



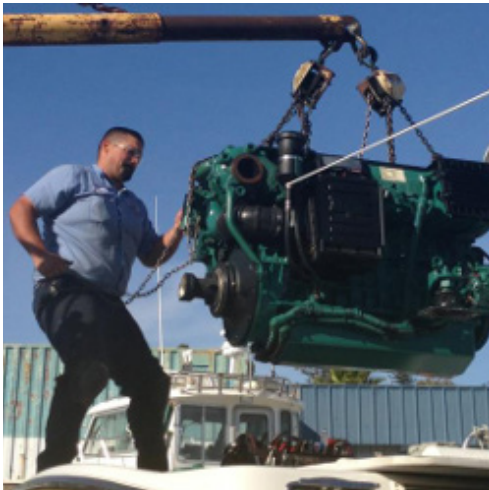
San Rafael Federal Navigation Channel

Factsheet

Key drainage outlet for the entirety of the San Rafael Creek Watershed, which includes all of downtown San Rafael and bordering areas; including 25% of the city's residents (12,000 people) that live in the low-lying 100-year FEMA Flood Zone surrounding the Channel



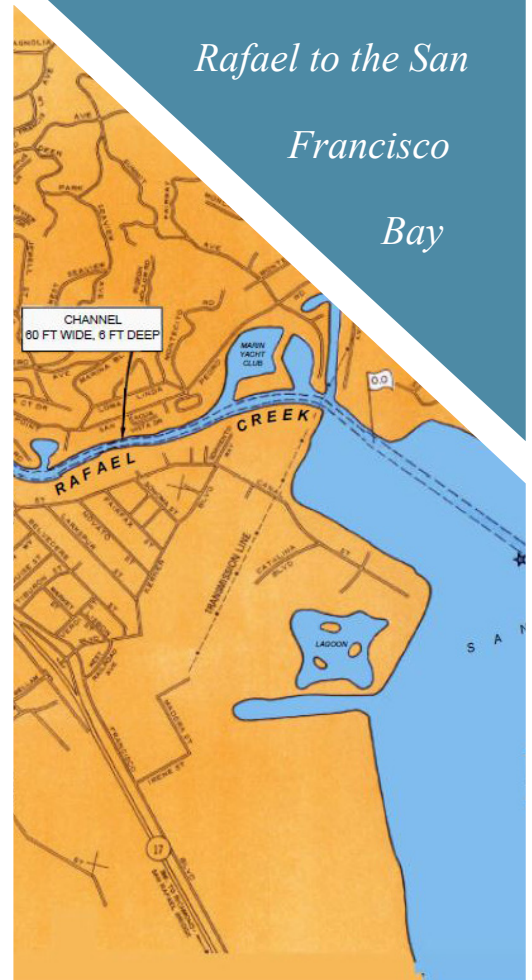
A source of significant commercial, industrial and recreational activity in the City, the San Rafael Channel Runs through the heart of San



134 marine and other businesses along the Channel grossed \$191.8 million in taxable sales in 2017

Rafael to the San Francisco Bay

City Police and Fire operate three rescue vessels on the Channel, responding to thousands of distress calls and emergencies





Existing Compromised Conditions

Since 1930, the U.S. Army Corps of Engineers has funded the dredging and ongoing maintenance of the San Rafael Federal Navigation Channel on 13 separate occasions. Maintenance dredging should be conducted every three years but has not been performed in the inner channel since 2002. A partial dredge of the Outer Channel was last done in 2011.

Inner Channel current depth is 2.5-4.5 ft, federal minimum is 6 ft
Outer Channel current depth is 4.8-6.5 ft, federal minimum is 8 ft

Two Presidentially-Declared Disasters in winter 2017 for severe winter storms, flooding, and mudslides have caused multiple slides, siltation, and hillside material to deposit sediment into the San Rafael Channel, further undermining the navigability of the Channel. These major sediment deposits have threatened flood protection for the City and emergency search and rescue activities for the area.



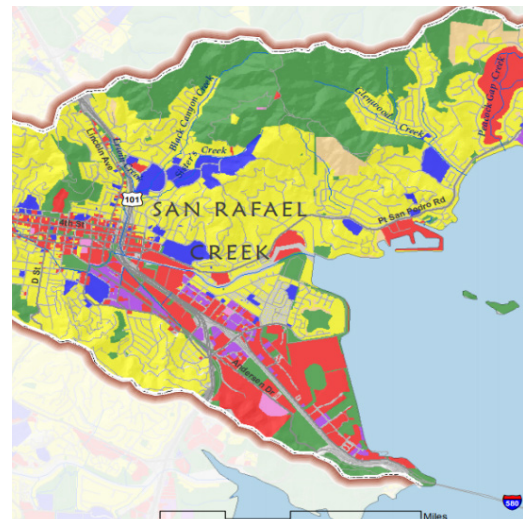
Flood Risk and Damage



Historically, the San Rafael Creek existed as an open drainage channel extending several miles westward than it is today. When the creek was filled for the development of Central San Rafael area, a complex stormwater management system was built which includes seven pump stations which drain directly into the San Rafael Channel.

This stormwater drainage system is especially vulnerable to sediment build up both within and leading to the channel. Sandstone is the prominent hillside material in the area, which erodes significantly during storm events and deposits into the system. Siltation can only be effectively removed from via regular dredging, as the slope of the channel does not allow for easy outflow to the bay. If the San Rafael Channel continues to be impacted by siltation from storms without dredging removal, the tributary drainage systems maintained by Public Works will be unable to effectively drain flood waters in the City.

San Rafael has already experienced some flood damage: there are 28 total Repetitive Loss Properties within the San Rafael Channel FEMA flood zone (2 or more significant flooding events in which federal relief was claimed).



Public Safety

The San Rafael Channel is an urban waterfront, and presents a unique challenge from the public safety perspective. Five harbors along that channel moor nearly 2,000 boats (including 135 live-aboard owners) and tens of thousands of residents live within a half mile of the channel; many situated directly on the waterfront. Large apartment buildings and developments that back up to the waterfront have caused serious building and boat fires that have spread quickly due to their inaccessibility.

The Channel is also popular recreation destination in the San Francisco Bay, with waterfront restaurants and several boat, kayak, and paddleboard rental operations located directly on the channel. Every day there are first-time recreators on the Channel who are unfamiliar with tides, winds, and navigation in close proximity to other vessels. Because the Coast Guard cannot respond to local incidents with a navigational depth less than 7 ft, the San Rafael Fire and Police Department boats perform critical emergency and search and rescue missions on the channel.

Since 2003, San Rafael Police and Fire boats have responded to 1,380 incidents on the San Rafael Channel. Rescue operations during low tide are increasingly compromised, and parts of the Channel which were traditionally safe to comfortably navigate are becoming dangerously shallow. Water related calls are increasing in frequency with the shallow channel depths, and are extremely resource intensive, requiring 20% or more of on-duty responders.

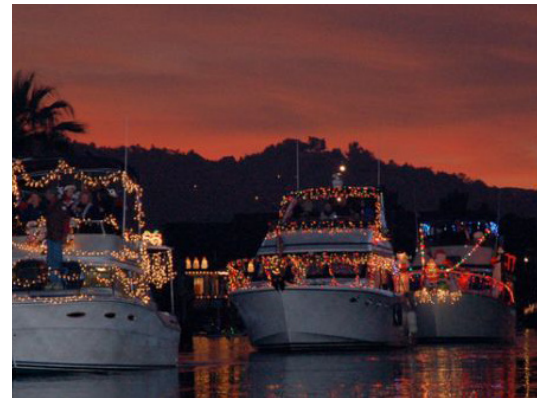




An Economic Engine

Within 400 ft of the Channel, 134 total businesses including marine-related businesses grossed \$191,827,000 in taxable sales in 2017.

Within the entire San Rafael Channel FEMA 100-year Flood Zone, 799 total businesses grossed \$1,133,951,200 in taxable sales in 2017.
(Source: HDL Companies)

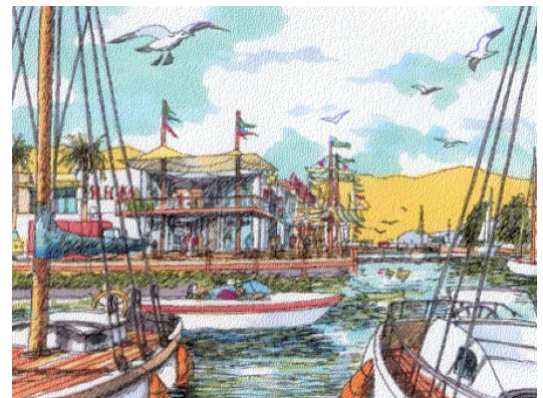


The Channel waterfront is a vital element of the City's General Plan:

"The Channel is a community-wide asset for public and marine related uses, where public access, use and views of the water are maximized, and sensitive wildlife habitat areas are protected. The San Rafael Channel shall be maintained as a navigable waterway for commercial and other activity."

"Promote marine-related commercial uses west of Harbor Street to serve the recreational and live-aboard boating community."

"Increase and improve public access to the Channel through creation of a public promenade on either side of the waterfront between Grand Avenue and Harbor Street. Provide an improved pedestrian crossing of the Channel at the Grand Avenue bridge. Attempt to create pedestrian and bicycle access. Improve water-based access by recreational boaters to Channel front businesses."



San Rafael Channel Dredging Funding Needs

Environmental analysis (Tier 3 Testing): **\$1,000,000**

Dredging operations: **\$11,000,000**

