City Manager's Office

November 13, 2026

To: Honorable Mayor and Members of the City Council

From: Paul Buddenhagen, City Manager

Re: El Niño 26-27 Storm Season Readiness Activities

This memorandum provides the City Council with an update on Berkeley's preparations for the 2026–27 winter storm season. It summarizes anticipated hazards, the activation and goals of the Emergency Operations Center, and the actions City departments have completed or have underway to reduce storm impacts, protect essential services, and prepare the community.

Situation Summary

The National Oceanic and Atmospheric Administration (NOAA) expects an exceptionally strong El Niño this winter, with the potential to become the strongest since 1950.

Winter Storm Hazards

In Berkeley, strong storms create numerous challenges. Heavy rainfall can flood creeks and overwhelm Berkeley's undersized stormwater system, creating flooding that is particularly pronounced in western neighborhoods. Blocked storm drains create localized flooding in any Berkeley neighborhood. Heavy rainfall also saturates hillsides, which makes them more susceptible to landslides. Strong winds can bring down trees and limbs, which can damage structures and homes. When falling trees and limbs affect utility lines, power outages can result.

Berkeley experienced all of these issues in severe storms in the 2022-2023 winter season, in which Berkeley was included in two Presidential Major Disaster Declarations (FEMA DR-4683 and FEMA DR-4699).

Areas of Potential Flooding

More extensive flooding is possible along in Berkeley's Waterfront area, in Aquatic Park, in low-lying areas west of San Pablo Avenue. Very high tides can slow stormwater drainage into the Bay, increasing flood risk when they coincide with heavy rain.

Flooding is also more likely along portions of the city's creeks. When creeks overtop their banks, water can flood nearby streets and properties. The City's mapped floodplains include portions of Codornices Creek in northwest Berkeley and Strawberry

Creek on the UC Berkeley campus. In rarer events, flooding can also affect areas near Strawberry Creek Park and along Claremont Creek.

Localized flooding can occur throughout Berkeley. Water can pool at intersections and spread across streets and sidewalks when leaves or debris block storm drain inlets or when runoff exceeds the capacity of the drainage system.

Staff is reviewing reports of past flooding alongside updated information on coastal flooding to further refine expected locations at risk. Where and when flooding occurs will depend on where rain falls, how hard and how long it rains, how much runoff creeks and storm drains can carry, and whether peak runoff coincides with high tide.

Coastal Flooding

Coastal flooding is an elevated hazard for the 2026-2027 winter season. Multiple factors contribute:

- King tides, which are naturally occurring, exceptionally high tides
- El Niño-driven Kelvin waves and the expansion of unusually warm ocean water, which further increases water levels
- Possible storm surge, which is a temporary rise in water level caused mainly by storm winds pushing water toward shore.
- Rainfall, which is separate from storm surge. Rain is unlikely to increase tidal levels but can still increase flooding potential along with storm surge.

These factors increase flooding risk individually and together.

King Tide Periods – Our highest risk periods for coastal flooding of the season.

This winter there will be three King Tide events that set the stage for a worst-case coastal flooding scenario:

- Monday, November 23 – Thursday, November 26, 2026 (aligns with Thanksgiving holiday)
- Monday, December 21 – Friday, December 25, 2026 (aligns with Christmas holiday)
- Tuesday, January 19 – Saturday, January 23, 2027

If a storm occurs during one of these periods, flooding will likely result. These King Tide events will be exacerbated by thermal expansion and Kelvin Wave. If storm surge also occurs, tides will be so high that in Berkeley's Waterfront, Bay waters will emerge from low-lying storm drains. They may also overtop the shoreline at low-lying locations.

This may also affect Berkeley neighborhoods west of San Pablo Avenue. During a storm, rain throughout the city moves downhill through the stormwater system to be

discharged in the Bay. As King Tide events fill the stormwater system with Bay waters, this discharge into the Bay will be limited or even impeded. If rainfall is heavy enough, more extensive flooding will occur from stormwater system overflow in the Waterfront area. This may in turn back up uphill, causing flooding in Berkeley's low-lying Western neighborhoods.

Aquatic Park Lagoon provides an example of how high tides and heavy rain can combine to cause flooding in West Berkeley. The lagoon receives a significant share of the City's stormwater runoff. When a king tide raises the lagoon's water level, there is less room for runoff from heavy rain. Water can then overflow around the lagoon and back up through storm drains serving low-lying areas upstream.

EOC Activation

The City Manager has directed activation of Berkeley's Emergency Operations Center (EOC) structure effective Monday, November 9, 2026. EOC goals for this preparedness phase are as follows:

1. Anticipate periods of heightened risk. Monitor weather and tide forecasts and local conditions to identify when and where impacts are most likely. Use that information to guide staffing, resource staging, public alerts, and escalation of EOC operations.
2. Mitigate foreseeable storm impacts. Prioritize protective measures for critical infrastructure and essential City services.
3. Coordinate response plans across departments and partner agencies. Align roles, procedures, and priorities so field responders, the EOC, and external partners are prepared to respond as conditions warrant.
4. Ready personnel for response. Confirm availability, assignments, and callout procedures for EOC and field personnel. Plan for additional staffing during periods of heightened risk.
5. Ready resources for response. Confirm availability of equipment, supplies, contractors, and response sites.
6. Keep decisionmakers informed and address policy decisions early. Keep City leadership and Council informed about changing risks, readiness, and emerging policy issues.
7. Prepare to issue timely alerts and updates. Review public alerting protocols and ensure alignment with response partners.
8. Educate the community about winter storm preparedness. Help Berkeley residents and businesses understand local winter weather risks, take practical

steps to prepare before storms arrive, and know where to find City information and resources.

City Readiness Actions

Activation of the EOC structure will coordinate and support winter storm preparedness across City departments. That effort builds on several months of work by City staff to prepare personnel, equipment, and supplies for winter storm response.

Highlights from Departments' winter storm preparedness actions to date include:

Coastal flooding

Fire's Office of Emergency Services worked with the National Weather Service to develop a method for estimating local water levels using weather forecasts and NOAA tide predictions. The Parks, Recreation and Waterfront Department consulted State and regional coastal agencies and preordered more than 800 filled sandbags to protect buildings and infrastructure at the Waterfront and Aquatic Park.

Waterfront

City staff identified Waterfront locations vulnerable to flooding and is documenting the infrastructure vulnerable at different tidal levels.

The DoubleTree Hotel will be at risk of flooding during King Tide events, especially if those events coincide with a storm. The DoubleTree has ordered 800 linear feet of flood barriers and storm drain protective equipment to protect against flooding. Delivery is expected November 18, and City staff will help install the barriers ahead of the first king tide period on November 23.

PRW has conducted ongoing communication with tenants/leaseholders in the last month to make them aware of the potential consequences related to this winter's high tides:

- DoubleTree: Met with ownership and onsite operations staff multiple times to discuss potential flooding due to rising tides, resulting in flood mitigation purchases (see above).
- Cal Sailing and Cal Adventures: Notified; held a meeting on October 19 informing them of all related issues
- Met November 10 with Skates, Hana Japan, Bait Shop, Marine Center, Berkeley PD, Yacht Club, Roaming Bean, Patpatia & Associates, International Child Resource Institute, and Modern Sailing.
- Slipholders: On 10/23, delivered Berkeley Marina News GovDelivery message to slipholders with severe winter weather preparedness instructions, with another planned for on Friday November 13.

Aquatic Park Lagoon

Staff briefed tenants on flood risk and offered sand and sandbags. PRW met on 11/4 with tenants in City-owned buildings at Aquatic Park (Waterside Workshops, Rowers and Boaters, BORP, Waterski Club, Korsa (formally YMTC)). Staff informed these groups that the City is expecting high tides and suggested that they check their insurance, remove all low-lying objects and protect their building if needed. PRW offered to drop off a load of sand and sandbags if they wished to protect their property with sandbags. As of 11/6, only the Water Ski Club has responded.

On November 4, the Public Works and Parks, Recreation and Waterfront departments began testing whether timed gate adjustments of the five main tide tubes that connect the lagoon to the bay can lower the lagoon before king tides and create more room for stormwater runoff. Staff are reviewing the pilot results, and Public Works is working with contractors to model flood risk under different tide conditions.

Street and creek flooding

The Public Works Department cleared storm drains in areas with heavy leaf fall, completed repairs and maintenance on the Strawberry Creek culvert, and worked with the Parks, Recreation and Waterfront Department to remove debris along Codornices Creek. Storm infrastructure maintenance, culvert clearing and pruning continue across the city. Public Works has had 2,100 sandbags delivered for the community at the Public Works Corporation Yard[1]and is ordering a fourth round (doubling the typical order for a normal winter).

Berkeley residents and businesses can get up to ten free sandbags at the City's Corporation Yard (1326 Allston Way), Monday through Friday, 8 a.m. to 3 p.m., while supplies last. Residents are responsible for disposing of their sandbags after use. Public Works is also considering additional self-service sandbag pickup locations.

High winds and downed trees

The Urban Forestry unit in PRW removed hazardous trees, completed preventive pruning near Old City Hall and the North Berkeley Senior Center, stocked supplies for downed-tree response, and extended its on-call tree service contracts.

During high-wind events, particularly those preceded or accompanied by heavy rainfall, PRW coordinates with the Fire Department to deploy joint response teams. These teams respond to reports of downed trees and limbs obstructing public rights-of-way and assist with initial emergency operations when fallen trees impact homes on private property. Once emergency operations are complete, responsibility for addressing non-City fallen trees on private property rests with the property owner.

Fire Department readiness

The Fire Department completed an El Niño Responder Readiness Guide covering flooding, swift water rescue, landslides, downed trees and power lines, and periods of high call volume. Crews will review local hazards, perform equipment checks, and have

reviewed when and how to request additional and specialized resources like swift water rescue teams.

The Department maintains an Aboveground Water Supply System (AWSS), originally developed to provide high-volume firefighting water following a major earthquake that could damage the City's underground water distribution infrastructure. The system includes two high-capacity pumps, each rated at 6,000 gallons per minute (GPM), six miles of 12-inch-diameter hose, and specialized vehicles and equipment for rapidly deploying a temporary aboveground water supply network. The system can transport water over several miles, providing an important emergency firefighting capability independent of conventional water distribution infrastructure.

Staff are evaluating whether the AWSS could also be used to support emergency operations during catastrophic flooding. Similar high-volume pumping systems are used for flood response in European countries. Potential applications in Berkeley include removing water from flooded areas and protecting critical facilities. However, significant operational challenges must be evaluated, particularly identifying suitable locations to discharge large volumes of floodwater without creating additional flooding. This is especially challenging during coastal flooding and king tide periods, when elevated Bay water levels may limit available discharge options. Staff are assessing the system's technical capabilities, potential deployment locations, and operational limitations to determine whether the AWSS can provide an additional emergency flood response resource.

Community outreach

The City secured is holding a *Hello, Winter!* Weather Preparedness Fair at Strawberry Creek Park on December 5 from 10:00 am to 1:00 pm. Staff are preparing vehicle demonstrations, information booths, and hands-on activities, including how to fill and place sandbags.

The BerkeleyCA.gov Winter Storm Preparedness page provides information on storms, reporting storm issues, and instructions on preparing your home ready for heavy rains, high winds, and flooding. It is available at: https://berkeleyca.gov/safety-health/disaster-preparedness/winter-storm-preparedness.

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