

CITY OF LOS ANGELES



SANITATION
DEPARTMENT OF
PUBLIC WORKS

WATERSHED PROTECTION DIVISION
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City of Los Angeles

Selected CB Inserts and Opening Screen Covers for Citywide Implementation



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The intent of this paper is to present the selected structural devices that the City will deploy to meet the compliance milestones of the Trash TMDL. The City has tested over the past 4 years several inserts and opening screen covers and concluded that the vertical insert and the flow activated opening screen covers are the best suited for implementation within the City to achieve compliance with the Trash TMDL.

BMP Evolution

Catch Basin Inserts

The City has explored several configurations of catch basin inserts in order to select one that met the regulatory requirements and had minimal impact on the existing storm drain system. Figure 1 below shows the evolution of CB inserts that the City has investigated over the course of the last 4 years.

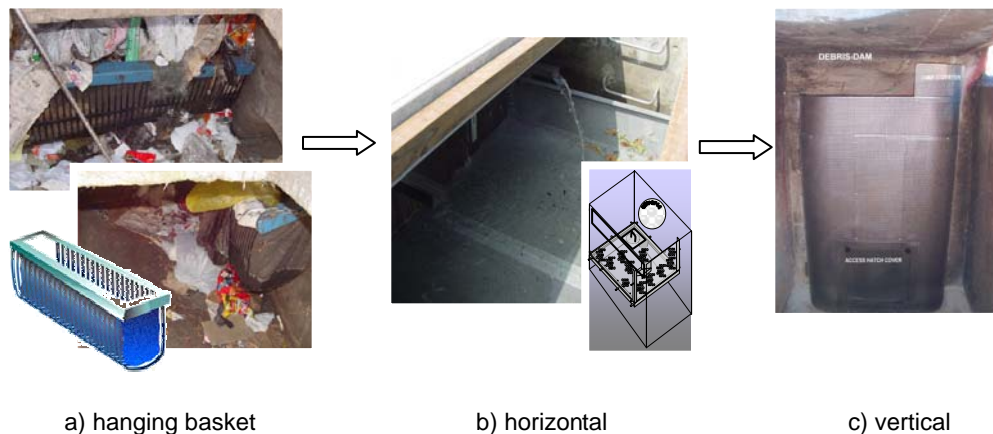


Figure 1. Evolution of catch basin inserts in the City of LA

As can be seen, the City has examined three distinct configurations of inserts. The hanging basket type was examined in pilot installations with discouraging results. The demise of the basket insert is its limited volume for trash capture and the associated tedious maintenance requirements. The City did not proceed with extensive installations of this insert but opted to proceed with that of the horizontal and vertical insert that are described below.

The horizontal insert was considered because it addressed the City's concern for trash capture and maintenance. The inserts are manufactured from hot dipped galvanized steel screen sheets with 5 millimeter (0.197 inch) diameter circular openings. Inserts installed in curb opening catch basins encompass the entire width and approximately 85% of the entire length of the basin. An overflow is provided to alleviate hydraulic conditions from major rain events to ensure public safety. Those installed in grated inlets fit the entire opening. The City has installed several hundred of these inserts in the high trash areas and this is the type of insert used for the pilot study (Attachment D). The pilot study concluded with recommendations to consider for future catch basin insert installations. Those recommendations were: maximize the trash capture area; minimize the flooding potential; optimize insert screen material openings; and ease of maintenance.

The vertical catch basin insert is the insert that the City is deploying in the high trash areas. This insert addresses all the recommendations made by the pilot study. The vertical insert maximizes the trash capture area by leaving most of the original catch basin containment volume intact. The absence of the horizontal screen floor has added several benefits: a.) it lessened the time of maintenance of the insert and catch basin; b.) it minimized flooding potential; and c.) it allowed for the vertical section of the insert to be larger in height. **The City will continue to deploy vertical inserts since their performance exceeds that of the horizontal insert evaluated in the pilot study.**

Catch Basin Opening Screen Covers

The City has explored several configurations of catch basin opening screen covers in order to select one that helps meet the regulatory requirements and has minimal impact on the existing storm drain system. Figure 2 below shows the evolution of CB opening screen covers that the City has investigated its use.

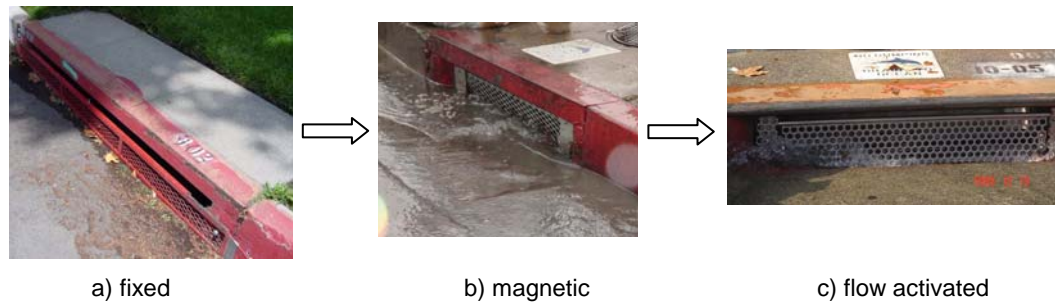


Figure 2. Evolution of catch basin opening screen covers in the City of LA

As can be seen, the City has examined three distinct configurations of catch basin opening covers. The fixed type catch basin opening cover was examined only for limited installations. This type of insert was primarily installed for security reasons around the Convention Center during the 2000 Democratic Convention. The demise of the fixed catch basin opening screen covers is the placement on the face of the curb and the ponding of flow during rain events. The placement on the curb face has led to destruction of these covers by the large wheel lug nuts found on commercial vehicles (i.e., buses, delivery vehicles). The City did not proceed with extensive installations of this opening screen cover but opted to proceed with that of the magnetic and flow activated opening screen covers described below.

The magnetic opening screen cover was considered because it addressed the City's concern for ponding during rain events. The opening screen covers were manufactured from hot dipped galvanized steel screen sheets with diamond shape openings (1 inch by 0.75 inch). The magnetic opening screen covers fit the entire catch basin curb opening. The City has installed several hundred of these inserts in the high trash areas and this is the type of insert used for the pilot study (Attachment E). The pilot study concluded with recommendations to be considered for future catch basin opening screen cover installations. Those recommendations were: maximize the amount of trash kept on the streets; minimize flooding potential; prevent large trash from entering the catch basin; and ease of maintenance.

The flow activated opening screen cover is the cover that addresses all the recommendations from the pilot study. The City is deploying that type of cover throughout the City. The flow activated opening screen cover maximizes the amount of trash kept on the street and minimizes flooding by allowing the City to set the trigger at which the screen would swing open. Additionally, the flow activated opening screen cover has circular perforations of only 0.75 inches, much smaller than those of the magnetic cover used in the pilot study. It has a dual locking mechanism that addresses the concern of large trash binding the cover in the open position. Installations of the flow activated opening screen covers is being recessed

from the curb face (4 inches) to address the concern of large commercial vehicles destroying it and ensure its durability. **The City will continue to deploy flow activated opening screen covers since their performance exceeds that of the magnetic type.**