



SEA LEVEL RISE & LAND DEVELOPMENT IN HAYWARD

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WHAT IS SEA LEVEL RISE?

Climate change is causing the seas to rise in Hayward, California and worldwide. Sea level rise is caused by two main factors:

1. *The Melting of Ice:* As global temperatures rise, glaciers and ice sheets melt adding freshwater to our oceans which lead to rising sea levels.
2. *Thermal Expansion:* As global temperatures rise, water temperatures also rise. When water is heated, the volume of water expands causing sea levels to rise.

Local, state, and global actions are necessary to curb climate change, and the City of Hayward already has several initiatives in place to address its effects. To learn more about these initiatives, please visit <https://www.hayward-ca.gov/your-environment>

However even if the inputs to climate change are drastically curbed, sea levels will continue to rise across the globe. As a community adjacent to the San Francisco Bay, Hayward is particularly vulnerable to this threat.

WHAT ARE THE IMPACTS OF SEA LEVEL RISE?

If unaddressed, sea level rise will have impacts on Hayward’s shoreline and low-lying areas including:

- Increased and prolonged flooding
- Damage and/or loss of buildings, roads, and critical infrastructure
- Loss of marshes, shoreline habitat and recreational opportunities

To plan and address future impacts from sea level rise, the City of Hayward, and the Hayward Area Shoreline Planning Agency (HASPA) developed the Hayward Area Shoreline Adaptation Master Plan.

WHAT IS THE HAYWARD AREA SHORELINE ADAPTATION MASTER PLAN?

In 2021, the City of Hayward and HASPA adopted the Hayward Area Shoreline Adaptation Master Plan to address sea level rise through the end of this century. The Shoreline Adaptation Master Plan aimed at reducing risk to critical assets from daily flooding and future 100-year flood events in a up to 4’ of sea level rise scenario. Based on a medium-risk aversion, it is estimated that the state will see approximately 4’ of sea level rise in 50-60 years (California Coastal Commission recommendations, 2018).

Due to complexities associated with estimating sea level rise and the evolving science, this estimate is subject to change. For planning purposes, the Shoreline Adaptation Master Plan used a target elevation of 14.3 feet North American Vertical Datum 1988 (NAVD88) to evaluate and assess adaptation strategies. Some adaptation strategies identified in the Master Plan include marsh restoration, flood infrastructure, and erosion controls (Figure 1).



Figure 1: Preferred Alternative

The Shoreline Adaptation Master Plan also includes the construction of a perimeter levee by the year 2035 to protect the shoreline, existing low-lying areas, and any development behind the levee from future coastal flooding. Any low-lying development, whether existing or new, would remain at risk of flooding from groundwater emergence and stormwater runoff after the construction of a perimeter levee (See *Figure 2*). Due to the timing of the levee construction and other flooding risks, impacted parties should consider sea level rise when altering a site. For more information about the Hayward Shoreline Adaptation Master Plan, please visit <https://www.hayward-ca.gov/shoreline-master-plan>

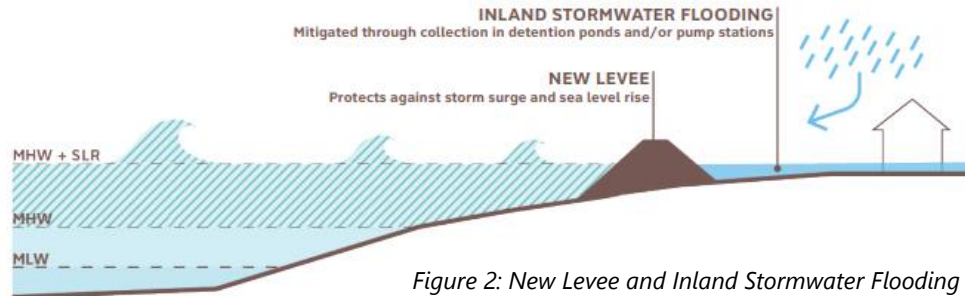


Figure 2: New Levee and Inland Stormwater Flooding

WHERE WILL FLOODING FROM SEA LEVEL RISE OCCUR?



Figure 3: Sea Level Rise Flood Map

As part of the Shoreline Adaptation Master Plan, the City of Hayward and HASPA conducted a thorough analysis of future sea level rise scenarios based on guidance from the state and previous studies. The sea level rise scenarios of 2, 4, and 7 feet were used to prepare the maps. The maps include flooding from sea level rise, the 100-year flood event and groundwater emergence at each identified scenario. *Figure 3* shows anticipated flooding from 4 feet of sea level rise at the 100-year flood event. The target elevation of 14.3 feet NAVD88 was developed to protect against this. Property owners, developers and other interested parties should review these maps to determine how their property may be impacted. All the maps can be found here: [Sea Level Rise Mapping Report Story Map](#).

WHAT ARE SOME CONSIDERATIONS FOR DEVELOPMENT NEAR THE SHORELINE?

While the Shoreline Adaptation Master Plan recommends that the City increase flood protection standards for new construction and renovations, it does not identify or require a specific amount of sea level rise or minimum design elevations. However, impacted parties should consider the following when altering a site:

- Is the site within a Federal Emergency Management Agency (FEMA) flood plain? Visit our [GIS web map](#) to determine if the site is within a FEMA flood plain. If it is, does the development comply with the City's [Flood Plain Management Ordinance](#)?
- What is the site elevation in NAVD88? If below 14.3 feet NAVD88, consider site raising of the buildings, parking or other critical assets above 14.3 feet to protect the investment from flooding.
- Is the site zoned Industrial? Visit our [GIS web map](#) to determine how the site is zoned. If it is zoned industrial, does the development align with the City's [Industrial Design Guidelines](#)?

For more technical information on this subject, please review the City's Technical Memo for Land Development in Areas subject to Sea Level Rise.