

What is the South Bay Shoreline Study?

The South San Francisco Bay Shoreline Study is a congressionally authorized study being performed by the U.S. Army Corps of Engineers together with Santa Clara Valley Water District and the State Coastal Conservancy to identify and recommend flood protection projects in Santa Clara County for Federal funding. The Corps is considering projects that will reduce flood risk, restore ecosystems and provide related benefits like recreation and public access.

Why is this Study being conducted?

Santa Clara County's shoreline is at great risk from flooding now due to extreme storm events combined with high tides, and in the future due to sea level rise. *The Department of Water Resources, in their soon to-be-released "Flood Futures" Report, is expected to identify Santa Clara County, along with Los Angeles and Orange Counties, as having the highest potential damages from flooding in the state.* Portions of Santa Clara County nearest the Bay are below sea level, and many high-tech companies are located along the shoreline, along with residents and the largest Water Pollution Control Plant in the Bay Area, which serves over 1 million people.

Sea Level Rise and the South Bay

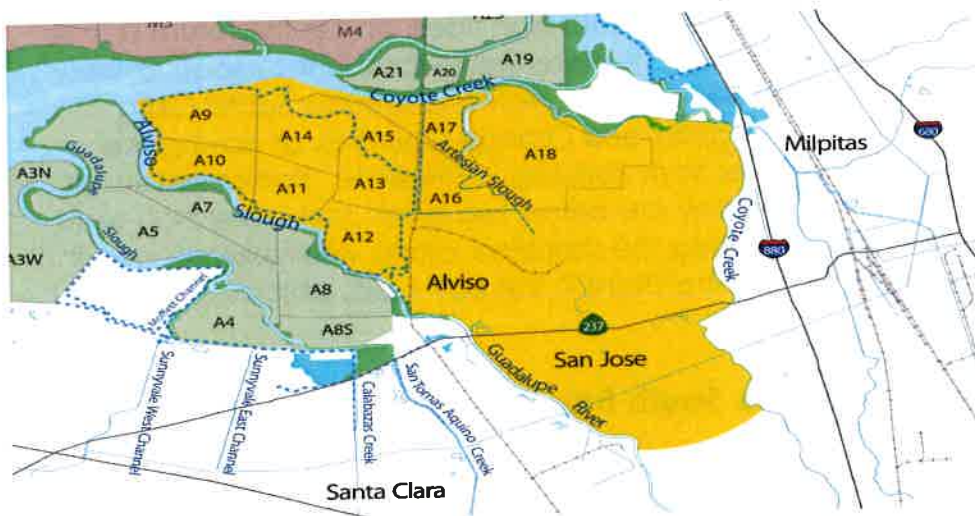
Global climate change has the potential to impact the South Bay because one of the expected results of climate change is sea level rise. *The Shoreline Study is the first study of its kind in the Bay area to develop a concrete plan to provide flood protection in light of sea level rise in the Bay.*

The science dealing with sea level rise has been rapidly developing over the past few years as numerous studies have addressed the issue. The Shoreline Study team is using a range of projections from the historic rate of sea level rise to over 2 feet of sea level rise by the year 2067 in assessing South Bay flood risk.

What geographic area does the Shoreline Study cover?

The study assessed flood risk damages for all Santa Clara County Baylands, from Palo Alto to Southern Alameda County, in addition to the restoration of former salt-production ponds within the Alviso Pond complex and adjacent properties such as areas around Moffett Field.

The study is being conducted in phases. The scope of the current phase of the Shoreline Study focuses on the most flood-prone section of the Santa Clara County shoreline: the north San Jose shoreline area between Alviso Slough and Coyote Creek, which includes the Alviso community and the San Jose/Santa Clara Water Pollution Control Plant (see map). Known as Economic Impact Area 11, or EIA 11, it includes homes, commercial and industrial facilities generally located below sea level and protected by salt pond levees. Planning for EIA 11 would enhance flood protection for an area with high flood damage and allow breaching of salt pond levees for wetland restoration. The proposed levees would also protect several high tech businesses and the new Silicon Valley Advanced Water Purification Center.



Current Shoreline Study Description & Goals

In a phased approach, the portions of Santa Clara County's shoreline with the highest potential damages from flooding will be protected using a combination of flood protection levees and wetlands. This multi-objective approach using natural infrastructure provides for increased flood protection, restored bay habitats, and a flood protection system that can

evolve in the future. The study will identify and recommend flood protection projects that meet the following goals:

- Protect from flooding from a 1% event (100 year high-tide event) for low-lying areas of San Jose and Alviso.
- Protect the area from just over 2 feet of sea level rise.
- Protect urban areas next to north San Jose and Alviso from tidal flooding, including the City and County wastewater treatment plant.
- Restore up to 3.5 square miles of wetland habitat.
- Contribute to creation of the west coast's largest restored wetland with extensive habitat for endangered species, fish, & migratory birds.
- Provide enhanced public access trails & recreation.

When is the project going to be built?

The draft Feasibility Study is due for completion at the end of 2013. If the feasibility study recommends and Congress approves a project, detailed design of project features will begin in 2015. Construction will begin as soon as Congress authorizes the project and appropriates funds, which would happen in 2017 at the earliest. The Santa Clara Valley Water District's Safe Clean Water measure, passed in 2012, includes \$15 million to cost share construction of the project.

How does the Shoreline Study relate to the South Bay Salt Pond Restoration Project?

The study shares geographic area and common goals with the South Bay Salt Pond Restoration Project (www.southbayrestoration.org), such as tidal flood protection, wetland habitat restoration and wildlife oriented public access, education and recreation. The projects are being coordinated and complement each other.

Future Shoreline Study Areas in Santa Clara County

The Santa Clara Valley Water District's Safe Clean Water measure, passed in 2012, includes \$5 million to cost share studies with the Corps of Engineers to study additional Economic Impact Areas in the overall Shoreline Study starting potentially in 2015.

The other shoreline areas with high economic impacts include portions of Palo Alto (Matadero Creek to Adobe Creek) and Sunnyvale (Stevens Creek to Sunnyvale West Creek).

California's Flood Future: Santa Clara County

Santa Clara County Statistics

Total Acreage	835,231
Total Population	1.7 million
Total Structures	488,100
Total Value of Structures and Contents	\$185.7 billion
Total Agricultural Acreage	71,313
Total Value of Agricultural Land	\$127.1 million

Santa Clara County Flood Risk

	100-yr Event	500-yr Event
Exposed Area (Acres)	60,869	145,236
Percent of Area Exposed	7%	17%
Population Exposed	132,577	664,061
Percent of Population Exposed	8%	39%
Exposed Structures	37,069	201,571
Value of Exposed Structures and Contents	\$15.2 billion	\$84.3 billion
Exposed Agricultural Land (acres)	20,072	32,232
Value of Exposed Agricultural Land	\$50.5 million	\$68.4 million

100-Year and 500-Year Flood Events

Two flood event levels* are commonly used for insurance and planning purposes.

500-Year Flood is a shorthand expression for a flood that has a 1 in 500 probability of occurring in any given year. This may also be expressed as the 0.2 percent annual chance flood.

100-Year Flood has a 1 in 100 (or 1 percent) probability of occurring in any given year.

*These levels indicate a percentage of probability and severity. It does not mean a flood only happens every 100 or 500 years.

Types of Flooding in Santa Clara County

Slow Rise

Slow-rise flooding is the gradual flooding that occurs when rivers, streams and lakes overflow their banks. This includes flooding caused by levee failure and channel erosion, when such failures are a foreseeable consequence of weather conditions.

Duration of Flood: Weeks / Time to Peak: Days

Flash

Flash floods are the number one weather-related killer in the U.S. because they can roll boulders, tear out trees, and destroy buildings and bridges quickly. A flash flood is a sudden, rapid flooding of low-lying areas typically caused by intense rainfall.

Duration of Flood: Hours / Time to Peak: Hours

Debris Flow

Debris flow floods are made up of water, liquefied mud and debris and can form and accelerate quickly, reaching high velocities and traveling great distances. Debris flow is commonly caused by heavy, localized rainfall on hillsides where vegetation has been destroyed by fire.

Duration of Flood: Hours / Time to Peak: Hours

Stormwater

Stormwater flooding refers to localized flooding that occurs in urban areas during or after a storm. Any storm, particularly slow-moving, steady rain storms, can overwhelm drainage systems. When the system backs up, pooling water can flood streets, yards and even the lower floors of homes and businesses.

Duration of Flood: Hours / Time to Peak: Hours

California's Flood Future: Santa Clara County

California is at risk. We must take action now.

The California Department of Water Resources and the U.S. Army Corps of Engineers developed *California's Flood Future: Recommendations for Managing the State's Flood Risk*.

The report is a look at flooding throughout the State, and outlines the challenges, opportunities and recommendations for improving flood management.

The impacts of a major flood would be devastating to California and to the nation. More than 7 million people and \$580 billion in assets including crops, buildings and public infrastructure are exposed to the hazards of flooding in the state. In addition to tragic loss of life, catastrophic flooding would have unprecedented impact on the State's economy and environmental resources.

California's Flood Future

California's Flood Future will help inform local, State and Federal decisions about policies and financial investments to improve public safety, foster environmental stewardship and support economic stability.

More than 140 public agencies responsible for flood management across the state submitted information used in the report. Locally, that included:

- Santa Clara Valley Water District
- San Francisquito Creek Joint Powers Authority

Efforts to reduce future flood risk will require unprecedented cooperation among public agencies, landowners and other stakeholders.

Flood management will need to be implemented from an *Integrated Water Management* perspective – an approach that looks at flood, water supply and ecosystem needs, and includes multiple benefits across a region.



Recommendations for Managing Flood Risk

These RECOMMENDATIONS are being considered for *California's Flood Future* as opportunities to achieve improved flood management using an integrated approach:

- 1) Conduct regional flood risk assessments to better understand statewide flood risk.
- 2) Increase public and policymaker awareness about flood risks to facilitate informed decisions.
- 3) Increase support for flood emergency preparedness, response and recovery programs to reduce flood impacts.
- 4) Encourage land use planning practices that reduce the consequences of flooding.
- 5) Implement flood management from regional, systemwide and statewide perspectives to provide multiple benefits.
- 6) Increase collaboration among public agencies to improve flood management planning, policies and investments.
- 7) Establish sufficient and stable funding mechanisms to reduce flood risk.