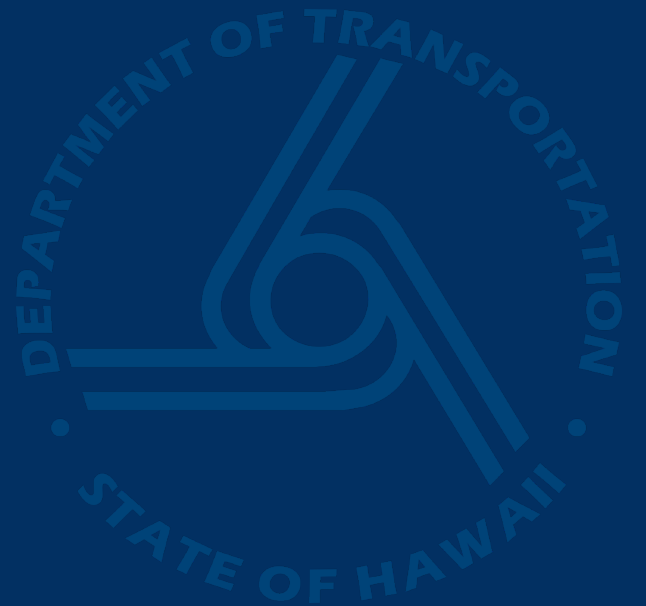


# HAU'ULA TOWN HALL MEETING

HAWAII DEPARTMENT OF  
TRANSPORTATION  
HIGHWAYS

3/6/2023



## IMMEDIATE SHORELINE REPAIRS

- Kanenelu Beach (recently completed construction)
- Hau'ula (in construction)
- Kalae'ō'io Beach (in design)
- Sandsaver at Kualoa & Waimanalo (in design)





SHORT-TERM FIX:  
KANENELU BEACH

---

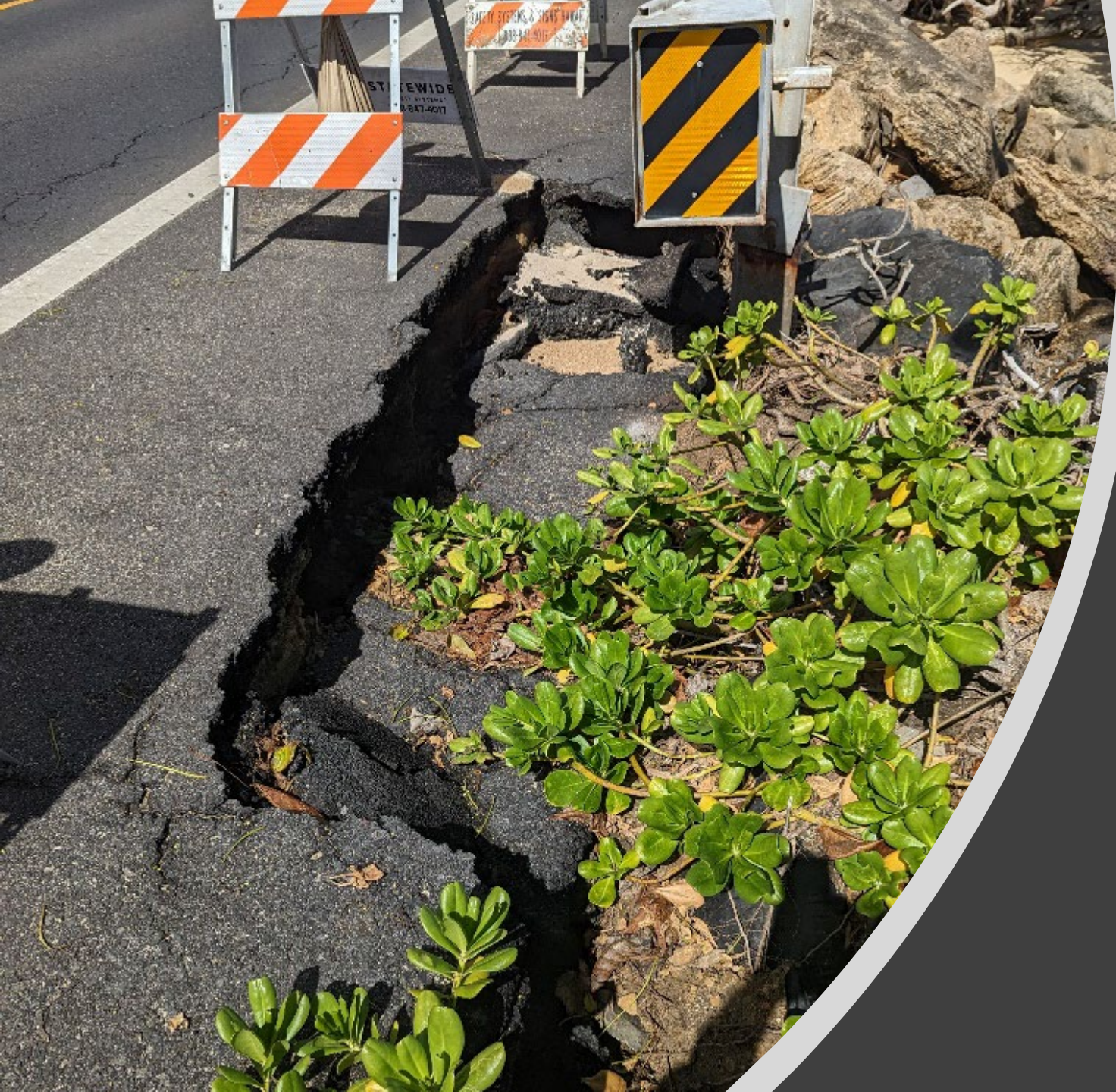




SHORT-TERM FIX:  
HAU'ULA

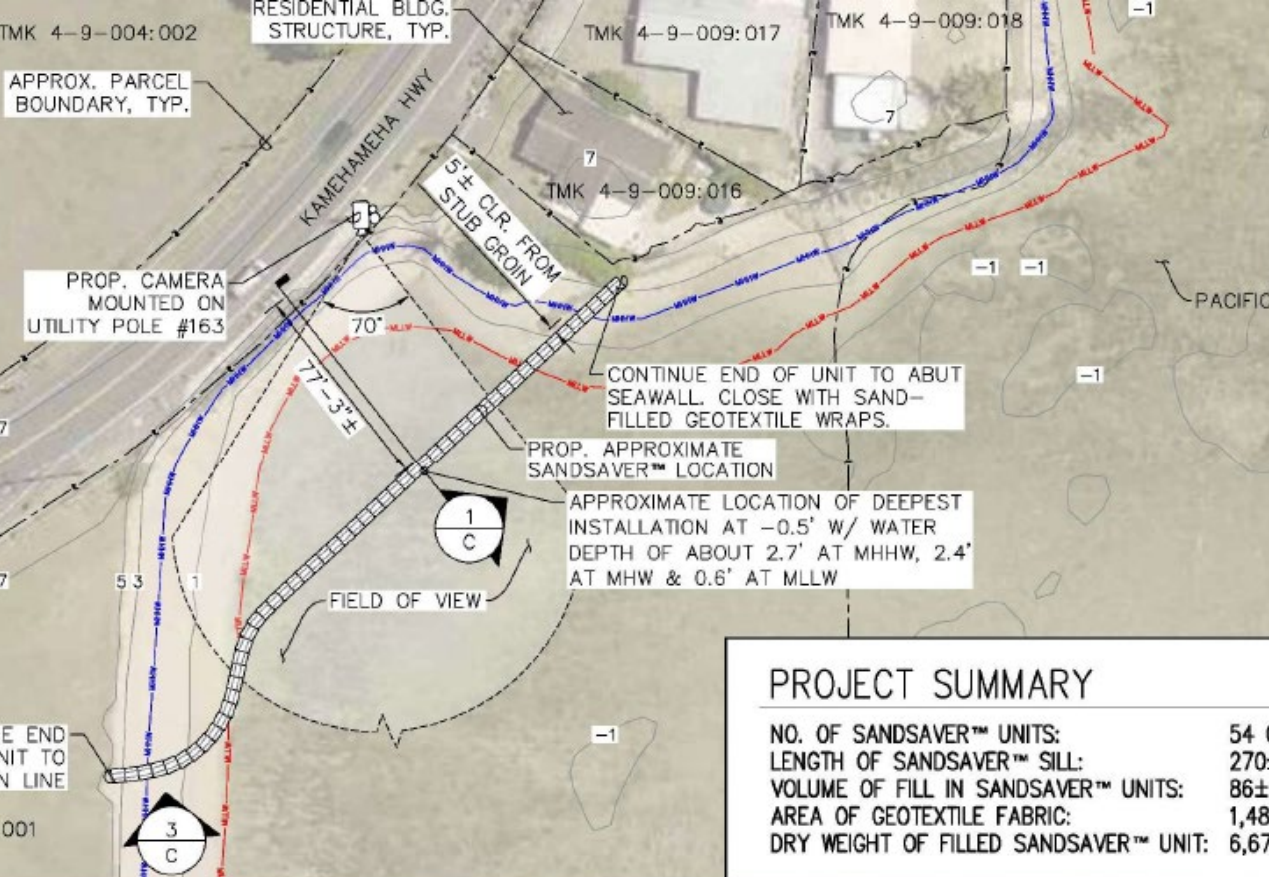
---





# SHORT-TERM FIX: KALAE'Ō'IO BEACH





# ALTERNATIVE FIX: BEACH REPLENISHMENT PILOT AT KUALOA

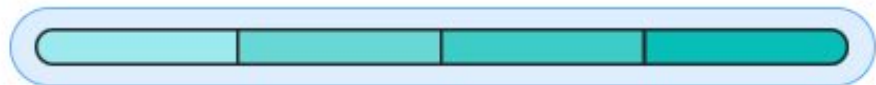
^ HDOT Assets

-  CULVERT
-  BRIDGE
-  TUNNEL
-  ROADWAY

^ Exposure Area



Sea Level Rise Scenario



0.5 FT

3.2 FT

**Note:** Use the color ramp to model different scenarios

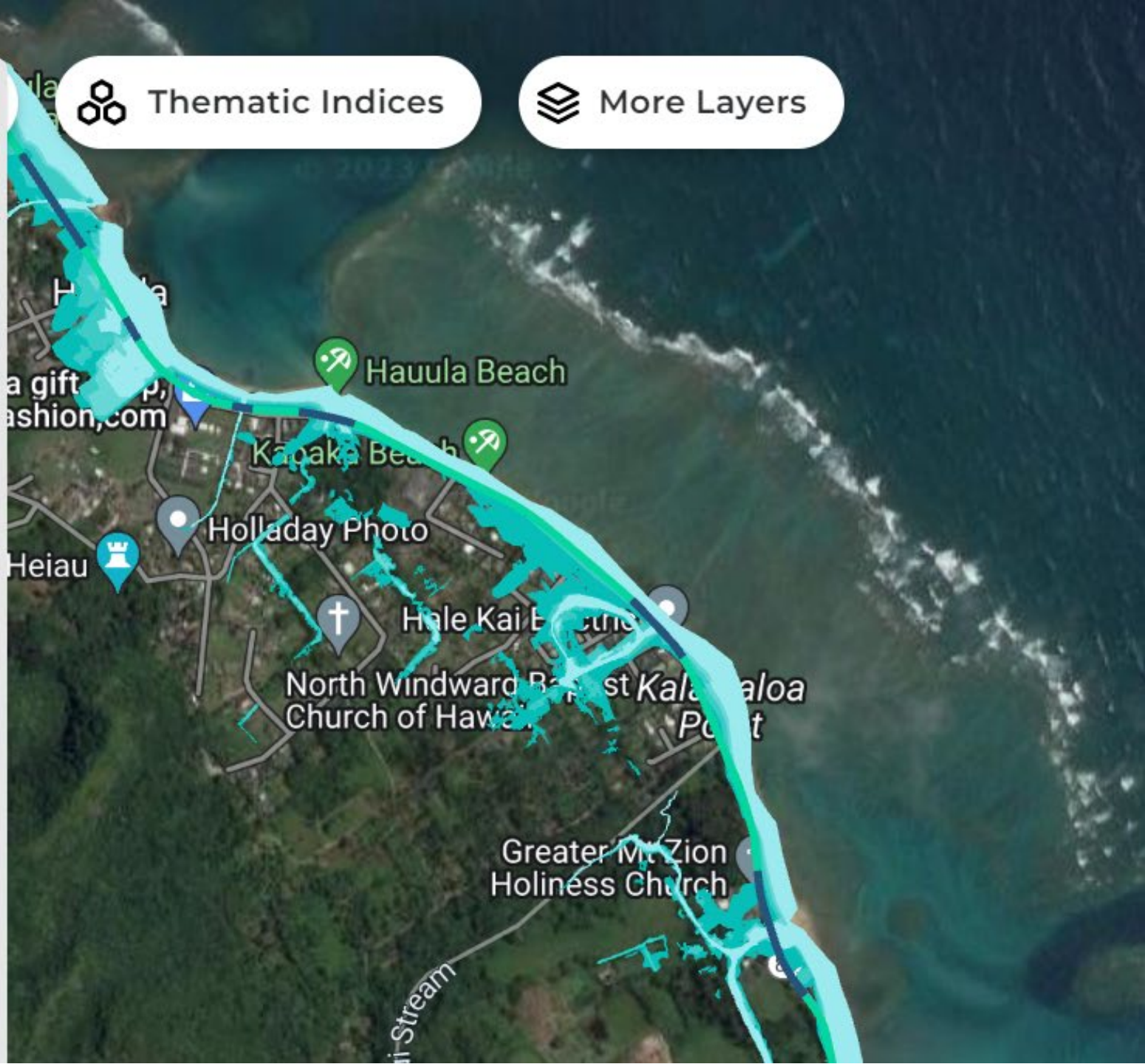
^ Basemap



Thematic Indices



More Layers



# COASTAL HIGHWAY PROTECTION LONG-TERM ALTERNATIVES

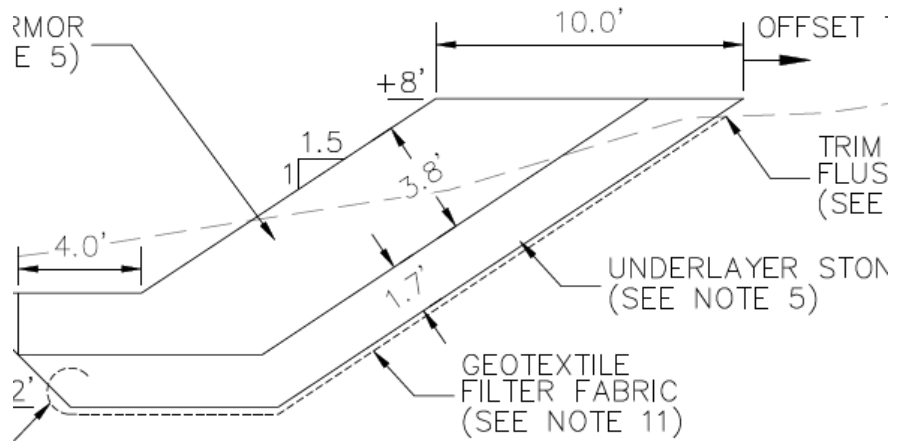
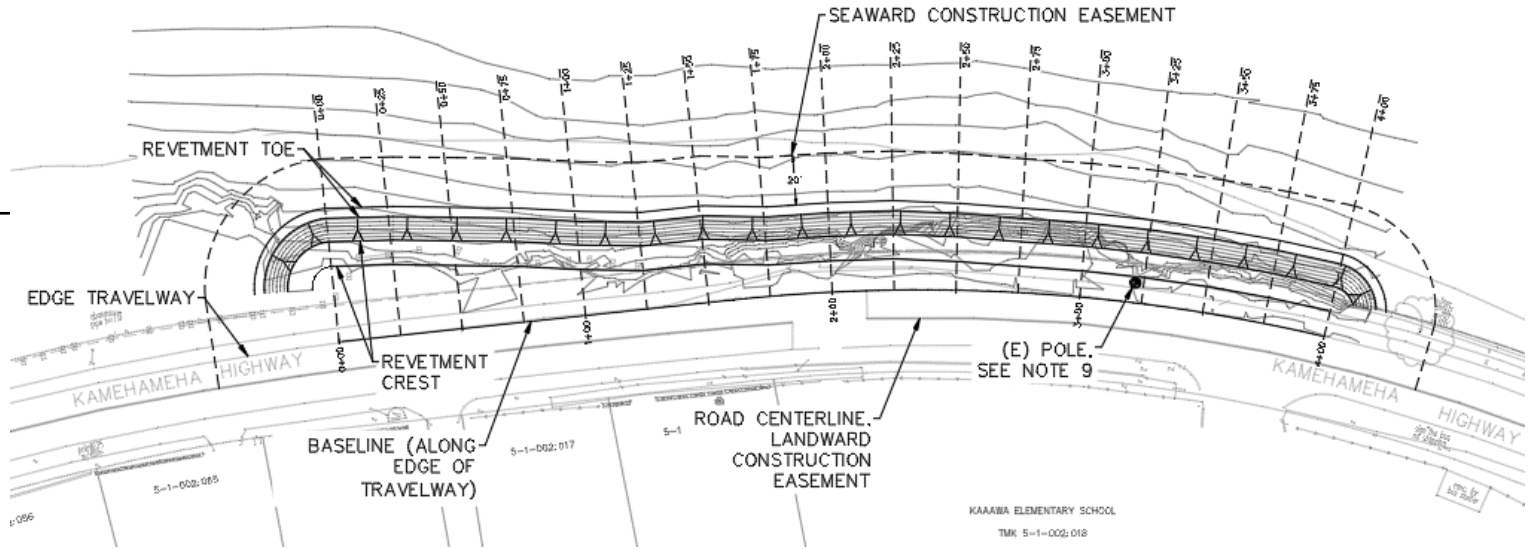
- **No Action**
- **Protect in Place**
  - Elevation of Highway
- **Managed Retreat**
  - Realignment/Relocation

<https://ormp.hawaii.gov/> (Ocean Resources Management Plan)  
[dbedt.op.czm@hawaii.gov](mailto:dbedt.op.czm@hawaii.gov)



# **COASTAL HIGHWAY PROTECTION MID-TERM ALTERNATIVES**

- **No Action**
- **Maintenance of Existing Improvements**
- **Beach Nourishment with Groins/ Breakwaters**
- **Construction of Stabilization Structures**
  - **Rock Revetment**
  - **Hybrid Seawall with Armored Sloped Apron**



# MID-TERM FIX: KA'A'AWA ELEMENTARY



Project Area		Length (Feet)
1	Hauula	2,400
2	Punaluu – North	530
3	Punaluu – South	2,640
4	Kaaawa (Old Crouching Lion)	2,900
5	Kaaawa (Polinalina/ Puakenikeni Road)	1,600
6	Kaaawa (Elementary/ Stream Bridge)	1,860
7	Kaaawa (Stream Bridge/ Kaneohe Side of Bridge)	4,750
8	Kualoa (Ranch Entrance)	1,060
9	Kualoa (Park)	260
	Total	17,990

# HAUULA PROJECT SITE





# PUNALUU PROJECT SITES

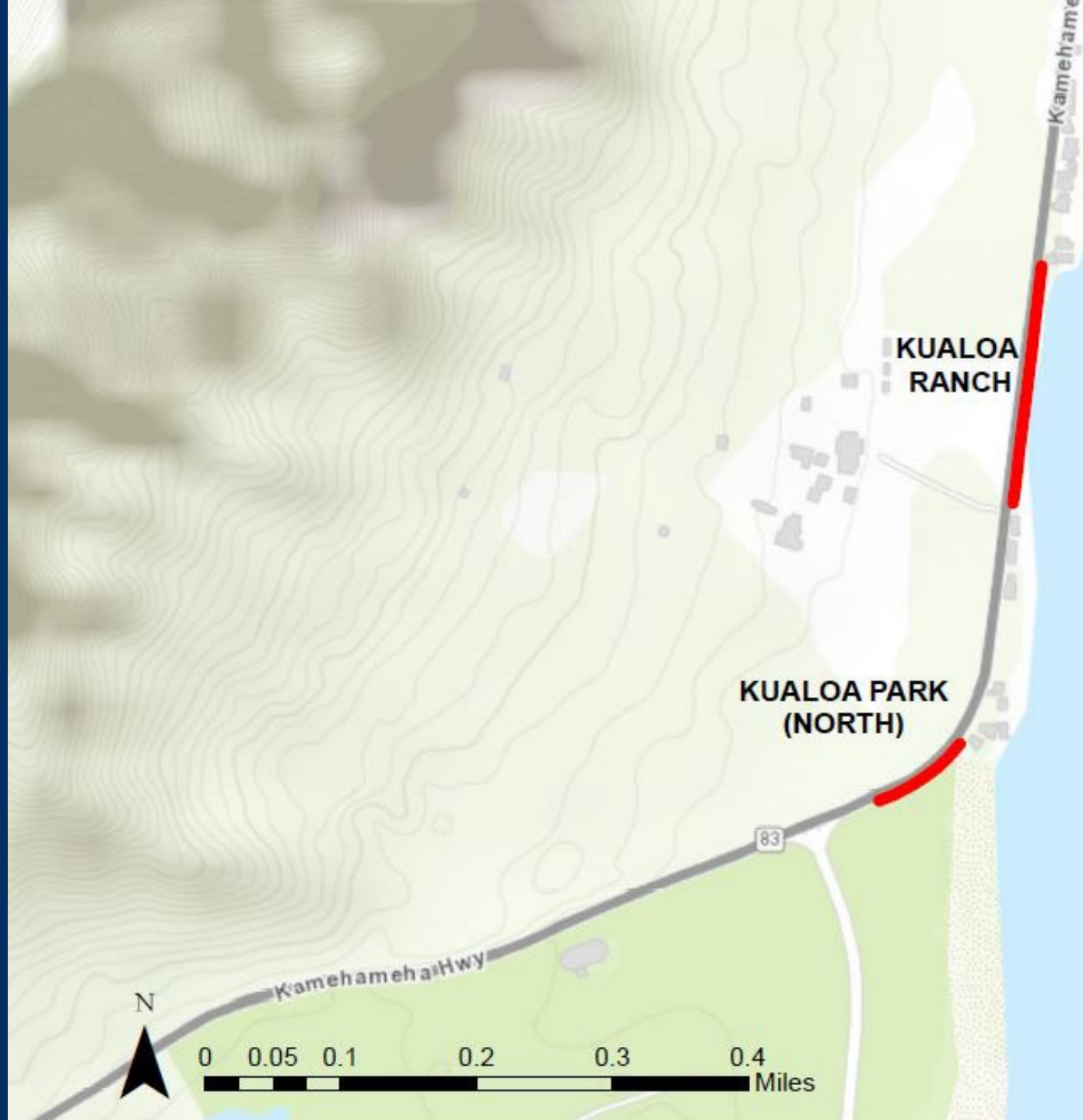


# KAAAWA PROJECT SITES





# KUALOA PROJECT SITES



# ALTERNATIVES CURRENTLY CONSIDERED

## Beach Nourishment



- Involves placement of sand makai of the highway
- Can absorb and dissipate wave energy but not guaranteed to protect the road
- Extremely temporary in nature unless groin/structure constructed
- Lack of existing beach at most locations makes beach nourishment infeasible
- Must be done every couple of years
- Regulatory review of fill quantities, project footprint, and impacts to coral and water quality applies



# ALTERNATIVES CURRENTLY CONSIDERED

## Rock Revetment



- Sloped un-cemented rock or concrete structure
- Porous irregular surface - absorbs and dissipates wave energy
- Durable and resistant to wave damage
- May encourage buildup of sand
- Better wave energy dissipation than seawall and less reflective to other sections of coast
- Increases resilience to coastal hazards and sea level rise
- Possibility to reuse existing riprap
- Largest structural footprint

# ALTERNATIVES CURRENTLY CONSIDERED

## Hybrid Seawall with Armor Stone Apron



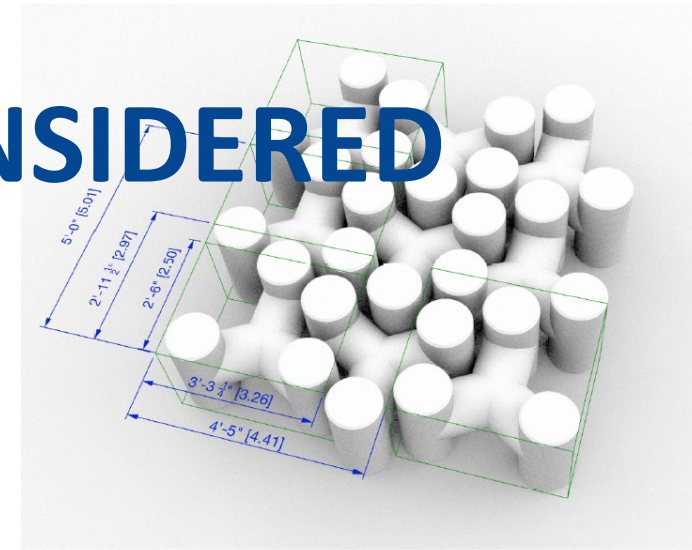
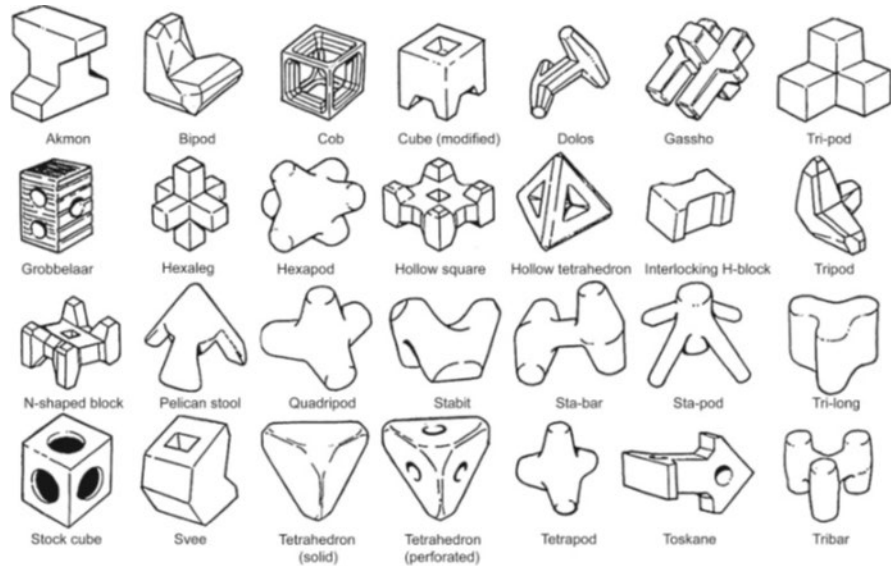
- Has the small footprint of wall with the wave absorption of a revetment
- Adaptable for increased waves and sea level rise
- May encourage buildup of sand
- Not appropriate for higher wave energy sites
- Not appropriate for high vertical spans
- Only appropriate at some project sites with lowest elevation and smallest wave heights

**Traditional Seawall Not Recommended**



# ALTERNATIVES CURRENTLY CONSIDERED

## Concrete Armor Units



Samoa Highway

# DRAFT ENVIRONMENTAL ASSESSMENT

- Draft Environmental Assessment in Progress
- Coordination of public input May/April
- Publish Draft EA late 2023/early 2024
- Construction Schedule Dependent on:
  - Environmental Assessment
  - Selected Alternative(s)
  - Permits & Approvals





# MAHALO

---

[http://hidot.hawaii.gov/  
presentations](http://hidot.hawaii.gov/presentations)

