Ross Valley Watershed Program Update

by Sandy Guldman
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The Ross Valley Capital Improvement Plan Study was released in 2011 to guide flood control efforts and measures valley-wide over the next 20 years. It is intended to eliminate overbank flows during a storm with a 1% chance of occurring in any year. Although this is commonly called the *100-year event*, a more accurate and meaningful shorthand is the *1% annual chance flood* or 1% ACF. To focus on providing some flood risk reduction for the whole watershed, on April 3, 2012 the Flood Zone 9 Advisory Board adopted a 10-year plan to provide all locations with flood protection during a 4% ACF (the 25-year event).

Efforts are now underway on key parts of the 10-year plan. They include finishing the Corte Madera Creek Flood Control Project in Kentfield and Ross, constructing detention basins to retard water flows during floods, replacing some bridges in San Anselmo and Fairfax, and planning for dredging the earthen channel of Corte Madera Creek. All components of the plans can be reviewed at the Ross Valley Watershed Program website.

Nokomis Bridge in San Anselmo, shortly after the high water on 12/31/2005: It is one of several inadequate bridges that also cause flooding scheduled for replacement as part of the Ross Valley Watershed Program. Photo by Charles Kennard

Corte Madera Creek Flood Control Project

The project extends from the mouth of Corte Madera Creek to upstream of the Lagunitas Road Bridge in Ross. It is a joint project of the Marin County Water Conservation and Flood Control District (FCD) as local sponsor and the US Army Corps of Engineers (USACE). Even though there is now local support to There is considerable inertia to overcome. Both the concrete channel and the creek upstream of it have limited capacity. Completing this project will result in: 1) increasing capacity and improving fish passage in the concrete channel between the College Avenue Bridge and the upstream end of the concrete channel (Unit 3); and 2) increasing the capacity in the reach above the concrete channel (Unit 4). The Unit 4 work will remove the existing fish ladder and may include lowering the bottom of the natural creek bed, stabilizing the banks, and other measures identified in the design and permitting. The design and environmental assessment phase of the project, expected to last no more than 3 years, will be funded under a 50-50 cost share between the County and USACE. So that work can begin, the County is exploring an agreement with the USACE to allow the County's share to fund the initial tasks. Supervisor Katie Rice is working with Congressman Jared Huffman and Senator Feinstein to obtain federal funding for the project.

Detention Basins

These basins need to be implemented early in the program, since otherwise desirable projects to increase the capacity of the creek (such as replacing bridges that constrict flow) would increase the risk of downstream flooding. The reduction of peak flood flows during the 1% ACF by the four detention basins at different locations is shown in the table at the bottom of page 4.

The total flow at the Ross Gage during the 1% ACF in December 2005 was 6840 cfs. That flow was divided between 3630 cfs in the creek and 3210 cfs of out-of-bank flow (flooding). The 10-year plan includes increasing the capacity of Corte Madera Creek in Kentfield and Ross by 1770 cfs from 3630 cfs to 5400 cfs. Constructing the detention basins in the 10-year plan (but doing nothing else) would not eliminate flooding

during a 1% ACF, but the amount of out-of-bank flow at the Ross Gage would be reduced by 40%, from 3210 cfs to 1900 cfs. Many fewer properties would be affected and the water would be lower.

Except for Phoenix Lake, the detention basins are likely to be used infrequently and only when flooding is imminent at downstream locations. This is a time when recreational activities in and near the basins would have been canceled because of heavy rainfall or saturated fields. Water will be released from the basins when the risk of flooding has abated, probably within 48 hours.

Loma Alta Detention Basin: Located in an unincorporated area of Fairfax near the end of Glen Drive, the detention basin would be formed by an earthen embankment across an unnamed gulch that flows into Fairfax Creek. The embankment would be constructed of fill excavated from Lefty Gomez Field, reducing the need to haul material from Lefty Gomez Field to a remote disposal location. Construction of this basin would not involve any excavation other than keyway excavation under the embankment. This basin lies within the Loma Alta Open Space Preserve, which is owned and managed by the Marin County Open Space District (OSD) for recreation. The project will require approval from the OSD and it will be subject to conditions the OSD may impose. FCD has obtained approvals for preliminary geotechnical studies.

Flooding at Fairfax Town Hall in 1982: Installation of the Lefty Gomez and Loma Alta detention basins would lower flood waters in downtown Fairfax in flood events. Photo by Charles Kennard

Lefty Gomez Dual Use Facility: This site, below the Loma Alta tributary site, is owned and [illegible] the playing field for White Hill Middle School an[illegible] project involves lowering and rehabilitating the recreational facilities, relocating the bathrooms, and building low walls or berms along the north and east of the field. The FCD has signed an agreement with the Ross Valley School District to conduct feasibility studies.

Memorial Park Dual Use Facility: Memorial Park is located on Sorich Creek, in the Town of San Anselmo. The Town Council authorized entering into an agreement with The Department of Water Resources for 50% funding for this project, up to a total cost of $17.4 million. Now that the agreement with DWR is finalized, the Town will contract for design and environmental review. During this process Town will hold a number of public meetings so that community members can provide input on the design of the refurbished Memorial Park and identify issues of concern. Check the Town of San Anselmo's website for more information about this project.

Phoenix Lake Dual Use Facility: The FCD entered into a memorandum of understanding with MMWD to study using Phoenix Lake as a flood detention basin and to enhance water supply, recreational facilities, and water quality in Phoenix Lake and Ross Creek. Following the agreement with MMWD, FCD signed a contract with the Department of Water Resources (DWR) for 39% funding for the project, up to a total cost of $19.7 million. FCD engaged a consultant to conduct geotechnical studies of Phoenix Dam and to prepare a preliminary design. This study should be completed by late 2015. FCD is also gathering information about flows and water quality in Ross Creek that will be used as baseline data for the environmental analysis. FCD is in the process of selecting a consultant to complete the final engineering design, conduct environmental compliance, and handle permitting services necessary for the proposal to proceed.

Bridge Replacements

The Town of San Anselmo applied to Caltrans for and obtained funding for the replacement of the Nokomis Bridge (100% funding) and the Madrone Avenue and Center Boulevard bridges (88.53%). The remaining costs for the Madrone and Center bridges will be covered by Ross Valley Watershed Program revenues, pending an approved funding agreement between the Town and the County. All three bridges will

undergo environmental review as part of the design and permitting process. There will be community meetings to discuss the design and impact to the community for all three bridges. The Center Boulevard Bridge due to its size and location, and the adjacent Bridge Street Bridge will begin with a more comprehensive design process and community review to evaluate alternatives to a simple replacement.

The design process is expected to take 2 to 3 years for each bridge (concurrently). Removing these existing bridges will increase the flow capacity of the creek and reduce upstream flooding; this may increase downstream flooding unless mitigation is provided by detention basins and some low floodwalls on the creek. However, the combined effects of bridge replacements and the Memorial Park detention basin would be a significant reduction in the level of floodwater in San Anselmo's downtown flood plain. But it is essential that all these actions be taken, as otherwise there is a high probability that piecemeal actions will actually make flooding worse unless remedial measures are taken.

The Winship Avenue Bridge in Ross is eligible for Caltrans funding. The Town of Ross has awarded a contract for bridge design and environmental work. Funding details are being negotiated.

Dredging the Earthen Channel in Kentfield & Greenbrae

This channel was last dredged in 1998 and sediment has continued to accumulate since that time. In 2010, the channel was surveyed and there was adequate capacity for the channel to accommodate the 1% ACF. Another survey is planned for summer 2014. The results of that survey will determine if dredging is needed and where it should be done. The permit process is lengthy and the earliest any dredging could be carried out would be 2017.

For regular updates on the Ross Valley Watershed Program, check the webpage maintained by Marin County.

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