

FEBRUARY 2005





Executive Summary

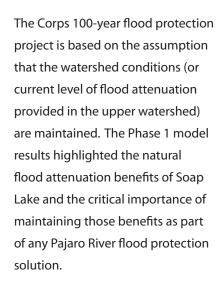
Introduction

The Pajaro River Watershed Flood
Prevention Authority (Authority) has
completed Phase 3 of the four phase
Pajaro River Watershed Study. The
Phase 3 Report outlines, summarizes,
and explains the progress achieved
to date within the Pajaro River
Watershed Study.

Phase 1 consisted of modeling both the hydrologic and sediment regimes of the watershed. The results of Phase 1 provided a better understanding of the characteristics of the watershed and changes over time that affect flooding frequency and flooding potential in the downstream reaches of the Pajaro River.

Phase 2 identified project alternatives that would provide flood protection for the Pajaro River from Chittenden to Monterey Bay from the 100-year flood flows identified in Phase 1. The Phase 2 Study projects were developed to coordinate with a concurrent Army Corps of Engineers (Corps) Lower Pajaro River flood protection project.

After the conclusion of Phase 2, the Corps identified a 100-year flood protection project for the Lower Pajaro River without any upstream projects.



The focus of the Authority work shifted to ensure that the flows passing through the Lower Pajaro River Project would not increase above the currently predicted levels. The most direct way to achieve this goal was to preserve Soap Lake and its attenuation capabilities.



Flooding on the Pajaro River

Phase 3 and 4a defines and documents the preferred method to maintain the Soap Lake attenuation and storage capacity, known as the Soap Lake Floodplain Preservation Project (Project). In Phase 3 Soap Lake was hydraulically modeled and the floodplain boundaries defined. The impacts of flooding and land use preservation were examined in compliance with the California Environmental Quality Act (CEQA) and the cost of the Project estimated.

Executive Summary

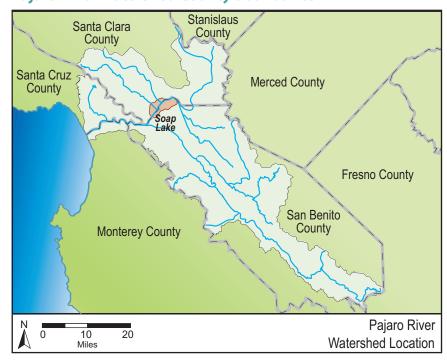
Purpose/Cegal Authority

The Pajaro River Watershed Flood
Prevention Authority was established
in July 2000 in order to "identify,
evaluate, fund, and implement flood
prevention and control strategies
in the Pajaro River Watershed, on an
intergovernmental basis." Because
the watershed covers areas of four
counties and four water districts,
the board is comprised of one
representative from each of the
following agencies:

- County of Monterey
- County of San Benito
- County of Santa Clara
- County of Santa Cruz
- Monterey County Water ResourcesAgency
- San Benito County Water District
- Santa Clara Valley Water District
- Santa Cruz County Flood Control and Water Conservation District,
 Zone 7.

The Authority acts as a governing body through which each member organization can participate and contribute to developing a method to provide flood protection in the watershed and promote general watershed interests. Although efforts by individual agencies have been

Figure ES-1
Pajaro River Watershed County Boundaries



made in the past to protect against flooding, the ultimate solution may require coordination of structural and non-structural projects throughout the four counties that make up the watershed. Therefore, it is critical that a governing body representing all eight agencies make the decisions necessary to ensure a flood protection solution is developed and general watershed interests are addressed and protected.

As described in the enabling legislation State Assembly Bill 807, the goal of the Authority is to implement flood protection strategies within the watershed. A further goal of the

Authority is to identify and prioritize strategies and projects that will provide multiple benefits, such as water supply, ground water recharge, or environmental restoration and protection benefits. Other potential benefits or watershed interests that have been identified and considered in the evaluation of project alternatives include:

ES - 2 2/05

Executive Summary

- Municipal, agricultural, and industrial water supply;
- Groundwater recharge;
- Support of rare, threatened, or endangered species;
- Migration and spawning of aquatic organisms; and
- Preservation of wildlife habitat².

Individual agencies have worked on solutions to the flooding, erosion, loss of wildlife habitat, and threat to listed species such as the steelhead trout, the California red-legged frog, the tidewater goby, and the western pond turtle. The Authority was created by state law to encourage cooperation between agencies and promote regional flood solutions.

Projects that provide multiple benefits maximize the opportunities for partnering and cost sharing. For example, the Soap Lake Floodplain Preservation Project could satisfy mitigation requirements for the Corps Lower Pajaro River project, thereby creating an opportunity to partner with the Corps and potentially receive federal funds. The Soap Lake Floodplain Preservation Project, if developed to protect the natural flood attenuation characteristics as well as provide open space or habitat protection, could create opportunities

for partnering with public and private resource agencies like Santa Clara County Open Space Authority, The Land Trust of Santa Clara County, The Nature Conservancy, California Department of Fish and Game, US Fish and Wildlife Service, and others. Any opportunity to partner with other agencies or organizations maximizes the opportunities for cost sharing.

As outlined by the State, there are four phases of the Pajaro River Watershed Study:

Phase 1:

Stream Flow Modeling

Phase 2:

Development of Flood Protection Alternatives

Phase 3:

Selection of Projects and CEQA Analysis

Phase 4:

Flood Protection Implementation

The Authority's study began in late 2001. The Phase 1 Report was completed in July 2002 and the Phase 2 work was completed in April 2003. The Phase 1 and Phase 2 Reports summarized the results of the modeling effort, alternatives development and provided a foundation for the remaining phases of the Pajaro River Watershed Study.

Executive Summary

Setting

The Pajaro River is the largest coastal stream between the San Francisco Bay and the Salinas Watershed in the County of Monterey.3 The watershed is approximately 1,300 square miles and covers portions of Santa Cruz, Santa Clara, San Benito, and Monterey Counties. The large size contributes to the number of diverse environments. physical features, and land uses within the watershed. Tributaries to the Pajaro River, the largest of which is the San Benito River, originate throughout the watershed. Figure ES-2 is a relief map of the watershed which includes major highways, cities, dams, and rivers.

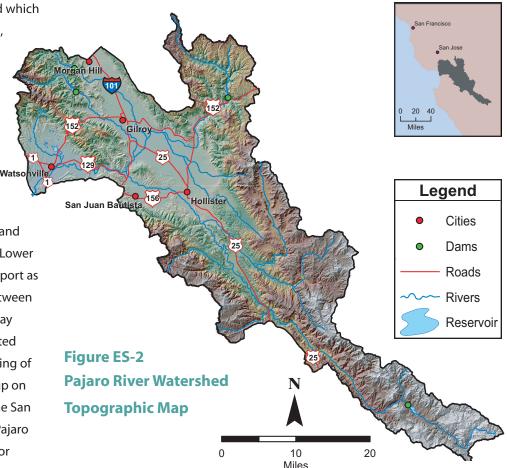
The Soap Lake floodplain is a seasonal feature of the watershed but has been found to be an extremely important flood protection feature. Upper Soap Lake is also known as San Felipe Lake and is a permanent body of water. Lower Soap Lake, referred to in this report as Soap Lake, is the floodplain between San Felipe Lake and the Highway 101 crossing. Soap Lake is created when flood events cause flooding of low-lying areas and flow backup on the Pajaro River upstream of the San Benito River. This reach of the Pajaro River acts as a natural control for

increased flows from the upper Pajaro River watershed. The lake effects dissipate as the floodwaters recede.

Development within the watershed, both urban and rural, is clustered around the major cities. The major urban centers are Watsonville, Gilroy, Morgan Hill, Hollister, and San Juan Bautista. Agriculture and grazing are the dominant land uses in these areas but represent a small portion of the total watershed land use. Other industries outside of the urban setting

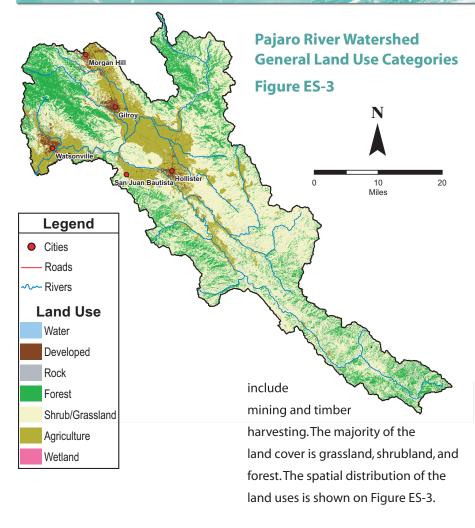


Pajaro River in the Soap Lake floodplain



ES - 4 2/05

Executive Summary



Brief History of the Watershed

To develop a long-term sustainable flood protection project, it is necessary to understand current and past watershed conditions and projected trends. The present is important because it is the reference point for future courses of action. The past is relevant because the ability to see how the watershed has changed over the years makes it possible to understand how different factors,

taken individually or as a whole, affect flooding potential. The late 1940s are especially significant because of major flood protection work done at that time. The work radically changed the shape and function of the river and flood plain.

Flood protection management entered the current era when the Corps initiated a flooding study in 1936. However, it was not until 1949 that a complete levee was constructed from Murphy's Crossing to the river mouth, a distance of about 10.5 miles, (Figure ES-4) to improve flood protection for the lower Pajaro River flood plain.⁴ In some locations, existing levees, which had straightened the river course somewhat, were raised to provide additional protection. New levees filled in gaps and extended the coverage area. Based on recent studies by the Corps, the existing flood protection project has an 8-year level of protection at 90 percent confidence of non-exceedance.5

Four large flood discharges in recent history have caused major flooding and damage. The first two high water periods, in 1955 and 1958, stimulated interest in further flood protection works, but since no consensus could be reached regarding the type of

Executive Summary

project, the idea was abandoned. The droughts throughout the 1970s and early 1980s lowered public awareness of floods. More recently, major floods occurred in 1995 and 1998. The flooding in 1995 caused Governor Pete Wilson to suspend Department of Fish and Game regulations and the California Environmental Quality Act (CEQA) requirements to allow emergency flood protection measures to be implemented. The measures most often took the form of vegetation and sandbar removal.

The magnitude of flood protection is not the only aspect of the watershed that has changed significantly since the early 1940s. There has been a shift in the type and extent of agricultural production within the watershed.

Agriculture has been a significant part of the area's economy since the late 1800s, the magnitude of export due largely to the available transportation to ship the product, the development of refrigeration, and the availability of deep wells. Up to World War II, orchard crop production, especially of apples, apricots, and prunes, was increasing. Vegetables high in nutrition also experienced elevated demand. As the years passed, the local demand for staple crops lessened and the orchards passed their prime growing years. Sometime during the 1950s, a gradual transition was made to smaller crops, such as strawberries, which had a higher yield per acre in both tonnage and profit. Not all of the orchards were replaced, however, and those that remain are a significant part of



Pajaro River and adjacent fields

Based on recent studies by the Corps, the existing flood protection project has an 8-year level of protection at 90 percent confidence of non-exceedance.

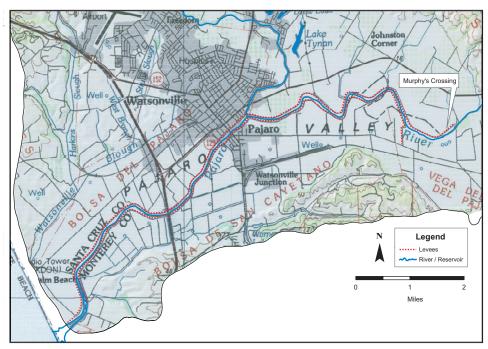


Figure ES-4
Pajaro River Watershed
Lower Pajaro River

ES - 6 2/05

Executive Summary



Strawberry fields in Pajaro Valley

the watershed's land use. Many other agricultural products are still grown in great quantities for both domestic use and foreign export. 7,8,9

Most of the population growth and urbanization in the urban areas of the watershed has taken place around the five largest cities within the watershed: Watsonville, Gilroy, Morgan Hill, Hollister and San Juan Bautista¹⁰. All five cities have grown recently as the area has become more popular due to the housing availability, regional agriculture and industry, and proximity to other major economic and industrial locales.

Table ES-1

Phase 1 Modeling Results Peak Flood Discharge at Chittenden	
Existing Conditions	
2-Year	3,100 cfs
100-Year	43,700 cfs
Historic Conditions (1947)	
2-Year	3,700 cfs
100-Year	48,500 cfs
General Plan Build-Out (2015 to 2020)	
2-Year	3,600 cfs
100-Year	44,400 cfs
Ultimate Build-Out (2050)	
2-Year	4,300 cfs
100-Year	44,900 cfs
Changes in Agriculture	
2-Year	3,300 cfs
100-Year	44,600 cfs

Phase 1 Flooding Studies

One of the objectives of the Phase 1 study was to better understand the impact of land use on flooding. Table ES-1 summarizes some of the model results. The conclusion was that neither the increased urbanization nor the agricultural changes had a significant effect on runoff for 50-year to 200-year return period flood flows. However, for smaller, 2-year to 25-year return period floods, these conditions caused greater percentage increases in flood flow rates.

The type of agriculture will impact runoff locally, but on a watershed scale the modeled watershed agricultural changes caused an increase of less than two percent in the peak flow rate at Chittenden during storms with return periods of 10 years and larger. Urbanization causes slightly greater increases in peak flow, with Chittenden peak flow rates increased by 2.4 percent or less for storm with return periods greater than 50 years. The small change in peak flows for these large storms is due to the saturated ground surface that occurs during these events. These large storms will saturate the ground quickly, effectively creating an impermeable surface for any additional rain. The amount of runoff

Executive Summary

created by a saturated non-urban surface is nearly the same as an urban surface.

For smaller storms, such as 2- to 25-year storms, land use and urbanization cause larger increases in peak flow. Peak flows at Chittenden are approximately 3 percent higher than the existing condition peak flows for the 10 year and 25 year return periods. The peak flows at Chittenden with the Ultimate Buildout condition are approximately 6 percent higher than the existing condition peak flows for the same return periods. The discharges from these storms can cause additional flooding if not managed properly.

Model results indicated that regional flooding potential was worse in 1947. This is due primarily to the lack of upstream storage that is currently provided by the Hernandez, Uvas, and Chesbro dams, which have been constructed since 1947. The construction of these dams reduced the peak flows at Chittenden from 10 to 20 percent over the range of storm return periods studied.

Phase 2 Project Development

Using the modeling results, fourteen conceptual 100-year flood protection project alternatives were developed. Though many alternatives were developed, there are several that were identified as the most favorable for pairing with the Corps projects. Their status was based on multi-objective benefits, a minimization of adverse effects, and a comparatively low cost. While all of the favored alternatives had these traits in common, the types of projects included in the alternatives were quite diverse. One alternative, the Soap Lake Preservation Project, was considered imperative to maintain the projected downstream discharge levels. Preserving or

Neither the increased urbanization nor the agricultural changes had a significant effect on runoff for 50-year to 200-year return period flood flows. However, for smaller, 2-year to 25-year return period floods, these conditions caused greater percentage increases in flood flow rates.

Table ES-2

Flood Protection Project Alternatives

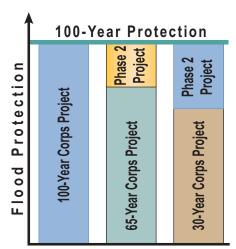
- Corps Lower Pajaro River Flood Protection Project Alternatives
 - 1 Corps Alternative 1 Floodwalls and Levee Height Increase
 - 2 Corps Alternative 3 Floodwalls and Levee Height Increase with 100 feet and 225 feet Setbacks
- Upper Watershed Alternatives
 - 3 Land/Flood Easement at Soap Lake
 - 4 Detention Basin in San Benito Watershed
 - 5 Raise Existing Dams
 - 6 New Pacheco Dam

- 7 New Soap Lake Dam
- 8 New Tres Pinos Dam
- 9 New San Benito Dam
- 10 New Chittenden Dam
- Lower Watershed Alternatives
 - 11 Detention Basin at College Lake
 - 12 Open Channel Bypass
 - 13 Flood Channel

- 14 Underground Bypass
- 15 Flood Tunnel
- 16 Floodwalls

ES - 8 2/05

Executive Summary



Phase 2 projects build on the Corps Lower Pajaro River Project to provide 100-year flood protection

Figure ES-5

perhaps enhancing the intermittent detention basin characteristics of Soap Lake will play a major role in maintaining discharge levels in the lower reaches of the Pajaro River. Increases in the 100-year flow from the Soap Lake area could increase peak flows downstream and the planned Corps projects may be inadequate to convey the discharge.

Soap Cake Floodplain Preservation Project

The low-lying, flood prone land known as Soap Lake provides a measure of flood protection to reaches on the lower Pajaro River. Approximately 9.000 acres of the relatively flat land straddling the San Benito and Santa Clara County boundary in the Soap Lake area will flood during a 100-year storm event. Without the flooding of this area, the downstream 100-year flow at Chittenden could increase from 44,400 cfs to approximately 60,000 cfs, or 135 percent. The current land use and land cover of the Soap Lake area is predominantly agricultural and open space. One of the recommendations of Phase 2 was to further study the Soap Lake floodplain characteristics in order to verify the flood attenuation properties. This information would be used to develop a Soap Lake Preservation Plan necessary to prevent land use

changes in the floodplain that could cause increases in downstream flow.

Flood Protection Project Comparisons

The fourteen project alternatives were combined with the Corps projects into packages that provided 100-year flood protection. The packages of Corps projects and Phase 2 project alternatives were evaluated based on several different criteria. These included:

- Protection These benefits included surface water quality, groundwater recharge, regulatory compliance, and open space and agricultural preservation.
- Facilities Residential and commercial land use areas, highways, railroads, and facilities such as treatment plants played



Flood warnings in the watershed

Executive Summary

a role in determining the impact that the project would have on the surrounding area.

Implementation Issues

- Compliance with the Endangered Species Act and other laws, physical constraints of the alternative, and the expected reaction of the public to the project were all identified as possible implementation issues.
- Project Costs A conceptual level planning cost estimate was completed for each alternative to allow comparison of relative expense. More detailed estimates will be needed to obtain a better understanding of the total construction cost as the alternatives are further defined.

After the project packages were developed, several were eliminated based on one or more of the four criteria that made the packages less viable. The four criteria were:

- Cost Package cost is greater that \$500 million
- Limited Flood Protection
 Area 100-year flood
 protection is not available
 upstream of Corralitos Creek
- Project Feasibility Extensive relocation of infrastructure,



Agriculture in Soap Lake area

facilities, and residences is required

 Public Safety - Reservoirs are located nearby and upstream of population centers

The remaining nine packages were presented to the interagency Staff Working Group. After review of the packages, the Staff Working Group identified the following favored alternative packages:

- Corps 100-year Project
- Corps 65-year Project and New Small San Benito Dam
- Corps 65-year Project and Open Earthen Bypass Channel
- Corps 30-year Project and New San Benito Dam
- Corps 30-year Project, New
 Pacheco Dam, and New Small San
 Benito Dam

Each of these packages utilizes a downstream Corps project and assumes the Soap Lake

One of the recommendations of Phase 2 of the Pajaro River Watershed Study was to further study the Soap Cake floodplain characteristics in order to verify the flood attenuation properties.

ES - 10 2/05

Executive Summary

Goal of Pajaro River Watershed Study Phase 3:

- Understand how Soap Cake naturally operates to provide flood protection benefits.
- Identify ways to maintain Soap Cake benefits
- Complete the CEQA process for the preferred alternative.
- Continued public outreach and agency coordination.

flood attenuation conditions are maintained. The upstream dams would reduce the peak discharge, alter the timing of the peak, and provide benefits such as water supply, potential water quality improvements, and recreation opportunities. The open earthen bypass channel would remove the peak discharge from the main channel and transport it to the mouth of the river during flood events.

After the conclusion of Phase 2, the Corps selected a 100-year flood protection project for the Lower Pajaro River Project. The Corps project is based on the assumption that flood attenuation provided in the upper watershed is maintained. Therefore the Soap Lake Floodplain preservation became the focus of Phase 3 of the Authority's Study.

Phase 3 Selection of Projects and CEQA Analysis

The goal of Phase 3 of the Pajaro River Watershed Study was to verify the floodplain attenuation characteristics of the Soap Lake area and identify preservation plans necessary to maintain the existing flood attenuation properties, complete the CEQA documentation for the preferred alternative, and conduct public outreach.

Characterizing the Soap Cake Floodplain

Soap Lake Hydraulic Model

To better define the Soap Lake floodplain and understand the flood benefits of the floodplain, detailed hydraulic modeling of the Soap Lake area was completed and floodplain maps were developed. Hydraulic models, schematics of which are shown in Figures ES-6 and ES-7, were developed for the 2-, 10-, 25-, 50-, and 100-year flood events using a modeling program called HEC-RAS. This software program was developed by the Corps and is publicly available.

2/05 FS - 11

Executive Summary

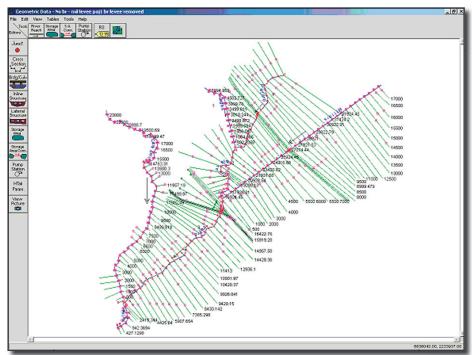


Figure ES-6
HEC-RAS geometric data including stream centerlines

HEC-RAS uses two types of input to calculate water surface elevation at individual cross sections. They are flow input, either peaks or hydrographs, and geographical data, which includes topography, stream paths, and ground roughness which simulates land use and land cover. The output most relevant to this study is the water surface elevation at each cross section.

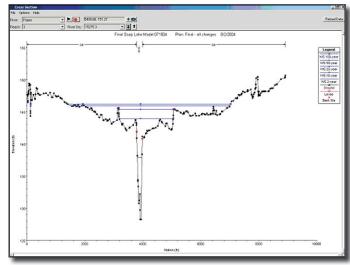
Soap Lake Floodplain Model

Floodplain maps were developed using the hydraulic modeling results. Whether or not an area is considered within the floodplain is primarily based on a comparison between the ground elevation and the calculated water surface elevations. If the

modeled water surface is higher than the ground, that area is flooded; otherwise the land is not flooded.

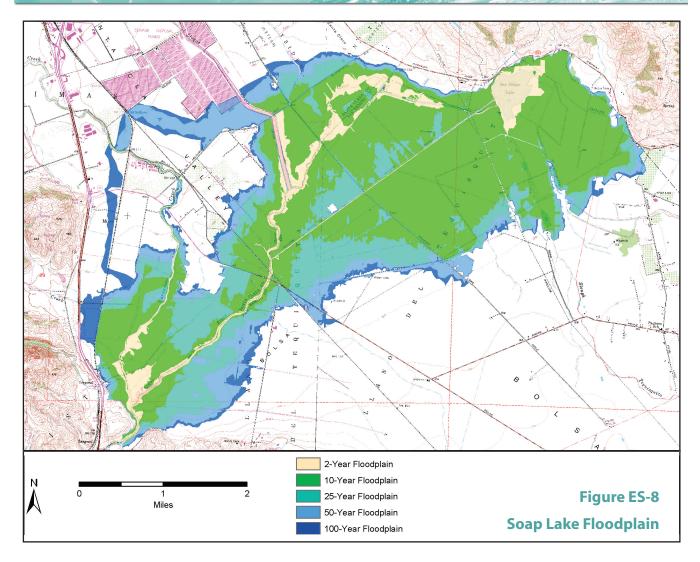
Figure ES-7

An individual cross-section (from Figure ES-6) showing ground and water surface elevation.



ES - 12 **2/05**

Executive Summary



Based on the Soap Lake hydraulic and floodplain models, floodplain maps were created for the 2-, 10-, 25-, 50-, and 100-year floodplains as shown in Figure ES-8.

The model output and floodplain maps based on those results are not intended to represent or replace the FEMA flood maps. They are instead representations of potential future flood conditions and future flood

locations to be used for this study's planning purposes.

These floodplain delineations are a central aspect of the Soap Lake Floodplain Preservation Project as they define where preservation is necessary. Impacted parcels are identified based on these floodplains.

Executive Summary

Facilities Impacted by Flooding

Facilities that could be impacted in a 2-, 10-, 25-, 50-, and 100-year flood event were identified. A facility was considered to be impacted if it is at least partially within the floodplain limits. The identified facilities analyzed were limited to public or large structures and did not include residences or individual farms. Facilities in the analysis included:

- Roads and Highways;
- Bridges;
- Railroads;
- Utilities Santa Clara Conduit and proposed Pajaro Valley Water Management Agency Import Pipeline; and
- Special Structures Significant structures not included in the above categories.

All of the above are impacted to some degree during large flood events. No damage costs were estimated as a part of this study.

Defining The Soap Cake Floodplain Preservation Project

Though there are other ways to preserve the flood attenuation benefits, the Soap Lake Floodplain Preservation Project accomplishes this

goal by maintaining the current land use and topography. Evaluated land use preservation methods include:

- Land use policies (zoning, general plan, and floodplain ordinances);
- Incentive programs (Williamson Act, Farmland Security Zones, etc.);
- Purchase of land;
- Conservation easements; and
- Agricultural land mitigation banking.

The proposed project would not build any structural facilities; instead the project would include either purchasing land or obtaining flood easements for the land within the Soap Lake floodplain. The objective is to maintain the current flood protection benefits provided by the Soap Lake floodplain by protecting the area from changes that would impact the flood protection properties of the floodplain. The purchase of land or floodplain easements would restrict development and preserve agriculture and open space.

The extent of the project is equvialent to the 100-year floodplain as shown in Figure ES-8.

ES - 14 2/05

Executive Summary



CEQA Documentation

This project would maintain the current hydrologic and hydraulic conditions of the Soap Lake floodplain. The floodplain limits would not be changed. As flood frequency and magnitude increase due to urbanization elsewhere in the watershed, a protected Soap Lake would continue to provide the current level of flood protection afforded by this floodplain. The project would therefore minimize additional flood damage within the Soap Lake floodplain since new development would be restricted. The project would also minimize flood damage downstream since the peak flows are attenuated in the existing floodplain.

Other benefits of the Soap Lake Floodplain Preservation Project include open space preservation, riparian corridor protection, agricultural preservation, regulatory compliance, and maintenance of groundwater recharge.

Analyzing the Environmental Impacts of the Project (CEQA)

Potential environmental impacts due to preservation of the Soap Lake Floodplain were evaluated at a programmatic level in compliance with CEQA. The Initial Study/ Negative Declaration (IS/ND)

evaluated potential impacts on resources within the floodplain including biological resources, cultural resources, agricultural land, proposed recreational trails, and numerous creeks, streams and rivers. Because the proposed action would not involve any ground-disturbing activities and would preserve the area by minimizing future development, the IS/ND identified no significant adverse impacts and no mitigation measures are recommended at this stage. Any future land purchase or easement would need further environmental documentation if ground disturbing activities are proposed.

Summary of Impacts

The proposed project area is comprised almost entirely of agricultural lands and rangeland including Prime Farmland, Unique Farmland, and Farmland of Statewide Importance. The project would be consistent with continued agricultural use of the land, with Williamson Act contracts, and with the recently adopted agricultural mitigation policy by the City of Gilroy. The Gilroy policy identifies portions of unincorporated Santa Clara County as their preferred location for agricultural mitigation, which includes a portion of the proposed Soap Lake project area.

Executive Summary

There are 26 recorded Native
American and historic-period cultural sites within the project area of which four sites have been determined eligible for the National Register of Historic Places. There is also the potential for paleontological (fossil) resources. In addition, because of the number of historic buildings and structures (bridges, canals, etc) within the project area, any future land acquisition or easement should not include changes to these features until a qualified architectural historian assesses their historical value.

The project area includes three types of habitat: agricultural, valley foothill riparian, and wetland. Several threatened and endangered plant and wildlife species have been identified within the floodplain. Both San Benito and Santa Clara Counties are in the process of preparing Habitat Conservation Plans. The proposed project is not expected to conflict with these plans, and could perhaps be used to help the counties reach their conservation goals.

There are five proposed trail routes throughout the project area including a National Historic Trail. Inclusion of trails in such easements would be consistent with county policies encouraging trail development but

would need to be designed to avoid conflicts with other resources. If conservation easements are obtained that include trail easements, there could be a beneficial impact by providing additional recreational opportunities.

The proposed project would maintain existing drainage patterns, sedimentation rates, groundwater recharge and flooding conditions. This would preserve the benefits of groundwater recharge and reduced sediment entering the waterways because it settles out over the land when flooded. Without the storage of water in the floodplain more water would flow downstream during flood events causing increasing flooding, therefore, the proposed project would help reduce increased flooding downstream by storing this water in the Soap Lake Floodplain.

Cumulative impacts were also considered. Transportation improvement projects in the area that involve the widening of roadways and building of bridges could potentially affect flooding in the area. It is important that the agencies involved in these projects consider how these projects could impact flooding locally and downstream. The Highway 25 widening project will design

the project to 100-year floodplain standards and will elevate the roadway approximately 6 feet and more where it crosses the railroad tracks.

ES - 16 **2/05**

Executive Summary



www.PajaroRiverWatershed.org

Public Review and Comment

The IS/ND was circulated for public review for 30 days. Announcements were placed in four local newspapers and mailed to all landowners within the floodplain, copies of the IS/ND were sent to all interested and affected agencies, organizations and individuals, and a public meeting was held on October 13th, 2004 in Gilroy, California. The IS/ND was also posted on the project website where comments could be submitted.

Public comments were received at the public meeting and via written submittals. Comments at the public meeting focused on additional possible flood protection measures that could be evaluated. Eight comment letters were received. Many of these letters stated their support for the project and there were no letters of opposition. Several letters asked for clarifying information on what specific discretionary actions would be taken by which agencies and what funding had been identified.

To respond to public comments, the Authority has approved the preparation of an Implementation Plan that will address these issues. This work will be completed in Phase 4.

Soap Cake Floodplain Cand Acquisition Needs and Cost

Three aspects of the land acquisition needs were explored as part of this phase of work: determining the priority parcels for purchase, determining who the lead purchase agency should be and estimating a cost for land acquisition. Parcel purchase priority is influenced by many factors including a willing seller, flooding frequency, proximity to existing infrastructure, proximity to existing conservation areas, and potential for multiple benefits such as environmental restoration or recreational trails.

Suitability of potential land owners was evaluated in terms of advantages and disadvantages. In addition to the Authority, other agencies such as counties, water districts, and private organizations were evaluated.

The cost of the Soap Lake Floodplain Preservation Project, since there is no actual construction, is limited to land acquisition cost and related preservation activities. An initial estimate to purchase the floodplains at the 2-, 10-, 25-, 50-, and 100-year event levels has been calculated based on unit cost per acre. The two primary acquisition methods are fee title purchase and flood/conservation

Executive Summary

easements and their unit costs are estimated to be \$12,000/acre and \$5,000/acre respectively.

Purchase of easements in the floodplain is estimated at approximately \$45 million, while purchase of the entire floodplain in fee title is estimated at approximately \$175 million. It is anticipated that the actual cost will be in between these estimates but closer to the easement purchase price of \$45 million as purchase of easements is the preferred alternative in most cases and funding opportunities are limited. It is expected that the actual purchase pattern of the floodplain will include both easements and fee title purchases. It is also likely that some of the parcels at the fringe of the floodplain will be purchased in entirety while others will be divided. It should also be noted that land purchased in large tracts is generally available at a lower cost per acre. These discounts could also lower the total price.

Funding for past conservation easements in the area has been through state and local grant programs. It is expected that future easements would also be funded primarily through these sources.

Stakeholder Consensus

One of the keystones of a successful program is being sure that people agree on its value and believe that the best possible projects have been developed. Consensus within two groups is important for this study. One is consensus within the Authority and the second is consensus within the public.

Agency representatives meet at least once a month to discuss progress on the study and answer any questions that arise. With all eight agencies discussing issues of concern and working together, it is possible to arrive at a solution that is both technically feasible and politically acceptable. The representatives of the eight agencies have all agreed with the recommendations of the Phase 3 Study.

The other aspect of consensus is public opinion. Through outreach efforts, it is possible to both educate the public and obtain their input for the study. It is important to learn what matters to the stakeholders since they are the ones who will be directly impacted by any projects or conclusions that come out of the study. During Phase 3, the opportunities to inform and educate the public on the progress of the



Open space in Soap Lake

ES - 18 **2/05**

Executive Summary

study were through presentations at the Authority Board meetings and to other agencies and community groups.

Coordination With Other Studies

Coordination with past, current, and future projects affecting the Pajaro River watershed is crucial to the success of the study. Past projects have identified areas of concern for the local residents and collected a great deal of data for the watershed. Future studies should be able to dovetail with ongoing efforts for this study. Current relevant projects and studies include:

- Corps Lower Pajaro River Flood Protection Project;
- San Luis Reservoir Low Point Improvement Project;
- Various Sediment Projects with the Regional Water Quality Control Board;
- Pajaro Valley Water Management Agency Water Supply Project; and
- Llagas Creek Flood Protection Project.

Phase 3 efforts were closely coordinated with the Corps Lower Pajaro River project and progress on both projects was communicated in a unified, consistent message.

Conclusions

The primary objectives of Phase 3 of the Pajaro River Watershed Study were to:

- Delineate the Soap Lake floodplain;
- Evaluate alternatives for preserving the Soap Lake floodplain;
- Complete the CEQA documentation for the preservation alternatives;
- Identify land acquisition strategies and costs;
- Enhance stakeholder outreach activities; and
- Integrate and coordinate with other watershed studies.

The Soap Lake floodplain was delineated for the 2-, 10-, 25-, 50- and 100- year events. The 100-year floodplain covers more than 9,000 acres.

Potential methods to preserve the floodplain and maintain current levels of Soap Lake flood attenuation were explored and analyzed. The recommended alternative is land acquisition through fee title purchase or flood conservation easements. This method was selected because of the multiple benefits (agricultural and open space conservation, potential restoration benefits, and



The Phase 3 stakeholder process was coordinated with the Corps to deliver a consistent message

Executive Summary

public acceptance) and permanence.
A number of other methods
could also be applied in the short
term or in combination with land
acquisition. These other alternatives
include zoning and General Plan
land use designation changes and
enforcement, floodplain management
ordinances, incentive programs, and
mitigation banking.

Programmatic CEQA documentation for the Soap Lake Floodplain Preservation Project has been completed. An initial study and negative declaration (IS/ND) was prepared documenting that there were no significant environmental impacts from the proposed project and no mitigation measures were proposed at this time.

Eight letters were received from agencies and the public. Many of these letters stated their support for the project; there were no letters of opposition. Several letters also requested that more specific information be included on how the Soap Lake Floodplain Preservation Project will be implemented and who will be responsible for it. These questions form the basis of some of the goals of the next phase of the Pajaro River Watershed Study.

Stakeholder consensus has been a key part of the success of the Pajaro River Watershed Study. To increase the visibility of the Authority and facilitate distribution of information, a website has been developed (www. PajaroRiverWatershed.org). Special presentations have also been made to groups interested in learning more about the Authority's work. The Authority continues to support the Lower Pajaro River Project and coordinate with other local and regional planning efforts.

Next Steps

Phase 4 of the Study will include the following four tasks that contribute to or support flood protection for the Pajaro River Watershed:

- Develop the Soap Lake
 Floodplain Preservation Project
 Implementation Plan;
- Create three sediment models;
- Improve flood forecasting capabilities; and
- Perform a fisheries study of San Felipe Lake.

An implementation plan to preserve Soap Cake will be completed in Phase 4 and will include specifics on acquisition strategy, conservation easement and mitigation bank guidelines, program administration, and funding.

ES - 20 **2/05**

Executive Summary

Soap Lake Floodplain Preservation Project Implementation Plan

The implementation plan for the Soap Lake Floodplain Preservation Project will define a recommended land acquisition strategy and will include the following elements:

- Land acquisition strategy;
- Refined cost estimate:
- Standard conservation easement provisions;
- Land acquisition and management program administration recommendation;
- Agricultural mitigation bank quidelines;
- Funding opportunities; and
- Recommendations for each county and water district.

Sediment Modeling

Three models will be created to better understand sediment transport and deposition in the Pajaro and San Benito Rivers.

- Sediment trap in the Pajaro River
- Two-dimensional model of benches in the Pajaro River
- Sediment transport model for the San Benito River

Flood Forecasting

There are four important aspects of flood forecasting that will be included in Phase 4.

- Rating Curve Review
- Automated Local Evaluation in Real Time Gages
- Streamflow Time of Travel
- Streamflow Gage Rehabilitation Options

Fisheries Study

A preliminary fisheries study of San Felipe Lake is necessary to document existing habitat conditions and species which will help to provide some background information for future studies.

2/05 FS - 21

Executive Summary

References

- ¹ Keeley, "Assembly Bill 807: Pajaro River Watershed Flood Prevention Authority Act." October 10, 1999.
- ² "Draft Water Quality Management Plan for the Pajaro River Watershed." Prepared for Association of Monterey Bay Area of Governments. March 1999.
- ³ Ibid.
- ⁴ "Draft Environmental Impact Report: Pajaro River and Salsipuedes and Corralitos Creeks Management and Restoration Plan, Santa Cruz County, California." Prepared for County of Santa Cruz. September 2001.
- ⁵ "Pajaro River Flood Protection, Community Planning Process", November 2002.
- ⁶"Draft Environmental Impact Report: Pajaro River and Salsipuedes and Corralitos Creeks Management and Restoration Plan, Santa Cruz County, California." Prepared for County of Santa Cruz. September 2001.
- ⁷ Personal communications. Pajaro Valley Historical Association. 2/26/02.
- ⁸ County Crop Reports for Monterey, San Benito, and Santa Clara.
- ⁹ Martinelli's Cider Electronic Brochure. Accessed on 4/29/02 at http://www.martinellis.com/Brochure/home.htm.
- ¹⁰ 1990-1999 Population Estimates from internet url: http://www.census.gov/ population/estimates/metro-city/placebyst/SC99T7_CA.txt, and Census data from internet url: http://factfinder.census.gov/servlet/BasicFactsServlet.

ES - 22 **2/05**

