



# Green Infrastructure & Stormwater Management CASE STUDY

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## Reducing Nonpoint Source (NPS) Sediment and Pesticide Pollution in County Road Maintenance Operations

**Location:** County of Santa Cruz, CA

**Client:** County of Santa Cruz, Department of Public Works

**Design Firm(s):** County of Santa Cruz, Department of Public Works

**Landscape architect/Project contact:** Connie Silva, ASLA

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**ASLA Chapter:** Northern California

### Project Specifications

**Project Description:** The County of Santa Cruz was awarded the California State Water Resources Control Board Proposition 40 Urban Stormwater Program (USWP) grant for Reducing Non-Point Source Sediment and Pesticide Pollution along County roadways. This grant was for \$629,756 and provided funding for developing a new Integrated Vegetation Management Plan (IVMP) and the implementation of ten priority projects that were identified in the for the IVMP to reduce sedimentation and pesticide pollution along County roadways within 150 feet of perennial water bodies.

The IVMP identifies sediment sources and non-native plant species to be eradicated and characterizes native sensitive habitats to be sustained and encouraged along County roads. The plan provides County crews with a baseline tool for selective vegetation maintenance treatments for implementing Integrated Pest Management (IPM) techniques and Best Management Practices (BMPs) for roadside maintenance. Sediment is currently discharged within close proximity to fishery creeks along county roads from muddy turnouts and drainage ditches.

The solution is to establish proper drainage and remove the sediment source. This can be done by installing BMPs and reshaping and resurfacing these areas to drain properly without discharging high concentrations of sediment. Sediment will also be reduced by installing native plants, like rushes and sedges. The dense root masses bind the soil together, while the hardy fibrous structure of the plant aids in trapping and filtering sediment particles in flowing water. The program will significantly reduce the use of pesticides/herbicides, help protect sensitive habitats and the species they sustain, achieve long term reduction in road related sediment and

address fire and fuel reduction by maintaining the growth of low growing native and fire retardant plants.

**Project Type:**

County rural roadside maintenance

A retrofit of an existing property

**Design features:** Bioswale. The techniques included using integrated vegetation management plan (IVMP) and best management practices (BMP). These included installing erosion control blankets, straw rolls, bio-swales, drain rock and removing non-native invasive plant species and replanting with native species.

**This project was designed to meet the following specific requirements or mandates:**

State statute, county ordinance, local ordinance, to meet funding criteria

**Impervious area managed:** greater than 5 acres

**Amount of existing green space/open space conserved or preserved for managing stormwater on site:** 60 miles of County Road Right of Way

**The regulatory environment and regulator was** supportive of the project.

**Did the client request that other factors be considered, such as energy savings, usable green space, or property value enhancements?** No.

**Cost & Jobs Analysis**

**Estimated Cost of Stormwater Project:** \$500,000-\$1,000,000 (Public funding: Federal, state, local - SWRCB Grant funding / Local County funding)

**Was a green vs. grey cost analysis performed?** No

**Cost impact of conserving green/open space to the overall costs of the site design/development project:** The initial costs were high up front but the cost will be lower in the future to maintain the roads.

**Cost impact of conserving green/open space for stormwater management over traditional site design/site development approaches (grey infrastructure)?** Slightly reduced costs (1-9% savings).

**Number of jobs created:** 28

**Job hours devoted to project:**

Planning and Design: 2,500

Construction: 20,000  
Annual Maintenance: 240

## Performance Measures

### Stormwater reduction performance analysis:

The 10 final priority project reports performance analysis are located at

<http://www.dpw.co.santa-cruz.ca.us/Operations/HerbicideReductionProject/index.htm>

**Community & economic benefits that have resulted from the project:** We utilized the Community Action Board for part of the work that provides worker training for low income residents. <http://www.cabinc.org/>

## Project Recognition

2005-2006 Consolidated Grants - Proposition 40, Urban Stormwater Program

## Additional Information

**Links to images:** The IVMP has been incorporated into the County GIS and is available for review on the County's Web site @ [http://www.dpw.co.santa-cruz.ca.us/Operations/IVMP\\_Feb08.pdf](http://www.dpw.co.santa-cruz.ca.us/Operations/IVMP_Feb08.pdf) The 10 final priority project reports are located at <http://www.dpw.co.santa-cruz.ca.u>

I can provide more information upon request Connie Silva - Urban Designer/Landscape Architect County of Santa Cruz Dept. of Public Works (831) 454-2784