



Climate Resilient & Sustainable City Commission Sea Level Rise & Flooding and the Climate Action Plan

February 27, 2025

Agenda

- Climate Action Plan Sea Level Rise & Flooding Actions
- 2023 LB CAP Annual Report Items
- Emerging Issues
- Upcoming LB CAP Action Items

Sea Level Rise & Flooding – CAP Goals and Objectives

Goal:

- Long Beach understands and is prepared for its future flood risk

Objectives:

- Short Term (2030): Plans and policies ensure projects and investments for impacts
- Clear and sufficient information to prioritize adaptation needs and practices
- Adaptation to protect vulnerable shorelines and wastewater infrastructure
- Medium Term (2030-2050): Vulnerable infrastructure is elevated or relocated
- Long Term: (2050-2100): Physical adaptation strategies are implemented based on additional research and community adaptation priorities

Sea Level Rise & Flooding – CAP Action Items

- FLD-1: Update and augment floodplain regulations as necessary
- FLD-2: Incorporate sea level rise language into citywide plans, policies, and regulations
- FLD-3: Establish a flood impacts monitoring program
- FLD-4: Incorporate adaptation into City lease negotiations
- FLD-5: Update the City's existing Stormwater Management Plan
- FLD-6: Conduct citywide beach stabilization study
- FLD-7: Review and conduct studies of combined riverine/coastal flooding and increased severity of rainfall events on watershed flooding
- FLD-8: Enhance dunes
- FLD-9: Inventory and flood-proof vulnerable sewer pump stations
- FLD-10: Relocate/elevate critical infrastructure
- FLD-11: Elevate riverine levees

Sea Level Rise & Flooding – Equity

- Design assistance programs for building and retrofitting, and plan for flooding impacts in areas with social vulnerability to climate change
- Assess city-owned properties and stormwater plans with social vulnerability to climate change
- Increase beach stability with attention to public access to facilitate recreational opportunities and relief during extreme heat days
- Prioritize floodproofing of pumps in the low-income communities most vulnerable to flooding

Sea Level Rise & Flooding – CAP Long Term Action Items

- FLD-12: Expand beach nourishment
- FLD-13: Construct a living shoreline/berm
- FLD-14: Elevate street hardscapes
- FLD-15: Elevate streets/pathways
- FLD-16: Retrofit/extend walls
- FLD-17: Retreat/realign parking lots
- FLD-18: Extend/upgrade existing seawalls
- FLD-19: Investigate the feasibility of managed retreat
- FLD-20: Evaluate feasibility of a storm surge barrier at Alamitos Bay



Sea Level Rise & Flooding – Action Items Co-Benefits

- Reduced:
 - Flood insurance rates
 - Service interruptions for tenants in flood zones
 - GHG emissions
 - Disruption of beach habitat
 - City expenditure
- Increased:
 - Longevity of the project from consideration of sea level rise
 - Assistance with future applications to FEMA
 - Engagement and awareness of the public in flood response
 - Recreational opportunities and tourism
- Improved:
 - Building retrofits
 - City flood response
 - Dunes for habitats

Sea Level Rise & Flooding

- FLD-2: Incorporate sea level rise language into citywide plans, policies, and regulations
 - The Community Development Department initiated updates for the Downtown Shoreline Planned Development District (PD-6) which include conducting technical studies for sea level rise and flooding in the area. The LB CAP checklist has language for sea level rise adaptation for applicable projects which requires compliance with all applicable sea level rise ordinances and regulations.

Sea Level Rise & Flooding

- FLD-3: Establish a flood impacts monitoring program
 - The Technology & Innovation Department transitioned the water meter cycles system to automated readings.
- FLD-4: Incorporate adaptation into City lease negotiations
 - The Harbor Department includes environmental covenants as a part of most new leases and lease agreements and continues to work with tenants and assignees under existing environmental covenants to ensure compliance. The Harbor Department also included infrastructure requirements to support emission reductions, including updating to LED lighting and replacing terminal equipment with the cleanest feasible zero-emission infrastructure. Between August 2023 and December 2023, the Department drafted 10 environmental covenants for active and ongoing lease negotiations.

City's Flood Protection Infrastructure

Public Works operates and maintains an extensive storm drain system designed to reduce urban flooding, and protect water quality in local waterways, including the Los Angeles River, San Gabriel River, Los Cerritos Channel, Dominguez Channel, and the Pacific Ocean. The storm drain system consists of the following key components:

- Storm Drains – approximately 180 miles of City-owned storm drain pipe
- Catch Basins & Inlets – 5,800 City-owned catch basins
- Pump Stations – 23 stormwater pump stations, acting to lift water from low-lying areas to higher points in the system
- Channels & Drainage Ditches – approximately 5.5 miles
- Stormwater Treatment & Green Infrastructure – In recent years, Long Beach has invested in green infrastructure projects, such as permeable alleys, stormwater capture basins, and the Long Beach Municipal Urban Stormwater Treatment (LB-MUST) Facility

Emerging Issues

Localized Flooding



Flooding near 58th Place/Ocean Blvd



Flooding at the intersection of 14th Street and Pine Ave

Drainage Projects and Floodplain Management

- The Engineering Bureau of Public Works oversees floodplain management, drainage studies, and improvement of the storm drain system
- Projects in Planning:
 - 7th street drainage improvements at Cedar Ave and Chestnut Ave
 - Citywide storm drain master plan
- Projects in Design:
 - 7 storm drain improvements
- Projects Recently Completed:
 - 68th Place emergency storm drain repair
 - Crest Alley green drainage improvements

Storm Drain Master Plan Update

- Goal: evaluate capacity and condition of current system assets. Create a framework for future design, construction, and maintenance projects including upgrades, improvements, and expansions of the storm drain system.
- Estimate costs and identify areas for storm drain improvements
- Needed to prioritize stormwater capital improvement projects
- Master plan will have a section on climate change and sea level rise
- Original Masterplan in 2005; minor section updates in 2018 recommended \$332M in total improvements
- Status: Request For Proposals (RFP) in development, advertisement anticipated mid-2025

Emerging Issues

Flood Preparation and Response

- Weather forecasts are closely monitored
- Field staff are scheduled to prepare and respond to rain events
- 24/7 staffing during intense storm events with multi-agency and department coordination
- During emergencies, City staff are reassigned to respond to major storm-related impacts as necessary (temporary pumps, potholes, cleanups)
- Mobile pumps are rented and deployed to flooded locations
- Pump stations are monitored remotely 24/7 and City crews respond to pump station alarms
- Catch basins are monitored in flood-prone areas and cleaned proactively to mitigate flooding



Mobile pump deployment

Upcoming LB CAP Action Items

Sea Level Rise & Flooding – Community Development

- FLD-2: Incorporate sea level rise language into citywide plans, policies, and regulations
 - The Department of Community Development is conducting technical studies to analyze the impacts of sea level rise within the Downtown Shoreline area. This effort is an integral part of the Downtown Shoreline (PD-6) Plan Update that plans for long-range changes to the area. The PD-6 plan, which regulates development in the coastal area south of Ocean Boulevard from Golden Shore Drive to Alamitos Avenue, has not been updated since the 1970s. As part of the PD-6 update, the Planning Bureau is undergoing a unique visioning process aimed to create a community vision and guidelines for creation of a world-class waterfront that will serve as a global destination. Robust community engagement and collaboration for this vision sets the foundation for the anticipated plan update process that will regulate the regulatory plan itself. Early integration of sea level rise analysis into the update process allows the Vision Plan to be informed by the best available science that is contextually appropriate for policy and regulatory development. For example, early SLR analysis helped to facilitate a “big idea” being explored as part of the long-term vision, for a potential wetland restoration project in the southwest corner of the project area, as well as exploration of physically changing or relocating certain infrastructure. The incorporation of SLR analysis facilitates resiliency as proposed development, including infrastructure and housing, considers the impacts of sea level rise and flooding into design and provides opportunities for further implementation of LB CAP sea level rise and flooding actions.

Upcoming LB CAP Action Items

Sea Level Rise & Flooding – Public Works

- FLD-2: Incorporate sea level rise language into citywide plans, policies, and regulations
 - Climate resiliency is incorporated into the Storm Drain Master Plan RFQ
- FLD-5: Update the City's existing Storm Drain Master Plan
 - Stormwater is drafting an RFQ for Storm Drain Master Plan (Award is expected late-2025)

Upcoming LB CAP Action Items

Sea Level Rise & Flooding – Parks, Recreation & Marine

- FLD-3: Establish a flood impacts monitoring program
 - PRM Marine Bureau continues to explore in-water tidal monitoring technology to implement in 2025.
- FLD-8: Enhance dunes
 - PRM Marine Bureau has installed a pilot living dunescape between 54th Place and 55th Place to analyze the feasibility of to scale implementation of dunescape on City of Long Beach beachfront.



Thank you

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