

# FLOOD INSURANCE STUDY

## FEDERAL EMERGENCY MANAGEMENT AGENCY

---

VOLUME 2 OF 4



## CITY AND COUNTY OF HONOLULU, HAWAII

COMMUNITY NAME

COMMUNITY  
NUMBER

CITY AND COUNTY OF  
HONOLULU

150001

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# FEMA

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# TABLE OF CONTENTS

## Volume 1

	<u>Page</u>
<b>SECTION 1.0 – INTRODUCTION</b>	<b>1</b>
1.1 The National Flood Insurance Program	1
1.2 Purpose of this Flood Insurance Study Report	2
1.3 Jurisdictions Included in the Flood Insurance Study Project	2
1.4 Considerations for using this Flood Insurance Study Report	5
<b>SECTION 2.0 – FLOODPLAIN MANAGEMENT APPLICATIONS</b>	<b>16</b>
2.1 Floodplain Boundaries	16
2.2 Floodways	30
2.3 Base Flood Elevations	31
2.4 Non-Encroachment Zones	31
2.5 Coastal Flood Hazard Areas	31
2.5.1 Water Elevations and the Effects of Waves	32
2.5.2 Floodplain Boundaries and BFEs for Coastal Areas	33
2.5.3 Coastal High Hazard Areas	34
2.5.4 Limit of Moderate Wave Action	35
<b>SECTION 3.0 – INSURANCE APPLICATIONS</b>	<b>35</b>
3.1 National Flood Insurance Program Insurance Zones	35
<b>SECTION 4.0 – AREA STUDIED</b>	<b>36</b>
4.1 Basin Description	36
4.2 Principal Flood Problems	36
4.3 Dams and Other Flood Hazard Reduction Measures	46
4.4 Levee Systems	47
<b>SECTION 5.0 – ENGINEERING METHODS</b>	<b>50</b>
5.1 Hydrologic Analyses	50
5.2 Hydraulic Analyses	77

### Figures

	<u>Page</u>
Figure 1: FIRM Index	8
Figure 2: FIRM Notes to Users	9
Figure 3: Map Legend for FIRM	12
Figure 4: Floodway Schematic	30
Figure 5: Wave Runup Transect Schematic	33
Figure 6: Coastal Transect Schematic	35
Figure 7: Frequency Discharge - Drainage Area Curves	56

# TABLE OF CONTENTS

## Volume 1 (*continued*)

<u>Tables</u>	<u>Page</u>
Table 1: Listing of NFIP Jurisdictions	3
Table 2: Flooding Sources Included in this FIS Report	17
Table 3: Flood Zone Designations by Community	36
Table 4: Basin Characteristics	36
Table 5: Principal Flood Problems	36
Table 6: Historic Flooding Elevations	46
Table 7: Dams and Other Flood Hazard Reduction Measures	47
Table 8: Levee Systems	49
Table 9: Summary of Discharges	51
Table 10: Summary of Non-Coastal Stillwater Elevations	77
Table 11: Stream Gage Information used to Determine Discharges	77
Table 12: Summary of Hydrologic and Hydraulic Analyses	79

## Volume 2

### **SECTION 5.0 – ENGINEERING METHODS (*continued*)**

5.3 Coastal Analyses	95
5.3.1 Total Stillwater Elevations	95
5.3.2 Waves	98
5.3.3 Coastal Erosion	98
5.3.4 Wave Hazard Analyses	98
5.4 Alluvial Fan Analyses	108

### **SECTION 6.0 – MAPPING METHODS**

6.1 Vertical and Horizontal Control	108
6.2 Base Map	109
6.3 Floodplain and Floodway Delineation	110

### Figures (*continued*)

	<u>Page</u>
Figure 8: 1% Annual Chance Total Stillwater Elevations for Coastal Areas	96
Figure 9: Transect Location Map	105

# TABLE OF CONTENTS

## Volume 2 *(continued)*

### Tables *(continued)*

	<u>Page</u>
Table 13: Roughness Coefficients	94
Table 14: Summary of Coastal Analyses	95
Table 15: Tide Gage Analysis Specifics	97
Table 16: Coastal Transect Parameters	100
Table 17: Summary of Alluvial Fan Analyses	108
Table 18: Results of Alluvial Fan Analyses	108
Table 19: Countywide Vertical Datum Conversion	108
Table 20: Stream-Based Vertical Datum Conversion	109
Table 21: Base Map Sources	109
Table 22: Summary of Topographic Elevation Data used in Mapping	111
Table 23: Floodway Data	114

## Volume 3

### **SECTION 6.0 – MAPPING METHODS**

6.4	Coastal Flood Hazard Mapping	197
6.5	FIRM Revisions	200
	6.5.1 Letters of Map Amendment	200
	6.5.2 Letters of Map Revision Based on Fill	201
	6.5.3 Letters of Map Revision	201
	6.5.4 Physical Map Revisions	202
	6.5.5 Contracted Restudies	202
	6.5.6 Community Map History	203

### **SECTION 7.0 – CONTRACTED STUDIES AND COMMUNITY COORDINATION** **204**

7.1	Contracted Studies	204
7.2	Community Meetings	210

### **SECTION 8.0 – ADDITIONAL INFORMATION** **212**

### **SECTION 9.0 – BIBLIOGRAPHY AND REFERENCES** **213**

### Tables *(continued)*

	<u>Page</u>
Table 23: Floodway Data <i>(continued)</i>	187
Table 24: Flood Hazard and Non-Encroachment Data for Selected Streams	197
Table 25: Summary of Coastal Transect Mapping Considerations	198
Table 26: Incorporated Letters of Map Change	202
Table 27: Community Map History	204

# TABLE OF CONTENTS

## Volume 3 (continued)

### Tables (continued)

	<u>Page</u>
Table 28: Summary of Contracted Studies Included in this FIS Report	204
Table 29: Community Meetings	211
Table 30: Map Repositories	212
Table 31: Additional Information	212
Table 32: Bibliography and References	214

### Exhibits

Flood Profiles	<u>Panel</u>	
Ahuimanu Stream	01	P
Aiea Stream	02	P
Ala Wai Canal	03	P
Anahulu River	04-05	P
East Makaha Stream	06	P
Fish Pond	07	P
Flow Along Cane Haul Road	08	P
Haiamoa Stream	09	P
Halawa Stream	10	P
Hanahimoa Stream	11	P
Heeia Stream	12-13	P
Helemano Stream	14	P
Honouliuli Stream	15-17	P
Hoolapa Stream	18	P
JCIP Drainage Canal	19	P
Kaaawa Stream	20-21	P
Kaalaea Stream	22-23	P
Kaelepulu Stream	24	P
Kahaluu Stream	25-26	P
Kahana Stream	27	P
Kahauiki Stream	28	P
Kaipapau Stream	29	P
Kalaeokahipa Stream	30	P
Kalauao Stream (Aiea Area)	31	P
Kalihi Stream	32-36	P
Kaloi Gulch	37	P
Kaluanui Stream	38	P
Kamanaiki Stream	39	P
Kapakahi Stream #1	40-43	P
Kapakahi Stream #2	44-46	P
Kaukonahua Stream	47-49	P

# TABLE OF CONTENTS

## Volume 3 (continued)

### Exhibits (continued)

Flood Profiles (continued)	<u>Panel</u>	
Kawa Stream	50-51	P
Kawainui Stream	52	P
Keaahala Stream	53-55	P
Keaaulu Gulch	56-57	P
Kiikii Stream	58	P
Ma'ili'ili Channel	59	P

## Volume 4

### Exhibits (continued)

Flood Profiles (continued)	<u>Panel</u>	
Maipalaoa Stream	60	P
Makaha Stream and West Makaha Stream	61-64	P
Makaleha Stream	65	P
Malaekahana Stream	66-67	P
Manaiki Stream	68	P
Manoa-Palolo Drainage Canal and Manoa Stream	69	P
Manoa Stream	70-76	P
Moanalua Stream (Lower)	77-79	P
Moanalua Stream (Upper)	80-82	P
Nanakuli Stream	83	P
North Halawa Stream	84	P
Ohia Stream	85	P
Ohia Stream (East)	86	P
Oneawa Channel	87-88	P
Opaeula Stream	89	P
Overflow of Waiawa Stream	90	P
Pahipahialua Stream	91	P
Panakauahi Gulch	92	P
Paukauila Stream	93	P
Paumalu Stream	94-95	P
Poamoho Stream	96	P
Punaluu Stream	97	P
Tributary to Kawa Stream	98	P
Ulehawa Stream	99-100	P

# TABLE OF CONTENTS

## Volume 4 (*continued*)

### Exhibits (*continued*)

Flood Profiles ( <i>continued</i> )	<u>Panel</u>
Unnamed Stream	101 P
Waiahole Stream	102 P
Waialae Major Drain	103-104 P
Waialae-Nui Stream	105-110 P
Waiawa Stream	111-113 P
Waihee Stream	114 P
Waihee Stream Tributary	115 P
Waikakalaua Stream	116-117 P
Waikane Stream	118-119 P
Waikele Stream	120-121 P
Wailani Drainage Canal	122-124 P
Wailele Stream	125-126 P
Wailele Stream Right Overbank	127 P
Waimalu Stream	128 P
Waimanalo Stream	129-131 P
Waimanalo Stream: Stream A	132-135 P
Waimanalo Stream: Stream B	136-137 P
Waimanalo Stream: Stream C	138-140 P
Waimanalo Stream: Stream D	141-143 P
Waimanalo Stream: Inoaole Stream	144-145 P
Waimea River	146 P
Waipilopilo Stream	147 P

### **Published Separately**

Flood Insurance Rate Map (FIRM)

**Table 13: Roughness Coefficients**

Flooding Source	Channel "n"	Overbank "n"
Ahuimanu Stream	0.015	0.040-0.150
Ala Wai Canal	0.035	0.050
Flow along Cane Haul Road	0.060	0.100
Halawa Stream	0.035	0.070-0.100
Hoaeae Stream	0.015	0.040-0.150
Inoaole Stream	0.033	0.040-0.150
JCIP Drainage Canal	0.035	0.065-0.080
Kahawainui Stream	0.035	0.040-0.150
Kalihi Stream	0.030-0.045	0.040-0.150
Kamooalii Stream	0.033	0.040-0.150
Kapalama Drainage Canal	0.035	0.040-0.150
Kaupuni Stream	0.012-0.035	0.040-0.150
Kawiwi Stream	0.012-0.035	0.040-0.150
Keaahala Stream	0.015-0.070	0.080
Kuiloulou Stream	0.015-0.033	0.040-0.150
Kului Stream	0.040	0.040-0.150
Ma ili ili Channel	0.013	0.070-0.080
Maipalaoa Stream	0.013	0.050-0.080
Manaiki Stream	0.013-0.040	0.080-0.150
Manoa Stream	0.020-0.035	0.040-0.060
Manoa-Paolo Drainage Canal	0.020-0.035	0.040-0.060
Moanalua Stream	0.013-0.026	0.080-0.150
Niu Stream	0.0150	0.040-0.150
Nuuanu Stream	0.015-0.050	0.080-0.150
Overflow of Waiawa Stream	0.700	0.700
Palolo Stream	0.022	0.020-0.100
Panaikauahi Gulch	0.050-0.070	0.030-0.100
Split flow of Waiawa Stream	0.100	0.100
Waialae-Nui Stream	0.015-0.060	0.045-0.100
Waialai-Ike Stream	0.015-0.040	0.020-0.150
Waiawa Stream	0.040-0.080	0.080-0.150
Waiawa Stream Overflow	0.700	0.700
Waiawa Stream Split Flow	0.100	0.100
Waikele Stream	0.030	0.025-0.150
Wailele Stream	0.045	0.050-0.070
Wailupe Stream	0.040	0.040-0.150
Waimalu Stream	0.015-0.045	0.040-0.150
Waimanolo Stream: Stream A	0.017	0.050-0.100

### 5.3 Coastal Analyses

For the areas of the City and County of Honolulu that are impacted by coastal flooding processes, coastal flood hazard analyses were performed to provide estimates of coastal BFEs. Coastal BFEs reflect the increase in water levels during a flood event due to extreme tides and storm surge as well as overland wave effects.

The following subsections provide summaries of how each coastal process was considered for this FIS Report. Greater detail (including assumptions, analysis, and results) is available in the archived project documentation. Table 14 summarizes the methods and/or models used for the coastal analyses. Refer to Section 2.5.1 for descriptions of the terms used in this section.

**Table 14: Summary of Coastal Analyses**

Flooding Source	Study Limits From	Study Limits To	Hazard Evaluated	Model or Method Used	Date Analysis was Completed
Pacific Ocean	Entire coastline of Honolulu County	Entire coastline of Honolulu County	Overland Wave Propagation	WHAFIS 4.0	2008
Pacific Ocean	Entire coastline of Honolulu County	Entire coastline of Honolulu County	Statistical Analyses	EST	2008
Pacific Ocean	Entire coastline of Honolulu County	Entire coastline of Honolulu County	Storm Surge	ADCIRC	2007
Pacific Ocean	Entire coastline of Honolulu County	Entire coastline of Honolulu County	Wave Runup	SPM	2008
Pacific Ocean	Entire coastline of Honolulu County	Entire coastline of Honolulu County	Wave Runup	TAW	2008
Pacific Ocean	Entire coastline of Honolulu County	Entire coastline of Honolulu County	Wave Setup	Direct Integration Method (DIM)	2008

#### 5.3.1 Total Stillwater Elevations

The total stillwater elevations (stillwater including storm surge plus wave setup) for the 1-percent-annual-chance flood were determined for areas subject to coastal flooding. The models and methods that were used to determine storm surge and wave setup are listed in Table 14. The stillwater elevation that was used for each transect in coastal analyses is shown in Table 16, "Coastal Transect Parameters." Figure 8 shows the total stillwater elevations for the 1-percent-annual-chance flood that was determined for this coastal analysis.

**Figure 8: 1% Annual Chance Total Stillwater Elevations for Coastal Areas**



#### Astronomical Tide

Astronomical tidal statistics were generated directly from local tidal constituents by sampling the predicted tide at random times throughout the tidal epoch.

#### Storm Surge Statistics

Storm surge is modeled based on characteristics of actual storms responsible for significant coastal flooding. The characteristics of these storms are typically determined by statistical study of the regional historical record of storms or by statistical study of tidal gages.

When historic records are used to calculate storm surge, characteristics such as the strength, size, track, etc., of storms are identified by site. Storm data was used in conjunction with numerical hydrodynamic models to determine the corresponding storm surge levels. An extreme value analysis was performed on the storm surge modeling results to determine a stillwater elevation for the 1-percent-annual-chance event.

Tidal gages can be used instead of historic records of storms when the available tidal gage record for the area represents both the astronomical tide component and the storm surge component. Table 15 provides the gage name, managing agency, gage type, gage identifier, start date, end date, and statistical methodology applied to each gage used to determine the stillwater elevations. For areas between gages, peak stillwater elevations for selected recurrence intervals were estimated by combining interpolation between gages and observed high water marks during major storms. A regionalized statistical approach was applied to the gage data so that stillwater elevations in areas between gages could be identified.

**Table 15: Tide Gage Analysis Specifics**

Gage Name	Managing Agency of Tide Gage Record	Gage Type	Start Date <sup>1</sup>	End Date <sup>1</sup>	Statistical Methodology
Hilo (1617760)	NOAA	Tide	*	*	EST
Honolulu (1612340)	NOAA	Tide	*	*	EST
Kawaihae (1617433)	NOAA	Tide	*	*	EST
Kahului (1615680)	NOAA	Tide	*	*	EST
Mikuoloae (1612480)	NOAA	Tide	*	*	EST
Nawiliwili (1611400)	NOAA	Tide	*	*	EST

\* Data not available

<sup>1</sup> Tsunami wave elevations were determined utilizing a length of record of 142 years (1837-1979)

#### Combined Riverine and Tidal Effects

A combined rate of occurrence analysis was conducted to compute a 1-percent-annual-chance BFE for areas subject to flooding by both coastal and riverine flooding mechanisms. Since riverine and coastal analyses were based on independent events, the resulting combined BFE would be higher than that of their individual occurrence. In other words, at the location where the computed 1-percent-annual-chance coastal flood level equals the computed 1-percent-annual-chance riverine flood level, there was a greater than 1-percent-annual-chance of this flood level being equaled or exceeded.

Riverine and surge rates for the lower reaches of the Inundation River were combined by developing curves for rate of occurrence vs. flood level for each flood source.

#### Wave Setup Analysis

Wave setup was computed during the storm surge modeling through the methods and models listed in Table 14 and included in the frequency analysis for the determination of the total stillwater elevations. The oscillating component of wave setup, *dynamic wave setup*, was calculated for areas subject to wave runup hazards.

### **5.3.2 Waves**

A coastal wave model was used to calculate the nearshore wave fields required for the addition of wave setup effects. Three nested grids were used to obtain sufficient nearshore resolution to represent the radiation stress gradients required as ADCIRC inputs. Radiation stress fields output from the inner grids are used by ADCIRC to estimate the contribution of breaking waves (wave setup effects) to the total stillwater elevation.

### **5.3.3 Coastal Erosion**

A single storm episode can cause extensive erosion in coastal areas. Storm-induced erosion was evaluated to determine the modification to existing topography that is expected to be associated with flooding events. Erosion was evaluated using the methods listed in Table 14. The post-event eroded profile was used for the subsequent transect-based onshore wave hazard analyses.

### **5.3.4 Wave Hazard Analyses**

Overland wave hazards were evaluated to determine the combined effects of ground elevation, vegetation, and physical features on overland wave propagation and wave runup. These analyses were performed at representative transects along all shorelines for which waves were expected to be present during the floods of the selected recurrence intervals. The results of these analyses were used to determine elevations for the 1-percent-annual-chance flood.

Transect locations were chosen with consideration given to the physical land characteristics as well as development type and density so that they would closely represent conditions in their locality. Additional consideration was given to changes in the total stillwater elevation. Transects were spaced close together in areas of complex topography and dense development or where total stillwater elevations varied. In areas having more uniform characteristics, transects were spaced at larger intervals. Transects shown in Figure 9, "Transect Location Map," are also depicted on the FIRM. Table 16 provides the location, stillwater elevations, and starting wave conditions for each transect evaluated for overland wave hazards. In this table, "starting" indicates the parameter value at the beginning of the transect.

#### **Wave Height Analysis**

Wave height analyses were performed to determine wave heights and corresponding wave crest elevations for the areas inundated by coastal flooding and subject to overland wave propagation hazards. Refer to Figure 6 for a schematic of a coastal transect evaluated for overland wave propagation hazards.

Wave heights and wave crest elevations were modeled using the methods and models listed in Table 14, "Summary of Coastal Analyses". For the 0.2-percent-annual-chance event, wave profiles were created to indicate the results of the wave height analysis at each transect. Such wave profiles may show greater detail than the mapping product, due to limitations of the map scale and smoothing tolerances applied during boundary cleanup. Wave runup analysis for the 0.2-percent-annual-chance event was not performed for this study and is not included in the profiles.

## Wave Runup Analysis

Wave runup analyses were performed to determine the height and extent of runup beyond the limit of stillwater inundation for the 1-percent-annual-chance flood. Wave runup elevations were modeled using the methods and models listed in Table 14.

**Table 16: Coastal Transect Parameters<sup>^</sup>**

Flood Source	Coastal Transect	Starting Wave Conditions for the 1-Percent-Annual-Chance		Starting Stillwater Elevations (ft LTD <sup>1</sup> ) Range of Stillwater Elevations (ft LTD <sup>1</sup> )				Zone Designation	1-Percent-Annual-Chance Elevation (ft LTD <sup>1</sup> )
		Significant Wave Height H <sub>s</sub> (ft)	Peak Wave Period T <sub>p</sub> (sec)	10-Percent-Annual-Chance	2-Percent-Annual-Chance	1-Percent-Annual-Chance	0.2-Percent-Annual-Chance		
Pacific Ocean	1	*	*	0.7	0.8	1.1	2.0	VE AE	9 <sup>3</sup> 9 <sup>3</sup>
Pacific Ocean	2	*	*	0.7 0.7 0.7	0.8 0.7 0.7	7.6 <sup>2</sup> 5.7 <sup>2</sup> 2.1 <sup>2</sup> 0.7	2.1 1.4 0.9 0.9	VE AE AE AE	10-12 8-10 6-7 2-5 1
Pacific Ocean	3	*	*	0.7 0.7	1.0 1.0	8.0 <sup>2</sup> 5.6 <sup>2</sup>	3.4 3.4	VE AE AE	10-12 8-10 6-7
Pacific Ocean	4	*	*	0.7 0.7	0.9 0.9	8.0 <sup>2</sup> 6.7 <sup>2</sup>	2.8 2.8	VE AE AE	10-12 8-10 7
Pacific Ocean	5	*	*	0.7 0.7	0.9 0.9	7.8 <sup>2</sup> 6.8 <sup>2</sup>	2.6 2.6	VE AE AE	10-12 8-10 7
Pacific Ocean	6	*	*	0.7	0.9	8.0 <sup>2</sup>	2.8	VE AE	10-12 8-10
Pacific Ocean	7	*	*	0.7 0.7	0.9 0.9	7.9 <sup>2</sup> 5.7 <sup>2</sup>	2.7 2.7	VE AE AE	10-12 8-10 6-7
Pacific Ocean	8	*	*	0.7	0.8	7.9 <sup>2</sup>	2.0	VE AE	10-12 8-10

**Table 16: Coastal Transect Parameters<sup>^</sup> (continued)**

Flood Source	Coastal Transect	Starting Wave Conditions for the 1-Percent-Annual-Chance		Starting Stillwater Elevations (ft LTD <sup>1</sup> ) Range of Stillwater Elevations (ft LTD <sup>1</sup> )				Zone Designation	1-Percent-Annual-Chance Elevation (ft LTD <sup>1</sup> )
		Significant Wave Height H <sub>s</sub> (ft)	Peak Wave Period T <sub>p</sub> (sec)	10-Percent-Annual-Chance	2-Percent-Annual-Chance	1-Percent-Annual-Chance	0.2-Percent-Annual-Chance		
Pacific Ocean	9	*	*	0.7	0.9	7.0 <sup>2</sup>	2.3	VE AE	9-11 7-9
Pacific Ocean	10	*	*	0.7	0.8	7.6 <sup>2</sup>	2.3	VE AE AE	10-12 8-10 5-7
Pacific Ocean	11	*	*	0.7	0.9	8.1 <sup>2</sup>	2.4	VE AE AE	10-12 8-10 5-7
Pacific Ocean	12	*	*	0.7	0.9	1.1	2.2	VE AE	12 <sup>3</sup> 12 <sup>3</sup>
Pacific Ocean	13	*	*	0.7	0.8	7.6 <sup>2</sup>	2.3	VE AE AE	10-12 8-10 4-5
Pacific Ocean	14	*	*	0.7	0.9	7.8 <sup>2</sup>	2.6	VE AE AE	11-13 8-11 4-7
Pacific Ocean	15	*	*	0.7	0.9	7.8 <sup>2</sup>	2.6	VE AE	11-13 8-11
Pacific Ocean	16	*	*	0.7	0.9	7.8 <sup>2</sup>	2.5	VE AE	10-12 8-10
Pacific Ocean	17	*	*	0.7	0.9	4.5 <sup>2</sup>	2.8	VE AE AE	7 6-7 5 <sup>3</sup>
Pacific Ocean	18	*	*	0.7	1.0	1.7	4.1	VE AE	6 <sup>3</sup> 6 <sup>3</sup>

**Table 16: Coastal Transect Parameters<sup>^</sup> (continued)**

Flood Source	Coastal Transect	Starting Wave Conditions for the 1-Percent-Annual-Chance		Starting Stillwater Elevations (ft LTD <sup>1</sup> ) Range of Stillwater Elevations (ft LTD <sup>1</sup> )				Zone Designation	1-Percent-Annual-Chance Elevation (ft LTD <sup>1</sup> )
		Significant Wave Height H <sub>s</sub> (ft)	Peak Wave Period T <sub>p</sub> (sec)	10-Percent-Annual-Chance	2-Percent-Annual-Chance	1-Percent-Annual-Chance	0.2-Percent-Annual-Chance		
Pacific Ocean	19	*	*	0.7	0.9	4.5 <sup>2</sup>	2.8	VE AE AO	6 <sup>3</sup> 6 <sup>3</sup> Depth 1
Pacific Ocean	20	*	*	0.7	1.1	1.8 <sup>2</sup>	4.6	VE AE	3 2-3
Pacific Ocean	21	*	*	0.7	1.2	2.1	5.0	VE AE	4 <sup>3</sup> 4 <sup>3</sup>
Pacific Ocean	22	*	*	0.7	1.4	2.4 <sup>2</sup>	5.4	VE AE	4 2-4
Pacific Ocean	23	*	*	0.7	1.2	2.0 <sup>2</sup>	4.6	VE AE AE	3 3 2 <sup>3</sup>
Pacific Ocean	24	*	*	0.7 0.7	1.0 1.0	4.7 <sup>2</sup> 1.4	3.0 3.0	VE AE AE	7 7 <sup>3</sup> 1
Pacific Ocean	25	*	*	0.7 0.7	0.9 0.9	4.4 <sup>2</sup> 1.2	2.6 2.6	VE AE AE	7 6-7 5 <sup>3</sup>
Pacific Ocean	26	*	*	0.7	0.9	5.8 <sup>2</sup>	2.4	VE AE	8-9 6-8
Pacific Ocean	27	*	*	0.7	0.9	6.1 <sup>2</sup>	2.4	VE AE	8-9 6-8
Pacific Ocean	28	*	*	0.7	0.8	5.0 <sup>2</sup>	1.9	VE AE	7-8 5-7
Pacific Ocean	29	*	*	0.7	0.8	1.1	2.0	VE AE	9 <sup>3</sup> 9 <sup>3</sup>

**Table 16: Coastal Transect Parameters<sup>^</sup> (continued)**

Flood Source	Coastal Transect	Starting Wave Conditions for the 1-Percent-Annual-Chance		Starting Stillwater Elevations (ft LTD <sup>1</sup> ) Range of Stillwater Elevations (ft LTD <sup>1</sup> )				Zone Designation	1-Percent-Annual-Chance Elevation (ft LTD <sup>1</sup> )
		Significant Wave Height H <sub>s</sub> (ft)	Peak Wave Period T <sub>p</sub> (sec)	10-Percent-Annual-Chance	2-Percent-Annual-Chance	1-Percent-Annual-Chance	0.2-Percent-Annual-Chance		
Pacific Ocean	30	*	*	0.7	0.9	1.1	2.0	VE AE	9 <sup>3</sup> 9 <sup>3</sup>
Pacific Ocean	31	*	*	0.7	0.8	5.3 <sup>2</sup>	2.0	VE AE	7-8 5-7
Pacific Ocean	32	*	*	0.7 0.7	0.9 0.9	5.4 <sup>2</sup> 1.1	2.0 2.0	VE VE AE	8 7 <sup>3</sup> 7 <sup>3</sup>
Pacific Ocean	33	*	*	0.7	0.8	1.1	1.9	VE AE	11 <sup>3</sup> 11 <sup>3</sup>
Pacific Ocean	34	*	*	0.7	0.8	1.1	2.0	VE AE	14 <sup>3</sup> 14 <sup>3</sup>
Pacific Ocean	35	*	*	0.7	0.8	5.3 <sup>2</sup>	2.1	VE AE	7-8 5-7
Pacific Ocean	36	*	*	0.7 0.7	0.9 0.9	5.3 <sup>2</sup> 1.2	2.2 2.2	VE AE AE	7-8 5-7 1
Pacific Ocean	37	*	*	0.7	0.8	1.1	2.1	VE AE	9 <sup>3</sup> 9 <sup>3</sup>
Pacific Ocean	38	*	*	0.7	0.8	1.1	2.0	VE AE	17 <sup>3</sup> 17 <sup>3</sup>
Pacific Ocean	39	*	*	0.7 0.7	0.8 0.8	5.7 <sup>2</sup> 1.0	1.9 1.9	VE VE AE	9 8 <sup>3</sup> 8 <sup>3</sup>
Pacific Ocean	40	*	*	0.7	0.8	4.4 <sup>2</sup>	2.0	VE AE	7 4-7

**Table 16: Coastal Transect Parameters<sup>^</sup> (continued)**

Flood Source	Coastal Transect	Starting Wave Conditions for the 1-Percent-Annual-Chance		Starting Stillwater Elevations (ft LTD <sup>1</sup> ) Range of Stillwater Elevations (ft LTD <sup>1</sup> )				Zone Designation	1-Percent-Annual-Chance Elevation (ft LTD <sup>1</sup> )
		Significant Wave Height H <sub>s</sub> (ft)	Peak Wave Period T <sub>p</sub> (sec)	10-Percent-Annual-Chance	2-Percent-Annual-Chance	1-Percent-Annual-Chance	0.2-Percent-Annual-Chance		
Pacific Ocean	41	*	*	0.7	0.8	1.1	2.0	VE AE	11 <sup>3</sup> 11 <sup>3</sup>
Pacific Ocean	42	*	*	0.7	0.8	1.1	2.0	VE AE	13 <sup>3</sup> 13 <sup>3</sup>
Pacific Ocean	43	*	*	0.7 0.7	0.8 0.8	5.3 <sup>2</sup> 1.1	2.0 2.0	VE AE	8 8 <sup>3</sup>
Pacific Ocean	44	*	*	0.7	0.8	1.1	2.0	VE AE	11 <sup>3</sup> 11 <sup>3</sup>

<sup>^</sup>All elevations reflect the hurricane surge hazard only. Tsunami hazards may dominate in certain areas.

\*Not calculated for this Flood Risk Project

<sup>1</sup>Local Tidal Datum

<sup>2</sup>Includes wave setup

<sup>3</sup>Wave runup elevation

Figure 9: Transect Location Maps

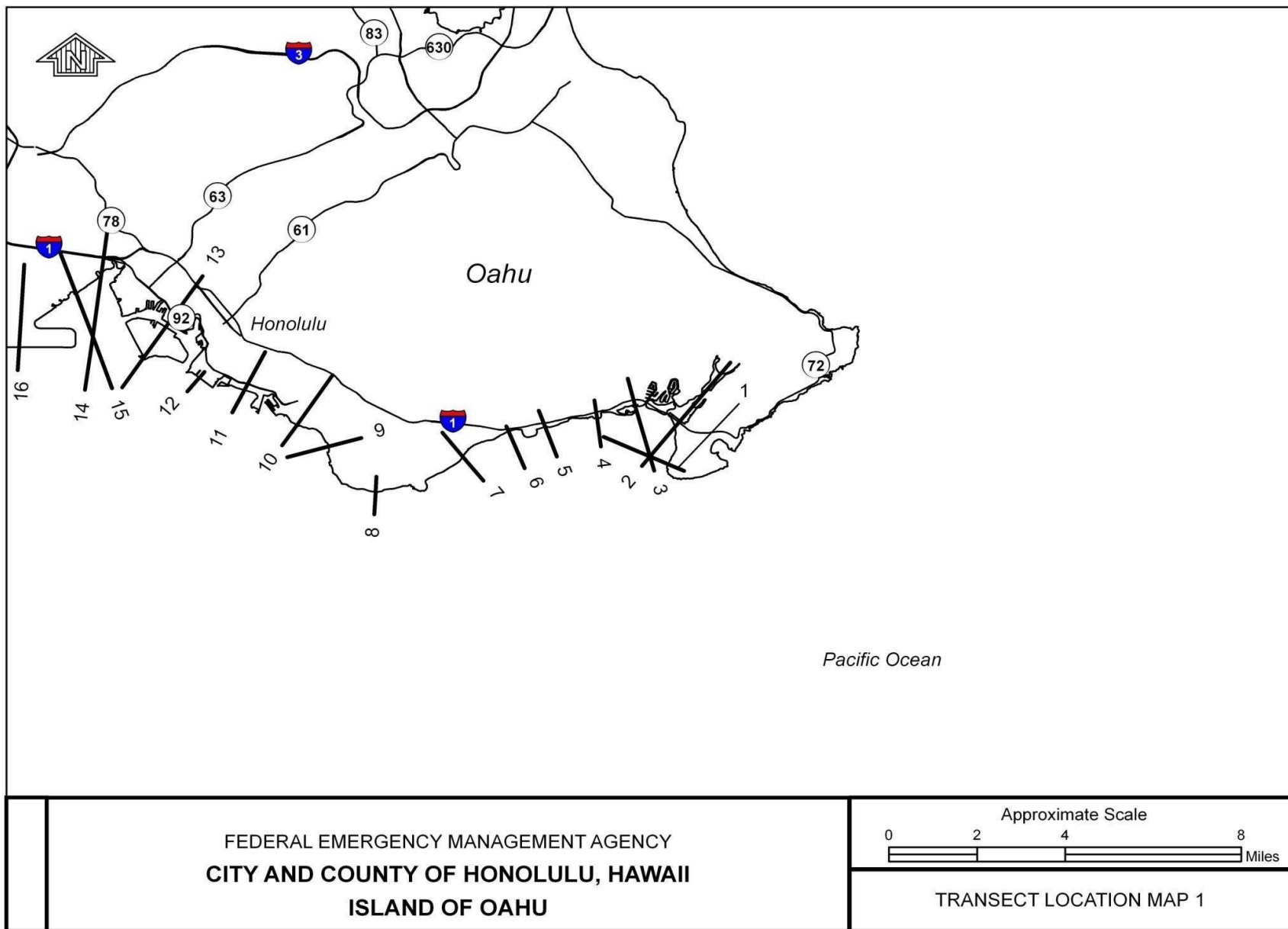


Figure 9: Transect Location Maps (continued)

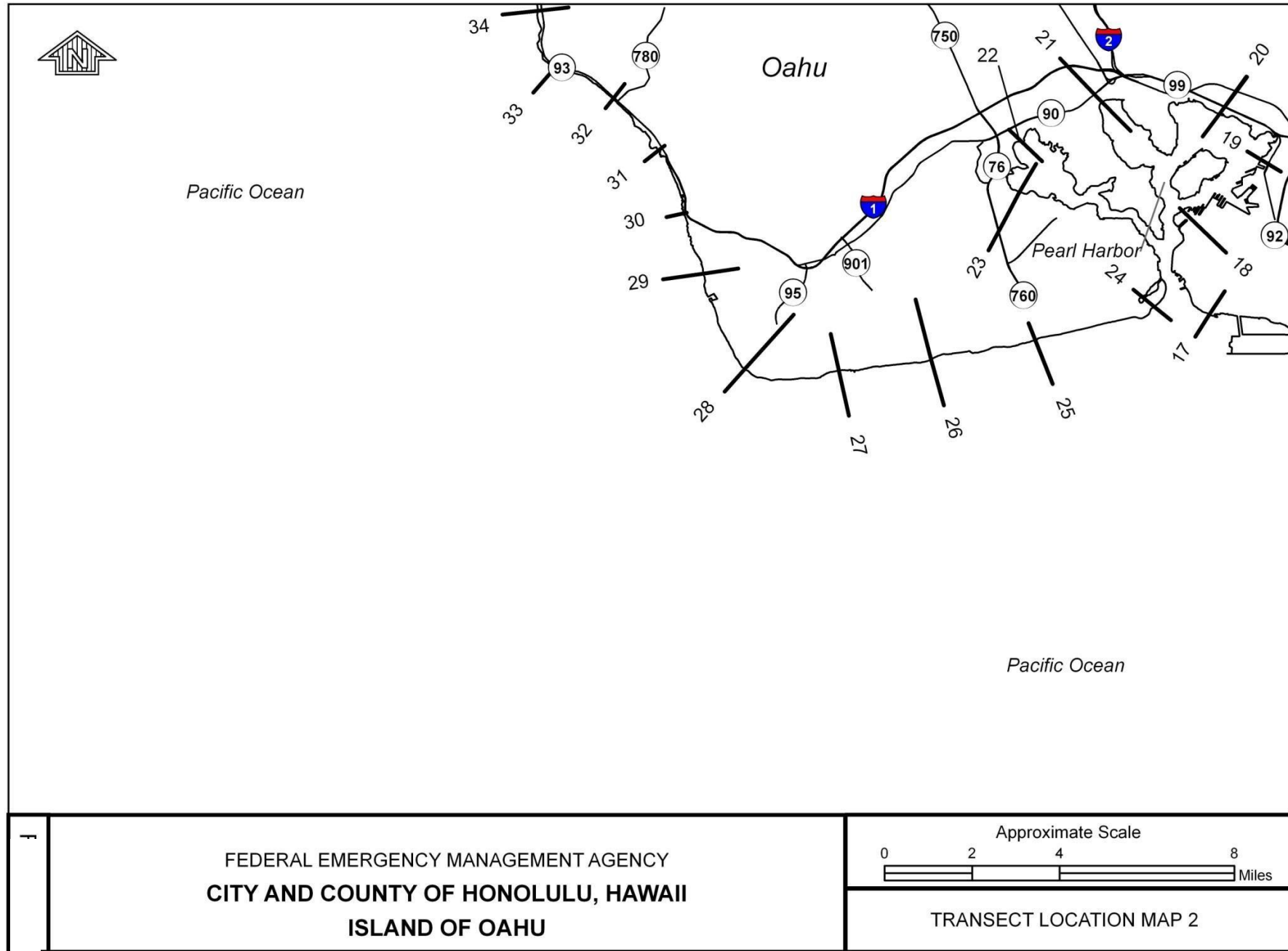
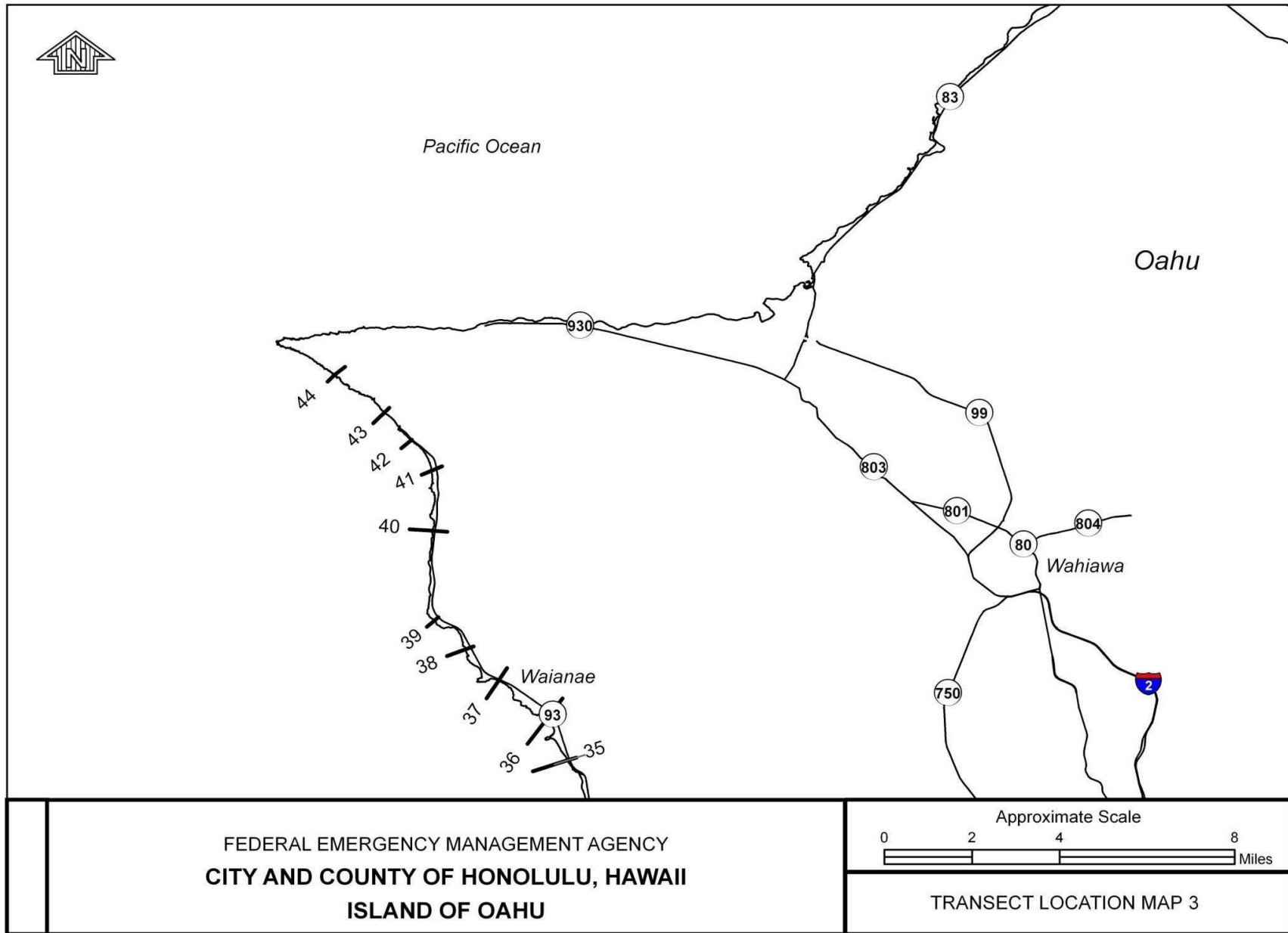


Figure 9: Transect Location Maps (continued)



## 5.4 Alluvial Fan Analyses

This section is not applicable to this Flood Risk Project.

### **Table 17: Summary of Alluvial Fan Analyses**

**[Not applicable to this Flood Risk Project]**

### **Table 18: Results of Alluvial Fan Analyses**

**[Not applicable to this Flood Risk Project]**

## SECTION 6.0 – MAPPING METHODS

### 6.1 Vertical and Horizontal Control

All FIS Reports and FIRMs are referenced to a specific vertical datum. The vertical datum provides a starting point against which flood, ground, and structure elevations can be referenced and compared. Until recently, the standard vertical datum used for newly created or revised FIS Reports and FIRMs was the National Geodetic Vertical Datum of 1929 (NGVD29). With the completion of the North American Vertical Datum of 1988 (NAVD88), many FIS Reports and FIRMs are now prepared using NAVD88 as the referenced vertical datum.

Flood elevations shown in this FIS Report and on the FIRMs are referenced to Local Tidal Datum. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between Local Tidal Datum and NAVD88 or other datum conversion, visit the National Geodetic Survey website at [www.ngs.noaa.gov](http://www.ngs.noaa.gov).

Temporary vertical monuments are often established during the preparation of a flood hazard analysis for the purpose of establishing local vertical control. Although these monuments are not shown on the FIRM, they may be found in the archived project documentation associated with the FIS Report and the FIRMs for this community. Interested individuals may contact FEMA to access these data.

To obtain current elevation, description, and/or location information for benchmarks in the area, please visit the NGS website at [www.ngs.noaa.gov](http://www.ngs.noaa.gov).

The datum conversion locations and values that were calculated for the City and County of Honolulu are provided in Table 19.

### **Table 19: Countywide Vertical Datum Conversion**

**[Not applicable to this Flood Risk Project]**

**Table 20: Stream-Based Vertical Datum Conversion**  
**[Not applicable to this Flood Risk Project]**

**6.2 Base Map**

The FIRMs and FIS Report for this project have been produced in a digital format. The flood hazard information was converted to a Geographic Information System (GIS) format that meets FEMA’s FIRM Database specifications and geographic information standards. This information is provided in a digital format so that it can be incorporated into a local GIS and be accessed more easily by the community. The FIRM Database includes most of the tabular information contained in the FIS Report in such a way that the data can be associated with pertinent spatial features. For example, the information contained in the Floodway Data table and Flood Profiles can be linked to the cross sections that are shown on the FIRMs. Additional information about the FIRM Database and its contents can be found in FEMA’s *Guidelines and Standards for Flood Risk Analysis and Mapping*, [www.fema.gov/flood-maps/guidance-partners/guidelines-standards](http://www.fema.gov/flood-maps/guidance-partners/guidelines-standards).

Base map information shown on the FIRM was derived from the sources described in Table 21.

**Table 21: Base Map Sources**

Data Type	Data Provider	Data Date	Data Scale	Data Description
7.5-Minute Series Topographic Quadrangle Maps	United States Geological Survey	2019	1:24,000	Spatial and attribute information for terrain task
Effective Honolulu Features	Federal Emergency Management Agency	2009	1:6,000	Effective Honolulu Features
Roads - Honolulu County	Honolulu Land Information System (HOLIS)	2023	1:12,000	Spatial and attribute information for transportation features
USGS HUC8s	United States Geological Survey	2024	1:6,000	Spatial and attribute information for HUC8s

### 6.3 Floodplain and Floodway Delineation

The FIRM shows tints, screens, and symbols to indicate floodplains and floodways as well as the locations of selected cross sections used in the hydraulic analyses and floodway computations.

For riverine flooding sources, the mapped floodplain boundaries shown on the FIRM have been delineated using the flood elevations determined at each cross section; between cross sections, the boundaries were interpolated using the topographic elevation data described in Table 22. For each coastal flooding source studied as part of this FIS Report, the mapped floodplain boundaries on the FIRM have been delineated using the flood and wave elevations determined at each transect; between transects, boundaries were delineated using land use and land cover data, the topographic elevation data described in Table 22, and knowledge of coastal flood processes. In ponding areas, flood elevations were determined at each junction of the model; between junctions, boundaries were interpolated using the topographic elevation data described in Table 22.

In cases where the 1-percent and 0.2-percent-annual-chance floodplain boundaries are close together, only the 1-percent-annual-chance floodplain boundary has been shown. Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data.

The floodway widths presented in this FIS Report and on the FIRM were computed for certain stream segments on the basis of equal conveyance reduction from each side of the floodplain. Floodway widths were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. Table 2 indicates the flooding sources for which floodways have been determined. The results of the floodway computations for those flooding sources have been tabulated for selected cross sections and are shown in Table 23, "Floodway Data."

Certain flooding sources may have been studied that do not have published BFEs on the FIRMs, or for which there is a need to report the 1-percent-annual-chance flood elevations at selected cross sections because a published Flood Profile does not exist in this FIS Report. These streams may have also been studied using methods to determine non-encroachment zones rather than floodways. For these flooding sources, the 1-percent-annual-chance floodplain boundaries have been delineated using the flood elevations determined at each cross section; between cross sections, the boundaries were interpolated using the topographic elevation data described in Table 22. The 1-percent-annual-chance elevations for selected cross sections along these flooding sources, along with their non-encroachment widths, if calculated, are shown in Table 24, "Flood Hazard and Non-Encroachment Data for Selected Streams."

**Table 22: Summary of Topographic Elevation Data used in Mapping**

Community	Flooding Source	Source for Topographic Elevation Data			
		Description	Vertical Accuracy	Horizontal Accuracy	Citation
Honolulu, City and County of	Ahuimanu Stream, Ahuimanu Stream Tributary, Hoaeae Stream, Ihiihi Stream, Inoaole Stream, Inoaole Stream Tributary, Kahawainui Stream, Kalihi Stream, Kamooalii Stream, Kapalama Drainage Canal, Kapalama Drainage Canal Tributary, Kaupuni Stream, Kawiwi Stream, Kuliouou Stream, Kului Stream, Niu Stream, Niu Stream Tributary, Nuuanu Stream, Palolo Stream, Waialae-Ike Stream, Waikele Stream, Wailupe Stream, Waimalu Stream, and Waolani Stream	Light Detection and Ranging data (LiDAR)	10.1 cm RMSEz	1 meter at 95% confidence level	NOAA-USGS 2013
Honolulu, City and County of	Ahuimanu, Aiea, Haiamoa, Honouliuli, Kaalaea, Kahaluu, Kalihi, Kalauao, Kawainui, Makaleha, Malaekahana, Unnamed, Waihee, and Waikele Streams	Topographic Maps	*	*	RMTC 1984
Honolulu, City and County of	Ala Wai Canal, Makiki Stream, Manoa Stream, Manoa-Palolo Drainage Canal, and Palolo Stream	Topographic Maps	*	*	RMTC 1970
Honolulu, City and County of	Anahulu River, and Helemano, Kaukonahua, Kiiikii, Opaepala, Paukauila, and Poamoho Streams	Topographic Maps	*	*	HUD 1971; USACE 1970
Honolulu, City and County of	Haiawa Stream	Topographic Maps	*	*	RMTC 1984(a)
Honolulu, City and County of	Hanahimoo, Kaipapau, Kaluanui, Punaluu, and Waipilopilo Streams	Topographic Maps	*	*	USDA 1973
Honolulu, City and County of	Heeia Stream	Topographic Maps	*	*	USDA 1973(a)

**Table 22: Summary of Topographic Elevation Data used in Mapping (continued)**

Community	Flooding Source	Source for Topographic Elevation Data			
		Description	Vertical Accuracy	Horizontal Accuracy	Citation
Honolulu, City and County of	Hoolapa, Kalaeokahipa, Ohia, and Ohia East Streams	Topographic Maps	*	*	USACE 1971
Honolulu, City and County of	Kaaawa Stream	Topographic Maps	*	*	USACE 1969
Honolulu, City and County of	Kaelepulu Stream	Topographic Maps	*	*	HUD 1971(a)
Honolulu, City and County of	Kahana Stream	Topographic Maps	*	*	USACE 1973
Honolulu, City and County of	Kalihi, Kamanaiki, Kahauiki, Moanalua (Lower), and Moanalua (Upper) Streams	Topographic Maps	*	*	USACE 1972(a)
Honolulu, City and County of	Kalihi and Kamanaiki Streams	Topographic Maps	*	*	RMTC 1974
Honolulu, City and County of	Kaloi Gulch	Topographic Maps	*	*	RMTC 1986(b)
Honolulu, City and County of	Kapakahi Stream #1 and Waialae Major Drain	Topographic Maps	*	*	USACE 1972(a)
Honolulu, City and County of	Kawa Stream and Tributary to Kawa Stream	Topographic Maps	*	*	HUD 1971(b); USACE 1970(a)
Honolulu, City and County of	Makaha Stream and West Makaha Stream	Topographic Maps	*	*	RMTC 1991
Honolulu, City and County of	Manaiki Stream, Moanalua Stream, Overflow of Waiawa Stream, Panakauahi Gulch, and Waiawa Stream	Topographic Maps	*	*	RMTC 1993
Honolulu, City and County of	Nanakuli and Ulehawa Streams	Topographic Maps	*	*	RMTC 1986(a)
Honolulu, City and County of	Pahipahialua and Paumalu Streams	Topographic Maps	*	*	USACE 1968

**Table 22: Summary of Topographic Elevation Data used in Mapping (continued)**

Community	Flooding Source	Source for Topographic Elevation Data			
		Description	Vertical Accuracy	Horizontal Accuracy	Citation
Honolulu, City and County of	Waikakalaua Stream	Topographic Maps	*	*	RMTC 1986(c)
Honolulu, City and County of	Waikane and Waiahole Streams	Topographic Maps	*	*	USDA 1973(b)
Honolulu, City and County of	Wailele Stream Left Overbank and Right Overbank	Topographic Maps	*	*	RMTC 1986
Honolulu, City and County of	Waimanalo Stream, Waimanalo Stream: Inoaole Stream, Waimanalo Stream B, Waimanalo Stream C, Waimanalo Stream D	Topographic Maps	*	*	HUD 1971(c)

\* Data not available

BFEs shown at cross sections on the FIRM represent the 1-percent-annual-chance water surface elevations shown on the Flood Profiles and in the Floodway Data tables in the FIS Report. Rounded whole-foot elevations may be shown on the FIRM in coastal areas, areas of ponding, and other areas with static base flood elevations.

**Table 23: Floodway Data**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE <sup>3</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A <sup>2</sup>	310	855 <sup>1</sup>	6,919 <sup>1</sup>	4.6 <sup>1</sup>	10.0	10.0	10.3	0.3
B <sup>2</sup>	1,985	347 <sup>1</sup>	1,868 <sup>1</sup>	5.8 <sup>1</sup>	15.0	15.0	15.4	0.4
C <sup>2</sup>	3,268	233 <sup>1</sup>	886 <sup>1</sup>	5.2 <sup>1</sup>	20.0	20.0	20.0	0.0
D <sup>2</sup>	4,068	181 <sup>1</sup>	958 <sup>1</sup>	8.7 <sup>1</sup>	24.0	24.0	24.1	0.1
E <sup>2</sup>	4,943	209 <sup>1</sup>	1,882 <sup>1</sup>	7.6 <sup>1</sup>	33.0	33.0	33.4	0.4
F <sup>2</sup>	6,303	62 <sup>1</sup>	367 <sup>1</sup>	15.9 <sup>1</sup>	41.0	41.0	41.0	0.0
G	7,106	32	209	34.9	51.2	51.2	51.2	0.0
H	7,689	52	279	26.2	67.1	67.1	67.1	0.0

<sup>1</sup> Values reported are based on averages calculated across evaluation lines. Refer to model result grids for modeled variability in elevation and surcharge across the floodway.  
<sup>2</sup> Floodway computed by 2-D or hybrid 1-D 2-D model at this location  
<sup>3</sup> Feet above confluence with Kaneohe Bay

<b>TABLE 23</b>	<b>FEDERAL EMERGENCY MANAGEMENT AGENCY CITY AND COUNTY OF HONOLULU, HAWAII</b>	<b>FLOODWAY DATA</b>
		<b>FLOODING SOURCE: AHUIMANU STREAM</b>

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY <sup>1</sup>			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION <sup>2</sup> (LOCAL TIDAL DATUM)			
CROSS SECTION <sup>2</sup>	DISTANCE <sup>3</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	568	32	214	11.0	40.0	40.0	40.2	0.2
B	1,077	27	203	10.8	47.0	47.0	47.3	0.3
C	1,398	22	59	11.2	55.0	55.0	55.2	0.2
D	1,773	39	295	9.0	60.0	60.0	60.2	0.2
E	1,956	49	313	14.9	63.0	63.0	63.1	0.1
F	2,266	30	129	18.9	72.0	72.0	72.0	0.0
G	2,416	31	152	16.3	78.0	78.0	78.1	0.1
H	2,546	32	168	13.8	83.0	83.0	83.2	0.2
I	2,716	31	139	17.2	88.0	88.0	88.1	0.1
J	2,930	31	157	19.0	95.0	95.0	95.2	0.2
K	3,121	28	134	17.2	101.0	101.0	101.3	0.3

<sup>1</sup> Values reported are based on averages calculated across evaluation lines. Refer to model result grids for modeled variability and surcharge across the floodway.

<sup>2</sup> Floodway computed by 2-D or hybrid 1-D 2-D model at this location

<sup>3</sup> Feet above confluence with Ahuimanu Stream

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: AHUIMANU STREAM TRIBUTARY**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	0	24	324	8.2	29.5	29.5	29.5	0.0
B	382	33	190	13.8	35.6	35.6	35.6	0.0
C	687	31	184	14.1	43.5	43.5	43.5	0.0
D	1,192	31	444	5.7	64.7	64.7	64.7	0.0
E	1,302	27	170	14.9	66.8	66.8	66.8	0.0
F	1,517	43	211	11.9	76.5	76.5	76.5	0.0
G	1,932	40	194	12.7	91.3	91.3	91.3	0.0
H	2,352	93	486	5.0	109.8	109.8	109.8	0.0
I	2,678	209	710	3.4	121.3	121.3	122.3	1.0
J	3,048	42	193	12.1	130.6	130.6	130.6	0.0
K	3,893	139	334	6.7	160.1	160.1	160.4	0.3
L	4,393	43	184	11.9	173.4	173.4	173.4	0.0

<sup>1</sup> Feet above Moanalua Road

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: AIEA STREAM**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	6,700	265	6,797	0.6	5.8	5.8	5.8	0.0
B	7,200	265	6,322	0.5	5.8	5.8	5.8	0.0
C	7,700	265	4,088	0.7	5.8	5.8	5.8	0.0
D	8,200	265	4,261	0.7	5.8	5.8	5.8	0.0
E	8,670	225	5,247	0.8	5.8	5.8	5.8	0.0
F	9,170	190	4,002	0.9	5.8	5.8	5.8	0.0
G	9,350	225	2,321	1.2	5.8	5.8	5.8	0.0

<sup>1</sup> Feet above mouth

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: ALA WAI CANAL**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	2,400	522	5,223	3.3	12.2	12.2	13.2	1.0
B	3,160	251	2,587	6.6	12.7	12.7	13.7	1.0
C	4,200	230	2,626	6.5	15.6	15.6	16.6	1.0
D	4,800	287	3,654	4.7	20.9	20.9	21.9	1.0
E	5,200	334	3,294	5.2	21.5	21.5	22.5	1.0

<sup>1</sup> Feet above mouth

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: ANAHULU RIVER**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Eku Stream								
A	800	462	958	4.4	16.0	16.0	16.8	0.8
B	1,500	327	958	4.4	24.7	24.7	24.7	0.0
C	1,900	355	1,083	3.9	28.5	28.5	28.5	0.0
D	2,600	152	646	6.5	38.5	38.5	38.5	0.0
E	3,300	203	750	5.6	53.4	53.4	53.4	0.0
F	4,300	80	476	8.8	80.2	80.2	80.2	0.0

<sup>1</sup> Feet above confluence with Pacific Ocean

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: EKU STREAM**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	100	1,413	3,271	1.0	4.1	4.1	4.3	0.2
B	439	1,108	3,013	1.0	5.7	5.7	6.7	1.0
C	1,150	803	1,641	1.5	6.8	6.8	7.4	0.6
D	1,855	235	796	2.4	10.9	10.9	11.5	0.6
E	2,280	70	*	*	17.4	17.4	17.4	0.0

<sup>1</sup> Feet above confluence with Kaneohe Bay

\* Data not available

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: HAIAMOA STREAM**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	1,050	121	696	9.9	18.8	18.8	19.4	0.6
B	1,600	107	881	7.8	31.1	31.1	32.0	0.9

<sup>1</sup> Feet above mouth

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: HANAHIMOA STREAM**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY			1% ANNUAL CHANGE FLOOD WATER SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	150	764	3,119	3.0	4.2	4.2	5.2	1.0
B	550	611	2,719	3.5	5.4	5.4	6.1	0.7
C	1,290	973	5,476	1.7	6.3	6.3	7.2	0.9
D	1,950	719	1,834	5.2	7.0	7.0	7.8	0.8
E	2,700	1,834	6,693	1.3	8.3	8.3	9.3	1.0
F	3,530	2,156	3,166	2.7	9.0	9.0	10.0	1.0
G	3,900	1,357	2,706	3.1	10.7	10.7	11.7	1.0
H	4,850	984	1,718	4.9	15.1	15.1	16.1	1.0
I	5,650	670	1,773	4.3	22.5	22.5	23.5	1.0
J	6,510	584	2,038	3.7	31.9	31.9	32.7	0.8
K	7,030	202	713	9.5	36.5	36.5	37.1	0.6
L	7,950	137	486	14.0	51.7	51.7	51.7	0.0
M	8,450	86	406	16.7	61.8	61.8	61.8	0.0
N	9,400	101	363	18.7	73.8	73.8	73.8	0.0

<sup>1</sup> Feet above mouth

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: HEEIA STREAM**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	7,430	323 <sup>2</sup>	4,022	4.7	14.6	14.6	15.5	0.9
B	8,350	575	5,934	2.7	15.1	15.1	16.1	1.0

<sup>1</sup> Feet above confluence with Kaika Bay

<sup>2</sup> Combined Helemano Stream/Opaeula Stream floodway

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: HELEMANO STREAM**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY <sup>1</sup>			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION <sup>2</sup> (LOCAL TIDAL DATUM)			
CROSS SECTION <sup>2</sup>	DISTANCE <sup>3</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	178	*	*	*	4.0	*	*	*
B	994	501	1,186	3.9	14.0	14.0	14.2	0.2
C	1,945	430	1,283	2.8	19.0	19.0	19.3	0.3
D	2,276	683	2,627	1.9	23.0	23.0	23.2	0.2
E	2,293	580	490	3.3	28.1	28.1	28.2	0.1
F	2,316	495	999	2.7	31.0	31.0	31.1	0.1
G	2,912	45	253	14.8	34.0	34.0	34.5	0.5
H	3,787	93	405	12.6	44.0	44.0	44.1	0.1
I	4,159	36	86	14.0	45.0	45.0	45.4	0.4
J	4,386	54	79	8.2	52.0	52.0	52.2	0.2
K	4,586	75	96	17.1	58.0	58.0	58.2	0.2
L	4,703	25	109	47.5	62.1	62.1	62.1	0.0
M	4,862	30	108	42.2	67.0	67.0	67.1	0.1
N	5,015	41	145	41.5	72.0	72.0	72.0	0.0
O	5,062	45	143	37.2	73.7	73.7	73.7	0.0
P	5,285	52	278	30.5	83.9	83.9	84.1	0.2
Q	5,302	75	541	21.5	90.9	90.9	91.1	0.2
R	5,329	121	1,083	11.1	97.0	97.0	97.2	0.2
S	5,590	28	27	2.7	102.0	102.0	102.3	0.3
T	5,624	34	53	31.0	107.0	107.0	107.2	0.2
U	5,797	37	105	30.9	112.0	112.0	112.2	0.2
V	6,000	90	144	32.8	117.0	117.0	117.1	0.1
W	6,199	53	274	23.4	123.0	123.0	123.1	0.1

<sup>1</sup> Values reported are based on averages calculated across evaluation lines. Refer to model result grids for modeled variability and surcharge across the floodway.

<sup>2</sup> Floodway computed by 2-D or hybrid 1-D 2-D model at this location

<sup>3</sup> Feet above confluence with Pacific Ocean

\* Floodway not computed

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: HOAEAE STREAM**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	305	1,770	5,146	1.6	6.1	6.1	6.9	0.8
B	850	1,104	4,070	2.0	6.5	6.5	7.3	0.8
C	1,470	661	1,844	4.3	11.7	11.7	12.5	0.8
D	1,921	430	2,213	3.6	13.1	13.1	13.6	0.5
E	2,621	600	4,390	1.8	14.5	14.5	14.5	0.0
F	3,991	305	842	9.3	21.0	21.0	21.5	0.5
G	4,651	241	1,066	7.4	27.6	27.6	28.6	1.0
H	5,151	370	1,631	4.8	32.7	32.7	33.6	0.9
I	6,774	340	1,343	5.8	64.0	64.0	64.3	0.3
J	7,164	122	803	9.6	64.7	64.7	65.2	0.5
K	7,374	75	514	15.1	68.9	68.9	69.6	0.7
L	7,558	48	572	13.5	75.2	75.2	75.2	0.0

<sup>1</sup> Feet above confluence with West Loch, Pearl Harbor

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: HONOULIULI STREAM**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	-475	298	404	5.0	11.4	11.2 <sup>2</sup>	12.2	1.0
B	-25	453	833	2.4	20.7	20.7	21.7	1.0
C	365	264	370	5.4	34.4	34.7	35.5	0.8

<sup>1</sup> Feet above Kamehameha Highway

<sup>2</sup> Elevation computed without consideration of ponding

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: HOOLAPA STREAM**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY <sup>1</sup>			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE <sup>3</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A <sup>2</sup>	1,055	466	655	3.9	24	24	24.1	0.1

<sup>1</sup> Values reported are based on averages calculated across evaluation lines. Refer to model result grids for modeled variability and surcharge across the floodway.  
<sup>2</sup> Floodway computed by 2-D or hybrid 1-D 2-D model at this location  
<sup>3</sup> Feet above confluence with Kahawainui Stream

<b>TABLE 23</b>	<b>FEDERAL EMERGENCY MANAGEMENT AGENCY CITY AND COUNTY OF HONOLULU, HAWAII</b>	<b>FLOODWAY DATA</b>
		<b>FLOODING SOURCE: IHIIHI STREAM</b>

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY <sup>1</sup>			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION <sup>2</sup> (LOCAL TIDAL DATUM)			
CROSS SECTION <sup>2</sup>	DISTANCE	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Inoaole Stream								
A	3,305 <sup>3</sup>	378	2,190	1.3	13.0	13.0	13.6	0.6
B	4,795 <sup>3</sup>	33	149	3.1	14.0	14.0	14.4	0.4
C	5,067 <sup>3</sup>	41	174	2.6	15.0	15.0	15.2	0.2
D	5,279 <sup>3</sup>	111	405	2.3	16.0	16.0	16.4	0.4
E	5,679 <sup>3</sup>	116	364	2.3	17.0	17.0	17.7	0.7
F	5,831 <sup>3</sup>	63	239	3.1	18.0	18.0	18.7	0.7
Inoaole Stream Tributary								
A	1,592 <sup>4</sup>	422	2,949	0.1	11.8	11.8	12.7	0.9
B	3,619 <sup>4</sup>	37	107	1.5	12.0	12.0	12.7	0.7
C	3,960 <sup>4</sup>	66	232	1.0	13.0	13.0	13.6	0.6

<sup>1</sup> Values reported are based on averages calculated across evaluation lines. Refer to model result grids for modeled variability and surcharge across the floodway.  
<sup>2</sup> Floodway computed by 2-D or hybrid 1-D 2-D model at this location  
<sup>3</sup> Feet above mouth  
<sup>4</sup> Feet above Kulaiwi Street

<b>TABLE 23</b>	<b>FEDERAL EMERGENCY MANAGEMENT AGENCY CITY AND COUNTY OF HONOLULU, HAWAII</b>	<b>FLOODWAY DATA</b>
		<b>FLOODING SOURCE: INOAOLE STREAM - INOAOLE STREAM TRIBUTARY</b>

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	650	192	687	11.2	9.9	9.9	10.9	1.0
B	1,650	164	411	14.2	20.5	20.5	21.9	0.6
C	2,200	135	720	8.1	28.1	28.1	29.1	1.0
D	2,600	143	550	10.6	30.5	30.5	31.3	0.8
E	2,900	121	635	9.2	33.7	33.7	34.7	1.0

<sup>1</sup> Feet above mouth

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: KAAAWA STREAM**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	450	507	1,719	3.8	5.2	5.2	5.2	0.0
B	660	380	1,554	4.2	9.5	9.5	10.1	0.6
C	1,120	152	621	10.2	15.8	15.8	16.4	0.6
D	2,940	188	631	9.0	41.4	41.4	41.7	0.3
E	4,280	188	652	8.1	62.0	62.0	62.3	0.3
F	5,000	219	926	5.5	79.1	79.1	79.1	0.0
G	5,743	225	954	5.0	98.8	98.8	99.6	0.8
H	6,109	49	318	14.6	106.2	106.2	106.2	0.0

<sup>1</sup> Feet above confluence with Kaneohe Bay

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII

**FLOODWAY DATA**

FLOODING SOURCE: KAALAEA STREAM

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	1,395	20	135	25.1	32.6	32.6	32.6	0.0
B	1,855	20	190	17.6	44.7	44.7	44.7	0.0
C	2,945	49	160	20.1	62.1	62.1	62.1	0.0
D	3,925	52	161	19.5	79.5	79.5	79.5	0.0
E	4,955	50	242	12.5	106.0	106.0	106.0	0.0
F	5,610	54	243	12.2	122.1	122.1	122.1	0.0
G	6,745	39	148	19.4	147.4	147.4	147.4	0.0

<sup>1</sup> Feet above confluence with Ahuimanu Stream

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: KAHALUU STREAM**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	3,600	1,117	8,760	1.7	9.8	9.8	10.3	0.5
B	3,900	1,259	7,558	2.0	10.0	10.0	10.5	0.5
C	4,800	1,266	7,943	1.9	10.7	10.7	11.2	0.5
D	5,800	1,264	7,618	2.0	11.6	11.6	12.1	0.5
E	7,000	589	3,005	4.9	13.8	13.8	14.3	0.5
F	7,800	338	2,462	5.7	19.9	19.9	20.9	1.0

<sup>1</sup> Feet above mouth

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: KAHANA STREAM**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	850	153	740	3.1	8.4	8.4	8.6	0.2
B	1,310	377	1,801	2.2	8.7	8.7	9.0	0.3
C	1,570	232	1,265	3.0	8.8	8.8	9.3	0.5
D	2,610	104	781	4.9	11.1	11.1	11.4	0.3

<sup>1</sup> Feet above confluence with Moanalua Stream (Lower)

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: KAHAIKI STREAM**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY <sup>1</sup>			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION <sup>2</sup> (LOCAL TIDAL DATUM)			
CROSS SECTION <sup>2</sup>	DISTANCE <sup>3</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	686	154	1,459	3.1	10.0 <sup>4</sup>	10.0	10.3	0.3
B	2,375	808	2,638	2.9	12.0 <sup>4</sup>	12.0	12.2	0.2
C	5,167	396	1,261	3.8	21.0 <sup>4</sup>	21.0	21.2	0.2
D	5,784	249	776	6.9	27.0	27.0	27.2	0.2
E	6,423	124	1,095	8.1	33.0	33.0	33.5	0.5
F	6,735	204	1,260	5.5	38.0	38.0	38.8	0.8

<sup>1</sup> Values reported are based on averages calculated across evaluation lines. Refer to model result grids for modeled variability in elevation and surcharge across the floodway.

<sup>2</sup> Floodway computed by 2-D or hybrid 1-D 2-D model at this location

<sup>3</sup> Feet above confluence with Pacific Ocean

<sup>4</sup> Elevation riverward of right bank levee system

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: KAHAWAINUI STREAM**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	1,060	299	1,111	7.4	26.0	26.0	27.0	1.0
B	1,500	324	1,131	7.3	35.7	35.7	36.7	1.0
C	2,000	324	1,002	8.2	47.3	47.3	48.3	1.0
D	2,700	175	793	10.3	67.0	67.0	68.0	1.0

<sup>1</sup> Feet above mouth

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: KAIPAPAU STREAM**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	225	4,060	26,052	0.2	11.4	11.4	12.4	1.0
B	818	3,140	13,704	0.3	11.4	11.4	12.4	1.0
C	1,616	1,020	3,527	1.3	12.0	12.0	12.9	0.9
D	2,002	709	1,833	2.5	14.2	14.2	15.0	0.8
E	2,620	300	998	4.5	22.1	22.1	23.1	1.0

<sup>1</sup> Feet above confluence with Unnamed Stream

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: KALAEOKAHIPA STREAM**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	*	*	*	*	*	*	*	*
B	1,265	61	42	8.2	6.2	6.2	6.8	0.6
C	1,563	200	1,051	3.3	12.6	12.6	12.6	0.0
D	1,773	33	305	11.4	13.5	13.5	13.5	0.0
E	2,101	181	1,118	3.1	17.8	17.8	17.8	0.0
F	2,691	38	343	10.1	22.9	22.9	22.9	0.0
G	3,279	183	907	3.8	30.1	30.1	30.3	0.2
H	3,569	65	455	7.5	32.7	32.7	32.9	0.2
I	4,264	44	403	8.4	47.8	47.8	47.9	0.1

<sup>1</sup> Feet above East Loch, Pearl Harbor

\* Data not available

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: KALAUAO STREAM**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE <sup>3</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A <sup>2</sup>	2,195	117 <sup>1</sup>	917 <sup>1</sup>	10.7 <sup>1</sup>	12.0	12.0	12.7	0.7
B <sup>2</sup>	3,206	433 <sup>1</sup>	1,476 <sup>1</sup>	5.0 <sup>1</sup>	19.0	19.0	19.2	0.2
C <sup>2</sup>	3,673	120 <sup>1</sup>	724 <sup>1</sup>	12.4 <sup>1</sup>	24.0	24.0	24.1	0.1
D <sup>2</sup>	4,654	71 <sup>1</sup>	610 <sup>1</sup>	18.7 <sup>1</sup>	32.0	32.0	32.1	0.1
E <sup>2</sup>	5,619	91 <sup>1</sup>	761 <sup>1</sup>	14.2 <sup>1</sup>	43.0	43.0	43.0	0.0
F <sup>2</sup>	6,227	93 <sup>1</sup>	913 <sup>1</sup>	11.7 <sup>1</sup>	52.0	52.0	52.4	0.4
G <sup>2</sup>	7,221	88 <sup>1</sup>	683 <sup>1</sup>	16.8 <sup>1</sup>	69.0	69.0	69.0	0.0
H <sup>2</sup>	7,584	185 <sup>1</sup>	877 <sup>1</sup>	10.0 <sup>1</sup>	78.0	78.0	78.1	0.1
I <sup>2</sup>	7,910	166 <sup>1</sup>	1,144 <sup>1</sup>	15.7 <sup>1</sup>	87.0	87.0	87.1	0.1
J <sup>2</sup>	8,638	65 <sup>1</sup>	650 <sup>1</sup>	15.8 <sup>1</sup>	99.0	99.0	99.3	0.3
K <sup>2</sup>	9,692	62 <sup>1</sup>	522 <sup>1</sup>	17.6 <sup>1</sup>	113.0	113.0	113.0	0.0
L <sup>2</sup>	10,230	75 <sup>1</sup>	542 <sup>1</sup>	15.8 <sup>1</sup>	123.0	123.0	123.0	0.0
M <sup>2</sup>	10,929	78 <sup>1</sup>	567 <sup>1</sup>	15.8 <sup>1</sup>	135.0	135.0	135.0	0.0
N	12,255	67	812	19.7	166.9	166.9	166.9	0.0
O	13,465	57	693	20.0	206.2	206.2	206.2	0.0
P	14,405	65	920	14.5	231.4	231.4	231.4	0.0
Q	15,460	80	757	17.6	259.4	259.4	259.4	0.0
R	16,385	62	742	17.2	283.8	283.8	283.8	0.0
S	17,645	67	683	18.3	322.5	322.5	322.5	0.0

<sup>1</sup> Values reported are based on averages calculated across evaluation lines. Refer to model result grids for modeled variability in elevation and surcharge across the floodway.

<sup>2</sup> Floodway computed by 2-D or hybrid 1-D 2-D model at this location

<sup>3</sup> Feet above confluence with Keehi Lagoon

<b>TABLE 23</b>	<b>FEDERAL EMERGENCY MANAGEMENT AGENCY CITY AND COUNTY OF HONOLULU, HAWAII</b>	<b>FLOODWAY DATA</b>
		<b>FLOODING SOURCE: KALIHI STREAM</b>

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE <sup>3</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
T	19,035	75	688	17.5	374.9	374.9	374.9	0.0
U	19,050	125	909	13.2	401.5	401.5	401.5	0.0
V	20,505	153	1,273	9.1	423.7	423.7	424.5	0.8
W	22,250	40	534	20.8	452.4	452.4	452.4	0.0
X	22,665	68	633	17.4	491.8	491.8	491.8	0.0
Y	23,760	60	556	19.2	514.9	514.9	514.9	0.0

<sup>3</sup> Feet above confluence with Keehi Lagoon

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: KALIHI STREAM**

**Table 23: Floodway Data (continued)**

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Kaloi Gulch								
A	3.98	198	961	2.5	36.2	36.2	36.2	0.0
B	4.06	249	1,969	1.2	38.4	38.4	38.7	0.3
C	5.97	107	265	9.1	41.3	41.3	41.3	0.0
D	6.12	55	413	5.8	46.0	46.6	46.6	0.6
E	6.43	88	243	10.0	47.5	47.5	47.5	0.0
F	6.54	390	2,779	0.9	50.2	50.2	51.0	0.8
G	7.80	120	565	4.2	51.3	51.3	52.2	0.9
H	8.60	*	*	*	66.4	*	*	*

<sup>1</sup>Thousands of feet above Geiger Road

\*Data not available

**TABLE 23**

FEDERAL EMERGENCY MANAGEMENT AGENCY

**CITY AND COUNTY OF HONOLULU, HI**

**FLOODWAY DATA**

**KALOI GULCH**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	1,720	1,602	5,284	1.8	8.5	8.5	9.5	1.0
B	2,030	1,125	2,512	3.8	9.4	9.4	10.4	1.0
C	2,380	923	2,504	3.8	12.6	12.6	13.6	1.0
D	3,330	512	1,497	6.3	22.8	22.8	23.6	0.8

<sup>1</sup> Feet above mouth

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: KALUANUI STREAM**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	20	64	361	13.7	195.1	195.1	195.1	0.0
B	425	49	309	16.0	211.2	211.2	211.2	0.0
C	685	89	596	8.3	228.0	228.0	228.5	0.5
D	825	189	706	7.0	238.1	238.1	238.5	0.4
E	1,025	157	1,022	4.6	249.9	249.9	250.2	0.3
F	1,225	61	369	12.7	249.9	249.9	249.9	0.0
G	1,600	132	521	9.0	263.7	263.7	263.9	0.2
H	2,450	38	302	15.5	297.8	297.8	297.8	0.0
I	3,250	41	274	15.9	339.4	339.4	339.4	0.0
J	3,480	80	457	9.5	355.3	355.3	355.7	0.4
K	3,770	54	430	9.7	370.9	370.9	371.5	0.6
L	14,685	64	391	10.4	426.2	426.2	426.2	0.0

<sup>1</sup> Feet above confluence with Kalihi Stream

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: KAMANAIKI STREAM**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY <sup>1</sup>			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION <sup>2</sup> (LOCAL TIDAL DATUM)			
CROSS SECTION <sup>2</sup>	DISTANCE <sup>3</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	341	1,185	3,544	3.5	5.0	5.0	5.2	0.2
B	987	571	2,197	3.3	8.0	8.0	8.2	0.2
C	1,722	362	1,569	4.2	10.8 <sup>4</sup>	10.0	10.2	0.2
D	2,514	107	1,103	8.2	14.0	14.0	14.1	0.1
E	3,069	104	1,190	7.8	18.0	18.0	18.3	0.3
F	3,601	77	892	9.4	20.0	20.0	20.6	0.6
G	4,122	107	1,403	11.0	24.0	24.0	24.4	0.4
H	4,572	98	1,454	9.3	28.0	28.0	28.7	0.7
I	5,128	109	1,016	11.5	33.0	33.0	33.4	0.4
J	5,629	165	1,433	5.3	38.0	38.0	38.2	0.2
K	6,044	86	1,088	6.9	41.0	41.0	41.2	0.2
L	6,754	82	656	13.9	50.0	50.0	50.3	0.3
M	7,239	89	910	10.0	55.0	55.0	55.3	0.3
N	7,841	144	984	7.6	58.0	58.0	58.2	0.2
O	8,005	165	980	5.9	61.0	61.0	61.4	0.4
P	8,592	155	1,270	11.2	65.0	65.0	65.0	0.0
Q	9,147	57	607	13.8	74.0	74.0	74.6	0.6
R	9,377	116	1,377	6.8	80.0	80.0	80.8	0.8
S	9,550	92	959	1.8	94.0	94.0	94.6	0.6

<sup>1</sup> Values reported are based on averages calculated across evaluation lines. Refer to model result grids for modeled variability and surcharge across the floodway.  
<sup>2</sup> Floodway computed by 2-D or hybrid 1-D 2-D model at this location  
<sup>3</sup> Feet above confluence with Pacific Ocean  
<sup>4</sup> Shared floodplain between Kawa Stream and Kamooalii Stream

<b>TABLE 23</b>	<b>FEDERAL EMERGENCY MANAGEMENT AGENCY CITY AND COUNTY OF HONOLULU, HAWAII</b>	<b>FLOODWAY DATA</b>
		<b>FLOODING SOURCE: KAMOOALII STREAM</b>

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
T	10,459	291	1,910	5.3	94.0	94.0	94.6	0.6
U	10,929	521	1,489	6.0	95.0	95.0	95.5	0.5
V	11,314	112	1,218	6.6	103.0	103.0	103.4	0.4
W	11,885	71	574	12.4	106.0	106.0	106.1	0.1
X	12,457	79	712	9.9	114.0	114.0	114.1	0.1
Y	13,020	104	1,035	10.0	123.0	123.0	123.3	0.3
Z	13,629	62	636	12.7	127.0	127.0	127.1	0.1
AA	13,882	50	600	13.8	131.0	131.0	131.2	0.2

<sup>1</sup> Values reported are based on averages calculated across evaluation lines. Refer to model result grids for modeled variability and surcharge across the floodway.

<sup>2</sup> Floodway computed by 2-D or hybrid 1-D 2-D model at this location

<sup>3</sup> Feet above confluence with Pacific Ocean

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: KAMOOALII STREAM**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY <sup>3</sup>			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION <sup>3</sup> (LOCAL TIDAL DATUM)			
CROSS SECTION <sup>1</sup>	DISTANCE <sup>2</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	1,330	2,396	10,497	1.8	6.0 <sup>4</sup>	6.0 <sup>4</sup>	6.3	0.3
B	2,660	3,061	14,337	1.9	7.4	7.4	7.7	0.3
C	4,050	535	1,361	1.5	7.5	7.5	7.8	0.3
D	4,986	118	416	4.1	8.0	8.0	9.0	1.0
E	5,732	256	996	2.3	10.0	10.0	10.6	0.6
F	6,672	285	820	2.2	12.2	12.2	12.3	0.1
G	7,460	115	140	12.7	18.0	18.0	18.1	0.1

<sup>1</sup> Floodway computed by 2D Model at this location

<sup>2</sup> Feet above West Loch, Pearl Harbor

<sup>3</sup> Values reported are based on averages calculated across evaluation lines. Refer to model result grids for modeled variability in elevation and surcharge across the floodway.

<sup>4</sup> Elevation computed without consideration of tidal effects from West Loch, Pearl Harbor

<b>TABLE 23</b>	<b>FEDERAL EMERGENCY MANAGEMENT AGENCY CITY AND COUNTY OF HONOLULU, HAWAII</b>	<b>FLOODWAY DATA</b>
		<b>FLOODING SOURCE: KAPAKAHI STREAM #2</b>

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY <sup>1</sup>			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION <sup>2</sup> (LOCAL TIDAL DATUM)			
CROSS SECTION <sup>2</sup>	DISTANCE <sup>3</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	238	110	1,131	5.0	6.0	4.0 <sup>2,4</sup>	4.1	0.1
B	2,554	124	955	4.6	6.0	5.0 <sup>2,4</sup>	5.5	0.5
C	4,238	139	1,695	2.7	11.0	11.0	11.6	0.6
D	5,125	106	673	15.5	12.0	12.0	12.0	0.0
E	5,844	16	40	30.8	20.0	20.0	20.1	0.1
F	5,939	17	40	28.6	24.0	24.0	24.1	0.1
G	6,019	19	42	30.7	29.0	29.0	29.1	0.1
H	6,141	37	38	30.4	37.2	37.2	37.4	0.2
I	6,181	46	69	23.7	47.0	47.0	47.7	0.7
J	6,532	18	44	24.2	52.0	52.0	52.0	0.0
K	6,651	18	43	26.8	56.0	56.0	56.1	0.1
L	6,835	21	49	29.1	62.0	62.0	62.1	0.1
M	6,905	20	48	26.6	64.0	64.0	64.2	0.2

<sup>1</sup> Values reported are based on averages calculated across evaluation lines. Refer to model result grids for modeled variability in elevation and surcharge across the floodway.

<sup>2</sup> Floodway computed by 2-D or hybrid 1-D 2-D model at this location

<sup>3</sup> Feet above North Nimitz Highway

<sup>4</sup> Elevation computed without consideration of backwater effects from Nuuanu Stream

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: KAPALAMA DRAINAGE CANAL**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY <sup>1</sup>			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION <sup>2</sup> (LOCAL TIDAL DATUM)			
CROSS SECTION <sup>2</sup>	DISTANCE <sup>3</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	76	21	57	33.1	21.0	21.0	21.2	0.2
B	180	26	67	24.8	25.0	25.0	25.0	0.0
C	292	16	47	32.7	30.0	30.0	30.1	0.1

<sup>1</sup> Values reported are based on averages calculated across evaluation lines. Refer to model result grids for modeled variability in elevation and surcharge across the floodway.

<sup>2</sup> Floodway computed by 2-D or hybrid 1-D 2-D model at this location

<sup>3</sup> Feet above confluence with Kapalama Drainage Canal

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: KAPALAMA DRAINAGE CANAL TRIBUTARY**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION <sup>2</sup> (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Kaukonahua Stream								
A	7,920 <sup>3</sup>	136	2,420	10.3	16.0	16.0	17.0	1.0
B	8,800 <sup>3</sup>	90	1,541	16.2	17.1	17.1	17.1	0.0
C	9,500 <sup>3</sup>	1,459	7,224	3.5	20.5	20.5	21.4	0.9
D	10,350 <sup>3</sup>	1,375	4,894	5.1	21.8	21.8	22.8	1.0
E	11,125 <sup>3</sup>	711	3,907	6.4	28.5	28.5	29.5	1.0
F	11,900 <sup>3</sup>	627	3,858	6.5	30.4	30.4	31.2	0.8
G	13,840 <sup>3</sup>	364	2,770	8.9	46.9	46.9	47.9	1.0
H	15,740 <sup>3</sup>	176	1,660	14.5	60.7	60.7	61.1	0.4
I	18,240 <sup>3</sup>	240	2,450	9.7	98.0	98.0	99.0	1.0
Kaupuni Stream								
A	1,064 <sup>4</sup>	1,064 <sup>1</sup>	3,121 <sup>1</sup>	1.3 <sup>1</sup>	10.0	10.0	10.1	0.1
B	1,196 <sup>4</sup>	133 <sup>1</sup>	796 <sup>1</sup>	2.9 <sup>1</sup>	12.0	12.0	12.1	0.1
C	1,375 <sup>4</sup>	179 <sup>1</sup>	1,301 <sup>1</sup>	5.5 <sup>1</sup>	19.0	19.0	19.2	0.2
D	1,547 <sup>4</sup>	172 <sup>1</sup>	499 <sup>1</sup>	2.7 <sup>1</sup>	24.0	24.0	24.3	0.3
E	1,683 <sup>4</sup>	138 <sup>1</sup>	560 <sup>1</sup>	3.5 <sup>1</sup>	31.0	31.0	31.5	0.5

<sup>1</sup> Values reported are based on averages calculated across evaluation lines. Refer to model result grids for modeled variability in elevation and surcharge across the floodway.

<sup>2</sup> Floodway computed by 2-D or hybrid 1-D 2-D model at this location

<sup>3</sup> Feet above mouth

<sup>4</sup> Feet above confluence with Pacific Ocean

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: KAUKONAHUA STREAM - KAUPUNI STREAM**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	0	90	502	8.9	3.0	3.0	4.0	1.0
B	600	69	437	10.1	5.1	5.1	5.7	0.6
C	1,100	58	467	9.4	7.9	7.9	8.9	1.0
D	2,020	187	968	4.5	8.8	8.8	9.7	0.9
E	2,380	68	431	10.2	9.0	9.0	9.2	0.2
F	2,590	316	1,864	2.4	10.8	10.8	11.4	0.6
G	2,800	259	1,398	3.1	10.8	10.8	11.4	0.6
H	3,390	136	536	8.2	11.9	11.9	12.9	1.0
I	3,920	100	327	13.5	15.0	15.0	16.0	1.0
J	4,415	60	245	18.0	23.0	23.0	23.0	0.0
K	5,600	59	311	14.1	45.9	45.9	45.9	0.0
L	6,240	48	201	16.9	55.5	55.5	55.5	0.0
M	7,100	41	138	16.7	61.7	61.7	61.7	0.0
N	7,900	33	175	13.2	84.3	84.3	84.3	0.0

<sup>1</sup> Feet above mouth

<b>TABLE 23</b>	<b>FEDERAL EMERGENCY MANAGEMENT AGENCY CITY AND COUNTY OF HONOLULU, HAWAII</b>	<b>FLOODWAY DATA</b>
		<b>FLOODING SOURCE: KAWA STREAM</b>

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Kawainui Stream								
A	313 <sup>1</sup>	110	906	2.3	4.5	4.5	4.5	0.0
B	1,061 <sup>1</sup>	101	823	2.4	4.7	4.7	4.7	0.0
C	1,885 <sup>1</sup>	83	668	2.7	5.7	5.7	5.7	0.0
D	3,598 <sup>1</sup>	195	1,291	1.1	6.0	6.0	6.0	0.0
E	4,388 <sup>1</sup>	222	1,397	0.9	6.1	6.1	6.2	0.1
F	5,488 <sup>1</sup>	210	1,221	0.9	6.1	6.1	6.2	0.1
G	6,023 <sup>1</sup>	52	375	2.5	6.1	6.1	6.2	0.1
Kawiwi Stream								
A <sup>2</sup>	1,515 <sup>3</sup>	572 <sup>4</sup>	3,190 <sup>4</sup>	2.2 <sup>4</sup>	14.0	14.0	14.6	0.6
B <sup>2</sup>	3,291 <sup>3</sup>	571 <sup>4</sup>	594 <sup>4</sup>	2.9 <sup>4</sup>	17.0	17.0	17.2	0.2

<sup>1</sup> Feet above confluence with Kaelepulum Stream  
<sup>2</sup> Floodway computed by 2-D or hybrid 1-D 2-D model at this location  
<sup>3</sup> Feet above confluence with Kaupuni Stream  
<sup>4</sup> Values reported are based on averages calculated across evaluation lines. Refer to model result grids for modeled variability and surcharge across the floodway.

<b>TABLE 23</b>	<b>FEDERAL EMERGENCY MANAGEMENT AGENCY CITY AND COUNTY OF HONOLULU, HAWAII</b>	<b>FLOODWAY DATA</b>
		<b>FLOODING SOURCE: KAWAINUI STREAM - KAWIWI STREAM</b>

Table 23: Floodway Data (continued)

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (FEET LOCAL TIDAL DATUM)	WITHOUT FLOODWAY (FEET LOCAL TIDAL DATUM)	WITH FLOODWAY (FEET LOCAL TIDAL DATUM)	INCREASE (FEET)
<b>Keahala Stream</b>								
A	19	150	774	4.8	3.3	3.3	4.3	1.0
B	702	42	547	6.8	5.4	5.4	6.2	0.8
C	1,314	49	251	14.8	44.5	44.5	44.5	0.0
D	1,798	26	223	16.6	48.1	48.1	48.1	0.0
E	2,377	20	225	16.5	54.8	54.8	54.8	0.0
F	3,000	20	204	18.2	60.2	60.2	60.2	0.0
G	3,500	24	215	17.3	64.0	64.0	64.0	0.0
H	4,244	95	328	11.3	82.8	82.8	82.8	0.0
I	4,613	60	465	8.0	89.8	89.8	90.3	0.5
J	5,234	188	624	6.0	96.6	96.6	97.5	0.9
K	5,543	73	534	7.0	104.7	104.7	105.3	0.6
L	6,241	74	435	8.5	109.9	109.9	110.0	0.1
M	6,560	44	408	5.4	118.8	118.8	119.8	1.0
N	7,205	81	231	6.5	127.0	127.0	127.1	0.1
O	7,725	23	210	10.1	138.3	138.3	138.5	0.2

<sup>1</sup> Feet above confluence with Kaneohe Bay

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY  
**CITY AND COUNTY OF HONOLULU, HI**

**FLOODWAY DATA**

**FLOODING SOURCE: KEAAHALA STREAM**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	3,860	434	4,329	7.6	10.6	10.6	11.6	1.0
B	7,400	502	6,053	5.5	15.7	15.7	16.5	0.8

<sup>1</sup> Feet above mouth

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: KIIKII STREAM**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY <sup>1</sup>			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION <sup>2</sup> (LOCAL TIDAL DATUM)			
CROSS SECTION <sup>2</sup>	DISTANCE <sup>3</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	1,669	181	553	4.3	8.0	8.0	8.6	0.6
B	2,191	37	198	15.0	10.0	10.0	10.6	0.6
C	2,682	33	146	24.0	13.0	13.0	13.5	0.5
D	3,007	39	222	10.8	22.0	22.0	22.5	0.5
E	3,190	33	140	24.4	24.0	24.0	24.5	0.5
F	3,748	33	121	24.6	33.0	33.0	33.3	0.3
G	4,213	43	204	20.3	43.0	43.0	43.5	0.5
H	4,407	28	80	26.2	46.0	46.0	46.2	0.2
I	4,508	48	422	9.6	56.0	56.0	56.7	0.7
J	4,925	19	57	32.8	66.0	66.0	66.2	0.2
K	5,065	32	114	27.8	71.0	71.0	71.0	0.0
L	5,203	21	272	2.9	85.8	85.8	85.9	0.1
M	5,222	39	443	0.9	93.0	93.0	93.7	0.7
N	5,578	21	91	23.3	94.0	94.0	94.6	0.6
O	5,856	19	53	26.1	104.0	104.0	104.4	0.4
P	6,081	18	54	36.2	114.0	114.0	114.4	0.4
Q	6,275	20	52	42.9	124.0	124.0	124.2	0.2
R	6,422	17	33	35.6	134.0	134.0	134.1	0.1
S	6,544	18	37	38.4	144.0	144.0	144.0	0.0

<sup>1</sup> Values reported are based on averages calculated across evaluation lines. Refer to model result grids for modeled variability in elevation and surcharge across the floodway.

<sup>2</sup> Floodway computed by 2-D or hybrid 1-D 2-D model at this location

<sup>3</sup> Feet above confluence with Pacific Ocean

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: KULIOUOU STREAM**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY <sup>1</sup>			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION <sup>2</sup> (LOCAL TIDAL DATUM)			
CROSS SECTION <sup>2</sup>	DISTANCE <sup>3</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
T	6,740	16	39	28.8	154.0	154.0	154.1	0.1
U	6,899	54	185	18.8	158.0	158.0	158.1	0.1
V	6,955	98	314	10.3	167.0	167.0	167.0	0.0
W	7,048	14	10	41.4	171.0	171.0	171.0	0.0
X	7,106	43	91	12.8	176.0	176.0	176.1	0.1
Y	7,241	43	103	10.3	186.0	186.0	186.1	0.1
Z	7,445	42	155	8.4	196.0	196.0	196.1	0.1
AA	7,609	42	149	8.7	206.0	206.0	206.1	0.1
AB	7,790	44	182	8.7	216.0	216.0	216.3	0.3

<sup>1</sup> Values reported are based on averages calculated across evaluation lines. Refer to model result grids for modeled variability in elevation and surcharge across the floodway.

<sup>2</sup> Floodway computed by 2-D or hybrid 1-D 2-D model at this location

<sup>3</sup> Feet above confluence with Pacific Ocean

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: KULIOUOU STREAM**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY <sup>1</sup>			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION <sup>2</sup> (LOCAL TIDAL DATUM)			
CROSS SECTION <sup>2</sup>	DISTANCE <sup>3</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	305	32	206	10.3	145.0	145.0	145.6	0.6
B	412	32	91	15.1	153.0	153.0	153.2	0.2
C	504	31	88	18.9	163.0	163.0	163.6	0.6
D	570	22	56	21.7	170.0	170.0	170.6	0.6
E	597	24	80	19.3	174.0	174.0	174.5	0.5
F	696	19	84	17.3	184.0	184.0	184.7	0.7
G	793	21	88	18.5	194.0	194.0	194.7	0.7
H	879	34	164	19.1	203.0	203.0	203.5	0.5
I	971	24	118	11.0	213.0	213.0	213.4	0.4
J	1,078	22	116	11.7	223.0	223.0	223.4	0.4
K	1,136	25	110	14.7	228.0	228.0	228.5	0.5
L	1,222	36	149	16.4	235.9	235.9	235.9	0.0
M	1,288	33	105	12.8	241.0	241.0	241.4	0.4
N	1,362	29	109	14.4	251.0	251.0	251.4	0.4
O	1,472	30	112	12.5	261.0	261.0	261.6	0.6
P	1,581	41	132	12.4	271.0	271.0	271.4	0.4
Q	1,713	73	150	7.5	281.0	281.0	281.2	0.2
R	1,793	43	118	7.3	290.0	290.0	290.5	0.5
S	1,848	26	100	4.4	297.0	297.0	297.7	0.7

<sup>1</sup> Values reported are based on averages calculated across evaluation lines. Refer to model result grids for modeled variability in elevation and surcharge across the floodway.

<sup>2</sup> Floodway computed by 2-D or hybrid 1-D 2-D model at this location

<sup>3</sup> Feet above confluence with Wailupe Stream

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: KULUI STREAM**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY			1% ANNUAL CHANGE FLOOD WATER SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	0	894	- <sup>2</sup>	- <sup>2</sup>	13.4	13.4	13.8	0.4
B	340	1,092	5,201	2.0	14.2	14.2	15.2	1.0
C	1,215	1,717	1,538	6.7	22.6	22.6	23.3	0.7
D	2,140	570	1,229	7.9	42.1	42.1	42.7	0.6
E	2,890	655	1,009	9.7	57.7	57.7	58.4	0.7
F	3,711	442	1,282	7.6	82.8	82.8	83.3	0.5
G	4,791	341	930	9.9	119.2	119.2	119.2	0.0
H	5,361	139	774	11.9	138.8	138.8	139.0	0.2
I	6,211	164	708	12.1	167.1	167.1	167.4	0.3
J	7,611	203	753	11.4	216.8	216.8	216.8	0.0
K	8,241	330	966	7.7	237.2	237.2	237.8	0.6

<sup>1</sup> Feet above Farrington Highway

<sup>2</sup> Not calculated

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: MAKAHA STREAM AND WEST  
MAKAHA STREAM**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	860	2,040	2,112	2.3	9.8	9.8	10.6	0.8
B	1,365	1,823	4,066	1.1	10.2	10.2	10.9	0.7
C	2,055	1,458	4,298	1.2	11.2	11.2	11.2	0.0
D	3,810	51	333	14.6	29.6	29.6	29.6	0.0
E	4,203	42	433	11.0	35.8	35.8	35.8	0.0
F	5,235	75	551	8.4	49.1	49.1	49.1	0.0
G	5,705	281	1,106	4.1	54.7	54.7	54.7	0.0
H	6,790	44	296	14.8	73.6	73.6	73.6	0.0
I	8,345	74	335	12.5	111.8	111.8	111.8	0.0

<sup>1</sup> Feet above confluence with Pacific Ocean

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII

**FLOODWAY DATA**

FLOODING SOURCE: MAKALEHA STREAM

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	5,088	1,550	11,045	0.9	13.3	13.3	14.3	1.0
B	5,416	1,638	6,570	1.5	13.4	13.4	14.3	0.9
C	5,955	1,142	3,885	2.5	14.0	14.0	15.0	1.0
D	7,423	366	1,932	4.9	25.7	25.7	25.7	0.0
E	8,096	635	2,843	3.4	32.5	32.5	32.5	0.0
F	8,737	479	1,649	5.8	39.4	39.4	39.4	0.0
G <sup>2</sup>	9,627	-	-	-	-	-	-	-
H <sup>2</sup>	10,735	-	-	-	-	-	-	-

<sup>1</sup> Feet above confluence with Pacific Ocean

<sup>2</sup> Floodway not computed

<b>TABLE 23</b>	<b>FEDERAL EMERGENCY MANAGEMENT AGENCY CITY AND COUNTY OF HONOLULU, HAWAII</b>	<b>FLOODWAY DATA</b>
		<b>FLOODING SOURCE: MALAEKAHANA STREAM</b>

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	225	493 <sup>2</sup>	3,259	4.1	13.6	13.6	14.1	0.5
B	885	917 <sup>2</sup>	3,024	4.5	15.0	15.0	15.3	0.3
C	1,405	1,451 <sup>2</sup>	4,502	3.0	22.4	22.4	22.7	0.3
D	1,685	604	681	7.2	25.9	25.9	25.9	0.0

<sup>1</sup> Feet above confluence with Moanalua Stream

<sup>2</sup> Combined floodway width (Manaiiki Stream and Moanalua Stream)

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: MANAIKI STREAM**

**Table 23: Floodway Data (continued)**

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Manoa-Palolo Drainage Canal								
A	1,490	2,760	8,650	2.6	8.2	8.2	9.2	1.0
B	2,700	660	2,228	10.2	13.5	13.5	14.1	0.6
C	3,225	448	2,279	10.0	17.4	17.4	17.7	0.3
D	3,750	100	1,234	18.5	19.8	19.8	19.8	0.0
E	4,325	116	1,319	17.3	23.6	23.6	24.0	0.4
Manoa Stream								
F	4,740	110	2,036	11.2	29.3	29.3	30.3	1.0
G	5,290	115	1,777	7.7	34.9	34.9	35.5	0.6
H	5,890	280	1,519	9.0	39.4	39.4	39.7	0.3
I	6,690	74	733	18.0	45.1	45.1	45.1	0.0
J	7,290	162	935	14.1	52.6	52.6	52.6	0.0
K	7,740	90	776	16.8	61.8	61.8	61.8	0.0
L	8,490	93	618	20.6	72.1	72.1	72.1	0.0
M	9,290	53	617	20.6	89.8	89.8	89.8	0.0
N	10,090	108	789	15.5	107.0	107.0	107.0	0.0
O	10,690	82	556	21.2	115.7	115.7	115.7	0.0
P	11,290	126	1,307	9.0	130.7	130.7	130.7	0.0
Q	11,890	93	622	18.3	134.8	134.8	134.8	0.0
R	12,490	140	799	13.8	146.4	146.4	146.4	0.0
S	12,990	693	2,035	5.4	151.3	151.3	151.3	0.0
T	13,490	238	1,461	7.3	154.4	154.4	155.4	1.0
U	13,890	152	1,449	7.3	158.1	158.1	158.1	0.0
V	14,490	643	1,815	5.5	167.2	167.2	167.2	0.0
W	15,090	693	1,684	5.9	173.4	173.4	173.4	0.0
X	15,640	55	428	22.0	174.0	174.0	174.0	0.0

<sup>1</sup>Feet above confluence with Ala Wai Canal

<b>TABLE 23</b>	<b>FEDERAL EMERGENCY MANAGEMENT AGENCY</b>	<b>FLOODWAY DATA</b>
	<b>CITY AND COUNTY OF HONOLULU, HI</b>	
		<b>MANOA-PALOLO DRAINAGE CANAL – MANOA STREAM</b>

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Manoa Stream (continued)								
Y	16,490	160	717	12.0	185.5	185.5	185.5	0.0
Z	17,290	82	564	15.0	195.0	195.0	195.0	0.0
AA	18,690	57	405	16.8	214.7	214.7	214.7	0.0
AB	19,290	47	364	18.7	222.9	222.9	222.9	0.0
AC	20,690	69	446	14.6	253.7	253.7	253.7	0.0
AD	21,340	94	602	11.2	266.4	266.4	266.4	0.0

<sup>1</sup> Feet above confluence with Ala Wai Canal

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: MANOA STREAM**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION <sup>2</sup>	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	1,300	218	1,712	7.5	5.5 <sup>3</sup>	5.2 <sup>4</sup>	5.6	0.4
B	1,900	235	1,675	7.7	5.5 <sup>3</sup>	6.2 <sup>4</sup>	6.4	0.2
C	3,015	871	4,370	3.1	8.5	8.5	9.2	0.7
D	3,630	780	3,412	4.0	8.5	8.5	9.2	0.7
E	4,340	401	2,180	6.2	10.5	10.5	11.0	0.5
F	4,695	471	2,689	5.0	11.1	11.1	12.0	0.9
G	5,355	493 <sup>2</sup>	3,259	4.1	13.6	13.6	14.1	0.5
H	5,935	917 <sup>2</sup>	3,024	4.5	15.0	15.0	15.3	0.3
I	6,650	1,451 <sup>2</sup>	4,502	3.0	22.4	22.4	22.7	0.3
J	6,940	570	1,508	6.8	22.5	22.5	22.5	0.0
K	7,395	79	611	15.9	24.4	24.4	24.4	0.0

<sup>1</sup> Feet above confluence with Keehi Lagoon

<sup>2</sup> Combined floodway width (Moanalua Stream and Manaiki Stream)

<sup>3</sup> Elevation computed without consideration of wave effects

<sup>4</sup> Elevation computed without consideration of tidal effects from Pacific Ocean

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII

**FLOODWAY DATA**

**FLOODING SOURCE: MOANALUA STREAM (LOWER)**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	981	721	4,274	1.8	15.1	15.1	15.1	0.0
B	1,513	513	2,948	2.5	15.2	15.2	15.2	0.0
C	2,277	625	1,755	4.2	15.8	15.8	15.8	0.0
D	3,175	336	1,082	6.8	22.1	22.1	22.9	0.8
E	3,859	539	1,109	6.6	31.2	31.2	31.2	0.0
F	4,651	95	656	11.1	40.9	40.9	41.9	1.0
G	5,135	167	1,209	6.0	52.3	52.3	52.7	0.4
H	5,439	71	487	14.9	61.9	61.9	61.9	0.0
I	5,655	76	540	13.4	70.3	70.3	70.3	0.0

<sup>1</sup> Feet above confluence with Pacific Ocean

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: NANAKULI STREAM**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY <sup>1</sup>			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION <sup>2</sup> (LOCAL TIDAL DATUM)			
CROSS SECTION <sup>2</sup>	DISTANCE <sup>3</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	1,483	1,148	6,496	7.8	8.0	8.0	8.2	0.2
B	1,838	1,140	1,855	1.3	14.0	14.0	14.3	0.3
C	2,214	633	1,144	2.3	15.0	15.0	15.2	0.2
D	2,492	1,172	2,018	5.4	16.0	16.0	16.1	0.1
E	2,682	700	591	2.6	21.0	21.0	21.1	0.1
F	2,731	227	687	3.9	27.0	27.0	27.1	0.1
G	2,929	28	106	26.2	28.0	28.0	28.1	0.1
H	3,227	30	93	22.7	38.0	38.0	38.4	0.4
I	3,336	31	82	28.3	43.0	43.0	43.2	0.2
J	3,645	34	84	28.8	60.0	60.0	60.1	0.1
K	3,807	33	72	27.0	68.0	68.0	68.0	0.0
L	3,955	24	30	42.4	77.0	77.0	77.0	0.0
M	4,068	27	41	40.2	86.0	86.0	86.2	0.2
N	4,214	28	51	32.5	95.0	95.0	95.1	0.1
O	4,377	25	54	28.3	105.0	105.0	105.2	0.2
P	4,515	26	32	41.2	115.0	115.0	115.1	0.1
Q	4,693	25	60	34.8	125.0	125.0	125.2	0.2
R	4,866	29	57	34.5	134.0	134.0	134.1	0.1
S	5,083	28	68	34.7	144.0	144.0	144.4	0.4
T	5,128	28	65	44.2	147.0	147.0	147.0	0.0
U	5,387	24	33	36.9	176.0	176.0	176.1	0.1
V	5,460	95	269	6.6	182.9	182.9	183.0	0.1

<sup>1</sup> Values reported are based on averages calculated across evaluation lines. Refer to model result grids for modeled variability in elevation and surcharge across the floodway.

<sup>2</sup> Floodway computed by 2-D or hybrid 1-D 2-D model at this location

<sup>3</sup> Feet above confluence with Pacific Ocean

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: NIU STREAM**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY <sup>1</sup>			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION <sup>2</sup> (LOCAL TIDAL DATUM)			
CROSS SECTION <sup>2</sup>	DISTANCE <sup>3</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	667	22	107	28.6	19.0	19.0	19.1	0.1
B	1,102	24	81	30.9	29.0	29.0	29.1	0.1
C	1,426	20	56	38.2	40.0	40.0	40.1	0.1
D	1,681	22	68	24.6	50.0	50.0	50.1	0.1
E	1,959	81	163	18.2	59.0	59.0	59.1	0.1

<sup>1</sup> Values reported are based on averages calculated across evaluation lines. Refer to model result grids for modeled variability in elevation and surcharge across the floodway.

<sup>2</sup> Floodway computed by 2-D or hybrid 1-D 2-D model at this location

<sup>3</sup> Feet above confluence with Niu Stream

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: NIU STREAM TRIBUTARY**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY			1% ANNUAL CHANGE FLOOD WATER SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	620	107	786	12.6	75.4	75.4	75.5	0.1
B	858	99	664	14.9	78.7	78.7	78.7	0.0
C	1,092	97	758	13.0	83.7	83.7	83.7	0.0
D	1,532	133	1,259	7.8	93.5	93.5	93.5	0.0
E	2,029	88	835	11.8	100.9	100.9	100.9	0.0
F	2,397	66	583	16.9	105.1	105.1	105.1	0.0
G	2,948	89	812	12.1	117.7	117.7	117.7	0.0
H	3,389	60	602	16.3	126.8	126.8	126.8	0.0
I	3,917	138	1,195	8.2	141.0	141.0	141.0	0.0

<sup>1</sup> Feet above Moanalua Freeway Overpass

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: NORTH HALAWA STREAM**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY <sup>1</sup>			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION <sup>2</sup> (LOCAL TIDAL DATUM)			
CROSS SECTION <sup>2</sup>	DISTANCE <sup>3</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	292	1,216	6,720	2.1	9.0	9.0	9.8	0.8
B	884	1,154	6,030	2.1	11.0	11.0	11.4	0.4
C	1,514	995	6,705	2.0	13.0	13.0	13.5	0.5
D	2,244	760	4,554	2.8	14.0	14.0	14.6	0.6
E	3,180	250	2,367	6.6	16.0	16.0	16.5	0.5
F	3,562	200	2,093	6.9	20.1	20.1	20.4	0.3
G	3,992	150	937	12.2	30.0	30.0	30.3	0.3
H	4,134	183	877	8.6	40.0	40.0	40.4	0.4
I	4,374	103	692	12.5	50.0	50.0	50.5	0.5
J	4,590	84	628	8.5	60.0	60.0	60.7	0.7
K	4,878	170	1,328	5.9	66.0	66.0	66.6	0.6
L	5,383	112	963	8.6	75.0	75.0	75.4	0.4
M	6,037	96	782	10.1	84.9	84.9	85.1	0.2
N	6,449	65	593	15.1	94.0	94.0	94.1	0.1
O	6,855	100	860	8.3	102.0	102.0	102.1	0.1
P	7,282	86	822	9.8	112.0	112.0	112.0	0.0
Q	7,570	134	1,102	7.9	119.0	119.0	119.2	0.2
R	7,691	116	1,083	8.0	125.0	125.0	125.4	0.4

<sup>1</sup> Values reported are based on averages calculated across evaluation lines. Refer to model result grids for modeled variability in elevation and surcharge across the floodway.

<sup>2</sup> Floodway computed by 2-D or hybrid 1-D 2-D model at this location

<sup>3</sup> Feet above North Nimitz Highway

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: NUUANU STREAM**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY			1% ANNUAL CHANGE FLOOD WATER SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Ohia Stream								
A	6,065	721	5,787	0.8	11.4	11.4	12.4	1.0
B	6,950	456	2,271	2.2	13.8	13.8	14.7	0.9
Ohia Steam (East)								
A	3,422	1,907	12,453	0.5	11.4	11.4	12.4	1.0
B	4,822	1,060	6,797	0.9	12.7	12.7	13.6	0.9
C	5,272	464	3,632	1.6	13.2	13.2	14.2	1.0
D	6,142	755	5,848	1.0	16.0 <sup>2</sup>	13.6	14.6	1.0

<sup>1</sup> Feet above mouth  
<sup>2</sup> Controlled by Ohia Stream

<b>TABLE 23</b>	<b>FEDERAL EMERGENCY MANAGEMENT AGENCY CITY AND COUNTY OF HONOLULU, HAWAII</b>	<b>FLOODWAY DATA</b>
		<b>FLOODING SOURCE: OHIA STREAM – OHIA STREAM (EAST)</b>

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY			1% ANNUAL CHANGE FLOOD WATER SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	520	663 <sup>2</sup>	7,155	2.6	14.6	13.7 <sup>3</sup>	14.7	1.0
B	1,120	89	1,074	9.3	14.6	14.4 <sup>3</sup>	15.3	0.9
C	1,470	84	1,086	9.2	15.3	15.3	16.2	0.9
D	2,860	89	1,148	8.7	27.5	27.5	28.4	0.9
E	3,220	81	934	10.7	27.8	27.8	28.7	0.9

<sup>1</sup> Feet above confluence with Paukauila Stream

<sup>2</sup> Combined Opaepala Stream/Helemano Stream floodway

<sup>3</sup> Elevation computed without consideration of backwater effects from Helemano Stream

<b>TABLE 23</b>	<b>FEDERAL EMERGENCY MANAGEMENT AGENCY CITY AND COUNTY OF HONOLULU, HAWAII</b>	<b>FLOODWAY DATA</b>
		<b>FLOODING SOURCE: OPAEULA STREAM</b>

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	1,600	157	381	5.3	32.0	32.0	33.0	1.0
B	2,200	52	237	8.4	46.7	46.7	47.7	1.0

<sup>1</sup> Feet above mouth

<b>TABLE 23</b>	<b>FEDERAL EMERGENCY MANAGEMENT AGENCY CITY AND COUNTY OF HONOLULU, HAWAII</b>	<b>FLOODWAY DATA</b>
		<b>FLOODING SOURCE: PAHIPAHIALUA STREAM</b>

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY <sup>1</sup>			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION <sup>2</sup> (LOCAL TIDAL DATUM)			
CROSS SECTION <sup>2</sup>	DISTANCE <sup>3</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	583	291	1,499	8.4	34.9	32.9 <sup>4</sup>	33.5	0.6
B	852	494	2,058	5.0	38.8	38.8	39.1	0.3
C	1,181	105	931	13.4	41.5	41.5	41.6	0.1
D	1,310	83	702	12.8	43.8	43.8	43.9	0.1
E	1,378	69	1,040	10.3	49.1	49.1	49.2	0.1
F	1,894	149	1,545	18.3	53.3	53.3	53.7	0.4
G	2,109	151	1,551	15.4	59.6	59.6	60.4	0.8
H	2,289	62	739	12.3	64.3	64.3	64.7	0.4
I	2,309	59	960	12.4	69.0	69.0	69.3	0.3
J	2,318	59	1,192	11.9	73.8	73.8	74.1	0.3
K	2,785	86	758	15.1	81.3	81.3	81.6	0.3
L	2,954	65	681	13.8	87.2	87.2	87.7	0.5
M	3,214	89	978	10.4	92.2	92.2	92.5	0.3
N	3,464	81	729	10.8	95.3	95.3	95.6	0.3
O	3,773	96	739	10.9	100.4	100.4	100.7	0.3
P	4,121	243	1,952	7.0	105.2	105.2	105.5	0.3
Q	4,407	350	2,493	4.3	109.3	109.3	109.7	0.4
R	4,826	442	2,399	3.6	115.2	115.2	115.4	0.2
S	5,092	351	1,850	3.7	117.8	117.8	118.6	0.8
T	5,365	520	2,890	3.8	122.6	122.6	123.3	0.7
U	5,648	687	3,479	4.1	128.0	128.0	128.3	0.3
V	6,030	585	3,786	3.1	135.6	135.6	135.9	0.3

<sup>1</sup> Values reported are based on averages calculated across evaluation lines. Refer to model result grids for modeled variability in elevation and surcharge across the floodway.

<sup>2</sup> Floodway computed by 2-D or hybrid 1-D 2-D model at this location

<sup>3</sup> Feet above confluence with Manoa Stream

<sup>4</sup> Elevation computed without consideration of backwater effects from Manoa Stream

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: PALOLO STREAM**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY <sup>1</sup>			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION <sup>2</sup> (LOCAL TIDAL DATUM)			
CROSS SECTION <sup>2</sup>	DISTANCE <sup>3</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
W	6,547	584	2,329	4.7	143.6	143.6	144.0	0.4
X	7,093	730	2,461	4.2	148.8	148.8	149.0	0.2
Y	7,408	568	1,984	4.7	154.9	154.9	155.0	0.1
Z	7,587	625	2,741	3.9	158.5	158.5	158.8	0.3
AA	7,912	491	997	6.3	163.0	163.0	163.2	0.2
AB	8,070	530	1,793	5.3	167.6	167.6	167.9	0.3
AC	8,469	253	1,003	6.1	173.5	173.5	173.6	0.1
AD	8,763	222	756	5.7	179.6	179.6	179.7	0.1
AE	8,988	215	795	6.7	184.7	184.7	185.0	0.3
AF	9,312	151	1,190	6.1	190.1	190.1	190.2	0.1
AG	9,579	62	513	12.1	192.9	192.9	192.9	0.0
AH	9,658	53	514	14.0	196.3	196.3	196.4	0.1
AI	9,927	80	587	14.2	204.8	204.8	205.0	0.2
AJ	10,044	171	846	11.1	209.5	209.5	209.9	0.4
AK	10,195	387	1,595	3.0	214.4	214.4	214.8	0.4

<sup>1</sup> Values reported are based on averages calculated across evaluation lines. Refer to model result grids for modeled variability in elevation and surcharge across the floodway.

<sup>2</sup> Floodway computed by 2-D or hybrid 1-D 2-D model at this location

<sup>3</sup> Feet above confluence with Manoa Stream

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: PALOLO STREAM**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Panaikauahi Gulch								
A	940 <sup>1</sup>	398	4,467	3.2	44.3	44.3	45.3	1.0
B	1,484 <sup>1</sup>	128	1,124	12.6	49.6	49.6	49.6	0.0
C	2,356 <sup>1</sup>	255	2,143	4.1	56.0	56.0	56.3	0.3
D	3,066 <sup>1</sup>	96	711	12.5	73.0	73.0	73.0	0.0
EE	3,773 <sup>1</sup>	95	1,416	9.5	96.7	96.7	96.9	0.2
Panaluu Stream								
A	1,280 <sup>2</sup>	1,293	6,857	2.8	12.0	12.0	13.0	1.0
B	1,750 <sup>2</sup>	737	4,589	4.1	14.2	14.2	15.2	1.0
C	2,430 <sup>2</sup>	769	4,685	4.1	18.4	18.4	19.3	0.9
D	3,080 <sup>2</sup>	492	4,546	4.2	22.8	22.8	23.6	0.8

<sup>1</sup> Feet above confluence with Waiawa Stream

<sup>2</sup> Feet above mouth

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: PANAIKAUAAHI GULCH - PANALUU STREAM**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY			1% ANNUAL CHANGE FLOOD WATER SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	4,270	581	3,279	5.8	8.4	8.4	9.3	0.9
B	5,400	328	3,273	5.8	10.7	10.7	11.7	1.0
C	6,470	248	2,807	6.8	12.0	12.0	13.0	1.0

<sup>1</sup> Feet above confluence with Kaika Bay

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: PAUKAULA STREAM**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	750	1,010	6,622	2.7	16.1	16.1	17.1	1.0
B	1,420	1,053	5,126	3.5	16.7	16.7	17.7	1.0
C	2,290	467	2,532	7.1	21.4	21.4	22.3	0.9
D	3,100	504	5,429	3.3	30.1	30.1	30.8	0.7

<sup>1</sup> Feet above mouth

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: POAMOHO STREAM**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	150	31	71	13.5	62.8	62.8	62.8	0.0
B	535	22	51	18.8	67.7	67.7	67.7	0.0
C	900	24	60	15.9	82.9	82.9	82.9	0.0

<sup>1</sup> Feet above mouth

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: TRIBUTARY TO KAWA STREAM**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	0	64	325	11.6	4.5	4.5	4.5	0.0
B	1,040	89	711	5.1	11.2	11.2	11.3	0.1
C	1,728	80	423	8.2	13.3	13.3	13.6	0.3
D	2,256	188	1,195	2.8	16.3	16.3	16.8	0.5
E	3,512	159	768	4.1	18.2	18.2	18.5	0.3
F	4,808	145	773	3.8	24.4	24.4	24.7	0.3
G	5,668	171	689	4.1	27.4	27.4	27.7	0.3
H	6,920	94	288	9.0	37.0	37.0	37.0	0.0
I	7,832	75	301	8.1	41.0	41.0	41.6	0.6

<sup>1</sup> Feet above Ulehawa Channel

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: ULEHAWA STREAM**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	2,575	1,573	2,825	1.4	9.4	9.4	9.9	0.5
B	3,585	1,016	3,591	1.1	9.9	9.9	10.3	0.4
C	4,269	850	2,218	1.7	10.0	10.0	10.8	0.8
D	6,505	2,016	4,742	0.7	10.9	10.9	11.9	1.0
E	7,538	950	1,865	1.7	21.3	21.3	21.3	0.0
F	8,300	862	1,040	2.9	24.4	24.4	24.4	0.0

<sup>1</sup> Feet above confluence with Pacific Ocean

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: UNNAMED STREAM**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	1,500	289	1,343	8.2	17.4	17.4	18.2	0.8
B	1,800	205	1,306	8.4	20.2	20.2	21.2	1.0
C	2,300	320	1,207	9.1	23.3	23.3	23.8	0.5
D	2,900	238	1,460	7.5	30.7	30.7	31.7	1.0
E	3,600	264	1,589	6.9	35.6	35.6	36.6	1.0

<sup>1</sup> Feet above mouth

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: WAI AHOLE STREAM**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY <sup>1</sup>			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION <sup>2</sup> (LOCAL TIDAL DATUM)			
CROSS SECTION <sup>2</sup>	DISTANCE <sup>3</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	274	940	939	2.6	*	6.1 <sup>4</sup>	6.4 <sup>4</sup>	0.3
B	789	1,565	2,554	1.1	*	7.0 <sup>4</sup>	7.4 <sup>4</sup>	0.4
C	1,435	817	1,392	2.0	8.0	8.0	8.2	0.2
D	1,758	1,100	1,215	2.0	11.0	11.0	11.1	0.1
E	1,814	985	929	1.9	13.0	13.0	13.2	0.2
F	2,102	843	958	1.8	14.9	14.9	15.0	0.1

<sup>1</sup> Values reported are based on averages calculated across evaluation lines. Refer to model result grids for modeled variability in elevation and surcharge across the floodway.

<sup>2</sup> Floodway computed by 2-D or hybrid 1-D 2-D model at this location

<sup>3</sup> Feet above confluence with Pacific Ocean

<sup>4</sup> Water surface elevations shown without consideration of Pacific Ocean backwater

\* Controlled by coastal flooding. See Flood Insurance Rate Map for regulatory Base Flood Elevations.

<b>TABLE 23</b>	<b>FEDERAL EMERGENCY MANAGEMENT AGENCY CITY AND COUNTY OF HONOLULU, HAWAII</b>	<b>FLOODWAY DATA</b>
		<b>FLOODING SOURCE: WAIALAE-IKI STREAM</b>

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	460	400	2,604	7.5	5.4/5.4/5.3 <sup>2</sup>	5.4	6.4	1.0
B	1,180	590	3,826	5.1	11.0/11.0/10.9 <sup>2</sup>	11.0	11.6	0.6
C	1,883	810	4,962	3.9	13.6/13.6/13.6 <sup>2</sup>	13.6	14.4	0.8
D	2,633	780	7,374	2.6	14.9/14.9/15.0 <sup>2</sup>	14.9	15.9	1.0
E	3,005	920	10,738	2.1	15.4/15.4/15.5 <sup>2</sup>	15.4	16.4	1.0
F	3,815	1,350	14,201	1.6	15.8/15.8/16.0 <sup>2</sup>	15.8	16.8	1.0
G	4,265	1,230	13,155	2.6	16.3/16.3/16.4 <sup>2</sup>	16.3	17.2	0.9
H	4,495	1,370	11,069	3.1	16.7	16.7	17.6	0.9
I	5,155	640	3,703	9.2	20.6	20.6	20.6	0.0
J	6,077	260	3,379	10.1	26.9	26.9	27.5	0.6
K	7,411	330	4,729	7.2	36.9	36.9	37.9	1.0
L	8,891	290	5,355	6.3	42.0	42.0	42.7	0.7
M	9,575	670	10,462	3.2	43.5	43.5	44.4	0.9
N	10,425	620	8,143	2.8	44.0	44.0	44.9	0.9
O	10,945	300	4,341	5.3	44.5	44.5	45.4	0.9
P	11,798	530	5,345	4.3	46.2	46.2	47.1	0.9
Q	12,328	640	4,330	5.3	48.6	48.6	49.6	1.0
R	13,048	450	2,338	9.8	53.3	53.3	53.3	0.0
S	13,488	460	3,424	6.7	57.8	57.8	58.0	0.2

<sup>1</sup> Feet above Middle Loch

<sup>2</sup> Water-surface elevation with both levees in place/East levee failed/West levee failed conditions

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: WAIAWA STREAM**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	430	345	775	7.4	13.7	13.7	13.7	0.0
B	1,080	695	1,359	3.3	20.2	20.2	20.3	0.1
C	2,090	212	739	5.8	32.3	32.3	32.8	0.5
D	2,899	173	972	4.2	45.8	45.8	46.2	0.4
E	3,259	282	1,252	3.1	49.8	49.8	50.0	0.2
F	4,489	88	408	8.7	65.7	65.7	66.2	0.5
G	5,107	113	578	6.0	76.4	76.4	77.3	0.9
H	6,039	287	857	3.8	88.6	88.6	88.9	0.3
I	6,349	120	332	9.5	95.6	95.6	95.6	0.0

<sup>1</sup> Feet above confluence with Kahaluu Pond

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: WAIHEE STREAM**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY <sup>1</sup>			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION <sup>2</sup> (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	300	85	167	7.1	25.0	21.4 <sup>2</sup>	21.5	0.1
B	530	67	253	4.3	25.0	22.7 <sup>2</sup>	23.7	1.0
C	1,056	114	233	4.3	28.6	28.6	28.6	0.0

<sup>1</sup> Feet above confluence with Waihee Stream

<sup>2</sup> Elevation computed without consideration of backwater effects from Waihee Stream

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: WAIHEE STREAM TRIBUTARY**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	114	156	1,079	5.2	550.8	550.8	550.8	0.0
B	332	36	326	17.2	553.9	553.9	553.9	0.0
C	672	64	824	6.8	560.7	560.7	560.7	0.0
D	1,230	56	530	10.5	576.7	576.7	576.7	0.0
E	1,624	43	508	11.0	581.3	581.3	581.3	0.0
F	1,824	42	426	13.1	581.4	581.4	581.4	0.0
G	2,424	43	462	12.1	588.3	588.3	588.3	0.0
H	2,811	54	521	10.7	592.3	592.3	592.3	0.0
I	3,587	37	360	15.4	603.2	603.2	603.2	0.0
J	4,237	78	926	6.0	611.1	611.1	612.1	1.0
K	4,697	70	543	10.2	612.9	612.9	613.5	0.6
L	5,285	90	658	8.4	618.8	618.8	618.8	0.0
M	6,297	78	597	9.2	631.2	631.2	631.2	0.0
N	6,893	67	573	9.6	633.5	633.5	633.5	0.0
O	7,269	53	378	14.5	635.8	635.8	635.8	0.0

<sup>1</sup> Feet above downstream edge of Kamehameha Highway Bridge

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: WAIKAKALAU A STREAM**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	2,200	460	1,807	5.7	25.0	25.0	26.0	1.0
B	2,400	417	2,455	4.2	27.2	27.2	27.7	0.5
C	2,900	349	1,651	6.2	32.6	32.6	33.4	0.8
D	3,500	216	1,604	6.4	38.2	38.2	39.2	1.0
E	4,400	206	1,343	7.7	50.4	50.4	51.4	1.0

<sup>1</sup> Feet above mouth

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: WAIKANE STREAM**

**Table 23: Floodway Data (continued)**

LOCATION		FLOODWAY <sup>1</sup>			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION <sup>2</sup>	DISTANCE <sup>3</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	396	2,396	10,497	1.8	6.0	6.0	6.3	0.3
B	1,005	3,061	14,337	1.9	7.4	7.4	7.7	0.3
C	1,796	489	2,789	6.4	13.0	13.0	13.6	0.6
D	3,380	105	1,589	13.3	21.0	21.0	21.2	0.2
E	3,742	823	6,854	4.2	22.7	22.7	22.9	0.2
F	5,112	213	2,705	8.1	25.0	25.0	25.4	0.4
G	5,605	294	2,426	10.8	32.8	32.8	33.5	0.7
H	5,862	213	2,989	5.2	33.0	33.0	33.3	0.3
I	6,899	134	2,154	10.3	34.0	34.0	34.3	0.3
J	7,413	166	2,295	17.4	35.0	35.0	35.2	0.2
K	7,773	506	4,638	6.7	38.0	38.0	38.4	0.4
L	8,418	114	1,720	10.9	41.0	41.0	41.4	0.4
M	9,059	189	1,982	9.1	43.0	43.0	43.3	0.3
N	9,582	165	1,701	13.8	45.0	45.0	45.2	0.2
O	10,223	138	1,297	13.2	49.0	49.0	49.1	0.1
P	10,779	88	842	22.7	54.0	54.0	54.0	0.0
Q	11,359	100	962	19.8	60.0	60.0	60.0	0.0
R	12,032	110	858	22.9	67.0	67.0	67.1	0.1
S	12,576	146	1,304	13.3	73.0	73.0	73.1	0.1
T	13,205	156	1,304	15.0	79.0	79.0	79.0	0.0
U	13,740	122	1,174	14.3	84.0	84.0	84.0	0.0

<sup>1</sup> Values reported are based on averages calculated across evaluation lines. Refer to model result grids for modeled variability in elevation and surcharge across the floodway

<sup>2</sup> Floodway computed by 2D Model at this location

<sup>3</sup> Feet above confluence with West Loch, Pearl Harbor

**TABLE 23**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
CITY AND COUNTY OF HONOLULU,  
HAWAII**

**FLOODWAY DATA**

**FLOODING SOURCE: WAIKELE STREAM**