

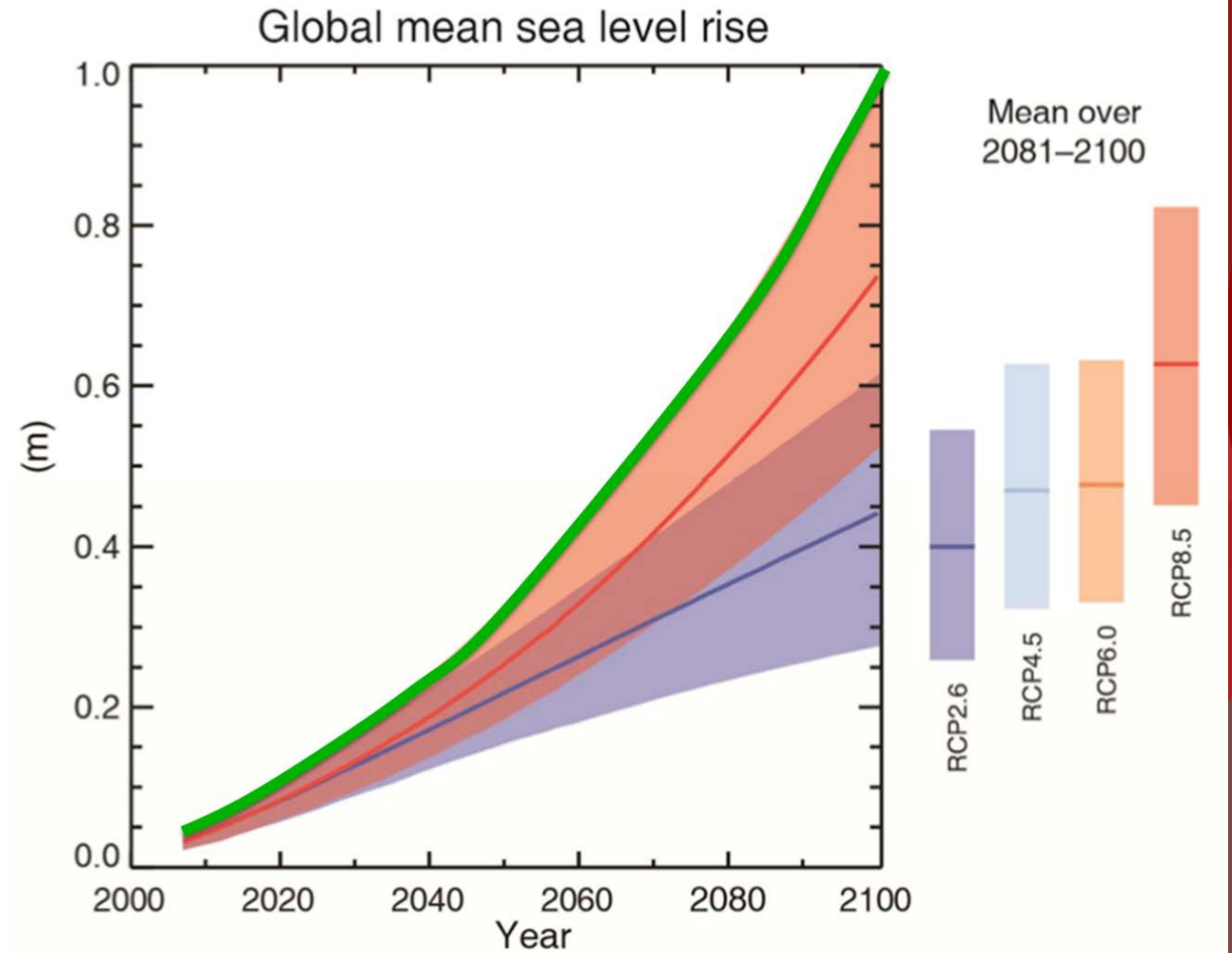
Assessing Impacts due to Sea-Level Rise for Hawai'i

How Will Sea Level Rise Exacerbate Hazards?

- Coastal erosion
 - Passive and groundwater inundation
 - Seasonal inundation
 - 100-year flooding
- Permanent
- Temporary
-
- A diagram on the right side of the slide uses curly brackets to group the hazards. The top two items, 'Coastal erosion' and 'Passive and groundwater inundation', are grouped under the label 'Permanent'. The bottom two items, 'Seasonal inundation' and '100-year flooding', are grouped under the label 'Temporary'.

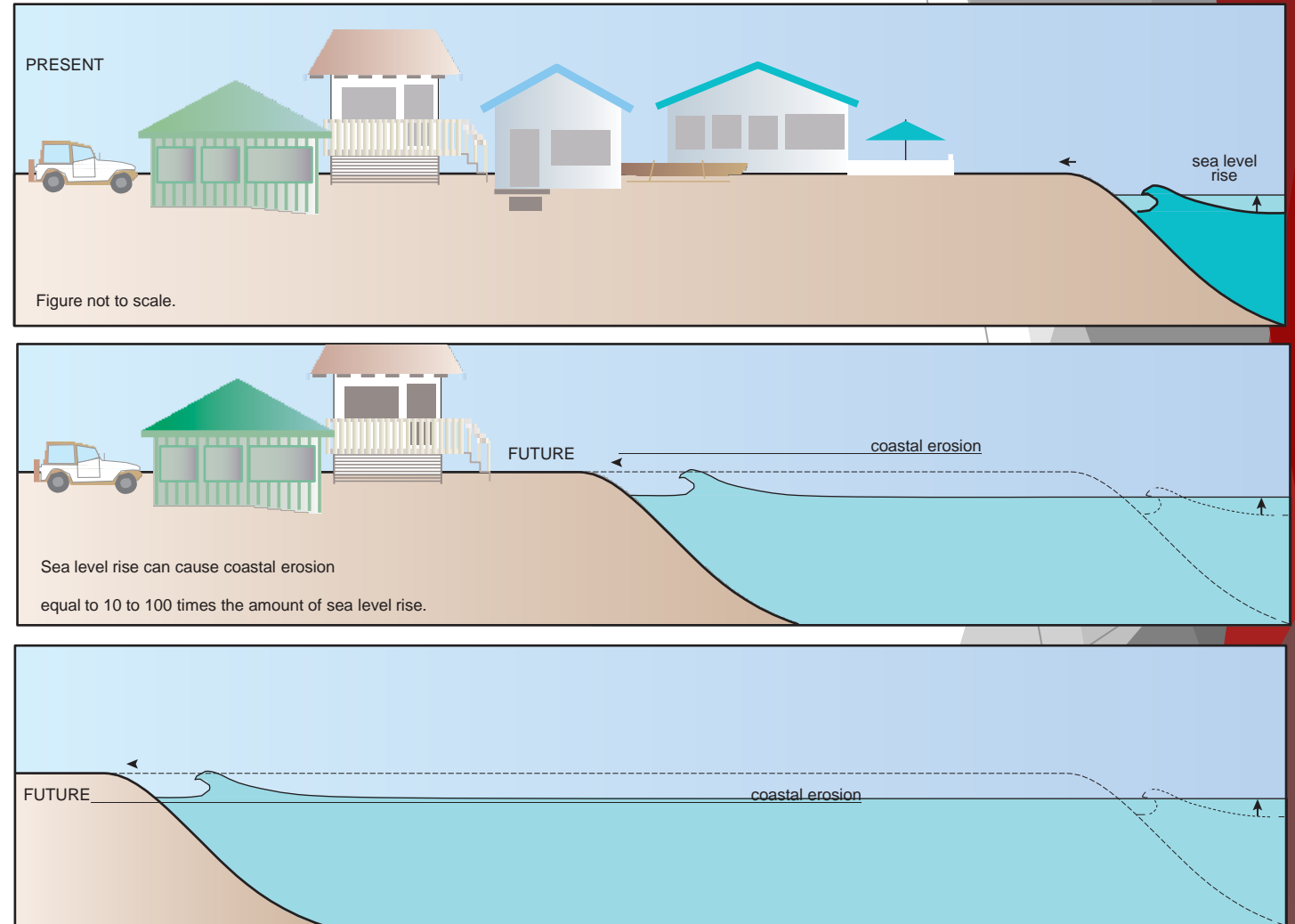
Sea Level Rise (SLR) Projections

- Components
 - Global values
 - Local values
- US Army Corps SLR calculator



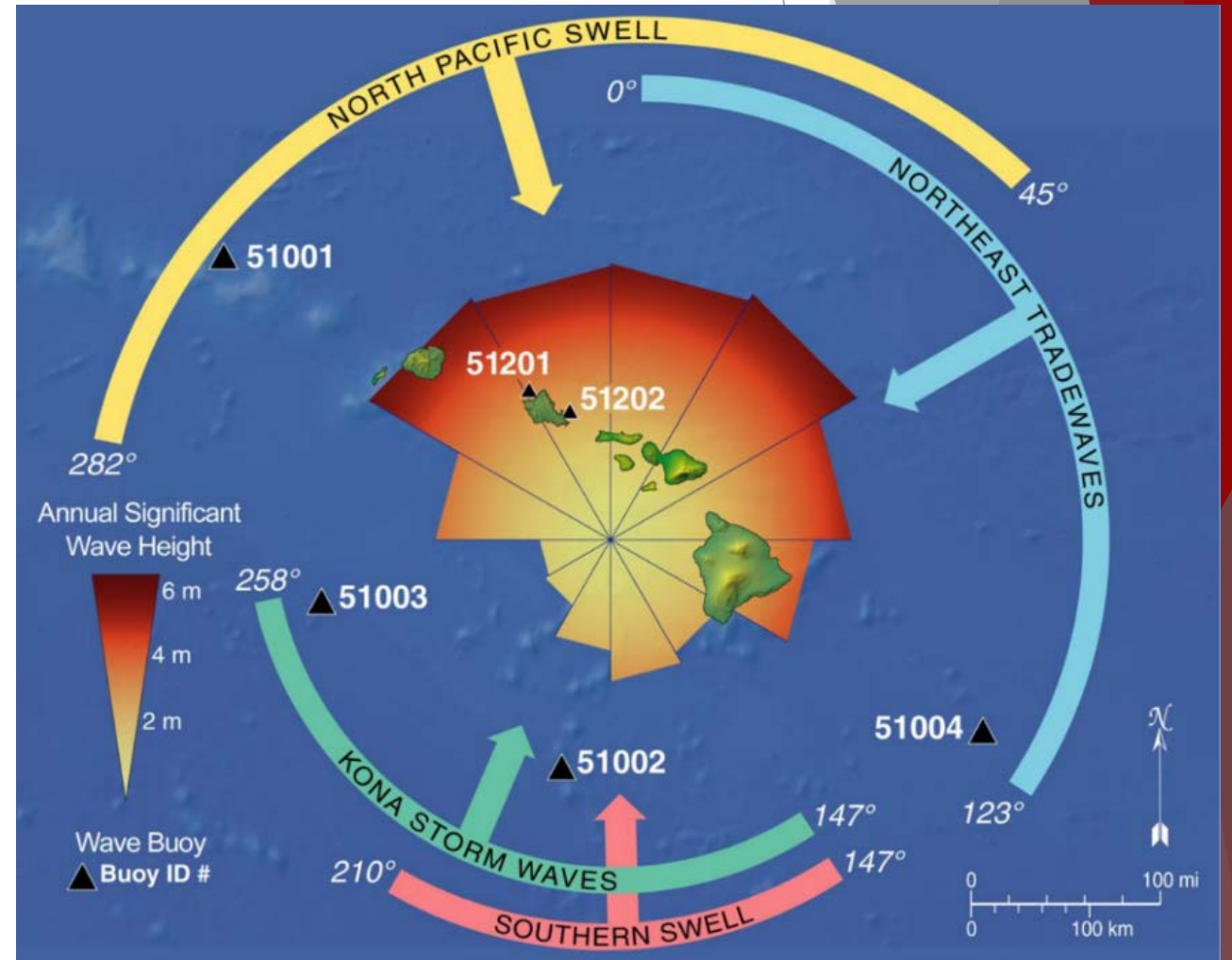
Coastal Erosion

- Derived from historical photographs and projected sea levels



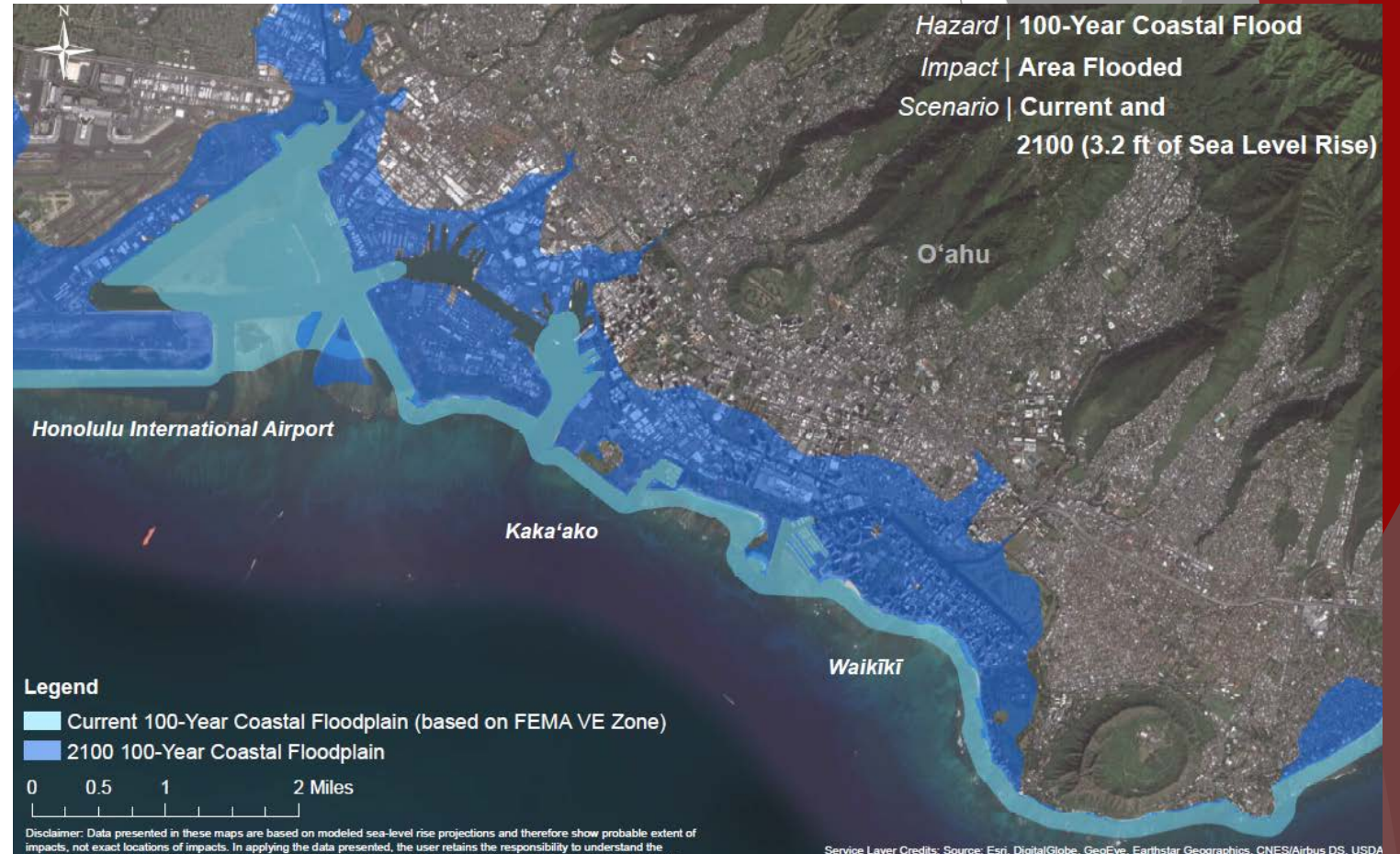
Seasonal Wave Runup

- XBeach was used in non-hydrostatic mode
- Depth and velocity grids were generated



100-Year Coastal Flood

- FEMA Flood Insurance Study
- Dynamic DEM
- 1m & 3m DEM



Next Step: Exposure!

- Focus on inundation areas
- Determine what state, county, and other entities have already developed
- Convert for Hazus use

Structure Data

- Building footprints
- Parcel data
- Hazus requires points



Parcel Data

- Square footage
- Occupancy converted
- Assessed land and structure values

Reports

Parcel

View as: [Google Earth](#) | [Bird's Eye](#) | [Google Maps & Street View](#)

Selected Parcel	910250130000 (Click for Card)
Land Area (approximate sq ft)	12,030
Land Area (acres)	0.2762
Physical Address	91-717 ONEULA PL
Property Class	RESIDENTIAL
Assessed Land Value	\$693,500
Assessed Building Value	\$154,500
Total Property Assessed Value	\$848,000
Total Property Exemptions	\$120,000
Total Net Taxable Value	\$728,000
Improvements on Parcel	1
Total Improvement Area (sq ft)	1,144

Website last updated September 14, 2015
GIS Maps last updated September 14, 2015

Assessment Year	Property Class	Assessed Land Value	Dedicated Use Value	Land Exemption	Net Taxable Land Value	Assessed Building Value	Building Exemption	Net Taxable Building Value	Total Property Assessed Value	Total Property Exemption	Total Net Taxable Value
2015	RESIDENTIAL	\$ 693,500	\$ 0	\$ 0	\$ 693,500	\$ 154,500	\$ 120,000	\$ 34,500	\$ 848,000	\$ 120,000	\$ 728,000

Appeal Information [Print Appeal Info](#)

No appeal information on parcel.

Property Class	Square Footage	Acres	Agricultural Use Indicator
RESIDENTIAL	12,030	0.2762	

Building Number	Occupancy	Year Built	Effective Year Built	Square Feet	Bedrooms	Full Baths	Half Baths	Sketch
1	SINGLE-FAMILY	1940	1950	1,144	2	2	0	Show Building Sketch

Card	Line	Lower	First	Second	Third	
1	0					1,144
1	1		PORCH CEILED RECESSED OPEN			512
1	2		OPEN CARPORT BIT/CONC FLOOR			440

Description	Quantity	Year Built	Area
No information associated with this parcel.			

Date	Permit Number	Reason	Permit Amount
06/22/1990	267205		\$ 39,000
09/30/1988	260284		\$ 19,000

What does Hazus Require?

- Specific occupancy ✓ - Conversion Required
- Replacement cost ✓ - Square footage and RSMeans
- Content cost ✓ - Used Hazus defaults
- Number of Stores ✓ - First return - bare earth
- Foundation type X - Not available
- Height X - Not available

Foundation Type and Height

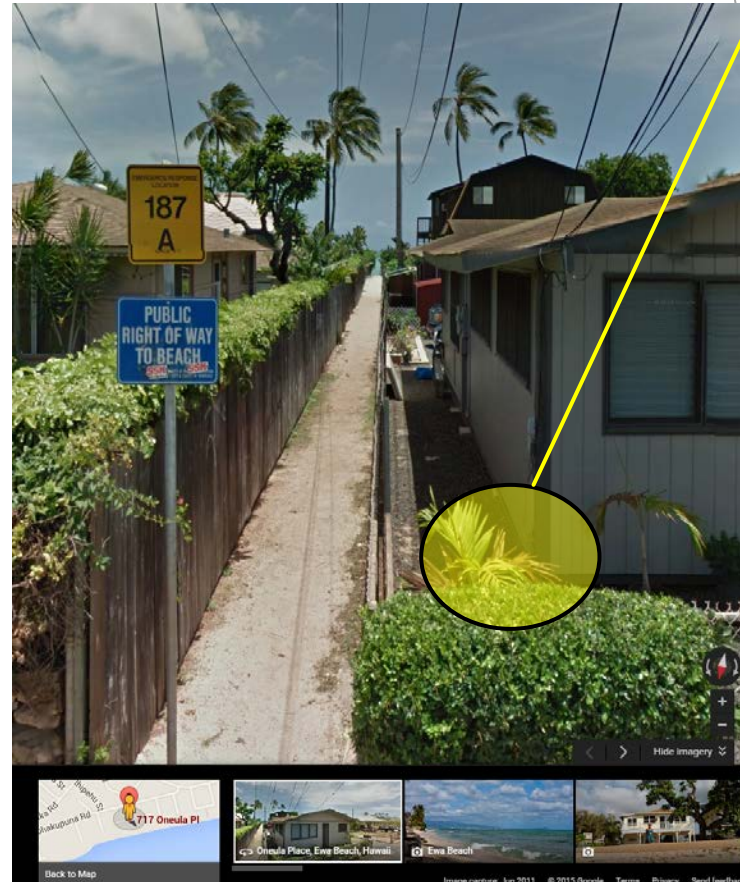
➤ Why does Hazus require foundation type?

To determine whether the with or without basement damage function is used!

➤ How can I find it?

Zillow and Google Street View

Foundation Type



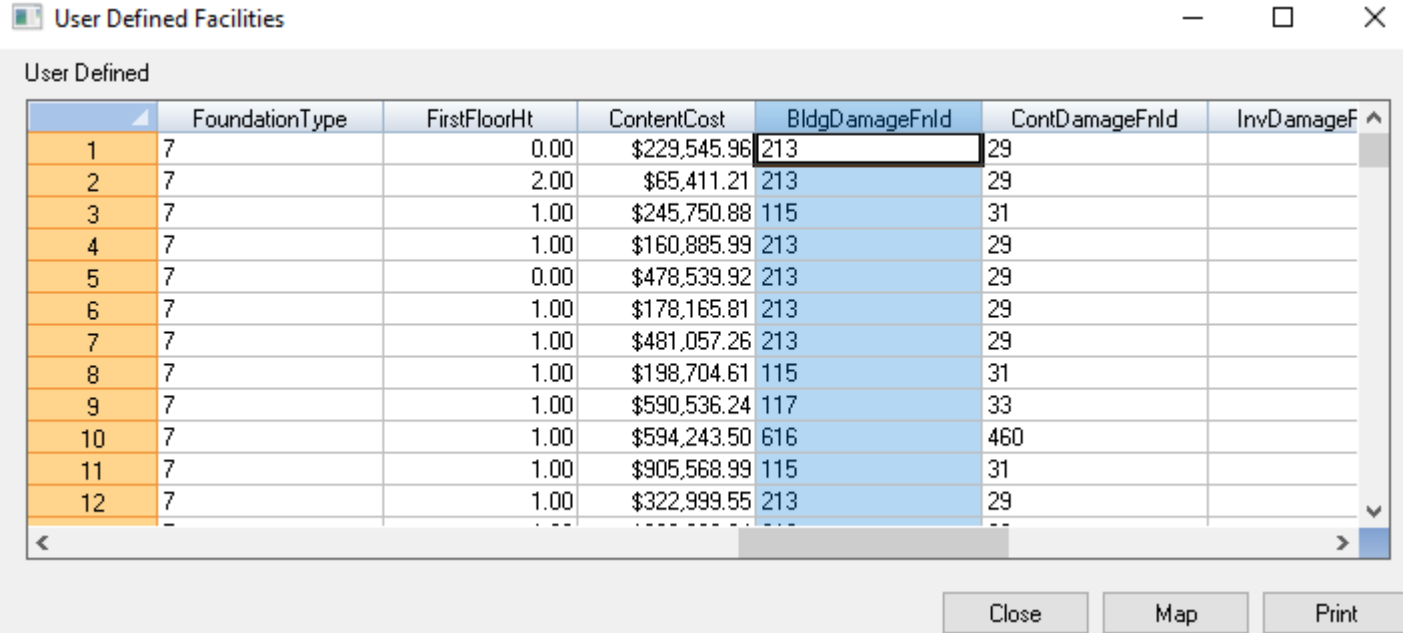
Height Value: A Zone vs. V Zone

- All buildings in the V Zone are measured from bottom of first finished floor (e.g. slab on grade is 0' for height)
- All buildings in the A Zone are measured from top of first finished floor (e.g. slab on grade is 1' for height)
- V Zone boundaries must be identified before user assigns elevations, so where can I find these?

ZoneRP100 Feature Class in CaseOutput Geodatabase

Analysis Time!

- User Defined Table populated and ready to run analysis
Not so fast!
- Structure and content damage function ID need to be defined. Otherwise Hazus defaults to riverine (A Zone) depth damage functions

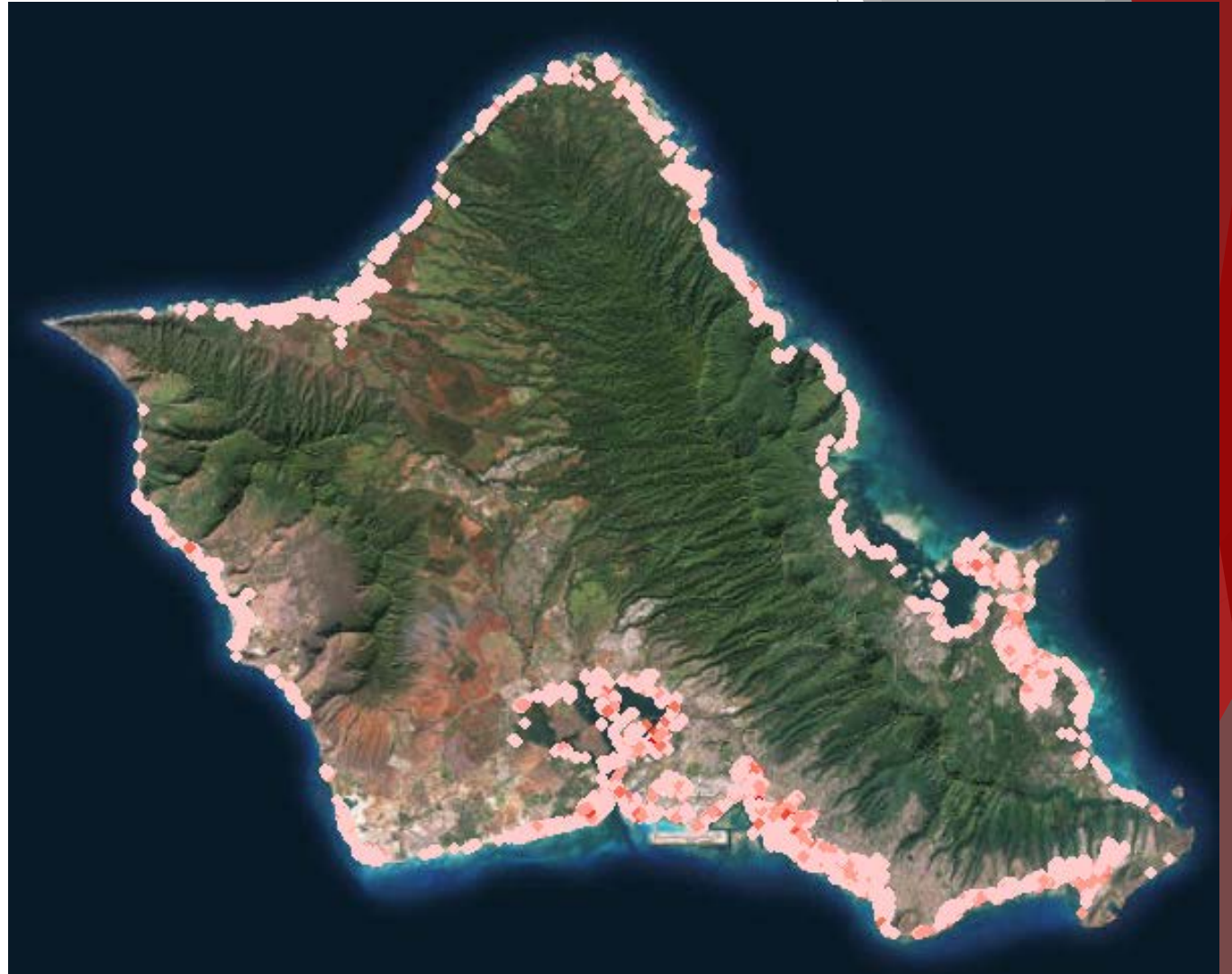


The screenshot shows a window titled "User Defined Facilities" with a table of user-defined damage functions. The table has seven columns: an index, FoundationType, FirstFloorHt, ContentCost, BldgDamageFnId, ContDamageFnId, and InvDamageFnId. The rows are numbered 1 through 12. The BldgDamageFnId and ContDamageFnId columns contain values that correspond to the damage functions used in the analysis.

	FoundationType	FirstFloorHt	ContentCost	BldgDamageFnId	ContDamageFnId	InvDamageFnId
1	7	0.00	\$229,545.96	213	29	
2	7	2.00	\$65,411.21	213	29	
3	7	1.00	\$245,750.88	115	31	
4	7	1.00	\$160,885.99	213	29	
5	7	0.00	\$478,539.92	213	29	
6	7	1.00	\$178,165.81	213	29	
7	7	1.00	\$481,057.26	213	29	
8	7	1.00	\$198,704.61	115	31	
9	7	1.00	\$590,536.24	117	33	
10	7	1.00	\$594,243.50	616	460	
11	7	1.00	\$905,568.99	115	31	
12	7	1.00	\$322,999.55	213	29	

Results

- Results modeled as User Defined Facilities at the site level
- However, they will be presented in aggregate due to concerns from the State



Results

- 90m x 90m Grid defined
- Losses don't need to be normalized by area because all the areas are the same size





Questions?

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