

Title: Baseline Trash Loading Estimates from MS4s within Santa Clara Valley

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Track: Stormwater Treatment: BMP Design and Implementation

Estimated Time: Short (25 Minutes + Q&A)

Abstract:

In response to new requirements in the San Francisco Bay Region Municipal Regional Stormwater NPDES Permit (MRP), the Santa Clara Valley Urban Runoff Pollution Prevention Program (Program) is developing preliminary estimates of trash loading from Municipal Separate Storm Sewer Systems (MS4s) in Santa Clara County, CA. The baseline trash load will be used to establish the basis for trash load reductions.

The Program developed preliminary trash loading rates using two years of data collected by the Cities of San Jose and Sunnyvale as part of a pilot structural treatment control study for trash. Connector Pipe Screen (CPS) devices were installed at 99 catch basins in both Cities between 2007 and 2009. The total amount and type of trash captured by CPS devices was documented at 22 catch basins in 2007 and 37 catch basins in 2008. Trash loading rates for each catch basin was defined as volume (dry gallons) generated across a standard area (acre) on an annual basis.

Several methods were developed and tested to define drainage areas for each catch basin. Method 1 involved calculating average drainage area size in GIS using the total number of catch basins present within the total area of developed land uses for each jurisdiction. Method 2 involved digitizing drainage areas for each catch basin using high resolution orthophoto imagery and contour data. Method 3 involved delineation of drainage area on maps using field observations and measurements. Method 1 was determined to be most feasible approach in defining catch basin drainage areas for the entire Santa Clara Basin.

Trash loading rates were evaluated for a range of factors; including seasonal differences, drainage area size, and characteristics (e.g., land use, road type) of drainage area. Trash loading rates were about 2.5 times greater during the wet season compared to the dry season. Loading rates were typically lower for larger sized drainage areas. Trash loading rates were highest in drainage areas containing predominately retail/wholesale and multi-family residential land uses and smallest in drainage areas containing urban parks and single family residential land uses.

Beginning fall 2010, Cities will begin installing trash full capture devices located throughout the Santa Clara Basin. The Program will subsequently identify, monitor full capture devices and collect information needed to refine preliminary baseline trash loading estimates. Monitoring will be conducted in both dry and wet season and will occur across a range of land use types and trash conditions.