



Santa Clara Valley Urban Runoff Pollution Prevention Program

TRASH EVALUATION AND MANAGEMENT (2ND EDITION)

Initial Cost Estimates of Implementing Full Capture Devices in the San Francisco Bay Area

In February 2008, the Program assisted the Bay Area Stormwater Management Agencies Association (BASMAA) in developing preliminary cost estimates for implementing full capture devices in the San Francisco Bay area. The cost evaluation estimates capital and annual operation and maintenance costs for catch basin inserts (i.e., StormTek™ devices), and small and large hydrodynamic separators (e.g., continuous deflection systems). The estimated capital cost for manufacturing and installing a StormTek™ device is approximately \$1,000 per unit, while the estimated annual maintenance cost is \$2,500 per unit (BASMAA 2008). Capital and maintenance costs for hydrodynamic separators were also estimated (see side box). The Program will continue to update these estimates as additional information becomes available, including the results of the Pilot Study.

Type of Device	Estimated Average Cost Per Unit	
	Capital	Annual Operation & Maintenance
StormTek™ Device	\$1,000	\$2,500
Hydrodynamic Separator (Small Capacity)	\$100,000	\$5,000
Hydrodynamic Separator (Large Capacity)	\$420,000	\$20,000

Public Education and Outreach

Since 2002, the Program has conducted outreach to citizens about trash impacts on the environment. The Program and Co-permittees have individually, and in collaboration with BASMAA and CalTrans, conducted print, radio, television and cable advertising on this issue. Each year, the Program also provides funding to support advertising for creek cleanup days. In summer 2008, the Program will participate in BASMAA's new media campaign focusing on trash. This campaign aims to change Bay area residents' (specifically the younger generation) views and behaviors regarding littering. In preparation, BASMAA has conducted a public opinion survey of 400 Bay area residents to understand current public attitudes, perceptions and behaviors on littering issues. Data from this survey will be used to develop public education advertisements.

Effectiveness Assessment

Assessing the condition of urban creeks (as related to trash) and evaluating the effectiveness of BMP implementation is the third focus area within the Program's Strategy. The Program made great strides from 2004 to 2007 assessing the baseline condition of creeks. Information gained from these evaluations will be used to evaluate improvements in the condition of Santa Clara Valley creeks due to the implementation of enhanced trash management practices. This effectiveness assessment method and others will be described in the SCVURPPP strategy for evaluating the effectiveness of trash BMPs scheduled for completion in 2008. The Program's trash effectiveness assessment strategy will likely use concepts included in the California Stormwater Quality Association's (CASQA) Program Effectiveness Assessment guidance document (CASQA 2007), which identifies six outcome levels at which effectiveness can be evaluated.

References

BASMAA (2008). *Technical Memo - Estimating Costs of Trash Full Capture Devices in the San Francisco Bay Area*. Prepared by the Bay Area Stormwater Management Agencies Association.
 CASQA (2007). *The Municipal Stormwater Program Effectiveness Assessment Guidance Document*. Prepared by LWA and EOA for the California Stormwater Quality Association.
 SCVURPPP (2004). *Summary of Existing Co-permittee Trash Management Practices Survey*. Prepared by EOA, Inc for the Santa Clara Valley Urban Runoff Pollution Prevention Program.
 SCVURPPP (2005). *Memorandum. Trash Problem Area Evaluation Results - FY 2004-05*. Prepared by EOA, Inc for the Santa Clara Valley Urban Runoff Pollution Prevention Program.
 SCVURPPP (2007). *Trash Best Management Practices (BMP) Tool Box*. Prepared by EOA, Inc for the Santa Clara Valley Urban Runoff Pollution Prevention Program.
 SCVURPPP (2008). *Pilot Trash Structural Treatment Pilot Trash Structural Treatment Control Study Implementation Plan*. Prepared by EOA, Inc for the Santa Clara Valley Urban Runoff Pollution Prevention Program



SCVURPPP is an association of the thirteen cities and towns (Campbell, Cupertino, Los Altos, Los Altos Hills, Los Gatos, Milpitas, Monte Sereno, Mountain View, Palo Alto, San Jose, Santa Clara, Saratoga, Sunnyvale) in the Santa Clara Valley, together with Santa Clara County and the Santa Clara Valley Water District. Program participants share a common permit to discharge stormwater to South San Francisco Bay.

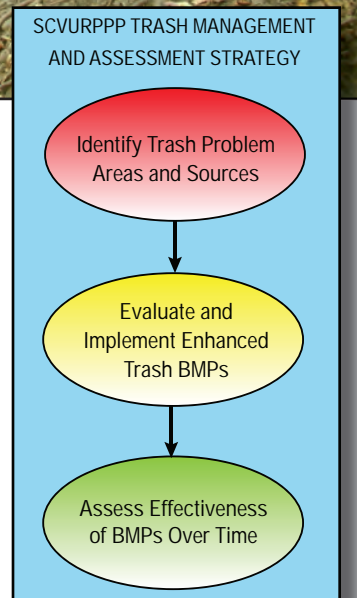
For additional information, visit the Program's website at www.scvurppp.org or contact Chris Sommers at (510) 832-2852

April 2008

Consumer items and waste materials such as food and beverage containers (e.g., plastic bags and bottles), cigarette butts, construction and landscaping debris, furniture, electronics, tires and hazardous materials (e.g., paint and batteries) are discarded by people in the Santa Clara Valley. While many of these unwanted items and wastes are properly disposed of, some are inappropriately discarded onto the urban landscape that drains into stormwater conveyance systems (i.e., storm drains) or are directly dumped into our local creeks and channels. This portion is collectively called "trash", and once it reaches our water bodies, it can adversely impact Santa Clara Valley residents, fish and wildlife.



In recent years, the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP or Program) began taking additional steps to improve trash conditions in Santa Clara Valley urban water bodies. These steps are outlined in the Program's Trash Management and Effectiveness Assessment Strategy (Strategy) developed in October 2006. The Strategy is intended to serve as a road map to guide future trash related activities conducted by the Program, and includes the following three main focus areas: 1) Identifying trash problem areas and sources; 2) Selecting and implementing appropriate control measures at high priority problem areas; and 3) Assessing the effectiveness of control measure implementation. Brief summaries of on-going and recently completed activities in each of the three focus areas are provided in this fact sheet.

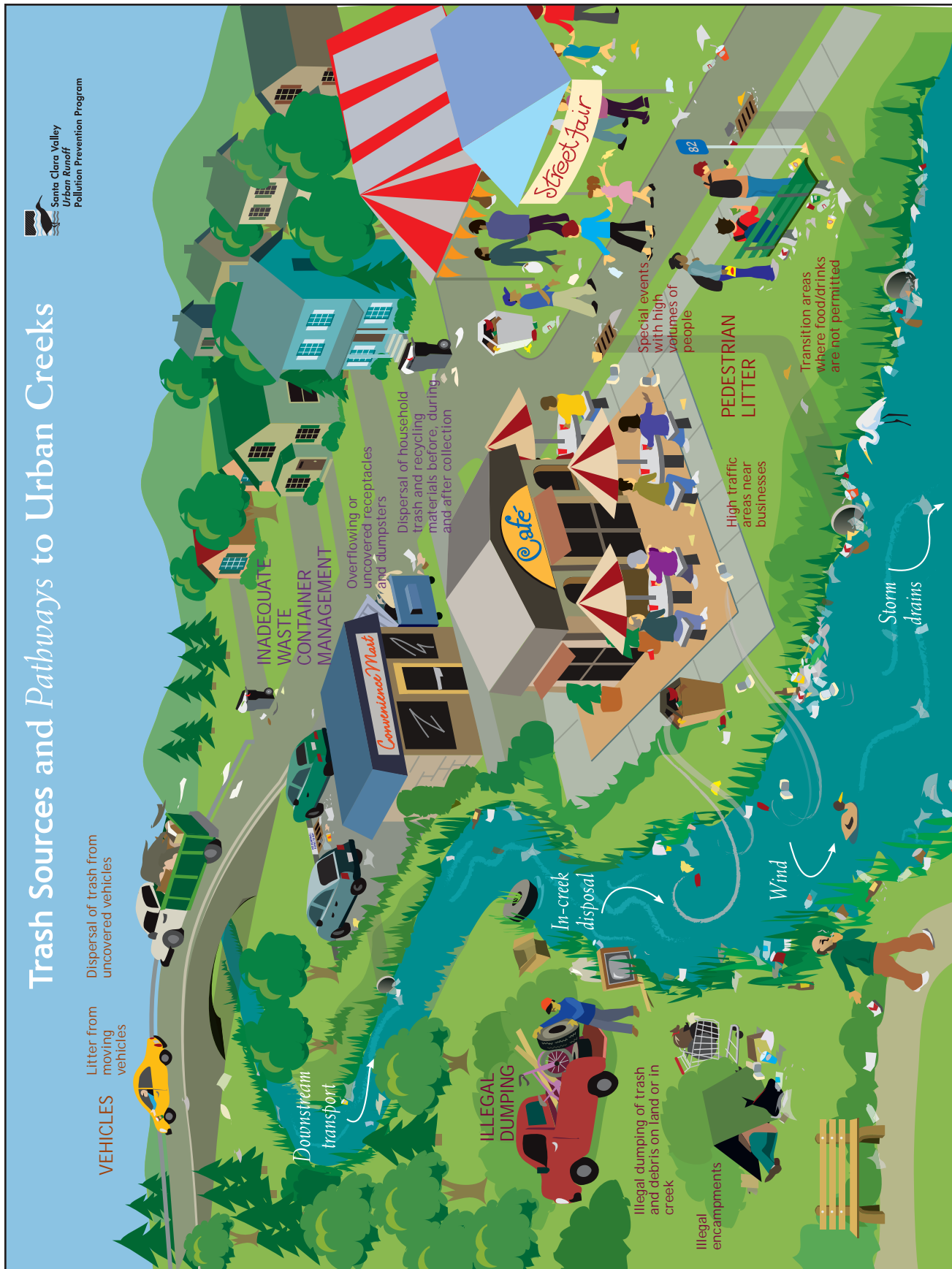


Defining Trash Sources and Pathways

During fiscal year (FY) 2006-2007, the Program developed a simple conceptual model (see next page) to better define potential sources of trash and pathways through which trash is transported to urban creeks. Four distinct trash source categories and four transport pathways were identified. Source and pathway categories are based on creek trash assessments in Santa Clara County and local agency staff knowledge of how trash is deposited and transported to local water bodies.

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Trash Sources and Pathways to Urban Creeks

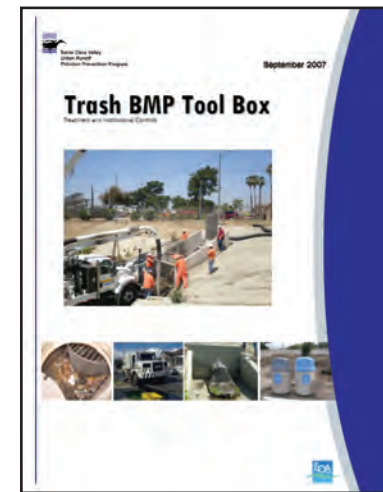


Source Categories	Transport Pathways
1. Pedestrians who lack the willingness to properly dispose of waste or do not have access to waste containers.	A. Stormwater Conveyance System
2. Drivers and passengers who litter from vehicles or do not adequately cover their loads when transporting trash and debris.	B. Wind
3. Overflowing and/or uncovered waste containers (e.g. trash receptacles, recycling bins and dumpsters), and improper handling of trash and recycling materials during curbside collection.	C. Downstream Transport from Upstream Sources
4. Illegal dumping large volumes of trash within a watershed or directly into a waterway.	D. Direct Disposal in Water Body

Trash Control Measures

Trash BMP Tool Box

Historically, local agencies have attempted to manage trash in watersheds and creeks using a variety of institutional (non-treatment) Best Management Practices (BMPs). For example, street sweeping is conducted throughout the Santa Clara Valley to remove trash from road surfaces and gutters in urbanized areas. In addition, creek cleanup events are periodically scheduled by cities and watershed groups to remove trash from water bodies. Although these BMPs are believed to be effective in removing trash, additional information is needed to confirm the effectiveness, and evaluate costs and challenges to implementing these and other BMPs designed to reduce trash in municipal stormwater conveyance systems and water bodies receiving urban runoff.



Program staff conducted an extensive literature review on trash BMPs in FY 2006-2007 and developed the Trash BMP Tool Box (Tool Box). The results are presented in twelve technical information sheets, which describe the known effectiveness, costs and considerations when implementing institutional (non-treatment) or treatment BMPs (SCVURPPP 2007). The trash BMP Tool Box is available on the Program's website (http://www.scvurppp-w2k.com/trash_bmp_toolbox_2007.htm).

Pilot Trash Structural Treatment Control Study

Due to continued concern about the amount of trash in local creeks, the Cities of San Jose and Sunnyvale began developing a Pilot Trash Structural Treatment Control Study (Pilot Study) in 2007 (SCVURPPP 2008). The Pilot Study is designed to:

1. Increase the removal of trash in stormwater conveyance systems through the implementation of selected treatment BMPs;
2. Estimate trash loading rates to the conveyance systems from various sources and/or land use types;
3. Characterize the types of trash removed by selected treatment BMPs;
4. Determine operation and maintenance requirements and costs for treatment BMPs implemented by the Cities; and
5. Identify opportunities and challenges for future implementation.

Based on the information from the Trash BMP Tool Box and discussions with the County of Los Angeles, both cities selected the StormTek™ catch basin insert (shown to the right) as the trash treatment BMP for use during this Pilot Study. The catch basin insert is designated as a full-capture treatment device by the Los Angeles Regional Water Quality Control Board and consists of a perforated metal screen placed horizontally or vertically in front of the storm drain pipe outlet within a catch basin. It is capable of catching smaller and larger debris and uses the volume of the catch basin to retain trash before it is transported through the stormwater conveyance system. Captured debris remains within the catch basin until it is removed by a maintenance crew. Approximately 90 devices will be installed within the Cities of San Jose and Sunnyvale by summer 2008.

