Coastal Resilience Analysis Worksheet

This worksheet is intended to help an agency select a sea level rise estimate for a proposed project and guide analysis to demonstrate that the agency has considered the impacts of climate change and sea level rise as it relates to a proposed project. The analysis relies on Maryland's sea level rise predictions issued by the Maryland Commission on Climate Change, as updated every five years. Resources that may assist in completing the analysis are listed at the end of this attachment.

PART I. Select Mean Sea Level Rise Estimate.

Data Sources:

Sea Level Rise Projections for Maryland 2023

Guidance for Using Maryland 2023 Sea Level Rise Predictions

Step 1. Define the design life of the project, and identify required major maintenance activities and their timeframes through the life-cycle of the project:

Design-Life:

Step 2. Determine the Project's Tolerance for Flood Risk.

Tolerance for flood risk is the willingness of decision-makers and stakeholders to accept possible consequences of flooding. Flood risk tolerance is different from a project's sensitivity to inundation, which refers to the project's capacity to sustain damage or loss of function during a flood event or repeated flood events. A project with high sensitivity to inundation would be easily damaged if flooding were to occur, whereas a project with low sensitivity to inundation would not.

	HIGH TOLERANCE FOR FLOOD RISK	MEDIUM TOLERANCE FOR FLOOD RISK	LOW TOLERANCE FOR FLOOD RISK
Description	Decision-makers & stakeholders have a High tolerance for flood risk to the project	Decision-makers & stakeholders have a Medium tolerance for flood risk to the project	Decision-makers & stakeholders have a Low tolerance for flood risk to the project
Possible Project Characteristics	Low impact, importance or consequence to the community and/or replacement cost.	Medium impact, importance or consequence to the community and/or replacement cost.	High impact, importance or consequence to the community and/or replacement cost.
	Easy or likely to adapt	Moderately easy or somewhat likely to adapt	Difficult or unlikely to adapt
	Little to no implications for public function and/or safety	Moderate implications for public function and/or safety	Substantial implications for public function and/or safety
	Low sensitivity to frequency and exposure to inundation	Moderate sensitivity to frequency and exposure inundation	High sensitivity to frequency and exposure to inundation

Source: Guidance for Using Maryland 2023 Sea Level Rise Predictions

- Overall Flood Risk Tolerance: ____HIGH ____MEDIUM ____LOW

Explanation:

Step 3. Select a tide gauge.

Per the Guidance for Using Maryland 2023 Sea Level Rise Predictions, "decision-makers may choose to select the tide gauge that best represents or is the closest to or located within the project area. In most cases, RSLR projections based on the closest tide gauge should be used for the project. However, in some instances, a further tide gauge may be more representative of the project area. For example, Hoopers Island in Dorchester County is closest to the Solomons Island tide gauge but would be better represented by the Cambridge tide gauge because it is on the same side of the Bay. For regional or statewide projects, consider selecting a tide gauge with an intermediate rate of RSLR (Annapolis or Cambridge) to be representative of the whole project area."

____ Baltimore MD
____ Tolchester Beach, MD
____ Annapolis, MD
____ Washington, DC
____ Cambridge, MD
____ Solomons Island, MD
____ Ocean City, MD

Step 4. Select a RSLR estimate for the project in accordance with Appendix 1 of the Maryland Sea Level Rise Projections 2023.

The project should plan for _____ft by the year_____.

PART II. Provide an Assessment of Climate Resilient Practices that Address Coastal Hazards, Extreme Weather Events, Sea Level Rise, and Other Impacts.

Step 1. Relative Sea Level Rise

Is the project located within the selected RSLR over the course of its design life?
☐ YES ☐ NO

Step 2. Desktop Analysis

☐ Maps showing all layers in conjunction with the proposed project are attached.

❖ Will the project be impacted by storm events or nuisance flooding over the course of its design life?
☐ YES ☐ NO

Data Source: MDOT SHA Climate Change Vulnerability Viewer
- Select 2050 and 2100 (as necessary) Nuisance Tidal Inundation Maps

❖ Is the project within the FEMA 100 or 500-year floodplain?

☐ YES ☐ NO

Data Source: Maryland Flood Maps

❖ Is the project within a Special Flood Hazard Area?

☐ YES ☐ NO

Data Source: Maryland Flood Maps

❖ Is the project located within the CoastSmart Climate Ready Action Boundary (CS-CRAB) layer?

☐ YES ☐ NO

Data Source: Maryland Flood Maps CRAB Tool

Step 3. Design Considerations

❖ Describe how the agency has considered the likelihood of sea level rise over the course of the design life of the development. This may include specific design or construction alterations made to the project if it is vulnerable to sea level rise, or location alterations made. (COMAR 27.02.05.03 B (9) (a))

Step 4. Coastal Resiliency Practices

❖ What climate resilient practices have been identified and incorporated into the proposed project in order to avoid, or in the alternative, minimize environmental and structural damage associated with a coastal hazard, an extreme weather event, sea level rise, and other impacts? (COMAR 27.02.05.03 B (9) (b))

- Does the project incorporate freeboard above the 100-year base flood elevation, wet-proofing or dry proofing structures below base flood elevation, or the consideration of flooding potential for selection of building materials? If yes, please describe.

- Does the project use or consider presence or creation of ecosystem resiliency features such as oyster beds, wetlands, dunes, barrier islands, or SAV? If yes, please describe.

❖ What other climate resilient practices have been incorporated into the project?

Step 5. Wetland Migration Areas

❖ Is there a potential wetland migration area located within the project site or adjacent to the project site (if the adjacent area is either owned by the agency or within a legally enforceable right-of-way)?

☐ YES ☐ NO

Data Source: Maryland Coastal Atlas; select the Sea Level Rise Vulnerable Wetlands and Sea Level Rise Wetland Adaptation Areas layers

☐ Maps showing the project proximity to wetland migration areas are attached.

If YES, how does the project preserve, protect and maintain these potential wetland migration areas? (COMAR 27.02.05.03 B (3) (b))

- ❖ Will the project, over the course of its design life, adversely impact a potential wetland migration area?
  ☐ YES ☐ NO

If YES, describe the adverse impact and describe why the impact is unavoidable. (COMAR 27.02.05.03 C (1))

Step 6. Ecological Features Assessment

- ❖ If impacts to wetland migration areas are unavoidable, please provide an assessment of ecological features on site that could be enhanced, restored, or created in order to maintain existing wetland functions and to provide additional protection against future sea level rise and coastal storm impacts. This could include the presence or creation of features such as living shorelines, oyster beds, wetlands, dunes, barrier islands, or SAV. (COMAR 27.02.05.03 C (2)).

Data Source: Maryland Coastal Atlas; Select Coastal Resiliency Assessment Layer

- ❖ Please provide recommendations regarding the most feasible methods to address the detrimental adverse impact to a potential wetland migration area, and the enhancement, restoration, and creation of natural features on site. COMAR 27.02.05.03 C (3))

Step 7. Public Access

- If applicable, how does the location and design of the project minimize impacts from sea level rise to a newly established public access? How has long-term access been considered, i.e. can the access move or be relocated; or can other access sites be created in the future? (COMAR 27.02.05.03 D)