



Sutter Butte Flood Control Agency

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sutterbutteflood.org

COUNTIES

Butte County
Sutter County

CITIES

City of Biggs
City of Gridley
City of Live Oak
City of Yuba City

LEVEE DISTRICTS

Levee District 1
Levee District 9

FACTS ON FLOODPLAINS

August 11, 2015

Introduction

SBFCA is constructing the Feather River West Levee Project (FRWLP); once completed, the improved levees will provide protection against a 200-year high water event. The completed project will change floodplain maps for the communities within the Sutter Butte Basin. Many different floodplain maps exist for multiple purposes. Please read on for information regarding post-project flood risk.

What is a Floodplain?

Floodplains are the flat lowlands adjacent to rivers that are typically protected from flooding by levees, as well as the areas between the levees. As distinguished from the floodplain, a floodway is the area between the levees which carries river flows during periods of flood or drought.

Floodplain Maps

A floodplain map graphically shows the probability of flooding in any given area. A 100-year flood has a 1 percent chance of happening in any given year. A 200-year flood has a 0.5 percent chance of happening in any given year. In both cases, flooding can happen more than once per year. Floodplain maps look like any other geographical map, but with outlines showing areas with flood risk. Other information is also shown, such as the depth of flooding that could occur due to a flood event.

Probability of Flooding

A simple way to think about probability of flooding from a 100-year event is to consider a jar of 100 marbles. Each marble represents a single year; 99 marbles are white and 1 is red. Each year, a marble is pulled out of the jar: if white, no flood occurs; if red, a flood happens. The marble is then put back in the jar, the jar is shaken, and the same exercise is repeated year after year. This is how 100-year floods can occur two years in a row.

It is important to recall that our region's most catastrophic levee failures occurred before the water reached the top of levee; instead, the water made its way through the levee or--more commonly--beneath the levee. Accordingly, engineers must consider a number of factors when calculating the probability of flooding, including the size of the storm that may hit an area, the multiple ways in which a levee can fail, upstream dam operation and many others.

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Water Surface Elevation

Water surface elevation describes the elevation at the top of any water body, such as a lake, river or levee. For the Feather River, water surface elevation is measured at the top of the water flowing in either the floodplain or floodway.

Water Surface Elevation versus the Size of a Storm

While related, there is no simple relationship between the 100-year water surface elevation and the 200-year water surface elevation. In other words, the 200-year river flow cannot be calculated by multiplying the 100-year event by two. Depending on the hydrology (how water runs off the landscape into the basin) and hydraulics (how water is conveyed through the basin), there may be little elevation difference between the 100- and 200-year events. Typically, the difference is less than two feet in the Feather River.

Flood Insurance

Flood insurance covers losses to your property from “excess water.” While flooding may come from many different sources, the most devastating flooding in our region comes from rivers. Private insurance is sometimes available; however, federal insurance (National Flood Insurance Program - NFIP) is presently the most affordable option and is often mandated by federal regulation of lending institutions. If your property is protected by a levee, there will always be a risk of flooding, thus SBFCA recommends property owners purchase flood insurance, whether mandated or not. For more information, visit www.floodsmart.gov, or contact your insurance agent.

200-year Maps Required under Senate Bill 5 (SB5)

SB5 is a State law passed in 2007 that requires all urban or urbanizing communities achieve a 200-year level of flood protection by 2025. Failure to do so will trigger building restrictions. It also requires that city/county General Plans be amended by July 2016 to include plans for 200-year levels of protection. Areas subject to less than three feet of flooding are exempted from building restrictions. Cities and counties will be developing new floodplain and land use maps for this purpose. Yuba City will release new maps in late 2015. The purpose of these maps is to inform people of flood risk and to plan land use activities in compliance with state law.

SBFCA does not, nor will it ever, regulate or control any land use activity. SBFCA is supporting land use agencies by providing 200-year floodplain maps used for ongoing design, construction and planning of flood control projects. To support formation of the Assessment District (AD) in 2010, SBFCA estimated 200-year floodplains for without-project and with-project conditions based on the information available at the time. SBFCA is in the middle of FRWLP construction, as well as the planning/implementation of several other projects. Once those are complete, SBFCA's 200-year maps will look slightly different than those used by land use agencies impacted by SBFCA projects. SBFCA is helping the land use agencies in the basin to coordinate these important planning documents.

100-Year Maps Prepared by Federal Emergency Management Agency (FEMA)

While the 200-year maps described above are required under State law, FEMA evaluates flood risk based on the probability of 100-year flood events for the purpose of complying with the NFIP. The impacts on landowners, while related, are separate and distinct from those under SB5 (above).

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FEMA administers the NFIP and prepares associated floodplain maps. The rules governing this program are extremely complex, but the basic policy is simple: areas with less than 100-year levels of protection are subject to mandatory, high-cost flood insurance and severe building and other land use restrictions; areas outside the 100-year floodplain may voluntarily purchase flood insurance at greatly reduced rates.

In 2005, FEMA announced it would be mapping all of Sutter County and portions of Butte County into the 100-year floodplain (within the Sutter-Butte Basin). This would have triggered mandatory high-rate flood insurance and strict building regulations for roughly 30,000 properties. In 2009, FEMA took the interim step of mapping properties south of Stewart Road in Sutter County and smaller areas in Butte County into the 100-year floodplain. FEMA agreed to hold off on additional mapping because SBFCA was on the path to improve flood protection in the basin. Additional mapping is not expected to occur while SBFCA implements flood risk reduction projects, including but not limited to the Feather River West Levee Project. Once it begins, FEMA's mapping process will take several years to complete. SBFCA estimates that landowners could expect to see the impacts of FEMA re-mapping of the floodplain no sooner than 2023. Properties that are eventually mapped into the 100-year floodplain will have saved, collectively, an estimated \$8 million in mandatory flood insurance payments, over and above what they pay on the 30-year SBFCA assessment. For the entire Sutter-Butte Basin, the savings on mandatory, high-cost flood insurance is hundreds of millions of dollars. In addition to these savings, FEMA building restrictions would have had an incalculable adverse impact on the both the rural and urban economy but for the delay effected by SBFCA projects.

At some point in the future, FEMA will replace the interim maps with final maps. Some properties north of Stewart Road will likely be mapped into the 100-year floodplain, and mandatory flood insurance and building restrictions will be imposed. The public can refer to the USACE Sutter Basin Feasibility Study (SBFS) to get a rough idea of what the final 100-year floodplain map would look like. 100-year floodplain maps were not part of the Assessment District process because they were not part of the benefit calculation.