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California Department of
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Storm Water Quality Benefits of Vegetated Filter Strips Adjacent to California Highways

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Abstract: The Roadside Vegetated Treatment Site (RVTS) Study was a two-year project undertaken by the California Department of Transportation (Caltrans) to assess storm water treatment benefits of biofilter strips adjacent to highways. Eight Caltrans sites were selected including four in Northern California and four in Southern California. Sites varied in slope, soil type, drainage area, length, and hydrology. Each site had a 30-meter long concrete collection system at the edge of pavement (EOP) as a control, and one to four collection systems at various lengths from EOP to determine storm water treatment. Collection systems were parallel to the roadway and collected storm water runoff perpendicular to the roadway. Water quality monitoring was conducted during the 2001-02 and 2002-03 wet seasons and vegetation assessments were made quarterly. Most of the total suspended solids, and total copper, lead, and zinc reductions occurred during the first 4 meters. Nutrients did not show statistically significant trends. Substantial treatment occurred in non-engineered biofilter strips with up to 80 percent TSS reduction. Thus, small and relatively steep-sloped vegetated areas adjacent to highways can be effective in treating storm water contaminants. A key factor in successful treatment was to sustain vegetation coverage above 70 percent.

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