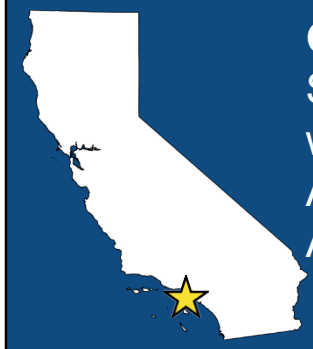
City of Long Beach

Los Angeles County



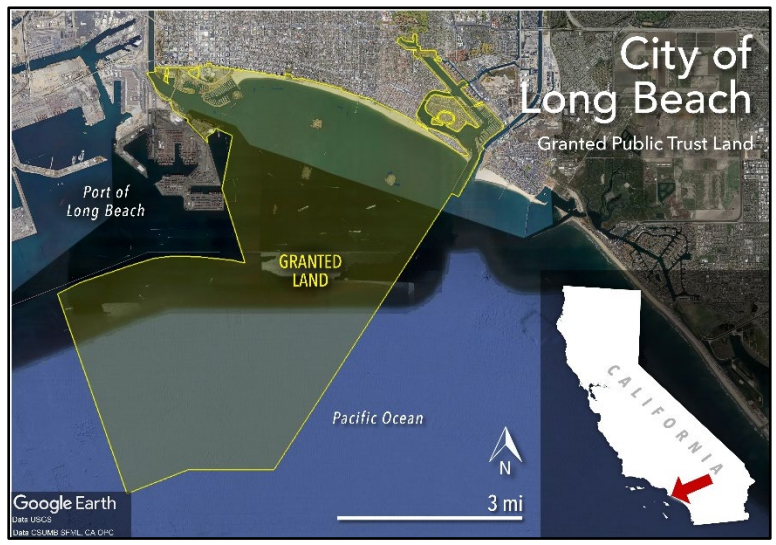
Granted Land Type:
Smaller Harbor/Marina with Recreational Amenities or Natural Assets

Public Trust Uses

Primary Uses: Fishing, Recreation
Secondary Uses: Safety & Navigation

Site Description

The City of Long Beach is located within San Pedro Bay on the Pacific coast of California. The city was first granted state lands in 1911. A portion of the city's grant is the Long Beach Harbor District, which is the site of the Port of Long Beach. The port, through the Harbor District, is managed distinctly from the remainder of the granted lands, by an independent city department called the Long Beach Harbor Department. The city's shoreline is a combination of a 5.5-mile stretch of sandy beach along with a fortified shoreline within portions of the sheltered embayments and port. Portions of the city lie at a low elevation and have major industry along the water's edge, notably the Port of Long Beach—the second busiest seaport in the United States—as well as transportation, water, and power infrastructure, beaches, marinas, homes, and businesses.



Coastal Hazards considered:
tidal inundation, king tides, 100-year storm

Modeling system used for mapping:
CoSMoS

Sea level rise scenarios/elevations
LINK TO FULL ASSESSMENT

Vulnerable Public Trust Resources	
Built Facilities	Fire stations (3 by 2030, 7 by 2100), marine safety facilities (5 by 2030, 8 by 2100), Southeast Resource Recovery Facility, parks (23 by 2030, 41 by 2100), marinas, roads (49 miles by 2030, 98 miles by 2100), bike paths (4 miles by 2030, 15 miles by 2100), bridges (60 by 2100), NRG Long Beach Generating Station, Alamitos Generating Station, Seabright substation (2030), Marina substation (2100), transmission lines (8 miles by 2030, 20 miles by 2100), stormwater outfalls (23 by 2030, 49 by 2100), stormwater pump stations (7 by 2030, 14 by 2100), storm drains (15 miles by 2030, 67 by 2100), wastewater pump stations (4 by 2030, 17 by 2100), force and gravity mains (28 miles by 2030, 78 miles by 2100), potable water facilities (1 by 2030, 4 by 2100), potable mains (26 miles by 2030, 80 miles by 2100), water hydrants (217 by 2030, 512 by 2100)
Natural Assets	Alamitos Beach, Junipero Beach, Belmont Shore beach, Peninsula Beach, Bayshore Beach (projected to be 100% lost by 2100), Peninsula Beach, Mothers Beach, Jack Dunster Marine Reserve, Los Cerritos Wetlands Complex (northern by 2030, southern by 2100)

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Other Economic Vulnerabilities

This analysis assumes that different types of financial consequences are expected from temporary event-based storm flooding compared to permanent progressive tidal inundation from sea level rise; separate assessment methodologies and categories of impacts were evaluated in some cases. The asset inventory, vulnerability profiles, and adaptation actions developed for the City of Long Beach Climate Action and Adaptation Plan were used to develop order of magnitude financial cost estimates for the impact categories evaluated. The costs of adaptation for 2100 are in addition to the costs for 2050.

Proposed Adaptation and Mitigation Measures

Policy Adaptation Strategies

2030: Establish floodplain ordinance. Incorporate sea level rise language into plans, policies, and regulations. Establish a flood impacts monitoring program. Incorporate sea level rise and flooding adaptation into city lease negotiations. Upgrade the city's existing Stormwater Management Plan. Conduct citywide beach stabilization study. Conduct studies of combined riverine/coastal flooding and increased precipitation impacts on watershed flooding.

2050: Investigate sea level rise adaptation funding mechanisms and strategies.

2100: Investigate feasibility of managed retreat. Evaluate feasibility of storm surge barrier at Alamitos Bay.

Natural or Nature-Based Adaptation Strategies

2030: Restore dunes.

2100: Expand beach nourishment. Construct living shoreline/berm.

Building and Infrastructure Strategies

2030: Inventory and flood-proof vulnerable sewer pump stations.

2050: Relocate/elevate critical infrastructure. Elevate riverine levees.

2100: Elevate/extend curb. Retrofit/extend sea wall. Elevate streets/pathways. Retreat / realign parking lots. Extend/upgrade existing seawalls.

The Cost of Inaction

If the City of Long Beach does not take action to mitigate the potential impacts of sea level rise and coastal storms, the financial costs could be significant. In 2030 and 2050, coastal storms pose greater financial risk to the Long Beach waterfront property compared to gradual tidal inundation from sea level rise. By 2100, sea level rise poses greater financial risk to waterfront property compared to the coastal storm impacts that were evaluated. Significant impacts to public trust lands in the City of Long Beach result from impacts to the beaches along the open coast and bays.

Anticipated Costs of Sea Level Rise (millions)*

	Current	2030 (11 in.)	2050 (24 in.)	2100 (37–66 in.)
Assets at Risk or Repair and Replacement Costs		**$57.25**	**$118.55**	**$276.65**
Losses in Non-Market Value		**$12**	**$48.9**	**$74.1**
Cost of Adaptation			**$145.3–$188.7**	**$63.9–$80.9**

* Replacement cost from Table 4, p.14; non-market value Table 5, p.15; value of exposed assets Table 6, p.15.