

Waikīkī Beach Improvement and Maintenance Program



Environmental Impact Statement Preparation Notice (EISPN)
Public Scoping Meeting
January 7, 2021 | 2:00pm – 5:00pm



EIS Process



- EISPN publication 12/23/20
- EISPN public scoping meeting 1/7/21
- EISPN 30-day public comment period (end 1/22/21)
- DLNR project website <https://dlnr.hawaii.gov/occl/waikiki/>
- Submit comments to: waikiki@seaengineering.com
- Comments will help to guide preparation of the Draft PEIS
- Draft PEIS will be published Spring 2021
- Draft PEIS will include a 45-day public comment period
- Draft PEIS public meeting (TBD)
- Final PEIS (incorporates all public comments and responses)

EISPN Publication 12/23/2020



DAVID Y. IGE
GOVERNOR OF
HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 631
HONOLULU, HAWAII 96809

December 16, 2020

MEMORANDUM

TO: Keith Kawaoka, Acting Director
Office of Environmental Quality Control

FROM: Suzanne D. Case, Chairperson *Suzanne D. Case*
Board of Land and Natural Resources

SUBJECT: Environmental Impact Statement Preparation Notice (EISPN)
Waikiki Beach Improvement and Maintenance Program
Kona District, Island of O'ahu
Tax Map Keys: (1) 2-6-001:003, (1) 2-6-004:007, (1) 2-6-005:001, (1) 2-6-008:029, (1) 2-6-002:026, (1) 2-6-001:019, (1) 2-6-004:012, (1) 2-6-002:017, (1) 2-6-001:013, (1) 2-6-001:012, (1) 2-6-001:002, (1) 2-6-001:015, (1) 2-6-001:008, (1) 2-6-004:006, (1) 2-6-004:005, (1) 2-6-001:017, (1) 2-6-004:008, (1) 2-6-004:009, (1) 2-6-004:010, (1) 2-6-001:018, (1) 2-6-005:006, (1) 2-6-001:004, (1) 2-6-002:006, (1) 2-6-002:005

With this memorandum, the State of Hawai'i Department of Land and Natural Resources (DLNR) requests the Environmental Impact Statement Preparation Notice (EISPN) for the proposed Waikiki Beach Improvement and Maintenance Program be published in the next issue of the Office of Environmental Quality Control's (OEQC) periodic bulletin, *The Environmental Notice*.

So as to not overlook any potentially significant impacts to the natural and/or human environment, the DLNR has determined at the outset that an environmental impact statement is required for the proposal pursuant to Hawai'i Revised Statutes §343-5(e) and Hawai'i Administrative Rules (HAR) §11-200.1-14(d)(2).

The required publication forms and files, including an electronic copy of the EISPN in pdf format, have been provided via the OEQC online submission platform. Concurrently with the electronic filing, and as required by HAR §11-200.1-5(e)(4)(B), paper copies of the EISPN have been submitted to the Waikiki-Kapahulu Public Library and with the Hawai'i Documents Center.

Pursuant to HAR §11-200.1-23(10)(c), publication of the EISPN in *The Environmental Notice* initiates a 30-day public comment period for the public to provide comments regarding potential effects of the proposed action. Public comments should be submitted to Sea Engineering with copies to the DLNR, Office of Conservation and Coastal Lands.

Should there be any questions, contact Sam Lemmo of the Office of Conservation and Coastal Lands at 587-0377.

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCES MANAGEMENT
ROBERT K. MASUDA
FIRST DEPUTY
M. KALEO MANUEL
DEPUTY DIRECTOR - WATER
AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONSERVATION
COMMISSION ON WATER RESOURCES MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES DEPARTMENT
ENVIRONMENTAL
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAPAHULU ISLAND RESOURCES COMMISSION
LANDS
STATE PARKS

ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE

Waikiki Beach Improvement and Maintenance Program

December 2020



Prepared for:
Hawai'i Department of Land and Natural Resources
Office of Conservation and Coastal Lands
1151 Punchbowl Street, Suite 131
Honolulu, Hawai'i 96813

Prepared by:
Sea Engineering, Inc.
Makai Research Pier
41-305 Kalaniana'ole Hwy
Waimānalo, Hawai'i 96795

Job No. 25548



Program Proponents



Hawai'i Department of Land and Natural Resources (DLNR)

- Responsible for protecting and preserving beaches in Hawai'i

Waikīkī Beach Special Improvement District Association (WBSIDA)

- Non-profit organization providing cost-sharing for beach improvements

Waikīkī Beach Community Advisory Committee (WBCAC)

- Stakeholder organization providing guidance for beach improvements

The proposed actions were developed in collaboration with public and private stakeholders with the shared goal and vision of making the beaches of Waikīkī sustainable and resilient for current and future generations.

Waikīkī Beach Community Advisory Committee (WBCAC)



- Stakeholder group representing a broad and diverse range of experience, interests, and perspectives in Waikīkī.
- Consists of business (29%), government (29%), scientists and engineers (17%), hotels and resorts (14%), non-profit organizations (11%), and others.
- The WBCAC was established to:
 - Identify issues and establish priorities for each beach sector
 - Provide guidance and feedback on conceptual designs

<https://www.wbsida.org/waikiki-beach-community-advisory-committee>

Early Consultation Process



- Dec 2016 – DLNR/WBSIDA coordination meetings began
- Nov 2017 – WBCAC kickoff meeting
- Dec 2017 – Public meeting at Waikīkī Community Center
- Mar 2018 – WBCAC meeting (identify issues and priorities)
- Sep 2018 – WBCAC meeting (establish design criteria)
- Feb 2019 – WBCAC meeting (review conceptual designs)
- Oct 2019 – WBCAC meeting (refine conceptual designs)
- Jan 2021 – EISPN public scoping meeting
- Jan 2021 – WBCAC meeting (review EISPN)

Background



Why are the beaches of Waikīkī so significant?

- Waikīkī is the epicenter of Hawai‘i’s tourism-based economy.
- Beaches are the primary amenity that attracts people to Waikīkī.
- Beaches have significant historical, cultural, economic, aesthetic, and recreational value.
- In 2015, Waikīkī generated 41% of the state’s visitor industry activity and 7% to Hawai‘i’s Gross State Product (Porro, 2020).
- More than 90% of visitors consider beach availability in Waikīkī as very important or somewhat important (Hospitality Advisors, 2008).

Background



- Waikīkī is a predominantly engineered shoreline.
- Almost the entire length of Waikīkī is armored by seawalls.
- 37 seawalls were constructed in Waikīkī in the early 1900's.
- Beaches of Waikīkī are composed almost entirely of imported sand.
- ~450,000 cubic yards of sand has been placed on Waikīkī Beach.
- Beach stability is largely dependent on shoreline structures (groins).
- 42 groins or groin-like structures have been constructed in Waikīkī.
- Only the larger groins have been effective in stabilizing the beaches.
- Beaches have been chronically eroding since the mid 1980's.
- Until recently, little has been done to restore/maintain the beaches.

Waikīkī Beach Sectors



- Waikiki spans over 10,000 linear feet (2 miles) of shoreline.
- Groins compartmentalize the shoreline into 8 littoral cells (beach sectors).
- ***Duke Kahanamoku Beach Sector*** consists of approximately 1,100 feet of shoreline from a rubblemound breakwater to the Hilton Hawaiian Village pier.
- ***Fort DeRussy Beach Sector*** consists of approximately 1,680 feet of shoreline from the Hilton Hawaiian Village pier to the Fort DeRussy outfall groin.
- ***Halekūlani Beach Sector*** consists of approximately 1,450 feet of shoreline from the Fort DeRussy outfall groin to the Royal Hawaiian groin.
- ***Royal Hawaiian Beach Sector*** consists of approximately 1,730 feet of shoreline from the Royal Hawaiian groin to the 'Ewa (west) groin at Kūhiō Beach Park.
- ***Kūhiō Beach Sector*** consists of approximately 1,500 feet of shoreline from the 'Ewa (west) groin at Kūhiō Beach Park to the Kapahulu storm drain.
- ***Queen's Beach Sector*** consists of approximately 1,050 feet of shoreline from the Kapahulu storm drain to the Queen's Surf groin.
- ***Kapi'olani Beach Sector*** consists of approximately 1,250 feet of shoreline from the Queen's Surf groin to the north wall of the Waikīkī Natatorium War Memorial.
- ***Kaimana (Sans Souci) Beach Sector*** consists of approximately 500 feet of shoreline from the north wall of the Waikīkī Natatorium War Memorial to the rubblemound groin fronting the New Otani (Kaimana) Hotel.

Waikīkī Beach Sectors



WBSIDA
Waikiki Beach
SPECIAL IMPROVEMENT
DISTRICT ASSOCIATION

WAIKĪKĪ BEACH SECTORS

Waikiki Beach Improvement and Maintenance Program
Environmental Impact Statement Preparation Notice (EISP)
Honolulu, O'ahu, Hawai'i

Issues & Problems



What are the issues and problems facing Waikīkī beaches?

- Beach have been chronically eroding since the mid-1980's.
- Erosion causes beach narrowing and beach loss.
- Wave overtopping and flooding, particularly during high tide/surf events.
- Frequency/severity of erosion and flooding will increase with sea level rise.
- Limited lateral shoreline access (no lateral access in some areas).
- Structural damage.
- Public health and safety concerns in certain areas.
- Environmental degradation.

Complete erosion of Waikīkī Beach would result in an annual loss of \$2.223 billion in visitor expenditures (Tarui, et al. 2018).

Issues & Problems



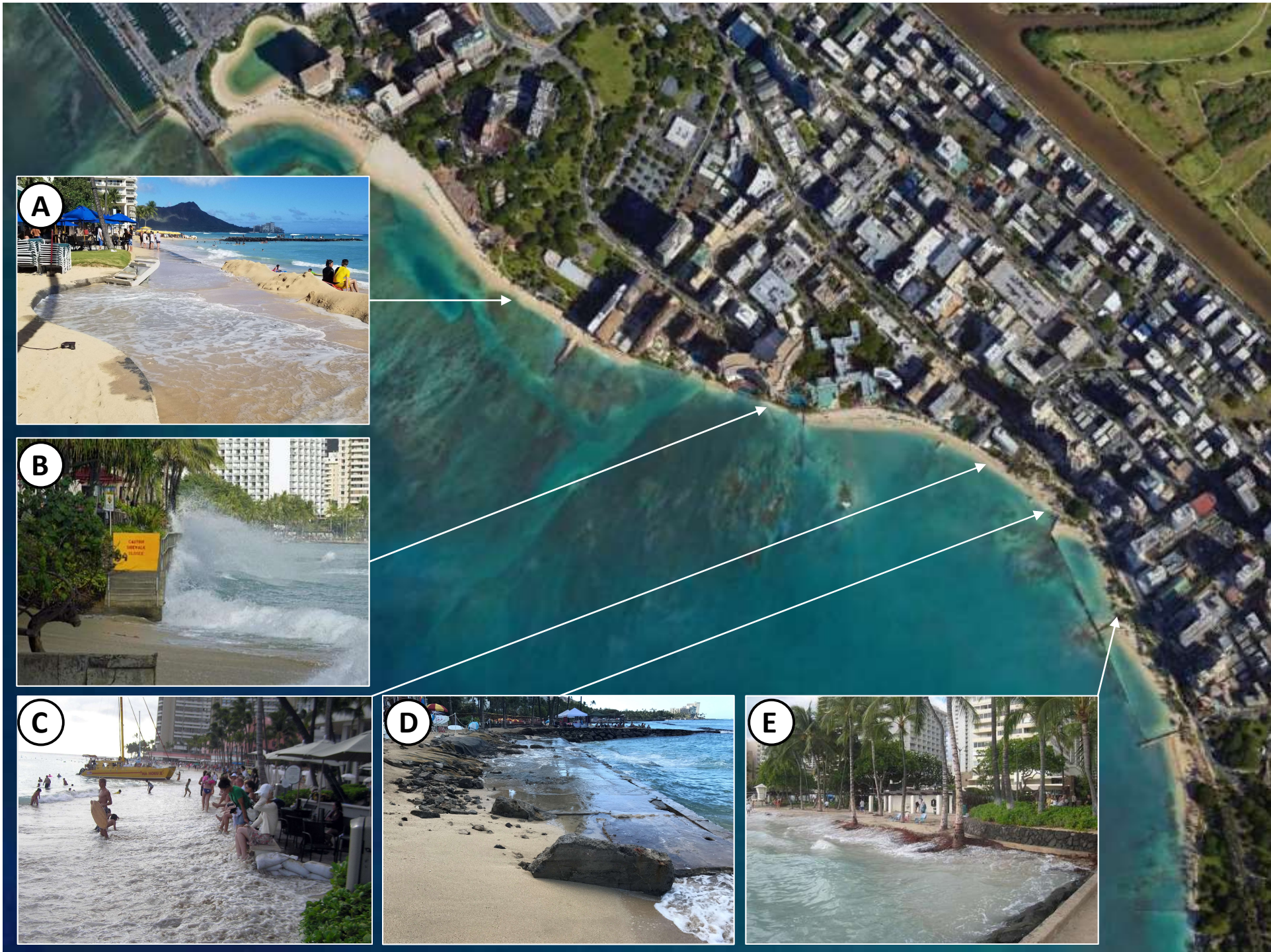
Photograph A - beach walkway in the Fort DeRussy Beach Sector. Erosion and sediment loss has caused significant beach narrowing at the east end of Fort DeRussy Beach. The beach walkway (which is constructed on top of a seawall that was built in 1916), is frequently overtopped by waves, particularly during high tide and high surf events. Periodic maintenance is required to push the sand back onto the beach. As the shoreline approaches the existing shoreline armoring, there will be incremental loss of recreational beach area until, eventually, no dry beach will remain.

Photograph B - waves overtopping the seawall fronting the Sheraton Waikīkī Hotel in the Halekūlani Beach Sector. The seawall was constructed in the early 1900's. A concrete walkway on top of the seawall provides the only lateral shoreline access between Royal Hawaiian Beach and Fort DeRussy Beach. The walkway has been closed for over 3 years due to structural damage that has caused unsafe conditions.

Photograph C - high tide flooding in the Royal Hawaiian Beach Sector. Flooding has become more frequent in recent years as Hawaii has experienced record high tides (often referred to as king tides), and a persistent sea level anomaly of 6-12" above predicted high tides. During typical high tides, nearly 2/3 of the beach is submerged. During extreme high tides, almost the entire beach is submerged at high tide. This has provided a glimpse into the future of how sea level rise will affect beaches in Waikīkī.

Photograph D - east end of the Royal Hawaiian Beach Sector. The structure you see in the photo is the old concrete foundation from the original Waikiki Tavern. When the foundation is exposed by erosion, not only is the beach unusable, it creates a hazardous condition for beach users and has resulted in damage and flanking of the Kūhiō Beach 'Ewa groin.

Photograph E – south end of the 'Ewa swim basin in the Kūhiō Beach Sector. This portion of the beach is very narrow and being squeezed against the seawalls that run along Kalakaua Ave. At times, the flooding is so severe that there is almost no dry beach area.



Priority Beach Sectors



The WBCAC determined that the highest priorities for beach improvement and maintenance actions in Waikīkī are (in order):

1. Royal Hawaiian Beach sector (50%).
2. Kūhiō Beach sector (25%).
3. Halekūlani Beach sector (19%).
4. Fort DeRussy Beach sector (6%).

The WBCAC determined that beach restoration and maintenance are the preferred options.

Priority Beach Sectors



WBSIDA
Waikiki Beach
SPECIAL IMPROVEMENT
DISTRICT ASSOCIATION

WAIKĪKĪ BEACH SECTORS SELECTED FOR IMPROVEMENT AND MAINTENANCE ACTIONS

Waikiki Beach Improvement and Maintenance Program
Environmental Impact Statement Preparation Notice (EISP)
Honolulu, O'ahu, Hawai'i

Program Objectives



The primary objectives of the proposed actions are to:

- Restore and improve Waikīkī's public beaches.
- Increase beach stability through improvement and maintenance of shoreline structures.
- Provide safe access to and along the shoreline.
- Increase resilience to coastal hazards and sea level rise.

Beach improvements and maintenance actions are urgently needed to restore and maintain the beaches of Waikīkī to support Hawai'i's tourism-based economy and preserve the recreational, social, cultural, environmental, and aesthetic value of Waikīkī for future generations.

Planning and Design Criteria



- Improvements should increase beach stability and sand retention.
- Improvements should increase the resilience and sustainability of the Waikīkī shoreline.
- A primary design consideration is predicted future sea level rise.
- Improvements should consider sea level rise through the year 2060.
- Include provisions for extending their functional life until 2080.
- Improvements are programmatic in nature and together form an overall plan for the Waikīkī shoreline for approximately 50 years.
- Improvements may be implemented concurrently or sequentially and be scaled and/or adapted based on changing conditions.
- Improvements must be stakeholder driven and support or improve the widest possible array of existing and future uses.
- Existing beach and ocean-based recreational activities shall be preserved or improved to the maximum extent practicable.

Fort DeRussy Beach Sector



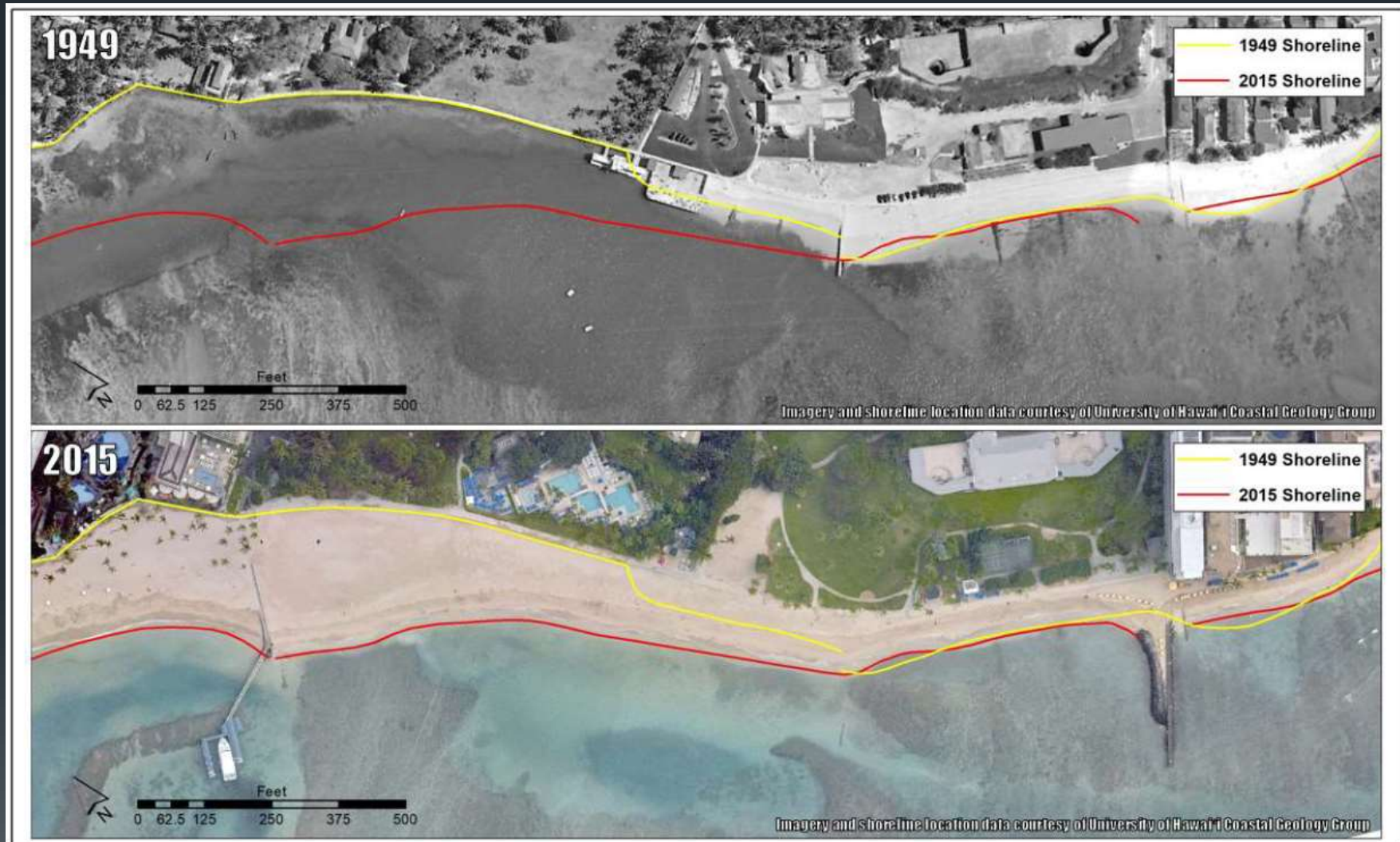
Overview

- Fort DeRussy Beach Sector is an entirely engineered shoreline.
- Entire shoreline is armored by a seawall that was constructed in 1916.
- Beach was constructed in the early 1970's.
- East end of the beach has been eroding at a rate of -1.2 feet/year.
- West end of the beach has been accreting at a rate of +0.4 feet/year.
- Erosion is more pronounced at the east end of the beach because the predominant direction of sediment transport is from east to west.
- No beach improvements or maintenance since the mid-1990's.

Issues & Problems

- Chronic erosion and beach loss at the east end of the beach.
- Wave overtopping along the Fort DeRussy Beach walkway.
- Sand compaction.

Fort DeRussy Beach Sector



HISTORICAL SHORELINE POSITIONS – FORT DERUSSY BEACH SECTOR

Waikiki Beach Improvement and Maintenance Program

Environmental Impact Statement Preparation Notice (EISPN)

Honolulu, O'ahu, Hawai'i

Fort DeRussy Beach Sector



Beach narrowing at east end of Fort DeRussy Beach



Flooding of Fort DeRussy boardwalk during King tides (credit: Matt Gonsen)



Exposed seawall at east end of Fort DeRussy Beach



Flooding of Fort DeRussy boardwalk during King tides (credit: Derek Bartol)



WBSIDA
Waikiki Beach
SPECIAL IMPROVEMENT
DISTRICT ASSOCIATION

ISSUES & PROBLEMS – FORT DERUSSY BEACH SECTOR

Waikiki Beach Improvement and Maintenance Program
Environmental Impact Statement Preparation Notice (EISP)
Honolulu, O'ahu, Hawai'i

Halekūlani Beach Sector



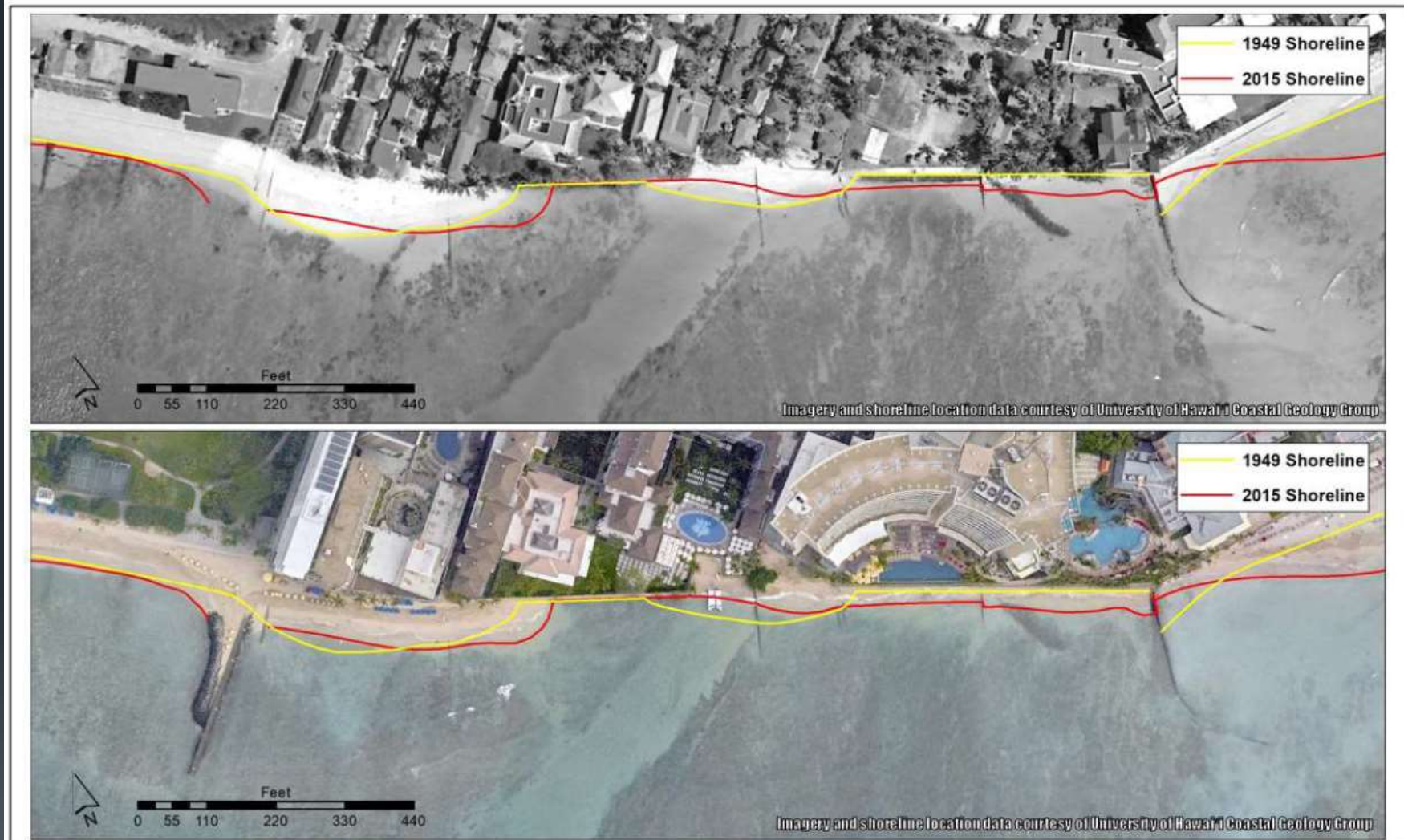
Overview

- Halekūlani Beach Sector is an entirely engineered shoreline.
- Entire shoreline is armored by seawalls constructed in the early 1900's.
- Beach has changed very little over the past century.
- With the exception of the replacement of the Royal Hawaiian Groin in 2020, no beach improvements or maintenance since the 1930's.

Issues & Problems

- Limited dry beach area.
- Erosion and beach narrowing.
- Limited lateral access along the shoreline.
- Wave overtopping and wave reflection of existing seawalls.
- Deterioration and potential failure of existing seawalls.

Halekūlani Beach Sector



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Waikiki Beach
SPECIAL IMPROVEMENT
DISTRICT ASSOCIATION

HISTORICAL SHORELINE POSITIONS – HALEKULANI BEACH SECTOR

Waikiki Beach Improvement and Maintenance Program

Environmental Impact Statement Preparation Notice (EISPN)

Honolulu, O'ahu, Hawai'i

Halekulani Beach Sector



Wave overtopping at Halekulani seawall and walkway



Flooding between Halekulani and Sheraton hotels



Wave overtopping at Sheraton seawall



Sink holes landward of Sheraton seawall



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SPECIAL IMPROVEMENT
DISTRICT ASSOCIATION

ISSUES & PROBLEMS – HALEKULANI BEACH SECTOR

Waikiki Beach Improvement and Maintenance Program
Environmental Impact Statement Preparation Notice (EISP/N)
Honolulu, O'ahu, Hawai'i

Royal Hawaiian Beach Sector



Overview

- Royal Hawaiian Beach Sector is an entirely engineered shoreline.
- Mostly armored by seawalls constructed in the early 1900's.
- Beach has been chronically eroding since the mid-1980's.
- Recent beach improvements: Waikīkī Beach Maintenance I (May 2012), Kūhiō Sandbag Groin (Nov 2019), Royal Hawaiian Groin Replacement (Aug 2020), Waikīkī Beach Maintenance II (planned for 2021).

Issues & Problems

- Chronic erosion and beach narrowing.
- Seasonal beach erosion.
- Deterioration and potential failure of existing structures.
- Limited lateral shoreline access.
- Beach loss at the Diamond Head end of the beach sector.
- Overcrowding and beach use conflicts.

Royal Hawaiian Beach Sector



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SPECIAL IMPROVEMENT
DISTRICT ASSOCIATION

HISTORICAL SHORELINE POSITIONS – ROYAL HAWAIIAN BEACH SECTOR

Waikiki Beach Improvement and Maintenance Program

Environmental Impact Statement Preparation Notice (EISP)

Honolulu, O'ahu, Hawai'i

Royal Hawaiian Beach Sector



Erosion at west end of Royal Hawaiian Beach (credit: Star Advertiser)



High tide flooding



Waikiki Beach Maintenance I (2012)



Erosion at east end of Royal Hawaiian Beach



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SPECIAL IMPROVEMENT
DISTRICT ASSOCIATION

ISSUES & PROBLEMS – ROYAL HAWAIIAN BEACH SECTOR

Waikiki Beach Improvement and Maintenance Program
Environmental Impact Statement Preparation Notice (EISP/N)
Honolulu, O'ahu, Hawai'i

Kūhiō Beach Sector



Overview

- Kūhiō Beach Sector is an entirely engineered shoreline.
- Shoreline is entirely armored by seawalls constructed in the early 1900's.
- Breakwater and beach constructed to form 'Ewa Basin in 1939.
- Breakwater and beach constructed to form Diamond Head Basin in 1953.
- Various beach maintenance efforts from 1950-2000.
- Recent beach improvements: Kūhiō Beach Nourishment (2006).

Issues & Problems

- Beach narrowing and seaward slumping of the beach.
- Seasonal beach erosion.
- Lack of maintenance of existing infrastructure and amenities.
- Public safety hazards on the existing breakwater and groins.
- Beach narrowing in the Diamond Head basin.
- Water quality impacts.

Kūhiō Beach Sector



WBSIDA
Waikiki Beach
SPECIAL IMPROVEMENT
DISTRICT ASSOCIATION

HISTORICAL SHORELINE POSITIONS – KŪHIŌ BEACH SECTOR

Waikiki Beach Improvement and Maintenance Program

Environmental Impact Statement Preparation Notice (EISPN)

Honolulu, O'ahu, Hawai'i

Kūhiō Beach Sector



Deteriorating outer crib walls



High tide flooding at west end of Kūhiō Beach (credit: Hawaii Sea Grant, 2017)



Kūhiō Beach Nourishment (2006)



High tide flooding at east end of Kūhiō Beach (credit: Hawaii Sea Grant, 2017)



WBSIDA
Waikiki Beach
SPECIAL IMPROVEMENT
DISTRICT ASSOCIATION

ISSUES & PROBLEMS – KŪHIŌ BEACH SECTOR

Waikiki Beach Improvement and Maintenance Program
Environmental Impact Statement Preparation Notice (EISP)
Honolulu, O'ahu, Hawai'i

Proposed Actions



Fort DeRussy Beach Sector

- Proposed Action: Beach Maintenance (Sand Backpassing)
- Requires 1,200 cubic yards of sand

Halekūlani Beach Sector

- Proposed Action: Beach Construction with Stabilizing Groins
- Requires 60,000 cubic yards of sand

Royal Hawaiian Beach Sector

- Proposed Action: Beach Nourishment
- Requires 25,000 cubic yards of sand

Kūhiō Beach Sector

- Proposed Action: Beach Nourishment, Segmented Breakwater (‘Ewa Basin)
- Proposed Action: Beach Maintenance (Diamond Head Basin)
- Requires 28,500 cubic yards of sand

Proposed Actions



WBSIDA
Waikiki Beach
SPECIAL IMPROVEMENT
DISTRICT ASSOCIATION

CONCEPTUAL RENDERING OF PROPOSED BEACH IMPROVEMENT AND MAINTENANCE ACTIONS

Waikiki Beach Improvement and Maintenance Program
Environmental Impact Statement Preparation Notice (EISPN)
Honolulu, O'ahu, Hawai'i

Potential Sand Sources



Reef Runway

- ~ 200,000 cubic yards of sand (79 acres)

Ala Moana

- ~ 190,000 cubic yards of sand (26 acres)

Hilton Deposit

- ~ 45,000 cubic yards of sand (11 acres)

Halekūlani Channel

- ~ 580,000 cubic yards of sand (28 acres)

Canoes/Queens

- ~ 50,000 cubic yards of sand (10 acres)

Diamond Head

- ~ 110,000 cubic yards of sand (26 acres)



Potential Sand Sources



WBSIDA
Waikiki Beach
SPECIAL IMPROVEMENT
DISTRICT ASSOCIATION

WAIKĪKĪ REPRESENTATIVE OFFSHORE SAND DEPOSITS

Waikiki Beach Improvement and Maintenance Program
Environmental Impact Statement Preparation Notice (EISPN)
Honolulu, O'ahu, Hawai'i

Fort DeRussy Beach Sector



PROPOSED ACTION: Beach Maintenance (Sand Backpassing)

- Description: Backpass approximately 1,200 cubic yards of sand from the accreted area at the west end of the beach to the eroded area at the east end of the beach. Backpassing would need to be conducted periodically to maintain a stable beach in this area.
- Beach Crest Elevation: TBD
- Beach Toe Elevation: -3 feet MSL
- Beach Face Slope: 1V:10H
- Beach Fill Volume: 1,200 cy
- Sand Source: West end of Fort DeRussy Beach

Fort DeRussy Beach Sector



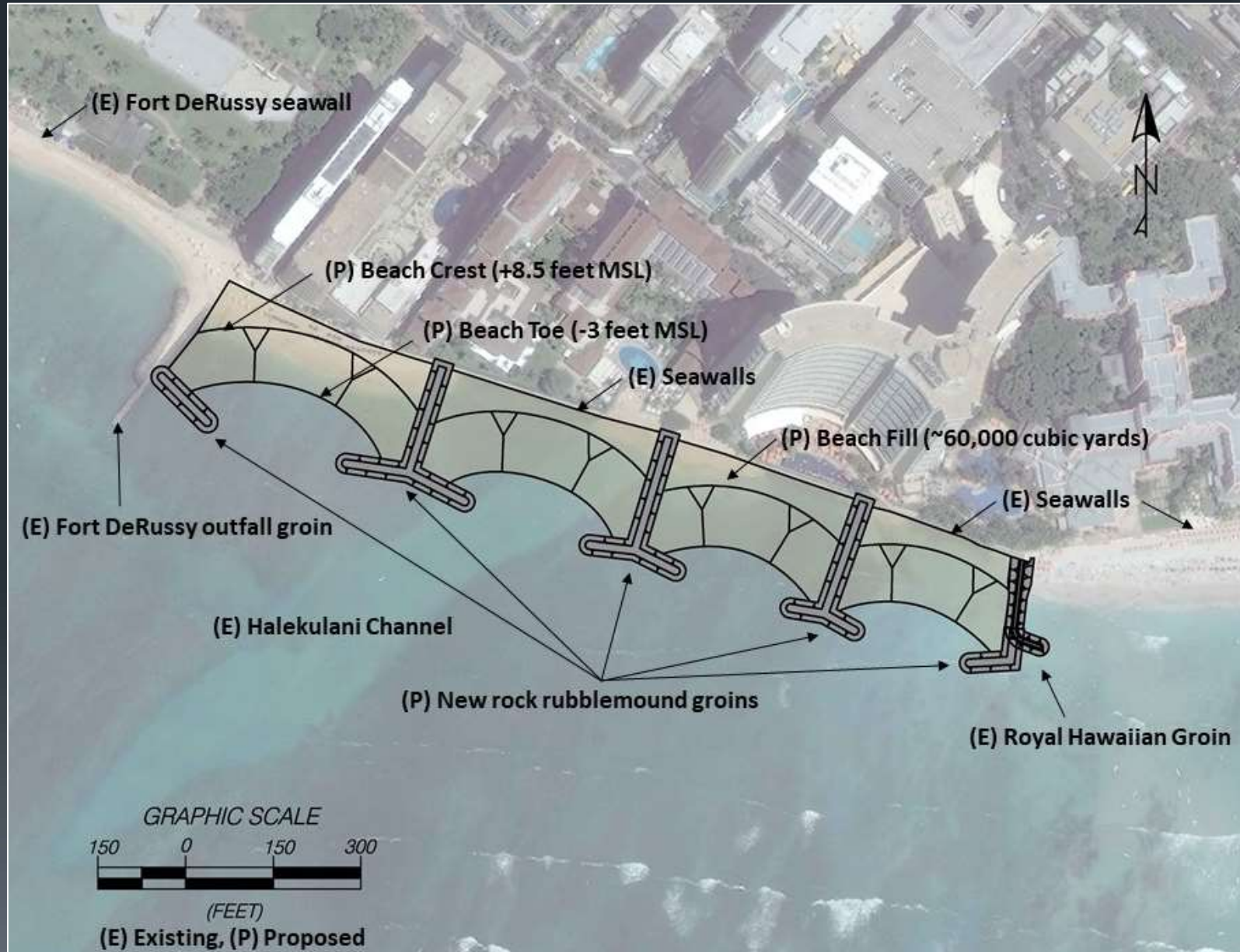
Halekūlani Beach Sector



PROPOSED ACTION : Beach Construction with Stabilizing Groins

- Description: Construct a new beach with groins to stabilize the sand. Optional beach walkway to improve lateral shoreline access. Beach cells between the groins would be stable with minimal maintenance.
- Beach Crest Elevation: +8.5 feet MSL
- Beach Toe Elevation: -3 feet MSL
- Beach Face Slope: TBD
- Beach Fill Volume: 60,000 cy
- Sand Source: Multiple options (TBD)

Halekūlani Beach Sector



Royal Hawaiian Beach Sector



PROPOSED ACTION : Beach Nourishment

- Description: Conduct beach nourishment to maintain a stable beach. Periodic renourishment would be required. Would be similar in scope to Waikiki Beach Maintenance I (2012) and Waikiki Beach Maintenance II (2021).
- Beach Crest Elevation: +8.5 feet MSL (1.5-foot increase)
- Beach Crest Elevation: -2.0 feet MSL
- Beach Face Slope: 1V:8H
- Beach Fill Volume: 20,000 to 30,000 cubic yards
- Sand Source: Canoes/Queens offshore sand deposit

Royal Hawaiian Beach Sector



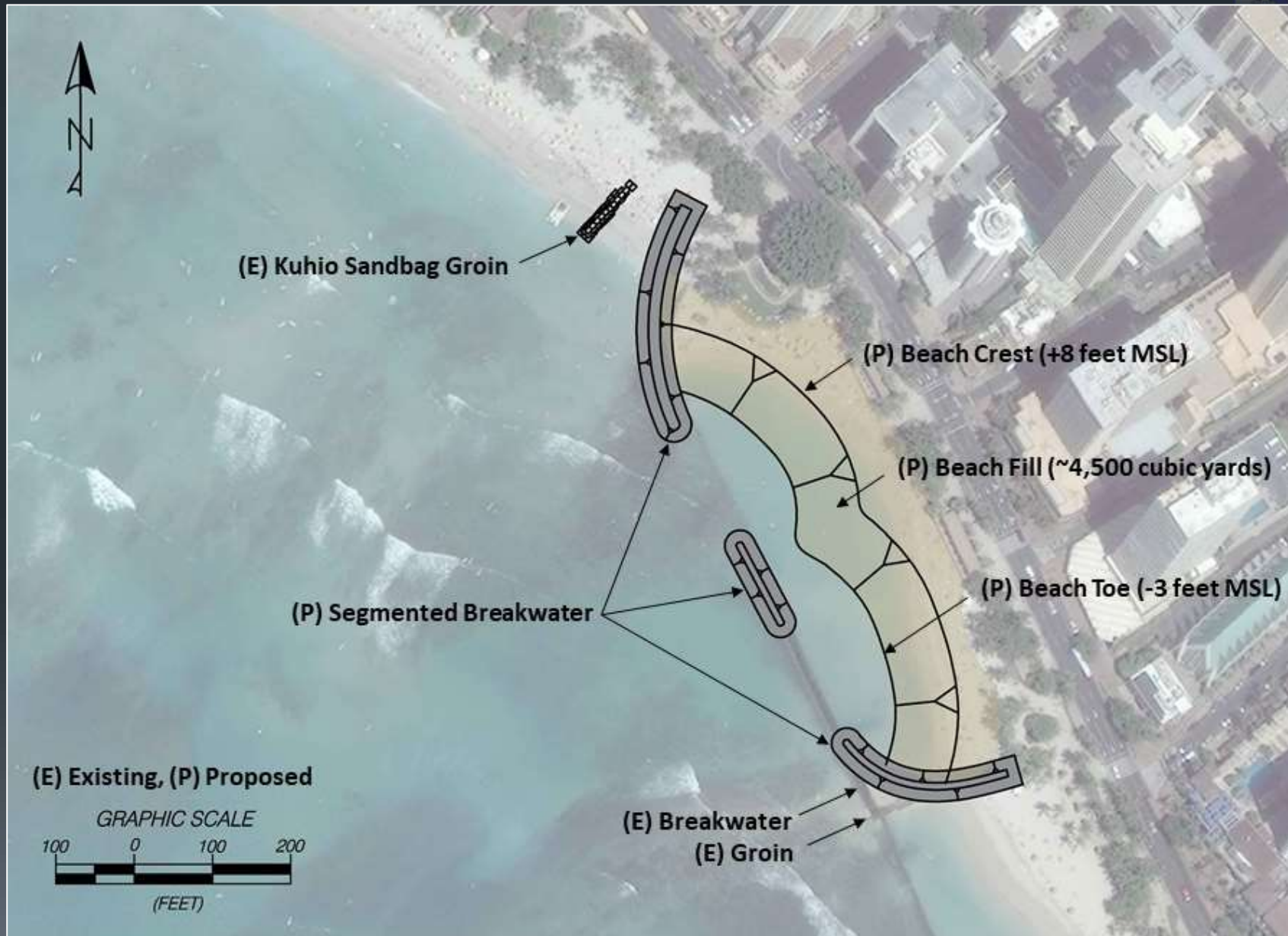
Kūhiō Beach Sector ('Ewa Basin)



PROPOSED ACTION : Beach Nourishment & Segmented Breakwater

- Description: Modify the existing breakwater to create a segmented breakwater to improve beach stability and conduct beach nourishment to maintain a wider and more stable beach profile. Periodic maintenance may be required to maintain a stable beach profile.
- Beach Crest Elevation: +8.5 feet MSL
- Beach Toe Elevation: -3.0 feet MSL
- Beach Face Slope: 1V:8H
- Beach Fill Volume: 24,000 cubic yards
- Sand Source: Multiple options (TBD)

Kūhiō Beach Sector



Kūhiō Beach Sector (DH Basin)



PROPOSED ACTION : Beach Maintenance

- Description: Conduct beach maintenance to increase recreational dry beach area. Periodic maintenance would be required to maintain a stable beach profile.
- Beach Crest Elevation: +5.0 feet MSL
- Beach Toe Elevation: -4.0 feet MSL
- Beach Face Slope: 1V:8H
- Beach Fill Volume: 4,500 cubic yards
- Sand Source: Diamond Head Basin

Kūhiō Beach Sector



Alternatives Considered



- No action
- Deferred action
- Managed Retreat
- Repair or Modification of Existing Structures
- Replacement of Existing Structures
- Removal of Existing Structures
- Beach Maintenance (e.g., sand pushing, sand backpassing)
- Beach Nourishment (with or without stabilizing structures)

Alternatives will be discussed in more detail in the Draft PEIS

Potential Impacts



The proposed actions have the potential to impact:

- Water quality (e.g., temporary increase in nearshore turbidity)
- Marine habitat (e.g., dredging, placement of fill/rocks in marine waters)
- Beach access (e.g., temporary beach closures during construction)
- Beach appearance (e.g., sand color may initially be grayer)
- Historical, cultural, archaeological resources (e.g., historic structures)
- Ocean recreation (e.g., potential impacts to surf sites)
- Economic (e.g., impacts on commercial operations during construction)
- Other (e.g., barge operations, dewatering basin, equipment, noise)

Potential impacts will be discussed in more detail in the Draft PEIS

Regulatory Requirements



Table 8-1 Summary of Required Regulatory Approvals	FORT DERUSSY	HALEKULANI	ROYAL HAWAIIAN	KŪHIŌ
FEDERAL				
<i>Department of the Army Nationwide Permit (NWP)</i>	TBD	N	N	TBD
<i>Department of the Army Individual Permit (IP)</i>	TBD	R	R	TBD
STATE OF HAWAII				
<i>Environmental Impact Statement (EIS)</i>	R	R	R	R
<i>Small Scale Beach Restoration (SSBR)</i>	TBD	N	TBD	TBD
<i>Shoreline Certification</i>	TBD	TBD	TBD	TBD
<i>Conservation District Use Permit (CDUP)</i>	TBD	R	R	R
<i>Right of Entry Permit (ROE)</i>	R	R	R	R
<i>Coastal Zone Management Federal Consistency (CZM)</i>	R	R	R	R
<i>National Pollution Discharge Elimination System (NPDES)</i>	R	R	R	R
<i>Section 401 Water Quality Certification (WQC)</i>	R	R	R	R
CITY COUNTY OF HONOLULU				
<i>Shoreline Setback Determination</i>	R	R	R	R
<i>Shoreline Setback Variance</i>	TBD	TBD	TBD	TBD
<i>Special Management Area Permit</i>	TBD	TBD	TBD	TBD
<i>Grubbing, Grading and Stockpiling Permit</i>	N	R	TBD	TBD
<i>Building Permit</i>	N	TBD	N	TBD

R = REQUIRED

N = NOT REQUIRED

TBD= TO BE DETERMINED

Waikīkī Beach Improvement and Maintenance Program

Please submit written comments to:
waikiki@seaengineering.com

For additional Information, please visit:
<https://dlnr.hawaii.gov/occl/waikiki/>