
CHAPTER 3

PRELIMINARY EVALUATION OF FLOOD PROTECTION ALTERNATIVES

This chapter includes the description and preliminary evaluation of Pajaro River flood protection alternatives identified in Chapter 2. The location, cost, and impacted facilities are subject to change as projects are evaluated further and more information becomes available. Each project alternative evaluation includes the following information:

- Alternative Description
- Flood Protection Level
- Identification of Other Benefits
- Identification of Impacted Facilities
- Implementation Issues
- Cost Estimate

A summary table of the flood protection, engineering and regulatory constraints, other benefits, and a cost estimate for each alternative is provided at the end of the chapter in Table 3-20.

3.1 Identification of Alternatives

A total of 16 alternatives were identified for further evaluation. The alternatives were divided into three categories, including:

- Army Corps of Engineers 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
- Upstream Alternatives
 3. Land/Flood Easement at Soap Lake
 4. Detention Basin in San Benito Watershed
 5. Raise Existing Dams
 6. Detention Basin at College Lake
 7. New Pacheco Dam
 8. New Soap Lake Dam
 9. New Tres Pinos Dam
 10. New San Benito Dam
 11. New Chittenden Dam
- Downstream Alternatives
 12. Open Channel Bypass
 13. Flood Channel
 14. Underground Bypass
 15. Flood Tunnel
 16. Floodwalls

Concurrent with the Pajaro River Watershed Study, the Army Corps of Engineers (Corps) has been participating in a separate study focused on flow management in the Pajaro River reach downstream of Murphy Road

3. Preliminary Evaluation of Flood Protection Alternatives

Crossing. The Corps has identified five alternatives consisting of a series of projects along the river. The alternatives provide different levels of flood protection, with flooding occurrences varying from a 30-year event to a 65-year event. The following Corps alternatives were evaluated as part of this report:

1. Corps Alternative 1 – Floodwalls and Levee Height Increase
2. Corps Alternative 3 – Floodwalls and Levee Height Increase with 100-foot and 225-foot Setbacks

The remaining three Corps alternatives have not been included in this report. Those alternatives are:

- Corps Alternative 2 – 100-foot Setback
- Corps Alternative 4 – Floodwall In-lieu of Levees
- Corps Alternative 5 – Environmental Corridor

Corps Alternatives 1 and 3 have been chosen for inclusion in this report since they were shown to be cost effective and represent the limits of flood protection provided by the Corps alternatives. Information regarding each of the five alternatives is provided in Appendix A.

3.2 Description of Evaluation Criteria

Alternatives one through sixteen were evaluated based on the following criteria:

- Level of flood protection
- Water supply benefits
- Water quality benefits
 - Ground
 - Surface
- Ground water recharge benefits
- Environmental benefits
 - Enhancement
 - Restoration
- Recreation benefits
- Regulatory compliance
- Open space preservation
- Agricultural preservation
- Public acceptance

The level of flood protection provided by each alternative was defined as a percentage of the difference between the 100-year peak flood flow and the existing channel capacity as shown on Figure 3-1. Figure 3-1 is a graph of the Phase 1 model flood flow discharges at Chittenden at general plan buildout. The general plan buildout runoff provided for land use for the planning horizon between the years 2015 and 2020. The peak discharge at Chittenden is 44,400 cubic feet per second (cfs) in the general plan buildout land use scenario. The channel capacity downstream of Chittenden, assuming Corps levee certification, is 19,000 cfs, creating a potential overflow of about 25,400 cfs in this reach. Flood protection projects in the watershed would either attenuate the 25,400 cfs flow upstream or provide sufficient capacity for conveyance. A project that would reduce this capacity deficit by 2,540 cfs has a defined flood protection benefit of 10%; a project that would reduce the entire capacity deficit would have a flood protection benefit of 100%. Preliminary hydraulic modeling for each alternative provided the estimates of reduction in peak discharge overflow for the 100-year flood event.

