

Jurisdictional Urban Runoff Management Plan

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Attachment 8.1: BMP Requirements and Options for Residential Sources

8.0 RESIDENTIAL COMPONENT

8.1 Introduction

The overall goal of the Residential Component is to establish a programmatic framework for the implementation of activities that will minimize the impact of discharges from residential areas to receiving waters and other environmental resources in the County of San Diego. Nearly half a million people live and work in the unincorporated County. To varying degrees, each of them contributes to existing water quality problems and therefore plays a role in the solution.

8.2 Source Characterization

The unincorporated portion of San Diego County consists of more than 3,500 square miles. While residential land use comprises less than 5% of this total area, this relatively small area supports an estimated population of 481,216. Residential areas are thought to be a prevalent source of pollution from urban runoff within the unincorporated County. Therefore residential sources continue to be a high priority for the County's urban runoff management program.

8.2.1 Unincorporated County and Population Characteristics

Table 8.1 describes the unincorporated population as a whole as estimated for the year 2007 by the San Diego Associates of Governments (SANDAG). Most of the population is Non-Hispanic White and Hispanic (64% and 23%, respectively), with the remaining ethnicities (Black, American Indian, Asian, Hawaiian and Pacific, Other and two or more Races) totaling less than 13%. The majority of the population (76%) is greater than 18 years of age. The estimated median household income is \$76,251. There are approximately 166,020 total housing units, which include single and multi-family homes, mobile, and other housing with occupancy estimated at 93%.

For planning purposes, the unincorporated County is divided into 24 Sub-regional and Community Planning Areas (CPAs). These areas and their locations within the region's watersheds are shown in Figure 8.1. The CPA County "Islands" includes the communities of Scripps Horse Ranch, Greenwood Cemetery, and Lincoln Acres. Recent developments in 2006 allowed for the merging of the Pepper Drive-Bostonia CPA with Lakeside CPA, which is reflected in the updated population characteristics.

Where possible, the County tailors program implementation to the specific characteristics of individual communities and water quality priorities of their designated watersheds. In general, urban communities receive more of the County educational and compliance resources due to the higher number of residential housing units. Efforts are made to direct program activities and expenditures aimed at key water quality issues, contributing sources, and the activities with emerging conflicts.

Table 8.2 displays the difference in CPA statistics for area, population, median household income, and total housing units. This variability, along with the differences in community demographics, like gender, age, and ethnicity, illustrate the challenges of tailoring education and compliance strategies to these diverse groups.

¹ Source: SANDAG, Current Estimates (2007) : www.sandag.org.

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Table 8.1 - Unincorporated Population Characteristics (2007 Estimates)

Ethnicity	Population	% of Total	Population < Age 18	% < Age 18
White	308,113	64	62,287	20
Hispanic	109,770	23	35,490	32
Black	22,289	5	6,000	27
American Indian	6,048	1	1,465	24
Asian	18,230	4	3,843	21
Hawaiian & Pacific	1,525	<1	358	23
Other	1,029	<1	236	23
Two or More Races	14,212	3	5,649	40
Totals	481,216	100%	115,328	100%

Specific features such as population distribution and types of communities within each watershed in the unincorporated County are also variable in many of the CPAs. Table 8.3 displays the population distribution of the 24 CPAs within individual watersheds². These figures are only intended to address the unincorporated portions of each watershed area, and do not include corresponding totals for other jurisdictions within those areas. Populations estimates for the unincorporated areas range from 1,075 in the Pueblo San Diego Watershed to 111,692 in the San Diego River Watershed. In addition, several watersheds contain a mix of urban and rural communities while other communities are divided between different watersheds. For example, Fallbrook CPA is located in both the Santa Margarita and the San Luis Rey Watersheds, and the Lakeside CPA constitutes a large percentage of the population in both the Penasquitos and San Diego River Watershed.

² This does not include Hydrologic Unit 901 (San Juan Watershed) or Units 719 – 723 (Desert and Imperial County), which are outside of the purview of Order No 2001-01.

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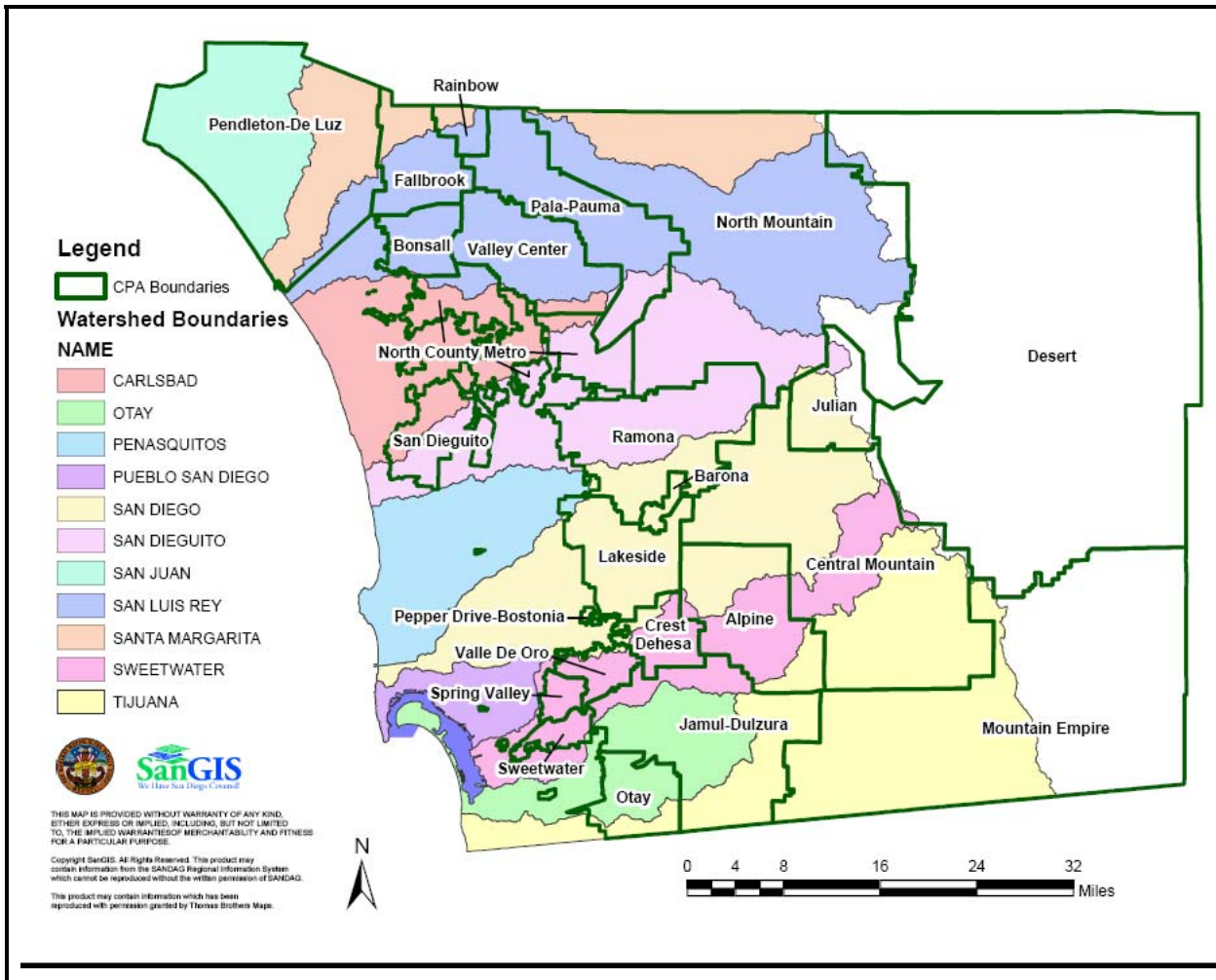


Figure 8.1 - Community and Sub-regional Planning Areas and Watersheds in the Unincorporated County

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Table 8.2 - Community and Sub-regional Planning Area Characteristics

Community Planning Area	Area (sq. mi.)	Total Population	Median Household Income³	Total Housing Units
Alpine	106.46	17,123	68,620	6,420
Barona	8.26	407	50,156	169
Bonsall	32.87	9,692	56,312	3,776
Central Mountain	317.67	4,499	53,715	2,053
County Islands	0.81	2,037	36,855	608
Crest-Dehesa	31.61	10,009	65,765	3,483
Desert	936.07	3,439	38,797	3,094
Fallbrook	56.40	43,990	53,216	15,700
Jamul-Dulzura	167.72	10,239	76,853	3,323
Julian	52.16	2,921	51,774	1,624
Lakeside	71.94	74,408	51,695	27,310
Mountain Empire	474.85	6,356	38,286	2,658
N County Metro	87.75	42,229	63,766	15,911
North Mountain	487.15	2,395	36,192	1,499
Otay	44.42	4,256	100,000	3
Pala-Pauma	115.13	5,598	51,405	1,943
Pendleton-De Luz	255.08	40,165	36,223	6,661
Rainbow	15.09	1,825	48,117	681
Ramona	131.24	37,125	65,995	12,237
San Dieguito	46.91	27,615	97,822	9,991
Spring Valley	11.69	61,645	50,930	20,471
Sweetwater	13.92	13,039	70,886	4,506
Valle de Oro	20.53	42,234	69,342	15,439
Valley Center	86.3	17,970	64,345	6,460
Totals		481,216		166,020

³ Based on the 2006 United States Dollar.

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Table 8.3 - Estimated Population Distribution by Community Planning Area and Watershed

Community Planning Area	Watershed																			
	Santa Margarita		San Luis Rey		Carlsbad		San Dieguito		Penasquitos		San Diego River		Pueblo		Sweetwater		Otay		Tijuana	
	Pop.	%	Pop.	%	Pop.	%	Pop.	%	Pop.	%	Pop.	%	Pop.	%	Pop.	%	Pop.	%	Pop.	%
Pendleton-De Luz	12,467	47.8	3,174	4.6	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Fallbrook	12,521	48.0	23,906	34.4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Rainbow	554	2.1	857	1.2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Pala-Pauma	7	< 0.1	7,350	10.6	1	< 0.1	1,097	1.8	---	---	---	---	---	---	---	---	---	---	---	---
North Mountain	519	2.0	1,431	2.1	---	---	1,248	2.1	---	---	24	< 0.1	---	---	---	---	---	---	---	---
Bonsall	---	---	14,906	21.5	216	0.5	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Valley Center	---	---	14,700	21.2	1,486	3.2	49	< 0.1	---	---	---	---	---	---	---	---	---	---	---	---
North County Metro	---	---	3,133	4.5	34,902	74.7	17,726	29.5	---	---	---	---	---	---	---	---	---	---	---	---
Desert	---	---	22	< 0.1	---	---	---	---	---	---	---	---	---	---	24	< 0.1	---	---	---	---
San Dieguito	---	---	---	---	10,105	21.6	16,291	27.1	---	---	---	---	---	---	---	---	---	---	---	---
Ramona	---	---	---	---	---	---	23,617	39.3	37	2.3	6,972	6.2	---	---	---	---	---	---	---	---
Julian	---	---	---	---	---	---	32	0.1	---	---	1,451	1.3	---	---	---	---	---	---	---	---
Central Mountain	---	---	---	---	---	---	5	< 0.1	---	---	5,305	4.7	---	---	1,369	1.0	---	---	2,224	25.9
Lakeside	---	---	---	---	---	---	---	---	1,100	67.1	70,441	63.1	---	---	34	< 0.1	---	---	---	---
Barona	---	---	---	---	---	---	---	---	---	---	844	0.8	---	---	---	---	---	---	---	---
Alpine	---	---	---	---	---	---	---	---	---	---	10,051	9.0	---	---	6,869	5.2	---	---	511	6.0
Crest-Dehesa	---	---	---	---	---	---	---	---	---	---	8,379	7.5	---	---	6,818	5.1	---	---	---	---
Valle De Oro	---	---	---	---	---	---	---	---	---	---	8,225	7.4	---	---	38,106	28.7	---	---	---	---
Spring Valley	---	---	---	---	---	---	---	---	---	---	---	---	---	---	58,648	44.2	---	---	---	---
Sweetwater	---	---	---	---	---	---	---	---	---	---	---	---	---	---	16,341	12.3	82	1.1	---	---
Jamul-Dulzura	---	---	---	---	---	---	---	---	---	---	---	---	---	---	2,645	2.0	4,337	55.9	1,650	19.2
County Islands	---	---	---	---	---	---	---	---	502	30.6	---	---	1,075	100	1,842	1.4	---	---	---	---
Otay	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	3,338	43.0	1,118	13.0
Mountain Empire	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	3,077	35.9
Total (465,761)	26,068		69,479		46,710		60,065		1,639		111,692		1,075		132,696		7,757		8,580	

8.2.2 County of San Diego Schools

The County program focuses on school children to increase knowledge and produce long-term behavioral change. Educating school children is essential for promoting stormwater awareness and changing behavior at an early age. By increasing knowledge and awareness, a student's attitude about their own environment will mature, fostering respect and environmental stewardship. School children are a responsive audience, and often become "teachers" bringing home information to parents and carrying out activities learned in the classroom as "the right thing to do." The County reinforces knowledge of stormwater pollution issues through elementary, middle and high school in an effort to establish a foundation for incorporating these changes as a normal part of a person's lifestyle. The County encourages incorporating stormwater concepts into existing curricula.

These concepts will include but are not limited to:

- Being taught the difference between the sanitary sewer vs. the stormdrain system;
- What a watershed is; and
- Being able to identify the watershed they live in.

Based on 2007 census data, there are approximately 100,533 students between kindergarten and the 12th grade. See Table 8.4 for student enrollment as an example of the range in the different grade levels from 2000 census data (data unavailable for 2007).

Table 8.4 - Public School Enrollment in the Unincorporated County (2000)

Grades	Total Students
Kindergarten through 4	29,921
5 through 8	25,509
9 through 12	25,213
Total	80,643

The County will provide education to the following thirteen Elementary School Districts and six High School Districts in the County's jurisdiction:

Elementary School Districts in the Unincorporated County:

1. Alpine School District
2. Bonsall Union School District
3. Dehesa School District
4. Fallbrook Union Elementary School District
5. Jamul-Dulzura Union School District
6. Julian Union School District
7. Lakeside Union School District
8. La Mesa-Spring Valley School District
9. Rancho Santa Fe School District

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10. San Pasqual Union School District
11. South Bay Union School District
12. Spencer Valley School District
13. Vallecitos School District

High School Districts in the Unincorporated County:

1. Fallbrook Union High School District
2. Grossmont Union High School District
3. Julian Union High School District
4. Mountain Empire School District
5. San Dieguito Union High School District
6. Sweetwater Union High School District

There are a total of 105 schools in the aforementioned school districts.

The Department of Public Work's Planning and Recycling Program with the Department of Environmental Health's Household Hazardous Waste Program collaborate to contract with I Love a Clean San Diego to go into the classroom for grades K-12, promoting recycling and encouraging the use of low-toxic substitutes. They reach over 5,000 students annually.

For outreach on watershed pollution prevention to elementary school students, the County contracts with San Diego County Office of Education (SDCOE) to provide two classroom programs, Green Machine for grades K-4 and Splash Lab for grades 4-6. Approximately 95 presentations occur annually, reaching approximately 3,000 students at 60 schools. The presentations reach a minimum of 40% of interested elementary schools annually. From year to year, different schools will receive the outreach presentations.

For outreach to high school students in the unincorporated areas, the County contracts I Love a Clean San Diego to provide watershed presentations on watershed protection, stormwater and urban runoff, pollutants of concern, and the storm drain system. At least twenty percent of the high school students are reached per year through 166 presentations to the 15 high schools in the unincorporated areas of the County.

To reach students who live in the unincorporated area but may attend a school located in an incorporated jurisdiction, there are non-classroom based outreach activities. For non-classroom based activities, students are transported to a venue to receive the education and outreach programs.

- SDCOE conducts Green Machine and Splash Lab programs during special events (e.g. World Water Monitoring Day). During special events, students receive the same hands on Green Machine and Splash Lab presentations available in the classroom. Special events tend to reach a large groups of students from a variety of schools.

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- The Department of Parks and Recreation (DPR) operates multiple programs at a variety of parks in the unincorporated area. The programs are appropriate for different ages K-12. They reach a variety of students from a multitude of schools and school districts. They also provide services for Boy, Girl and Cub Scout troupes. There are approximately one-hundred (100) outreach events annually, reaching thousands of kids and students.

8.2.3 Priority Residential Activities

The County has considered the residential activities and areas within its jurisdiction and established program priorities and requirements in accordance with the requirements of Permit Section D.3.C.(1)(a) through (f) and J.1.a.(3)(g)(i). In accordance to these requirements, the County has established programmatic requirements which address the following types of source:

- Automobiles and Boats (parking, storage, maintenance, repair, and cleaning);
- Lawn and Garden Care Activities and Product Use;
- Household and Home Care and Maintenance; and
- Livestock and Large Animals Waste Management.

In addition, Permit D.3.C(1) requires that the following sources to be considered high priority:

- Any other residential source that the Copermittee determines may contribute a significant pollutant load to the MS4;
- Any residential areas tributary to a CWA section 303(d) impaired water body, where the residence generates pollutants for which the water body is impaired; and
- Any residential areas within or directly adjacent to or discharging directly to a coastal lagoon or other receiving waters within an environmentally sensitive area (as defined in Attachment C of the Permit).

A comprehensive list of residential pollutant-generating activities that are considered high threats to water quality are presented in Table 8.5. Given that household waste disposal is identified in the Permit as a high priority residential threat to water quality, waste streams generated by the residential pollutant generating activities are displayed in Table 8.6, alongside potential pollutants of concern.

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Table 8.5 - Residential Pollutant-Generating Activities

Pollutant-Generating Activity	Description
Automobiles and Boats	
Parking and storage	Parking or long-term storage of vehicles can cause accumulations or discharges of grease, oils, and trash.
Maintenance and repair	Repair and maintenance performed on the street or driveway with hazardous materials that have the potential to leak or spill onto surfaces.
Washing and cleaning	Cleaning and washing can cause detergent and wash waters with pollutants to run directly into the stormwater conveyance system.
Material and waste storage	Materials and waste that are improperly contained and covered have the potential to be washed into the stormwater conveyance system.
Waste management and disposal	Disposal of household hazardous material or waste into waste receptacles or in the stormwater conveyance system.
Lawn and Garden	
Over-irrigation	Watering after rain event leads to excess run-off because the soil is too soaked to hold additional water. Using too much water leads to excess run-off, which often carries pollutants. Leaks in irrigation systems cause over-watering. Sprinklers that are not properly adjusted can cause excess water to quickly enter storm drains.
Chemical product use (fertilizers, pesticides, and herbicides)	Overuse of fertilizer, pesticide, and herbicide can cause polluted run-off. Use of spray pesticides increases the likelihood of stormwater pollution. Spraying pesticides on sidewalks or impervious surfaces allows chemicals to wash into storm drains more readily. Spraying pesticides before rain events increases the chance that they will be washed into nearby storm drains. Dumping leftover pesticides in the storm drain or conveyance system causes stormwater pollution. Improper storage and disposal of pesticides may allow them to enter storm drain.
Materials and waste storage	Storage of hazardous materials that are inappropriately contained and covered and have the potential to be washed into the stormwater conveyance system.
Waste management and disposal	Disposal of material or waste into waste receptacles or in the stormwater conveyance system. Lawn and garden waste not contained and/or collected to dispose of properly.
Household and Home	
Painting	Home painting involves hazardous materials such as paints and solvents. Painting equipment is usually cleaned and washed, with wash water being allowed to run into the stormwater conveyance system or not properly contained and disposed.
Repair and maintenance	Home repair and maintenance projects typically involve hazardous materials and waste. Household wash waters are often dumped into the stormwater conveyance system or not properly contained and disposed.

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Pollutant-Generating Activity	Description
Outdoor cleaning	Cleaning outdoor areas such as sidewalks, driveways, and exterior of home, as well as outdoor furniture by power washing or use of hazardous chemicals. Wash waters are often allowed to drain into the stormwater conveyance system or are not properly contained and disposed.
Pool, spa, and fountain care	Maintenance of swimming pools, spas, and ornamental water fixtures require chemical application and the discharging of polluted water and wash water. Water being drained is often allowed to flow into the stormwater conveyance system.
Materials and waste storage	Storage of materials and waste that are improperly contained and have the potential to be washed into the stormwater conveyance system.
Waste management and disposal	Disposal of household hazardous material or waste into waste receptacles or in the stormwater conveyance system.
Pets	
Pet waste disposal	Pet waste left around yard, left behind during walks, or disposing of pet waste inappropriately can enter the stormwater conveyance system or pollute receiving waters when it is carried away from storm events or by irrigation.
Pet cleaning	Pet cleaning and washing can cause detergent and wash waters with pollutants to run directly into the stormwater conveyance system.
Livestock and Large Animals	
Manure management	Exposed manure from livestock, horses, or other large animals can enter the stormwater conveyance system or pollute receiving waters when it is carried away by water from storm events or irrigation.
Manure disposal	Disposal of manure inappropriately, such as into a creek.
Composting	Locating composting areas near stormwater conveyance system or receiving waters and not properly containing composting material.

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Table 8.6 - Potential Pollutants of Concern and Waste Streams

Pollutant-generating Activity	Potential Pollutants of Concern								Material / Waste Stream										
	Sediment	Nutrients	Trash	Metals	Bacteria	Oil & Grease	Organics	Pesticides	Auto Fluids & Parts	Animal	Construction & Demolition	Electronic	Green	Household Cleaners	Paint & Material	Sewage	U-Electronic	Lawn & Garden Products	Other
Automobiles and Boats																			
Parking and storage		⊙	⊙	⊙		⊙			⊙										
Maintenance and repair		⊙		⊙		⊙			⊙					⊙					
Washing and cleaning	⊙	⊙		⊙		⊙			⊙					⊙					
Material and waste storage						⊙			⊙					⊙					
Waste management & disposal						⊙			⊙					⊙					
Lawn and Garden																			
Over-irrigation	⊙	⊙					⊙	⊙										⊙	
Chemical product use (fertilizers, pesticides, and herbicides)		⊙					⊙	⊙										⊙	
Materials and waste storage	⊙							⊙					⊙					⊙	
Waste management & disposal	⊙							⊙					⊙					⊙	
Household and Home																			
Painting														⊙	⊙				
Repair and maintenance	⊙	⊙		⊙		⊙	⊙				⊙	⊙		⊙		⊙	⊙		
Outdoor cleaning	⊙	⊙				⊙	⊙				⊙			⊙					
Pool, spa, and fountain care	⊙	⊙	⊙	⊙	⊙		⊙							⊙					
Materials and waste storage		⊙		⊙			⊙				⊙			⊙		⊙			
Waste management & disposal		⊙		⊙		⊙	⊙	⊙			⊙			⊙		⊙			

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Pollutant-generating Activity	Potential Pollutants of Concern								Material / Waste Stream										
	Sediment	Nutrients	Trash	Metals	Bacteria	Oil & Grease	Organics	Pesticides	Auto Fluids & Parts	Animal	Construction & Demolition	Electronic	Green	Household Cleaners	Paint & Material	Sewage	U-Electronic	Lawn & Garden Products	Other
Pets																			
Pet waste disposal		◉			◉					◉									
Pet care	◉	◉						◉						◉					
Livestock and Large Animals																			
Manure management		◉			◉					◉									
Manure disposal		◉	◉		◉					◉									
Composting		◉	◉		◉					◉									

8.3 Best Management Practice Requirements

8.3.1 Updated BMP Requirements

Residential dischargers must meet the applicable requirements set out in Watershed Protection Ordinance (WPO) sections 67.801 through 67.806, section 67.807, and section 67.813 through 67.814. These sections provide the minimum BMP requirements that must be implemented for high threat-to-water-quality residential activities. Attachment 8.1 includes each of these sections, as well as a detailed matrix of BMP requirements and recommended options organized by pollutant-generating activity. These requirements are reviewed annually and updated as necessary.

As shown in Attachment 8.1, Table 8.1.1, the use of pollution prevention (P2) practices is encouraged wherever possible. Residents are encouraged to use P2 methods through a variety of educational programs and activities. P2 is defined by the WPO Section 67.802 as “practices and process that reduce or eliminate the generation of pollutants such as the use of smaller quantities of toxic materials or substitution of less toxic materials.” A primary objective of the County’s urban runoff management programs is to promote the use of these practices by residents.

8.3.2 Additional Controls for Residential Areas and Activities Discharging or Tributary to ESAs

Since all residents can be presumed to engage in some combination of the high priority activities listed in section 8.2.3, the County treats all residences as high priority. The County does not categorically require additional controls for existing residences which are tributary to a CWA section 303(d) water body, or that are within or directly adjacent to an environmentally sensitive area. Residents which are discovered to be discharging directly to, a coastal lagoon or other receiving water within an environmentally sensitive area may be contacted on an individual basis (e.g., through complaint investigations). Per WPO Section 67.803(e), if the authorized enforcement official identifies a discharge, or activity, or category of facility that is a significant source of contaminants to waters of the United States, the discharger may be required to install, implement and maintain additional source control or treatment control BMPs.

8.4 Program Implementation

This section describes the steps that will be taken to require, encourage, and verify the implementation of prescribed BMPs for high priority residential activities (Permit sections D.3.c.(3-5) and J.1.a.(1)(g)(iv-vii). These standards are required within Region 9 of the County’s jurisdiction for the activities to which they apply.

Figure 8.2 provides an overview of the major elements of the County’s strategy for addressing the general residential population. This strategy provides a framework within which specific targets can be established and results evaluated in each year of program implementation. However, it should be noted that not all activities or elements will be included in every fiscal year.

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General Residential Element			
Program Implementation	Target Audiences		Sources
 <ul style="list-style-type: none"> - DPW Watershed Protection - DPW Recycling - DEH HHW - Other Depts. 	 <ul style="list-style-type: none"> - Adult Residents (General) - Hotline Callers - Pet Owners 		 <ul style="list-style-type: none"> - Automobiles / Boats - Lawns / Gardens - Household / Home - Pets, Livestock, Large Animals
OUTCOME LEVEL 1 Stormwater Program Activities	OUTCOME LEVEL 2 Knowledge & Awareness	OUTCOME LEVEL 3 Behaviors	OUTCOME LEVEL 4 Source Reductions
<u>Program Administration</u> <ul style="list-style-type: none"> ☑ Program reviews & updates ☑ Source inventory updates <u>Facilitation Activities</u> <ul style="list-style-type: none"> ☑ Staff training ☑ Hotline / website operation ☑ Education / outreach ☑ Recycling / waste collection ☑ Enforcement / compliance <u>Feedback Activities</u> <ul style="list-style-type: none"> ☑ Surveys & tests ☑ Complaint investigations ☑ Special investigations 	<ul style="list-style-type: none"> ☑ General knowledge ☑ Specific knowledge 	<ul style="list-style-type: none"> ☑ Informational requests & pollution reporting ☑ Public participation & involvement ☑ BMP implementation 	<ul style="list-style-type: none"> ☑ Reductions from HHW collection ☑ Reductions from oil recycling

Figure 8.2 – General Program Implementation and Assessment Strategy for the Residential Element

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8.4.1 General Residential Program Implementation

8.4.1.1 Overview of Departments and Programs

The County conducts a variety of programs across multiple departments to prevent and respond to discharges from residential areas in the unincorporated area. These programs emphasize changes in knowledge and awareness necessary to effect and sustain responsible behavior. However, applicable legal authorities are also enforced as necessary. The County tailors its programs to address the unique characteristics of the many diverse unincorporated communities.

The programs involved in residential implementation are summarized in Table 8.7. Each program is briefly described and classified by areas of activities they participate in.

Table 8.7 - Description and General Focus of Residential Stormwater Programs

Programs	Description	Sources Addressed				
		Automobiles & Boats	Lawn & Garden	Household & Home	Pets	Livestock & Large Animals
Department of Public Works, Watershed Protection Program (WPP)	WPP is the lead in implementing a residential program to reduce residential discharges of pollutants from the MS4 to the MEP, and prevent residential discharges from the MS4 from causing or contributing to a violation of water quality standards.	◦	◦	◦	◦	◦
Department of Public Works, Solid Waste Planning and Recycling (Recycling)	Recycling conducts public education, establishes recycling infrastructure, supports existing recycling operations, enforces solid waste hauler franchise agreements, operates residential composting programs contracted to the Solana Center, and reports local recycling and countywide waste disposal data.	◦	◦	◦		◦
Department of Environmental Health, Household Hazardous Waste (HHW)	The County's HHW Program promotes safe household hazardous material use and disposal, and encourages the use of low-toxic substitutes.	◦	◦	◦		
Department of Parks and Recreation (DPR)	The DPR works to provide opportunities for high quality parks and recreation experiences and to preserve regionally significant natural and cultural resources. One key activity in the program is educating the public about the County's invaluable natural resources.					
Department of Agriculture / Weights & Measures (AWM)	The County's AWM promotes sustainability of agriculture while protecting the environment and ensuring the health and safety of all its citizens.		◦			◦

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University of California Cooperative Extension (UCCE)	The UCCE, San Diego County Extension Office promotes increased utilization of ecologically based integrated pest management programs by providing leadership, development of science-based pest management programs that are economically and environmentally sustainable, and socially appropriate, and protecting human health.		◉			
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8.4.1.2 Specific Roles and Responsibilities

Program implementation for residential activities is divided into three main categories, Program Planning and Administration, Facilitation of Targeted Outcomes, and Feedback and Verification. Detailed sub-categories and programs (described in Table 8.7) involved with the implementation are displayed in Table 8.8 below.

Table 8.8 - Program Implementation Roles

	WPP	Recycling	HHW	DPR	AWM	UCCE
Program Planning and Administration						
Source Characterization	◉					
BMP Requirements	◉					
Implementation Strategies & Tools	◉					
Facilitation of Targeted Outcomes						
Outreach & Education	◉	◉	◉	◉	◉	◉
Hotline & Website	◉	◉	◉			
Waste Collection & Recycling		◉	◉			
Complaints & Enforcement	◉					
Feedback and Verification						
Complaint Investigation	◉					
Surveying & Testing	◉	◉	◉			
Special Studies & Investigations	◉					

8.4.1.2.1 Program Planning and Administration

The County's WPP is the lead in implementing a residential program to reduce residential discharges of pollutants contributing to violations of water quality standards. Source characterizations and priorities are assessed to maintain Permit compliance with current and relevant data and information. BMP requirements are reviewed to ensure recommended or required practices are correctly targeted to the pollutant-generating activities identified for all priority sources. Furthermore, implementation strategies and tools will be analyzed to ensure that activities and requirements are properly targeted, and necessary modifications are made in

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response to ongoing implementation experience, effectiveness assessment, and other available information. All program planning and administration activities are reviewed at least on an annual basis.

As the Principle Copermittee within the San Diego Region, the WPP is responsible for reporting all requirements of Section J of the Permit in this plan and on an annual basis. In collaboration with other programs, WPP compiles significant residential data to report to the California Regional Water Quality Control Board (RWQCB) in its Jurisdiction URMP Annual Report.

8.4.1.2.2 Facilitation of Targeted Outcomes

Facilitation Activities are those which are implemented to assist, encourage or require the outcomes or changes sought in target populations.

Outreach and Education

Outreach is the central part of all implementation strategies. Various types of outreach can be used to bring about changes in knowledge or awareness in target populations. All residential programs use a wide variety of activities to reach residents throughout the year. Examples of consistently utilized outreach activities include material distribution, workshops, trainings, and seminars, community and special events, news releases, and material display (billboards, signs, kiosks, movie theatre slides, etc.). Specific program outreach and education performed are discussed below.

Watershed Protection Program

The County's WPP implements an extensive outreach program targeting the residential population. The WPP develops and utilizes a variety of resources to deliver its outreach messages. Branded water quality materials are used for general watershed information and specific residential tip cards, such as manure management and pool, spa, and fountain care and maintenance. Promotional items have been a long standing strategy used to present messages or desirable behaviors. The WPP utilizes pens, pencils, magnets, and rulers, as well as more behavior specific items including dog bag dispensers with bags intended for pet owners to pick up their pet's waste and packages of California poppy seeds to promote the use of native or low maintenance plants. All items contain stormwater messages and the San Diego Regional Stormwater Hotline and County's Project Clean Water website. Outreach materials are distributed by County staff during community events and displayed in kiosks at appropriate locations. Additionally, materials are supplied to partner organizations to distribute at their facilities.

The WPP has expanded its outreach program to educate equestrian audiences on manure composting and erosion BMPs specific to horses. The WPP is both staffing and sponsoring workshops and booths throughout the County of San Diego to reach commercial and residential horse owners and enthusiasts. In addition, the WPP collaborated with the Recycling Program and the County Television Network (CTN) to create a 13 minute video titled "How to Manage

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Manure: Composting for Horse Owners. The target audience for the video was County residents who own or board horses on their properties. Distribution of the full length DVD and equestrian specific tip cards will occur at Equine and Trail Associations and equine-specific community events. Staff is also forming partnerships with equestrian organizations to increase stormwater awareness by providing videos for distribution at their meetings. A shortened version will be aired on the CTN's County Chronicles program.

The WPP has also expanded its outreach to pet owners on the issue of proper disposal of pet waste. WPP staff and contractors such as I Love a Clean San Diego spreads information and distributes pet waste bags at pet-focused events. The WPP also is collaborating with Animal Control to distribute pet waste bags at new pet owner adoption events. Surveys are administered at events to collect information on the knowledge and awareness of pet owners and to refine messaging.

The CTN routinely airs various public service announcements (PSAs) and video segments that focus on water quality themes to a countywide cable subscriber base of 725,000 households. In recent years, increased emphasis has been placed on mass media as a tool to continually reinforce water messages to the general public. PSAs and video segments are "retired" as new products are introduced in order to keep information current and relevant to the priority pollutants in the County's watersheds.

Recycling

The Recycling Program conducts public education and promotes an online referral database <http://www.wastefreesd.org/> and hotline 1-877-R-1-EARTH. The program provides residents with extensive recycling guides, with several available in Spanish (S). They include: Residential, Household Hazardous Waste (S), Automotive (S), Construction and Demolition (S), Apartments and Condos, Junk Mail, Green Waste Recycling Guide, and Sustainable Landscape Practices. These detailed guides are distributed during events and are also available on their website at <http://www.sdcountry.ca.gov/dpw/recycling/guides.html>. Other outreach components of the program include Public Education on Reduce, Reuse, and Recycle by promoting recycling through school presentations, point of purchase displays, public events, and mass media.

Household Hazardous Waste

The County's HHW Program promotes safe household hazardous material use and disposal, and encourages the use of low-toxic substitutes. HHW are unused or leftover portions of hazardous chemicals and also include Electronic and Universal Waste Recycling. Together with the County's Recycling Program, HHW promotes the Hotline 1-877-R-1-EARTH for unincorporated residents which provide general information, information on collection facilities and special collection events as well as promotion of the online database <http://www.wastefreesd.org/>.

Department of Parks and Recreation (DPR)

DPR provides opportunities for high quality parks and recreation experiences and to preserve regionally significant natural and cultural resources. One key activity in the program is educating

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the public about the County's invaluable natural resources. Rangers and volunteers are trained in the Environmental Education program to provide multiple interpretive services to the public, such as Wildlife conservation programs with live animals, Environmental slide programs, Safety talks, Ranger-led nature walks, Plant Propagation program, and Community Service.

Within DPR, is the Multiple Species Conservation Program (MSCP) a comprehensive long-term habitat conservation program. The MSCP program was developed to comply with the federal Endangered Species Act and the state Natural Communities Conservation Planning Act. MSCP works to preserve San Diego's unique, native habitats and wildlife for future generations and protect watershed and water quality by targeting 172,000 acres of our natural areas for conservation. It is a unique regional conservation effort that works across political boundaries.

The MSCP staff publishes a quarterly newsletter updating the public on three planning areas, North, South, and East County, as well as other topics relevant to habitat conservation.

Department of Agriculture, Weights and Measures (AWM)

The AWM promotes sustainability of agriculture while protecting the environment and ensuring the health and safety of all its citizens. Particular residential stormwater pollution prevention segments of the program include Integrated Pest Management, which identifies cultural and environmental controls in addition to pesticides and other chemicals to control pests and outreach to Equestrian facilities.

University of California Cooperative Extension

UCCE's Healthy Garden, Healthy Home (HGHH) is a program giving the residents of San Diego County the opportunity to improve our water resources. As part of this effort, a team of twenty-five UCCE San Diego County Master Gardeners have undergone extensive in-depth Integrated Pest Management (IPM) training in order to provide outreach to the San Diego Community. The program creates and disseminates Retail Nursery Newsletters and a Landscape Brochure.

An innovative outreach instrument created by UCCE is the IPM Kiosk that contains information about 50 common home and garden pests, including identification and management, alternatives to pesticides and least toxic pest control, as well as safe use and disposal of pesticides. The kiosk also includes tips related to proper watering, fertilizing, and avoiding problems associated with garden chemicals. Kiosk users can look up a pest by category and name or diagnose a problem on plants. Users can watch videos, print and take home information, as well as locate resources for finding additional pest management help in their county.

Hotlines and Websites

Hotline and websites provide residents access to information and opportunities to report complaints.

Regional Stormwater Hotline (1-888-846-0800 and 1-888 THINK Blue)

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The County operates a Regional Stormwater Hotline on behalf of all Copermittees. The County dedicates bilingual (English and Spanish) staffing for both of these hotlines Monday through Friday, 8:00 a.m. – 5:00 p.m. In addition to this personal service during regular business hours, the hotline provides a voice mail message for 24-hour, seven days a week, and public access in both English and Spanish. The hotline receives calls for general inquiries or requests for information and residential and business stormwater-related complaints. Complaints received through this hotline are routed to the respective jurisdiction for appropriate follow-up. Complaints are assessed and legitimate complaints are assigned to County staff, referred to other Copermittees, or to other agencies for investigation.

Residential complaints referred to County inspectors are discussed further in Section 8.4.1.2.2.4 below.

Household Hazardous Waste & Recycling (1-877-R-1-EARTH)

The County contracts with a local environmental non-profit organization that operates a hotline (1-877-R-1-EARTH) which provides residents with information about reuse, recycling, and safe disposal options for a variety of materials. Attendants also refer residents with urban runoff questions to the Regional Stormwater Hotline.

Project Clean Water Website

The Project Clean Water (PCW) website was designed to be a water quality resource for the San Diego Region. Its vision “Clean Water through Local Commitment and Action,” underscores the basic principle that clean water can only be achieved through dedication, commitment, and hard work if the people who live and work in the San Diego Region. This County initiated effort provides the forum for information sharing to promote regional collaboration and consistency in outreach to maximize results. The website provides general watershed information, programs and laws, water management plans, and links to the Healthy Garden / Healthy Homes and Integrated Regional Water Management Planning for the San Diego Region websites.

The County includes a Clean Water Toolbox (<http://www.projectcleanwater.org/bmp/>) that provides residents and business with useful information on a variety of BMPs. The purpose of this addition was to provide a centralized resource that will support the consistent application of BMPs across the San Diego region. The site provides user-friendly and audience-specific BMP information to a variety of residential and business users. It has an end-user focus and can be searched in several ways. In addition to providing BMP profiles that are specific to users and activities, the site contains links and other resources that assist users in seeking out additional information. Visitors to the residential page (<http://bmp.projectcleanwater.org/residential/index.php>) are given a selection of BMP options for activities from power washing to lawn and garden care.

County Watershed Protection Website

The WPP website provides County residents with a variety of water quality and compliance resources at the following location: www.sdcounty.ca.gov/dpw/watersheds/stormwater.html.

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From the home page, visitors are invited to learn more about BMPs for activities related to horse and livestock care, pool and spa maintenance, yard and lawn care, home improvement, vehicle care, and pet care.

Waste Collection and Recycling

A variety of waste collection and recycling services are used to assist residents and businesses in properly disposing of wastes. The County is responsible for these services in unincorporated areas and holds numerous events throughout the year.

Recycling holds curbside collection services, drop-off recycling centers, oil recycling services, tire recycling services, compost, yard waste, and animal waste management. In addition, Recycling holds specific one-day recycling events such as free composting workshops and tire recycling day.

HHW supports waste collection from unincorporated residents at facilities located in Chula Vista, El Cajon, Miramar, and Ramona. Like Recycling, one-day collection events are held and take place in residential areas such as local high schools, churches, and road stations.

Compliance and Enforcement

The lead for the residential compliance and enforcement is the WPP. Where appropriate, the County will utilize an education first approach to obtaining compliance with applicable requirements. However, the County may invoke any or all of the enforcement authorities contained in Title 1, Division 1, Chapter 1 of the Regulatory Code to obtain compliance from residential dischargers.

The objectives of the County's residential enforcement program are to educate the community, promote compliance with applicable ordinances, and return violators to compliance. Although education is emphasized as the primary means of achieving compliance, the County has established the necessary authority and programs to investigate and enforce all potential stormwater violations. Enforcement mechanisms used to achieve compliance for residential complaints include:

- Verbal Warnings;
- Notice of Violations (NOV);
- Citation Warnings;
- Administrative Citations;
- Criminal Citations; and
- Stop Work / Cease and Desist.

Regardless of the specific enforcement actions pursued, all responsible parties are required to implement corrective actions to address their violations. Verbal warnings are the first and most commonly used enforcement action taken. Enforcement is limited to a verbal warning when a

discharge or potential discharge can be easily corrected at the time of investigation or soon after, e.g., by covering stockpiles or diverting runoff to flat, grassy areas. A follow-up visit is usually completed, but may not always be necessary. A Notice of Violation (NOV) is issued under two circumstances: (1) in cases of non-compliance despite a previous warning, and (2) for immediate cease-and-desist situations without prior warning or notification. Follow-up visits are mandatory under either scenario. An Administrative Citation Warning can also be issued in complaint cases following non-compliance with an NOV.

8.4.1.2.3 Feedback and Verification

Each program component must also include activities to verify whether or not targeted outcomes or changes (population-based or environmental) have been achieved. Verification types are listed below.

Complaint Investigations

Complaint investigations are used to gather data and information as a response to reports of potential violations, through complaints received from the Stormwater Hotline, online or from staff referral. Investigations typically consist of observations, record reviews, and sampling as needed. All reported incidents of pollution originating from residential areas will be investigated and resolved. The lead for the investigations of residential complaints will be the WPP. Other departments and agencies will be involved as necessary. As stated above previously, an education first approach will always be used where appropriate, but residential dischargers will be held accountable for complying with the County's minimum requirements.

Surveying and Testing

Surveys, tests, and quizzes are important for assessing changes in knowledge or behavior within a target population. Surveys are generally focused on entire populations (e.g. all residents) or subpopulations (e.g. used oil recyclers).

Special Studies / Investigations

Various types of special studies or investigations may be initiated to gather data or information outside of routine monitoring programs. These are usually of a limited focus and duration.

8.4.2 Education to Schools

8.4.2.1 Overview of Departments and Programs

The County provides presentations to students from K-12 and college students by speaking at individual classrooms, school assemblies, teacher workshops, County Park activities and special events. The County will promote energetic and interactive presentations to educate students. These presentations also provide an opportunity to deliver materials and information indirectly to parents through students. The County uses the watershed model, which is an effective visual tool

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for showing students how pollution from neighborhoods, industries, roads and farms flow through storm drains, creeks, lakes, and rivers and eventually flow to the ocean.

Historically, much of the focus has been on elementary school students. During the coming years, in addition to existing outreach programs for the younger students, we will increase classroom presentations to middle and high school students.

The County also works with many agencies and groups which have existing programs that provide environmental education to students (Table 8.9). These programs include stormwater pollution prevention concepts. Most of these programs emphasize a hands-on approach to education, which is generally the most effective means of relating concepts and applying them in the real world. Encouragement to participate in hands-on education activities will help to promote stewardship of environmental resources.

8.4.2.1.1 Program Planning and Administration

The County's WPP is the lead in implementing an outreach program to school children to increase knowledge about pollution prevention and stormwater concepts. The intent is to modify the long term behavior of the children and foster environmental stewardship. Source characterizations and priorities are assessed to maintain Permit compliance with current and relevant data and information. Implementation strategies and tools will be analyzed to ensure that activities and requirements are properly targeted, and necessary modifications are made in response to ongoing implementation experience, effectiveness assessment, and other available information. All program planning and administration activities are reviewed at least on an annual basis.

Table 8.9 - Outreach Programs for School Aged Students

Program	Provider	Description
Department of Public Works, Watershed Protection Program (WPP)	San Diego County Office of Education	Splash Lab (grades 4-6) and Green Machine (grades K-4) bring field research to the school setting. The programs mission is to enhance student awareness and scientific understanding of the natural world and their connection to it. Through hands-on investigation at science stations, students research many factors that contribute to water quality.
Department of Public Works, Solid Waste Planning and Recycling (Recycling)	I Love a Clean San Diego	Recycling and Household Hazardous Waste (HHW) School Presentations are about promoting recycling and encouraging the use of low-toxic substitutes. As part of the program, attendees are educated about the importance of the 3 R's, Reduce, Reuse and Recycle. Promoting recycling and proper HHW disposal are important lessons to enhance our local

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Department of Environmental Health, Household Hazardous Waste (HHW)		environment and waterways.
Department of Parks and Recreation (DPR)	DPR staff	There are a variety of park programs for students of all ages, K-12 and college students. There are also programs for teachers and the general public. The mission statement is "To provide opportunities for high quality parks and recreation experiences and to preserve regionally significant natural and cultural resources." One of the key activities of the County Parks and Recreation Department is educating the public about the County's invaluable natural resources. Rangers and volunteers are trained in the Environmental Education program to provide multiple interpretive services to the public.

8.4.2.2 Specific Roles and Responsibilities

Program implementation for school outreach activities is divided into three main categories, Program Planning and Administration, Facilitation and Targeted Outcomes, and Feedback and Verification. Detailed programs (described in Table 8.9) involved with the implementation, for each are displayed in Table 8.10 below

Figure 8.3 provides an overview of the major elements of the County's strategy for addressing school-aged children. This strategy provides a framework within which specific targets can be established and results evaluated in each year of program implementation. However, it should be noted that not all activities or elements will be included in every fiscal year.

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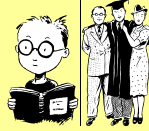
Schoolchildren Element			
Program Implementation  <ul style="list-style-type: none"> - DPW Watershed Protection - DPW Recycling - DEH HHW - Other Depts. 	Target Audiences  <ul style="list-style-type: none"> - Schoolchildren (Grades K – 12) 		Sources (See Figure 6.3)
OUTCOME LEVEL 1	OUTCOME LEVEL 2	OUTCOME LEVEL 3	OUTCOME LEVEL 4
Stormwater Program Activities	Knowledge & Awareness	Behaviors	Source Reductions
<u>Program Administration</u> <input checked="" type="checkbox"/> Program reviews & updates <input checked="" type="checkbox"/> Source inventory updates <u>Facilitation Activities</u> <input checked="" type="checkbox"/> Staff training <input checked="" type="checkbox"/> Education / outreach to schoolchildren <u>Feedback Activities</u> <input checked="" type="checkbox"/> Surveys & tests	<input checked="" type="checkbox"/> General knowledge <input checked="" type="checkbox"/> Specific knowledge <input checked="" type="checkbox"/> Not targeted or assessed		<input checked="" type="checkbox"/> Not targeted or assessed

Figure 8.3 - General Program Implementation and Assessment Strategy for the Schoolchildren Element

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Table 8.10 - Program Implementation Roles

	WPP	Recycling & HHW	DPR
Program Planning and Administration			
Source Characterization	◉	◉	◉
Implementation Strategies & Tools	◉	◉	◉
Facilitation and Targeted Outcomes			
Outreach & Education	◉	◉	◉
Feedback and Verification			
Surveying & Testing	◉		
Special Studies & Investigations	◉		

As the Principle Copermittee within the San Diego Region, the WPP is responsible for reporting all requirements of Section J of the Permit in this plan and on an annual basis. In collaboration with other programs, WPP compiles significant outreach data to report to the California RWQCB in its Jurisdiction URMP Annual Report.

8.4.2.2.1 Facilitation of Targeted Outcomes

Facilitation Activities are those which are implemented to assist, encourage or require the outcomes or changes sought in target populations.

Outreach is the central part of all implementation strategies. Various types of outreach can be used to bring about changes in knowledge or awareness in target populations. All outreach programs use a wide variety of activities to reach school children throughout the year. Examples of consistently utilized outreach activities include material distribution, classroom presentations, teacher trainings, outdoor activities and special events. Specific program outreach and education performed are discussed in Table 8.8.

Additionally, the WPP provides 2 websites for school children to learn about a variety of water quality tips and information.

- www.sdcounty.ca.gov/dpw/watersheds/stormwater.html
- <http://bmp.projectcleanwater.org/residential/index.php>

There is a plan to modify Think Blue as a regional brand, including updating the website, which will be an additional outreach tool for school children.

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8.4.2.2.2 Feedback and Verification

The County of San Diego contracts with the San Diego County Office of Education to conduct Splash Lab hands-on presentations. There is a pre- and post- test given to classes. One class per day receives the tests. The tests show an increase in knowledge gained from that days outreach lesson. It is the intent to do further studies on increase of knowledge and awareness by conducting a pilot test. The pilot test will occur over several years within a particular school. That school will receive Green Machine and Splash Lab presentations for multiple classes. If the lessons are learned then there will be better scores on the pre-tests over time because concepts will have been learned during the previous year's outreach lesson.

8.5 Residential Component Effectiveness Assessment

This section provides a discussion of the County's effectiveness in implementing its Residential Program requirements of Permit sections I.1 and J.1.(3)(I).

8.5.1 Assessment of Specific Measures

A variety of specific measures of program effectiveness are discussed below. These are presented according to the following general categories of outcomes:

Level 1: Compliance with Activity-based Permit Requirements

Level 2: Changes in Attitudes, Knowledge, & Awareness

Level 3: Behavioral Change & BMP Implementation

Level 4: Load Reductions

8.5.1.1 Level 1 Outcomes: Activity-Based Requirements

As summarized in Table 8.11, the County established six targeted outcomes for its residential program. This is not an exhaustive listing of all activity-based outcomes, but represents what the County considers to be key components to a successful program.

Table 8.11 - Targeted Measurable Level 1 Outcomes for the Residential Component

Program Activity	Measures of Success	
	Targeted, Measurable Outcome	Measure of Success
Program Administration		
Annual program review	Task completion	Completion (Y/N)
General Residential Population		
Outreach Events	Conduct 50 "hands-on" outreach events	% success
Public Service Announcements	Broadcast 1,300 water quality PSA announcements	% success
Complaint Resolution	Resolve all justified complaints	% success

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Program Activity	Measures of Success	
	Targeted, Measurable Outcome	Measure of Success
Household Hazardous Waste Collection	Provide Collection Services to 4,350 Residents	% success
School-aged Children		
School Presentations (Splash Lab and Green Machine)	Conduct 52 school presentations that are aligned with California State standards	% success

8.5.1.2 Level 2 Outcomes: Changes in Attitudes, Knowledge, & Awareness

The foundation of the County's approach to regulating residential audiences is to bring about positive behavioral changes through education, i.e., through increased knowledge and awareness. To that end, the County implements numerous programs and activities that help to promote increased awareness of stormwater runoff impacts and their solutions, and has utilized a variety of measures to assess their effectiveness. This section provides an analysis of the County's efforts to assess changes in knowledge and awareness resulting from the implementation of its residential oversight programs. This includes both the general residential population and schoolchildren.

8.5.1.2.1 Activity Specific Measures

The basis for measuring change is to assess attitudes, knowledge, and awareness before and after presenting information. Assessments are conducted using measurement tools, such as surveys and tests with the same questions or statements. Activity specific measurements can evaluate change within a target audience. For example, horse owners are targeted for manure management. Owners will take a pre-test, watch the County's Managing Manure DVD, and then take a post-test. The pre and post test scores will be compared to demonstrate change.

Additional measurements of program effectiveness for high priority residential activities will be developed as needed.

8.5.1.2.2 Hotline Calls and Complaints

Hotline calls and website activity can be utilized as a general indicator of the public's knowledge and awareness of stormwater concepts. Since both of these activities are also targeted behaviors, they are discussed further under Level 3 below. In addition the County is exploring other survey tools that can be incorporated into its residential programs.

8.5.1.2.3 Website Usage

Website usage provides a measure of the public's awareness of the County's program. Table 8.12 shows the overall numbers of visits to the Project Clean Water website since fiscal year (FY) 2001-02. Although this website is not exclusively directed to the general public (e.g., users can

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generally be considered to have a comparatively high level of knowledge and awareness), increases in usage can be considered a general indication that residential awareness is also increasing.

Table 8.12 - Project Clean Water Website Use by Year (FY 2001-02 to FY 2006-07)

Project Clean Water Website	FY 2001-02	FY 2002-03	FY 2003-04	FY 2004-05	FY 2005-06	FY 2006-07
Number of Hits	~26,000	44,906	50,127	57,327	65,777	93,638

8.5.1.3 Level 3 Outcomes: Behavioral Change & BMP Implementation

8.5.1.3.1 Residential Surveys

The County relies on the watershed-based residential surveys it conducted during FY 2002-03 as a general baseline of residential behavior. In cooperation with the Copermittees, the County is currently planning on conducting a follow-up survey in 2008.

8.5.1.3.2 Hotline Calls and Complaints

One of the most important behaviors targeted through the County's outreach efforts is for residents to call the Regional Stormwater Hotline to report complaints. Table 8.13 provides a six-year summary of the numbers of residential complaints received through the Hotline since FY 2001-02.

Table 8.13 - Residential Complaints Received through the Stormwater Hotline (FY 2001-02 to Present)

FY 2001-02	FY 2002-03	FY 2003-04	FY 2004-05	FY 2005-06	FY 2006-07
182	347	307	234	194	182

As shown, results over the past six years indicate a sustained increase in the level of knowledge regarding potential stormwater violations in the residential population. It should be emphasized that interpretation of hotline results is complicated by a number of factors that may influence usage (awareness, changes in pollution, etc.).

8.5.1.4 Level 4 Outcomes: Load Reduction Estimation

While current methods do not generally allow accurate estimation of source load reductions from most individual residential behaviors, some existing program elements are amenable to direct analysis. Total load reduction estimates for residential activities are shown in Table 8.14.

As reported in Section 8.4.1.2.2.3, County recycling and waste collection programs divert gallons of used oil and pounds of household hazardous waste from landfills and the storm drain system. Although the County does not exercise strict control over these totals, targets were established for each as followed: 80,000 gallons for used oil and 500,000 pounds for HHW. Both of these

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programs have provided significant load reductions to the County's MS4 in the past, with totals increasing over time.

Table 8.14 - Summary of Five-Year Average Residential Load Reduction

	Fiscal Year Totals					5 Year Average	Estimated Load Reduction
	2002- 03	2003- 04	2004- 05	2005- 06	2006- 07		
Used Oil Recycling (gallons)	10,115	10,115	97,587	97,314	84,079	59,842	5,984 ⁴
Household Hazardous Waste Collection (pounds)	528,411	528,411	447,484	573,848	482,087	512,048	5,120 ⁵

8.6 Program Review and Modification

Table 8.15 identifies modifications made to the Residential Component since its March 24, 2008 submittal.

Table 8.15 - Modifications to the Residential Component

Date	Section(s)	Modification(s)
05-20-08	N/A	Addition of Table of Contents.
05-20-08	Multiple	Various non-substantive corrections including: formatting, punctuation, and grammar; insertion of textual references to tables and figures; re-titling of figures and tables for consistency; insertion and re-titling of headings for consistency; and corrections to figures and organizational charts.
05-20-08	8.6	Addition of Section 8.6 to allow for tracking of JURMP modifications.
06-24-10	8.4.1, 8.4.2	Modify the JURMP to (1) incorporate the implementation strategy figures contained in this JURMP Annual Report, (2) to add and explain specific targeted, measurable outcomes, and (3) to identify specific roles and responsibilities for meeting identified outcomes.
06-24-10	8.4.2	Add high school students as a target audience for the schoolchildren element.
06-24-10	8.4.1	Add Solana Center composting workshops to Table 8.7.
06-24-10	8.4.1	Add detailed information on Manure Management.
06-24-10	8.4.1	Add detailed information on Pet Waste.

⁴ Based on a 10% adjustment factor.

⁵ Based on a 1% adjustment factor.