

SECTION EIGHT:

**RECOMMENDATIONS FOR
FUTURE WORK**

8.1 RECOMMENDATIONS FOR FUTURE WORK

To clarify issues raised by this study, we recommend that the following work be done:

1) Sediment Budget

Issues related to fine sediment contamination will no doubt continue to be raised. Undertaking a long-term and detailed sediment budget analysis will identify the amount of fine sediment input into La Honda Creek, and its most likely sources.

2) Culvert Inventory

Leaking or improperly designed culverts can discharge water onto the slope decreasing its stability, or accelerating erosion on the adjacent or opposite bank. Culverts may also discharge fine sediment into the creek. We recommend making a thorough inventory of culvert location, exposed length, condition, and hydraulic effects. As well, traps should be installed to determine the type and volume of sediment discharged through the culverts.

3) California Rapid BioAssessment (RBA)

RBA studies should be undertaken periodically to determine the health of La Honda Creek relative to the status determined by this study. This information is critical in monitoring the recoverability of a native salmonid population.

4) Benthic Macroinvertebrate (BMI) Monitoring

Additional seasonal sampling of BMIs will strengthen the data collected in this study, allowing spatial and temporal trends to be detected. This monitoring, in association with the RBA data, will provide data essential in determining the watershed health over time.

5) Water Quality Analysis

Water quality is critical to maintaining a viable aquatic habitat. Although water quality was not examined per se in this study, several potential sources of contamination were noticed. Analyzing the water quality of La Honda Creek will better reconcile the relationship between the apparently good physical and hydrological habitat, and the declining state of the salmonid population. Such a study could go a long way toward assigning the proper corrective measures needed to improve the aquatic ecosystem.

6) Detailed Slope Stability Mapping

The stability of Highway 84 depends on the stability of the hillslopes above and below the roadbed. We recommend that detailed mapping be undertaken to locate areas of potential instability above the roadbed, such as was done herein along La Honda Creek. Mapping could be based on aerial photography and existing geologic maps, coupled with engineering geologic data such as drainage and soil behavior.

7) Additional Stage-Discharge Measurements

Although dependent upon large precipitation events, measurements of discharge at Delay's bridge corresponding to stages higher than 0.76 m (2.5 ft) will strengthen the stage-discharge relationship. An accurate relationship, supported by real field data, is essential to the success of modeling and design of structures along the corridor.

8) Perform Watershed Modeling System (WMS) Hydrologic Analysis

Before attempting any designs for road or bridge repairs along La Honda Creek, a detailed WMS analysis should be completed. WMS is a comprehensive watershed modeling program for all aspects of hydrology and hydraulics.

9) Complete Additional Transects and Stream Survey at Delay's Bridge

Additional transects and a stream survey should be complete at the Delay's bridge site to complete a HEC-RAS analysis. The survey should extend downstream, past Riprap Bend pressure point. Flows of 84.9 cms (3,000 cfs) and 113.2 cms (4,000 cfs) should be modeled because flows at this stage would inundate the bridge and create a pressure flow condition.

10) Develop "low flow" Hydrology

Using existing data collected on low flow hydrology and probability of exceedence, low flow hydrology should be developed for fish-friendly designs for roads, culverts, or bridges that fail or require repairs along La Honda Creek.

(11) Complete Bank Repair Inventory

A bank repair inventory similar to the culvert inventory in this report should be completed for La Honda Creek. This inventory should discriminate between standard DOT projects with as-built drawings (where such drawings exists), DOT flood fight repair efforts, private/County flood fight repairs, and work failing because it isn't a well-engineered or constructed effort. The inventory should also identify whether there are as-built design plans for the pressure point locations identified in this report.

(12) Integrate "low flow" Hydrology in Future Designs

Recommend that the "low flow" hydrology be developed for future design of features that protect and enhance natural resources (salmonids and other aquatic species).