NY-NJ HATS COASTAL STORM RISK MANAGEMENT FEATURES/MEASURES BY STORM FREQUENCY
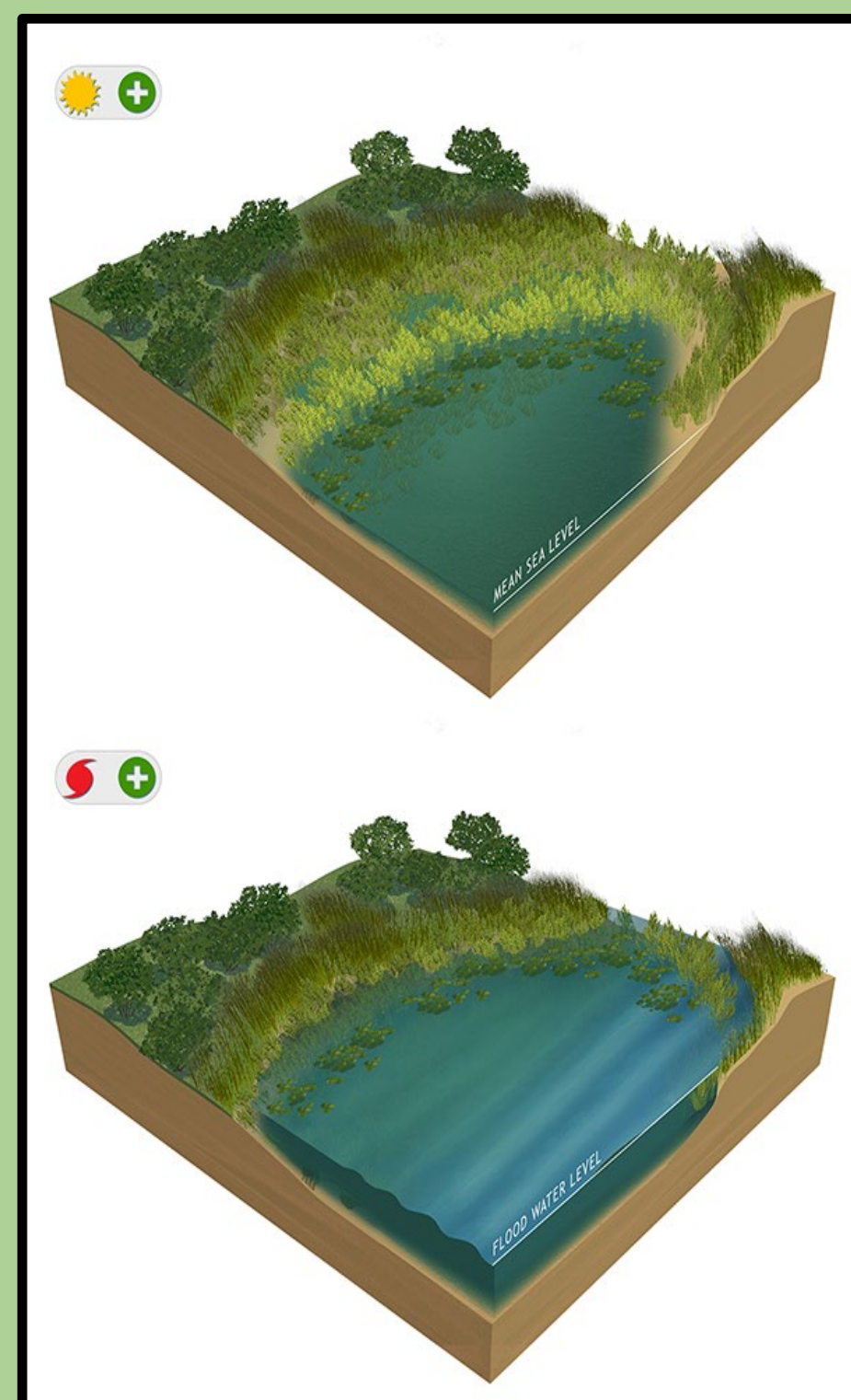
US Army Corps of Engineers
New York District

NATURAL AND NATURE-BASED FEATURES (NNBF)

Natural and Nature-Based Features are landscape components that are used to provide engineering functions relevant to coastal flood risk management, while producing additional economic, environmental, and/or social benefits. Generally, NNBFs will be applicable to high frequency or less severe coastal storm events. Examples of NNBFs include beaches and dunes; vegetated environments such as maritime forests, salt marshes, freshwater wetlands and fluvial flood plains, and seagrass beds; coral and oyster reefs, barrier islands, among others. The types and locations of NNBFs features are currently under development and will be available during later phases of the study.
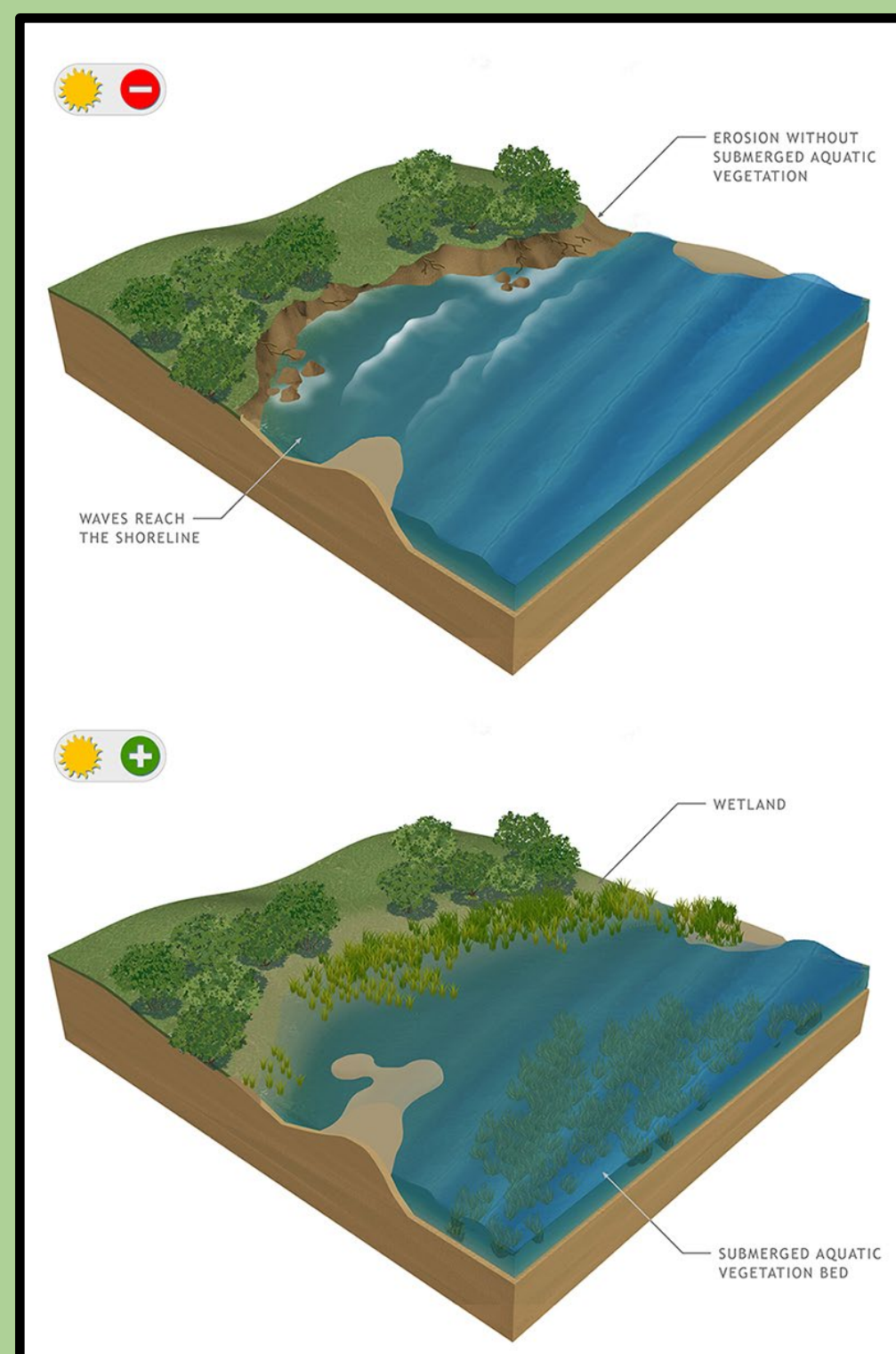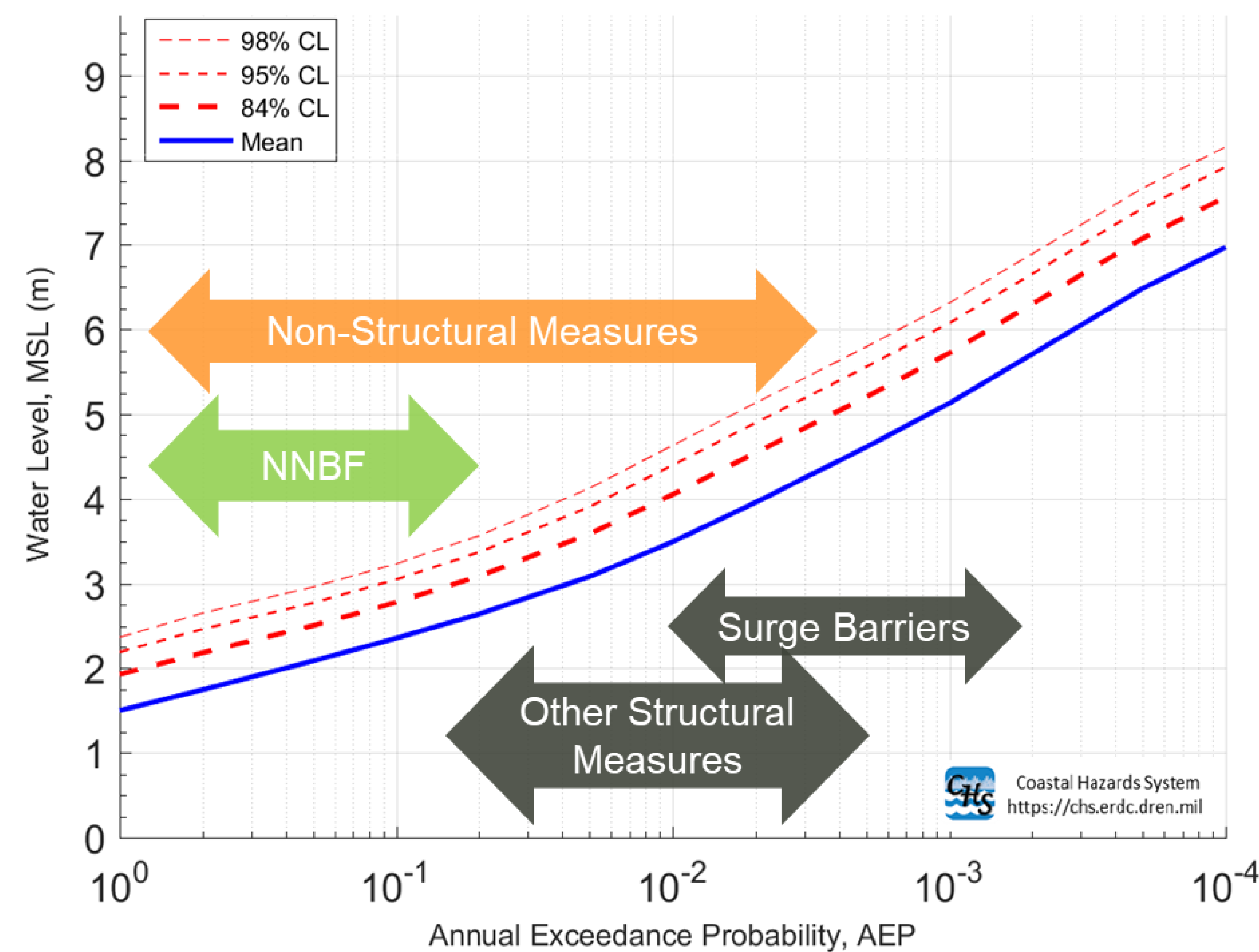

WETLAND LIVING SHORELINE

AQUATIC HOLDING BASINS

NON-STRUCTURAL MESURES

Non-structural measures are permanent or contingent measures applied to a structure and/or its contents that prevent or provide resistance to damage from flooding. Non-structural measures differ from structural measures in that they focus on reducing the consequences of flooding instead of focusing on reducing the probability of flooding. Non-structural measures can be grouped into two categories: physical and non-physical measures. Physical non-structural measures include actions that require modifications to a property or structure. They include structure elevation, dry and wet floodproofing, basement removal, relocation, and acquisition. Nonphysical non-structural measures do not modify individual structures, but rather focus on behaviors and plans that reduce flood risk. They include evacuation plans, flood warning systems, flood insurance, floodplain mapping, flood emergency preparedness plans, land use regulations, risk communication, and zoning.

DRY FLOODPROOFING

HOME RAISING

MODELED STORM SURGE ELEVATIONS VS. ANNUAL EXCEEDANCE PROBABILITY

Coastal Hazards System
https://chs.erdc.dren.mil

STORM SURGE BARRIER

ELEVATED PROMENADE

LEVEE

STRUCTURAL MEASURES

Structural measures are permanent measures that prevent or provide resistance to damage from coastal flooding. For purposes of this study, structural measures are divided into two major categories: **Storm Surge Barriers (SSB) and Shore Based Measures (SBM).**
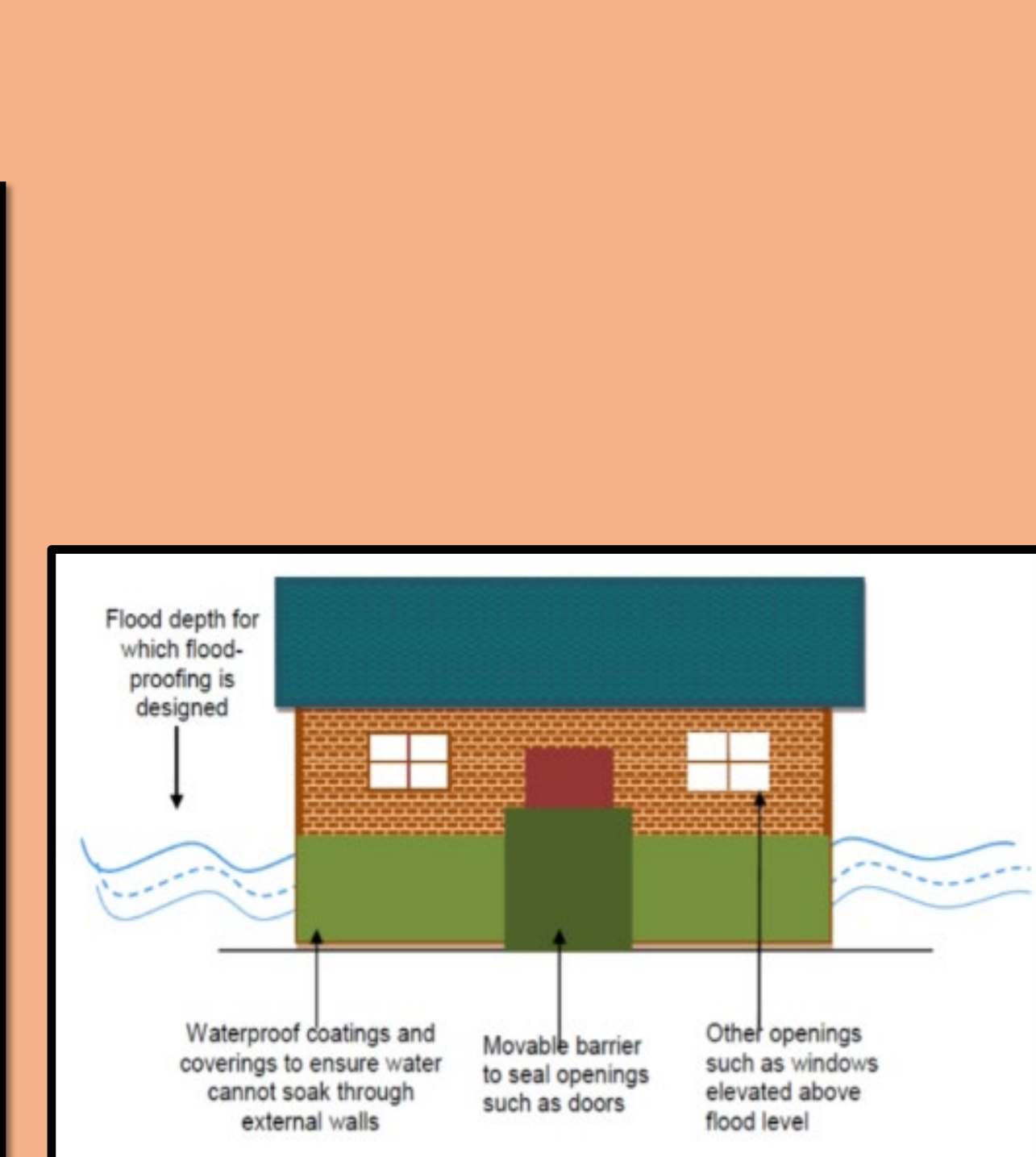
Storm Surge Barriers are in-water measures consisting of navigable and, where applicable, auxiliary flow gates which can be opened and closed to impede storm surge. Auxiliary flow gates serve to maximize the water exchange through the opening and minimize environmental impacts to the inner basin/estuary during ambient (non-storm) meteorological conditions.

Shore-Based Measures are on-land perimeter measures such as levees, floodwalls, dunes, promenades, etc., that are constructed to obstruct coastal storm surge from entering an area vulnerable to flooding.
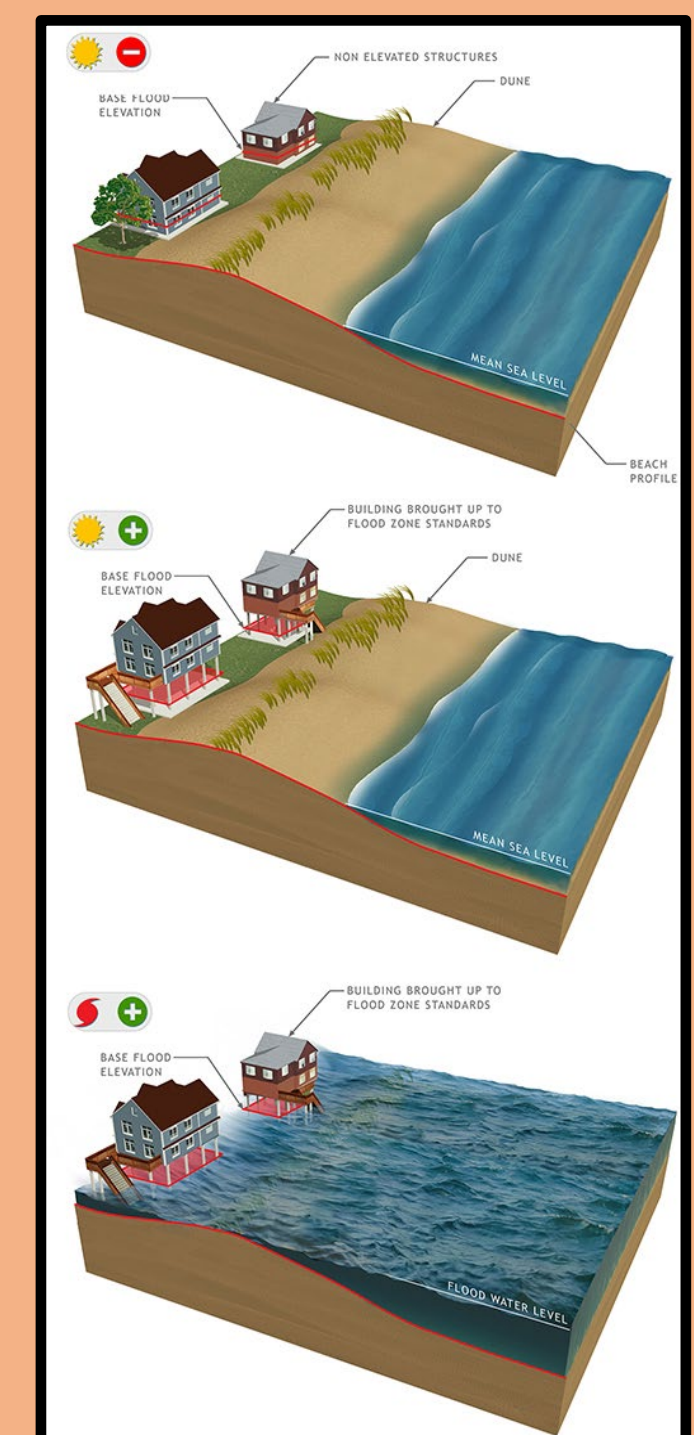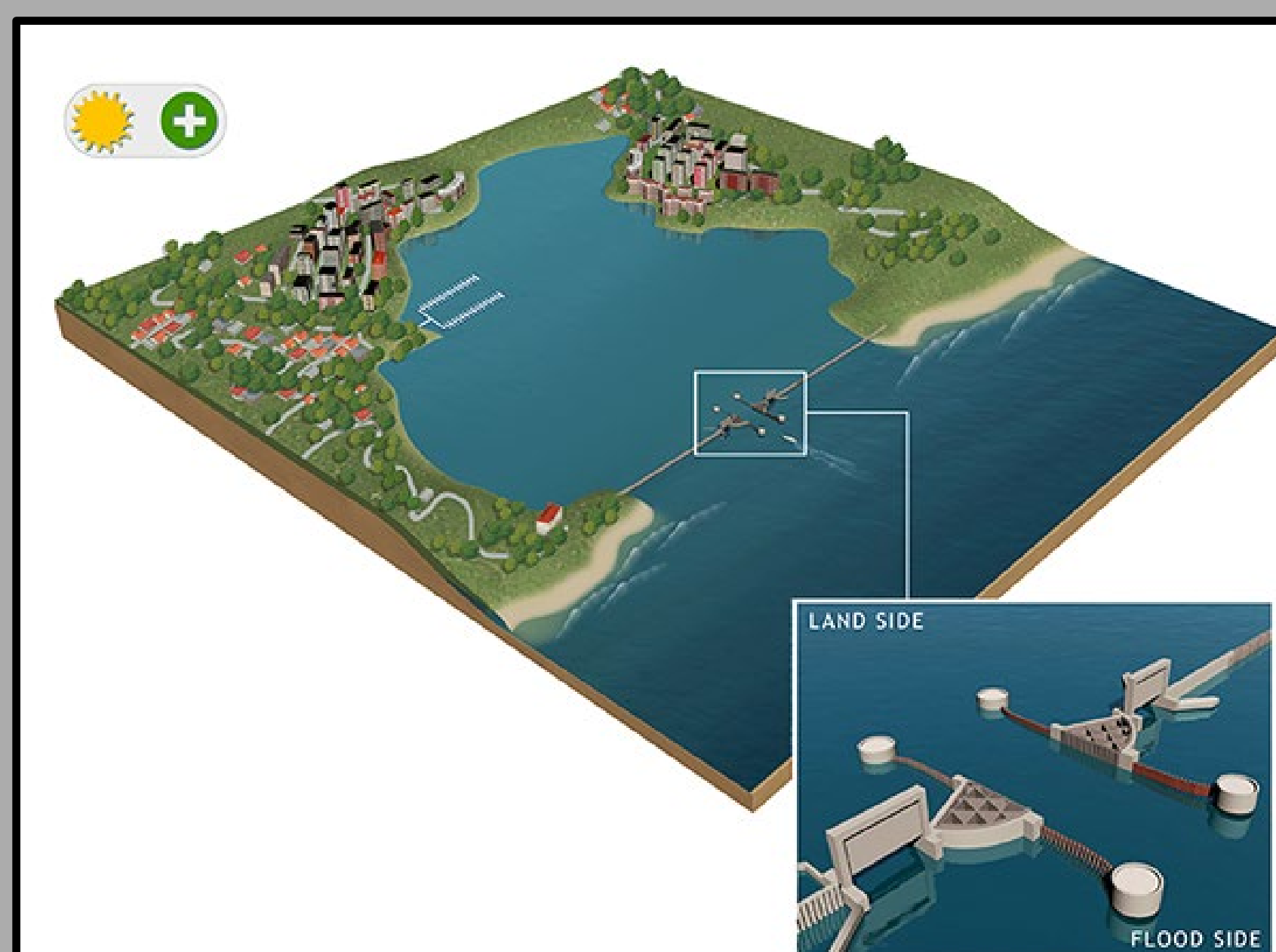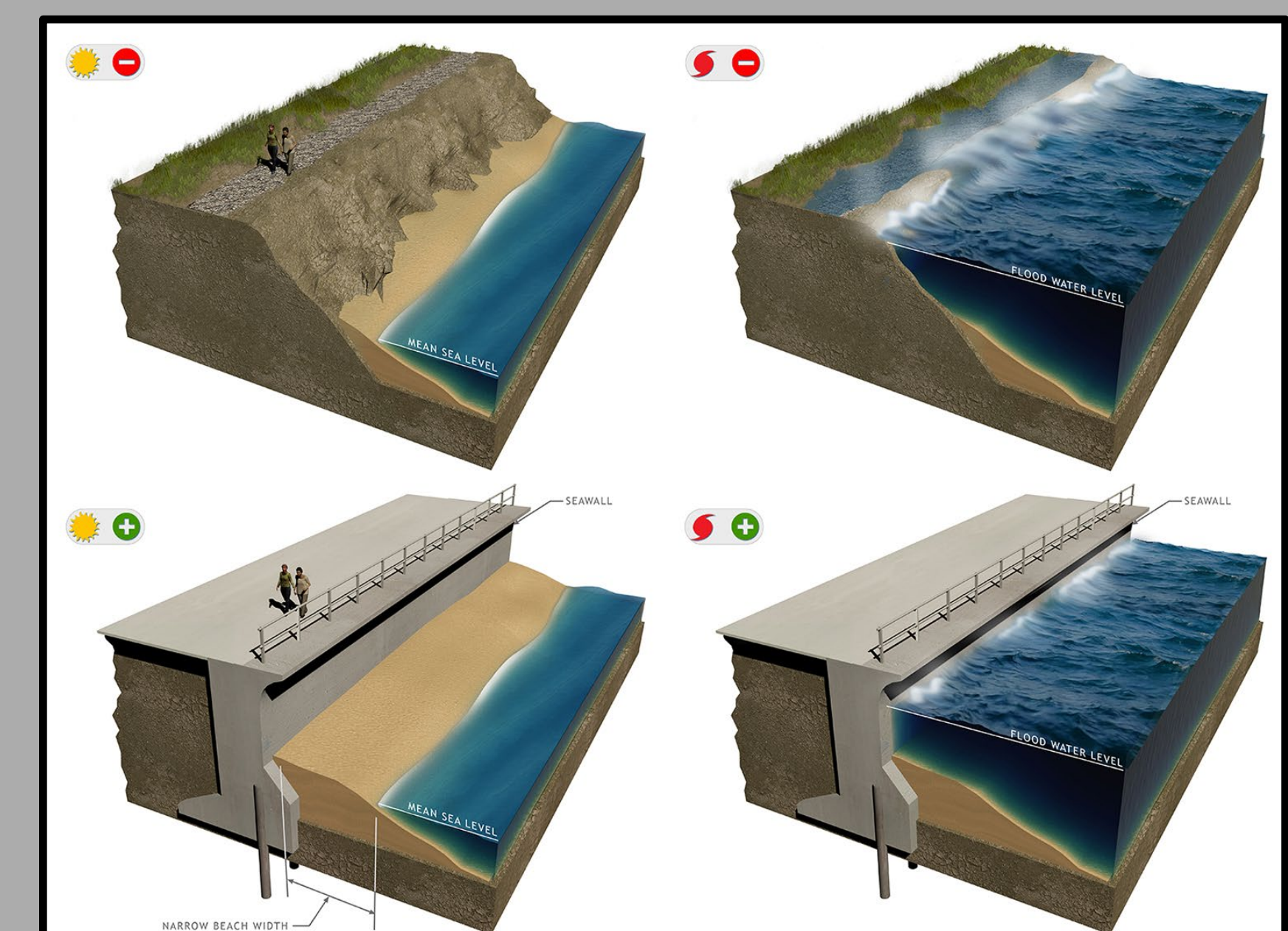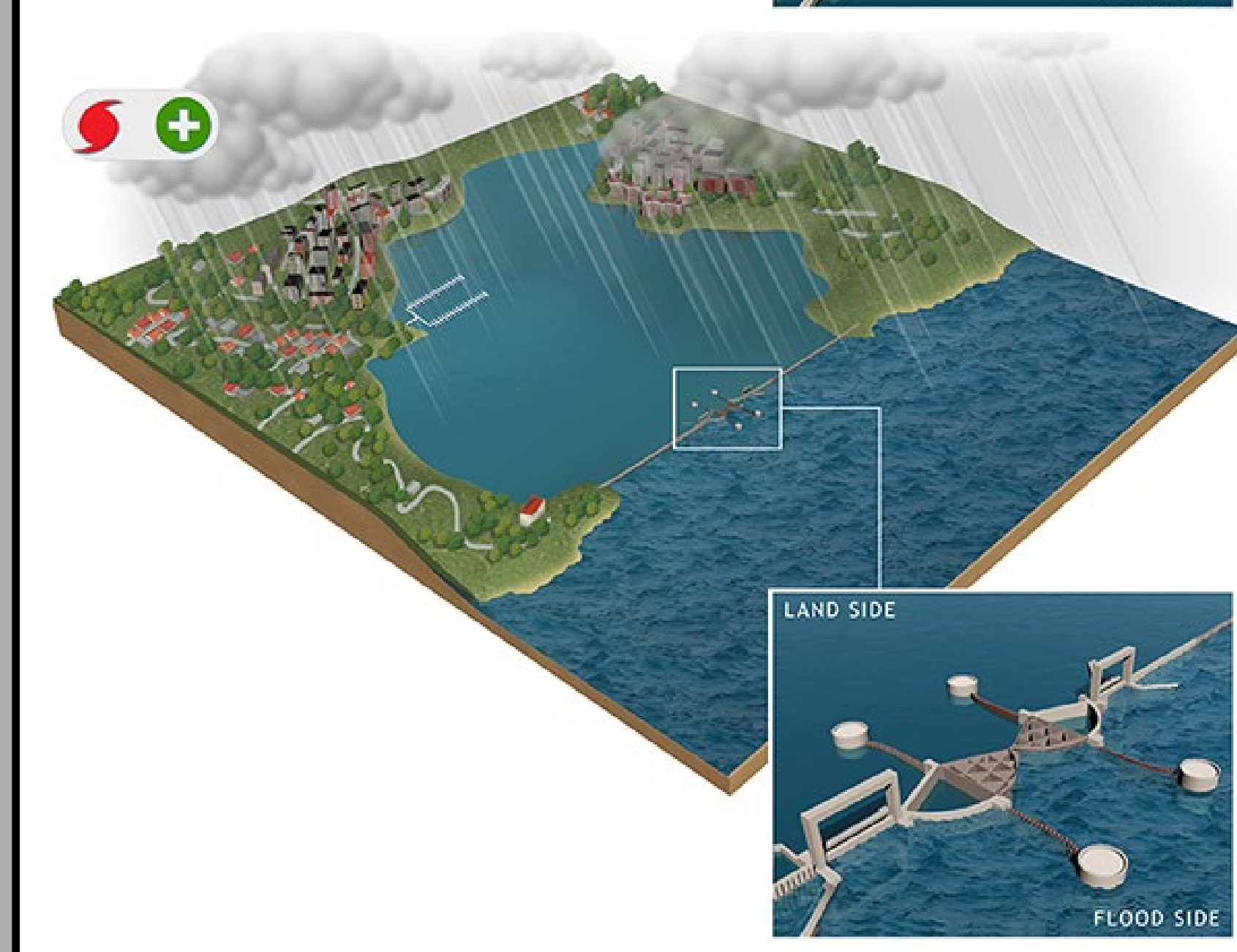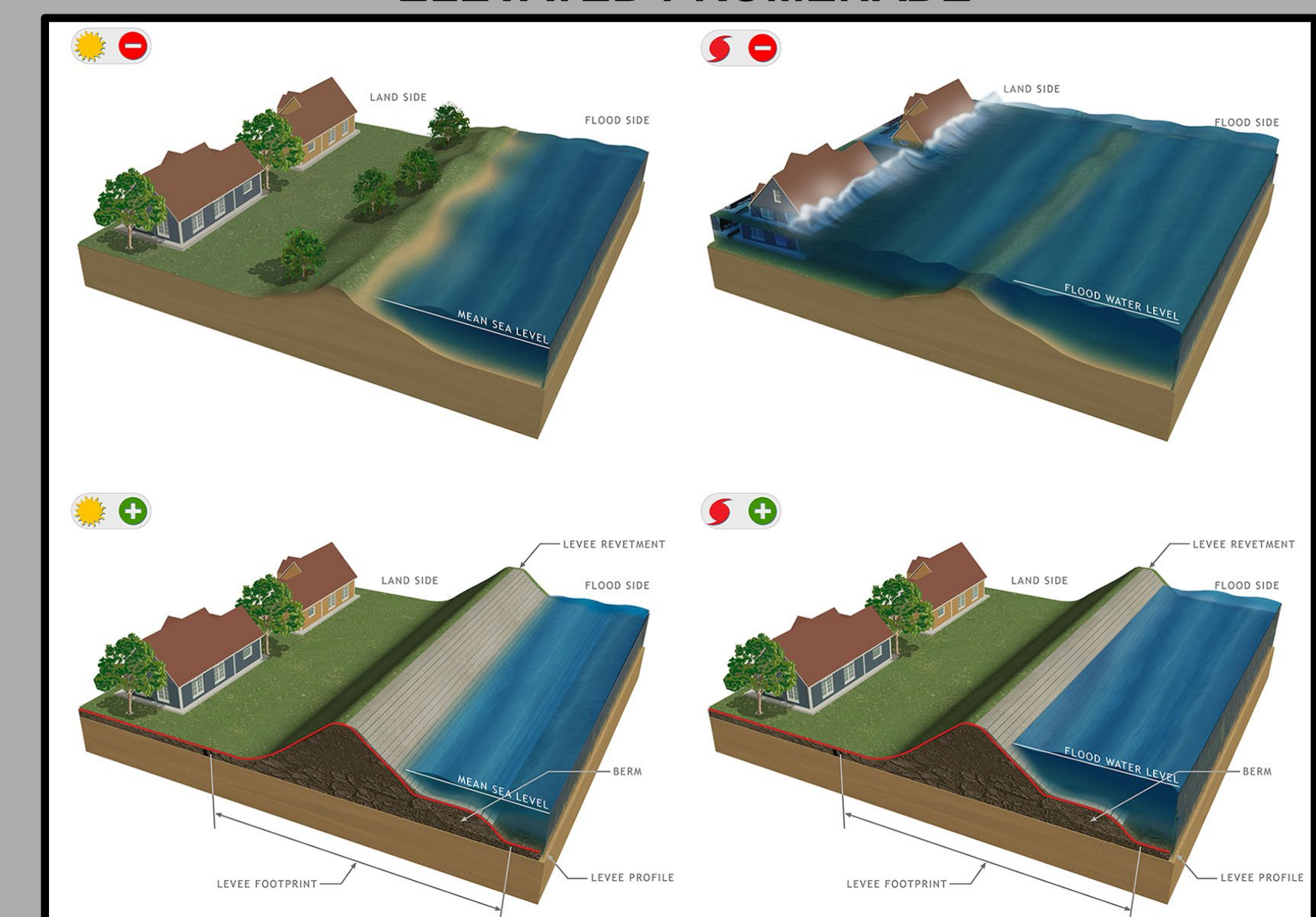
The draft HATS feasibility report generally considered a modeled **1% Annual Exceedance Probability (AEP) coastal storm event plus 50 years of relative sea level change (RSLC) through the year 2095** to develop preliminary designs and cost estimates. Potential adaptation of the measures in response to relative sea level change through the year 2145 will be further evaluated later in the study.