



NORTH COAST INTEGRATED REGIONAL WATER MANAGEMENT PLAN

**PROPOSITION 84 IMPLEMENTATION GRANT PROPOSAL,
ROUND 1**

**ATTACHMENT 9:
ECONOMIC ANALYSIS—
FLOOD DAMAGE REDUCTION COSTS AND BENEFITS**

**Integrated Regional Water Management Program
Applicant: Humboldt County**

Attachment 9, Economic Analysis: Flood Damage Reduction

I. Introduction

The North Coast Integrated Watershed Management Plan's (NCIRWMP) application under the Proposition 84 Implementation Grant solicitation includes two projects that would provide flood-damage-reduction benefits to the region. If funded, the projects would reduce the risk associated with flooding in the region, thereby reducing the costs of flood damage and improving the resiliency of the affected communities when faced with flooding events. This Attachment presents the flood-damage-reduction benefits of the projects that would address flooding.

II. Framework and Methodology

The flood-damage-reduction benefits are analyzed consistent with the guidance provided in Exhibit E of the *Proposition 84 IRWM Implementation Proposal Solicitation Package*. Data were unavailable to quantify benefits so we instead provided a narrative description of the potential benefits.

III. Narrative Description: Individual and Regional Project Costs and Benefits

A. Russian River/Bodega WMA

364–Mendocino Jumpstart Integrated Water Plan, Mendocino County Water Agency/ Planning Department

1. Project Description and Background

The Mendocino Jumpstart Integrated Water Plan would implement seven low-impact development (LID) and sustainable practice projects and would provide additional educational opportunities to the community via college courses and county workshops. Without the project, the County's current irrigation and stormwater-management practices would continue in a business-as-usual manner; the same level of pollutants would be discharged to Orrs Creek, and potable water would be utilized during the summer months for landscape and sports field irrigation. With the project, stormwater runoff from the County campus parking lot would be treated with LID techniques before entering Orrs Creek, which would reduce pollutants and sediment in the watershed. The College's sports field would use recycled irrigation water, two rainwater catchment tanks would save additional water, and the County would convert from grass to xeric landscape, resulting in reduced water demand during the dry summer months. The project also would build a bioswale/wetland and vernal pool to create new habitat while treating stormwater before entering Hensley Creek and would provide educational opportunities at Mendocino College to promote learning and skill development with these and other sustainable techniques.

2. Avoided Flood-Damage-Reduction Benefits

The parking lot biowales would capture 149,600 gallons per year and allow the water to gradually seep into the environment instead of running off into local creeks immediately during and after a

storm event. This would potentially reduce the risk of flooding and reduce the velocity and erosive potential of flood waters in the Orrs Creek watershed. There are no data available to quantify the potential flood damage the project could avoid, or the costs associated with reduced flood events.

The beneficiaries of this benefit would include property owners along Orrs Creek and near the parking lots where the bioswales would be installed, and the County's stormwater managers and taxpayers, to the extent that the project controls stormwater and reduces the need to initiate other flood-control management activities.

B. Trinity River WMA

357-Highway 96 Stormceptor, Willow Creek Community Services District

1. Project Description and Background

The Highway 96 Stormceptor project would install new stormwater infrastructure, including an interceptor pipe to divert storm drainage from Highway 96 and the Willow Creek commercial business district, and a detention pond for contaminant settling prior to eventual discharge into Willow Creek. Without the project, the Willow Creek Community Services District's domestic water intake would be at risk from premature failure from sediment and other contaminants carried with stormwater flows, which are deposited upstream of the existing domestic water intake in Willow Creek. It would also be at risk from major contamination and system shutdown in the event of an emergency spill or accident that discharges toxic pollutants into Willow Creek. Either premature failure or emergency discharge could result in the temporary shutdown of the water system and service disruption to customers. The commercial business district of Willow Creek would be more vulnerable to property damage resulting from a flood event. With the project, the new stormwater infrastructure would protect the District's domestic water treatment system from emergency discharges and would allow the filtration equipment to function for its expected lifespan. The new stormwater system also would lower the probability of flooding, and the cost of flood damage within the Willow Creek commercial business district.

2. Avoided Flood-Damage-Reduction Benefits

The proposed stormwater system will allow water to collect in the basin prior to discharge into Willow Creek and the Trinity River, postponing the peak discharge of stormwater from the commercial district into the creek and river. This will reduce the risk of a flood event and thereby would reduce the cost of flood damage, given an event. There are no data available to quantify the amount of potential flood damage costs.

The commercial district of Willow Creek is composed of restaurants, retail outlets, automotive businesses, contractor headquarters, gas stations, grocery stores, a salon, a pharmacy, a landscape and gardening supply business, a building supplies business, and several other small outlets. Only a catastrophic flood event would impact the integrity of all of these businesses.

Annual flooding does not occur in Willow Creek, but the community has suffered from three major flood events in the last 60 years, including a 100-year flood event in 1955, a 1000-year flood event in 1964, and a 25-year flood event in 1997. The 1997 flood event caused significant stormwater damage to several buildings and communities in the commercial business district. Landslides, breached creeks, and backed up roadside ditches temporarily blocked road systems. In addition, large quantities of debris built up in several of the main tributaries to the Trinity River and caused water to back up into surrounding low lying areas near the streams.

This project would not avoid all of the costs associated with flood events in Willow Creek, but it would help to relieve some aspects of the negative impacts imposed by large storm events.

IV. Project-Level Worksheets

Because these benefits are unquantifiable, we do not include the project-level Table 19 used to calculate the flood-damage-related benefits associated with this attachment.