

Results of the Caltrans Litter Management Pilot Study

Gary Lippner, P.E.

Office of Water Programs
California State University
Sacramento, CA 95819
Phone: (916) 278-8115
FAX: (916) 278-8140
E-mail: gary.lippner@owp.csus.edu

John Johnston, Ph.D., P.E.

Department of Civil Engineering
California State University
Sacramento, CA 95819
Phone: (916) 278-8113
FAX: (916) 278-8140
E-mail: johnston@ecs.csus.edu

Suzanne Combs

Office of Water Programs
California State University
Sacramento, CA 95819
Phone: (916) 278-8102
FAX: (916) 278-8140
E-mail: suzanne.combs@owp.csus.edu

Kimberly Walter, P.E.

URS
Sunroad Plaza 3, Suite 1000
1615 Murray Canyon Road
San Diego, CA 92108
Phone: (619) 683-6175
FAX: (619) 293-7920
E-mail: Kim.Walter@urscorp.com

David Marx

URS
Sunroad Plaza 3, Suite 1000
1615 Murray Canyon Road
San Diego, CA 92108
Phone: (619) 683-6112
FAX: (619) 293-7920
E-mail: David.Marx@urscorp.com

Abstract. Litter is receiving increasing attention as a water pollutant, especially near Southern California beaches. To investigate the characteristics of litter in freeway storm water and the effectiveness of various Best Management Practices (BMPs), the California Department of Transportation (Caltrans) conducted a two-year Litter Management Pilot Study in the Los Angeles area. New litter sampling and monitoring protocols were devised to characterize litter and test BMP effectiveness. Twenty-four freeway catchments were monitored. Half the catchments were treated with one of five BMPs; the others were controls. The BMPs tested were: (1) increased street sweeping frequency, (2) increased frequency of manual litter pick-up, (3) a modified drain inlet, (4) a bicycle grate and (5) a Litter Inlet Deflector developed during the study. Litter discharges were quantified by weight, volume, and count and further classified into 11 material types. About half of freeway storm water litter was found to consist of paper, plastic, or styrofoam. With the exception of cigarette butts, the origins of most of the litter items could not be identified due to their small size. Of the five BMPs tested, only increased litter pick-up and the modified drain inlet demonstrated some apparent reduction of litter, though the data are highly variable. Increasing the frequency of sweeping, the bicycle grate and the Litter Inlet Deflector did not reduce litter effectively in storm water discharges monitored during this study.