

RICRMC COASTAL HAZARD APPLICATION WORKSHEET

APPLICANT NAME:

PROJECT SITE ADDRESS:

STEP 1. PROJECT DESIGN LIFE

- A. For properties in a FEMA-designated **A**, or **X** Zone, provide the first floor elevation (FFE) of the proposed structure referenced to NAVD88, **OR** For properties in a FEMA-designated **V** or **Coastal A** Zone, please provide the elevation of the lowest horizontal structural member (LHSM) referenced to NAVD88.

FFE

OR

LHSM elevation

ft

ft
- B. How long do you want your project to last? Identify the expected design life for the project (CRMC recommends a **minimum of 30 years**)

Design Life:

yrs
- C. Add the number of years you identified in 1B to the current year.

Design Life Year:

D. **CHECK** beneath the sea level rise (SLR) projection that matches or comes closest to project design life year.

Year	2030	2040	2050	2060	2070	2080	2090	2100
SLR	1.47	2.13	3.05	4.00	5.15	6.49	7.94	9.41
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Source: Sea Level Rise (SLR) Projections (Feb. 2017). NOAA High Curve, 83% Confidence Interval. Newport, RI Tide Gauge. All values are expressed in feet relative to NAVD88. <http://www.corpsclimate.us/ccaceslcurves.cfm>

NOTE: The STORMTOOLS sea level rise scenarios depict how high the water will be above the average height of the daily high tide over the 19-year period between 1983 and 2001. There have been between 4 and 5 inches of sea level rise in Rhode Island since then. The higher modeled water level accounts for the uncertainties in ice sheet and ocean dynamics.

STEP 2. SITE ASSESSMENT

- A. Open *RICRMC Coastal Hazard Mapping Tool*. Following the tutorial along the left side of the screen, enter the project site address and turn on the sea level layer closest to the number you circled in 1D.
- B. **ENTER** the STORMTOOLS SLR map layer closest to the SLR value you checked in Step 1D above. If the value falls between the available STORMTOOLS SLR map layers, round to the closest of these sea level rise (SLR) numbers: 1ft, 2ft, 3ft, 5ft, 7ft, 10ft, or 12ft ft
- C. Does the STORMTOOLS SLR map layer you circled above expose your project site to future tidal inundation? **CHECK YES or NO**
 YES
 NO
- D. List any **roads or access routes** that are potentially inundated from SLR. To do this, ZOOM OUT from your project location, change BASEMAP on the viewer to “street view” – see Step 2A.

****Please be advised that CRMC staff may also review the implications of sea level rise in combination with nuisance storm flooding and discuss these potential project concerns with the applicant. Nuisance flooding impacts may be viewed in STORMTOOLS [here](#).**

STEP 3. STORMTOOLS DESIGN ELEVATION (SDE)

- A. Select your SLR Scenario using the tabs along the top of the online map (*NOTE: RECOMMENDED scenario is 100-year storm plus 3-feet of sea level rise*). Follow the tutorial included along the left panels of the viewer to enter the address of your project site. Select the tab across the top that corresponds to the sea level rise projection you identified in STEP 1. Enter your address on the map, and then click on the project site to identify **STORMTOOLS Design Elevation (SDE)** from the pop-up box. **Enter the SDE value:**
- ft

RICRMC COASTAL HAZARD APPLICATION WORKSHEET

STEP 4. SHORELINE CHANGE

A. Using the [CRMC Shoreline Change maps](#), indicate the transect number closest to your site, and erosion rate listed for that transect. **NOTE: Transects are not available for every site. If this is the case, please enter N/A.**

Transect Number: _____
Erosion Rate: _____ **ft/year**

B. **CHECK** below the Projected Erosion Rate that corresponds to the design life you identified above.

Year	2050	2060	2070	2080	2090	2100
Projected Future Erosion Multiplier	1.34	1.45	1.57	1.70	1.84	2.00
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Source: Projected Shoreline Change Rate multipliers. (Oakley et al., 2016)

C. COMPLETE EROSION SETBACK CALCULATION:

Historic shoreline change rate, STEP 4A	Design Life, STEP 1B	Projected Future Erosion Multiplier, STEP 4B	Erosion Setback (ft) 4A x 1B x 4B
X	X	=	

NOTE: Setbacks are required per the [CRMC Red Book, Section 1.1.9](#). A **minimum setback of 50-feet is required**, but a greater setback may be necessary and/or desirable based on this analysis.

STEP 5. CERI & OTHER SITE CONSIDERATIONS

A. If you live in a community where a Coastal Environmental Risk Index (CERI) has been completed (Barrington, Bristol, Charlestown, Narragansett, South Kingstown, Warren, Warwick, Westerly), **CHECK** the level of projected damage to your location, as indicated on the map that corresponds to the design life identified in STEP 1.

CERI Level: **Moderate** **High** **Severe** **Extreme** **Inundated by 2100** **Not applicable**

B. Consider and discuss with your design consultant other forces or factors that might impact the development, such as coastal habitats, shoreline features, public access, wastewater, storm water, depth to water table/groundwater dynamics, saltwater intrusion, or other issues not listed above. In addition, pressure from rising sea levels will result in rising subsurface groundwater levels ultimately effecting wells and septic systems.

STEP 6. LARGE PROJECTS

This step is for Large Projects and Subdivisions only, six (6) or more units, as defined by the CRMC Red Book Section 1.1.6.I(1)(f). This step may be skipped for other projects.

A. Use the Sea Level Affecting Marshes Model (SLAMM) Maps to assess potential impacts to large projects and subdivisions from salt marsh migration resulting from projected sea level rise. CRMC SLAMM maps can be accessed [here](#). The CRMC recommends using the 5-foot SLR projection within SLAMM to assess future potential project impacts on migrating marshes. Does the SLAMM map that corresponds to the design life you identified in STEP 1 expose your project site to future salt marsh migration? **CHECK YES or NO**

YES **NO**

STEP 7: DESIGN EVALUATION

A. Using Chapter 7 of the RI Shoreline Change SAMP as a guide, investigate mitigation options for the exposure identified above and include that in the final application.

This fully completed Coastal Hazard Application Guidance worksheet must accompany the application. If you are a design or engineering professional, please print and sign here that you have discussed the findings of this worksheet with the Owner.

DESIGN/ENGINEER SIGNATURE: _____

DATE: _____

OWNER'S SIGNATURE: _____

DATE: _____