for each landing site area to determine views to be protected.
- a. Viewshed analysis should be conducted from key observation points (KOPs) located on public properties recognized as containing vantage points (e.g., lookouts, parts of major thoroughfares, parks, etc.).
- VR-2 The appearance of cable system components should be screened from view (i.e., vegetation coverings) to minimize creating a visual contrast with the existing surroundings.
- VR-3 Protect, preserve, and, where desirable, restore or improve the quality of coastal scenic and open space resources (CZMP, Scenic and open space resources, HRS 205A-2.b.3.a).
- VR-4 Alterations to existing land forms and vegetation, except crops, and construction of cable system implementation would cause minimum adverse effects to water resources and scenic and recreational amenities and minimum danger of floods, wind damage, storm surge, landslides, erosion, siltation, or failure in the event of earthquake (SMA, HRS 205A-26.1.d).

- VR-5 Any development that would substantially interfere with or detract from the line of sight toward the sea from the state highway nearest the coast (SMA, HRS 205A-26.3.d).
- VR-6 Provide incentives to maintain and enhance historic, cultural, and scenic amenities (State Plans, Objective, and policies for the physical environment-scenic, natural beauty, and historic resources, HRS 226-12.b.2).
- VR-7 Promote the preservation of views and vistas to enhance the visual and aesthetic enjoyment of mountains, ocean, scenic landscapes, and other natural features (State Plans, Objective, and policies for the physical environment-scenic, natural beauty, and historic resources, HRS 226-12.b.3).
- VR-8 Encourage the design of developments and activities that complement the natural beauty of the islands (State Plans, Objective, and policies for the physical environment-scenic, natural beauty, and historic resources, HRS 226-12.b.5).

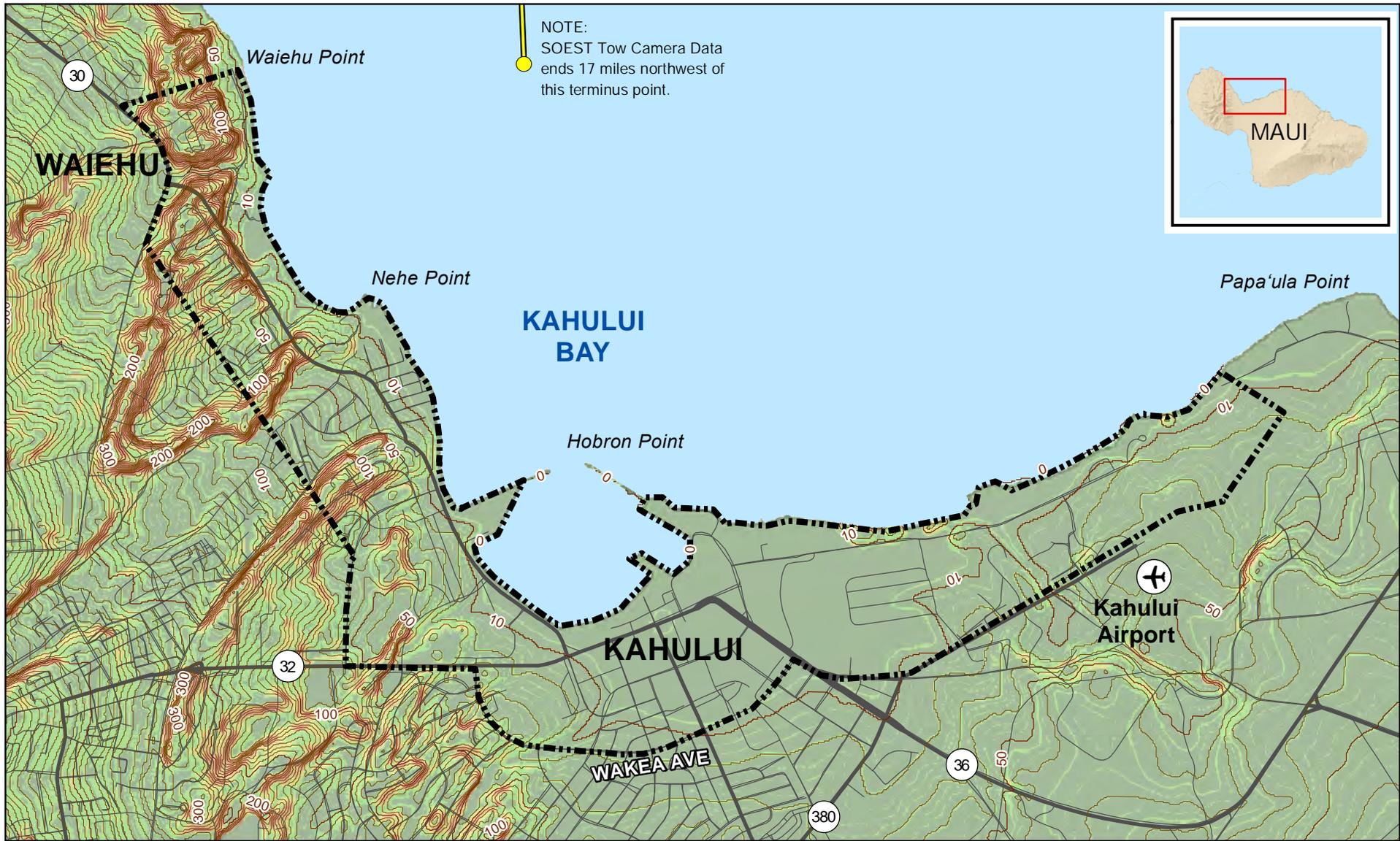
### **Maui County-O'ahu Routing Specific Special Conservation and Construction Measures**

In all routing cases and locations, for both terrestrial areas and in coastal and marine waters, the general measures described above should be implemented.



Source: PUC DP 2004

**Figure 3.15-1. Mauka-to-Makai View Corridors**



### Kahului Maui Landing Site Area: Topography and Slope

- |                              |  |                          |            |
|------------------------------|--|--------------------------|------------|
| Route with camera data *     | HIREP Study Analysis Area                      | <b>Slope Percentages</b> | Open Water |
| Route without camera data ** | <b>Elevation Contour Intervals (10 ft) ***</b> | 0 - 5% Slope             |            |
| Highways & Major Roads       | Major Contour Interval                         | 5 - 10% Slope            |            |
| Other Roads                  | Minor Contour Interval                         | 10 - 15% Slope           |            |
| SOEST Cable Routes           |  | 15 - 20% Slope           |            |
|                              |  | 20% Slope or Greater     |            |

\* Symbol denotes shoreward extent of tow camera data for cable route (unless otherwise noted).  
 \*\* Symbol denotes shoreward approach of cable route without tow camera data.  
 \*\*\* Major contour intervals consist of the 0, 10, 50, 100 ft intervals and every 100 ft after. Minor contour intervals are 10 ft. intervals between Major Intervals.

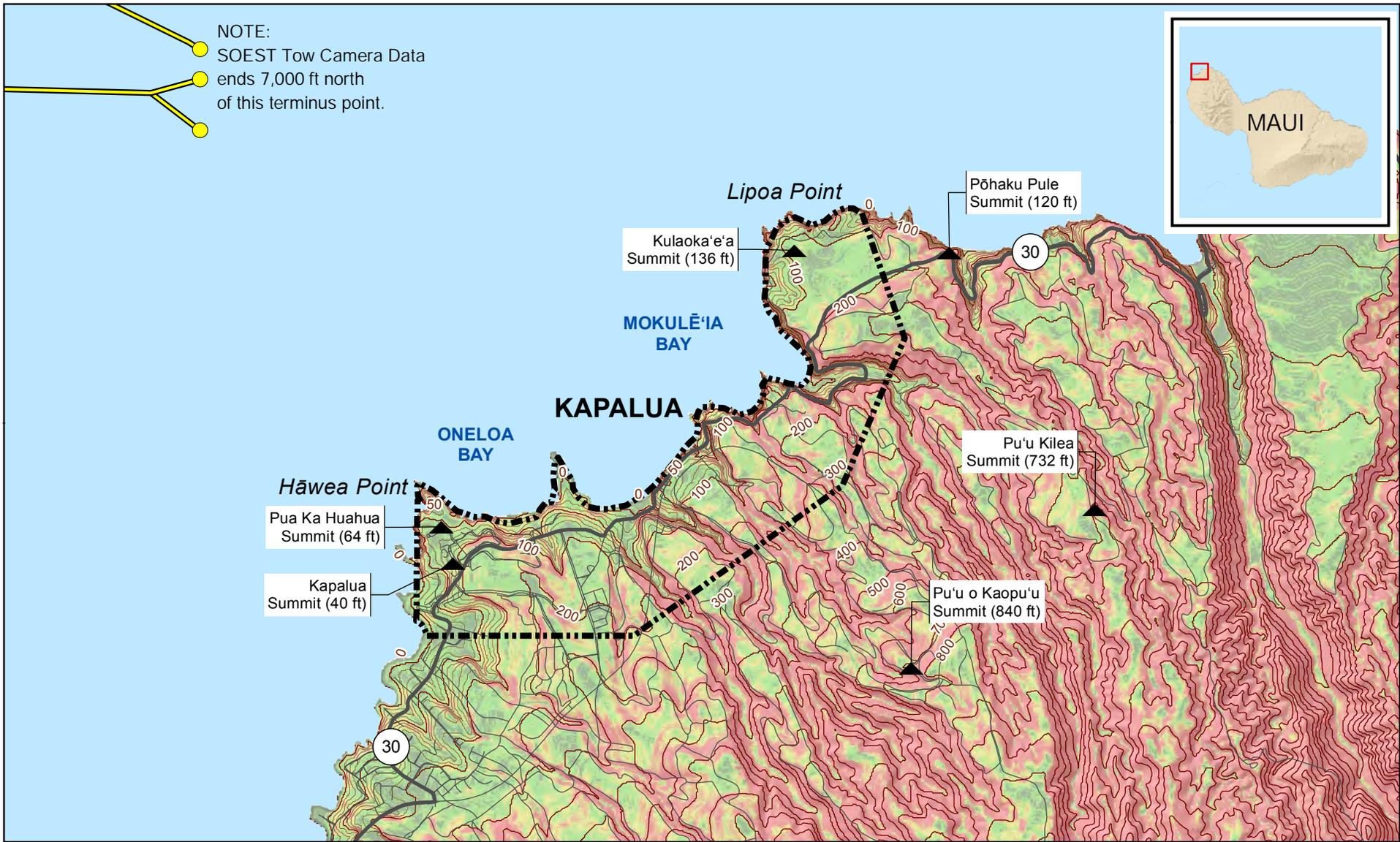


**Figure 3.15-2**



Source: AECOM 2011

**Figure 3.15-3. Mauna Kahalawai as seen from Kahului Harbor**



### West Maui Landing Site Area: Topography and Slope

- |                              |                           |   |                          |            |
|------------------------------|---------------------------|---|--------------------------|------------|
| Route with camera data *     | SOEST Cable Routes        | Area Summits (High Points)                    | <b>Slope Percentages</b> | Open Water |
| Route without camera data ** | HIREP Study Analysis Area | <b>Elevation Contour Interval (10 ft) ***</b> | 0 - 5% Slope             |            |
| Highways & Major Roads       |                           | Major Contour Interval                        | 5 - 10% Slope            |            |
| Other Roads                  |                           | Minor Contour Interval (under 100ft)          | 10 - 15% Slope           |            |
|                              |                           |   | 15 - 20% Slope           |            |
|                              |                           |   | 20% Slope or Greater     |            |



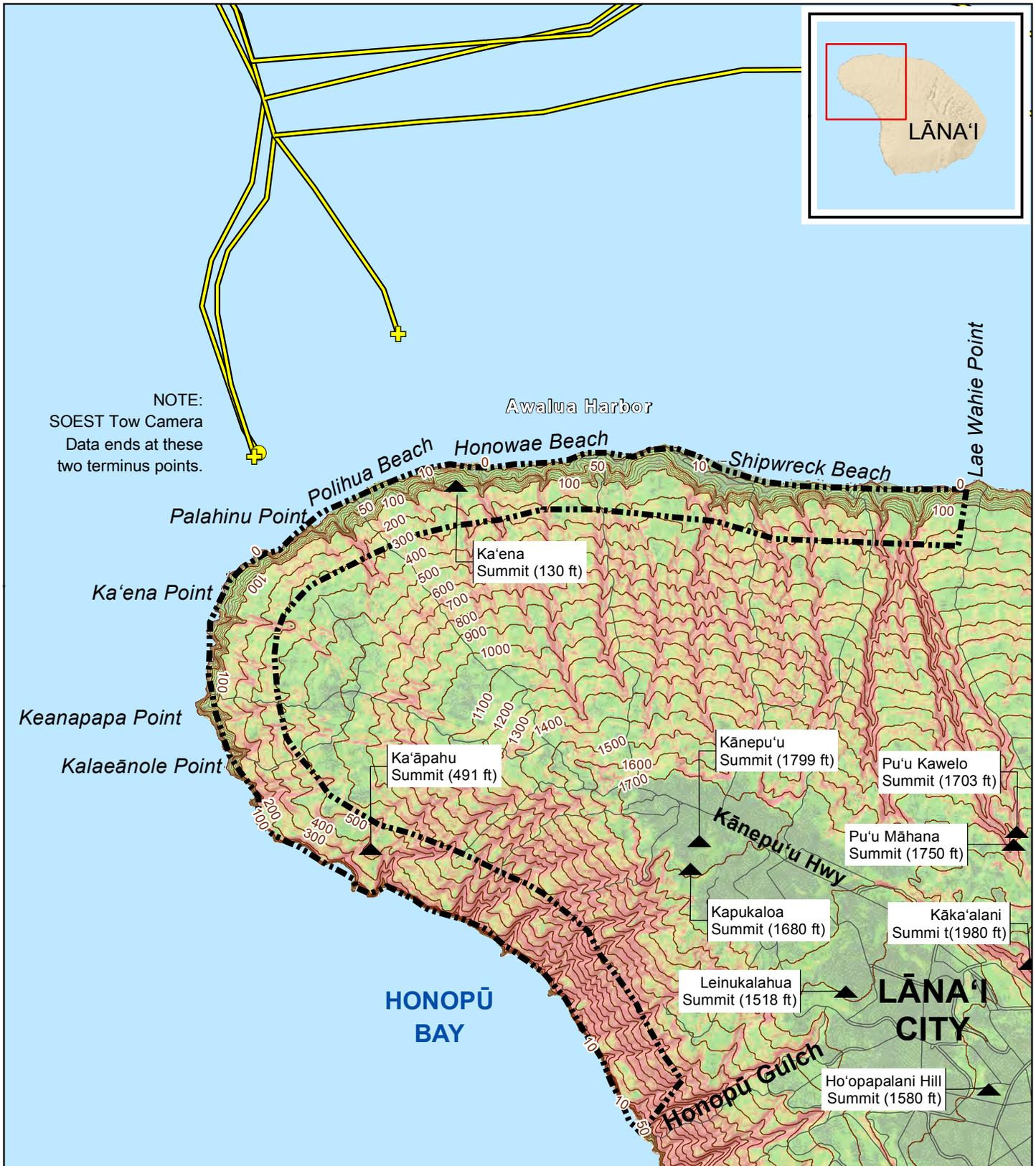
\* Symbol denotes shoreward extent of tow camera data for cable route (unless otherwise noted).

\*\* Symbol denotes shoreward approach of cable route without tow camera data.

\*\*\* Major contour intervals consist of the 0, 10, 50, 100 ft intervals and every 100 ft after. Minor contour intervals are 10 ft. intervals between Major Intervals. Minor intervals above 100 ft in elevation have not been shown for readability purposes.

Date: 4/26/2012  
Data Sources: HI-DBEDT, USGS, UH-SOEST, AECOM, 2012

Figure 3.15-4



NOTE:  
SOEST Tow Camera  
Data ends at these  
two terminus points.

### Lāna'i Landing Site Area: Topography and Slope

Route with camera data *	SOEST Cable Routes	Area Summits (High Points)	<b>Slope Percentages</b>
Route without camera data **	HIREP Study Analysis Area	<b>Elevation Contour Interval (10 ft) ***</b>	0 - 5% Slope
Highways & Major Roads	Major Contour Interval	Minor Contour Interval (below 100ft)	5 - 10% Slope
Other Roads	Open Water		10 - 15% Slope
			15 - 20% Slope
			20% Slope or Greater

\* Symbol denotes shoreward extent of tow camera data for cable route (unless otherwise noted).  
 \*\* Symbol denotes shoreward approach of cable route without tow camera data.  
 \*\*\* Major contour intervals consist of the 0, 10, 50, 100 ft intervals and every 100 ft after. Minor contour intervals are 10 ft. intervals between Major Intervals. Data Sources: HI-DBEDT, NOAA, USGS, UH-SOEST, AECOM, 2012

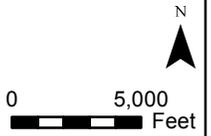
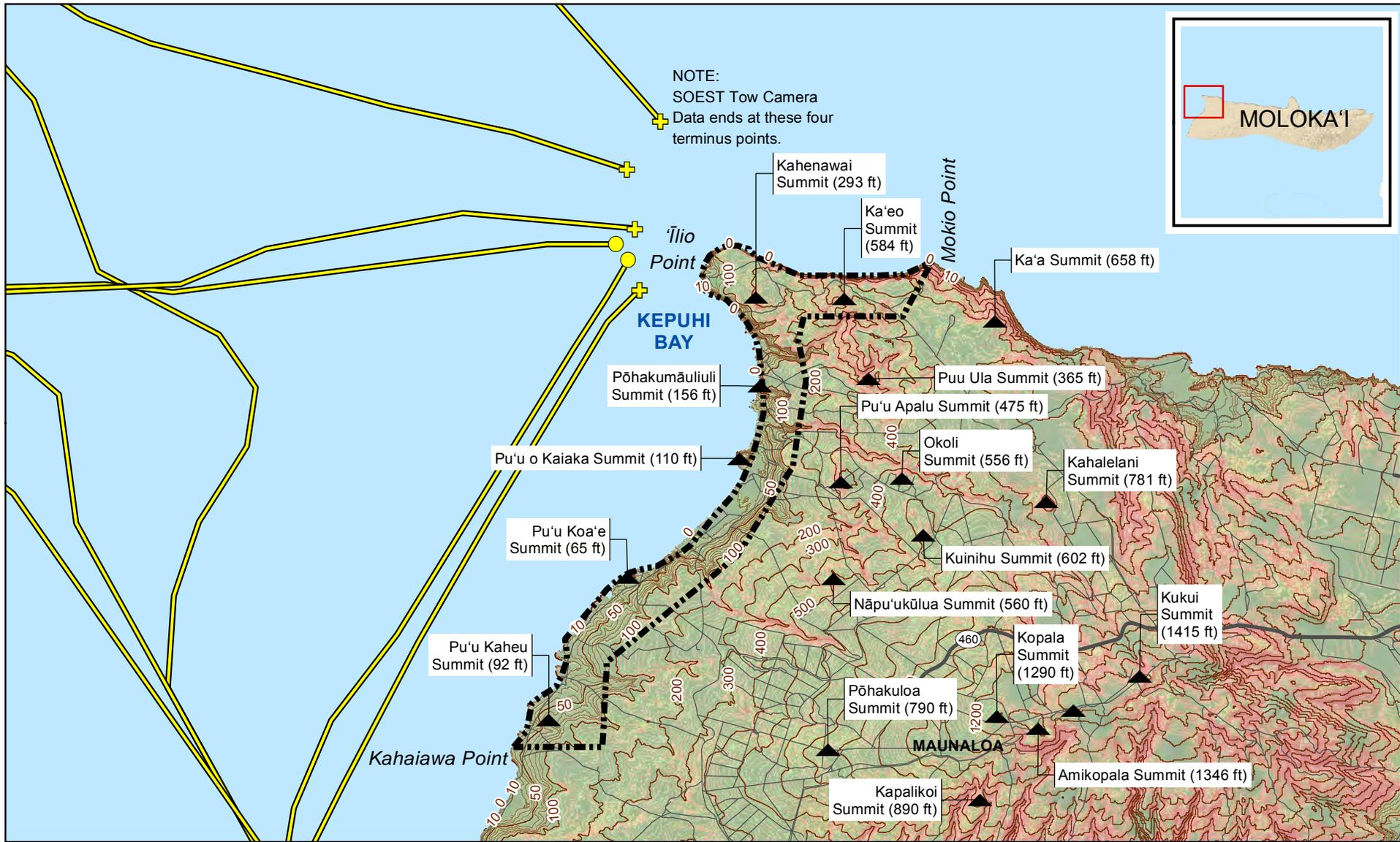


Figure 3.15-5



Source: AECOM 2011

**Figure 3.15-6. Southern/eastern half of Moloka'i as seen from Keahikawelo (Garden of the Gods), Lāna'i**



NOTE:  
SOEST Tow Camera  
Data ends at these four  
terminus points.



### West Moloka'i Landing Site Area: Topography and Slope

- + Route with camera data \*
- Route without camera data \*\*
- UH-SOEST Cable Routes
- HIREP Study Analysis Area
- Highways & Major Roads
- Other Roads
- ▲ Area Summits (High Points)
- Elevation Contour Interval (10 ft) \*\*\*
- Major Contour Interval
- Minor Contour Interval (below 100ft)
- Slope Percentages \*\*\*\***
- 0 - 5% Slope
- 5 - 10% Slope
- 10 - 15% Slope
- 15 - 20% Slope
- 20% Slope or Greater
- Open Water

\* Symbol denotes shoreward extent of tow camera data for cable route (unless otherwise noted).  
 \*\* Symbol denotes shoreward approach of cable route without tow camera data.  
 \*\*\* Major contour intervals consist of the 0, 10, 50, 100 ft intervals and every 100 ft after. Minor contour intervals are 10 ft. intervals between Major Intervals.  
 \*\*\*\* The digital elevation model (used to generate the slope data) has a recognizable distortion which causes the resulting data to pixelate and affect the visual quality of the information shown.

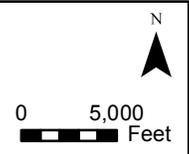
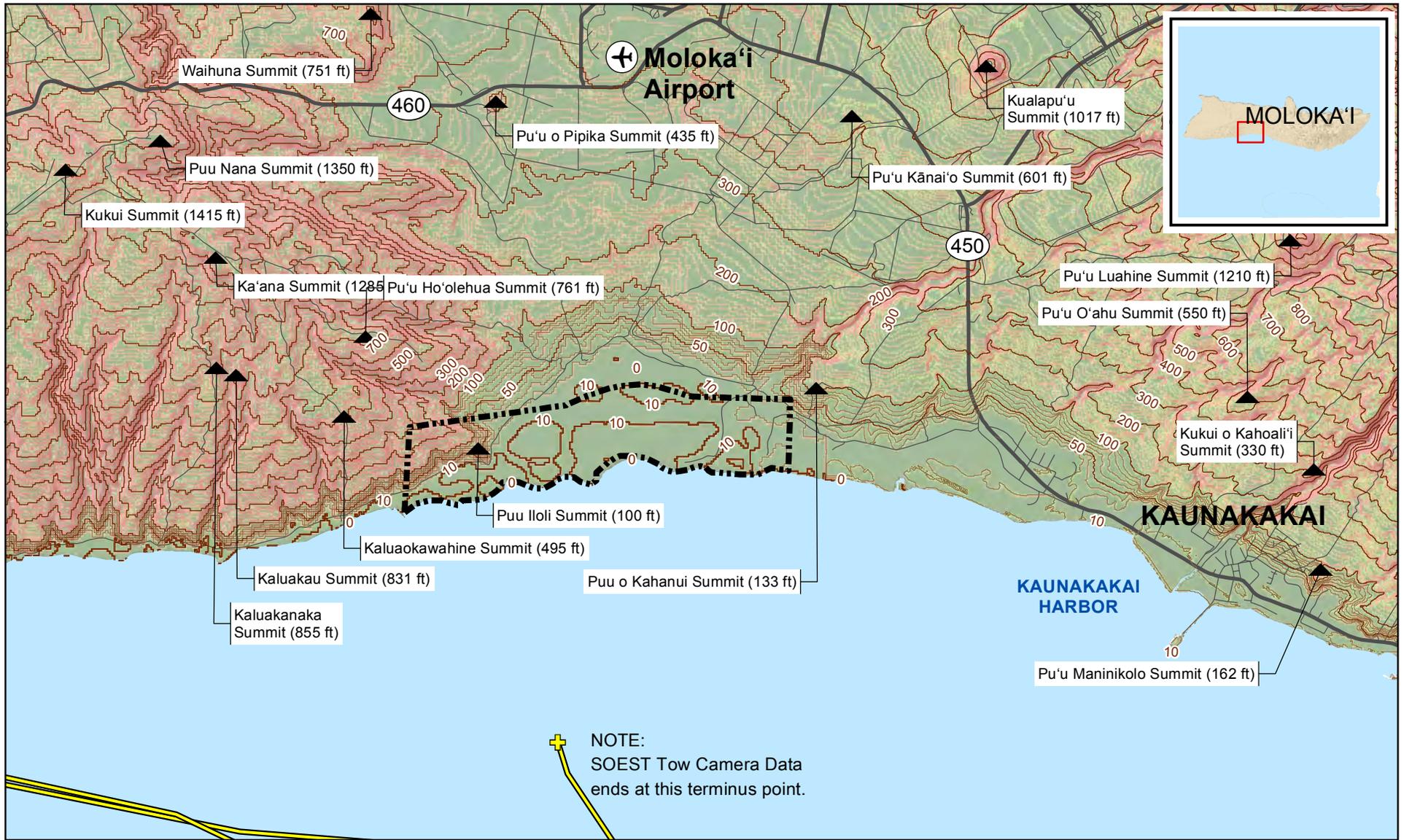


Figure 3.15-7

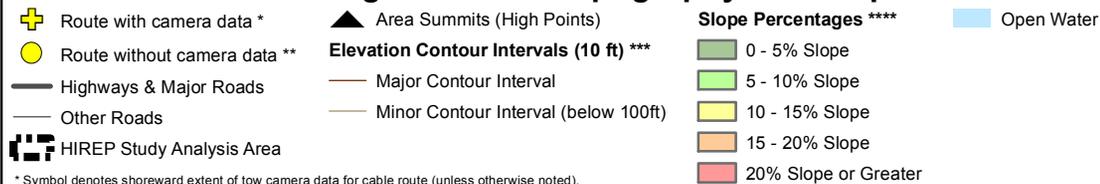


Source: Nishimura 2008

**Figure 3.15-8. Looking toward Papohaku Beach from a promontory**



### South Moloka'i Landing Site Area: Topography and Slope



\* Symbol denotes shoreward extent of tow camera data for cable route (unless otherwise noted).

\*\* Symbol denotes shoreward approach of cable route without tow camera data.

\*\*\* Major contour intervals consist of the 0, 10, 50, 100 ft intervals and every 100 ft after. Minor contour intervals are 10 ft. intervals between Major Intervals.

\*\*\*\* The digital elevation model (used to generate the slope data) has a recognizable distortion which causes the resulting data to pixelate and affect the visual quality of the information shown.



Date: 4/27/2012

Data Sources: HI-DBEDT, NOAA, USGS, UH-SOEST, AECOM, 2012

Figure 3.15-9



NOTE: SOEST Tow Camera Data ends 5,000 ft west of this terminus point.

### Kāneʻohe Landing Site Area: Topography and Slope

<ul style="list-style-type: none"> <li> Route with camera data *</li> <li> Route without camera data **</li> <li> Identified O'ahu Substation</li> <li> Highways &amp; Major Roads</li> <li> Other Roads</li> </ul>	<ul style="list-style-type: none"> <li> SOEST Cable Routes</li> <li> HIREP Study Analysis Area</li> </ul>	<ul style="list-style-type: none"> <li> Area Summits (High Points)</li> <li> Major Contour Interval</li> <li> Minor Contour Interval - below 100 ft</li> </ul>	<p><b>Slope Percentages</b></p> <ul style="list-style-type: none"> <li> 0 - 5% Slope</li> <li> 5 - 10% Slope</li> <li> 10 - 15% Slope</li> <li> 15 - 20% Slope</li> <li> 20% Slope or Greater</li> </ul>	<ul style="list-style-type: none"> <li> Open Water</li> </ul>
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\* Symbol denotes shoreward extent of tow camera data for cable route (unless otherwise noted).  
 \*\* Symbol denotes shoreward approach of cable route without tow camera data.  
 \*\*\* Major contour intervals consist of the 0, 10, 50, 100 ft intervals and every 100 ft after. Minor contour intervals are 10 ft. intervals between Major Intervals.  
 Minor intervals above 100 ft in elevation have not been shown for readability purposes.

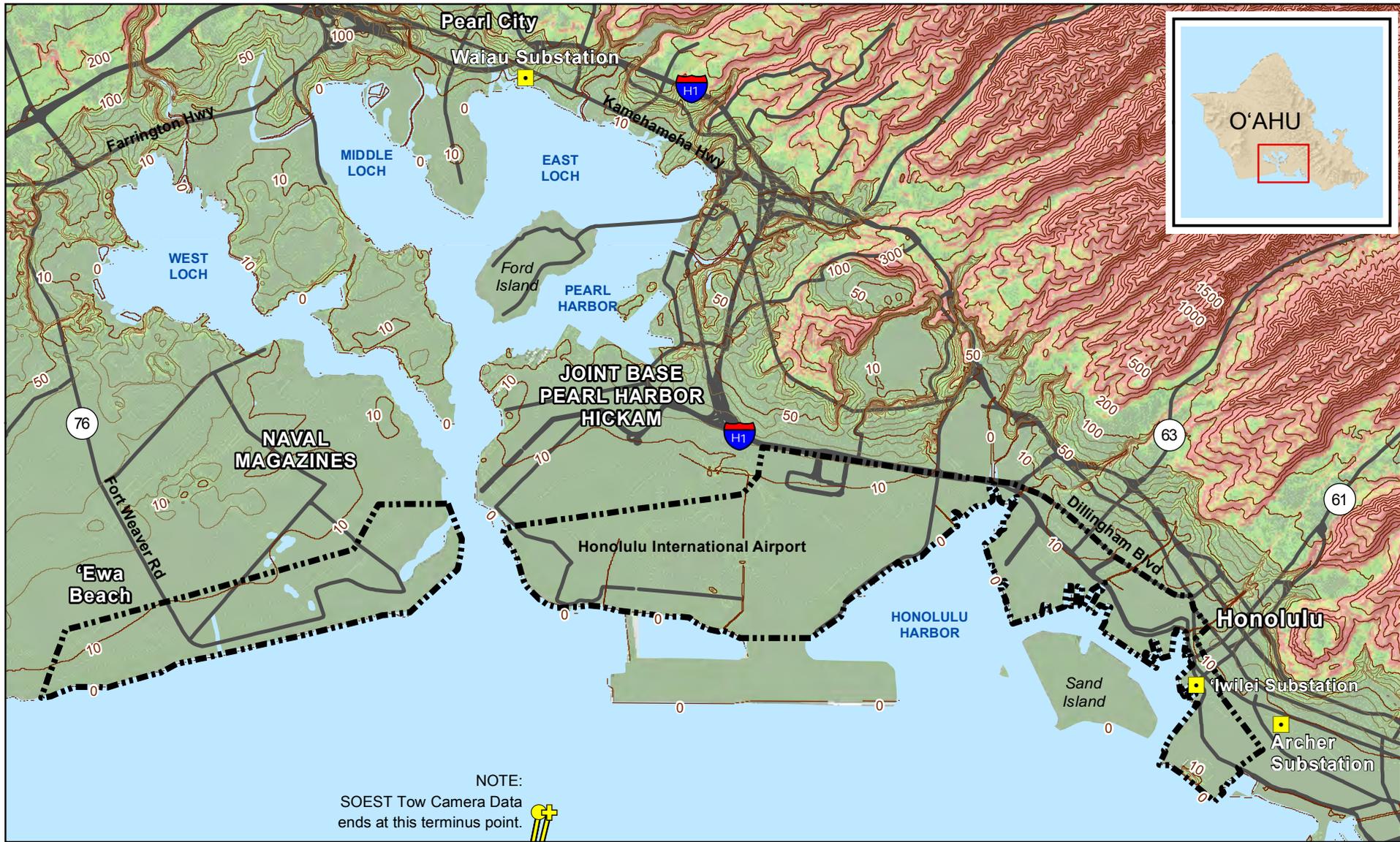
Date: 4/26/2012  
Data Sources: HI-DBEDT, USGS, CCH, UH-SOEST, AECOM, 2012

Figure 3.15-10

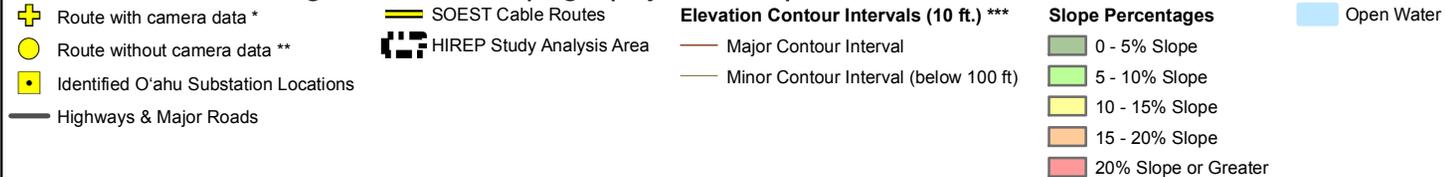


Source: Nishimura 2007a

**Figure 3.15-11. Looking toward Hase Beach (MCBH Kāneʻohe Bay) from Lanikai Beach**



### Pearl Harbor Landing Site Area: Topography and Slope



\* Symbol denotes shoreward extent of tow camera data for cable route (unless otherwise noted).

\*\* Symbol denotes shoreward approach of cable route without tow camera data.

\*\*\* Major contour intervals consist of the 0, 10, 50, 100 ft intervals and every 100 ft after. Minor contour intervals are 10 ft. intervals between Major Intervals. Minor intervals above 100 ft have not been shown for display purposes.



Figure 3.15-12



Source: Nishimura 2007b

**Figure 3.15-13. Looking toward the Pearl Harbor-Metropolitan Honolulu landing site area from Ewa Beach**

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