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WATER QUALITY  
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## **SEMI-ANNUAL REPORT: ADDRESSING FLOATING MATERIAL IN CHOLLAS AND PALETA CREEKS**

March 15, 2006

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10-5015.02

## **I. BACKGROUND**

Excessive trash is a societal and environmental issue that is broader than the storm water pollution prevention programs that are solely charged with improving water quality. Littering is a behavior reflecting society's general perspective that trash and litter is everyone else's problem to manage. The general population does not understand the incremental effects that littering has on San Diego's natural ecosystem, and their role in litter prevention. Residents and businesses have an even harder time understanding the cause and effect relationship between littering and water quality problems in the region and their role in creating and preventing this problem. And, in the Mid-City region of the City of San Diego, where Chollas and Paleta Creeks are located, efforts to reduce and eliminate trash and littering are further compounded by the economic and cultural make-up of the area. This region is home to numerous first generation and immigrant populations unfamiliar with American environmental ideals and laws. Persuading citizens to accept a sense of environmental responsibility and effectively change practices is a long-term prospect requiring resources beyond those available to local storm water programs.

Trash accumulates within the storm water conveyance system during periods of dry weather and then washes downstream during rain events. Although municipalities recognize this process, reducing littering and achieving behavioral change is a challenge that is beyond the scope and authority of municipal storm water programs. Litter is an issue that must be tackled and sustained at the state level through integration of solid waste program expertise with other environmental issues and programs impacted by litter pollution. Recognizing that litter is a potential issue wherever there is development, the City of San Diego addresses litter consistently throughout the City without consideration of location.

Pursuant to Section C.2 of the Municipal Storm Water Permit (California Regional Water Quality Control Board – San Diego Region, Order No. 2001-01), the City of San Diego is required to report twice a year on existing and planned Best Management Practices (BMPs) to prevent or reduce trash, debris, and other floating materials in Chollas and Paleta Creeks. This report represents the first semi-annual report submitted to the California Regional Water Quality Control Board – San Diego Region (henceforth referred to as the Regional Board) in 2006 and reports activities conducted during the second half of fiscal year 2006 (July 1, 2005 through December 31, 2005).

Chollas and Paleta Creeks discharge into San Diego Bay. The Chollas Creek watershed is approximately 17,604 acres and the Paleta Creek watershed is approximately 2,089 acres. The majority of the Chollas Creek watershed is within the City of San Diego City limits. The Chollas and Paleta Creek watersheds are within the 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>, 7<sup>th</sup> and 8<sup>th</sup> City Council District boundaries. Portions of Lemon Grove and La Mesa are also within the Chollas Creek watershed. The majority of the Paleta Creek watershed is within the City of San Diego limits; however, a portion of the City of National City is within the watershed as well. The mouths

of both Chollas and Paleta Creeks discharge on federal (U.S. Navy) land. GIS maps showing the storm water conveyance system and land use within the Chollas and Paleta Creeks watersheds were previously submitted in our report dated October 19, 2001.

The City of San Diego has many ongoing programs intended to keep San Diego beautiful and encourage proper disposal of trash and debris. The following activities remove or discourage the introduction of trash that would otherwise end up in receiving waters:

- Education and outreach, "Think Blue"
- Weekly residential trash pick up
- Trash pick up from public areas
- Recycling
- Household Hazardous Waste collection
- Volunteer cleanups
- Storm drain stenciling
- Drain and inlet cleaning
- Channel cleaning
- Street Sweeping
- Enforcement of the San Diego Municipal Code (SDMC)
- Enforcement of applicable state codes through court actions

The Environmental Services Department addresses reports of illegal dumping and littering, enforcing San Diego Municipal Code (SDMC) Sections 54.0208, 54.0209 and 54.0210. The Environmental Services Department has Solid Waste Code Enforcement Officers who are responsible for anti-waste education and enforcement of the City of San Diego Municipal Codes dealing with solid waste issues. The Environmental Services Department also works with community groups and/or volunteers in organizing community cleanup/recycling events to properly dispose of those items not collected by regular curbside collection services. Additionally, the Storm Water Pollution Prevention Division in the Metropolitan Wastewater Department enforces the City's *Storm Water Management and Discharge Control* ordinance, SDMC Section 43.03.

The Environmental Services Department also funds Community Cleanup events throughout the year. At these events, community residents take hands-on responsibility for keeping their neighborhoods clean. These beautification events work to clean up local areas including parks, canyons, and urban alleys. Each year, the Community Cleanup Program helps approximately 30 communities coordinate cleanups in neighborhoods throughout the City of San Diego.

The City Attorney's Consumer and Environmental Protection Unit prosecutes violations of the San Diego Municipal Codes and applicable state codes through court actions.

## **II. REPORT ORGANIZATION**

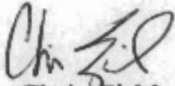
This report is organized according to the outline provided below, as requested in the letter from Mr. John H. Robertus (Executive Office for the Regional Board) dated December 18<sup>th</sup>, 2002. Subsequent reports will conform to this format.

1. Public Education and Outreach Efforts
  - 1.1 Volunteer Cleanups
2. Enforcement
3. Storm Drain System and Creek Maintenance and Cleaning Efforts
4. Best Management Practices (BMPs)
  - 4.1 Structural Best Management Practices (BMPs)
  - 4.2 Non - Structural Best Management Practices (BMPs)
  - 4.3 BMP Action Plan
5. Creek Refuse Assessment Program
6. Collaborative Efforts
7. Trash Measures Effectiveness Assessment



**CERTIFICATION**

*I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based upon my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.*



Chris Zirkle,  
Deputy Director

## 1. PUBLIC EDUCATION AND OUTREACH EFFORTS

During this reporting period the City continued to identify behavior modification as the primary means to deal with trash as non-point source of pollution in our waterways. Because "midnight dumping" activities are relatively easy to conduct without consequences, educating citizens to prevent this from occurring in the first place is our best line of defense. As such, the focus of our education efforts is to raise public awareness and to foster behavior changes to ultimately reduce non-point source pollution, including trash and litter.

The fifth year of "Think Blue," the city's public education and outreach campaign, included continued airing of the "Don't Trash Our Future" public service announcement (PSA) for television. The City aired the PSA approximately 150 times on five television stations. In addition, the City aired the "Don't Trash Our Future" PSA a minimum of 12 times on the City's public access television channel, CityTV.

The City expended a substantial amount of time and energy seeking funds to cover the costs of PSA development and airing, and the cost would be prohibitive from a fiscal perspective without the financial support of Caltrans (District 11) and the Port of San Diego.

In 2006, the City will begin production of two new PSAs, which are scheduled to begin airing in 2006. With funding from the Port of San Diego, the first PSA will be a television ad addressing waterbody protection (such as Chollas Creek). The second PSA will be a radio ad addressing integrated pest management (IPM).

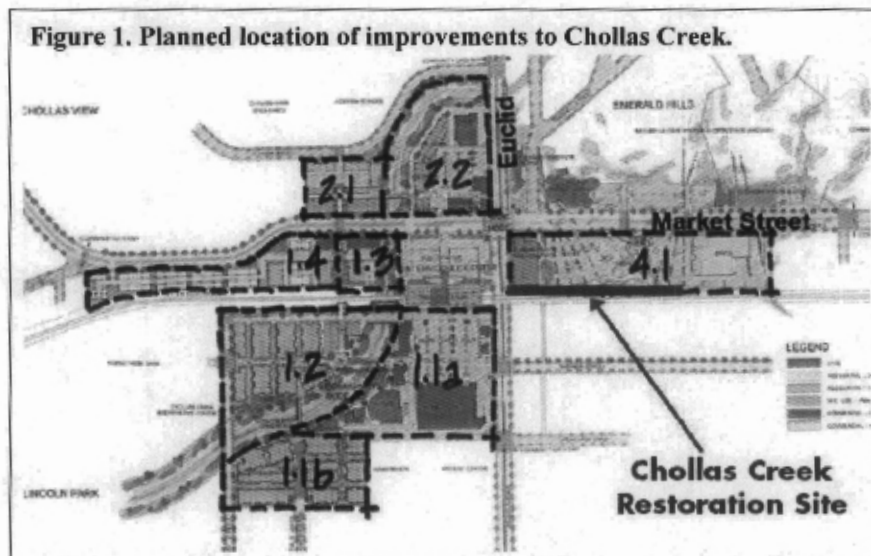
The results of our 2004 annual resident's survey entitled "City of San Diego Storm Water Pollution Program 2004 Follow-up Survey of City Residents" indicated the city increased awareness of the program by another two percentage points to a three-year cumulative increase of 23 percent. Public awareness that the storm drain system is separate from the sewer system and flows directly to our creeks and bays remained essentially static between the 2002 and 2004 surveys, meeting but not exceeding expectations. With new PSAs having aired in FY 2004 through early FY 2006, we anticipate making additional progress in meeting our awareness and behavior modification goals in the upcoming year. The City's Follow-up Survey, which was not completed in 2005, is scheduled to be completed again in 2006.

The City of San Diego and its project partners for the *Chollas Creek Water Quality Protection & Habitat Enhancement Project* (the Port of San Diego, Environmental Health Coalition, and San Diego Baykeeper, the Cities of La Mesa and Lemon Grove, San Diego Unified School District, and Southwester College), received a State Costa-Machado Act of 2000 (Proposition 13) grant in the amount of \$2,244,000 to implement portions of the *Chollas Creek Enhancement Program*, adopted by the San Diego City Council on May 14,

2002. Planned creek improvements as part of the grant project include: removal of concrete sections of the channel; widening of the floodplain; and, creation and restoration of wetland and transitional upland habitats. Improvements will be designed to re-establish the natural structure, dynamics and hydrologic functions within applicable creek segments and restore affected beneficial uses.

In concert with the planned improvements to Chollas Creek, the scope of work for the *Chollas Creek Water Quality Protection & Habitat Enhancement Project* details two related education and outreach campaigns that have begun implementation. First, the grant project developed and is implementing a broad education outreach campaign within the Chollas Creek watershed administered jointly between the City of San Diego Storm Water Pollution Prevention Division and the Environmental Health Coalition with support from San Diego Baykeeper, the Port of San Diego and the cities of Lemon Grove and La Mesa. The purpose of the education program is to increase awareness about non-point sources of pollution while encouraging residents of the watershed to adopt appropriate behaviors in every-day activities around the home and business. Second, the grant project is developing watershed protection and urban runoff principles by implementing new environmental curricula for 5<sup>th</sup> and 6<sup>th</sup> grade schoolchildren in the area. These new curricula will include anti-litter principles.

The agreement with the State Water Resources Control Board was approved on July 6, 2004, and project implementation is underway. As of the writing of this report, the City



prepared final design plans for restoring the creek segment immediately east of Euclid Avenue, and initiated public advertisement of the project's construction contract (see Figure 1). The City anticipates awarding the construction

contract by June 1, 2006. Construction is scheduled to begin in June 2006, and be completed by September 30, 2006.

The second Proposition 13 project proposal titled "*Water Quality Leaders*," mentioned in the February 14, 2003, Technical Report did not receive funding. This grant would have

consisted of a pilot study for existing developed areas and would focus on the commercial corridors in three different watersheds, including the Chollas Creek watershed. This project would involve working with area businesses to install catch basin inserts that would be maintained and monitored through a partnership with San Diego Baykeeper, participating businesses, and the City. Both structural and educational BMPs would be implemented and monitored to determine the appropriateness and effectiveness of each application. The City believes this proposal has substantial merit because project implementation would cost-effectively help protect San Diego water bodies and beneficial uses. As such, the Storm Water Pollution Prevention Division will continue to pursue grant funding for similar projects.

The City's already significant storm water educational challenges are compounded by the socio-economic make-up of the neighborhoods along Chollas and Paleta Creeks. The Mid-City community located in the Chollas Creek watershed is home to a large and diverse first generation immigrant population where environmental awareness as a community value is a new concept. It is estimated that there are approximately 75 dialects spoken within the area, representing a significant challenge in first, gaining access to these communities and secondly, achieving integration of environmental/storm water compliance behaviors.

A long term strategy for addressing water pollution and abatement of pollutants of concern in our recreational waters, including trash is to educate school-age children about San Diego's unique marine environment. An exciting development this past year is the joining together of the City of San Diego and the San Diego City School District to create K-12<sup>th</sup> grade science curricula to focus on San Diego watershed issues and characteristics, impact student behavior toward pollution prevention, link to and modify existing curricula, and serve as a model for schools county-wide. The curricula is entitled "Stewardship: Water Education for Lifelong Leadership," or Project SWELL. Project SWELL was launched in the Fall of 2003 and included in the curriculum of about half of all fifth grade classes. Project SWELL curricula is in the process of being written for three additional grades. The 6<sup>th</sup> grade curricula is scheduled to be implemented in Spring 2006. The City and San Diego Baykeeper are actively seeking grant funding from various state grant programs, including Proposition 13.

Educational efforts planned for the remainder of Fiscal Year 2006 include continuing the Storm Water Pollution Prevention Division's Think Blue education efforts. The Storm Water Pollution Prevention Division is working to initiate the development of two new public service announcements before the end of the 2006 fiscal year. The Storm Water Pollution Prevention Division will also be conducting outreach to businesses in the Chollas Creek watershed as part of the Chollas Creek Water Quality Protection & Habitat Enhancement Project grant. Additionally, the Storm Water Pollution Prevention Division will work collaboratively with the City's Metropolitan Wastewater, Park and Recreation and Environmental Services departments and Caltrans District 11 in the Chollas Creek and surrounding areas to leverage multi-media buys and outreach efforts we are each pursuing.



## 1.1 VOLUNTEER CLEANUPS

The California Coastal Cleanup Day is considered the premier volunteer event focused on the marine environment in the country. It is estimated that since the program started in 1985, over 552,000 Californians have removed almost 8.5 million pounds of debris from our state's shorelines and coast. Beginning in 2002, the annual event was expanded to include inland sites, thus linking inland sites to the ocean.

Staff from the Storm Water Pollution Prevention Division and other City departments led a clean up effort of 53 people in Chollas Creek at newly-restored creek segment west of 38<sup>th</sup> Street, north of Alpha Street on April 9, 2005. The cleanup effort removed over one ton of trash, including 30 shopping carts, a water heater and a sofa bed.

The Storm Water Pollution Prevention Division also participated in a second Chollas Creek cleanup on Coastal Cleanup Day on September 17, 2005. The cleanup was held in

**Figure 2. September 17, 2005 Chollas Creek Cleanup.**



Chollas Creek near the corner of 47<sup>th</sup> & Castana Streets. The cleanup effort collected approximately 500 pounds of trash and debris, including an oven, large car parts, and a shopping cart (See Figure 2).

In addition to participating in volunteer cleanups, the Storm Water Pollution Prevention Division began coordinating with I

Love A Clean San Diego to become a contributing sponsor to one trash cleanup site in each of the City's six watersheds, including San Diego Bay, during the 2006 Coastal Cleanup Day. Information from these cleanup sites will be provided in the next semi-annual report.

## 2. ENFORCEMENT

Illegal dumping is a difficult problem to control. In addition, studies show that approximately 60-70% of trash that ends up in waterways is due to leaves and vegetation. Wind then transports light debris (usually floatables) into low-lying areas such as channels. Littering and illegal dumping can thus make source identification a moving target. Due to

the difficulty in actually catching someone in the act of illegally dumping or proving the source of the trash, enforcement by means of imposing penalties or issuing Notices of Violation is rare. Therefore, most "enforcement" actions for gross pollutants consist of either requesting an owner to clean up his/her property or having the appropriate City department properly remove and dispose of trash from the public right-of-way after it has been dumped illegally.

As previously noted, the Environmental Services Department (Environmental Services) has had the primary responsibility for responding to waste/litter issues and operates under different sections of the San Diego Municipal Code (SDMC, Sections 54.0208, 54.0209 and 54.0210) than does the Storm Water Pollution Prevention Division (SDMC, Section 43.03). Both programs have hotlines to which they respond. Environmental Services typically receives calls regarding litter or gross pollutants whereas Storm Water receives reports of liquid discharges into the storm drain system and/or receiving waters.

Environmental Services has a Code Compliance section that responds to reports and phone calls. Their process for enforcement includes a letter to the property owner notifying them of the time period in which the trash must be removed followed by a site visit to confirm compliance. Environmental Services also responds to calls from other City departments for illegal dumping on City property (which is the case for Chollas and Paleta Creeks). Therefore, based on historical records, each department within the City may have a budget for having Environmental Services pick up trash within another department's area of responsibility. Although Street Division is responsible for inspecting channels, it is from a flood control perspective; their crews would have to submit a request to Environmental Services to pick up smaller amounts of trash that are not causing a flooding hazard within the watercourse.

The Storm Water Pollution Prevention Division also has a Code Compliance section that responds to reports of illegal discharges. As previously mentioned, their focus is on liquid discharges that are generally more easily traced to the source than illegal dumping activities. Thus, illegal liquid discharge violations are often more easily enforceable. However, as a result of the September 27, 2001 letter distributed to the Copermittees by the Regional Board regarding litter, the Storm Water Code Compliance staff now considers trash in their enforcement actions. If they are unable to take enforcement action for trash, the issue is referred to Environmental Services. Within the Chollas and Paleta Creek watersheds, the Storm Water Pollution Prevention Division's code compliance officers have issued eight NOV's since December 2001, including one this reporting period.<sup>1</sup> Three new cases of illegal trash discharges were investigated in the Chollas and Paleta Creeks watersheds this reporting period.

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<sup>1</sup> The number of NOV's issued in the Chollas and Paleta Creek watershed areas was estimated using zip codes.



An updated map depicting the locations of the Environmental Services Department's record of incidents of illegal dumping and litter problems between July 1, 2005 and December 31, 2005 is provided as an attachment to this report (Attachment 2). During this time, Environmental Services responded to 22 work requests from other departments, 319 calls for service involving minor litter, and 3,763 calls for service involving illegal dumps (4,104 total calls). The Environmental Services Department also held 22 Community Clean-Up events during the reporting period.

Staff from the Office of the City Attorney has also researched and identified state and local statutes that could be used to pursue further legal actions (beyond imposing penalties and/or issuing Notices of Violation), if necessary, against property owners or those responsible for illegal dumping activities. Further, staff from the Office of the City Attorney also conducted additional outreach efforts within City departments (reaching park rangers, lifeguards and police) to encourage City personnel to be especially diligent in regard to illegal dumping activities. As part of this outreach, City staff has also been reminded about how to report violations and how pertinent San Diego Municipal Code sections are enforced.

The City of San Diego will continue to implement the enforcement programs described above.

### **3. STORM DRAIN SYSTEM AND CREEK MAINTENANCE AND CLEANING EFFORTS**

The General Services Department's Street Division cleaned 364 drainage structures, 755 linear feet of drainage pipes, and 8,612 square feet of drainage channel, removing 147.15 tons of trash and debris from the Chollas Creek and Paleta Creek watersheds from July 1, 2005 to December 31, 2005. (Note: Street Division's street sweeping data was not available at the time of this report and will be provided at a later date.)<sup>2</sup>

Chollas and Paleta Creeks are scheduled for annual inspection in March of each year. Should the inspection reveal the need for cleaning, the creeks are scheduled and cleaned as soon as possible. Additionally, during inclement weather the Street Division performs critical drain inspections. These inspections include known problem areas in the Chollas and Paleta Creek watersheds. The Urban Runoff Management Plan's *Storm Water Conveyance System* Component (component 2.1.11) identifies the known problem areas and the objective of the cleaning. Additional cleaning efforts are based on identified problem areas. The City will continue to carry out its standard annual inspections within the Creeks as described above as well as continue to perform critical drain system inspections during inclement weather.

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<sup>2</sup> Note: Street Division estimates the tons of waste removed from street sweeping based on estimates of what percentage of sweeping routes occur within the Chollas and Paleta Creek watershed areas.

The General Services Department's Street Division also maintains an agreement with the U.S. Navy to provide additional funding to clean trash and debris from Chollas Creek at the area where the Navy has installed a containment boom during the rainy season. No data has been reported from the Navy for this rainy season.

Between July 1, 2005 and December 31, 2005, Environmental Services removed approximately 980.01 tons of vegetation, trash and debris from Chollas and Paleta Creek watersheds from 22 community clean up events, 22 work requests from other departments, 319 calls for service involving minor litter, and 3,763 calls for service involving illegal trash dumping.

As previously reported, studies have shown that trash re-accumulates approximately 7-10 days after cleaning efforts, which would negate channel cleaning as an effective permanent solution. Large-scale (mechanical) trash removal is an inefficient, expensive and reactive strategy that does nothing to eliminate the source of the trash problem (unless trash removal is combined with education and outreach). To tackle the source of trash issues proactively, and in the most effective manner, the City continues to focus its efforts on continuing anti-litter education to facilitate the cultural shift needed to reduce the sources of trash pollution.

A summary of the estimated trash removed from the Chollas and Paleta Creek watersheds is provided in Table 1, below.

**Table 1. Estimated trash removed from Chollas and Paleta Creek watersheds, July 1, 2005-December 31, 2005.**

Watershed:	Source of Trash Removal:			
	Environmental Services	Streets Division		Navy/City Trash Boom
		Street Sweeping	Storm Drain Cleaning	
Chollas Creek	980.01 (both watersheds)	unknown*	147.15	Unknown*
Paleta Creek		unknown*	0	Unknown*

**7/1/05 to 12/31/05 Reporting Period Total (in tons): Unknown\***

\*Note: Street Division's street sweeping data was not available at the time of this report and will be provided at a later date. In addition, the Navy/City trash boom collection data was not reported and will be included in the next report.

#### **4. BEST MANAGEMENT PRACTICES (BMPs)**

##### **4.1 STRUCTURAL BEST MANAGEMENT PRACTICES**

The City's Urban Runoff Management Plan identifies the need for a City-wide drainage master plan (Component 1.6, *Watershed Planning*). The master drainage plan and watershed studies would identify deficiencies in the storm drain system, identify

appropriate areas for system upgrades and storm water BMPs, and recommend improvements. The City is currently studying the feasibility of pursuing a storm drain fee increase for City of San Diego residents. A Citywide master drainage plans and corresponding storm drain and BMP capital improvement program are included in the storm drain fee analysis.

In addition, the City has pursued grant funding to implement BMPs. The City's *Water Quality Leaders* Proposition 13 grant proposal was not selected. Implementation of the *Water Quality Leaders* project would have provided the City with funding to implement structural BMPs and evaluate their effectiveness. The Storm Water Pollution Prevention Division will continue to pursue water quality grants, in partnership with other jurisdictions, agencies and organizations in the region, as a means of funding trash-abatement efforts.

In February 2006, the City applied for \$725,000 in State Water Resources Control Board Consolidated Grants Program funding to construct six storm water best management practices in parking lots, streets, and other locations that would treat nuisance and other low flows prior to entering the storm drain system in the Tijuana River, San Diego Bay, San Diego River, Mission Bay & La Jolla, Los Peñasquitos, and San Dieguito River watersheds (one best management practice would be installed per watershed). The best management practices would address bacteria, metals, nutrients, sediment, and trash, which have been identified as constituents of concern in those watersheds by their respective Watershed Urban Runoff Management Programs. Monitoring of the effectiveness and maintenance requirements of the six best management practices during the two-year life of the grant would allow for the development of recommendations for future use in the City of San Diego.

The City of San Diego also submitted an initial application for \$2,950,000 in Integrated Regional Water Management (IRWM) Grant Program, (Proposition 50, Chapter 8, or "Prop 50") grant funding in Spring 2005 to implement another creek restoration project per the City-approved *Chollas Creek Enhancement Program*. The concept proposal was selected by the State Water Resources Control Board (State Board) to submit a full grant proposal for consideration. In Fall 2005, the City turned the project concept over to Groundwork Chollas, a non-profit group working to restore habitat in the Chollas Creek watershed. During this reporting period, Groundwork Chollas, in coordination with several non-profit groups, continued preparations of a full grant proposal to restore a section of Chollas Creek near 47<sup>th</sup> Street and Castana Avenue. The groups anticipate submitting the full grant proposal during a future grant submission cycle.

Finally, as a measure to prevent trash and debris from entering Chollas Creek, NASSCO continues to maintain fencing in the parking lot along the sides of the Creek.

#### **4.2 NON - STRUCTURAL BEST MANAGEMENT PRACTICES (BMPs)**

As previously reported, trash is removed from or discouraged from entering the storm drain system and receiving waters in the Chollas and Paleta Creek watersheds due to the following non-structural activities:

- Education & Outreach, "Think Blue"
- Weekly residential trash pick up
- Trash pick up from public areas
- Recycling
- Household Hazardous Waste collection
- Storm Drain Stenciling
- Volunteer cleanups
- Drain and inlet cleaning
- Channel cleaning
- Street Sweeping
- Enforcement of the San Diego Municipal Code (SDMC)
- Enforcement of applicable state codes through court actions

Through these services, the City of San Diego is effectively preventing tons of trash from entering into our waterways. However, physical cleaning of the entire reaches of Chollas and Paleta Creeks by City crews is not an environmentally optimal option because it is an "end of pipe" solution that fails to eliminate the source of the problem (people's behaviors), and is therefore, inherently less effective than source controls (education). Studies have shown that trash re-accumulates approximately 7-10 days after cleaning efforts, which would negate channel cleaning as an effective permanent solution. Large-scale (mechanical) trash removal is an inefficient, expensive and reactive strategy that does nothing to eliminate the cause of the litter problem (unless trash removal is combined with education and outreach). In addition, property and environmental constraints may make regular creek cleaning difficult. Research into property boundaries in Chollas Creek reveal that private ownership extends into the creek bed in nearly all locations, and the City does not possess drainage easements in all of these privately-owned sections of the creek. In those locations, the City must request permission to access the property to perform maintenance. The same is true for volunteer cleanup events. Coordinating a cleanup event and securing all of the necessary approvals is often prohibitively time consuming and difficult. Additionally, restrictions on impacting native habitat may also reduce access to portions of the creeks.

Therefore, to tackle the source of trash issues proactively, and in the most cost-effective manner, the City continues to focus its efforts on continuing anti-litter education to facilitate the cultural shift needed to reduce the sources of trash pollution through the Think Blue program.

As reported previously in this report, the fifth year of the Think Blue campaign (FY 2006) includes airing the, "Don't Trash Our Future," PSA, which specifically addresses trash as a



pollutant of concern. In addition to the airtime, two radio stations previously published an anti-litter ad that repeats the final scene from the "Don't Trash Our Future" PSA. The ad was placed in CD inserts and calendars and cumulatively distributed to more than 50,000 San Diegans.

The Storm Water Pollution Prevention Division also joined together with the San Diego City School District to create and implement Project SWELL (Stewardship: Water Education for Lifelong Leadership) K-12<sup>th</sup> grade science curricula focusing on San Diego watershed issues and characteristics, impacting student behavior toward pollution prevention, and serving as a model for schools county-wide.

Also during this reporting period, the Storm Water Pollution Prevention Division continued to use the Think Blue anti-litter storm drain stencil (see Figure 3). The stencil is



being used in City municipal yards and facilities, including the Chollas Yard located within the Chollas Creek watershed. Stencils were also distributed to I Love A Clean San Diego so that volunteers may

stencil storm drains throughout San Diego, including the Chollas and Paleta Creek watershed areas. The stencil specifications have been posted on the City's Think Blue website ([thinkbluesd.org](http://thinkbluesd.org)) so that contractors and environmental organizations can make their own stencils using the City standard. A similar concrete stamp is required on all new development projects which build new storm drain inlets.

The General Services Department's Street Division cleaned 364 drainage structures, 755 linear feet of drainage pipes, and 8,612 square feet of drainage channel, removing 147.15 tons of trash and debris from the Chollas Creek and Paleta Creek watersheds from July 1, 2005 to December 31, 2005. (Note: Street Division's street sweeping data was not available at the time of this report and will be provided at a later date.)

During the reporting period, the Environmental Services Department also collected 525.24 tons of trash at 22 community clean up events. These events provide residents with an opportunity to properly dispose of wastes and reduce the likelihood of waste ending up in creeks and drainages including those within the Chollas and Paleta Creek watersheds. In total, between July 1, 2005 and December 31, 2005, Environmental Services removed approximately 980.01 tons of vegetation, trash and debris from Chollas and Paleta Creek watersheds from 22 community clean up events, 22 work requests from other departments, 319 calls for service involving minor litter, and 3,763 calls for service involving illegal trash dumping.

In order to prevent trash and debris from entering the creek bed from parking lots due to wind or storm water, NASSCO contracts with St. Madeleine's Sophie Center to conduct trash pick-ups twice a week.

The Storm Water Pollution Prevention Division plans to continue an aggressive education and outreach campaign targeted at litter abatement, continue the implementation of the *Chollas Creek Water Quality Protection and Habitat Enhancement Project*; consider implementation of a criminal prosecution process for the Storm Water Pollution Prevention Division; and continue maintenance activities and participation in volunteer cleanup efforts. The Streets Division may implement additional trash awareness outreach and cleaning. In addition, Caltrans has recently initiated a statewide, multi-lingual anti-litter campaign that includes materials for students, flyers, and other handouts, which the City will distribute in the Chollas and Paleta Creeks Areas.

#### 4.3 BMP ACTION PLAN

Table 2 below provides an update on the potential BMPs reported previously in the February 13, 2003 letter. Please note that to maintain consistency, we've kept all of the activities reported previously, even if they have been completed, delayed or postponed.

**Table 2. Potential & actual BMPs implemented to address trash in the Chollas and Paleta Creek watersheds.**

BMP	ESTIMATED IMPLEMENTATION DATE	COMMENTS
<b>NON-STRUCTURAL BMPS:</b>		
<i>EDUCATION</i>		
Public Service Announcements	Fall 2003 and ongoing	PSAs are in partnership with Caltrans – District 11 and the Port of San Diego. "Don't Trash Our Future" aired during reporting period. Two new PSAs scheduled to be developed and aired in 2006.
Materials with Trash Focus	As-Needed	During previous reporting periods, anti-litter messages were advertised in calendars and CD inserts. Other Think Blue materials will be created and updated as appropriate. In October 2003, the Storm Water Pollution Prevention Division conducted a number of Business Outreach workshops. In addition to informing business owners how to properly clean impervious surfaces, the workshops included other site best management practices including an anti-litter.
Tailored brochures	FY 2005	Originally slated for FY2004, FY 2005, and FY 2006, postponed for FY2007. Caltrans provided "Don't Trash California" anti-litter campaign materials which will be used in Chollas Creek watershed.
District 4 Storm Water Outreach module	Originally FY2004	Postponed.



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BMP	ESTIMATED IMPLEMENTATION DATE	COMMENTS
Trash & Litter Impact Module for Watershed Display Boards	FY2006	Delayed a third year to FY 2007 pending Copermittee agreement on WURMP education elements. Intend to add litter education module and materials to watershed display boards shared by Copermittees.
Project SWELL (Stewardship: Water Education for Lifelong Leadership)	Fall 2003	New K-12 <sup>th</sup> grade education program. Began implementation in Fall 2003 school year in San Diego City Schools. 5 <sup>th</sup> Grade curricula completed and being implemented. 6 <sup>th</sup> grade curricula planned to begin implementation in Spring 2006.
Letters to Property Owners	Ongoing	Outreach to property owners done as part of September 2002 Clean-Up event. Activity to be carried out in conjunction with outreach to be implemented as part of the <i>Chollas Creek Water Quality Protection and Habitat Enhancement Project</i> beginning in 2004.
Letters with brochures to residents in Council District 4	Completed	Council office distributed 200.
Letters to Copermittees	Completed	Reached all Copermittees within Chollas and Paleta Creeks watersheds via e-mail correspondence on 8/7/02.
Inter- and Intra-Agency Coordination	Ongoing	Outreach to other City departments has been done by the Office of the City Attorney as described in Section 3 "Enforcement" above. The City will continue discussions with Caltrans staff in order to identify opportunities for partnership between our agencies in order to abate trash concerns. As already noted, Caltrans is a valuable partner to the City providing financial support to the Think Blue PSAs. City's Street Division is re-entering into contract with U.S. Navy to operate a trash boom at the mouth of Chollas Creek.
<i>Chollas Creek Water Quality Protection and Habitat Enhancement Project-Prop 13</i>	2004	State agreement approved, and began implementation on July 6, 2004. Construction contract in public advertisement process. Scheduled to begin construction in June 2006.
<i>Water Quality Leaders</i>	N/A	Proposition 13 grant application denied. No longer pursuing funding.
<i>City of San Diego Watershed BMPs</i>	2007-2008	Submitted initial \$725,000 grant proposal to construct and monitor six structural BMPs (1 in each of the City's six watersheds). BMPs would be selected to maximize removal of pollutants of concern in each watershed, including trash. Monitoring program would evaluate BMP effectiveness and compare maintenance requirements to form recommendations for broader application City-wide.
<i>Chollas Creek Restoration Project (Prop 50)</i>	2006	Initial \$2,950,000 proposal submitted in Spring 2005. Project concept transferred to local non-profit groups in Fall 2005. Non-profit groups preparing to submit full grant proposal in future grant cycle.
<b>ENFORCEMENT</b>		
Criminal Prosecution	Calendar Year 2005	Currently under consideration.
Illegal Dumping Enforcement	Ongoing	
<b>MAINTENANCE</b>		

Semi-Annual Report: Addressing Floating Material in Chollas and Paleta Creeks  
March 15, 2006

BMP	ESTIMATED IMPLEMENTATION DATE	COMMENTS
<u>Street Division</u> – Cleaning efforts	Ongoing	The General Services Department's Street Division cleaned 364 drainage structures, 755 linear feet of drainage pipes, and 8,612 square feet of drainage channel, removing 147.15 tons of trash and debris from the Chollas Creek and Paleta Creek watersheds from July 1, 2005 to December 31, 2005. Street Division's street sweeping data was not available at the time of this report and will be provided at a later date.
<u>Street Division</u> – Additional trash awareness and cleaning efforts	Unknown	Postponed.
<u>Environmental Services:</u> Abatement of Illegal Dumping and Clean-Up & Recycling Events	Ongoing.	Between July 1, 2005 and December 31, 2005, Environmental Services removed approximately 980.01 tons of vegetation, trash and debris from Chollas and Paleta Creek watersheds from 22 community clean up events, 22 work requests from other departments, 319 calls for service involving minor litter, and 3,763 calls for service involving illegal trash dumping.
Volunteer Clean-ups	Ongoing	City participated in cleanup in Chollas Creek on September 17, 2005 as part of the Creek to Bay Cleanup. The City is also partnering with I Love A Clean San Diego to sponsor six cleanup sites (one site in each of the City's six watersheds, including San Diego Bay) during the 2006 Coastal Cleanup Day.
Parking Lot Clean Up at Chollas mouth	Ongoing	Coordination with Port District, NASSCO. NASSCO parking lots were cleaned during the September 2003 Cleanup Event and implemented permanent good housekeeping practices to periodically clean the parking lot in combination with fencing and new trash cans.
Boom Cleaning	Ongoing	Collaborative agreement with the Navy. Contract for the 2006/07 rainy season currently being renewed.
<i>OTHER</i>		
Pursue Grant Funding	Ongoing	The City will continue to research grant opportunities that may support implementation of structural and non-structural BMPs to address trash in intensely urbanized watersheds within the City of San Diego, including the Paleta and Chollas Creek watersheds. See <i>City of San Diego Watershed BMPs</i> grant proposal, above.
<b><i>STRUCTURAL BMPs:</i></b>		
Master Drainage Plan	Unknown	To date, the City has not studied the feasibility of the use of structural BMPs within this watershed. City-wide master drainage plan and watershed studies would identify deficiencies in the storm drain system, identify appropriate areas for storm water BMPs, and recommend improvements. The City is exploring the possibility of placing a proposal for a storm drain fee increase on a future ballot. If approved, this fee could fund the preparation of a Master Drainage Plan.
Fencing at NASSCO Parking Lot	Ongoing	Fencing at NASSCO parking lot completed in September of 2002. Other opportunities for fencing as a trash BMP are currently being considered.

## 5. CREEK REFUSE ASSESSMENT PROGRAM

The Storm Water Pollution Prevention Division is implementing the Creek Refuse Assessment Program as part of our Dry Weather Monitoring activities in the Chollas and Paleta Creek watershed areas. A description of the assessment strategy follows.

The Dry Weather Monitoring component of the updated Municipal Storm Water Permit (Order No. 2001-01) expanded the physiochemical monitoring conducted under the

**Figure 4. Dry Weather Storm Drain Field Monitoring Data Sheet.**

City of San Diego Storm Water Pollution Prevention Program Dry Weather Storm Drain Field Monitoring Data Sheet									
ROUTINE / NON-ROUTINE									
<b>SITE DESCRIPTION</b>									
Observed Last Use	Residential	Commercial	Industrial	Open	Wetland	GPS (NAD 83)	N		
Conveyance Type	Manhole	Outfall	Open Channel	Storm	Site ID				
Construction	Concrete	Steel	Plastic		Site Description				
					TD Page				
					Field Staff				
<b>OBSERVATIONS</b> (*** Consult below)									
<b>Physical</b>									
Color	None	1	2	3	4	Light	Heavy	Overcast	Partly Cloudy
Color	None	None (White)	White (Milky)	Grey	Grey	Last Rain	> 72 hours	< 72 hours	< 1 hour
Cloudy	Clear	Translucent	Slightly Cloudy	Opaque	Opaque	Rainfall	None	< 0.1"	> 0.1"
Debris	None	Trash	Debris	Debris	Debris				
Debris	None	Debris	Debris	Debris	Debris				
<b>Biological</b>									
Fauna	None	None	None	None	None	Fish	None	None	None
Flora	None	None	None	None	None	Wetland Area	None	None	None
<b>DISCHARGE ESTIMATION</b>									
<b>Flowing Creek or Box Culvert*</b>									
Width	ft					Volume	gal		
Depth	ft					Time to Fill	min		
Velocity	ft/min					Flow	gpm		
Flow	gpm								
<b>Filling a Bottle or Known Volume*</b>									
Volume	gal					Time to Fill	min		
Flow	gpm								
<b>Flowing Pipe*</b>									
Diameter	in					Depth	in		
Velocity	ft/min					Flow	gpm		
Flow	gpm								
Flow Observed? Yes / No / Pending									
Evidence of overflow flow near sampling site? Yes / No *** Consult below									
<b>WATER SAMPLING</b>									
Field Screening Sample Collected? Yes / No									
Temp	°C					TDS (unfiltered)	mg/L		
pH						Conductivity	µS/cm		
Turbidity	NTU					Ammonia as N	mg/L		
Laboratory Analyte**									
Copper	µg/L					Phosphate as PO <sub>4</sub>	mg/L		
Cadmium	µg/L					Fluoride	mg/L		
Lead	µg/L					Total Coliform	MPN/100 mL		
Zinc	µg/L					Fecal Coliform	MPN/100 mL		
						Enterococcus	MPN/100 mL		
						Total Bacteria	mg/L		
<b>COMMENTS / NOTES</b> ***									
Quality Check: _____ Date: _____									

previous Municipal Storm Water Permit. The City's standard procedure for evaluating and recording observations now includes trash observations, as shown on the Dry Weather Storm Drain Field Monitoring Data Sheet (see Figure 4). Monitoring staff identify trash characteristics in the storm drain's discharge "plume area" at storm drain outlets where they discharge into a large open conveyance channels or the natural drainages and creeks. We have defined the "plume area" as approximately 10-20 yards (30-60 feet) upstream and downstream of the storm drain outlet. Trash monitoring within open conveyance channels and manholes/catch basins uses similar criteria; staff notes

conditions within a 20-yard diameter of the monitoring point and in the visible areas within manholes/catch basins. To complete this assessment, our standard procedure for evaluating and recording observations has been expanded to include a photo documentation of the trash in these two creek watersheds.

The third year's report of the Creek Refuse Assessment Program are included with this report (Attachment 2).

Future assessments will assist in identifying sources and "hot spots" of trash from the tributary land uses and neighborhoods. In addition to trash, monitoring staff will continue to document unique deposition characteristics near outlets and monitoring sites looking for particulates that might identify sources of waste and trash. The Creek Refuse Assessment Program will provide the City and the Regional Board with quantifiable trash data that can

be used as a baseline and to evaluate the effectiveness of BMPs. We will review the Creek Refuse Assessment Program on an annual basis to determine if enhancements are needed.

## **6. COLLABORATIVE EFFORTS**

During the reporting period, the Storm Water Pollution Prevention Division participated in implementation meetings for the San Diego Bay Watershed Urban Runoff Management Plan. This Plan fosters collaboration between Chollas Creek watershed Copermittees, businesses, interested public, and other stakeholders. In addition, the City continues to participate in other watershed efforts in the area, such as the "Groundwork Chollas" watershed meetings. This group consisting of a diverse group of agencies, residents, and activists, meets regularly with a goal of forming a watershed network focused on protecting and restoring Chollas Creek. In addition, the Storm Water Pollution Prevention Division participated in a November 17, 2005 Trash Focus Group meeting led by local environmental group members.

As detailed in this report, the Storm Water Pollution Prevention Division coordinated with the Port of San Diego, City of La Mesa, City of Lemon Grove, Environmental Health Coalition, San Diego Baykeeper, San Diego Unified School District, and Southwestern College to continue the implementation of the *Chollas Creek Water Quality Protection and Habitat Enhancement Project* grant; continued to coordinate with Caltrans and the Port of San Diego to create PSAs focused on trash issues; coordinated with San Diego Baykeeper, the San Diego City Schools to continue the implementation of the Project SWELL school curricula; coordinated with I Love A Clean San Diego to use their volunteers to stencil storm drain inlets and lead a second Chollas Creek cleanup event and sponsor six others throughout the City (including one in the San Diego Bay watershed), and coordinated with the U.S. Navy and Port of San Diego to continue to maintain trash booms in Chollas Creek.

The Storm Water Pollution Prevention Division and other City departments will continue to work collaboratively with other agencies, businesses and organizations to leverage additional energies towards cleaning our beaches and bays.

## **7. TRASH MEASURES EFFECTIVENESS ASSESSMENT**

While there is no baseline data that would allow the City to assess effectiveness of measures taken to date to address trash issues within the Chollas and Paleta Creeks watersheds, and while there is no legal or functional standard for determining whether trash is impacting beneficial uses, the City believes that positive steps have been taken as measured by the amount of trash removed reported in this and previous reports. Additionally, we believe the groundwork has been established for the City to make a significant contribution towards the long-term health of these watersheds through the City's collaborative participation in annual California Coastal Clean-Up events. Seeds



have been planted to allow the City to continue to participate in similar events in subsequent years, as evidenced by the City's participation in six locations for this year's California Coastal Clean Up Day.

The City implemented extensive measures to prevent trash from entering into our storm drain system and will continue to explore cost-effective and meaningful ways of reducing illegal dumping of gross pollutants. We recognize that littering and illegal dumping are the major causes of trash and debris in receiving waters and related exceedances of water quality standards. We also recognize that trash in the urban environment is not limited to Chollas and Paleta Creeks: it is an issue for every urban creek, river, and canyon in San Diego. As such, the City has chosen to incorporate litter prevention in our public education and outreach program, Think Blue. Our emphasis will continue to be on education via our Think Blue program and its mission, "to raise public awareness and to foster behavior changes to reduce non-point source pollution." Simply stated we want, and need, to reach as many people as possible of the City's 1.2 million residents and not limit our efforts to one geographic area.

Toward that end, in 2003 we began implementing the water quality-based school curricula called Project SWELL (Stewardship: Water Education for Lifelong Leadership) in San Diego City Schools in partnership with San Diego Baykeeper, the school district and others, and began airing a new Think Blue anti-litter public service announcement "Don't Trash Our Future." Our Think Blue program is highly acclaimed and has been selected as EPA's outreach model for large urban watersheds. Think Blue is making a difference by changing behaviors of people who live in the region.

Because the Chollas and Paleta Creeks watersheds are not entirely within the City of San Diego, we also recognize the importance of coordinating our efforts with those of other jurisdictions and organizations within these watersheds. The City has already ventured into a watershed approach to address trash by working with the United States Navy, Caltrans, the City of Lemon Grove, the Port District, and NASSCO, and we will continue to engage willing stakeholders in developing and implementing solutions to address excessive trash in our watersheds that may impact beneficial uses. The City will continue to address trash concerns through a comprehensive and cost-effective approach that focuses on pollution prevention and participatory decision-making.

In summary, the City will continue to work diligently to ameliorate the trash issues in the Chollas and Paleta Creek watersheds, in addition to other watersheds throughout the City. The City's Environmental Services Department, Street Division, and Storm Water Pollution Prevention Division continue to work to remove trash from Chollas and Paleta creeks, among other water bodies throughout the City. Clearly, support from our leadership, and professional skill and technical knowledge in water quality and urban runoff issues and solutions from City staff is not lacking. Investing our dollars in Think Blue or pollution prevention is currently the best use of City funding to reduce pollution at our beaches and bays. We offer that best management practices are not all created equal,

nor is dividing up one's resources between numerous best management practices always the best approach. By concentrating resources in Think Blue, or pollution prevention, we believe that we are realizing the greatest water quality benefit.

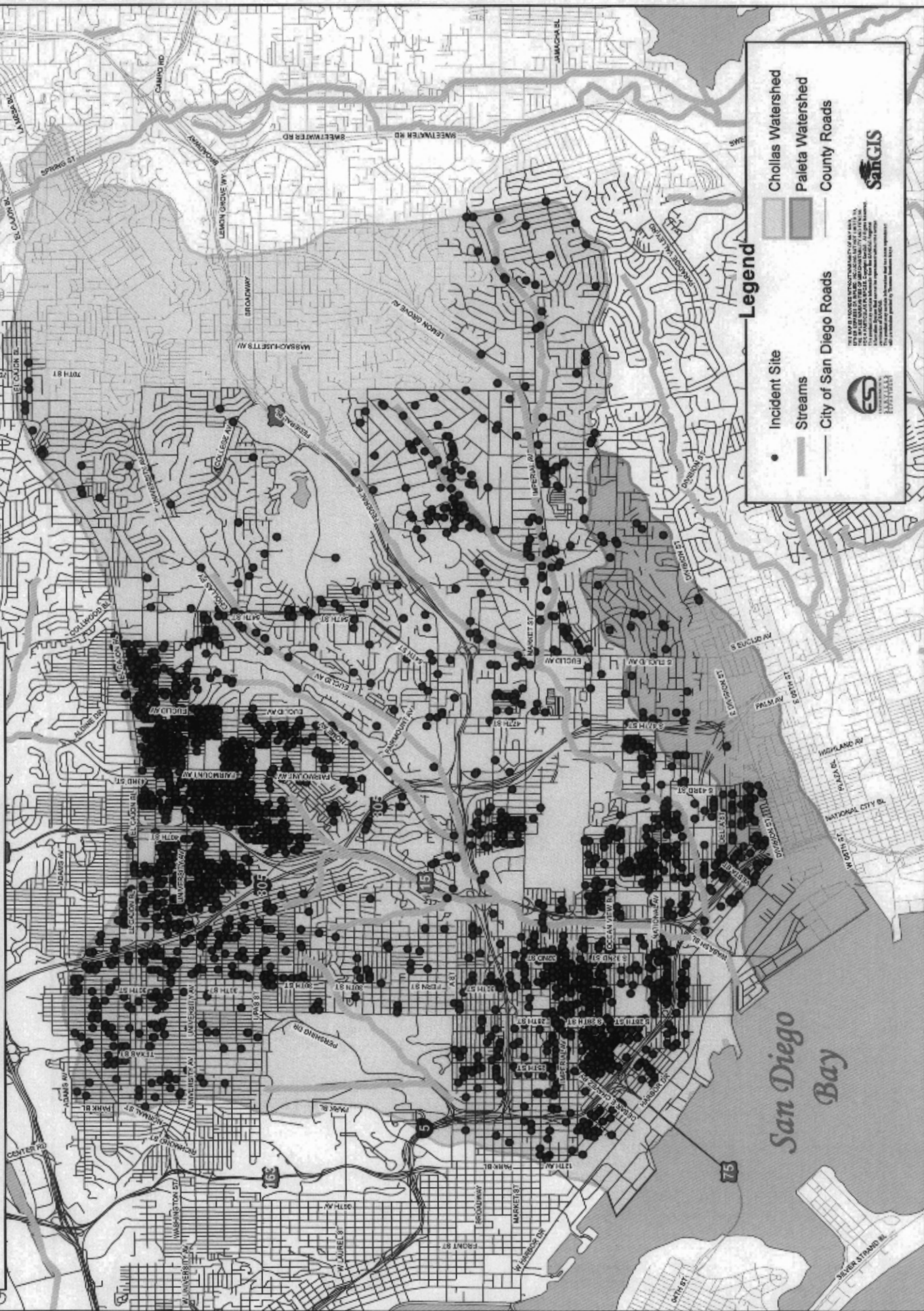
We believe that it is premature to state that the City's existing BMPs are ineffective. Rather, we need to explore additional alternatives for reducing illegal dumping of gross pollutants beyond what storm water programs can provide. It is evident that the City's current practices, are effective in ensuring proper disposal of trash, and thus preventing tons of trash from entering into our storm drain system and receiving waters.

Attachments:

1. City of San Diego Environmental Services Department's map of calls for service.
2. 2005 Creek Refuse Assessment Program Report, October 13, 2005.



# **Chollas & Paleta Creek Watersheds** **Illegal Dumping, Litter, Shopping Carts, & Transient Incidents** **July 1, 2005 to December 31, 2005**



**Legend**

Incident Site

Streams

City of San Diego Roads

County Roads

Chollas Watershed

Paleta Watershed

**SANGIS**

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# **City of San Diego**

## **REPORT FOR THE PALETA AND CHOLLAS CREEKS REFUSE ASSESSMENT PROGRAM DRY WEATHER MONITORING SEASON 2005**

**October 13, 2005**



**Storm Water Pollution Prevention Program  
1970 B Street, MS 27A  
San Diego, CA 92102**

## **Paleta and Chollas Creeks Refuse Assessment Program Dry Weather Monitoring Season 2005**

### **Introduction**

The City of San Diego Storm Water Pollution Prevention Program added and implemented a Creek Refuse Assessment Program component to the Dry Weather Monitoring Program in the Chollas and Paleta Creeks watershed areas, commencing in 2003. Currently, under the Dry Weather Monitoring Program, trash monitoring procedures only require identifying the presence or absence of trash at storm drain "discharge areas" or the general vicinity around a monitoring site. These sites are located at storm drain outlets, open channels, or manholes within the storm water conveyance system. A drain "discharge area" has been defined as approximately 10-20 yards (30-60 feet) upstream and downstream of the storm drain outlet, with consideration given to the actual area impacted by flow. Trash monitoring within open conveyance channels and manholes/catch basins used similar criteria; staff noted the presence/absence of trash conditions within a 20 yard diameter circle in channels and in the visible areas within manholes/catch basins.

### **Scope**

Dry Weather Monitoring procedures do not collect appropriate information to characterize and quantify trash. For the Creek Refuse Assessment Program, the trash monitoring methods provide quantifiable trash data that can be used as a baseline and to evaluate the effectiveness of Best Management Practices (BMP's). For this assessment, trash quantification and characterization was performed by determining and calculating the survey area, depth of trash, and estimated percentage of ground covered by trash/floatables within the survey area. The survey area was determined as described below:

- Manholes/Catchbasins: estimated visible bottom area
- Channels: an estimate of twenty yards downstream of the monitoring point times the estimated width of the channel
- Storm Drain Outlets: an estimated twenty yards downstream times the estimated width of the channel. For flat bottomed channels, the estimated width was determined by the high water mark and for more incised channels the width was estimated between the vertical banks.

**Paleta and Chollas Creeks Refuse Assessment Program  
Dry Weather Monitoring Season 2005**

A total of 37 dry weather monitoring sites in Chollas and Paleta Creeks were visited and photographed. Five sites that were monitored in 2004 were eliminated from the program this year, and four new sites were added to the program. Trash characterizations and quantifications were noted on a refuse assessment field form. In addition to collecting quantitative data, staff classified trash and its relative percent makeup at each site as described in Table 1.

**Table 1. A description of the types of trash in each classification.**

Paper	Writing paper, newspaper, cup, cigarette butts, etc
Plastic	Soft drink/juice bottles, Styrofoam, juice box, snack food wrappers, etc
Glass	Drink/food container, etc
Metals	Soda cans, soup cans, steel containers, etc
Vegetative	Landscaping debris, grass clippings, etc
Automotive	Vehicle parts and fluids, batteries, etc
Construction	Concrete debris, rebar, paint, solvents, gravel, dirt, lumber, roofing, etc

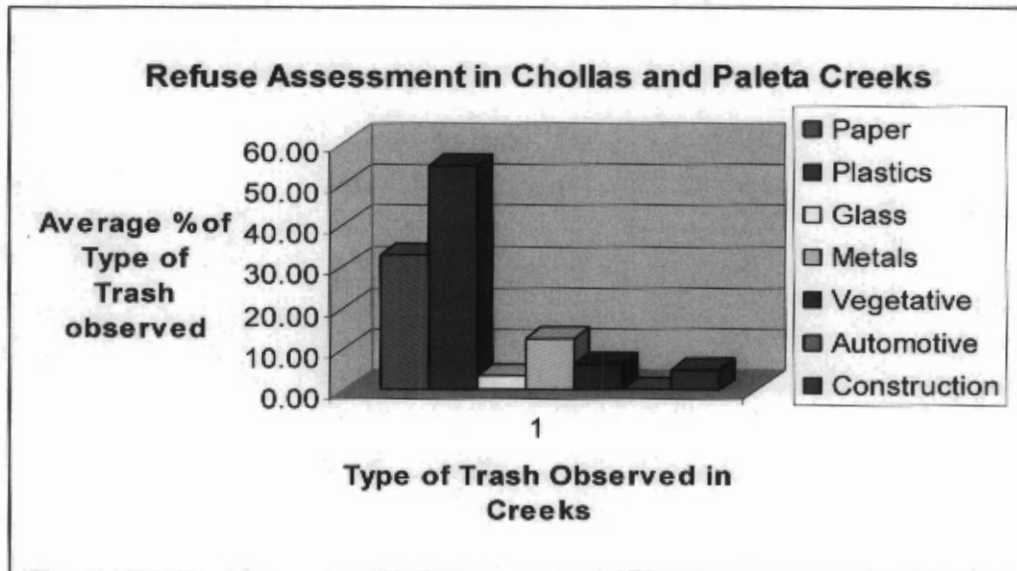
**Findings**

Analysis of data and photographs showed that trash was not necessarily visible from a typical vantage point such as a sidewalk or dirt path, though trash was found at every site upon closer inspection. As shown in Figure 1, trash primarily consisted of paper and plastics. When analyzed in combination with observations, the data showed that most paper and plastics consisted of recyclable drink containers, paper or Styrofoam cups, and snack packaging. The least common types of trash were vegetative waste, automotive parts, and construction debris. One category of trash not included on the data sheet, but frequently observed, was clothing. When clothing was observed at a site, it was included in the paper category. The total quantity of trash found at the 37 sites approached 54 cubic yards. The geometric mean sample area was 41 square yards and the geometric mean trash volume was 0.09 cubic yards of trash. Based upon the types of trash and disposal characteristics observed, commercial and illegal dumping contributed minimally to trash documented at the monitoring sites. The majority of trash appeared to be typical household items, including drink and snack packaging. In some instances, trash clearly originated from homeless encampments near the assessment site.



**Paleta and Chollas Creeks Refuse Assessment Program  
Dry Weather Monitoring Season 2005**

**Figure 1. Average percentages of types of trash found at assessment sites. The percentages may not add up to 100; this chart should be used to compare types of trash on a relative scale.**



### Comparison of results

Creek Refuse Assessment monitoring surveyed trash over a total area of 3784 square yards during 2003, and a total of 2767 square yards in 2004. In 2005, 3166 square yards were monitored. Total area surveyed can be expected to vary year-to-year based on a number of factors, including changes in drainage patterns due to different flows in the conveyance system, and differences in how the observer defines the drainage area. In order to maintain consistency, drainage areas are defined in the Introduction of this report.

In 2003, a total of 19.13 cubic yards of trash was observed in the survey area. In 2004, a total of 19.90 cubic yards of trash was observed. 51.21 cubic yards of trash were observed in 2005. In 2005, there were approximately 0.016 cubic yards of trash per square yard of area surveyed. In 2003 there were 0.005 cubic yards of trash per square yard of area surveyed, and in 2004 there were 0.007 cubic yards of trash per square yard of area surveyed. San Diego experienced record rainfall over the winter season, increasing the likelihood of trash being washed into the storm drain system, resulting in greater quantities of observed trash. Another factor influencing the increase may be the interpretation of quantity of trash by different observers.

Sw a  
source  
of  
trash  
in  
creeks

When evaluating the amount of trash in the creeks, multiple routes of entry were observed. A breakdown of trash origin is shown in Table 2. Observed routes of entry are subject to change from year-to-year depending on factors such as public behavior/trash disposal habits, BMP effectiveness, rainfall events, and what the observer determines the route of entry to be. When determining the route of entry, observers consider a number of factors. Factors that are

**Paleta and Chollas Creeks Refuse Assessment Program  
Dry Weather Monitoring Season 2005**

considered when determining routes of entry include evidence of trash on slopes, bags that may have been tossed, or if the trash is under a bridge or some other place that would make it easy for someone to illegally dump there. Homeless encampments in or alongside creeks also contribute to dumped trash. When determining if trash is solely from the storm drain outlet, observers may look inside the drain to compare types of trash, or may look at the drain discharge pattern. Comparisons of trash just upstream of outlets to what is seen at the storm drain are also helpful in determining if the outlet is the main source of the trash, or if the majority of the trash near an outlet is originating from other sources. In tidally influenced areas trash from all sources may be redistributed in the creek making trash entry route determinations difficult.

**Table 2: Comparison of trash routes of entry into Chollas and Paleta Creeks.**

Route of Entry	% of Trash Originating from Route of Entry		
	2003	2004	2005
Upstream Source Only	0	<1	8
Dumping Only	0	1	6
Dumping/ Storm Drain/Upstream Combination	12	4	8
Dumping/Upstream Source Combination	0	5	16
Storm Drain Only	65	12	35
Storm Drain/Upstream Combination	4	29	11
Dumping/Storm Drain	19	49	16

**Future Considerations**

Education? Volunteer clean-ups? Prescribed areas per site to ensure consistency in area surveyed? Street sweeping/storm drain maint? More bmp's? increase code enforcement at locations with poor housekeeping?

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