FLOOD WALK

Suisun City

Presented by
Sustainable Solano

Sustainable Solano proudly presents Suisun City Flood Walks in partnership with the City of Suisun and the San Francisco Bay Conservation and Development Commission. Learn more about the environmental impacts and risks of flooding, rising sea levels and stormwater management during an interactive tour through Suisun City's future Resilient Neighborhood as we prepare for the creation of Suisun City's Flood Resilience Action Plan.

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#FloodWalk #SuisunStrong #FloodReadySuisun
#suisunwaterfront

NURTURING INITIATIVES FOR THE GOOD OF THE WHOLE
Sustainable Solano

Flood Risks and Impact

Water was pivotal in the creation of Suisun City, connecting the city to the world via the San Francisco Bay. Tidal shifts and floods have been part of Suisun City's story from the beginning, and with rising sea levels will continue to be so in the future.

Three types of flooding impact Suisun City. Individually they each present challenges and demand different techniques for adaptation and mitigation. However, the real threat is when different flooding forces accumulate into larger Total Water Level (TWL) events that can further complicate recovery and building resilience.

Three Flood Forces

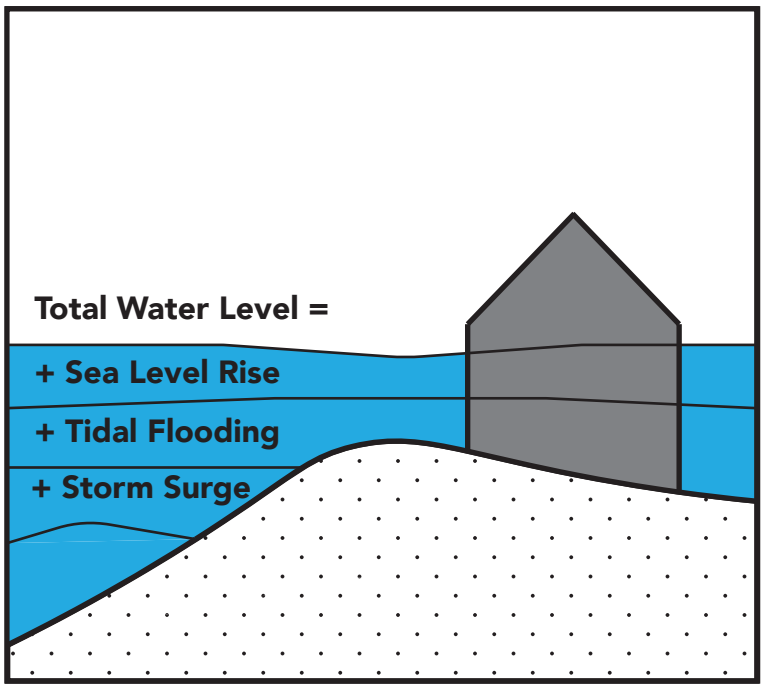
Flooding can come from tides, sea level rise, and storm surge.

Tidal Flooding occurs from exceptionally high tides like King Tides, which raise water levels in a coastal setting. Regularly occurring throughout the year, tidal flooding often occurs during a new or full moon and when the Earth is closest to the Moon. They occur several times a year and can cause water levels to increase as much as 12 inches or more above normal high tide when coupled with strong winds. Low-lying sections along the Bay, like Suisun City, experience temporary flooding during tidal events. The increasing impacts of tidal events offer a glimpse of what permanent sea level rise might look like for communities around the Bay.

Sea Level Rise refers to the worldwide average increase in ocean water levels. Unlike tidal flooding, which is temporary, sea level rise results in permanent increases in water levels. The San Francisco Bay Conservation and Development Commision tells us to be prepared for:

- 6-10 inches of sea level rise by 2030
- 13-23 inches of sea level rise by 2050
- Upwards of 66 inches of sea level rise by 2100

This is soon! It is challenging to predict the amount of sea level rise we may experience closer to the year 2100, in part because we don't know how quickly the world will cut greenhouse gas emissions.



Storm Surge is the buildup of water during a storm, generated by high winds and low atmospheric pressure. While sea level rise causes a gradual increase in flooding over time, storm surge can cause major flooding during winter storms today. This type of flooding will become more severe as sea levels rise.

Individually each of these flooding forces can cause major impacts to Suisun City and Fairfield, but a combination of these flood forces (a Total Water Level event) can further complicate response and preparation.

Flood Futures

Suisun City and Fairfield are impacted differently at different Total Water Level (TWL) flooding events. See how flooding levels impact different aspects of the Suisun City and Fairfield area in the maps and diagrams below.

Scan here learn more from the Suisun Slough Assesement by San Francisco Bay Conservation and Development Commission

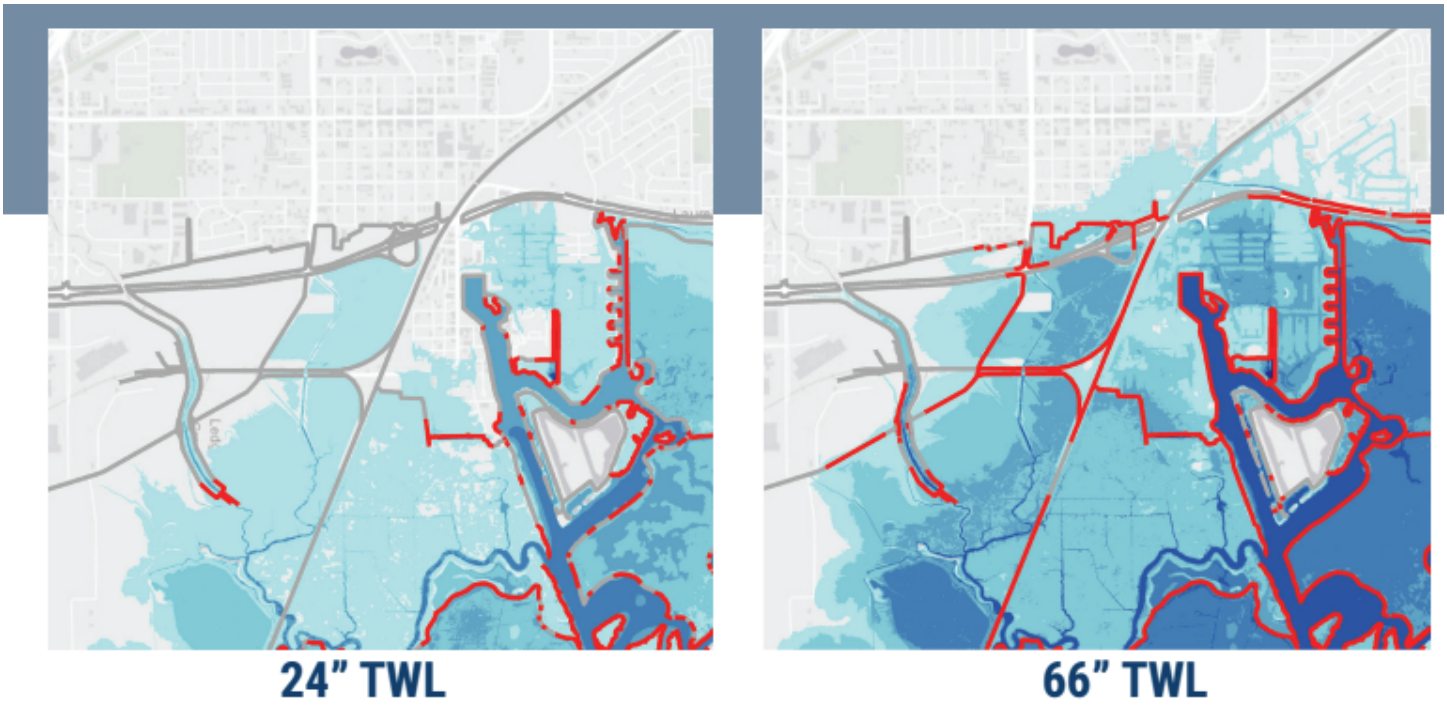


Figure 5d. Two total water levels selected that demonstrate first overtopping and/or significant flooding thresholds. Visit the Bay Shoreline Flood Explorer (explorer.adaptingtorisingtides.org) to see more TWLs.

Getting Flood Ready in Suisun City

The City of Suisun, in partnership with Sustainable Solano and the San Francisco Bay Conservation and Development Comission, is developing a **Flood Resilience Action Plan** over the next year. This plan will serve to educate and address the impacts of flooding locally and into the future.

If you are interested in being a part of the process, or have ideas on how your neighborhood can help mitigate flooding locally, please contact *jonathan@sustainablesolano.org*.

Featured Locations

A. Suisun Slough connects Suisun City to the San Francisco Bay and the Pacific Ocean. This critical artery navigates the brackish marsh waters and drains the watersheds across Suisun and Fairfield to the ocean. During tidal flooding and rising sea levels, water enters the slough, floods the marsh and eventually affects Suisun City.

B. An **embankment** is a wall made of earth or stone to prevent floods and erosion. These are found commonly along creeks or rivers.

C. The city is currently working to develop this area into new homes for Suisun City residents. A prime opportunity for **future growth**, this spot is in a pivotal location along the waterfront that needs to account for future flooding while utilizing innovative strategies to work with water.

D. A partially daylit **drainage basin** operated by the Fairfield-Suisun Sewer District is the collection point for all stormwater that falls within this part of downtown before it is released into the slough. Draining most of the area, it runs along an underground channel before emerging further north on the other side of the neighborhood. With its proximity and elevation to the slough, it is a vulnerable spot that can lead to localized flooding from rain, but also a pathway for tidal and rising sea level water to make its way inland through the area.

E. A **berm** is a short mound of earth that can act as a levee for encroaching water. Building out natural berms as levees across the marsh in the 1860s was the first way humans worked to control flooding in the area. As berms age stability can be heavily impacted by events on either side of the berm, quality of the fill within the berm and seismic interference.

F. This **waterfront neighborhood** offers residents incredible access to water views and recreation. Each home on this street manages the embankment within their property. The conditions of the embankment vary from resident to resident. A breach with one of these properties could lead to water encroachment and flooding for the entire area.

G. Suisun Marsh is the largest brackish water marsh on the West Coast. It is a vital ecosystem and important carbon sequestration sink that acts as a giant sponge for encroaching water and tides. Rising sea levels on one side of the marsh and development on the other side of the marsh limit the size and responsiveness of the ecosystem and inhibit the beneficial qualities of this riparian environment, leaving Suisun City vulnerable to flooding.

H. This part of the slough acts as a stormwater **drainage outlet for Fairfield and Laurel Creek**. Upstream water flows and stormwater mitigation strategies can impact all those downstream. Through collective efforts across the larger watershed, each resident and business can help relieve flooding for all.

I. Hardscapes in this shopping complex and parking lot provide a large expanse for water to collect and drain quickly, often overloading drainage systems in high rainfall events for the area. Finding ways to implement permeable opportunities like rain swales, permeable concrete and curb cuts can help avoid flash flooding.

J. Natural disasters like flooding impact everyone regardless of socioeconomic status. **Socially vulnerable communities,** however are often more affected by these disasters when coupled with additional conditions of environmental racism and systemic oppression. Addressing flooding risk has to consider how to plan for disaster so we can all thrive.

K. Suisun City's access to the region via rail and bus makes it unique in Solano County. The **transportation hub** serves the Capital Corridor trains, Greyhound and local transit options. Prior to the pandemic, the Capitol Corridor transported more than 150,000 passengers a month between Sacramento and the Bay. Traffic would be inhibited during flood events along the rail pathways, and local usage would be overcome by floodwaters in the depot and surrounding parking lots.

L. Suisun City's Fairfield connection via the underpass of Highway 12 and pedestrian bridge provides the only known "Area Subject to Flooding" sign in Suisun. This area, though mainly a pass-through for people, would become a critical opportunity for flood waters to enter Fairfield from Suisun during a high total water level event.

M. Green Stormwater Infrastructure is one way to battle storm surge by slowing, spreading and sinking water in a watershed versus concentrating and directing it through drain systems as quickly as possible. This approach is put to use in the hotel parking lot by collecting water from the parking lot, dispersing it over a landscaped bioswale area through the use of curb cuts, and slowly sinking it into the ground and releasing it to the stormwater system.

Learn more about the Suisun City Green Stormwater Infrastructure Plan by scanning the code here.

Suisun City Downtown

On this map we have highlighted different tools and aspects of flooding across downtown Suisun during a **24-inch total water level event**. Check out each featured location to see how each spot manages water or is impacted by it throughout the city.

Legend

Impact area at a 24 inch flood event

A Point of Interest

4.0 Depth of water at a 24 inch flood event in feet

North

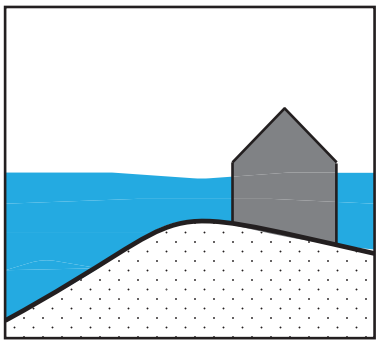
250 Ft

24 inch TWL Event Scenarios

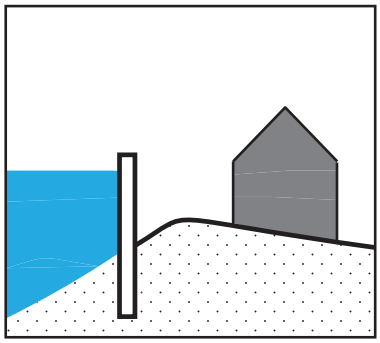
= 0" Sea Level Rise + 5 year Storm Surge
= 6" Sea Level Rise + 2 year Storm Surge
= 12" Sea Level Rise + King Tide
= 24" Sea Level Rise + No Storm Surge

Building Resilience in Suisun City

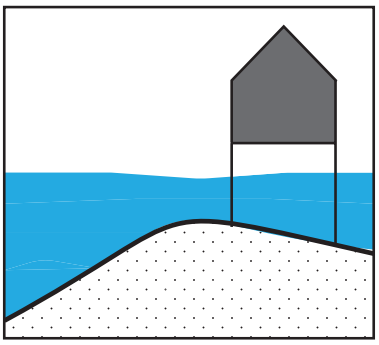
There are four big strategies to build resilience to the impacts of flooding in Suisun City. In preparing for current flooding risk and floods of the future a combination of these four approaches can help shape the larger flood strategy of Suisun City and ensure that it continues to stay above the water for generations to come.



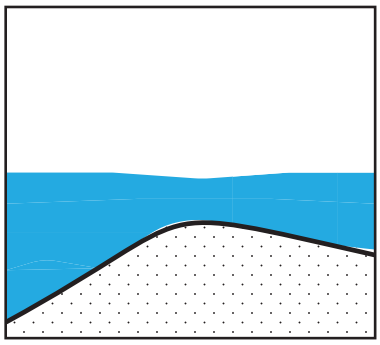
Prepare



Protect



Adapt



Avoid

Prepare - This approach includes actions that help to prepare an area for an increased flood risk in the future. This can include monitoring changes in the best available climate projections and local rates of rising sea levels, implementing flood resilient building codes and standards, and increasing awareness of future sea level rise and coastal flooding hazards. Prepare actions should be designed to support future decision-making, leading to adaptive outcomes in the future that can mitigate or reduce flood risk.

Protect - This approach aims to protect areas with critical assets from flooding. This can include asset-specific protection or large-scale protection for a neighborhood or city planning area. Actions can include physical barriers that prevent inland flooding, redirecting floodwaters to flood storage basins or areas allowed to flood, or slowing or absorbing potential floodwaters with nature-based solutions.

Adapt - This approach would let an area flood without causing disruption to the city or damage. This could require retrofits to existing structures to increase their adaptive capacity (i.e. ability to be temporarily flooded without impacts), such as elevating assets above flood thresholds, floodproofing assets, and implementing flood resilient building codes and standards for all new construction. Adapt could also be an option in areas with some development pressure and where innovative or exploratory approaches (such as floodable streets or floating homes) are acceptable to the community.

Avoid - This approach would allow a flood prone area to flood. For areas that are developed, retreating would require removing or relocating existing assets to areas with reduced flood risk or higher ground. Avoid could be a preferred approach in flood prone areas where the cost of flood protection exceeds the benefits of development, or in areas where existing undeveloped land can provide the footprint needed for adaptation actions that protect already developed areas.

This program is sponsored generously by Pacific Gas & Electric Foundation's Better Together Resilient Communities Program and the Solano County Water Agency.