2011 Long-Term Effectiveness Assessment

San Diego Stormwater Copermittees
Urban Runoff Management Programs

Final Report

Prepared For:

San Diego County Copermittees

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List of Acronyms

BLTEA	Baseline Long-Term Effectiveness Assessment
BMP	Best Management Practice
BOD	Biological Oxygen Demand
CASQA	California Stormwater Quality Association
CV	Coefficient of Variation
ESA	Environmentally Sensitive Area
FY	Fiscal Year
HMP	Hydromodification Management Plan
IBI	Index of Biological Integrity
ICID	Illegal Connections and Illicit Discharges
JURMP	Jurisdictional Urban Runoff Management Program
LID	Low Impact Development
LTEA	Long-Term Effectiveness Assessment
MBAS	Methylene Blue Active Substances
MLS	Mass Loading Stations
MOU	Memorandum of Understanding
MS4	Municipal Separate Stormwater System
PGA	Pollutant Generating Activities
PMP	Program Management Practice
RURMP	Regional Urban Runoff Management Program
SCCWRP	Southern California Coastal Waters Research Project
SLP	Source Loading Potential
SMC	Southern California Monitoring Coalition
SPS	Source Profile Sheet
SUSMP	Standard Urban Stormwater Mitigation Plan
SWRCB	State Water Resources Control Board
TCBMP	Treatment Control BMP
TDS	Total Dissolved Solids
TMDL	Total Maximum Daily Load
TSS	Total Suspended Solids
TTWQ	Threat to Water Quality
TWAS	Temporary Watershed Assessment Station
URMP	Urban Runoff Management Program
WEA	Watershed Education Activities
WMA	Watershed Management Area
WQ	Water Quality
WQA	Watershed Water Quality Activity
WURMP	Watershed Urban Runoff Management Program

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EXECUTIVE SUMMARY

NPDES Order No. R9-2007-0001, the San Diego Municipal Stormwater Permit (Permit) requires that the Copermittees perform a Long-Term Effectiveness Assessment (LTEA) to evaluate the impacts of program implementation over the Permit cycle. The LTEA serves as a basis for the Copermittees' Report of Waste Discharge (ROWD).

This LTEA represents the Copermittees' second LTEA effort. It was accomplished through an in-depth review of existing pollutant sources and program activities as well as an assessment of water quality monitoring results. Four specific areas of assessment were addressed:

1) Water quality-related assessment,
2) Source-related assessment,
3) Program-related assessment, and
4) Integrated assessment.

Water Quality Assessment includes the analysis of water quality monitoring results on a watershed and sub-watershed basis. The results inform the Copermittees regarding the type and location of water quality issues within the region, as well as the magnitude of any changes in water quality. The Water Quality Assessment is reported in detail in a stand-alone document –*2005-2010 Long-Term Effectiveness Assessment Water Quality Report (***Attachment 1)**.

Source Assessment includes analysis of program data and information to identify the potential impacts of various pollutant-generating sources in the region. The results of this analysis support: 1) identification of sources that may need attention from the programs; and 2) evaluation of whether programs are focused on the "proper" sources, i.e., those identified as having a high potential to discharge pollutants.

Results from the Water Quality and Source Assessments were combined to develop Threat-to-Water Quality (TTWQ) ratings. The TTWQ methodology prioritizes sources that pose significant threats to water quality in watersheds for pollutants that are threatening the specific watershed. Additionally, the TTWQ process may be used as an investigative tool as described in the report.

Assessment of Program Management Practices addresses the implementation of Copermittee programs for the Permit cycle. This analysis looks at how well existing program approaches are addressing priority constituents and sources, as well as their effectiveness in doing so.

Finally, Integrated Assessment looks at the relationship between the Copermittees' program implementation and water quality monitoring results.

Table ES-1 summarizes the conclusions derived from the various areas of assessment presented throughout the LTEA. Specific recommendations for changes to urban runoff management and monitoring programs are contained in the Copermittees' ROWD.

Table ES-1: Effectiveness Assessments and Evaluations

Assessment / Evaluation	Conclusions
Evaluation of Progress in Developing and Implementing Monitoring Programs	Copermittees are implementing the monitoring program consistent with the Permit requirements.
Assessment of Watershed Health and Identification of Water Quality Issues and Concerns	Wet Weather – In general, wet weather receiving water quality priorities are associated with the following issues: mobilization and migration of sediment during storm events as measured by total suspended solids and turbidity; bacterial indicators as reflected by fecal coliform; and the detection of synthetic pyrethroid pesticides. There are also some differences in the priority of these constituents among watersheds as reflected in different land use distributions and pollutant generating activities in the watershed, physical conditions, and flow characteristics. Dry Weather – In general, the receiving water quality priorities under ambient or dry weather conditions, based on two years of data, indicate a countywide issue with bacteria indicators (largely enterococci and also fecal coliforms), nutrients, and total dissolved solids. The level of priority and the specific nutrients vary among watersheds, which is reflective of varying source contributions and the presence of flows.
Assessment of Changes in Discharge Water Quality (Level 5 Outcomes)	At this time, it is not possible to use statistics to assess changes in water quality in outfall discharges because only two of the five years of program data have been collected. Changes in MS4 discharge quality will be reported in the coming years as this program continues to collect data. The temporal resolution of these data sets will improve as well in the coming years. In the LTEA WQ Report (Attachment 1, Sections 2 through 10) discharge loading characteristics are estimated and ranked for wet weather flows. These will help to establish a baseline for future comparisons of changes in the loads. The current assessment presents observed dry weather flow conditions at the MS4 outfalls; these data may also be used as a basis for comparison with future monitoring.
Assessment of Changes in Receiving Water Quality (Level 6 Outcomes)	The results of the trend analysis for the MLS in the receiving water are presented in **Table 6-4** in Section 6. Changes in ambient conditions will be reported in the coming years as the ambient receiving water program continues to collect data.
Evaluation of the need to address additional pollutant sources not already included in Copermittee programs	The analysis performed resulted in no additional sources recommended for inclusion in the Copermittees' programs at this time.
Evaluation of the degree to which existing source management priorities are properly targeted to, and effective in addressing, water quality issues and concerns	The Copermittees have identified potential sources of the pollutants of concern. Copermittee programs would benefit from determining the relative importance of these sources in order to allow for the most efficient allocation of resources.
Assessment of progress in implementing Copermittee programs and activities	Based upon the data and information provided, the Copermittees collectively met their Permit requirements.
Assessment of the effectiveness of Copermittee activities in addressing priority constituents and sources	At this time, there is still not enough supporting data to make direct correlations between program implementation and measureable changes in pollutant loading, MS4 discharge quality, and receiving water quality. Based on the evidence and analysis provided in Sections 6.3 and 6.4 of the report, the Copermittees have made progress towards reducing pollutant loading, improvements to MS4 discharge quality and receiving waters quality.
Assessment of the relationship of program implementation to changes in pollutant loading, discharge quality, and receiving water quality	At this time, there is still not enough supporting data to make direct correlations between program implementation and measureable changes in pollutant loading, MS4 discharge quality, and receiving water quality. Based on the evidence and analysis provided in Sections 6.3 and 6.4 of the report, the Copermittees have made progress towards reducing pollutant loading, improvements to MS4 discharge quality and receiving waters quality.

1 Introduction

1.1 Overview

The San Diego Municipal Stormwater Permit NPDES Order No. R9-2007-0001 (Permit) requires that the Copermittees develop and implement Jurisdictional Urban Runoff Management Programs (JURMPs), Watershed Urban Runoff Management Programs (WURMPs) and a Regional Urban Runoff Management Program (RURMP) and provide annual reports for each.

As a part of these programs, the Copermittees are required to perform a Long-Term Effectiveness Assessment (LTEA) to evaluate the impact of program implementation. The purpose of this LTEA is to provide an evaluation and assessment of Copermittee programs over the Permit cycle. Per the Permit, the LTEA serves as a basis for the Copermittees' Report of Waste Discharge. Specific recommendations for change are contained in the ROWD.

In October 2003, the Copermittees took a significant step toward the development of the methods and approaches needed to conduct long-term effectiveness assessments through the completion of "A Framework for Assessing the Effectiveness of Jurisdictional Urban Runoff Management Programs." This framework describes an iterative process of effectiveness assessment involving program planning, program implementation, and effectiveness assessment and establishes a division of the effectiveness component into short-term, or annual, and long-term components. **Figure 1-1** illustrates these three areas of activity and shows their inter-relationship (County of San Diego, 2003).

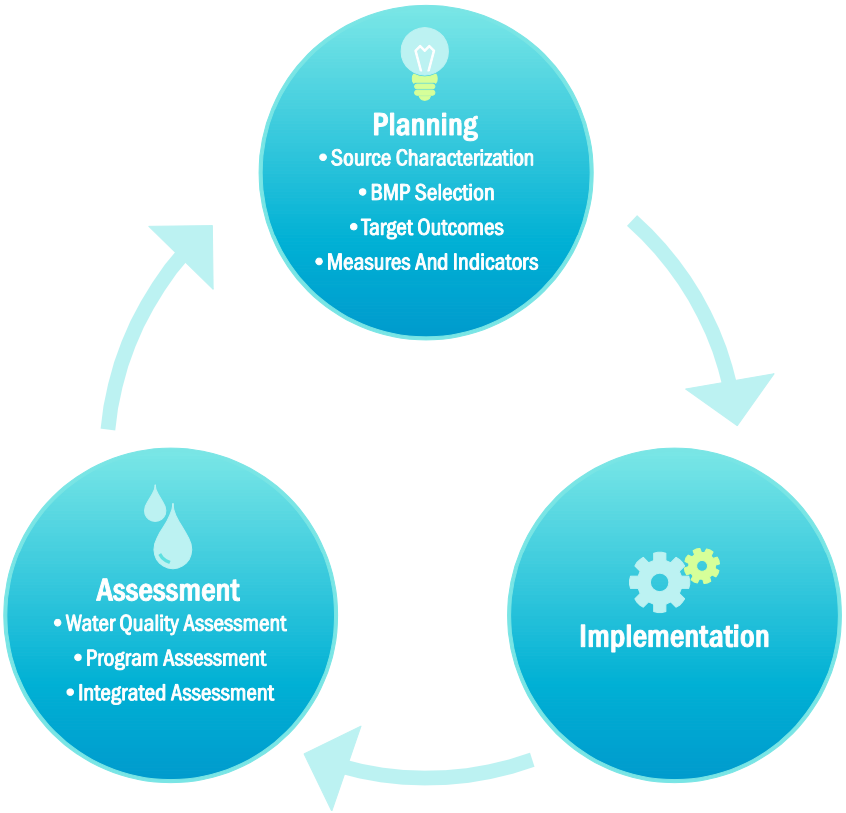

Figure 1-1: Iterative Process for Assessing Jurisdictional Programs (Revised from County of San Diego, October 2003)

In 2005 the Copermittees developed the Baseline Long-Term Effectiveness Assessment (BLTEA) as a first iteration of the long-term portion of the Copermittees' assessment strategy. Its primary purpose was to provide a baseline evaluation of existing water quality and program data, and to establish methods and approaches that could be augmented and refined for use in conducting future assessments.

This report presents the Copermittee' second Long-Term Effectiveness Assessment (LTEA) effort. Similar to the BLTEA, this LTEA continues to further the assessment of the Copermittees JURMPs, WURMPs, and RURMP. As a result of the LTEA, refinement to the prioritization and investigative tools has also progressed. Although, similar principles were used for this assessment, there are some differences from the 2005 BLTEA process. Some of these differences are as follows:

- New water quality assessment methodology and presentation
- Updated source characterizations
- Additional sources evaluated and characterized
- Updated Source Loading Potentials for sources
- Acknowledgement of uncontrollable sources
- TTWQ is now presented as a suggested process with guidelines
- Program Management Practices are evaluated
- Evaluation of the Copermittees' effectiveness of program implementation

This 2011 LTEA consists of the following specific tasks:

- Characterize the water quality conditions of sub-watersheds and watersheds based on available monitoring results
- Characterize sources of pollutants to the region's receiving waters; Provide process and examples of how to develop a Threat to Water Quality (TTWQ) ranking for priority source categories
- Characterize the Program Management Practices (PMPs) that Copermittees implement
- Assess the Copermittees efforts to implement the JURMP, WURMP and RURMP using available data and information

The Copermittees intend to continue collaborating on the development of their LTEAs, and to focus this analysis regionally and by watershed. Future iterations may build on the results of this LTEA through more in-depth evaluations of program implementation and PMP implementation. They will additionally further explore the relationship of program implementation to changes in water quality, a task currently approachable only through very basic and qualitative methods.

Program assessment is addressed through an in-depth review of existing source priorities, PMPs, and water quality assessment. While this analysis is somewhat constrained by existing limitations of data and methodologies, it continues an important process from which future assessments will be further addressed.

The LTEA would ideally evaluate an extended period of program implementation, e.g., five years. However, due to the significant changes in the Municipal Separate Storm Sewer System (MS4) Permit, from Order 2001-01 to Order R9-2007-0001, it was not feasible to perform an assessment of program implementation over a five-year period. This LTEA reflects the Copermittees' efforts to implement the Urban Runoff Management Programs developed in response to the Permit and used as a basis of the assessment, the Annual Reports for Fiscal Years (FY) 2009 and 2010, covering the time periods of July 1, 2008 through June 30, 2010. The FY 2008 Annual Report covering July 1, 2007 through June 30, 2008

covered two permit terms, resulting in different reporting requirements and making an assessment difficult.

1.2 Overview of LTEA Requirements

The Permit has specific requirements for what should be included in the LTEA. Two sections identify LTEA requirements: Section I.5. which references Section I.3.a.(6). Specifically, Section I.5. states:

1) *Each Copermittee shall collaborate with the other Copermittees to develop a Long-Term Effectiveness Assessment (LTEA), which shall build on the results of the Copermittees' August 2005 Baseline LTEA. The LTEA shall be submitted by the Principal Permittee to the Regional Board no later than 210 days in advance of the expiration of this Order.*
2) *The LTEA shall be designed to address each of the objectives listed in section I.3.a.(6) of this Order [see below], and to serve as a basis for the Copermittees' Report of Waste Discharge for the next permit cycle.*
3) *The LTEA shall address outcome levels 1-6, and shall specifically include an evaluation of program implementation to changes in water quality (outcome levels 5 and 6).*
4) *The LTEA shall assess the effectiveness of the Receiving Waters Monitoring Program in meeting its objectives and its ability to answer the five core management questions. This shall include assessment of the frequency of monitoring conducted through the use of power analysis and other pertinent statistical methods. The power analysis shall identify the frequency and intensity of sampling needed to identify a 10% reduction in the concentration of constituents causing the high priority water quality problems within each watershed over the next permit term with 80% confidence.*
5) *The LTEA shall address the jurisdictional, watershed, and regional programs, with an emphasis on watershed assessment.*

Section I.3.a.(6) includes the following objectives:

1) *Assessment of watershed health and identification of water quality issues and concerns.*
2) *Evaluation of the degree to which existing source management priorities are properly targeted to, and effective in addressing, water quality issues and concerns.*
3) *Evaluation of the need to address additional pollutant sources not already included in Copermittee programs.*
4) *Assessment of progress in implementing Copermittee programs and activities.*
5) *Assessment of the effectiveness of Copermittee activities in addressing priority constituents and sources.*
6) *Assessment of changes in discharge and receiving water quality.*
7) *Assessment of the relationship of program implementation to changes in pollutant loading, discharge quality, and receiving water quality.*
8) *Identification of changes necessary to improve Copermittee programs, activities, and effectiveness assessment methods and strategies.*

1.3 Overview of LTEA Approach

Although the primary function of the LTEA is to serve as an assessment of the Copermittees' program effectiveness, the approach can also be used as a tool for program prioritization. The process illustrated below and in more detail throughout the report may be used to prioritize sources and in some cases management actions/decisions. Details of the process are provided in **Section 4**.

The process by which the available data and information were evaluated and how the analysis culminates at the integrated assessment stage is shown in **Figure 1-2**. There are three tracts of analysis that lead to the LTEA assessments. The three tracts are: 1) water quality; 2) sources; and 3) program management practices. The four LTEA assessments that are developed from the analysis are: 1) water quality related assessments; 2) source related assessments; 3) PMP related assessments; and 4) integrated assessments.

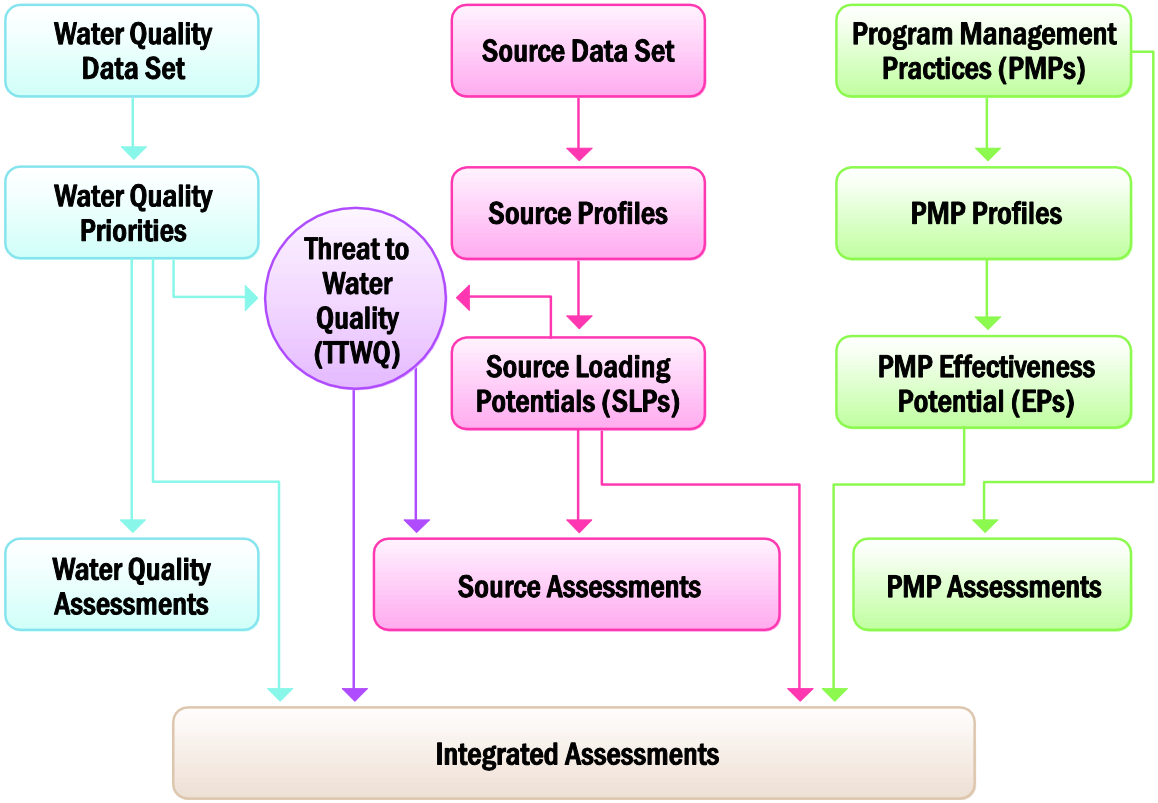

Figure 1-2: LTEA Process

The outcome of the LTEA assessments, (water quality, source, PMP and integrated) are intended to provide data and information into the Copermittees' iterative program process as illustrated in **Figure 1-3** below.

Figure 1-3: Program Iterative Process with Long-Term Effectiveness Assessment

1.4 Report Structure

This report is structured to follow the major steps of the effectiveness assessment process shown in **Figure 1-2**.

Section 2.0 Water Quality Assessment – This section summarizes the water quality priorities for each of nine (9) constituent groups on a hydrologic unit (sub-watershed) level. A separate report was developed specifically for the 2011 LTEA Water Quality Assessment and is included as Attachment 1 to this report.

Section 3.0 Source Characterization – This section prioritizes the source categories. To support this prioritization, source profile fact sheets are included and identified the types of activities/pollutants at the sources and their potential to discharge those pollutants. In this section, the sources are rated as to their potential to discharge particular pollutants.

Section 4.0 Threat to Water Quality – This section describes the process for establishing threat to water quality priority ratings. This process incorporates the Water Quality Assessment of Section 2 and the potential to discharge ratings from the Source Profiles found in Section 3. The concept is to develop a list of priority sources based upon their potential to discharge pollutants in a watershed.

Section 5.0 PMP Characterization – This section describes the various types of Program Management Practices (PMPs) available to address different sources and pollutant types. PMPs are practices and activities that the Copermittees implement or take action with to address water quality issues.

Section 6.0 Program Effectiveness Assessment – Furthering the efforts of the 2005 BLTEA, this section provides an assessment of various program elements using data and information reported in FY 2009 and 2010 Annual Reports and Focused Analyses.

2 Urban Runoff and Receiving Water Assessment

2.1 Section Overview

The Copermittees initiated the LTEA Water Quality Assessment (WQA) as a separate but parallel process to the LTEA development. The complete LTEA WQA is included in this document as Attachment 1. This section summarizes portions of the WQA and discusses the assessment of the water quality data and the required power analysis. This assessment is also further discussed in Section 6.2 of this document.

2.2 Water Quality Assessment

Data Used for Assessment

The specific data sets used for the LTEA Water Quality Assessment includes the core monitoring, urban runoff (MS4 outfall) and regional monitoring elements and are summarized in **Table 2-1**.

Table 2-1: Monitoring Activities and Data Used in the 2005-2010 Long-Term Effectiveness Assessment

Monitoring Program	Monitoring Season				
	'05-'06	'06-'07	'07-'08	'08-'09	'09-'10
Mass loading station monitoring	✓	✓	✓	✓	✓
Temporary watershed assessment station monitoring			✓	✓	✓
Bioassessment monitoring and follow-up analyses and actions (TIEs)	✓	✓	✓	✓	✓
Ambient bay and lagoon monitoring	✓			✓	✓
Coastal storm drain monitoring*	✓	✓	✓	✓	✓
Pyrethroids monitoring			✓	✓	✓
MS4 outfall monitoring 1. Targeted Wet 2. Random Wet 3. Random Dry				✓	✓
Source identification monitoring				✓	✓
Dry weather screening and analytical monitoring	✓	✓	✓	✓	✓
Bight '08 Monitoring Program				✓	
Southern California Regional Watershed Monitoring Coalition				✓	✓
TMDL monitoring for Order No. 2004-0277 (Chollas Creek sub watershed)	✓	✓	✓	✓	✓
Regional harbor monitoring				✓	
Monitoring for Investigation Order No. R9-2006-076 (Lagoon investigation)			✓	✓	

*Not included in Long-term Effectiveness Assessment data evaluation

Water Quality Assessment Methodology

The assessment methodology for the LTEA was revised from the previous BLTEA in order to provide program managers with better resolution and focus for the watershed priorities. An in depth discussion of the assessment methodology may be found in Section 3 of the Assessment Methodology (Weston Solutions, 2010).

The current five-year LTEA assessments were analyzed using the following four-categories:

1) Receiving Waters – Wet Weather
2) Receiving Waters – Dry Weather (ambient)
3) MS4 – Wet Weather
4) MS4 – Dry Weather (ambient).

The assessment processes used to evaluate the receiving water, MS4 urban runoff and sediments is outlined on **Figure 2-1** and includes the following steps:

1) Tables of results were compiled for each monitoring program element using the most recent five years of data (2005-2010)
2) Results were compared to relevant benchmarks
3) Constituent frequency of exceedance was calculated. Magnitude of exceedance ratios and graphs were prepared for relevant constituents
4) Based on the Triad Assessment, assessment scores were developed using 2005-2010 data
5) Results were summarized for inclusions in maps and figures. Trend analyses were conducted using all historical data. Report deliverables were prepared as non-proprietary interactive PDF reader files

Further explanations of specific components of the LTEA assessment methodology are highlighted below.

Triad Assessment

For each watershed, all three elements of the "triad" (chemistry, toxicity, and benthic community) were assessed. Chemistry data provided an indication of the pollutant concentration and load during storm events or ambient conditions. Toxicity data provided a direct measure of the ecological health during specific sampling events in the receiving water and provided the ability to determine if water quality conditions were impacting aquatic organisms. The benthic community data collected during stream bioassessment surveys provided a more direct indication of the ecological health throughout the year of the watershed in terms of insect/benthic community abundance and diversity. The benthic community data provided an assessment representative of long-term (yearly) conditions. The LTEA Water Quality Report separately presents results for indicator bacteria, total dissolved solids (TDS), and nutrients. While these constituent groups represent the condition being assessed on site (e.g., how do nutrient conditions relate to excessive algae growth), these types of benchmark exceedances generally are not responsible for water column toxicity and/or benthic community degradation.

Trends Analyses

Trends analyses were conducted on an annual basis using the historical wet weather data from the MLS. These analyses provide an assessment of data on a watershed wide scale. Trends presented in the LTEA are not limited to the 2005-2010 dataset, and use the entire historical data set at the MLS. Further detail on the methodology for trends analyses is provided in the 2009-2010 Receiving Waters and Urban Runoff Monitoring Report, Appendix A (Weston Solutions, 2011).

Power Analysis

Section I.5.d of the Permit requires use of power analysis to "identify the frequency and intensity of sampling needed to identify a 10% reduction in the concentration of constituents causing the high priority water quality problems within each watershed over the next permit term with 80% confidence."

This provision was interpreted to require determination of the number of samples that would be required to detect a 10% reduction in concentrations of priority constituents over the course of a nominal five-year permit cycle, with 80% statistical power. The evaluation was conducted as required, and the results are presented in Attachment 1, Section 11.

In summary, based on an evaluation of the monitoring data collected so far, the sample size (number of samples) necessary to detect a 10-percent reduction of constituent concentrations over a 5-year Permit cycle is between 33 and 3,339 samples (depending on the constituent and watershed combination)..

The large estimated sample sizes are due to the inherent variability of wet weather monitoring data, reflecting the varying sizes and intensities of storms monitored, as well as sampling and analysis variability. Therefore, it is not likely that a 10-percent reduction can be detected over one Permit cycle because of this inherent variability of the data.

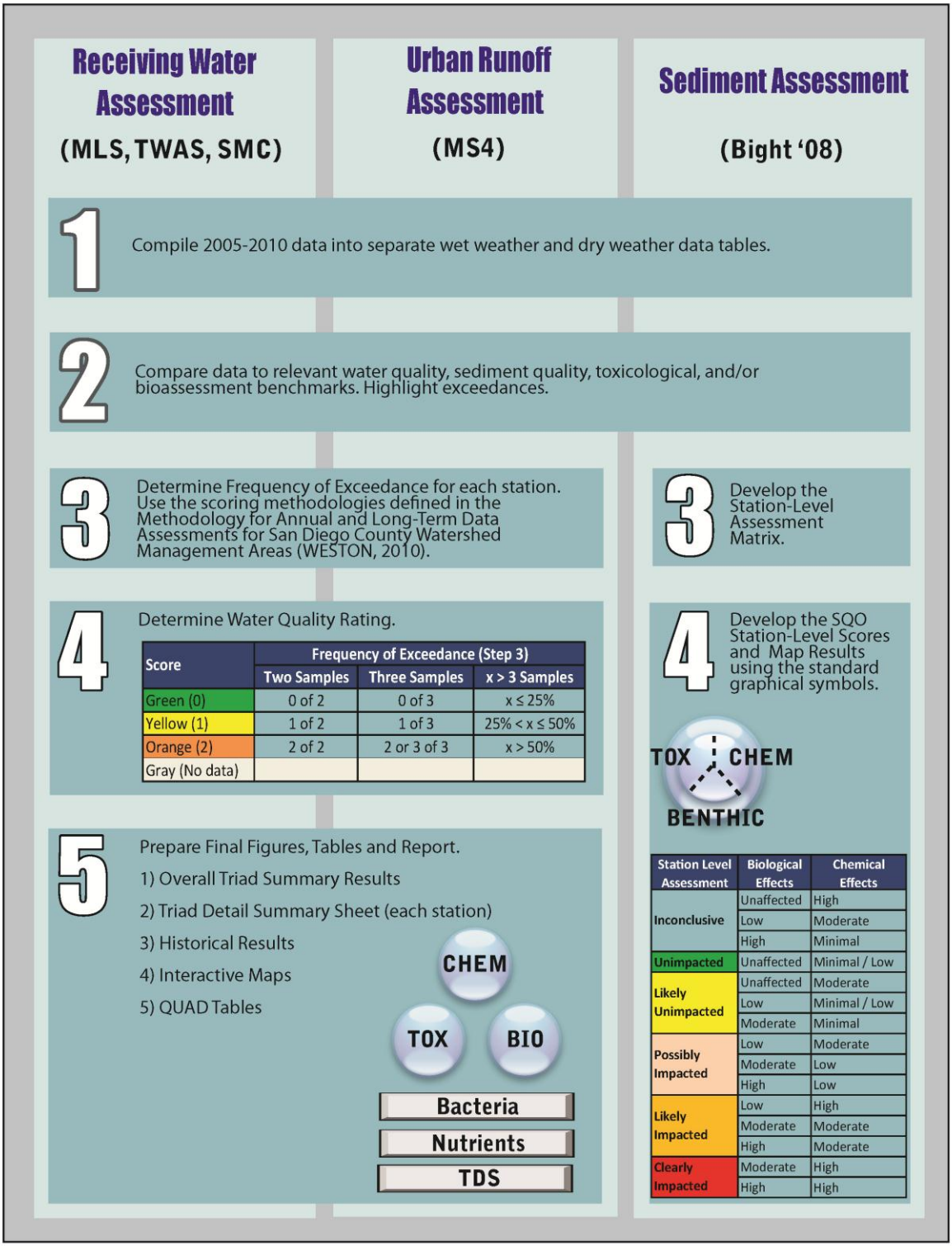

Figure 2-1: Water Quality Assessment Methodology

Interactive Mapping Tools and Spatial Analysis

The results of the LTEA water quality data analyses were displayed graphically by presenting the triad summary results on the drainage area map for each WMA. The maps present results by constituent group (i.e., chemistry, nutrients, bacteria, and total dissolved solids) in pie charts to allow an initial view of overall results at a site for the five-year period according to the scoring. Users are able to interactively view different sets of data within the PDF. Using the interactive mapping tools, the results are spatially analyzed in the MS4 and receiving water under wet weather and dry weather conditions. The interactive mapping tools include land use data and may be updated with current source inventory data in order to further assess potential linkages from dry weather water quality data with land uses and sources. The interactive maps provide a basis for further analysis that is presented in the LTEA Water Quality Report.

Summary of Watershed Management Area Priority Constituents

The priority constituents determined for each WMA through the LTEA water quality analyses are summarized in **Tables 2-2 and 2-3.** The LTEA water quality prioritization methodology is discussed in Attachment 1. **Table 2-2** is a summary of the pollutant priorities by BLTEA pollutant category which is not inclusive of all constituents represented in **Table 2-3**. **Table 2-3** provides overall priorities for the WMAs for wet and dry weather conditions. However, specific differences may occur within individual hydrologic areas and sub-areas. The reader is referred to the specific WMA section for detailed information by drainage area (Attachment 1, Sections 2 through 10). The two tables should be used in tandem to identify high priority pollutant categories and then detailed constituents. The constituents comprising each LTEA pollutant category are listed below:

LTEA Pollutant Categories (Not inclusive of all constituents):

- Metals: Antinomy, Arsenic, Cadmium, Chromium, Copper, Lead, Nickel, Selenium, Zinc
- Oil and Grease: Oil and Grease
- Sediment: Total Suspended Solids (TSS) and Turbidity
- Pesticides: Chlorpyrifos, Diazinon, Malathion, Allethrin, Bifenthrin, Cyfluthrin, Cypermethrin, Danitol, Deltamethrin, Esfenvalerate, Fenvalerate, Fluvalinate, L-Cyhalothrin, Permethrin, Prallethrin
- Nutrients: Dissolved Phosphorous, Total Phosphorous, Total Kjeldahl Nitrogen, Eutrophication, Benthic Algae, Orthosphosphate
- Bacterial Indicators: Enterococcus, Fecal Coliform, Total Coliform
- Dissolved Minerals: Total Dissolved Solids (TDS)

Table 2-2: Watershed Priorities by LTEA Pollutant Categories

WMA	Station	Wet							Dry						
		Metals	Oil and Grease	Sediment	Pesticides	Nutrients	Bacteria/ Pathogens	Dissolved Minerals	Metals	Oil and Grease	Sediment	Pesticides	Nutrients	Bacteria/ Pathogens	Dissolved Minerals
Santa Margarita River	SMR-MLS	-	-	M	-	-	M	-	-	-	-	-	H	-	H
	SMR-MLS-2	-	-	H	H	-	H	-	-	-	-	-	H	-	H
San Luis Rey	SLR-MLS	-	-	M	M	-	H	H	-	-	M	-	H	M	H
	SLR-TWAS-1	-	-	H	H	-	H	H	-	-	-	-	M	H	H
Carlsbad	LA-TWAS-1	-	-	H	M	-	H	-	-	-	-	-	H	M	-
	BVC-TWAS-1	-	-	H	H	-	H	-	-	-	-	-	H	M	H
	AHC-MLS	-	-	H	H	-	H	H	-	-	-	-	H	H	H
	AHC-TWAS-1	-	-	H	H	-	H	M	-	-	-	-	H	M	H
	ESC-MLS	-	-	H	H	-	H	H	-	-	-	-	H	H	H
	ESC-TWAS-1	-	-	H	H	-	H	M	-	-	-	-	H	M	H
San Dieguito Creek	SDC-MLS	-	-	M	M	-	H	H	-	-	H	-	H	M	H
	SDC-TWAS-1	-	-	H	H	-	M	M	-	-	-	-	H	M	H
	SDC-TWAS-2	-	-	H	-	H	H	M	-	-	H	-	H	H	H
Los Peñasquitos Creek	LPC-MLS	-	-	M	M	-	H	H	-	-	-	-	H	H	H
	LPC-TWAS-1	-	-	H	M	-	H	M	-	-	-	-	-	H	H
	LPC-TWAS-2	-	-	H	H	-	H	-	-	-	-	-	H	H	H
Mission Bay / La Jolla	MB-TWAS-1	-	-	H	H	-	H	H	-	-	-	M	M	-	H
	MB-TWAS-2	-	-	H	H	-	H	-	-	-	-	M	H	H	-
	TC-MLS	-	-	H	H	-	H	-	-	-	-	-	H	-	-
San Diego River	SDR-MLS	-	-	H	M	-	H	-	-	-	-	-	H	H	H
	SDR-TWAS-1	-	-	H	H	-	H	M	-	-	-	-	H	H	H
	SDR-TWAS-2	-	-	H	H	-	H	-	-	-	-	-	H	M	H
	SDR-TWAS-3	-	-	H	H	-	H	-	-	-	-	-	M	M	H
San Diego Bay - Pueblo	CC-SD8-1	H	-	H	H	-	H	-	H	M	M	M	H	M	-
San Diego Bay - Sweetwater	SR-MLS	-	-	M	M	-	H	H	-	-	-	-	H	M	H
	SR-TWAS-1	-	-	M	M	-	H	M	-	-	-	-	H	M	H
San Diego Bay - Otay	OR-TWAS-1	M	-	M	H	-	-	M	-	-	-	-	H	-	H
Tijuana River	TJR-MLS	-	-	H	H	H	H	-	-	-	M	-	H	H	-
	TJR-TWAS-1	-	-	-	-	H	M	H	-	-	-	-	-	-	-
	TJR-TWAS-2	-	-	H	-	H	H	-	-	-	-	-	-	-	-

H = High Priority
M = Medium Priority

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Table 2-3: Watershed Priority Constituents Determined by Water Quality Assessment Monitoring Program

WMA	Station	HSA	Priorities	
			Wet	Dry
Santa Margarita River	SMR-MLS*	902.11, 902.12, 902.13, 902.21, 902.22, 902.23, 902.52	*Ceriodaphnia dubia* acute survival, TSS, Turbidity, Fecal Coliform (+)	**Poor IBI, O/E, Total Nitrogen, TDS**
	SMR-MLS-2**	902.22, 902.23, 902.52	**TSS, Turbidity, Bifenthrin, C*eriodaphnia dubia* reproduction, *Hyalella azteca* acute survival, Fecal Coliform**	**Sulfate[1], Total Nitrogen[3], Nitrate as N[2], Total Phosphorus[2], Benthic Algae[1], TDS[3],** Fair IBI[1]
San Luis Rey	SLR-MLS	903.11, 903.12, 903.13, 903.14, 903.15, 903.16, 903.21, 903.22, 903.23	**Fecal Coliform (+), TDS (-)**, Turbidity(+), Bifenthrin	**Poor IBI, O/E, Dissolved Phosphorus, Total Phosphorus, TDS, Chloride[1], Sulfate[1],** Enterococci, Fecal Coliform, Total Nitrogen, Turbidity
	SLR-TWAS-1	903.12, 903.16, 903.21, 903.22, 903.23	**TSS, Turbidity, Bifenthrin, , *Ceriodaphnia dubia* reproduction, Fecal Coliform, TDS**, Chlorpyrifos	**Poor IBI, O/E, Enterococci, TDS, Chloride[1], Sulfate[1],** Total Phosphorus, Total Nitrogen, COD
Carlsbad	LA-TWAS-1	904.1	**TSS, Turbidity, Fecal Coliform,** Bifenthrin	**Poor IBI, O/E, Total Nitrogen, Benthic Algae**, *Ceriodaphnia dubia* reproduction, *Selenastrum* acute, Enterococci[2]
	BVC-TWAS-1	904.21, 904.22	**TSS, Turbidity, Bifenthrin, Fecal Coliform,** Permethrin	**Poor IBI, O/E, Total Nitrogen, Benthic Algae, TDS**, Enterococci
	AHC-MLS	904.31	**TSS (+), Turbidity (+), Bifenthrin, Fecal Coliform, TDS,** Hyalella azteca acute survival,	**Poor IBI, Poor O/E, Enterococci, Fecal Coliform, Nitrate as N[1], Total Phosphorus[1], TDS, Chloride[1], Sulfate[1]**, Total Nitrogen, Benthic Algae[1], *Ceriodaphnia dubia* reproduction, *Selenastrum* acute
	AHC-TWAS-1	904.31	**TSS, Turbidity, Chlorpyrifos, Bifenthrin, Fecal Coliform,** *Hyalella azteca* acute survival, TDS	**Poor IBI, O/E, Dissolved Phosphorus, Nitrate as N[1], TDS, Chloride[1], Sulfate[1],** *Selenastrum* acute, Enterococci , Fecal Coliform, Total Phosphorus, Total Nitrogen, Benthic Algae
	ESC-MLS	904.61, 904.62	**Turbidity, Bifenthrin, Fecal Coliform, TDS**, TSS, Cyfluthrin[4], Cypermethrin[4]	**Very Poor IBI[1], O/E[1], Enterococci, Total Nitrogen, Benthic Algae, TDS, Chloride[1], Sulfate[1],** *Selenastrum* acute, *Ceriodaphnia dubia* reproduction, CRAM[1], Total Phosphorus
	ESC-TWAS-1	904.62	**Turbidity, Bifenthrin, Fecal Coliform**, TSS, Diazinon, TDS	**Poor IBI, O/E, Total Nitrogen, TDS, Chloride[1], Sulfate[1],** COD, CRAM[1], Fecal Coliform, Benthic Algae[1]
San Dieguito Creek	SDC-MLS	905.12	**Fecal Coliform, TDS**, TSS, Turbidity, Bifenthrin, Ceriodaphnia dubia reproduction, Selenastrum acute,	**TSS[1], Poor IBI, O/E, Total Nitrogen, Benthic Algae, TDS, Chloride[1], Sulfate[1],** BOD, *Selenastrum* acute, Enterococci, Fecal Coliform, Total Phosphorus
	SDC-TWAS-1	905.22	**Turbidity, Chlorpyrifos, Bifenthrin,** *Hyalella azteca* acute, TSS, Fecal Coliform, TDS	**Poor IBI, O/E, Total Nitrogen, Benthic Algae, Total Phosphorus, TDS**, *Ceriodaphnia dubia* reproduction, Enterococci, Dissolved Phosphorus
	SDC-TWAS-2	905.32, 905.33, 905.34, 905.35, 905.36, 905.41	**BOD, COD, TSS, Turbidity, Fecal Coliform, Total Phosphorus**, pH, Ammonia as N, Nitrite as N, Surfactants (MBAS), TDS	**BOD, TSS, Turbidity, Enterococci, Total Nitrogen, Total Phosphorus, TDS**, Surfactants (MBAS), Fair IBI
Los Peñasquitos Creek	LPC-MLS	906.1, 906.2	**Fecal Coliform (+), TDS,** Turbidity, Bifenthrin	***Ceriodaphnia dubia* reproduction, Poor IBI, O/E, Enterococci, Total Phosphorus[1], Benthic Algae, TDS, Chloride[1], Sulfate[1],** Total Nitrogen
	LPC-TWAS-1	906.1	**Turbidity, Fecal Coliform**, TSS, Bifenthrin, TDS	**Ceriodaphnia dubia reproduction, Poor IBI, O/E, Enterococci, TDS, Chloride[1], Sulfate[1]**, *Selenastrum* acute
	LPC-TWAS-2	906.2	**TSS, Turbidity, Bifenthrin, Fecal Coliform,** Diazinon, Hyalella azteca acute survival,	**Poor IBI, O/E, Enterococci, Total Phosphorus, Total Nitrogen, TDS,** *Ceriodaphnia dubia* reproduction, Benthic Algae
Mission Bay and La Jolla Shores	MB-TWAS-1	906.4	**Turbidity, Bifenthrin, Fecal Coliform, TDS,** BOD, TSS, Permethrin	***Ceriodaphnia dubia* acute survival, *Ceriodaphnia dubia* chronic survival, *Ceriodaphnia dubia* reproduction, Poor IBI, O/E, TDS, Chloride[1], Sulfate[1]**, Bifenthrin[1], *Selenastrum* acute, CRAM, Total Nitrogen[1], Total Phosphorus[1]
	MB-TWAS-2	906.5	**TSS, Turbidity, Bifenthrin, Fecal Coliform**, BOD, Malathion, Permethrin, *Ceriodaphnia dubia* acute survival, *Ceriodaphnia dubia* chronic survival, *Ceriodaphnia dubia* reproduction	***Selenastrum* acute, *Ceriodaphnia dubia* acute survival, *Ceriodaphnia dubia* reproduction, Poor IBI, O/E, Enterococci, Benthic Algae,** Selenium, *Ceriodaphnia dubia* chronic survival, CRAM, Fecal Coliform
	TC-MLS	906.5	**Turbidity, Bifenthrin, Fecal Coliform**, TSS (-)	***Selenastrum* acute, *Ceriodaphnia dubia* reproduction, Poor IBI, O/E, CRAM, Total Nitrogen[1],** *Ceriodaphnia dubia* chronic survival, Total Phosphorus
San Diego River	SDR-MLS	907.11, 907.12, 907.13, 907.14, 907.15	**Turbidity, Fecal Coliform**, Bifenthrin	**Poor IBI, O/E, Enterococci[2],Dissolved Phosphorus, Total Nitrogen[3], TDS[3], Chloride[1],** CRAM, Fecal coliform[2], Total Phosphorus, Orthophosphate[2]

WMA	Station	HSA	Priorities	
			Wet	Dry
	SDR-TWAS-1	907.11, 907.12, 907.13, 907.14, 907.15	**Turbidity, Bifenthrin, Fecal Coliform**, Surfactants (MBAS), *Ceriodaphnia dubia* reproduction, TDS	**Poor IBI, O/E, Enterococci[2], Total Nitrogen[3], Dissolved Phosphorus, Total Phosphorus, Benthic Algae, TDS[3], Chloride[1],** BOD, CRAM, Fecal Coliform[2], E. Coli[2], Orthophosphate[2]
	SDR-TWAS-2	907.12, 907.13, 907.14, 907.15	**TSS, Turbidity, Bifenthrin, Permethrin, Fecal Coliform**, pH, BOD, *Hyalella azteca* acute	**Poor IBI, O/E, Total Nitrogen, Benthic Algae, Total Phosphorus, TDS, Chloride[1]**, CRAM[1], Enterococci, Fecal coliform[2], E. Coli[2], Orthophosphate[2], Dissolved Phosphorus
	SDR-TWAS-3	907.12, 907.14, 907.14, 907.15	**Turbidity, Bifenthrin, Fecal Coliform**	**Dissolved Oxygen[1], *Selenastrum* acute, Poor IBI, O/E, TDS**, CRAM, Enterococci, Total Nitrogen, Total Phosphorus, Dissolved Phosphorus
San Diego Bay - Pueblo	CC-SD8-1	908.22	**TSS, Turbidity (+), Copper (Dissolved), Bifenthrin, Cyfluthrin[4], Cypermethrin[4], *Hyalella azteca* acute survival (-), Fecal Coliform, Permethrin, Lead (Dissolved), Zinc (Dissolved),** BOD, COD, Surfactants (MBAS), *Ceriodaphnia dubia* reproduction	**Copper (Dissolved), Poor IBI, O/E, Dissolved Phosphorus, Total Phosphorus, Total Nitrogen, Benthic Algae, pH,** Selenium (Total), Turbidity, Surfactants (MBAS), COD, BOD, Ammonia as N, Oil & Grease, *Ceriodaphnia dubia* reproduction, *Ceriodaphnia dubia* acute survival, *Ceriodaphnia dubia* chronic survival, *Hyalella azteca* acute survival, *Selenastrum* acute survival, CRAM, Enterococci, Fecal Coliform
San Diego Bay - Sweetwater	SR-MLS	909.12	**Fecal Coliform, TDS**, Turbidity, Bifenthrin, *Ceriodaphnia dubia* reproduction, *Selenastrum* capricornutum acute	***Ceriodaphnia dubia* reproduction, *Selenastrum* acute, *Ceriodaphnia dubia* acute survival[1], *Ceriodaphnia dubia* chronic survival[1], Poor IBI, O/E, Total Nitrogen[1], TDS, Chloride[1],** Dissolved Oxygen[1], CRAM, Enterococci, Total Phosphorus, Dissolved Phosphorus
	SR-TWAS-1	909.21, 909.22, 909.23, 909.24, 909.25, 909.26	**Fecal Coliform**, Turbidity, Bifenthrin, *Selenastrum* acute, TDS	***Selenastrum* acute, Poor IBI, O/E, Benthic Algae, TDS**, Enterococci
San Diego Bay - Otay	OR-TWAS-1	910.2	**Bifenthrin**, Cyfluthrin[4], Surfactants (MBAS), TSS, Turbidity, Copper (Dissolved), TDS	***Ceriodaphnia dubia* reproduction, Poor IBI, O/E, Dissolved Phosphorus, Total Phosphorus, TDS**, *Ceriodaphnia dubia* acute survival, *Ceriodaphnia dubia* chronic survival, CRAM, Total Nitrogen
Tijuana River	TJR-MLS	911.11, 911.12, 911.21, 911.23, 911.24, 911.25, 911.82, 911.83, 911.84, 911.85	**BOD, COD, TSS (+), Turbidity (+), Diazinon (-), Bifenthrin, Cypermethrin[4], Permethrin[4], *Ceriodaphnia dubia* acute survival, *Ceriodaphnia dubia* chronic survival, *Ceriodaphnia dubia* reproduction, *Hyalella azteca* acute survival, Fecal Coliform (+), Total phosphorus**, Surfactants (MBAS), Malathion	**Ammonia as N, BOD, Surfactants (MBAS), *Selenastrum* acute, *Ceriodaphnia dubia* reproduction, Very Poor IBI, O/E, Enterococci, Fecal Coliform, Dissolved Phosphorus, Total Phosphorus, Total Nitrogen, Benthic Algae**, COD, Turbidity, *Ceriodaphnia dubia* chronic survival, *Hyalella azteca* acute
	TJR-TWAS-1	911.82, 911.83, 911.84	**Turbidity, TSS, Cyfluthrin[4], Fecal Coliform**, Surfactants (MBAS), Bifenthrin, TDS	**Poor IBI, O/E, Benthic Algae, TDS**, *Selenastrum* acute, Enterococci
	TJR-TWAS-2	911.11, 911.12, 911.21, 911.23, 911.24, 911.25, 911.82, 911.83, 911.84, 911.85	**BOD, TSS, Turbidity, Bifenthrin, Cypermethrin[4], *Ceriodaphnia dubia* acute survival, *Ceriodaphnia dubia* chronic survival, *Ceriodaphnia dubia* reproduction, Fecal Coliform, Total Phosphorus,** Dissolved Phosphorus, Permethrin, Cyfluthrin[4], Oil and Grease, COD, Surfactants (MBAS), *Hyalella azteca* acute	**Ammonia as N, BOD, COD, Surfactants (MBAS), Turbidity, TSS, *Ceriodaphnia dubia* acute survival, *Ceriodaphnia dubia* chronic survival, *Ceriodaphnia dubia* reproduction, Poor IBI, O/E, CRAM, Enterococci, Fecal Coliform, Dissolved Phosphorus, Total Phosphorus, Total Nitrogen, Benthic Algae**, *Selenastrum* acute

High-Priorities are highlighted **BOLD**
Medium-Priorities are not highlighted
* SMR-MLS site discontinued
** No Data for NPDES Dry Weather at SMR-MLS-2
(+) Increasing Trend
(-) Decreasing Trend
[1] Priority Constituent for SMC Program Only
[2] Priority Constituent for Third Party Only (Third Party data is Copermittee Data that is not a part of the Regional Monitoring Program)
[3] Priority Constituent for SMC Program and Third Party Only
[4] Priority Constituent for Synthetic Pyrethroids in Sediment Only

2.3 Monitoring Conclusions

The past five years of monitoring have provided a basis to assess the eight applicable objectives listed in Section I.3.a(6) of the Permit, the Program goals, and the five core management questions that relate to receiving water and urban runoff.

The Program also supports other LTEA objectives (Permit Section I.3.a(6)) related to assessment of specific pollutant sources and management activities. In general, these assessments are conducted at a more focused scale than the current Regional Monitoring Program. The Program has characterized and prioritized water quality issues in receiving waters at the watershed, and in some cases down to the hydrologic area scale, which has resulted in greater focus on these issues in regional, watershed, and jurisdictional management programs. The prioritization of water quality issues facilitates the directing of resources for more effective outcomes by targeting the priority constituents. Greater focus on the MS4 and specific sources may further refine priorities and more clearly respond to the remaining objectives regarding source identification and management action assessments.

One particular insight from the analysis of the receiving water data collected to date is that it will likely be difficult to assess the effectiveness of individual or combined activities using wet weather trend data at the watershed scale due to the variability of the data and the differences in scale of the potential land use and source contributions for most constituents. One exception to this is the observed continuing downward trend of Diazinon concentrations at the MLS in watersheds where this constituent had previously exceeded the benchmark. This situation is due to the USEPA ban of this pesticide, which has resulted in the gradual elimination of its use and detection in storm flows. This “true source control” or essential elimination of this pesticide and ongoing public education has, therefore, been demonstrated to be highly effective. For management actions that address water quality issues through operational source controls, runoff reductions, and other non-structural and structural Best Management Practices (BMPs), additional data are used to assess effectiveness that considers the target audience, the modified behavior, and the most cost-effective method to collect and assess the data.

The Program has met six of the eight Program goals that primarily deal with characterization of water quality and the identification of water quality priorities. The remaining two objectives (goals 5 and 2, see Section 1.2) that the Program has addressed are focused on source identification and measurement and the improvement of the effectiveness of the Copermittees’ urban runoff management programs, respectively. The Program has characterized and prioritized receiving water issues, and while the Program has begun to address source identification and effectiveness assessment, emphasis can now be shifted from receiving waters to the MS4 and sources to better address these objectives. In addition to water quality monitoring assessment, program management assessment includes other methods and data sets for evaluations, including observational data gathering, surveys, modeling, and tracking and reporting of specific management action implementation. These data can also be used as the program evolves to expand the receiving water knowledge base.

Overall, the Program addressed the five core management questions, similar to the LTEA objectives and Permit Regional Monitoring Program goals. The core questions regarding the contribution of the MS4 to those receiving water priorities are being addressed with regard to identification of common priorities through the MS4 targeted and random programs. The MS4 Outfall Program results have shown linkages to several receiving water issues. Generally, the common regional linkages between receiving water quality priorities and MS4 priorities include:

- Wet Weather – Bacteria indicators, predominantly fecal coliform, are common priorities in both MS4 outfall and receiving water storm flows
- Dry Weather – Bacteria indicators (predominantly enterococci), nutrients (predominantly total nitrogen), and TDS are commonly priorities in both MS4 outfall and receiving water dry weather flows

The linkages to receiving water issues can be used as the basis to refine the MS4 program and begin identifying sources of these common priorities. With the progress of the Regional Monitoring Program in addressing the core management questions regarding the health and characterization of the receiving water, there are now opportunities for tradeoffs to focus on source identification.

3 Source Management Priorities

3.1 Section Overview

This Section identifies pollutant sources and pollutant-generating activities and then assesses their potential for discharging pollutants during wet and dry conditions. This information will be used for two purposes: 1) as a factor in prioritizing management decisions and PMP implementation; and, 2) support evaluations and assessment of the Copermittees' programs.

Figure 3-1 below shows the Source Management

3.2 Overview of Priority Sources

The Permit identifies a number of source categories (approximately 63 source categories) subject to programmatic oversight by the Copermittees. In addition, the Permit requires the Copermittees to identify, if appropriate, other high priority sources (see LTEA assessment 3, section 1.2). In the 2005 BLTEA effort, 34 sources were identified for evaluation. In this LTEA some of these sources were removed, or combined, and others were added resulting in a total of 37 source categories assessed in this report. The following efforts were conducted to initially screen the source categories:

1) Compile and summarize existing inventory data for the high priority sources identified in the Permit
2) Review other jurisdictional prioritization efforts (including review of Copermittee JURMPs and Annual Reports) to identify other possible high priority sources not already included in the Permit
3) Reorganize/consolidate list of 63 source categories and select 37 priority source categories for further evaluation
4) Prepare Source Profile Sheets for the 37 selected source categories
5) Compile the Source Profile Sheets to prioritize the sources and Pollutant Generating Activities (PGAs) for their pollutant discharge potential.

The Permit identifies the following source categories as priority sources:

1) Residential areas and activities
2) Development projects
3) Construction sites
4) Municipal facilities and activities
5) Commercial sites and sources
6) Industrial facilities

A complete list of the source categories is provided in **Table 3-1** below.

Table 3-1: Permit Defined Priority Source Categories

Permit Item	Source Category
D.3.c.(1)	***Residential Areas and Activities***
a	Automobile repair, maintenance, washing, and parking
b	Home and garden care activities and product use
c	Disposal of trash, pet waste, green waste, and household hazardous waste
d	Activities Copermittees prioritize
e	Areas tributary to 303(d) impaired waterbody
f	Area adjacent to or directly discharging to a coastal lagoon or ESA
D.1.d.	***Development Projects***
(1)a	Redevelopment projects subject to SUSMPs that create, add, or replace at least 5,000 sq. ft. of impervious area
(2)a	Housing subdivisions of 10 or more dwelling units
(2)b	Commercial development > 1 acre
(2)c	Heavy industrial development > 1 acre
(2)d	Auto repair shops
(2)e	Restaurants
(2)f	Hillside development > 5,000 sq. ft.
(2)g	Development within or directly adjacent to or discharging directly to ESAs
(2)h	Parking lots ≥ 5,000 sq. ft.
(2)i	Streets, roads, highways, and freeways ≥ 5,000 sq. ft.
(2)j	Retail gasoline outlets
D.3.a.(7)(a)	***Municipal Facilities and Activities***
i	Roads, streets, highways, and parking facilities
ii	Flood management projects and flood control devices
iii	Areas and activities tributary to a 303(d) impaired waterbody that generate pollutants for which waterbody is impaired
iii	Areas and activities adjacent or discharging to coastal lagoons or ESAs
Iv[1]	Active or closed municipal landfills
Iv[2]	POTWs (water and wastewater)
Iv[3]	Solid waste transfer facilities
Iv[4]	Land application sites
Iv[5]	Corporate yards (incl. maintenance/storage yards)
iv[6]	Household hazardous waste collection facilities
v	Airfields
vi	Parks and recreational facilities
vii	Special event venues following special events

Permit Item	Source Category
D.3.a.(7)(a)	***Municipal Facilities and Activities***
viii	Power washing
ix	Municipal areas and activities Copermittees determine significant
D.3.b.(1)	***Commercial Sites and Sources***
(a)i	Auto repair, maintenance, fueling, or cleaning
(a)Ii	Airplane repair, maintenance, fueling, or cleaning
(a)Iii	Boat repair, maintenance, fueling, or cleaning
(a)Iv	Equipment repair, maintenance, fueling, or cleaning
(a)v	Auto or other vehicle body repair and painting
(a)vi	Mobile automobile or vehicle washing
(a)vii	Auto (or other vehicle) parking lots and storage facilities
(a)viii	Retail or wholesale fueling
(a)ix	Pest Control Services
(a)x	Eating or drinking establishments, including food markets
(a)xi	Mobile carpet, drape, or furniture cleaning
(a)xii	Cement mixing or cutting
(a)xiii	Masonry
(a)xiv	Painting and coating
(a)xv	Botanical or zoological gardens and exhibits
(a)xvi	Landscaping
(a)xvii	Nurseries and greenhouses
(a)xviii	Golf courses, parks and other recreational areas/facilities
(a)xix	Cemeteries
(a)xx	Pool and Fountain cleaning
(a)xxi	Marinas
(a)xxii	Portable sanitary services
(a)xxiii	Building material retailers and storage
(a)xxiv	Animal facilities
(a).xxv	Power washing services
D.3.b.(1)	***Industrial Facilities***
(b)i	40 CFR 122.26(b)(14)
(b)ii	Operating and closed landfills
(b)iii	Facilities subject to SARA Title III
(b)iv	Hazardous waste treatment, disposal, storage, and recovery facilities
c	Site/source tributary to a 303(d) listed waterbody where the site/source generate to pollutant for which the waterbody is impaired
c	Sites/source within or directly adjacent to or discharging directly to coastal lagoons or ESAs
d	All other industrial sites/source the Copermittees determine significant

The initial consolidation was based on the 2005 BLTEA effort which conducted the same review of the priority sources in RWQCB Order 2001-01. The current effort meets the Permit requirement which directs the Copermittees to build upon the results of the 2005 BLTEA. However, the Permit identifies additional sources such as power washing and building materials retailers and storage, which the Copermittees have added in this LTEA effort.

2008 JURMPs were reviewed to assess potential sources. Based on the Permit priority sources and this review, the following sources were added to those identified in the 2005 BLTEA effort for evaluation:

- Offices with onsite and outdoor storage facilities (e.g., towing and landscaping businesses)
- Concrete manufacturing
- Stone/Glass manufacturing
- Food manufacturing
- Building materials retailers and storage – New priority source identified in the Permit
- Power washing – New priority source identified in the Permit

The final list of priority sources for evaluation is presented in **Table 3-2** below.

Table 3-2: Priority Sources for which Source Profiles Were Developed

No.	Permit Item	Priority Source Categories/Activities
1	**3.c.(1)(a-f)**	**Residential Areas and Activities**
	1.d.	**Construction projects**
2	(2)(b-c)	Sites > 1 acres
3		Sites < 1 acre
4	(2)(f-g)	Construction Projects - ESA or hillside or sediment TMDL
	1.d.	**New Development and Significant Redevelopment Projects**
5	1)(a)	Development subject to SUSMPs (> 5000 sf impervious area)
	3.a.(7)(a)	**Municipal Facilities and Activities**
6	i	Roads, streets, highways, and parking facilities
7	ix	MS4s – catch basins, drain inlets, conveyance, pump stations
8	iv[5]	Corporate yards (incl. maintenance/storage yards)
9	vi	Park and Recreational facilities - parks, golf courses, cemeteries, entertainment venues.
10	(a)i	Auto mechanical repair, maintenance, fueling, or cleaning
11	(a)iv	Equipment mechanical repair, maintenance, fueling, or cleaning
12	(a)v	Automobile and other vehicle body repair and painting
13	(a)vi	Mobile automobile or vehicle washing
14	(a)xxv	Mobile power washing*
15	(a)vii	Auto parking lots
16	(a)viii	Retail or wholesale fueling
17	(a)ix	Pest Control Services
	3.b.(1)	**Commercial Activities (continued)**
18	(a)x	Eating or drinking establishments
19	(a)xi	Mobile carpet, drape, or furniture cleaning
20	(d)	General contractors for home/commercial improvements
21	(a)xv	Botanical or zoological gardens and nurseries/greenhouses
22	(a)xvi	Mobile Landscaping
23	(a)xx	Pool and Fountain cleaning
24	(a)xxi	Marinas
25	(a)xxiv	Animal kennels, horse stables
26	(d)	Offices with onsite and outdoor storage facilities
27	(a)xxiii	Building materials retailers and storage*
	3.a-b	**Industrial Facilities**
28	3.b.(1)d	Chemical and allied products
29	3.b.(1)d	Fabricated metal
30	3.b.(1)d	Primary metal
31	3.b.(1)d	Recycling, junkyards, scrap metal
32	3.b.(1)d	Airfields
33	3.b.(1) (b)i	Motor Freight
34	3.a.(7)(a)iv[2]	POTWs (water and wastewater)
35	3.b.(1)d	Concrete manufacturing*
36	3.b.(1)d	Stone/Glass manufacturing*
37	3.b.(1)d	Food manufacturing*

*New sources not included in the 2005 BLTEA

In addition to the Permit required sources identified above for evaluation, the Copermittees have identified the following non-controllable sources:

- Air deposition
- Bacteria regrowth
- Groundwater intrusion
- Erosion

Although outside of the purview of MS4 permitting, these sources should be considered by the Copermittees when evaluating their threat to water quality (TTWQ), PMP implementation and management decisions.

Air deposition is a known source of heavy metals in San Diego County. The City of San Diego conducted a three-phase study of air deposition contributions to the storm drain system. Results indicate that deposition is a significant contributor of metals in stormwater and receiving waters in some areas. The primary sources of particulate emissions include transportation related activities, industrial facilities, and general area-wide emissions. The study focused on Chollas Creek where there is a TMDL for dissolved copper, lead, and zinc, with no point sources. Results indicated air deposition accounted for 100%, 29%, and 74% of the annual load of copper, lead, and zinc, respectively in stormwater runoff in Chollas Creek. Emission contributions varied depending on factors that include, but are not limited to, distance to/from the emission sources, wind speed and direction, traffic volume, and humidity. Phase II of the study showed that copper and lead show low solubility in their deposited state, but zinc was relatively soluble (47% to 88% of total in the three events monitored). A recent, related study performed by the Southern California Coastal Water Research Project found that San Diego Bay (at the mouth of Chollas Creek) had the highest copper depositional rate when compared to eight other Southern California coastal embayments, including Los Angeles Harbor (SCCWRP, 2007).

The City of San Diego also conducted a study of bacteria sources in the Chollas Creek Watershed which is 303(d) listed for indicator bacteria in addition to metals. The study focused on the Chollas Creek tidal prism (that area of the watershed influenced by the maximal extent of the tide) during dry weather. The study found that among other sources, bacteria originated from scour ponds where depressions within the streambed can maintain high levels of bacteria. As the tide rises and falls, it maintains a reservoir of brackish water in the scour ponds and carries bacteria from ponds to other areas within the tidal prism. In this way, the scour ponds serve as a point of inoculation for the mouth of Chollas Creek.

Groundwater intrusion has been found to be a source of nutrients in the stormdrain system. Chula Vista conducted a long-term study of groundwater infiltration into its storm drain system and identified several locations where there is a consistent inflow of groundwater. Based on water quality monitoring, it was determined these are not potable water discharges. Similarly, the City of Santee conducted research, investigations and analyses of dry weather monitoring data that resulted in findings of high nitrate-nitrogen in groundwater (City of Santee, 2008). It is believed that nitrogen-rich groundwater is contributing to elevated nitrogen levels observed in the water quality monitoring throughout the region.

Erosion is a naturally occurring process that should be mimicked in the urban environment as it leads to stream bed stabilization and beach sand replenishment. The current effort to develop hydromodication plans and research to characterize stream bed stability address this process and should be considered in the assessment of pollutant loading potential.

3.3 Priority Source and Pollutant Generating Activities

A profile sheet was prepared for each of the 37 priority sources. The Source Profile Sheets contain five different sections:

1) Narrative Description
2) Pollutant Generating Activities and Associated Pollutants
3) Discharge Potential
4) Legal/Regulatory Oversight
5) Source Prevalence and Distribution

Within these sections, regional-, watershed- and sub-watershed-specific information was compiled into seven concise tables to characterize the source and to better evaluate the potential it may have to discharge pollutants into waterways.

3.3.1 Narrative Description

The Narrative Description gives an overview of the source. It defines the activities that constitute the source and lists SIC and NAICS codes that identify the source where applicable.

3.3.2 Pollutant Generating Activities

Activities that have the potential to generate pollutants and the type of pollutants are identified in this section. Associated pollutant types assessed in the 2005 BLTEA effort included heavy metals, organics, oil and grease, sediment, pesticides, nutrients, and bacteria/pathogens. For this effort, gross pollutants were replaced with trash and dissolved minerals were added. Furthermore, the potential of these pollutants being discharged in wet and dry weather conditions is considered. It should be noted that in assessing the potential it was assumed that there were no BMPs in place and rainfall was the mechanism to transport the pollutant (e.g., illegal discharges were not considered). Dry weather potentials are based on the assumption that irrigation and cleaning activities act as transport mechanisms. As with the wet weather assumptions it was assumed that no BMPs were in place.

The following sources were used to compile the Activity Tables:

- Kings County Stormwater Pollution Control Manual (http://dnr.metrokc.gov/wlr/dss/spcm.htm)
- LA County Stormwater Inspection Form
- CASQA Industrial Stormwater BMP Manual (http://www.cabmphandbooks.com/Industrial.asp)
- CASQA BMP Handbooks Portal: Construction
- Orange County Stormwater Inspection Form
- Development Planning for Storm Water Management – A Manual for the Standard Urban Storm Water Mitigation Plan (SUSMP) (http://ladpw.org/wmd/NPDES/SUSMP_MANUAL.pdf)
- Personal communication with Robert Lipetz, Executive Director of the Glass Manufacturing Industry Council

After review of these sources and development of the activity-pollutant tables, best professional judgment was applied to revise some of the entries to include only the most probable activities and associated pollutants.

Table 3-3 and Table 3-4, taken from the automobile and other vehicle repair and painting Source Profile sheet (SPS#10), are included below as an example.

Table 3-3: Summary of Typical Activities and Associated Pollutants during Wet Weather

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	Organics	Oil & Grease	Sediment	Dissolved Minerals	Pesticides	Nutrients	Trash	Bacteria/ Pathogens
Auto Mechanical Repair, Maintenance, Fueling, or Cleaning									
Waste handling and disposal	X	X	X				X	X	
Cleaning facilities	X	X	X	X	X			X	
Cleaning or washing of tools, parts, and equipment	X	X	X	X	X				
Vehicle and equipment cleaning	X	X	X	X	X				
Hazardous waste disposal	X	X	X						
Engine repair/maintenance	X	X	X						
Storage of liquid materials in stationary tanks	X	X	X						
Storage of any liquid materials in portable containers	X	X	X						
Painting, finishing, and coating automobiles	X	X		X					
Vehicle and equipment maintenance and repair	X	X	X					X	
Vehicle and equipment fueling	X	X	X					X	

Table 3-4: Summary of Typical Activities and Associated Pollutants during Dry Weather

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	Organics	Oil & Grease	Sediment	Dissolved Minerals	Pesticides	Nutrients	Trash	Bacteria/ Pathogens
Auto Mechanical Repair, Maintenance, Fueling, or Cleaning									
Cleaning facilities	X	X	X	X	X			X	

3.3.3 Discharge Potential

In this section each source category is evaluated to assess the potential of the source category discharging pollutants. A score of 1 to 5 was assigned based on its discharge potential with 5 being the highest potential and 1 being the lowest. In the 2005 BLTEA a questionnaire was developed and submitted to a limited number of entities[1]. The questionnaire asked, for each of the source category, what information types were available that could assist in assessing the loading potential. The questionnaire respondents were asked to provide a numeric score to each of the information types for each source category.

In addition to the questionnaire information, for this LTEA effort, current monitoring results, Focused Analyses and annual reports were considered in assigning the ranking score. A discharge potential score

[1] The entities included, the County of San Diego; Mikhail Ogawa Engineering which has performed inspection services for the following cities: Del Mar, Vista, San Marcos, and Dana Point; D-Max Engineering who has performed inspections and dry weather monitoring services for the following cities: Carlsbad, Chula Vista, El Cajon, Encinitas, La Mesa, Lemon Grove, National City, Poway, San Diego, San Marcos, Santee, Vista, and the San Diego Unified Port District.

was only provided for wet weather as the original questionnaire only considered wet weather and there was inadequate information/data to rank discharge potential for dry weather.

For each source category, the scores given for each information type were averaged to obtain a source-specific ranking of pollutant discharge potential. The maximum source-specific ranking was then taken as the overall source-specific ranking. These discharge potentials were reviewed and revised as necessary for this report.

Table 3-5, taken from the automobile and other vehicle repair Source Profile sheet (SPS#10), is included below as an example.

Table 3-5: Summary of Available Information Types Related to Assessing Discharge Potential

Auto Mechanical Repair, Maintenance, Fueling or Cleaning		
Information Type	**Information Available**	**Average Ranking***
Dry weather monitoring	Y	4.5
Illicit discharge records	Y	4
Pretreatment compliance records	Y	
Underground storage tank records	Y	
Hazardous waste storage records	Y	
Inspection records	Y	5
Other information? Specify here	Y	4

*Scoring Legend
1 – Low discharge potential
2 – Medium-low discharge potential
3 – Unknown, information does not adequately characterize discharge potential
4 – Medium-high discharge potential
5 – High discharge potential
Overall ranking is the highest "average ranking" received for the various information types. When less than 2 scores were given, due to lack of information, the overall ranking was adjusted to 3 – unknown potential.

Sources added for this LTEA were not included in the original 2005 questionnaires. In lieu of information from the questionnaires, best professional judgment was used to assign a discharge potential for these sources. For construction projects, a ranking of 5 was applied to sub-categories of construction projects based on the questionnaires filled out by the Copermittees in the 2005 LTEA effort for construction sites greater than 1 acre in size. In cases where the permit identified a new source to be included in Copermittee inventories, the source was assigned a discharge potential of 4.

3.3.4 Legal/Regulatory Oversight

This section characterizes existing legal / regulatory oversight (Copermittee programs, Statewide NPDES permits, other permit programs, consent decrees, etc.) that are available for addressing the discharge of pollutants for the source categories. To compile the information for the sections, a template table was created that listed all of the source categories and all of the potential stormwater and non-stormwater related regulatory oversights. A limited number of Copermittees received this table for completion[2] during the 2005 BLTEA effort. Because the initial questionnaire did not address the new source profile sheets developed, as part of the 2011 LTEA, best professional judgment was used to assign presence or absence of regulatory oversight.

[2] The following Copermittees and entity completed the regulatory oversight form: the County of San Diego; the San Diego Unified Port District; Mikhail Ogawa Engineering.

Tables 3-6, taken from the automobile and other vehicle repair Source Profile sheet (SPS#10), is included below as an example.

Table 3-6: Example Summary of the Stormwater-Related and Other Related Regulatory Oversight of Auto Mechanical Repair and Maintenance

Auto Mechanical Repair, Maintenance, Fueling or Cleaning		
Oversight Type	**Regulatory Oversight**	
Stormwater	NPDES Municipal Permit/Local Ordinances	X
	NPDES General Industrial Permit	
	NPDES General Construction Permit	
Other Regulatory Programs	Industrial Pretreatment Program (EPA)	X
	Hazardous Materials/CUPA (County DEH)	X
	CURFFL (County DEH)	
	Local Enforcement Agency – Landfills (County DEH)	
	Air Quality Permits (APCD)	X
	Fire Agencies	
	Pesticide Regulatory Program (County AW&M)	
	Coast Guard	

3.3.5 Source Prevalence and Distribution

In this section the prevalence of each source category was determined. Source prevalence data gathered during the 2005 LTEA effort was used to create inventory tables. The inventory tables provide a list of source prevalence and distribution based on regional, watershed and jurisdictional source inventories. The results of the 2005 regional effort to inventory and geocode the sources are summarized in the first two tables of each Source Profile Sheet. While many of the source categories were effectively included in the inventory process, as noted previously there were some limitations of the inventory used for the Source Profile Sheets. Some of the source types were not included in the inventory process because inventory information was not readily available. Some of the inventories were conducted on only a watershed-basis (not to the sub-watershed level), or a regional-basis. Therefore these sources were not directly comparable with the other sources.

As noted above the 2005 inventory based tables were used for the current LTEA. For planning purposes these tables provide a reasonable starting point since the number of businesses remains relatively constant, although there is likely a reduction in numbers due to the recent slowdown in the economy. The Copermittees are encouraged to standardize their local inventories in a manner that they can be consolidated with geo-spatial information to develop inventories that are current and available at whatever scale is necessary. The Copermittees have completed this standardization process for their inventoried Industrial/Commercial sources.

Table 3-7, taken from the automobile and other vehicle repair Source Profile sheet (SPS#10), is included below as an example.

Table 3-7: Example Summary of Automobile Mechanical Repair, Maintenance, Fueling, or Cleaning Sources within each of San Diego County's sub-watersheds

Watershed Management Area	Hydrologic Unit (HU)	Sources Geo-coded by Sub-watershed Hydrologic Unit									Total Geo-Coded Sources
		90X.10	90X.20	90X.30	90X.40	90X.50	90X.60	90X.70	90X.80	90X.90	
Santa Margarita	902.XX	28	1	0	0	0	0	0	0	0	29
San Luis Rey	903.XX	54	3	0							57
Carlsbad	904.XX	49	94	32	5	110	159				449
San Dieguito	905.XX	13	18	1	33	0					65
Peñasquitos	906.XX	148	53								201
Mission Bay	906.XX			32	57	30					119
San Diego River	907.XX	439	2	8	3						452
San Diego Bay – Pueblo	908.XX	8	319	78							724
San Diego Bay – Sweetwater	909.XX	161	27	2							
San Diego Bay – Otay	910.XX	5	122	2							
Tijuana	911.XX	26	0	1	0	0	1	0	3		31
Total Geo-Coded Sources											**2127**
Total Sources (including non geo-coded)											**2127**

3.4 Source Loading Potential

The next step in the source assessment process is to assign the potential of a source category to contribute a significant loading of pollutants to a receiving water or municipal storm drain. With the information collected and summarized in the Source Profile Sheets (**Appendix A**), each of the 37 sources identified during the initial prioritization process (Section 3.2) could be evaluated for their potential to discharge pollutants into the storm drainage system.

Two sources of information were used to assess the loading potential of a specific source category: the number of pollutant generating activities associated with the source category (Section 3.2) and pollutant discharge potential (Section 3.3.3). A scoring system was established for each source of information and then combined to provide an overall score for loading potential.

3.4.1 Activities

As previously noted, each Source Profile Sheet provides a list of activities commonly associated with each source category. The pollutant(s) associated with each activity is also identified. Using this information the numbers of activities generating a specific pollutant were tabulated for each source category. Scoring was then assigned based on the number of activities, with higher scores reflecting more pollutant generating activities. For scoring purposes, if a source category had no activities associated with a specific pollutant, that pollutant received a score of zero (0). If one to four (1-4) activities were associated with the discharge of a specific pollutant, that pollutant received a score of

one (1). If four or more activities were associated with the discharge of a specific pollutant, that pollutant received a score of two (2).

3.4.2 Field Observations

As noted in Section 3.3.3, a number of entities responded to a questionnaire that assessed the likelihood of a specific source category discharging a pollutant during the 2005 BLTEA effort. This assessment was based on some of the Copermittees' field observations and experience. The compiled information resulted in each source category receiving an initial assessment ranging from one to five (1-5), with one (1) equaling no or an unknown discharge potential, and five (5) equaling a high discharge potential. The assessment was not based on a pollutant specific response but a more generic assessment of whether the source category had the potential to discharge pollutants. The initial assessments were later modified to allow further delineation of the potential, see **Table 3-8**. If the source category received an assessment of zero (0) or one (1), it received a score of zero (0). If the source category received an average assessment of two (2) or three (3), it received a score of three (3). If the source category received an average assessment of four (4), it received a score of six (6). If the source category received an average assessment of five (5), it received a score of nine (9).

3.4.3 Scoring

The scoring process described above was used to determine the overall source loading potential ranging from none to likely. **Table 3-8** summarizes how these rankings were assigned. The scores were summed: for example a discharge potential of zero (0) and pollutant generating activity score of greater than two (2) resulted in a final score of two (2). Finally, qualitative scores of unlikely, likely, etc. were assigned to the potential of the source based on a scoring matrix, shown in **Table 3-9**.

Table 3-8: Final Scoring Matrix Based on Number of Pollutants Generated and Field Observations.

			Number of Pollutant generating activities (See Section 3.3.2)		
			0	1-4	>4
	Initial Assessment	**Score**	**0**	**1**	**2**
Field Observation Discharge potential - 1 = no discharge potential 5 = high discharge potential (see Section 3.3.3)	0-1	**0**	0	1	2
	2-3	**3**	3	4	5
	4	**6**	6	7	8
	5	**9**	9	10	11

Note: For each shaded cell, scores from 'Activities' worksheet were added to score from 'Existing Information' worksheet to obtain a final score.

Numeric scores were then converted into qualitative loading potentials of none to likely as shown in **Table 3-9.**

Table 3-9: Final Source Loading Potential Rating Based on Final Scores.

			Number of Pollutant generating activities		
			0	1-4	>4
	Initial Assessment	**Score**	**0**	**1**	**2**
Field Observation Discharge potential - 1 = no discharge potential, 5 = high discharge potential	0-1	**0**	N	UK	UK
	2-3	**3**	N	UL	UL
	4	**6**	UL	UL	L
	5	**9**	UL	L	L

Note: Final scores shown in Table 3-9 are converted to obtain a rating of 'N', 'UK', 'UL', or 'L' (N – None; UK – Unknown; UL – Unlikely; L – Likely).

Because discharge potentials were not identified for dry weather activities, source loading potentials were not ranked for dry weather activities.

3.4.4 Results

Once a score for each pollutant in each source category was developed, the final scores were evaluated and revised using best professional judgment to ensure that the final source contribution potentials were appropriate. Final 2011 rankings are slightly different from those developed in the 2005 BLTEA because activities for each source were reevaluated and activities were added, removed, or modified. In some cases, the pollutants associated with an activity were reevaluated. In addition, new pollutant categories for dissolved minerals and trash were added.

The final Source Loading Potential table, presented in **Table 3-10**, designates nine (9) pollutant-specific loading potentials ('N'-none, 'UL'-unlikely, 'UK'-unknown, 'L'-likely) for each of the 37 identified source categories.

3.5 Limitations

The development of the load potential table, although based on a reasonable and logical approach, was limited by the general lack of information used to complete the scoring. Consequently the scoring should be considered preliminary. Attempts were made, however, to utilize the more conservative results (i.e. higher discharge potential) in the final source loading potential determination. Furthermore, as the activities/pollutants table included a subjective identification of potential activities present at each source category, the number of activities utilized in the scoring process is only an estimate based on best professional judgment. Therefore, the final determinations required review and minor revision using best professional judgment to ensure final designations were appropriate and reasonable.

To refine the results of the source assessment the Copermittees may further evaluate field information sources (e.g., dry weather monitoring, inspections, etc.) to provide a more objective evaluation of the potential to discharge pollutants. However, this method requires standardized implementation, data tracking and reporting.

Furthermore, the Source Profile Sheets in Appendix A include source prevalence data from the 2005 BLTEA effort. Based upon need and scale of application, it appears that greater consistency in local Copermittee inventories (inclusion of comparable geo-spatial information, etc.) would facilitate analysis across jurisdictional boundaries. Over time, this would increase the accuracy and utility of tools such as the Source Loading Potentials presented in **Table 3-10.**

Table 3-10: Final Source Loading Potentials

Source Profile #	Activities with Source Loading Potential	Metals	Oil & Grease	Sediment	Pesticides	Nutrients	Bacteria/ Pathogens	Dissolved Minerals	Organics
1	Residential Areas and Activities	L	L	L	L	L	L	L	L
2	Construction Sites > 1 acre	UL	UL	L	UL	UL	UL	L	UL
3	Construction Sites < 1 acre	UL	UL	L	UL	UL	UL	UL	UL
4	Construction Sites: ESA or hillside or sediment TMDL	UL	UL	L	UL	UL	UL	UL	UL
5	Development subject to SUSMPs (> 5,000 sq. ft. impervious area)	UK	UK	UK	UK	UK	UK	UL	UK
6	Roads, streets, highways, and parking facilities	L	L	L	UL	L	L	L	L
7	MS4s - Catch Basins, Drain Inlets, Conveyance, Pump Stations	N	N	L	N	N	UK	UL	N
8	Corporate yards (incl. maintenance/storage yards)	L	L	L	UK	UK	UL	UL	L
9	Parks and Recreational Facilities - parks, golf courses, cemeteries, entertainment venues, etc.	UK	UK	UK	UK	L	UK	UL	UK
10	Auto Mechanical Repair, Maintenance, Fueling, or Cleaning	L	L	UL	UL	UK	UL	L	L
11	Equipment mechanical repair, maintenance, fueling, or cleaning	L	L	UL	UL	UK	UL	UL	L
12	Automobile and Other Vehicle Body Repair and Painting	L	L	UL	UL	UL	UL	L	L
13	Mobile automobile or vehicle washing	L	L	L	UL	UL	UL	UL	L
14	Mobile Power washing*	UK	UK	UK	UK	UK	UK	UK	UK
15	Auto parking lots and storage facilities	L	L	L	UK	UK	UK	UL	L
16	Retail or wholesale fueling	UK	L	UK	N	N	N	N	L
17	Pest Control Services	N	UK	N	L	N	UK	N	UK
18	Eating or drinking establishments	N	L	UL	UK	UK	L	UL	L
19	Mobile carpet, drape, or furniture cleaning	N	UK	UL	N	UK	UL	N	UL
20	General contractors for home/commercial improvements	UL	UL	L	UL	UL	UL	UL	UL
21	Botanical or zoological gardens and nurseries/greenhouses	L	UL	L	L	L	L	UL	UL
22	Mobile Landscaping	N	UL	L	L	L	L	UL	N
23	Pool and Fountain Cleaning	N	N	N	N	UK	N	N	UK
24	Marinas	L	L	N	UK	UK	UK	N	UK
25	Animal Kennels	N	UL	L	UK	L	L	N	L
26	Building Materials Retail and Storage	L	L	L	UL	UL	UL	UL	L
27	Chemical and allied products	UK	UK	UK	UK	UK	UL	N	L
28	Fabricated metal	L	L	UK	UK	UK	UL	UL	L
29	Primary metal	L	UK	UK	UK	UK	UL	N	UK
30	Recycling, Junk Yards, Scrap Metal	L	L	L	UL	UL	UL	L	L
31	Airfields	UK	UK	UK	UK	UK	N	UL	UK
32	Motor Freight	L	L	UK	UK	UK	UK	UL	L
33	POTWs (water and wastewater)	UK	UK	UK	N	UK	L	UL	UK
34	Concrete Manufacturing	L	L	L	UL	UL	UL	UL	L
35	Stone/Glass Manufacturing	L	L	L	UL	UL	UL	UL	L
36	Food Manufacturing	UL	UL	UL	UL	UL	UL	UL	UL

N = None, UK = Unknown, UL = Unlikely, L = Likely

* Power washing activities are not likely to occur during wet weather. To evaluate the source, the dry weather source loading potential is included in this table based on activities that would take place during dry weather

4 Threat to Water Quality

4.1 Section Overview

In Section 2 water quality priorities and associated pollutants were established for the watersheds in the San Diego region, while in Section 3 the sources of these pollutants were identified and the sources potential to discharge the pollutant was assessed. In this section a process that uses the information of Sections 2 and 3 is established to develop a Threat-to-Water-Quality (TTWQ) rating that then can be used to direct and focus the stormwater management program. The purpose of developing TTWQ is to use available information to prioritize sources in selected geographical areas, e.g, watersheds. Each watershed has varying pollutant priorities and sources of pollutants, therefore the TTWQ will vary from watershed to watershed.

For the purposes of this LTEA, *watersheds* are defined as tributary areas that drain towards a common point. Examples of watersheds include, but are not limited to:

- Watershed Management Areas
- Hydrologic Areas
- Hydrologic Sub-Areas
- Smaller Tributary Areas

The results of the process can assist in:

1) Prioritizing sources within watershed areas
2) Assessing if the existing programs implemented in each watershed are focused on the appropriate sources
3) Assisting the development and prioritization of watershed activities and determining locations of appropriate activity implementation
4) Assisting in source identification and investigations based upon downstream water quality results

In the 2005 BLTEA, a process for TTWQ was developed and resulted in source ratings for eight (8) pollutant categories in each of the watershed management areas. Although the process for TTWQ development was sound, it had constraints – primarily the limited factors included in the process. The final inputs into the BLTEA TTWQ process included:

1) Water Quality Ratings – a quantifiable priority of threat, for each pollutant category, to beneficial uses based upon pollutant types found in the analyzed waters
2) Source Loading Potential – a rating, for each pollutant category, of the potential for a source type to discharge pollutants
3) Quantity of Sources – based upon the best available inventory data, the number of facilities in each watershed management area was determined using GIS

As a result of the TTWQ ratings, Copermittees were able to utilize a prioritization process for pollutant-source combinations to assist in guiding program management decisions. However, due to jurisdictional permit constraints, the results primarily benefited Watershed Urban Runoff Management Program activity development and prioritization of commercial/industrial inventories.

Feedback from the Copermittees has influenced the TTWQ process for this Long-Term Effectiveness Assessment effort. Namely, rather than develop actual ratings, this LTEA provides factors to consider and guidelines for including these factors in several examples TTWQ processes. However, the core principle of the TTWQ remains the same: use water quality information in combination with source information to assist in prioritizing sources for Copermittees to apply PMPs.

In addition to the factors identified and used in the BLTEA TTWQ process, additional criteria should be evaluated and considered by Copermittees on a case-by-case basis. The additional considerations that could influence the TTWQ process are grouped by category and follow in no particular order:

Water Quality

1) Existing TMDLs/303(d) listings
2) Robustness of water quality data
3) Number of water quality issues

Sources

1) Sources with multiple priority pollutants
2) Confidence in nexus between pollutants and sources
3) Age of facilities, e.g., outdoor impacts, exposure
4) Relative contribution of the source(s) to the overall watershed area – land use area
5) Transport mechanisms at sources

There are two primary approaches to the TTWQ process: a single-pollutant approach and multi-pollutant approach. Each follows the basic core steps, however, the multi-pollutant approach cycles through the process for each pollutant category and results in prioritizing sources based on multiple pollutants evaluated.

Examples of the TTWQ process are presented in **Appendix B**.

4.2 Establishing Source TTWQ

TTWQ is the result of combining source and water quality information and data that have been developed and analyzed through the processes described in the previous sections. The process for a single-pollutant approach to develop TTWQ is described below. To utilize the multi-pollutant approach, certain steps, as described below, would be cycled through for each pollutant type. Each of the steps in the process is described below and includes applicable guidelines.

Single-Pollutant Approach Description

Several parameters should be evaluated and selected as a part of the TTWQ process. These include selection of:

1) Scale
2) Urban Runoff Flow Conditions
3) Pollutants
4) Sources
5) Source Quantities

Each parameter has considerations that require evaluation by the parties involved in the TTWQ process. Some recommended considerations for the parameters are provided in the green boxes below.

Scale

The first parameter to establish for the TTWQ process is the determination of which scale the TTWQ priorities will be developed. This criterion has a direct effect on the Water Quality and Source factors in the process. Several considerations can influence the scale for analysis, including pollutants, source(s) and PMPs used to address the pollutants and sources. It is assumed that the Copermittees utilizing the TTWQ process will utilize a methodology for developing the scale at which to initiate the TTWQ process.

This method may involve an iterative process of identifying pollutant(s) and/or source(s) that are common throughout the region/watershed that can be feasibly be addressed at those scales. The outcome of the method would be a selection for what scale is used in the TTWQ process.

There are five scales that can be used in the TTWQ process: (1) regional; (2) hydrologic area; (3) hydrologic subarea; (4) other tributary area; and (5) jurisdictional. Based on the TTWQ application (i.e., what the results will be used for) proposed by the Copermittee(s) involved with the process, one of these scales should be selected for the process.

Urban Runoff Flow Conditions

The next parameter is the condition of runoff: wet (e.g., precipitation generated flow) or dry (e.g., irrigation generated discharges, illegal discharges and/or groundwater flow). This criterion also has a direct effect on both the Water Quality and Source factors in the process.

Some considerations the Copermittee(s) should evaluate are as follows:

1) Dry weather flows are generally associated with illicit discharges and illegal connections as well as groundwater intrusion/seepage and permitted discharges
2) Wet weather flows are associated with the accumulation of pollutants on surfaces (grounds, roads, sidewalks, rooftops, etc.) and background loads from undeveloped areas

Pollutant(s)

Selection of the pollutant(s) to focus on is influenced by several key considerations. The primary one is the considering the priorities identified by the results of the LTEA Water Quality Assessment (WQA) – see Section 2.0 and Attachment 1. The LTEA Water Quality priorities are based on water quality data that has been collected and analyzed in a manner that identifies both issues and trends. These priorities were developed for both wet and dry weather conditions and also for both receiving waters and some MS4 outfalls. Having the ability to isolate conditions (wet/dry and receiving water/MS4) allows the development of TTWQ for various scenarios. Some examples of the various scenarios are presented in **Appendix B**.

Where feasible, Copermittees should consider a multi-pollutant approach to the analysis of wet-weather TTWQ because of the inherent commingling of sources and pollutants that occurs during wet weather events as opposed to single point source discharges that are inclined to involve single-pollutant impacts.

In selecting the pollutant(s) to evaluate for the TTWQ, some additional considerations the Copermittee(s) could evaluate are as follows:

1) TMDL(s) existing in the watershed – in general TMDLs would be an important (high ranking) prioritization considerations
2) Non-TMDL 303(d) listings – for 303(d) listings where a TMDL has not been established, the Copermittee(s) may be able to stave off future TMDL development if the pollutant is adequately addressed and removed from the 303(d) list
3) Regulatory Revisions ("offramps") if Applicable for Pollutant, e.g., delisting from 303(d) list, etc.
4) Feasibility in Addressing Pollutant(s), e.g., TDS is a constituent, attributed to uncontrolled groundwater sources and imported water, determined to be relatively infeasible to address from an MS4 program perspective
5) Special studies information regarding pollutants may be considered when selecting pollutant(s)

Sources

After the pollutant(s) have been selected, the Copermittee(s) should select the source(s) they want to evaluate for TTWQ within the area of focus from the list of identified sources likely to be contributing to the water quality priorities. The source factor considers the Source Loading Potentials, for both wet and dry weather conditions that were established using pollutant generating activities and pollutant types found at the source categories. More discussion of the SLPs is found in Section 3.0 of this report.

In selecting the source(s) to evaluate for the TTWQ, some additional considerations the Copermittee(s) could evaluate are as follows:

1) Land use (quantity and activity) should be included and the following considered:
    a. Wet weather TTWQ processes should include an evaluation of the land use areas in the area of focus
    b. Need a surrogate value for residential and open space land areas to compare to inventoried sources
2) Special studies information regarding sources in the focus area
3) Potential sources that are not easily quantifiable including: bacterial regrowth in MS4 systems; erosion in open space areas; accelerated erosion in creeks (hydromodification); and aerial deposition

Source Quantities

Based upon the scale selected, the Copermittees should use the most up to date inventory information available to develop quantities of source categories within their focus area. One factor not well explored in the BLTEA was the quantity of sources that are not easily quantifiable, e.g., residential sources. The Copermittees will need to evaluate methods of assigning quantifiable values to equate to conventional source quantities in the focus areas.

Combining Data

Once the above parameters have been decided upon, and quantities determined, the sources should be tabulated with the appropriate WQ priorities, Source Loading Potentials (SLPs) and quantities included. Sorting of the sources based on SLPs and quantities will provide the highest TTWQ sources in the focus area. The additional considerations identified above (green boxes) should be evaluated for inclusion in this final prioritization process.

The steps for developing TTWQ are listed below and examples of the TTWQ are presented in **Appendix B**.

Steps for Single Pollutant Approach to TTWQ

1) Determine Scale to Develop Threat to Water Quality
    a. Regional
    b. Hydrologic Area
    c. Hydrologic Subarea
    d. Tributary Area
    e. Jurisdictional
2) Determine Wet or Dry Weather Conditions
3) Determine Water Quality Issues (Pollutant(s)) to Evaluate
    a. LTEA Water Quality Priorities (Receiving Water and MS4)
    b. TMDLs
    c. 303(d)

4) Associate Sources[3] to Pollutant
   a. Source SLPs
   b. PGA Associations to Pollutants
5) Incorporate Source Quantities
6) Incorporate Other Criteria as Desired
7) Develop Priority Ranking of Sources

A multi-pollutant approach to TTWQ follows:

1) Perform Steps 1 and 2 above
2) Repeat steps 3-6 above for each pollutant, each time identifying the priority ranking of sources for each pollutant

Evaluate priority rankings of sources for all pollutants, identifying the most prevalent sources that have high TTWQ for most pollutants. An example of the multi-pollutant TTWQ process is provided in **Appendix B**.

4.3 TTWQ as a Tool

In addition to using the TTWQ process for assessment of whether the Copermittees stormwater programs are focused on the proper sources and to prioritize the sources for program implementation, the TTWQ can also be used as an upstream investigative tool. If enough information exists, the Copermittee can use the process to identify potential sources of water quality issues.

The general process for using TTWQ as an investigative tool is described below.

1) Select a monitoring location which establishes the tributary area of focus as well as the group of potential pollutants to focus on
2) Select a water quality pollutant to focus on for the process. It is most likely that this selection will be based on water quality data collected through a monitoring program or discharge identification sampling
3) Using the SLPs table (**Table 3-10** in **Section 3**) identify the sources that have a Likely or Unknown potential to discharge the pollutant of focus
4) Identify the number of known sources from inventory information for the area that is tributary to the monitoring location selected
5) Sorting tabulated source data based on SLP and source quantities results in a list of upstream potential source types for the selected pollutant
6) Utilize detailed source inventory information to perform further site specific inspections or other investigations at the potential pollutant generating sources

An example of this application of the TTWQ process is presented in **Appendix B**.

4.4 Limitations

It is important to understand that the results of the TTWQ process are based on best available information. As described in previous sections, SLPs, identification of sources, and water quality assessments were all derived from various sources of information. Because the TTWQ rankings are a result of combining all of these various sources of information, the TTWQ rankings have an inherent qualification that they are estimates of the threat-to-water-quality from particular sources. Other sources may exist that contribute significant amounts of pollutants to the receiving waters. In addition,

[3] May include land use as a source

there may be other pollutant types that are not analyzed as a part of this process that may be impacting the beneficial uses of the receiving waters.

5 Program Management Practices

5.1 Overview

This section characterizes various types of Program Management Practices (PMPs) and associates them to sources and pollutant types. PMPs are practices and activities that Copermittees and their target audiences implement or take action with to address water quality issues. They include program facilitation activities, BMPs, and other management actions.

Program Management Practices (PMPs) are activities and BMPs that Copermittees and target audiences implement to address urban runoff pollutants, pollutant generating activities and sources.

PMPs are the counter to pollutant-generating activities (PGAs) and have potential for reducing pollutant loading from PGAs and associated sources. By identifying and associating PMPs with specific source types, the Copermittees can demonstrate connections to effectiveness of their programs. Furthermore, the characterizations may assist Copermittees in prioritizing their management actions for addressing specific sources.

The PMPs, their profiles and effectiveness potentials as presented in this LTEA are meant to be the basis for further refinement by collecting additional data through program implementation and Focused Analyses. It is envisioned that at some point in the future, the information included in the effectiveness potential discussions could be supportive of effectiveness potential ratings for each PMP by which they could be better prioritized for management decisions.

For the purposes of this LTEA, *Focused Analyses* are defined as those activities which are undertaken to inform Copermittees with data by which to make management decisions. Examples of *Focused Analyses* include, but are not limited to:

- **WURMP Activities**
- **Pilot Studies**
- **Literature Reviews**
- **Source Characterizations**
- **Source ID Studies**
- **Special Investigations**
- **BMP/PMP Evaluations**
- **Targeted Monitoring Studies**

Identified PMPs that Copermittees and target audiences implement to address pollutants, PGAs and sources are presented in **Table 5-1** on the following page.

5.2 PMP Profiles

PMP profiles have been developed for PMPs and are included as **Appendix C.** Each PMP profile includes a discussion of the following topics:

- Narrative description of the PMP
- Associated Sources
- Associated Pollutants (from pollutant-generating activities at sources)
- Discussion of PMP Effectiveness Potential including applicable Level Outcomes (Levels 2-4)

The PMP profiles were developed using various sources of information including California Stormwater Quality Association (CASQA) documentation, Focused Analyses, program review, and professional experience.

Table 5-1: Program Management Practices (PMPs)

	Program Management Practices	Target Source						Target Pollutants							Target Audiences							Type			Targeted Outcomes		
		Municipal Fixed Facilities	Industrial and Commercial Facilities	Construction Sites	Residential	Roads, Streets, Highways and Parking Facilities	MS4	Bacteria/Pathogens	Trash	Heavy Metals	Nutrients	Oil and Grease	Sediment	Pesticides	Municipal Staff	Construction	Residential	General Public	Commercial Owners	Industrial Owners	Land Development	Administrative (Level 1a)	Facilitation (Level 1b)	Data Gathering (Level 1c)	Knowledge and Awareness (Level 2)	Behavior (Level 3)	Source Reductions (Level 4)
1	Administrative BMPs[1]	•	•	•	•	•	•								•							•					
2	Activity BMPs[2]	•	•	•	•			•	•	•	•	•	•	•		•	•		•	•	•					•	•
3	MS4 Inspections/ Cleaning						•	•	•	•	•	•	•	•	•												•
4	Street Sweeping					•		•	•	•		•	•		•												•
5	Structural BMPs	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•	•	•					•	•
6	Education and Outreach	•	•	•	•			•	•	•	•	•	•	•	•	•	•	•	•	•	•		•	•	•	•	•
7	Incentives	•	•	•	•			•	•	•	•	•	•	•	•	•	•	•	•	•	•	•				•	•
8	Employee Training	•				•	•	•	•	•	•	•	•	•	•								•	•	•	•	
9	Inspections	•	•	•		•	•	•	•	•	•	•	•	•	•	•			•	•	•				•	•	•	•
10	Investigations	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•	•	•				•			•
11	Enforcement (correcting non-compliance)	•	•	•	•			•	•	•	•	•	•	•	•	•	•		•	•	•		•				•	•
12	Regulatory Revisions	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•						
13	True Source Control	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•					•

[1] Examples of Administrative BMPs include: Plan development, program standardization, maintaining and prioritizing inventories, updating education materials, etc.
[2] Activity BMPs are those related to target audience implementation as described in the 2005 BLTEA: Cover, Contain and Control BMPs

6 Effectiveness Assessment of Programs

6.1 Section Overview

This Section provides various program effectiveness assessments for the Permit-driven Copermittee programs. The effectiveness of the monitoring program is included as well as the Copermittees implementation of jurisdictional, watershed and regional programs. The assessment considers the three levels of implementation, regional, watershed and jurisdictional, as well as the Outcome Levels 1-6. **Specific assessments and evaluations are identified in Figure 6-1 below, and in each section below in green text.**

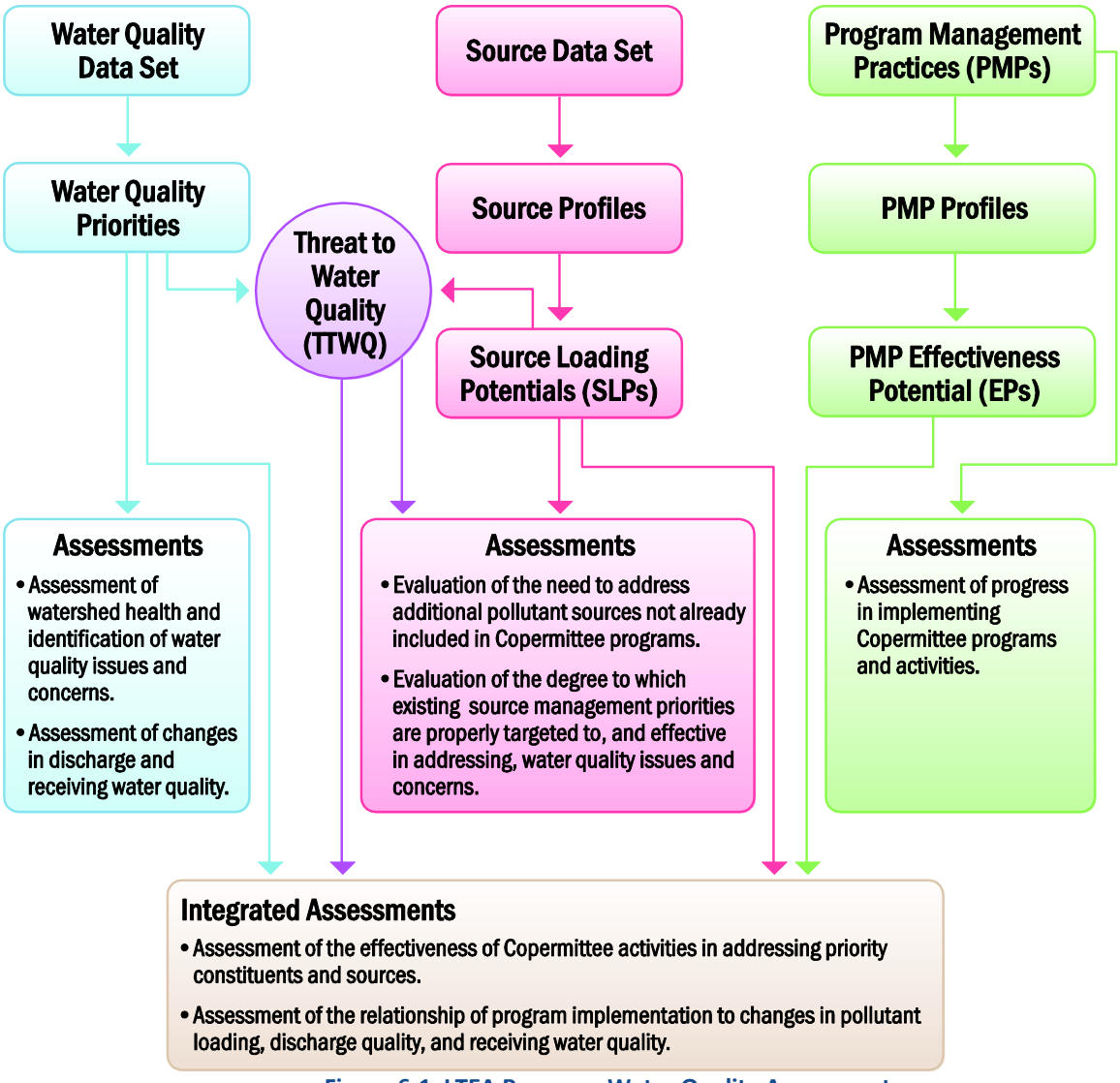

Figure 6-1: LTEA Process – Water Quality Assessment

6.2 Water Quality Effectiveness Assessment

Figure 6-2 shows the Water Quality Assessment portion of the larger LTEA process. The water quality analysis tract of the LTEA process uses water quality data sets collected by the Copermittees and water quality priorities that have been identified by established criteria. The data and information from the

analysis was used to derive the LTEA water quality assessments as illustrated in the figure and described in the narrative below.

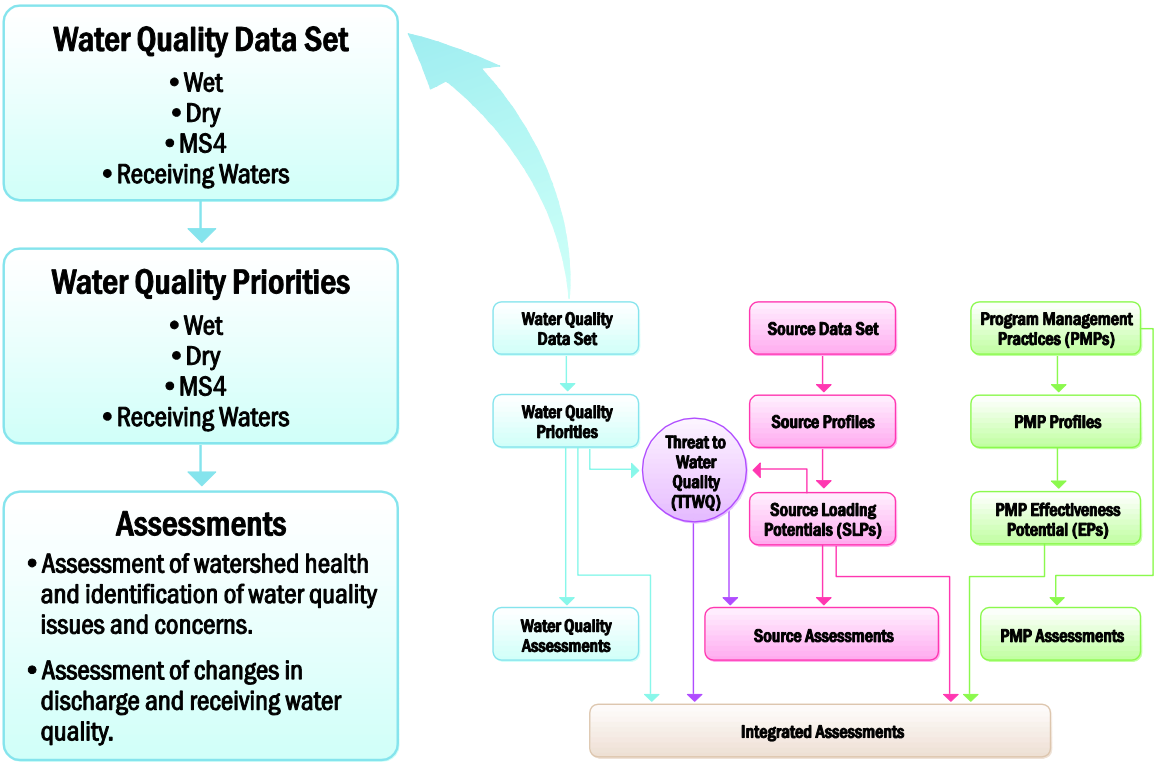

Figure 6-2: LTEA Process – Water Quality Assessment

6.2.1 Monitoring Program Implementation

Evaluation of Progress in Developing and Implementing Monitoring Programs

Regional Monitoring Program

The Permit describes monitoring requirements for implementation by the Copermittees, and this section assesses the Copermittees' implementation of the Regional Monitoring Program (Program).

The Monitoring Program implemented under Order No. R9-2007-0001 is designed to provide the data, analysis, and tools needed to address the program goals and core management questions listed in the Permit. The goals and management questions which the Copermittees have sought to address during the 2007-2012 permit cycle are listed in **Table 6-1**. The following discussion includes a description of the structure of the current Monitoring Program, which includes four key elements.

Table 6-1: Regional Monitoring Program Goals and Five Core Management Questions

Monitoring Program Goals (Permit Section IA)	Core Management Questions (Permit Section IA)
• Assess compliance with the Permit • Measure and improve the effectiveness of the Copermittees' urban runoff management programs • Assess the chemical, physical and biological impacts to receiving waters resulting from urban runoff discharges • Characterize urban runoff discharges • Identify sources of specific pollutants • Prioritize drainage and sub-drainage areas that need management actions • Detect and eliminate illegal connections and illicit discharges (ICID) to the municipal separate stormwater system (MS4) • Assess the overall health of receiving waters	1. Are conditions in receiving waters protective, or likely to be protective, of beneficial uses? 2. What is the extent and magnitude of the current or potential receiving water problems? 3. What is the relative urban runoff contribution to the receiving water problem(s)? 4. What are the sources of urban runoff that contribute to receiving water problem(s)? 5. Are conditions in receiving waters getting better or worse?

The structure of the current Monitoring Program includes the following four key program elements.

Regional Monitoring Programs – These programs provide long-term baseline datasets, encompass a large spatial area (e.g., the San Diego Region and the entire Southern California bight), and look at many elements potentially impacted by stormwater runoff. This type of monitoring takes a long-term view of the ultimate receiving waters; the coastal bays, the lagoons, and the ocean. Regional monitoring is designed to answer questions concerning the ecological health of a large geographic region and encompass numerous components, including but not limited to water and sediment quality, fish, benthos, and birds. The Southern California Coastal Waters Research Project (SCCWRP) Bight Monitoring Program, conducted every five years, and the new Stormwater Monitoring Coalition (SMC) Watershed Monitoring Program are examples of regional monitoring. The Copermittees participated in the Bight '08 Monitoring Program, which was initiated in July 2008. The Copermittees also participated in the SMC Spring 2009 and 2010 Bioassessment and Water Quality Monitoring Surveys. Regional monitoring programs are used to answer management questions 1, 2, and 5 and partially answer questions 3 and 4.

Core Receiving Water Monitoring – Core monitoring is designed to track compliance with regulatory requirements or limits, or to track water quality trends over time. Core monitoring programs typically involve routine sampling at fixed stations located at the lowest, non-tidally influenced point in the watershed. Individual monitoring components are designed to evaluate long-term changes in water quality and mass loading to the receiving waterbody. Assessing concentrations of chemical constituents, toxicity to test organisms and changes to benthic assemblages provides indications of long-term trends and the effects of chemical constituent concentrations within watersheds. The wet and dry weather sampling at the Mass Loading Stations (MLS) located at the base of the watershed are the foundation of the core monitoring program.

In order to provide more spatial information in a cost-effective manner, and without sacrificing the ability to detect trends at the MLS over time, the Copermittees developed a rotating core monitoring program. The core monitoring at the MLS was performed on a rotating schedule in the north and south portions of San Diego County on an annual basis. The exception was during the 2008–2009 monitoring season, which occurred during Bight '08. This rotating program also included increasing the number of monitoring stations in each watershed management area (WMA) by adding temporary watershed assessment stations (TWAS). The TWAS are located upstream of the historical MLS, or in previously

unmonitored hydrologic areas (HAs) where data were needed and allowed for better spatial coverage of each watershed. The TWAS are temporary monitoring stations and therefore are not used for trend analysis, but rather to identify similar or different water quality conditions further up in the watershed compared to the MLS. The core monitoring at the MLS and TWAS locations for each Permit monitoring year is presented in **Figures 6-3 through 6-5**. The TWAS locations during the last two Permit years (i.e., 2010–2011 and 2011–2012) are subject to change based on the findings from each monitoring year. Core monitoring at the MLS and the TWAS monitoring are used to answer management questions 1, 2, and 5.

Urban Runoff (MS4) Monitoring – For the 2007-2008 monitoring season, the Copermittees collaboratively developed the MS4 Outfall Monitoring Program. The purpose of this program element is to characterize pollutant discharges from the MS4 outfalls in each watershed during wet and dry weather as required by Section II.B.1 of the Permit. The program uses a random sample approach for a county-wide evaluation of the MS4 outfalls and a targeted approach at the watershed level. The Regional Monitoring Program conducts the wet and dry random sampling element, as well as the wet targeted element, and the dry targeted sampling is performed by the jurisdictions. The MS4 outfall monitoring is used to answer core questions 3 and 4.

Targeted Monitoring Studies – Targeted monitoring studies supplement both the core monitoring and the regional monitoring. Targeted monitoring studies are focused evaluations designed to answer specific questions. These are typically short-term efforts intended to answer specific questions that may be raised during assessment of core monitoring results. Some examples of targeted monitoring studies include evaluation of the link between water quality criteria exceedances in storm water and atmospheric deposition, conducting molecular/genetic host tracking for bacterial source identification in a watershed, evaluating the effects of bacterial re-growth, and focused monitoring studies used for the development of TMDLs for SWRCB Section 303(d) listed impaired waterbodies. The Copermittees conducted regional source investigation studies during this Permit period focusing on selected residential land uses. Targeted monitoring studies are primarily used to answer management questions 3 and 4 and can partially answer questions 1, 2, and 5.

The current Monitoring Program is summarized in **Table 6-2**. The table also includes the relevant Permit sections and core management questions associated with each monitoring effort. Further detail on each of the program elements listed in **Table 6-2** is provided in the most recent 2009-2010 Regional Monitoring Annual Report Section 2.0 Scope of Work (Weston Solutions, 2011).

Table 6-2: Permit Monitoring Elements and Permit Requirements

Monitoring Program Elements	Monitoring Program Permit Requirement	Permit Section of R9-2007-0001	Core Management Questions Addressed	Comments
Core Receiving Waters Monitoring Program	MLS monitoring	Section II.A.1	Q1, Q2, Q3, and Q5 (Q4 partially)	Conducted in accordance with Permit requirements.
	TWAS monitoring	Section II.A.2	Q1, Q2, Q3, and Q5 (Q4 partially)	Conducted in accordance with Permit requirements.
	Bioassessment monitoring	Section II.A.3	Q1, Q2, Q3, and Q5	Conducted in accordance with Permit requirements.
	Follow-up analyses and actions (TIEs)	Section II.A.4	Q1, Q2, and Q4	Conducted in accordance with Permit requirements.
	Ambient bay and lagoon monitoring	Section II.A.5	Q1, Q2, Q3, and Q5	Conducted in accordance with the 2009 work plan based on Regional Bight '08 lagoon results.
	Coastal storm drain monitoring	Section II.A.6	Q1, Q2, Q3, Q4, and Q5	Conducted by the Coastal Monitoring Sub-Workgroup jurisdictions in accordance with Permit requirements.
	Pyrethroids monitoring	Section II.A.7	Q1, Q2, Q3, and Q5	Conducted in accordance with Permit requirements.
Urban Runoff Monitoring Program	MS4 outfall monitoring	Section II.B.1	Q3 and Q4	Conducted in accordance with the MS4 Outfall Monitoring Program Workplans.
	Source identification monitoring	Section II.B.2	Q3 and Q4	Source characterization of runoff from single-family residential neighborhoods
	Dry weather screening and analytical monitoring	Section II.B.3	Q3 and Q4	Conducted by the individual jurisdictions in accordance with Permit requirements.
Regional Monitoring Program	Bight '08 Monitoring Program	Section II.C.2	Q1, Q2, Q3, and Q5 (Q4 partially)	The Copermittees participated in the Bight '08 Coastal Ecology Program, Coastal Wetlands and Estuaries Program, and the Shoreline Microbiology Program.
	Southern California Regional Watershed Monitoring Coalition (bioassessment workgroup)	Addendum 2, Items 7 and 8	Q1, Q2, Q3, and Q5 (Q4 partially)	The Copermittees participated in the SMC Bioassessment Workgroup Regional Monitoring Program beginning in 2008-2009. Copermittees collected samples from 16 sites annually in San Diego County.
Targeted Monitoring Studies	TMDL monitoring for Order No. R9-2004-0277	Section II.D.1	Q1, Q2, Q3, and Q5 (Q4 partially)	Included annually in appendix to *San Diego Bay WURMP Report* from 2005 to 2010.
	Regional harbor monitoring	Section II.D.2	Q1, Q2, Q3, and Q5 (Q4 partially)	Program conducted by a subset of Copermittees per a 13265 Order.

Figure 6-3: Regional Monitoring Stations during Permit Year 2008–2009 (Bight '08 Monitoring Year)

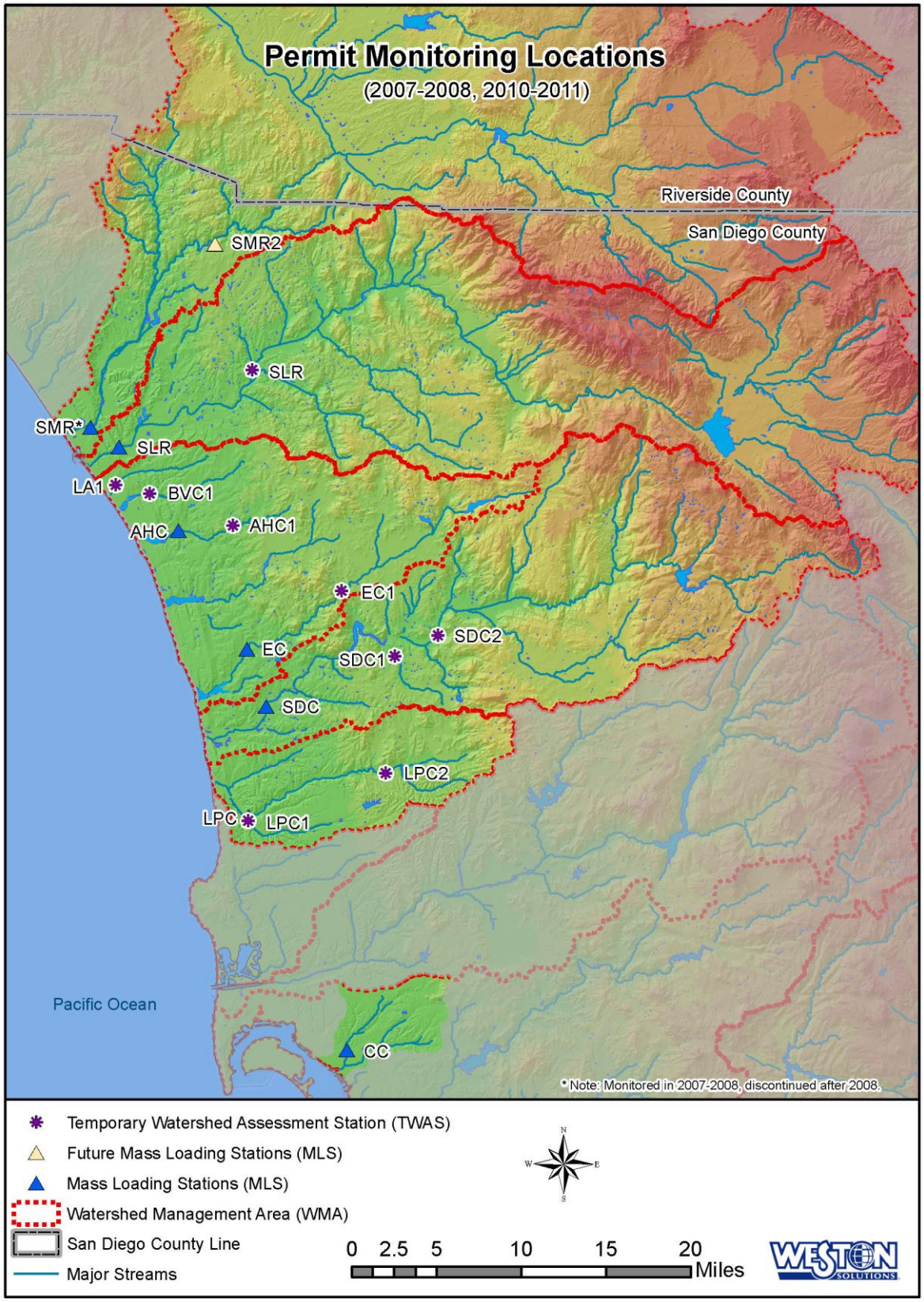

Figure 6-4: Regional Monitoring Stations during Permit Years 2007–2008 and 2010–2011 (North San Diego County Rotation)

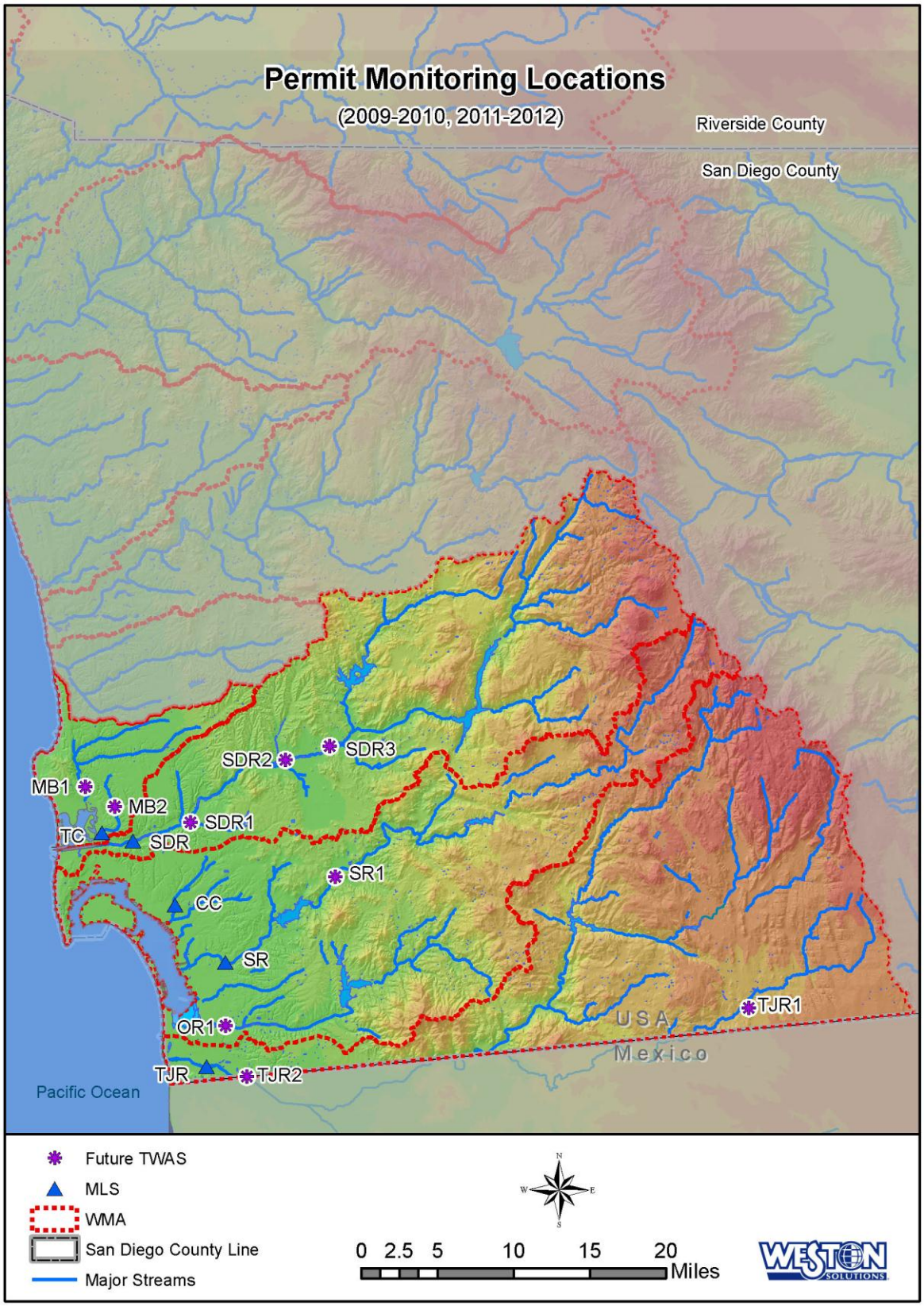

Figure 6-5: Regional Monitoring Stations during Permit Years 2009–2010 and 2011–2012 (South San Diego County Rotation)

The status of the Monitoring Program in meeting these goals is summarized in **Table 6-3**. Overall the Regional Monitoring Program has generally met these Permit goals. **Table 6-3** also references the specific analysis and data presentation in this five-year assessment that supports these goals. A summary of the development of the current five core questions and the current structure of the Regional Monitoring Program is presented in the text box presented following **Table 6-3.**

Table 6-3: Assessment of Monitoring Program in Meeting Its Goals

Monitoring Program Goals	Assessment Summary
Measure and improve the effectiveness of the Copermittees' urban runoff management programs.	The Program provides quantifiable measurements of effectiveness at the watershed scale at the MLS (long-term trend data) and through the MS4 outfall program (wet weather loading) within each watershed management area (WMA). Qualitative measurements are provided by the identification of priority constituents using the new Assessment Methodology. The priority constituents for each WMA are presented in Attachment 1, Sections 2 to 10 for the MLS and TWAS locations. These can be used to spatially assess the extent of priorities, and whether there are changes in these priorities across the watershed. Identification of priority constituents is also strongly correlated to program effectiveness by focusing efforts on these constituents.
Assess the chemical, physical and biological impacts to receiving waters resulting from urban runoff discharges.	The Program provides a triad assessment using chemical, physical, and biological data at the MLS and TWAS in order to assess potential impacts. With the expansion of the Program to include the MS4 outfall assessment, priority constituents identified for urban runoff can be compared to the receiving water priorities to assess their relative contribution.
Characterize urban runoff discharges.	The Program includes both the random and targeted MS4 outfall monitoring program that provides characterization of urban runoff discharges.
Identify sources of specific pollutants.	The Program provides the priority constituents from which source identification studies can be focused at the watershed and jurisdictional levels. This 5-year assessment also provides observations of flow during dry weather at MS4 sites to assess effectiveness of runoff reduction measures that correlate to dry weather sources of urban runoff.
Prioritize drainage and sub-drainage areas that need management actions.	The Program expansion into the watershed with the TWAS and the MS4 outfall program, and the results of the new assessment methodology that identifies priority constituents, support the determination of priority drainage and sub-drainage areas.
Detect and eliminate illegal connections and illicit discharges (ICID) to the municipal separate stormwater system (MS4).	The Dry Weather Monitoring Program is conducted by the jurisdictions and summarized in the Regional Annual Reports, as well as presented in each jurisdiction's annual jurisdictional urban runoff monitoring report. The Dry Weather Field Screening and Analytical Monitoring Program, intended to support IC/ID investigations, is not an efficient use of resources, and has had a very low success rate in identifying ICs and IDs, and is no longer necessary given other more effective measures that are implemented by the Copermittees (i.e., facility inspections, complaint hotline responses, public employee surveillance).
Assess the overall health of receiving waters.	This goal is related to core Question 1, and the Program assessed the overall health of the receiving waters at a large scale based on the MLS sampling. The program has improved spatial resolution through the TWAS.

As a result of implementing the regional monitoring program described above, the Copermittees have accumulated a significant amount of data. **Table 6-4** on the following page identifies the number of sites and events where monitoring occurred during FYs 2009 and 2010.

Table 6-4 Monitoring Stations and Events Sampled

Program	2008-09		2009-10		Total Number of Samples
	#sites	#events	#sites	#events	
MLS/TWAS Monitoring	11	1	15	4	71
Bioassessment Monitoring	-	-	15	1	15
SMC Bioassessment	16	1	16	1	32
TIEs	3	1	-	-	3
Ambient Bay and Lagoon Monitoring	-	-	9	1	9
Bight 08 Lagoon Study	40	1	-	-	40
MS4 Outfall Monitoring-Random Dry*	39	1	54	1	93
MS4 Outfall Monitoring-Random Wet*	40	1	35	1	75
MS4 Outfall Monitoring-Targeted Dry*	191	1	180	1	371
MS4 Outfall Monitoring-Targeted Wet*	-	-	3	1	3
Source ID Monitoring	4	3	2	3	18
Dry Weather*	1106	1	1089	1	2195
CSDM*	784	1	297	1	1081

* Number of events varies by program but is indicated as a single event per site for calculation purposes.

Hydromodification Management Plan Monitoring Program

The Permit requires that the Copermittees develop and implement a pre- and post-project monitoring program to assess the effectiveness of the Hydromodification Management Plan (HMP) implementation. As a result of the Copermittees efforts a Monitoring and BMP Evaluation section was included in the HMP. It is based upon the following HMP effectiveness questions (2011 Brown and Caldwell):

1) Do field observations confirm that the HMP appropriately defines the flow rate (expressed as a function of the 2-year runoff event) that initiates movement of channel bed or bank materials?
2) Are mitigation facilities adequately meeting flow duration design criteria outlined in the HMP?
3) What is the effect of development on downstream cross section incision and widening?

In developing the Monitoring and BMP Evaluation Plan, the Copermittees have satisfied their permit requirements. The implementation and assessment will occur over the next five years.

6.2.1.1 Assessment

As noted above the Copermittees are implementing the monitoring program consistent with the Permit requirements. An assessment of the program is summarized in the sections below.

6.2.2 Watershed Health

Assessment of Watershed Health and Identification of Water Quality Issues and Concerns

The water quality priorities identified on a watershed basis in the BLTEA are supported by the last five years of receiving water monitoring. The results of the current Regional Monitoring Program have also confirmed a few common water quality issues throughout the region. The general overall findings for regional receiving water quality priorities include:

- Wet Weather – In general, wet weather receiving water quality priorities are associated with the following issues: mobilization and migration of sediment during storm events as measured by total suspended solids and turbidity; bacterial indicators as reflected by fecal coliform; and the detection of synthetic pyrethroid pesticides. There are also some differences in the priority of these constituents among watersheds as reflected in different land use distributions and

pollutant generating activities in the watershed, physical conditions, and flow characteristics. Details are presented in the Watershed Assessments in Attachment 1, Sections 2 through 10.

- Dry Weather – In general, the receiving water quality priorities under ambient or dry weather conditions, based on two years of data, indicate a countywide issue with bacteria indicators (largely enterococci and also fecal coliform), nutrients, and total dissolved solids. The level of priority and the specific nutrients vary among watersheds, which is reflective of varying source contributions and the presence of flows. Details are presented in the Watershed Assessments in Attachment 1, Sections 2 through 10.

Additional receiving water quality issues were noted for the Chollas Creek Watershed (Pueblo Hydrologic Unit) and the Tijuana River Watershed, which have distinct source types. Chollas Creek Watershed is a smaller watershed with a high density of industries and transportation corridors that result in specific metals issues. The Tijuana River Watershed receives untreated wastewater from across the international border.

6.2.3 Discharge Water Quality

Assessment of Changes in Discharge Water Quality (Level 5 Outcomes)

At this time it is not possible to identify changes in water quality in outfall discharges because only two of the five years of program data have been collected. Changes in MS4 discharge quality will be reported in the coming years as this program continues to collect data and information. The temporal resolution of these data sets will improve as well in the coming years. In the LTEA WQ Report (Attachment 1, Sections 2 through 10) discharge loading characteristics are estimated and ranked for wet weather flows. These will help to establish a baseline for future comparisons of changes in the loads. The current assessment presents observed dry weather flow conditions at the MS4 outfalls; these data may also be used as a basis for comparison with future monitoring.

6.2.4 Receiving Water Quality

Assessment of Changes in Receiving Water Quality (Level 6 Outcomes)

The results of the trend analysis for the MLS in the receiving water are presented in **Table 6-5** below. The results show a mix of trends, however the statistical information provided demonstrates the relative changes in MLS receiving water quality observed. Changes in ambient conditions will be reported in the coming years as the ambient receiving water program continues to collect data and information. The table below summarizes the detailed trend information provided in Watershed Assessments in Attachment 1, Sections 2 through 10.

Table 6-5: MLS (Receiving Waters) Trends

Watershed	Analyte	p-value	Trend	% ND	Sen's Slope Estimate	Mean Ratio to Benchmarks
2009						
Tecolote Canyon	Ammonia	0.032	Down	14	-0.004	0.03
	Total Hardness	0.0155	Up	0	4.22	NA
	Total Suspended Solids	0.0408	Down	5	-1.78	3.47
	Diazinon	<0.001	Down	43	NA	1.49
San Diego River	Enterococci	0.0138	Up	0	338	NA
	Total Phosphorus	0.0138	Down	0	-0.0063	0.22
	Dissolved Copper	0.027	Down	33	NA	0.11
	Dissolved Organic Carbon	0.044	Up	0	0.21	NA
Chollas Creek	Hyalella (NOEC 96 hr survival)	0.04	Down	42	NA	1.15
	Total Coliform	0.03	Up	0	1,622	NA
	Nitrite	0.011	Up	28	NA	0.07
	Total Kjeldahl Nitrogen	0.022	Up	4	0.026	NA
	Turbidity	0.001	Up	0	0.703	4.38
	Total Copper	0.009	Up	0	0.00036	NA
	Total Zinc	0.0028	Up	0	0.0028	NA
	Malathion	0.024	Down	19	NA	0.47
Sweetwater	Dissoved Phosphorus	0.041	Up	5	0.00276	0.11
	Total Arsenic	0.01	Up	5	0.00008	NA
	Total Lead	0.006	Down	38	NA	NA
Tijuana	Fecal Coliform	0.0023	Up	0	105,757	1214.29
	Total Coliform	<0.001	Up	0	253,333	NA
	Enterococci	0.008	Up	0	52,941	NA
	Conductivity	0.002	Down	0	-31.3	NA
	Nitrate	0.023	Up	0	0.053	0.27
	Total Dissolved Solids	0.004	Down	0	-11.5	0.34
	Total Suspended Solids	<0.001	Up	0	66.3	20.31
	Turbidity	<0.001	Up	0	23.88	40.69
	Diazinon	<0.001	Down	14	-0.014	4.32
	Total Arsenic	0.006	Up	0	0.0002	NA
	Total Copper	0.006	Up	0	0.0015	NA
	Total Lead	0.002	Up	0	0.002	NA
	Total Zinc	<0.001	Up	5	0.010	NA
	Dissolved Nickel	<0.001	Down	0	-0.0004	0.01
	Dissolved Zinc	0.015	Down	38	NA	0.08

Watershed	Analyte	p-value	Trend	% ND	Sen's Slope Estimate	Mean Ratio to Benchmarks
2008						
Santa Margarita	Surfactants MBAS	0.024	Down	44	NA	0.19
San Luis Rey	Dissolved Phosphorus	0.048	Up	14	0.00859	0.14
	Enterococci	0.004	Up	0	137	NA
	Fecal Coliform	0.002	Up	0	76	13.15
	Total Coliform	<0.001	Up	0	719	NA
	Total Dissolved Solids	0.033	Down	0	-13.75	2.67
	Total Hardness	0.048	Down	0	-6.37	NA
	Turbidity	0.017	Up	0	0.485	1.53
Agua Hedionda Creek	Chemical Oxygen Demand	0.029	Up	3	1.64	0.79
	Dissolved Arsenic	0.022	Down	37	NA	0.01
	Diazinon	0.0001	Down	41	NA	1.88
	Fecal Coliform	0.0006	Up	3	414	37.00
	Total Copper	0.03	Up	14	0.000477	NA
	Total Lead	0.017	Up	24	NA	NA
	Total Nickel	0.039	Up	10	0.000125	NA
	Total Coliform	0.013	Up	0	1606	NA
	Total Suspended Solids	0.005	Up	7	20.1	NA
	Turbidity	0.004	Up	0	5.58	7.71
	Total Zinc	0.032	Up	10	0.00176	NA
Escondido Creek	Diazinon	<0.001	Down	43	NA	1.25
	Dissolved Nickel	0.027	Down	19	NA	0.002
	Total Zinc	0.035	Up	14	0.000933	NA
San Dieguito	Conductivity	0.048	Up	0	23.54	NA
	Total Kjeldahl Nitrogen	0.033	Up	0	0.0263	NA
	Total Phosphorus	0.011	Up	0	0.0047	0.10
Los Peñasquitos Creek	Fecal Coliform	0.045	Up	0	41	29.16
	Total Lead	0.014	Down	48	NA	NA

Down = decreasing concentrations
Up = increasing concentrations

6.3 Sources Assessment

This section presents the assessment of the effectiveness of the Copermittees' efforts to address regulated sources. Data and information collected from various sources were reviewed and analyzed, including Copermittee URMP Annual Reports and studies.

Figure 6-6 below shows the Source Assessment portion of the larger LTEA process. The source analysis tract of the LTEA process uses source data sets collected by the Copermittees and evaluations of the sources likelihood of generating pollutants to develop their Source Loading Potentials (SLPs). The data and information from the analysis was used to derive the LTEA source assessments as illustrated in the figure and described in the narrative below.

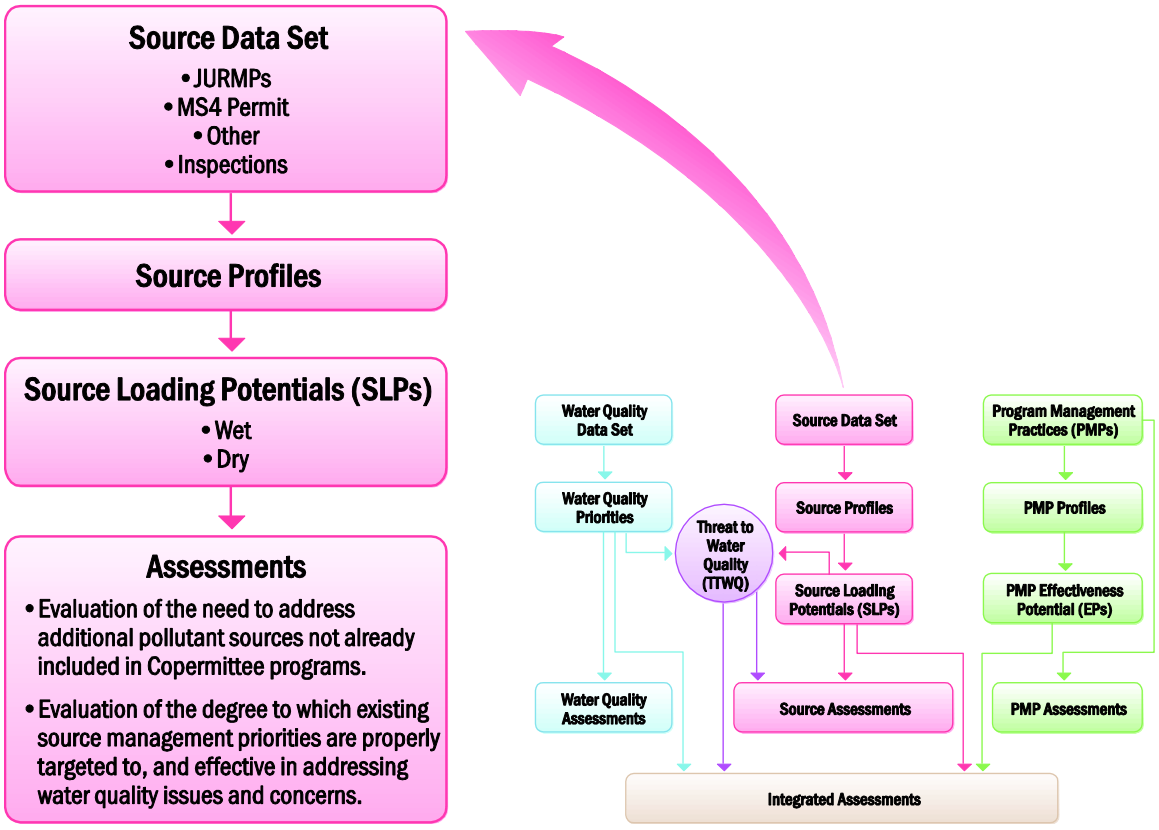

Figure 6-6: LTEA Process – Source Assessment

6.3.1 Additional Sources

Evaluation of the need to address additional pollutant sources not already included in Copermittee programs

6.3.1.1 Background

The Copermittees are required to develop and maintain watershed based inventories for the following program elements: 1) Land Development (i.e., SUSMP projects and Treatment Control BMPs (TCBMPs) as prescribed in the permit); 2) Construction Sites; 3) Municipal Facilities and Activities, including Special Event Venues; 4) Commercial and Industrial Facilities; and, 5) Prioritized Residential Areas. In each case, the Permit prescribes minimum requirements applicable to Copermittee inventories.

6.3.1.2 Analysis

The Copermittees' 2008 JURMPs and FY 2009 and 2010 JURMP Annual Reports were reviewed to determine whether they had identified additional sources not already required to be included in Copermittee programs. Additionally, Focused Analyses that included an expanded evaluation of sources other than those included in the Copermittees programs were reviewed.

A Focused Analysis (via WURMP Activity) performed by the City of San Diego evaluated all businesses including office parks, industrial parks, commercial shopping centers, etc. within geographical areas, regardless of whether they were required to be inventoried or inspected. In evaluating many business types (475 not already included in the inventory), the City did not identify any new business types that posed a threat to water quality.

Several Focused Analyses concentrated on over-irrigation issues, which include misdirected water spray and over-watering landscaped areas to the point where water flows from the landscaped areas into the MS4. Findings from these special projects yielded that over-irrigation is a contributor to pollutants. Over-irrigation itself is not a source; however, it is an activity and a transport mechanism for pollutants and should be considered a PGA at all sources that have irrigated landscaping.

In addition to the above, a review of the remaining program element inventories was performed:

Land Development – Nearly all projects are subject to SUSMP requirements and the remaining projects not subject to SUSMP requirements do not warrant inclusion per the Permit and intended PGAs, e.g., sidewalks, bicycle lanes, and maintenance projects.

Construction – Currently, construction projects and activities considered to present a significant threat to water quality are subject to Copermittees' oversight.

Municipal Facilities – At this time, most municipal facilities and activities are included in the high priority list identified in the Permit. The high priority status distinguishes frequency of inspection (annual). Upon review of the required high priority facilities identified in the Permit, it may be warranted to provide for a mechanism to remove those facilities that are determined not to present significant threat to water quality.

Prioritized Residential Areas – At this time, the Permit requires that Copermittees' identify high threat to water quality residential areas and activities, some of which are identified in the Permit. Based upon the pollutants identified in the WQ Assessment, there are no additional residential areas or activities that need inclusion in the Copermittees' programs.

6.3.1.3 Assessment

The analysis performed resulted in no additional sources recommended for inclusion in the Copermittees' programs at this time. However, eight (8) additional Source Profile Sheets were prepared to augment the 2005 BLTEA effort and are located in Appendix A.

6.3.2 Source Management Priorities

Evaluation of the degree to which existing source management priorities are properly targeted to, and effective in addressing, water quality issues and concerns

6.3.2.1 Background

Assessment of the degree to which the Copermittees are targeting the sources properly considering the need to address water quality issues, gets at the core of watershed-based program planning and implementation. This evaluation required three primary steps: 1) understanding the water quality issues and concerns on a watershed-by-watershed basis; 2) associating specific sources to pollutants causing water quality issues (SLPs in Section 3 above); and 3) evaluating the focus of the Copermittees' programs. Although there are prescriptive requirements for what facilities/activities are included in the

Copermittees' programs, there is some flexibility in how the Copermittees focus their efforts. Furthermore, the evaluation presented below primarily focuses on wet weather conditions – based on historic data analysis driven by wet weather monitoring.

6.3.2.2 Analysis

The Copermittees' 2005 BLTEA, 2008 JURMPs, FY 2009 and 2010 JURMP Annual Reports and FY 2009 and 2010 WURMP Annual Reports were reviewed to determine the degree to which existing source management priorities are properly targeted to water quality issues and concerns. Additionally, special projects that included evaluation of sources other than those included in the Copermittees programs were reviewed.

Water Quality Analysis

The 2005 BLTEA serves as the foundation for prioritization (proper targeting) of sources related to water quality issue and concerns as described in the document and focuses primarily on wet weather conditions. Recognizing the limitations of the supporting data and information for the BLTEA, the Copermittees continued to refine their prioritization process based on best available information as it was developed through annual regional monitoring, Focused Analyses and general program implementation.

The 2005 BLTEA established priority ratings for water quality problems in each watershed through the development of a numerical scoring system. These ratings for each hydrologic area used data available at the time of the analysis, including whether waterbodies in the area were listed as a CWA 303(d) impaired waterbody, the results from various monitoring programs for priority constituents, and sediment toxicology testing.

WURMP documents prepared and submitted in 2008 drew upon the baseline water quality ratings prepared in the BLTEA to determine the High Priority Water Quality Problems (HPWQPs) specific to each watershed. During the time between the BLTEA and the WURMP document submittal, the 2006 CWA 303(d) list of impaired waterbodies had been released, where upon additional impaired waterbodies were recognized by the State. These impaired waterbodies were taken into consideration when determining the HPWQPs designated by the Copermittees for each WURMP document. Additionally, the WURMPs present monitoring data from various sources including the Annual Regional Monitoring Report for comparative purposes to show the frequency of occurrences or exceedances of particular analytes and how they compare to the HPWQPs. Therefore, while the BLTEA and WURMP documents shared many of the same HPWQPs, there were also some significant differences between the two.

High Threat to Water Quality Sources

Based upon the BLTEA priority ratings and WURMP HPWQPs, the Copermittees were able to identify the high TTWQ sources in the 2008 WURMP documents. The BLTEA established a process for determining TTWQ ratings for various source categories based on water quality priority ratings and the potential for the sources to discharge specific pollutants. The BLTEA presented these TTWQ ratings for each of the WMAs and pollutant categories used in the BLTEA (2005 MOE, Weston, LWA). For the most part, the Copermittees used the BLTEA TTWQ ratings in generating their priority sources. Some additional criteria used in the WURMP process included:

1) Updated water quality priority ratings (Weston Solutions, 2007)
2) Updated watershed-specific source inventory data
3) Copermittees' Dry Weather Monitoring data

Additionally, on a jurisdictional level, there are permit requirements and Copermittee selected prioritization processes that used water quality issues, including 303(d) impairments to prioritize sources. Due to the prescriptive nature of the Permit, this criterion was primarily used for prioritizing the Industrial/Commercial inventories.

Program Implementation and Activity Assessment

The next step was to analyze whether the Copermittees PMPs and selected WURMP activities addressed the high TTWQ sources that correlate to the high priority water quality problems. This was done by conducting two comparisons: 1) comparing the PMPs effectiveness potential to high TTWQ sources and water quality issues; and 2) comparing the implemented WURMP activities to high TTWQ sources and water quality issues in each of the watersheds.

PMPs

Findings of Sections 2 and 3 of this LTEA, and Copermittees' annual reports, identified the water quality issues, associated sources and the PMPs implemented within each WMA. Through review and analysis, the WMAs' high TTWQ sources associated with the water quality issues were identified to be the same. Similarly, the PMPs implemented were identified to be the same and addressed high TTWQ sources. With a better understanding of the relative importance of these and other potential sources, the Copermittees would be able to better utilize their resources to focus their PMPs.

WURMP Activities

Two assessments were performed for WURMP activities, one to evaluate addressing water quality issues and the other to evaluate addressing the sources that are potentially generating the pollutants that are contributing to the water quality issues. The BLTEA and WURMP water quality issues (priority ratings and high priority water quality problems respectively) were combined for the analysis. The number of activities identified that address high TTWQ sources and water quality issues are presented in **Table 6-6** below.

It is important to note that of the 283 WURMP Watershed Water Quality and Education Activities that were in active implementation during Fiscal Years 2009 and 2010, only five did not directly address the water quality issues and high TTWQ sources identified for each watershed.

Table 6-6: WURMP Activities Addressing Proper Sources and Water Quality Issues

Watershed	Water Quality Issues (BLTEA and WURMPs)		No. of WURMP Activities Addressing WQ Issues and High TTWQ Sources
Santa Margarita	• Bacteria/ Pathogens • Nutrients	• Sediment	15
San Luis Rey	• Bacteria/ Pathogens • Nutrients	• Sediment	19
Carlsbad	• Bacteria/ Pathogens • Nutrients	• Sediment	18
San Dieguito	• Bacteria/ Pathogens • Nutrients	• Sediment • Gross Pollutants	26
Los Peñasquitos	• Bacteria/ Pathogens • Nutrients	• Sediment	25
Mission Bay	• Bacteria/ Pathogens • Nutrients	• Sediment • Heavy Metals	34
San Diego River	• Bacteria/ Pathogens • Nutrients	• Sediment • Gross Pollutants	65

Watershed	Water Quality Issues (BLTEA and WURMPs)		No. of WURMP Activities Addressing WQ Issues and High TTWQ Sources
San Diego Bay	• Bacteria/ Pathogens • Nutrients • Sediment • Gross Pollutants	• Heavy Metals • Oil and Grease • Organics • Pesticides	55
Tijuana	• Bacteria/ Pathogens • Nutrients • Sediment • Gross Pollutants	• Heavy Metals • Organics • Pesticides	21

Not all HAs in the WMAs identified above have all of the Water Quality Issues and High TTWQ sources identified in the table

6.3.2.3 Assessment

The Copermittees have identified potential sources of the pollutants of concern and are addressing them through program current program implementation. Copermittee programs would benefit from determining the relative importance of these sources in order to allow for the most efficient allocation of resources.

6.4 Program Management Practice (PMP) Assessment

This section assesses the progress the Copermittees have made in implementing PMPs, which includes jurisdictional program activities, watershed activities, Focused Analyses, etc. The assessment was developed using all three scales of program implementation, regional, watershed and jurisdictional, and is presented below by outcome levels:

1) Outcome Level 1 – Program Implementation
2) Outcome Level 2 – Awareness and Knowledge
3) Outcome Level 3 – Behavior
4) Outcome Level 4 – Source Reductions

Figure 6-7 shows the Program Management Practice Assessment portion of the larger LTEA process. The PMP analysis tract of the LTEA process uses PMP data sets (largely from Annual Reports and Focused Analyses) collected by the Copermittees and evaluations of the PMPs effectiveness at reducing pollutants. The data and information from the analysis was used to derive the LTEA PMPs assessments as illustrated in the figure and described in the narrative below.

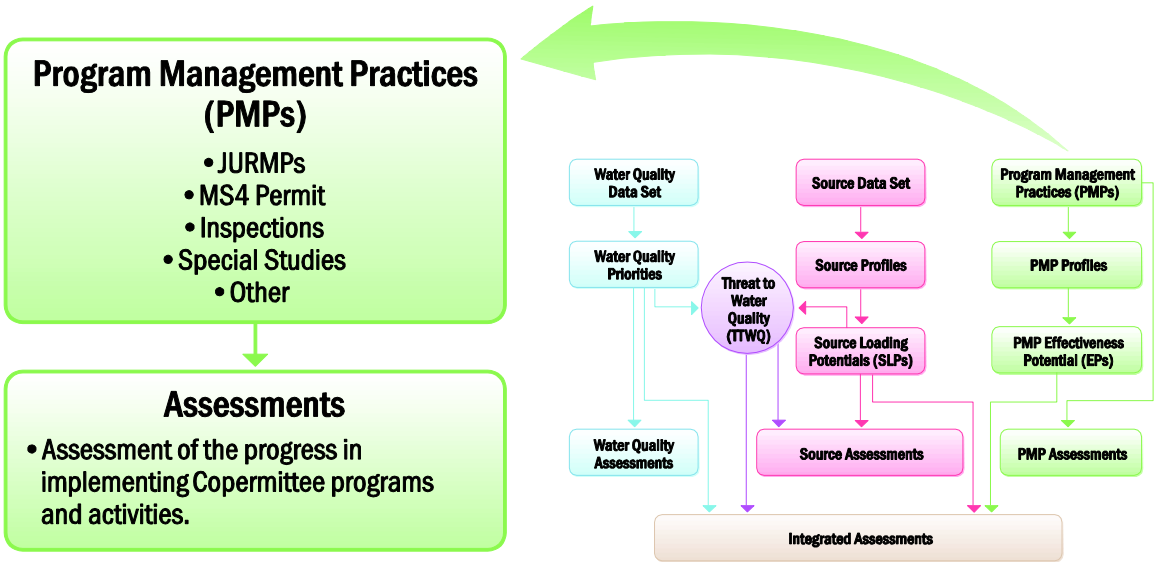

Figure 6-7: LTEA Process – Program Management Practice Assessment

Although, this section focuses on the effectiveness of permit required PMPs, the Copermittees have taken a pro-active approach to regional coordination and program management. There have been several activities self-initiated by the Copermittees in the past several years that support regional/watershed program planning and effectiveness assessment: 1) Regional Memorandum of Understanding; 2) Reporting and Assessment Standards; and 3) Regional Watershed Visioning Process. Each of these efforts is briefly described below including their relationship to effectiveness assessment.

2007 San Diego Regional Stormwater Copermittees Memorandum of Understanding

In addition to establishing roles and responsibilities for the Copermittees, the Memorandum of Understanding (MOU) established regional subject-specific workgroups, e.g., Industrial/Commercial, Municipal, Monitoring, Land Development, Residential Education, and Regional Watersheds. One of the primary purposes of each workgroup is to facilitate consistency, where appropriate, in the ways that programs are implemented, reported and assessed. Each of the twenty-one Copermittees entered into the MOU and all are committed to developing the program consistency. As described in the FY 2009 and 2010 Regional URMP Annual Reports, the workgroups have met consistently throughout the LTEA reporting period and as described below.

San Diego Regional Stormwater Copermittees Data, Reporting, and Assessment Needs

The Copermittees recognize the need to coordinate and develop meaningful program effectiveness assessment at three scales: jurisdictional, watershed, and regional. In mid-2010, they took an important first step in developing consistent reporting and assessment standards for Copermittee urban runoff management programs. The results of the process provide an informational basis and a common framework for reporting and assessment of PMPs performed by Copermittees.

San Diego Regional Stormwater Copermittees Visioning Process

In late 2010, the Copermittees initiated a process to develop a vision to guide watershed management decisions that are effective in improving water quality and efficient in the use of public funds. The outcome of the process was a vision statement and identified goals for the Regional Copermittees to work from as they enter into the potential restructuring of regional program management.

6.4.1 Program Progress

Assessment of progress in implementing Copermittee programs and activities

Presented below are assessments of the implemented PMPs as they relate to Levels 1-4 outcomes.

6.4.2 Program Implementation (Level 1 Outcomes)

6.4.2.1 Background

This section presents the results of an assessment of the implementation of JURMPs, WURMPs and the RURMP based upon annual reporting and a call to Copermittees for additional supporting information. The assessment includes an evaluation of the Copermittees efforts to develop and implement their programs to meet the requirements of the Permit. The LTEA reporting period focuses on the program reporting cycles of FYs 2009 and 2010. These two years represent the first two complete years of program implementation under the current Permit. An attempt to incorporate data and information from the previous years was considered but there were too many inconsistencies in the reporting.

The development, implementation and reporting of jurisdictional stormwater programs varied considerably. Although the Copermittees have initiated standardization measures for program implementation and reporting, there were still varied results. The results below represent the Copermittees' data and information that was consistent enough for consolidation.

6.4.2.2 Analysis

Program Development and Reporting

JURMPs: Each of the Copermittees developed JURMPs that met the requirements of Permit Section J.1.a. and submitted the JURMPs by the revised timeline of March 2008. Subsequently, the Copermittees developed and submitted JURMP Annual Reports for Fiscal Years 2008, 2009 and 2010. Each of these annual reports was submitted to the RWQCB via the Principal Permittee by September 30 of each year as required in the permit.

Table 6-7: JURMP Document Requirements

Requirement	Status
Permit Section J.1.a. 21 JURMPs Submitted by March 24, 2008	Complete
Permit Section J.3.a. 21 JURMP Annual Reports Submitted by September 30 following the reporting period	Complete

WURMPs**:** Each of the Copermittees collaborated to develop WURMPs for the nine watershed management areas. These documents met the requirements of Permit Section J.1.b. and were submitted by the revised timeline of March 2008. Subsequently, the Copermittees developed and submitted JURMP Annual Reports for Fiscal Years 2008, 2009 and 2010. Each of these annual reports was submitted to the RWQCB via the Principal Permittee by January 31 of each following year as required in the permit.

Table 6-8: WURMP Documents Requirements

Requirement	Status
Permit Section J.1.b. 9 WURMPs Submitted by March 24, 2008	Complete
Permit Section J.3.b. 9 WURMP Annual Reports Submitted by January 31 following the reporting period	Complete

RURMP**:** Each of the Copermittees collaborated to develop the RURMP that met the requirements of Permit Section J.1.c. and was submitted by the revised timeline of March 2008. Subsequently, the Copermittees have developed and submitted RURMP Annual Reports for Fiscal Years 2008, 2009 and 2010. Each of these annual reports was submitted to the RWQCB via the Principal Permittee by January 31 of each following year as required in the permit.

Table 6-9: RURMP Documents Requirements

Requirement	Status
Permit Section J.1.c. RURMP Submitted by March 24, 2008	Complete
Permit Section J.3.c. RURMP Annual Reports Submitted by January 31 following the reporting period	Complete

Program Implementation

JURMPs**:** The following table represents some collective results of the Copermittees' JURMP implementation. As stated above, not all of the implemented PMPs could be combined, based on differing reporting formats and types. Therefore**, Table 6-10** is not a comprehensive representation of the Copermittees' overall program efforts. The Copermittees' Annual Reports provide more details of program implementation.

Table 5-1 links the Copermittees' activities, presented in **Table 6-10** below, directly to targeted feasible effectiveness assessment outcomes. While effectiveness levels are attainable through tracking the progress of PMP implementation by utilizing Level 1 methods such as confirmation, tabulation, surveys, inspections, etc., assessment outcomes are difficult to report at this time due to the absence of comprehensive adopted regional data and reporting standards. However, the Copermittees recognize that the PMPs noted in **Table 5-1** produce changes in knowledge and awareness, behavior, and load reductions and are acknowledged. For example, a total of 16,485 construction inspections were conducted by Copermittees in FY 2009 and FY 2010. While the Copermittees did not have a regional standard for tracking the change in behavior to report specific numbers or percentages, it is assumed that as a result of the inspections there were a percent of construction sites with positive behavior changes and source reductions.

Table 6-10: Jurisdictional PMP Results

	PMP Reporting Description	FY 2009 Result	FY 2010 Result	Total (where applicable)
Development Planning Component				
1	Confirmation that all development projects were required to undergo the Copermittees' urban runoff approval process and meet the applicable project requirements	100% confirmed	90% confirmed*	-
2	Number of the development projects to which SUSMP requirements were applied	318	540	858
3	Confirmation that all applicable SUSMP BMP requirements were applied to all priority development projects	81% confirmed*	90% confirmed*	-
4	Number of treatment control BMPs inspected, including a summary of inspection results and findings *NOTE: These numbers are low as some jurisdictions reported the number of project sites inspected rather than number of TCBMPs*	at least 2,500	at least 2,133	-
5	Number of development projects required to meet HMP requirements	1	5	6

	PMP Reporting Description	FY 2009 Result	FY 2010 Result	Total (where applicable)
6	Number of enforcement actions for development planning issues *NOTE: Enforcement numbers vary greatly, reflecting different approaches to enforcement*	51	333	384
	Construction Component			
7	Confirmation that all construction sites were required to undergo the Copermittees' construction urban runoff approval process and meet the applicable construction requirements	95% confirmed*	95% confirmed*	-
8	Confirmation that the designated BMPs were implemented, or required to be implemented, for all construction sites	100% confirmed	100% confirmed	-
9	Confirmation that a maximum disturbed area for grading was applied to all applicable construction sites	95% confirmed*	86% confirmed*	-
10	Number of construction sites with conditions requiring advanced treatment	1	0	1
11	Total number of construction inspections conducted during the rainy and dry season for all sites	9,620	6,865	16,485
12	Confirmation that the inspections conducted addressed all the required inspection steps to determine full compliance	81% confirmed*	86% confirmed*	-
13	Number of enforcement actions taken for construction sites *NOTE: Enforcement numbers vary greatly, reflecting different approaches to enforcement*	1,103	1,318	2,421
	Municipal Component			
14	Confirmation that the designated BMPs were implemented, or required to be implemented, for municipal areas and activities, as well as special events	95% confirmed*	100% confirmed	-
15	Total number of catch basins and Inlets *NOTE: Variable from year to year based on Copermittees refining inventories*	60,487	81,197	-
16	Total number of catch basins and inlets inspected *NOTE: Some inspected more than once*	77,489	72,891	150,380
17	Total number of catch basins and inlets cleaned *NOTE: Some cleaned more than once*	53,102	37,983	91,085
18	Total miles of MS4 *NOTE: Not all Copermittees reported and MS4 interpreted differently*	8,476 miles	3,883 miles	-
19	Total distance of MS4 cleaned *NOTE: Overall number is skewed: County cleaned nearly twice the length of their MS4 which is a substantial percentage of totals*	7,875 miles	7,524 miles	15,399 miles
20	Total amount of waste and litter (tons) removed from catch basins, inlets, MS4 and open channels *NOTE: More than 55% attributable to open channels*	19,002 tons	38,391 tons	57,393 tons
21	Confirmation that the designated BMPs for pesticides, herbicides, and fertilizers were implemented, or required to be implemented, for municipal areas and activities	100% confirmed	100% confirmed	-
22	Total distance of curb-miles swept	281,628 miles	300,478 miles	582,106 miles
23	Number of parking lots	698	674	-
24	Number of parking lots swept *NOTE: Not all Copermittees reported in FY 2009*	242	663	905
25	Total amount of material (tons) collected from street and parking lot sweeping	29,365 tons	23,534 tons	52,899 tons
26	Number of sites (facilities) requiring inspection	1,527	1,591	-
27	Number of sites (facilities) inspected	1,519	1,602	3,121
28	Confirmation that the inspections conducted addressed all the required inspection steps to determine full compliance	71% confirmed*	90% confirmed*	-

	PMP Reporting Description	FY 2009 Result	FY 2010 Result	Total (where applicable)
29	The number of enforcement actions taken for municipal areas and activities *NOTE: Enforcement numbers vary greatly, reflecting different approaches to enforcement*	302	207	509
	Industrial/Commercial Component			
30	Confirmation that the designated BMPs were implemented, or required to be implemented, for industrial and commercial sites/sources	95% confirmed*	100% confirmed	-
31	Number of industrial/commercial sites/sources	36,273	34,139	-
32	Number of industrial/commercial sites/sources inspected *NOTE: Overall, 33% of inventory inspected: greater than 25% as required*	11,964	12,846	24,810
33	Confirmation that all inspections conducted addressed all the required inspection steps to determine full compliance	81% confirmed*	100% confirmed	-
34	The number of enforcement actions taken for industrial and commercial sites/sources *NOTE: Enforcement numbers vary greatly, reflecting different approaches to enforcement*	1,222	1,291	2,513
	Illicit Discharge Detection and Elimination Component			
35	Number of illicit discharges and connections identified *NOTE: Results vary greatly – reflecting different approaches to categorizing and tracking IC/IDs*	894	2,315	3,209
36	Number of illicit discharges and connections eliminated	779	2,063	2,842
37	Number of times the hotline was called	3,788	3,523	7,311
38	The number of enforcement actions taken for illicit discharges and connections *NOTE: Enforcement numbers vary greatly, reflecting different approaches to enforcement*	3,021	1,857	4,878
	Residential Component			
39	Confirmation that the designated BMPs were implemented, or required to be implemented, for residential areas and activities	95% confirmed*	100% confirmed	-
40	Amounts of household hazardous wastes (tons) collected	2,093	4,680	6,773
41	The number of enforcement actions taken for residential areas and activities *NOTE: Enforcement numbers vary greatly, reflecting different approaches to enforcement*	1,003	738	1,741
	Education Component			
42	A description of education efforts conducted for each target community	100% provided description	100% provided description	-
43	A description of how education efforts targeted underserved target audiences, high-risk behaviors, and "allowable" behaviors and discharges	86% provided description	81% provided description	-
44	A description of education efforts conducted for municipal departments and personnel	100% provided description	100% provided description	-
45	A description of education efforts conducted for the new development and construction communities	100% provided description	100% provided description	-
46	A description of jurisdictional education efforts conducted for residents, the general public, and school children	100% provided description	100% provided description	-

*Confirmations based on Copermittee Annual Reports – less than 100% does not imply non-compliance

WURMPs**:** The Permit requires that each WMA actively implement at least two (2) Watershed Water Quality Activities (WQA) and two Watershed Education Activities (WEA) each Permit year. The following table lists the number of watershed activities in active implementation phases during Fiscal Years 2009 and 2010. A review of **Table 6-11** below demonstrates that the Copermittees have exceeded the required number of activities each year. It is important to note that in addition to the WQAs and WEAs implemented, the Copermittees implemented other activities on a watershed basis. These included monitoring and public participation events that do not fit into the definitions of WQAs and WEAs, but are important activities that do address the high priority water quality problems in the watersheds.

Table 6-11: Watershed Activities in Active Implementation

WMA	FY 2009 Activities in Active Implementation		FY 2010 Activities in Active Implementation	
	WQA	WEA	WQA	WEA
Santa Margarita	9	8	8	5
San Luis Rey	6	2	6	6
Carlsbad	13	6	16	5
San Dieguito	20	8	21	8
Peñasquitos	16	11	19	10
Mission Bay	22	12	24	9
San Diego River	40	12	41	9
San Diego Bay	24	11	32	13
Tijuana	17	9	22	13

RURMP: The Permit requires that the Copermittees collectively develop and implement common activities, facilitate assessment of program effectiveness, develop and implement a regional residential education program, and develop and implement a regional fiscal analysis method. The following table summarizes the Copermittees implementation of the required RURMP elements.

Table 6-12: Regional URMP Activities

RURMP Element	Description	Element Developed?	Implemented
Common Activities	Regional Stormwater Hotline	Previously developed	Yes
Common Activities	Participation in California Stormwater Quality Association	N/A	Yes
Common Activities	Integrated Regional Water Management Planning	N/A	Yes
Common Activities	Regional Stormwater Management Committee	Previously developed	Yes
Common Activities	Regional Program Planning Subcommittee	Yes	Yes
Common Activities	Workgroups: *Fiscal, Reporting and Assessment; Education and Residential Sources; Regional Monitoring; Land Development; Municipal Sources; Industrial and Commercial Sources; Regional WURMP*	Yes	Yes
Regional Effectiveness Assessment	Regional Reporting and Assessment Standards Recommendations	Yes	Yes
Regional Education Program	*County-wide Survey; Mass Media; Underserved Target Audience; Regional Website; Regional Brand; Regional Outreach Events; Materials Development*	Yes	Yes
Fiscal Analysis Method	Standardized Method and Format for Conducting and Reporting Fiscal Analysis	Yes	Yes

6.4.2.3 Assessment

Based upon the data and information provided above, collectively, the Copermittees met their Permit requirements.

6.4.3 Changes in Knowledge and Awareness (Level 2 Outcomes)

6.4.3.1 Background and Analysis

In general, there is a lack of consistent data that supports a collective analysis of Level 2 outcomes. Copermittees reported a variety of methods and results for Level 2 outcomes. This section summarizes some of the findings from the JURMP, WURMP and RURMP Annual Reports as well as special projects, including large-scale surveys.

Local Surveys

In addition to the Regional Telephone Survey (see below) that was conducted, Copermittees implemented local surveys to assess the general public's knowledge and awareness. The surveys contain information and data that is disparate from other Copermittees' data and therefore extracting collective assessment data is not possible. It is important to note that most local surveys provided jurisdictions with information that may be used for refocusing their education and outreach efforts.

Hotline Calls

Some Copermittees utilized hotline calls as a means of measuring Level 2 outcomes. The assumption is that the more knowledgeable the community is regarding stormwater issues, the more apt they are to report issues to the local and regional hotlines. Because there are too many variables that may affect the number of hotline calls, including knowledge and awareness, number of discharges, disgruntled neighbors, etc., the number of hotline calls from year-to-year is not considered as a metric in this LTEA.

Exposure and Impressions

Some Copermittees used exposure and impressions, via website hits and other outreach mechanisms, as a measurement of Level 2 outcomes. Although, exposure and impressions are critical components for changing knowledge and awareness, alone they are not measurements of knowledge and awareness. Coupled with other substantiating evidence, e.g., inspection results, the exposure could be considered a contributor to behavior changes or source reductions – Level 3 and 4 outcomes.

Telephone Surveys

As part of the Regional Residential Education Program, a Regional Residential Education Plan (Plan) was developed and finalized in March 2008. The Plan provides recommended strategies for education and outreach activity implementation. One recommendation was to conduct a baseline regional residential telephone survey with an additional survey conducted late in the permit cycle to assess the changes resulting from program implementation. The Copermittees established targets to achieve through education and outreach efforts: 10% change in knowledge that storm drains are separate from sanitary sewer systems, 10% increase in the awareness that all storm drains are connected to local waterways, and a 15% increase in the number of participants who can identify residential sources of stormwater pollution.

As stated in the FY 2010 RURMP Annual Report:

> *"the Regional Residential Sources Workgroup developed and implemented a telephone survey of adult residents living in San Diego County. The purpose of the study was to begin to evaluate the effectiveness of the Copermittee's storm water pollution education efforts by measuring baseline*

current levels of polluting practices and awareness of how the storm drain system works. The study was conducted between June 16 and June 26, 2009. A total of 808 telephone interviews were conducted with adult residents randomly identified from across San Diego County."

Regional Calendar

As reported in the FY 2010 RURMP Annual Report:

"*between January and June 2010, Think Blue implemented a two-tiered assessment protocol that was designed to provide both qualitative and quantitative evaluation of the 2010 "Be the Solution to Storm Water Pollution" calendar. The Think Blue San Diego Regional calendar was designed to increase awareness, and educate residents on behaviors that prevent storm water pollution. The goal of the assessment activities was to provide an evaluation of both the clarity and usage of the calendar as well as the impact of the calendar on attitudes and behavior.*

Data were collected through pre- and post-test surveys and in-depth interviews with a subset of calendar recipients. 332 pre-tests were collected at the time of calendar distribution, 59 calendar recipients returned a post-test, and 30 participated in an in-depth telephone interview about the calendar."

Quizzes

Copermittees utilized quizzes as a means of determining the effectiveness of their training programs. The Copermittees used a pre- and post-training/presentation method of measuring the impacts of their training/presentation. In general, the training resulted in increased awareness and knowledge for the various target audiences, e.g., school-aged children and municipal staff.

Inspection Interviews

Copermittees used facility inspections to assess knowledge of general stormwater requirements. This method was used by some, but not all Copermittees and the results are generally not presented in sufficient detail to combine multiple jurisdictions' information across multiple years for comparison purposes.

Anecdotal Evidence

Although not always tracked and measured, there are indicators that point towards positive changes in knowledge and awareness with respect to stormwater issues. Many Copermittees reported that through anecdotal evidence there have been changes to knowledge and awareness in the target audiences. Some of these anecdotal indicators are:

- SUSMP implementation is easier because the development community is aware and knowledgeable of the land development requirements
- Construction community is more aware and knowledgeable of stormwater and BMP requirements and has expectation for impending inspections
- Municipal staff appears to have understanding of the program and an increasing number of urban runoff issues are being identified by field staff
- Industrial/commercial businesses are more aware of requirements and have expectation for impending inspections

6.4.3.2 Assessment

In general, and with the caveat that there is a limited amount of data and information available, the Copermittees have made progress towards changing knowledge and awareness of the general public with respect to stormwater issues.

A regional example of an improvement in knowledge and awareness is demonstrated through the Regional Residential Education calendar distributed. Among calendar recipients, who completed both the pre- and post-test surveys:

- There was a 14% increase in knowledge that storm water is not treated (83% correct at pre-test, 95% correct at post-test).
- After receiving the calendar, people were significantly more likely to be able to mention a specific pollution-prevention behavior. Prior to receiving the calendar 15% of respondents were unable to mention a specific action that they could do to prevent storm water pollution. At post-test, only 2% could not name a specific action.

Think Blue's regional calendar received a positive response in regards to graphics, size, and layout. More importantly, the calendar successfully increased knowledge and awareness, suggesting that it is a viable medium for educating people about storm water pollution and promoting behavior change.

While the Regional telephone survey conducted does not provide a change in knowledge and awareness at this time, it does provide valuable baseline information that can be used to refine outreach programs and be utilized as a comparison for future regional surveys. A summary of the baseline survey results as reported in the FY 2009-2010 RURMP Annual Report applicable to Level 2 is included below.

Level 2 results of the 2009 baseline telephone survey:

- **Knowledge of storm drain system:** 37% of respondents knew that water in storm drains is not treated before it is released into local waterways.
- **Knowledge of pollutants in urban runoff:** 41% of respondents volunteered that litter and trash were common sources of pollution in storm drains, 34% mentioned automobile fluids, 16% mentioned cleaning products, 15% mentioned fertilizers and pesticides, 10% mentioned yard trimmings and dirt, 8% mentioned human and animal wastes, and smaller percentages named other sources; 11% could not name a source of pollution in storm drains.

6.4.4 Behavioral Changes (Level 3 Outcomes)

6.4.4.1 Background and Analysis

In general, there is a lack of consistent data that supports a collective analysis of Level 3 outcomes. Copermittees reported a variety of methods and results for Level 3 outcomes. This section summarizes some of the findings from the JURMP Annual Reports and surveys.

Regional Residential Education Program

Telephone Survey

As noted in Section 6.4.3.1 above, a regional baseline telephone survey was conducted in 2009 and measured both baseline levels of awareness of how the storm drain system works and the levels of polluting practices or behaviors.

Regional Calendar

Also noted in Section 6.4.3.1 above, a Think Blue San Diego Regional calendar was designed to increase awareness, and educate residents on behaviors that prevent storm water pollution. The goal of the assessment activities was to provide an evaluation of both the clarity and usage of the calendar as well as the impact of the calendar on attitudes and behavior.

Community Based Social Marketing (CBSM): Gen-Y Youth Study

The Copermittees conducted a pilot study of littering behavior among youth in four regions throughout the county, which included observations and in-person interviews with youth (under the age of 24 with specific focus on middle school, high school, and college-age youth). The purpose of the study was to identify the sources of litter, establish a baseline littering rate, and identify avenues for outreach and education to reduce and prevent litter. The study was conducted in 2010, and pilot and control sties were chosen across four regions and included: Central County (beaches), East County (transit centers), North County (skate parks), and South County (parks). The study utilized intercept interviews, behavioral observations, and observations of accumulated trash as the methods of assessment.

Results of the study indicate that there were positive changes in knowledge and awareness, behavior, and load reductions at some of the sites as a result of intervention-implementation activities (Action Research, Inc., 2010).

Surveys

Some jurisdictions performed large-scale surveys where the results indicate that there is a general positive trend to change in behaviors related to the following actions/issues:

- Water conservation
- Picking up dog waste
- Picking up litter
- Cleaning gutters

BMP Implementation Rates

Some Copermittees compare BMP implementation rates for several of the regulated communities to determine Level 3 outcomes. However, because of the inconsistencies in the BMPs that are reviewed for compliance and the lack of standardized reporting, collective assessment is not possible at this time. With standards in place, BMPs for the following could be used for comparative analysis to determine Level 3 outcomes with respect to BMP implementation rates:

- Treatment Control BMP (TCBMP) Maintenance
- Construction Sites
- Municipal Areas and Activities
- Industrial/Commercial Facilities and Activities

Furthermore, facility compliance could be used as a determinant for Level 3 outcomes. Based on the complexity of standardization of BMPs and evaluation of BMPs, it may be appropriate to rate levels of compliance (e.g., full, partial, none, or immediate action needed). This can be done for the entire facility or groups of BMPs and assessed for behavior changes over time.

Anecdotal Evidence

Although not always tracked and measured, there are indicators that point towards positive changes in behaviors with respect to stormwater issues. Many Copermittees reported that through anecdotal evidence there have been changes to behaviors. Some of these anecdotal indicators are:

- SUSMP process implementation is easier because the development community is including BMPs in their first (or early in process) submittals as opposed to previous years
- Construction community is implementing BMPs more readily
- Municipal staff is implementing BMPs more readily
- Industrial/commercial businesses are implementing BMPs more readily

6.4.4.2 Assessment

In general, based upon the limited amount of data and information available, the Copermittees have made progress towards changing behavior of the general public, municipal staff, land development community, business owners and operators with respect to stormwater issues.

A regional example of progress toward changing behaviors of the general public is demonstrated through the Regional Residential Education calendar distributed. Among calendar recipients, who completed both the pre- and post-test surveys:

- There was a 69% decrease in the number of participants who reported hosing as clean-up method (16% at pre-test compared to 5% at follow-up).
- Reports of doing nothing for weed and pest control more than doubled. At pre-test 18% reported "none" as their method compared to 39% at post-test.

Telephone interviews with a subset of 30 individuals who remembered receiving the calendar revealed that:

- 73% of participants still had the calendar. Those who no longer had the calendar said that they gave it away to students, friends, or coworkers.
- 59% reported that they looked at the calendar on a daily basis; 39% looked at it weekly, and 5% looked monthly, indicating that the calendar is used regularly.
- Sixty-five percent (65%) of respondents who read the calendar said they made changes to their behavior as a result, validating that the calendar is an effective medium for education and outreach.

As previously mentioned, Think Blue's regional calendar received a positive response in regards to graphics, size, and layout. More importantly, the calendar successfully increased knowledge and awareness, suggesting that it is a viable medium for educating people about storm water pollution and promoting behavior change.

While the Regional telephone survey conducted does not provide a change in behavior at this time, the survey provided substantial information on current levels of polluting practices. These results of the survey can be used to refine outreach programs and utilized as a comparison for future regional or jurisdictional surveys (when the same questions are utilized). A summary of the baseline survey results as reported in the FY 2009-2010 RURMP Annual Report applicable to Level 3 is included below.

Level 3 results of the 2009 baseline telephone survey:

- **Pet waste pick up:** In 76% of households with dogs, the person who walks the dog always or nearly always picks up pet waste; 91% of those who picked up put it in the garbage, 3% hosed it or put it in the street, and 11% left it on the ground.
- **Over-irrigation:** 11% of those with sprinklers said a noticeable amount of water ends up in the street; 76% adjusted the sprinklers to reduce water in the previous year.
- **Reduced use of fertilizer:** 49% of those with yards said they used fertilizer in the previous year; 28% said they used pesticides or chemicals.
- **Sweeping instead of hosing:** 77% of those with driveways said they sweep it, 23% said they hose it down, and 39% blow materials off it.
- **Litter in trash cans:** 14% said they saw litter very frequently on their block; 33% said they always or nearly always pick up litter on their block and dispose of it in a trash container.

6.4.5 Source Reductions (Level 4 Outcomes)

6.4.5.1 Background

Aside from direct measurements of load reductions there is a lack of consistent data that supports Level 4 outcome assessments. There are models that, through gross assumptions, estimate source reductions based on several factors, including PMP implementation. These models do not have the supporting empirical evidence to validate their application on a collective scale; rather, individual Copermittees may use them for relative year-to-year comparisons.

6.4.5.2 Analysis

The Copermittees reported direct measurements as a result of their PMP implementation. The direct measurements that can be summarized collectively are presented below in **Table 6-13**.

Table 6-13: Level 4 Outcomes

	PMP Reporting Description	FY 2009 Result	FY 2010 Result	Total (where applicable)
1	Total amount of waste and litter (tons) removed from catch basins, inlets, MS4 and open channels *NOTE: More than 55% attributable to open channels*	19,002 tons	38,391 tons	57,393 tons
2	Total amount of material (tons) collected from street and parking lot sweeping	29,365 tons	23,534 tons	52,899 tons
3	Number of illicit discharges and connections eliminated.	779	2,063	2,842
4	Amounts of household hazardous wastes (tons) collected	2,093	4,680	6,773

Although not quantifiable, there are pollutant source reductions directly related to the Copermittees requiring the implementation of Treatment Control BMPs (TCBMPs) at development projects. There have been over 3,000 TCBMPs installed throughout the San Diego Region. Currently there are no valid methods of determining source reductions from the implementation of these TCBMPs, however, it is considered significant.

In addition to the pollutant removal described above for TCBMPs, the Copermittees have also required the implementation of Low Impact Development (LID) BMPs throughout the region. As a direct result of the LID BMPs, there is a source reduction in urban runoff flows. Although not quantifiable at this time, the flow source reduction is considered significant.

6.4.5.3 Assessment

In general, based upon the limited amount of data and information available, the Copermittees have made progress towards obtaining source reductions through PMP implementation and land development project implementation of LID and Treatment Control BMPs.

6.5 Integrated Assessment

This section discusses the integrated portion of the LTEA. **Figure 6-8** below, shows the Integrated Assessment portion of the larger LTEA process.

The following are the assessments required by the Permit:

Assessment of the effectiveness of Copermittee activities in addressing priority constituents and sources

Assessment of the relationship of program implementation to changes in pollutant loading, discharge quality, and receiving water quality

These assessments are paraphrased as "How effective are the Copermittees program at reducing pollutant loading, and improving discharge and receiving water quality?"

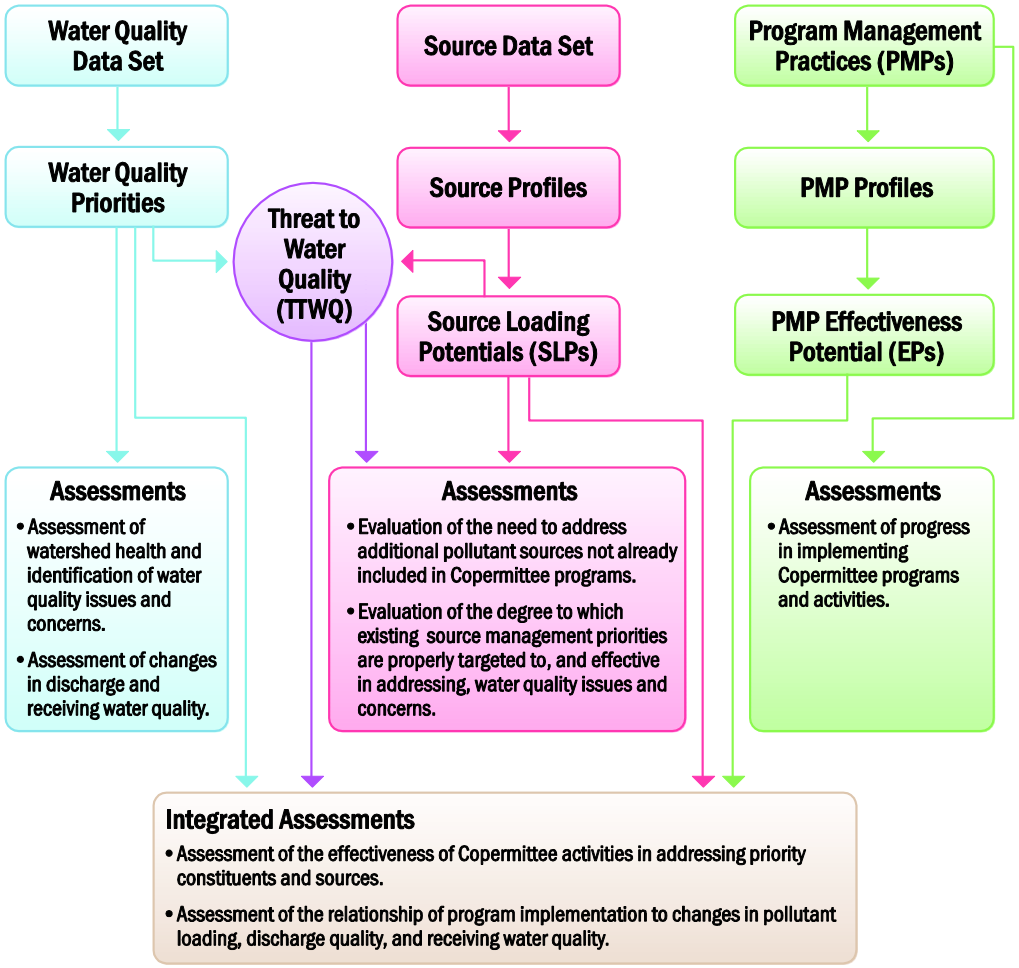

Figure 6-8: LTEA Process – Integrated Assessment

At this time there is not enough supporting data to make direct correlations between program implementation and measureable changes in pollutant loading, MS4 discharge quality and receiving water quality. *Based on the evidence and analysis provided in Sections 6.3 and 6.4 above, the Copermittees have made progress towards reducing pollutant loading, improvements to MS4 discharge quality and receiving waters quality*. However, it is not possible at this time to establish direct relationships between program implementation and the water quality assessment results summarized in Section 6.2 and Attachment 1, 2010-2011 LTEA Water Quality Report.

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7 Conclusions

Based on the analysis provided in Sections 2.0 through 6.0 of this LTEA, a number of conclusions can be drawn regarding the effectiveness of the Copermittees' programs over this Permit cycle. These are summarized in Table 7-1. A more detailed discussion of each can also be found the specific LTEA sections referenced in the Table. As required by Permit Section I.3.a.(6), these conclusions serve as a basis for many of the recommendations provided in the Copermittees' Report of Waste Discharge.

Table 7-1: Summary of Conclusions

Assessment / Evaluation	Conclusions
Evaluation of Progress in Developing and Implementing Monitoring Programs (LTEA Section 6.2.1)	Copermittees are implementing the monitoring program consistent with the Permit requirements
Assessment of Watershed Health and Identification of Water Quality Issues and Concerns (LTEA Section 6.2.2)	Wet Weather – In general, wet weather receiving water quality priorities are associated with the following issues: mobilization and migration of sediment during storm events as measured by total suspended solids and turbidity; bacterial indicators as reflected by fecal coliform; and the detection of synthetic pyrethroid pesticides. There are also some differences in the priority of these constituents among watersheds as reflected in different land use distributions and pollutant-generating activities in the watershed, physical conditions, and flow characteristics. Dry Weather – In general, the receiving water quality priorities under ambient or dry weather conditions, based on two years of data, indicate a countywide issue with bacteria indicators (largely enterococci and also fecal coliform), nutrients, and total dissolved solids. The level of priority and the specific nutrients vary among watersheds, which is reflective of varying source contributions and the presence of flows.
Assessment of Changes in Discharge Water Quality (Level 5 Outcomes) (LTEA Section 6.2.3)	At this time it is not possible to identify changes in water quality in outfall discharges because only two of the five years of program data have been collected. Changes in MS4 discharge quality will be reported in the coming years as this program continues to collect data and information. The temporal resolution of these data sets will improve as well in the coming years. In the LTEA WQ Report (Attachment 1, Sections 2 through 10) discharge loading characteristics are estimated and ranked for wet weather flows. These will help to establish a baseline for future comparisons of changes in the loads. The current assessment presents observed dry weather flow conditions at the MS4 outfalls; these data may also be used as a basis for comparison with future monitoring.
Assessment of Changes in Receiving Water Quality (Level 6 Outcomes) (LTEA Section 6.2.4)	The results of the trend analysis for the MLS in the receiving water are presented in **Table 6-4** in Section 6. Changes in ambient conditions will be reported in the coming years as the ambient receiving water program continues to collect data and information.
Evaluation of the need to address additional pollutant sources not already included in Copermittee programs (LTEA Section 6.3.1)	The analysis performed resulted in no additional sources recommended for inclusion in the Copermittees' programs at this time.
Evaluation of the degree to which existing source management priorities are properly targeted to, and effective in addressing, water quality issues and concerns (LTEA Section 6.3.2)	The Copermittees have identified potential sources of the pollutants of concern. Copermittee programs would benefit from determining the relative importance of these sources in order to allow for the most efficient allocation of resources.
Assessment of progress in implementing Copermittee programs and activities (LTEA Section 6.4.1)	Based upon the data and information provided, collectively, the Copermittees met their Permit requirements.

Assessment / Evaluation	Conclusions
Assessment of the effectiveness of Copermittee activities in addressing priority constituents and sources (LTEA Section 6.5)	At this time there is still not enough supporting data to make direct correlations between program implementation and measureable changes in pollutant loading, MS4 discharge quality and receiving water quality. *Based on the evidence and analysis provided in Sections 6.3 and 6.4 of the report, the Copermittees have made progress towards reducing pollutant loading, improvements to MS4 discharge quality and receiving waters quality*.
Assessment of the relationship of program implementation to changes in pollutant loading, discharge quality, and receiving water quality (LTEA Section 6.5)	At this time there is still not enough supporting data to make direct correlations between program implementation and measureable changes in pollutant loading, MS4 discharge quality and receiving water quality. *Based on the evidence and analysis provided in Sections 6.3 and 6.4 of the report, the Copermittees have made progress towards reducing pollutant loading, improvements to MS4 discharge quality and receiving waters quality*.

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1 Home Automobile Associated Activities, Home and Garden Care, and Waste Disposal

Narrative Description

This Source Profile Sheet primarily covers home automobile associated activities, home and garden care activities, and waste. This includes typical residential outdoor activities, such as landscape maintenance, home maintenance/repair, and vehicle maintenance/repair.

Home automobile associated activities, home and garden care, and waste disposal are not classified under the Standard Industrial Classification (SIC) system or the North American Industry Classification System (NAICS).

Pollutant Generating Activities and Associated Pollutants

The following tables contain a list of activities commonly associated with home automobile associated activities, home and garden care, and waste disposal which may have a source loading potential. Possible pollutants associated with these activities are also presented. Table 1-1 contains a list of activities with a source loading potential in wet weather and Table 1-2 contains a list of activities with source loading potential in dry weather.

The activities below were evaluated for potential pollutant generation during wet weather and dry weather. Wet weather potentials consider runon and runoff during wet weather events. Dry weather potentials are based on the assumption that irrigation and cleaning activities act as transport mechanisms. Furthermore, it is assumed that no BMPs are in place.

1 Home Automobile Associated Activities, Home and Garden Care, and Waste Disposal

Table 1-1. Summary of typical activities and associated pollutants during wet weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacteria/ Pathogens*
Residential Areas and Activities									
Storage of pesticides and fertilizers		X				X	X		
Storage of solid wastes and garden/pet wastes	X	X	X	X		X	X		X
Storage of any liquid materials in portable containers	X	X	X			X	X		
Hazardous waste disposal	X	X	X						
Vehicle and equipment maintenance and repair	X	X	X						
Paint removal and painting	X	X	X					X	
Home repair				X				X	
Landscape maintenance				X	X	X	X	X	
Waste handling and disposal	X	X	X					X	

Table 1-2. Summary of typical activities and associated pollutants during dry weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacteria/ Pathogens*
Residential Areas and Activities									
Landscape maintenance				X	X	X	X	X	

Discharge Potential

As part of the initial 2005 LTEA effort, a questionnaire was completed by various Copermittees to assess the likely potential of a specific source discharging pollutants. Using existing information (e.g. illicit discharge records) and field knowledge the Copermittees ranked the potential of discharging pollutants. These rankings were averaged (when a ranking was given) to obtain average discharge potential rankings for each information type. See Table 1-3 for a summary of the results. An overall ranking was also determined for the source by taking the maximum average ranking from each of the information types. When only one information type received a score, due to lack of information, the average ranking from that one information type was neglected in the overall ranking determination. In these cases the overall ranking was set to 3, meaning

the currently available information does not adequately characterize the discharge potential.

Table 1-3. Ranking of discharge potential using existing information.

home automobile associated activities, home and garden care activities, waste disposal			
Information Types	***Information Available***	***Average Ranking***	***Comments***
Dry Weather Monitoring	Y	5	
Illicit Discharge Records	Y	5	
Pretreatment Compliance Records			
Underground Stoage Tank Records			
Haz Waste Storage Records			
Inspection Records			
Other information? Please specify here		4	
Overall Ranking		**5.0**	

Note: Overall Ranking is the highest 'Average Ranking' received for the various information types. When less than 2 scores were given, due to lack of information, the Overall Ranking was adjusted to 3 - Unknown Potential.

Scoring Legend	
1	- low discharge potential
2	- medium-low discharge potential
3	- Unknown, information does not adequately characterize
4	- medium-high discharge potential
5	- high discharge potential

A review of Table 1-3 shows that while the sources of information are limited, the Copermittees considered home activities having a high potential for discharging pollutants

It should be noted that a blank ranking in Table 1-3 does not necessarily mean that there is no discharge potential but rather the Copermittee chose not to rank the potential. As more information is collected, these blanks will be filled in and a more comprehensive ranking established.

Legal/Regulatory Oversight

Table 1-4 provides a summary of the types of regulatory oversight that pertain to home automobile associated activities, home and garden care, and waste disposal. In some cases, there may be some overlap in the types of regulatory oversight.

1 Home Automobile Associated Activities, Home and Garden Care, and Waste Disposal

Table 1-4. Summary of regulatory oversight of home automobile associated activities, home and garden care, and waste disposal sources.

Home automobile associated activities, home and garden care activities, waste disposal			
Oversight Type	**Regulatory Oversight**		**Comments**
Stormwater	NPDES Municipal Permit / Local Ordinances	X	
	NPDES General Industrial Permit		
	NPDES General Construction Permit		
Other Regulatory Oversight	Industrial Pretreatment Program (EPA)		
	Hazardous Materials / CUPA (County DEH)		
	CURFFL (County DEH)		
	Local Enforcement Agency - Landfills (County DEH)		
	Air Quality Permits (APCD)		
	Fire Agencies		
	Pesticide Regulatory Program (County AW&M)		
	Coast Guard		

Existing regulatory oversight of home activities is limited regarding stormwater issues.

Source Prevalence and Distribution

The 2005 Baseline LTEA effort produced source distribution information, if available, is provided in this section. Numerous resources were relied upon in order to obtain an as accurate as feasible estimate of the number of sources throughout San Diego County. The objective was to locate the sources within watersheds and sub-watersheds. When this was feasible, the sources are termed ‘geo-coded’, meaning there geographic coordinates are known and can be included in a GIS map. In some instances, it was not feasible to geo-code some sources. This is the case with home activities because of the ubiquitous nature of the activities. Instead land use maps are typically used to assess the prevalence of these pollutant generating activities.

2 Construction Sites > 1 Acre

Narrative Description

This Source Profile Sheet covers construction projects greater than one acre in size.

SIC Codes	
23XX	Construction

NAICS Codes	
23XXXX	Construction

Some construction sites were historically classified under the Standard Industrial Classification (SIC) system. This system has been slowly replaced by the North American Industry Classification System (NAICS), which accommodates a larger number of industrial sectors and sub-sectors, and identifies hundreds of new, emerging, and advanced technology industries. As most Copermittees have yet to convert from the SIC system to the NAICS, the applicable codes from both systems are presented here for easy reference.

Pollutant Generating Activities and Associated Pollutants

The following tables contain a list of activities commonly associated with construction sites greater than one acre in size which may have a source loading potential. Possible pollutants associated with these activities are also presented. Table 2-1 contains a list of activities with a source loading potential in wet weather and Table 2-2 contains a list of activities with source loading potential in dry weather.

The activities below were evaluated for potential pollutant generation during wet weather and dry weather. Wet weather potentials consider runon and runoff during wet weather events. Dry weather potentials are based on the assumption that irrigation and cleaning activities act as transport mechanisms. Furthermore, it is assumed that no BMPs are in place.

Table 2-1. Summary of typical activities and associated pollutants during wet weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacteria/ Pathogens*
Sites > 1 acre									
Clearing, grading, and preparation of construction sites		X	X	X	X	X	X		
Demolition of buildings	X	X		X				X	
Building repair, remodeling and construction	X	X	X	X					
Concrete and asphalt preparation, cutting, curing, and finishing	X	X	X	X	X			X	
Paint removal and painting	X	X	X					X	
Loading and unloading	X	X	X	X			X		
Storage of raw materials, products, and containers	X	X	X	X			X	X	
Waste handling and disposal	X	X	X					X	
Operation of outdoor equipment	X	X	X	X					
Vehicle and equipment fueling	X	X	X						
Vehicle and equipment maintenance and repair	X	X	X				X		X
Portable toilets							X		X
Dewatering activities					X		X		

Table 2-2. Summary of typical activities and associated pollutants during dry weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacteria/ Pathogens*
Sites > 1 acre									
Grounds/landscape maintenance				X	X	X	X	X	
Dewatering activities					X		X		

Discharge Potential

As part of the initial 2005 LTEA effort, a questionnaire was completed by various Copermittees to assess the likely potential of a specific source discharging pollutants. Using existing information (e.g. illicit discharge records) and field knowledge the Copermittees ranked the potential of discharging pollutants. These rankings were averaged (when a ranking was given) to obtain average discharge potential rankings for

each information type. See Table 2-3 for a summary of the results. An overall ranking was also determined for the source by taking the maximum average ranking from each of the information types. When only one information type received a score, due to lack of information, the average ranking from that one information type was neglected in the overall ranking determination. In these cases the overall ranking was set to 3, meaning the currently available information does not adequately characterize the discharge potential.

Table 2-3. Ranking of discharge potential using existing information.

Construction Sites > 1 Acre			
Information Types	*Information Available*	*Average Ranking*	*Comments*
Dry Weather Monitoring			
Illicit Discharge Records	Y	5	
Pretreatment Compliance Records			
Underground Storage Tank Records			
Haz Waste Storage Records			
Inspection Records	Y	5	
Other information? Please specify here		4	
Overall Ranking		5.0	

Note: Overall Ranking is the highest 'Average Ranking' received for the various information types. When less than 2 scores were given, due to lack of information, the Overall Ranking was adjusted to 3 - Unknown Potential.

Scoring Legend	
1	- low discharge potential
2	- medium-low discharge potential
3	- Unknown, information does not adequately characterize
4	- medium-high discharge potential
5	- high discharge potential

A review of Table 2-3 shows that there appears to be several sources of information that may be used to assess the discharge potential. As more information is collected and evaluated, the ranking potential will be updated.

It should be noted that a blank ranking in Table 2-3 does not necessarily mean that there is no discharge potential but rather the Copermittee chose not to rank the potential. As more information is collected these blanks will be filled in and a more comprehensive ranking established.

Legal/Regulatory Oversight

Table 2-4 provides a summary of the types of regulatory oversight that pertain to construction sites. In some cases, there may be some overlap in the types of regulatory oversight.

2 Construction Sites > 1 Acre

Table 2-4.Summary of the stormwater-related and non-stormwater related regulatory oversight of construction sites.

Construction sites			
Oversight Type	**Regulatory Oversight**		**Comments**
Stormwater	NPDES Municipal Permit / Local Ordinances	X	
	NPDES General Industrial Permit		
	NPDES General Construction Permit	X	
Other Regulatory Oversight	Industrial Pretreatment Program (EPA)		
	Hazardous Materials / CUPA (County DEH)		
	CURFFL (County DEH)		
	Local Enforcement Agency - Landfills (County DEH)		
	Air Quality Permits (APCD)		
	Fire Agencies		
	Pesticide Regulatory Program (County AW&M)		
	Coast Guard		

Source Prevalence and Distribution

The 2005 Baseline LTEA effort produced source distribution information, if available, is provided in this section. Numerous resources were relied upon in order to obtain an as accurate as feasible estimate of the number of sources throughout San Diego County. The objective was to locate the sources within watersheds and sub-watersheds. When this was feasible, the sources are termed 'geo-coded', meaning there geographic coordinates are known and can be included in a GIS map.

Table 2-5 - Summary of construction sites within each of San Diego County's Watersheds.

Watershed Management Area	Hydrologic Unit (HU)	**Construction projects**
		Total # of Geo-Coded Sources
Santa Margarita	*902.00*	98
San Luis Rey	*903.00*	918
Carlsbad	*904.00*	919
San Dieguito	*905.00*	925
Penasquitos	*906.10 - 906.20*	92
Mission Bay	*906.30 - 906.50*	0
San Diego	*907.00*	1410
San Diego Bay - Pueblo	*908.00*	1674
San Diego Bay - Sweetwater	*909.00*	
San Diego Bay - Otay	*910.00*	
Tijuana	*911.00*	120
Total Geo-Coded Sources		6156
Total Sources (incl. Non geo-coded)		37212

2 Construction Sites > 1 Acre

In some instances, it was not feasible to geo-code some sources. In Table 2-5, the number of geo-coded construction sites >1 acre and active in winter within each watershed is shown, along with the total number of sources (geo-coded and not geo-coded together). In this case, the geographic coordinates for all of the identified sources have not yet been determined.

While the inventory process attempted to ensure there is no overlap between priority sources identified, there may be some overlap of the identified sources with sources identified in other Source Profile Sheets. This may be the case for the construction sources that may also be classified as general contractors (SPS#19).

The source inventory is further broken down in Table 2-6 to show the prevalence of construction sites within each sub-watershed. This information, combined with the concurrent water quality assessment of sub-watersheds throughout San Diego County will ultimately help to assess the threat these facilities pose to water quality by source and constituent. It is recommended that municipalities use updated source information from the County, as available, to develop revised source prevalence and distribution data.

Table 2-6– Summary of construction sites within each of San Diego County's sub-watersheds.

		Construction projects									
Watershed Management Area	Hydrologic Unit (HU)	*Sources Geo-Coded by Sub-watershed Hydrologic Unit*									Total # of Sources
		90X.10	*90X.20*	*90X.30*	*90X.40*	*90X.50*	*90X.60*	*90X.70*	*90X.80*	*90X.90*	
Santa Margarita	*902.XX*	42	49	0	0	0	0	0	0	7	98
San Luis Rey	*903.XX*	750	86	26							918
Carlsbad	*904.XX*	32	51	150	6	123	360				919
San Dieguito	*905.XX*	492	119	47	225	19					925
Penasquitos	*906.XX*	9	83								92
Mission Bay	*906.XX*			0	0	0					0
San Diego	*907.XX*	694	275	205	230						1410
San Diego Bay - Pueblo	*908.XX*	0	2	0							1674
San Diego Bay - Sweetwater	*909.XX*	378	751	91							
San Diego Bay - Otay	*910.XX*	367	1	73							
Tijuana	*911.XX*	2	10	4	17	7	2	1	75		120
							Total Geo-Coded Sources				6156
							Total Sources (incl. Non geo-coded)				37212

3 Construction Sites < 1 Acre

Narrative Description

This Source Profile Sheet covers construction projects less than one acre in size.

SIC Codes	
23XX	Construction

NAICS Codes	
23XXXX	Construction

Some construction sites were historically classified under the Standard Industrial Classification (SIC) system. This system has been slowly replaced by the North American Industry Classification System (NAICS), which accommodates a larger number of industrial sectors and sub-sectors, and identifies hundreds of new, emerging, and advanced technology industries. As most Copermittees have yet to convert from the SIC system to the NAICS, the applicable codes from both systems are presented here for easy reference.

Pollutant Generating Activities and Associated Pollutants

The following tables contain a list of activities commonly associated with construction sites less than one acres in size which may have a source loading potential. Possible pollutants associated with these activities are also presented. Table 3-1 contains a list of activities with a source loading potential in wet weather and Table 3-2 contains a list of activities with source loading potential in dry weather.

The activities below were evaluated for potential pollutant generation during wet weather and dry weather. Wet weather potentials consider runon and runoff during wet weather events. Dry weather potentials are based on the assumption that irrigation and cleaning activities act as transport mechanisms. Furthermore, it is assumed that no BMPs are in place.

3 Construction Sites < 1 Acre

Table 3-1. Summary of typical activities and associated pollutants during wet weather

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacteria/ Pathogens*
Sites < 1 acre									
Clearing, grading, and preparation of construction sites		X	X	X	X	X	X		
Demolition of buildings	X	X		X				X	
Building repair, remodeling and construction	X	X	X	X					
Paint removal and painting	X	X	X					X	
Loading and unloading	X	X	X	X			X		
Storage of raw materials, products, and containers	X	X	X	X			X	X	
Waste handling and disposal	X	X	X					X	
Operation of outdoor equipment	X	X	X	X					
Vehicle and equipment fueling	X	X	X						
Vehicle and equipment maintenance and repair	X	X	X				X		X
Portable toilets							X		X
Dewatering activities					X		X		

Table 3-2– Summary of typical activities and associated pollutants during dry weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacteria/ Pathogens*
Sites < 1 acre									
Grounds/landscape maintenance				X	X	X	X	X	
Dewatering activities					X		X		

Discharge Potential

As part of the initial 2005 LTEA effort, a questionnaire was completed by various Copermittees to assess the likely potential of a specific source discharging pollutants. Using existing information (e.g. illicit discharge records) and field knowledge the Copermittees ranked the potential of discharging pollutants. These rankings were averaged (when a ranking was given) to obtain average discharge potential rankings for each information type. The questionnaire was directed at construction sites in general

with no distinction in size. For this reason all construction sites (i.e. <1ac, >1 ac, hillside lots) were rated the same for discharge potential. See Table 3-3 for a summary of the results. An overall ranking was also determined for the source by taking the maximum average ranking from each of the information types. When only one information type received a score, due to lack of information, the average ranking from that one information type was neglected in the overall ranking determination. In these cases the overall ranking was set to 3, meaning the currently available information does not adequately characterize the discharge potential.

Table 3-3 – Ranking of discharge potential using existing information.

Construction Sites < 1 acre			
Information Types	*Information Available*	*Average Ranking*	*Comments*
Dry Weather Monitoring			
Illicit Discharge Records	Y	5	
Pretreatment Compliance Records			
Underground Storage Tank Records			
Haz Waste Storage Records			
Inspection Records	Y	5	
Other information? Please specify here		4	
Overall Ranking		5.0	

Note: Overall Ranking is the highest 'Average Ranking' received for the various information types. When less than 2 scores were given, due to lack of information, the Overall Ranking was adjusted to 3 - Unknown Potential.

Scoring Legend	
1	- low discharge potential
2	- medium-low discharge potential
3	- Unknown, information does not adequately characterize
4	- medium-high discharge potential
5	- high discharge potential

A review of Table 3-3 shows that there appears to be several sources of information that may be used to assess the discharge potential. As more information is collected and evaluated, the ranking potential will be updated.

It should be noted that a blank ranking in Table 3-3 does not necessarily mean that there is no discharge potential but rather the Copermittee chose not to rank the potential. As more information is collected these blanks will be filled in and a more comprehensive ranking established.

Legal/Regulatory Oversight

Table 3-4 provides a summary of the types of regulatory oversight that pertain to construction sites. In some cases, there may be some overlap in the types of regulatory oversight.

3 Construction Sites < 1 Acre

Table 3-4. Summary of the stormwater-related and non-stormwater related regulatory oversight of construction sites.

Construction sites			
Oversight Type	**Regulatory Oversight**		**Comments**
Stormwater	NPDES Municipal Permit / Local Ordinances	X	
	NPDES General Industrial Permit		
	NPDES General Construction Permit	X	
Other Regulatory Oversight	Industrial Pretreatment Program (EPA)		
	Hazardous Materials / CUPA (County DEH)		
	CURFFL (County DEH)		
	Local Enforcement Agency - Landfills (County DEH)		
	Air Quality Permits (APCD)		
	Fire Agencies		
	Pesticide Regulatory Program (County AW&M)		
	Coast Guard		

Source Prevalence and Distribution

The 2005 Baseline LTEA effort produced source distribution information, if available, for construction projects greater than one acre in size, but not for smaller construction projects. Therefore, it is recommended that new source information be obtained from the County to develop source prevalence and distribution data.

4 Construction Projects – ESA, Hillside, or Sediment TMDL

Narrative Description

This Source Profile Sheet covers construction projects in environmentally sensitive areas (ESA), on hillsides, or in locations where a sediment total maximum daily load (TMDL) has been enacted.

SIC Codes	
23XX	Construction

NAICS Codes	
23XXXX	Construction

Some construction sites were historically classified under the Standard Industrial Classification (SIC) system. This system has been slowly replaced by the North American Industry Classification System (NAICS), which accommodates a larger number of industrial sectors and sub-sectors, and identifies hundreds of new, emerging, and advanced technology industries. As most Copermittees have yet to convert from the SIC system to the NAICS, the applicable codes from both systems are presented here for easy reference.

Pollutant Generating Activities and Associated Pollutants

The following tables contain a list of activities commonly associated with these types of construction sites which may have a source loading potential. Possible pollutants associated with these activities are also presented. Table 4-1contains a list of activities with a source loading potential in wet weather and Table 4-2 contains a list of activities with source loading potential in dry weather.

The activities below were evaluated for potential pollutant generation during wet weather and dry weather. Wet weather potentials consider runon and runoff during wet weather events. Dry weather potentials are based on the assumption that irrigation and cleaning activities act as transport mechanisms. Furthermore, it is assumed that no BMPs are in place.

Table 4-1. Summary of typical activities and associated pollutants during wet weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacteria/ Pathogens*
Construction Sites - ESA or hillside or sediment TMDL									
Cleaning, grading, and preparation of construction sites		X	X	X	X	X	X		
Demolition of buildings	X	X		X				X	
Building repair, remodeling and construction	X	X	X	X					
Paint removal and painting	X	X	X					X	
Loading and unloading	X	X	X	X			X		
Storage of raw materials, products, and containers	X	X	X	X			X	X	
Waste handling and disposal	X	X	X					X	
Operation of outdoor equipment	X	X	X	X					
Vehicle and equipment fueling	X	X	X						
Vehicle and equipment maintenance and repair	X	X	X				X		X
Portable toilets							X		X
Dewatering activities					X		X		

Table 4-2 - Summary of typical activities and associated pollutants during wet weather

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacteria/ Pathogens*
Construction Sites - ESA or hillside or sediment TMDL									
Grounds/landscape maintenance				X	X	X	X	X	
Dewatering activities					X		X		

Discharge Potential

As part of the initial 2005 LTEA effort, a questionnaire was completed by various Copermittees to assess the likely potential of a specific source discharging pollutants. Using existing information (e.g. illicit discharge records) and field knowledge the Copermittees ranked the potential of discharging pollutants. These rankings were averaged (when a ranking was given) to obtain average discharge potential rankings for each information type. The questionnaire was directed at construction sites in general

with no distinction is size. For this reason all construction sites (i.e. <1ac, >1 ac, hillside lots) were rated the same for discharge potential. See Table 4-3 for a summary of the results. An overall ranking was also determined for the source by taking the maximum average ranking from each of the information types. When only one information type received a score, due to lack of information, the average ranking from that one information type was neglected in the overall ranking determination. In these cases the overall ranking was set to 3, meaning the currently available information does not adequately characterize the discharge potential.

Table 4-3 – Ranking of discharge potential using existing information.

Construction Sites – ESA, Hillside, or Sediment TMDL			
Information Types	*Information Available*	*Average Ranking*	*Comments*
Dry Weather Monitoring			
Illicit Discharge Records	Y	5	
Pretreatment Compliance Records			
Underground Storage Tank Records			
Haz Waste Storage Records			
Inspection Records	Y	5	
Other information? Please specify here		4	
Overall Ranking		5.0	

Note: Overall Ranking is the highest 'Average Ranking' received for the various information types. When less than 2 scores were given, due to lack of information, the Overall Ranking was adjusted to 3 - Unknown Potential.

Scoring Legend	
1	- low discharge potential
2	- medium-low discharge potential
3	- Unknown, information does not adequately characterize
4	- medium-high discharge potential
5	- high discharge potential

A review of Table 4-3 shows that there appears to be several sources of information that may be used to assess the discharge potential. As more information is collected and evaluated, the ranking potential will be updated. It should be noted that a blank ranking in Table 4-3 does not necessarily mean that there is no discharge potential but rather the Copermittee chose not to rank the potential. As more information is collected these blanks will be filled in and a more comprehensive ranking established.

Legal/Regulatory Oversight

Table 4-4 provides a summary of the types of regulatory oversight that pertain to construction sites. In some cases, there may be some overlap in the types of regulatory oversight.

Table 4-4. Summary of the stormwater-related and non-stormwater related regulatory oversight of construction sites.

Construction sites			
Oversight Type	**Regulatory Oversight**		**Comments**
Stormwater	NPDES Municipal Permit / Local Ordinances	X	
	NPDES General Industrial Permit		
	NPDES General Construction Permit	X	
Other Regulatory Oversight	Industrial Pretreatment Program (EPA)		
	Hazardous Materials / CUPA (County DEH)		
	CURFFL (County DEH)		
	Local Enforcement Agency - Landfills (County DEH)		
	Air Quality Permits (APCD)		
	Fire Agencies		
	Pesticide Regulatory Program (County AW&M)		
	Coast Guard		

Source Prevalence and Distribution

The 2005 Baseline LTEA effort produced source distribution information for construction projects greater than one acre in size, but not for these specific types of construction projects. It is recommended that municipalities use updated source information.

5 Development Subject to SUSMPs (>5,000sf Impervious Area)

Narrative Description

This Source Profile Sheet primarily covers developments subject to SUSMP requirements.

Developments subject to SUSMPs are not classified under the Standard Industrial Classification (SIC) system or the North American Industry Classification System (NAICS).

Pollutant Generating Activities and Associated Pollutants

The following tables contain a list of activities commonly associated with development subject to SUSMPs which may have a source loading potential. Possible pollutants associated with these activities are also presented. Table 5-1contains a list of activities with a source loading potential in wet weather and Table 5-2 contains a list of activities with source loading potential in dry weather.

The activities below were evaluated for potential pollutant generation during wet weather and dry weather. Wet weather potentials consider runon and runoff during wet weather events. Dry weather potentials are based on the assumption that irrigation and cleaning activities act as transport mechanisms. Furthermore, it is assumed that no BMPs are in place.

5 Development Subject to SUSMPs (>5,000sf Impervious Area)

Table 5-1. Summary of typical activities and associated pollutants during wet weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacterial/ Pathogens*
Development subject to SUSMPs (>5,000 sq. ft. impervious area)									
Home subdivisions of 100 housing units or more.	X	X	X	X	X	X	X	X	X
Home subdivisions of 10-99 housing units.	X	X	X	X	X	X	X	X	X
Commercial developments greater than 100,000 square feet.	X	X	X	X	X	X	X	X	X
Automotive repair shops.	X	X	X	X			X	X	X
Restaurants (with landscape)	X	X	X	X	X	X	X	X	X
All hillside development greater than 5,000 square feet.	X	X		X	X	X	X	X	
Development near Environmentally Sensitive Areas	X	X		X	X	X	X	X	
Parking lots 5,000 square feet or more or with 15 or more parking spaces and potentially exposed to urban runoff.	X	X	X	X			X	X	X
Street, roads, highways, and freeways.	X	X	X	X	X	X	X	X	
Retail Gasoline Outlets.	X	X	X	X			X		

Table 5-2. Summary of typical activities and associated pollutants during dry weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacterial/ Pathogens*
Development subject to SUSMPs (>5,000 sq. ft. impervious area)									
Development (with landscape)				X	X	X	X	X	

Discharge Potential

As part of the initial 2005 LTEA effort, a questionnaire was completed by various Copermittees to assess the likely potential of a specific source discharging pollutants. Using existing information (e.g. illicit discharge records) and field knowledge the Copermittees ranked the potential of discharging pollutants. These rankings were averaged (when a ranking was given) to obtain average discharge potential rankings for each information type. See Table 5-3 for a summary of the results. An overall ranking

was also determined for the source by taking the maximum average ranking from each of the information types. When only one information type received a score, due to lack of information, the average ranking from that one information type was neglected in the overall ranking determination. In these cases the overall ranking was set to 3, meaning the currently available information does not adequately characterize the discharge potential.

Table 5-3 – Ranking of discharge potential using existing information.

Development subject to SUSMPs			
Information Types	***Information Available***	***Average Ranking***	***Comments***
Dry Weather Monitoring			
Illicit Discharge Records	Y	2	
Pretreatment Compliance Records			
Underground Stoage Tank Records			
Haz Waste Storage Records			
Inspection Records			
Other information? Please specify here		2	
Overall Ranking		**2.0**	

Note: Overall Ranking is the highest 'Average Ranking' received for the various information types. When less than 2 scores were given, due to lack of information, the Overall Ranking was adjusted to 3 - Unknown Potential.

Scoring Legend	
1	- low discharge potential
2	- medium-low discharge potential
3	- Unknown, information does not adequately characterize
4	- medium-high discharge potential
5	- high discharge potential

A review of Table 5-3 shows that there is limited information available to assess discharge potential. Of the information available a more complete evaluation should be conducted to assess discharge potential.

It should be noted that a blank ranking in Table 5-3 does not necessarily mean that there is no discharge potential but rather the Copermittee chose not to rank the potential. As more information is collected these blanks will be filled in and a more comprehensive ranking established.

Legal/Regulatory Oversight

Table 5-4 provides a summary of the types of regulatory oversight that pertain to development subject to SUSMPs. In some cases, there may be some overlap in the types of regulatory oversight.

5 Development Subject to SUSMPs (>5,000sf Impervious Area)

Table 5-4. Summary of the stormwater-related and non-stormwater related regulatory oversight of development subject to SUSMPs.

Development subject to SUSMPs			
Oversight Type	**Regulatory Oversight**		**Comments**
Stormwater	NPDES Municipal Permit / Local Ordinances	X	
	NPDES General Industrial Permit		
	NPDES General Construction Permit		
Other Regulatory Oversight	Industrial Pretreatment Program (EPA)		
	Hazardous Materials / CUPA (County DEH)		
	CURFFL (County DEH)		
	Local Enforcement Agency - Landfills (County DEH)		
	Air Quality Permits (APCD)		
	Fire Agencies		
	Pesticide Regulatory Program (County AW&M)		
	Coast Guard		

Existing regulatory oversight of SUSMP development is limited regarding stormwater issues.

Source Prevalence and Distribution

The 2005 Baseline LTEA effort produced source distribution information, if available, is provided in this section. It is recommended that updated source information is used to develop revised source prevalence and distribution data.

Numerous resources were relied upon in order to obtain an as accurate as feasible estimate of the number of sources throughout San Diego County. The objective was to locate the sources within watersheds and sub-watersheds. When this was feasible, the sources are termed ‘geo-coded’, meaning there geographic coordinates are known and can be included in a GIS map. In some instances, it was not feasible to geo-code some sources. In Table 5-5, the number of geo-coded developments subject to SUSMP sources within each watershed is shown, along with the total number of sources (geo-coded and not geo-coded together). In this case, the geographic coordinates for all of the identified sources have not yet been determined.

5 Development Subject to SUSMPs (>5,000sf Impervious Area)

While the inventory process attempted to ensure there is no overlap between priority sources identified, there may be some overlap of the identified sources with sources identified in other Source Profile Sheets.

Table 5-5 - Summary of developments subject to SUSMP sources within each of San Diego County's Watersheds.

Watershed Management Area	Hydrologic Unit (HU)	New development and significant redevelopment projects
		Total # of Geo-Coded Sources
Santa Margarita	*902.00*	10
San Luis Rey	*903.00*	115
Carlsbad	*904.00*	298
San Dieguito	*905.00*	87
Penasquitos	*906.10 - 906.20*	17
Mission Bay	*906.30 - 906.50*	0
San Diego	*907.00*	79
San Diego Bay - Pueblo	*908.00*	82
San Diego Bay - Sweetwater	*909.00*	
San Diego Bay - Otay	*910.00*	
Tijuana	*911.00*	10
Total Geo-Coded Sources		698
Total Sources (incl. Non geo-coded)		1176

The source inventory is further broken down in Table 5-6 to show the prevalence of development subject to SUSMPs facilities within each sub-watershed. This information, combined with the concurrent water quality assessment of sub-watersheds throughout San Diego County will ultimately help to assess the threat these facilities pose to water quality by source and constituent.

It is recommended that municipalities use updated source information from the County, as available, to develop revised source prevalence and distribution data.

5 Development Subject to SUSMPs (>5,000sf Impervious Area)

Table 5-6. Summary of developments subject to SUSMPs within each of San Diego County's sub-watersheds.

		New development and significant redevelopment projects									
Watershed Management Area	Hydrologic Unit (HU)	*Sources Geo-Coded by Sub-watershed Hydrologic Unit*									Total # of Sources
		90X.10	*90X.20*	*90X.30*	*90X.40*	*90X.50*	*90X.60*	*90X.70*	*90X.80*	*90X.90*	
Santa Margarita	*902.XX*	0	0	0	0	0	0	0	0	0	10
San Luis Rey	*903.XX*	0	0	0							115
Carlsbad	*904.XX*	21	13	14	4	48	0				298
San Dieguito	*905.XX*	0	0	0	0	0					87
Penasquitos	*906.XX*	0	17								17
Mission Bay	*906.XX*			0	0	0					0
San Diego	*907.XX*	25	0	0	0						79
San Diego Bay - Pueblo	*908.XX*	0	0	3							82
San Diego Bay - Sweetwater	*909.XX*	0	0	0							
San Diego Bay - Otay	*910.XX*	4	0	0							
Tijuana	*911.XX*	0	0	0	0	0	0	0	0		10
							Total Geo-Coded Sources				698
							Total Sources (incl. Non geo-coded)				1176

6 Roads, Streets, Highways, and Parking Facilities

Narrative Description

This Source Profile Sheet covers the municipal management of roads, streets, highways and parking facilities.

Roads, Streets, Highways, and Parking Facilities are not classified under the Standard Industrial Classification (SIC) system or the North American Industry Classification System (NAICS).

Pollutant Generating Activities and Associated Pollutants

The following tables contain a list of activities commonly associated with home automobile associated activities, home and garden care, and waste disposal which may have a source loading potential. Possible pollutants associated with these activities are also presented. Table 6-1 contains a list of activities with a source loading potential in wet weather and Table 6-2 contains a list of activities with source loading potential in dry weather.

The activities below were evaluated for potential pollutant generation during wet weather and dry weather. Wet weather potentials consider runon and runoff during wet weather events. Dry weather potentials are based on the assumption that irrigation and cleaning activities act as transport mechanisms. Furthermore, it is assumed that no BMPs are in place.

Table 6-1. Summary of typical activities and associated pollutants during wet weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacterial/ Pathogens*
Roads, streets, highways, and parking facilities									
Concrete and asphalt production	X	X	X	X				X	
Concrete cutting				X					
Surface repair work	X	X	X	X					
Clearing, grading, and preparation of road work	X	X	X	X					
Storage of raw materials, products, and containers	X	X	X	X				X	
Storage of pesticides and fertilizers						X	X	X	
Vehicle and equipment maintenance and repair	X	X	X						
Operation of outdoor equipment	X	X	X	X					
Parking and storage area maintenance	X	X	X	X				X	
Landscape maintenance				X	X	X	X	X	

Table 6-2. Summary of typical activities and associated pollutants during dry weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacterial/ Pathogens*
Roads, streets, highways, and parking facilities									
Landscape maintenance				X	X	X	X	X	

Discharge Potential

As part of the initial 2005 LTEA effort, a questionnaire was completed by various Copermittees to assess the likely potential of a specific source discharging pollutants. Using existing information (e.g. illicit discharge records) and field knowledge the Copermittees ranked the potential of discharging pollutants. These rankings were averaged (when a ranking was given) to obtain average discharge potential rankings for each information type. See Table 6-3 for a summary of the results. An overall ranking

was also determined for the source by taking the maximum average ranking from each of the information types. When only one information type received a score, due to lack of information, the average ranking from that one information type was neglected in the overall ranking determination. In these cases the overall ranking was set to 3, meaning the currently available information does not adequately characterize the discharge potential.

Table 6-3. Ranking of discharge potential using existing information.

Roads, streets, highways, and parking facilities			
Information Types	***Information Available***	***Average Ranking***	***Comments***
Dry Weather Monitoring	Y	2	
Illicit Discharge Records	Y	4	
Pretreatment Compliance Records			
Underground Stoage Tank Records			
Haz Waste Storage Records			
Inspection Records	Y	2	
Other information? Please specify here		5	
Overall Ranking		**5.0**	

Note: Overall Ranking is the highest 'Average Ranking' received for the various information types. When less than 2 scores were given, due to lack of information, the Overall Ranking was adjusted to 3 - Unknown Potential.

Scoring Legend	
1	- low discharge potential
2	- medium-low discharge potential
3	- Unknown, information does not adequately characterize
4	- medium-high discharge potential
5	- high discharge potential

A review of Table 6-3 shows that there appears to be considerable information that may be used to assess the discharge potential. As more information is collected and evaluated, the ranking potential will be updated.

It should be noted that a blank ranking in Table 6-3 does not necessarily mean that there is no discharge potential but rather the Copermittee chose not to rank the potential. As more information is collected these blanks will be filled in and a more comprehensive ranking established.

Legal/Regulatory Oversight

Table 6-4 provides a summary of the types of regulatory oversight that pertain to roads, streets, highways, and parking facilities. In some cases, there may be some overlap in the types of regulatory oversight.

6 Roads, Streets, Highways, and Parking Facilities

Table 6-4. Summary of stormwater-related and non-stormwater-related regulatory oversight of roads, streets, and parking facilities

Roads, streets, highways, and parking facilities			
Oversight Type	**Regulatory Oversight**		**Comments**
Stormwater	NPDES Municipal Permit / Local Ordinances	X	
	NPDES General Industrial Permit		
	NPDES General Construction Permit		
Other Regulatory Oversight	Industrial Pretreatment Program (EPA)		
	Hazardous Materials / CUPA (County DEH)		
	CURFFL (County DEH)		
	Local Enforcement Agency - Landfills (County DEH)		
	Air Quality Permits (APCD)		
	Fire Agencies		
	Pesticide Regulatory Program (County AW&M)		
	Coast Guard		

Existing regulatory oversight of roads, streets, highways, and parking facilities is limited regarding stormwater issues.

Source Prevalence and Distribution

The 2005 Baseline LTEA effort produced source distribution information, if available, is provided in this section. It is recommended that updated source information is used to develop revised source prevalence and distribution data.

Numerous resources were relied upon in order to obtain an as accurate as feasible estimate of the number of sources throughout San Diego County. The

Table 6-5. Summary of Roads, Streets, Highways, and Parking Facilities within each of San Diego County's Watersheds.

Watershed Management Area	Hydrologic Unit (HU)	**Roads, streets, highways, and parking facilities** Total # of Geo-Coded Sources
Santa Margarita	*902.00*	0
San Luis Rey	*903.00*	0
Carlsbad	*904.00*	0
San Dieguito	*905.00*	0
Penasquitos	*906.10 - 906.20*	0
Mission Bay	*906.30 - 906.50*	0
San Diego	*907.00*	0
San Diego Bay - Pueblo	*908.00*	0
San Diego Bay - Sweetwater	*909.00*	
San Diego Bay - Otay	*910.00*	
Tijuana	*911.00*	0
Total Geo-Coded Sources		0
Total Sources (incl. Non geo-coded)		0

objective was to locate the sources within watersheds and sub-watersheds. When this was feasible, the sources are termed ‘geo-coded’, meaning there geographic coordinates are known and can be included in a GIS map. In some instances, it was not feasible to geo-code some sources. In this case, roads, streets, highways, and parking facilities were not inventoried. Information regarding the location of roadways is available and can be developed to show the location of these potential sources on a sub-watershed basis. This information was not obtained for this report due to time and resource constraints.

7 MS4s-Catch Basins, Drain Inlets, Conveyance, Pump Stations

Narrative Description

This Source Profile Sheet primarily covers municipal separate storm sewer systems (MS4s).

MS4s are not classified under the Standard Industrial Classification (SIC) system or the North American Industry Classification System (NAICS).

Pollutant Generating Activities and Associated Pollutants

The following tables contain a list of activities commonly associated with MS4s which may have a source loading potential. Possible pollutants associated with these activities are also presented. Table 7-1 contains a list of activities with a source loading potential in wet weather and Table 7-2 contains a list of activities with source loading potential in dry weather.

The activities below were evaluated for potential pollutant generation during wet weather and dry weather. Wet weather potentials consider runon and runoff during wet weather events. Dry weather potentials are based on the assumption that irrigation and cleaning activities act as transport mechanisms. Furthermore, it is assumed that no BMPs are in place.

7 MS4s-Catch Basins, Drain Inlets, Conveyance, Pump Stations

Table 7-1. Summary of typical activities and associated pollutants during wet weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacteria/ Pathogens*
MS4s - Catch Basins, Drain Inlets, Conveyance, Pump Stations									
Dredging/filling activities	X			X					X
Storage of raw materials, products, and containers	X	X	X	X			X		
Storage of pesticides and fertilizers						X	X		
Grounds maintenance		X		X		X	X	X	
Grading activities				X					
Catch basin cleaning	X	X	X	X			X	X	X
Cleaning facilities/pump stations	X	X		X	X			X	X
Waste handling and disposal	X	X	X					X	X

Table 7-2. Summary of typical activities and associated pollutants during dry weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacteria/ Pathogens*
MS4s - Catch Basins, Drain Inlets, Conveyance, Pump Stations									
Drainage system maintenance	X	X	X	X	X	X	X	X	X
Cleaning facilities/pump stations	X	X	X	X		X	X	X	X

Discharge Potential

As part of the initial 2005 LTEA effort, a questionnaire was completed by various Copermittees to assess the likely potential of a specific source discharging pollutants. Using existing information (e.g. illicit discharge records) and field knowledge the Copermittees ranked the potential of discharging pollutants. These rankings were averaged (when a ranking was given) to obtain average discharge potential rankings for each information type. See Table 7-3 for a summary of the results. An overall ranking was also determined for the source by taking the maximum average ranking from each of the information types. When only one information type received a score, due to lack of information, the average ranking from that one information type was neglected in the overall ranking determination. In these cases the overall ranking was set to 3, meaning the currently available information does not adequately characterize the discharge potential.

Table 7-3.Ranking of discharge potential using existing information.

MS4s			
Information Types	***Information Available***	***Average Ranking***	***Comments***
Dry Weather Monitoring	Y	3	
Illicit Discharge Records	Y	1.5	
Pretreatment Compliance Records			
Underground Stoage Tank Records			
Haz Waste Storage Records			
Inspection Records	Y	3	
Other information? Please specify here			
Overall Ranking		**3.0**	

Note: Overall Ranking is the highest 'Average Ranking' received for the various information types. When less than 2 scores were given, due to lack of information, the Overall Ranking was adjusted to 3 - Unknown Potential.

Scoring Legend	
1	- low discharge potential
2	- medium-low discharge potential
3	- Unknown, information does not adequately characterize
4	- medium-high discharge potential
5	- high discharge potential

A review of Table 7-3 shows that there appears to be several sources of information that may be used to assess the discharge potential. As more information is collected and evaluated, the ranking potential will be updated.

It should be noted that a blank ranking in Table 7-3 does not necessarily mean that there is no discharge potential but rather the Copermittee chose not to rank the potential. As more information is collected these blanks will be filled in and a more comprehensive ranking established.

Legal/Regulatory Oversight

Table 7-4 provides a summary of the types of regulatory oversight that pertain to MS4s. In some cases, there may be some overlap in the types of regulatory oversight.

7 MS4s-Catch Basins, Drain Inlets, Conveyance, Pump Stations

Table 7-4.Summary of the stormwater-related and non-stormwater related regulatory oversight of MS4s.

MS4s			
Oversight Type	**Regulatory Oversight**		**Comments**
Stormwater	NPDES Municipal Permit / Local Ordinances	X	
	NPDES General Industrial Permit		
	NPDES General Construction Permit		
Other Regulatory Oversight	Industrial Pretreatment Program (EPA)		
	Hazardous Materials / CUPA (County DEH)		
	CURFFL (County DEH)		
	Local Enforcement Agency - Landfills (County DEH)		
	Air Quality Permits (APCD)		
	Fire Agencies		
	Pesticide Regulatory Program (County AW&M)		
	Coast Guard		

Existing regulatory oversight of MS4 activities is limited regarding stormwater issues.

Source Prevalence and Distribution

Numerous resources were relied upon in order to obtain an as accurate as feasible estimate of the number of sources throughout San Diego County. The objective was to locate the sources within watersheds and sub-watersheds. When this was feasible, the sources are termed ‘geo-coded’, meaning there geographic coordinates are known and can be included in a GIS map. In this case, MS4 sources have not yet been covered under the source inventory. However, the location of the MS4s is available. This information was not obtained for this report due to time and resource constraints.

8 Corporate Yards (Including Maintenance/Storage Yards)

Narrative Description

This Source Profile Sheet primarily covers corporation yards, including maintenance/ storage yards.

Corporation yards (including maintenance/storage yards) are not classified under the Standard Industrial Classification (SIC) system or the North American Industry Classification System (NAICS).

Pollutant Generating Activities and Associated Pollutants

The following tables contain a list of activities commonly associated with corporation yards (including maintenance/storage yards) which may have a source loading potential. Possible pollutants associated with these activities are also presented. Table 8-1contains a list of activities with a source loading potential in wet weather and Table 8-2 contains a list of activities with source loading potential in dry weather.

The activities below were evaluated for potential pollutant generation during wet weather and dry weather. Wet weather potentials consider runon and runoff during wet weather events. Dry weather potentials are based on the assumption that irrigation and cleaning activities act as transport mechanisms. Furthermore, it is assumed that no BMPs are in place.

Table 8-1. Summary of typical activities and associated pollutants during wet weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacteria/ Pathogens*
Corporate yards (incl. maintenance/storage yards)									
Storage of raw materials, products, and containers	X	X	X	X			X		
Loading and unloading	X	X	X	X			X		
Waste handling and disposal	X	X	X					X	X
Operation of outdoor equipment	X	X	X	X					
Landscape maintenance				X	X	X	X	X	
Cleaning facilities/site	X	X	X	X	X			X	

8 Corporate Yards (Including Maintenance/Storage Yards)

Table 8-2.Summary of typical activities and associated pollutants during dry weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacteria/ Pathogens*
Corporate yards (incl. maintenance/storage yards)									
Landscape maintenance				X	X	X	X	X	
Cleaning facilities/site	X	X	X	X				X	

Discharge Potential

As part of the initial 2005 LTEA effort, a questionnaire was completed by various Copermittees to assess the likely potential of a specific source discharging pollutants. Using existing information (e.g. illicit discharge records) and field knowledge the Copermittees ranked the potential of discharging pollutants. These rankings were averaged (when a ranking was given) to obtain average discharge potential rankings for each information type. See Table 8-3 for a summary of the results. An overall ranking was also determined for the source by taking the maximum average ranking from each of the information types. When only one information type received a score, due to lack of information, the average ranking from that one information type was neglected in the overall ranking determination. In these cases the overall ranking was set to 3, meaning the currently available information does not adequately characterize the discharge potential.

8 Corporate Yards (Including Maintenance/Storage Yards)

Table 8-3. Ranking of discharge potential using existing information.

Corporation Yards (Including Maintenance/Storage Yards)			
Information Types	*Information Available*	*Average Ranking*	*Comments*
Dry Weather Monitoring	Y	4	
Illicit Discharge Records	Y	3	
Pretreatment Compliance Records			
Underground Storage Tank Records			
Haz Waste Storage Records			
Inspection Records	Y	4	
Other information? Please specify here		4	
Overall Ranking		4.0	

Note: Overall Ranking is the highest 'Average Ranking' received for the various information types. When less than 2 scores were given, due to lack of information, the Overall Ranking was adjusted to 3 - Unknown Potential.

Scoring Legend	
1	- low discharge potential
2	- medium-low discharge potential
3	- Unknown, information does not adequately characterize
4	- medium-high discharge potential
5	- high discharge potential

A review of Table 8-3 shows that there appears to be considerable information that may be used to assess the discharge potential. As more information is collected and evaluated, the ranking potential will be updated.

It should be noted that a blank ranking in Table 8-3 does not necessarily mean that there is no discharge potential but rather the Copermittee chose not to rank the potential. As more information is collected these blanks will be filled in and a more comprehensive ranking established.

Legal/Regulatory Oversight

Table 8-4 provides a summary of the types of regulatory oversight that pertain to corporation yards (including maintenance/storage yards). In some cases, there may be some overlap in the types of regulatory oversight.

8 Corporate Yards (Including Maintenance/Storage Yards)

Table 8-4. Summary of the stormwater-related and non-stormwater related regulatory oversight of corporation yard (including maintenance/storage yards) facilities.

Corporate yards (incl. maintenance/storage yards)			
Oversight Type	**Regulatory Oversight**		**Comments**
Stormwater	NPDES Municipal Permit / Local Ordinances	X	
	NPDES General Industrial Permit	X	
	NPDES General Construction Permit		
Other Regulatory Oversight	Industrial Pretreatment Program (EPA)		
	Hazardous Materials / CUPA (County DEH)	X	
	CURFFL (County DEH)		
	Local Enforcement Agency - Landfills (County DEH)		
	Air Quality Permits (APCD)	X	
	Fire Agencies		
	Pesticide Regulatory Program (County AW&M)		
	Coast Guard		

Better coordination may be warranted between the regulatory programs to minimize overlap but still focus on water quality protection.

Source Prevalence and Distribution

Numerous resources were relied upon in order to obtain an as accurate as feasible estimate of the number of sources throughout San Diego County. The objective was to locate the sources within watersheds and sub-watersheds. When this was feasible, the sources are termed 'geo-coded', meaning there geographic coordinates are known and can be included in a GIS map. In some instances, it was not feasible to geo-code some sources. In Table 8-5 the number of geo-coded corporation yard (including maintenance/ storage yards) sources within each watershed is

Table 8-5. Summary of corporation yard (including maintenance storage yards) sources within each of San Diego County's Watersheds.

Watershed Management Area	Hydrologic Unit (HU)	**Corporate yards (incl. maintenance/storage yards)** Total # of Geo-Coded Sources
Santa Margarita	*902.00*	0
San Luis Rey	*903.00*	4
Carlsbad	*904.00*	19
San Dieguito	*905.00*	2
Penasquitos	*906.10 - 906.20*	2
Mission Bay	*906.30 - 906.50*	1
San Diego	*907.00*	5
San Diego Bay - Pueblo	*908.00*	24
San Diego Bay - Sweetwater	*909.00*	
San Diego Bay - Otay	*910.00*	
Tijuana	*911.00*	2
Total Geo-Coded Sources		59
Total Sources (incl. Non geo-coded)		79

shown, along with the total number of sources (geo-coded and not geo-coded together). In this case, the geographic coordinates for all of the identified sources have not yet been determined.

While the inventory process attempted to ensure there is no overlap between priority sources identified, there may be some overlap of the identified sources with sources identified in other Source Profile Sheets.

The source inventory is further broken down in Table 8-6 to show the prevalence of corporation yard (including maintenance/storage yards) facilities within each sub-watershed. This information, combined with the concurrent water quality assessment of sub-watersheds throughout San Diego County will ultimately help to assess the threat these facilities pose to water quality by source and constituent.

It is recommended that municipalities use updated source information from the County, as available, to develop revised source prevalence and distribution data.

Table 8-6. Summary of corporation yard (including maintenance/storage yards) sources within each of San Diego County's sub-watersheds.

		Corporate yards (incl. maintenance/storage yards)									
Watershed Management Area	Hydrologic Unit (HU)	*Sources Geo-Coded by Sub-watershed Hydrologic Unit*									Total # of Sources
		90X.10	*90X.20*	*90X.30*	*90X.40*	*90X.50*	*90X.60*	*90X.70*	*90X.80*	*90X.90*	
Santa Margarita	*902.XX*	0	0	0	0	0	0	0	0	0	0
San Luis Rey	*903.XX*	3	1	0							4
Carlsbad	*904.XX*	1	5	2	1	7	3				19
San Dieguito	*905.XX*	2	0	0	0	0					2
Penasquitos	*906.XX*	0	2								2
Mission Bay	*906.XX*			0	1	0					1
San Diego	*907.XX*	5	0	0	0						5
San Diego Bay - Pueblo	*908.XX*	1	5	1							24
San Diego Bay - Sweetwater	*909.XX*	6	4	2							
San Diego Bay - Otay	*910.XX*	3	2	0							
Tijuana	*911.XX*	0	0	0	0	0	0	0	2		2
							Total Geo-Coded Sources				59
							Total Sources (incl. Non geo-coded)				79

8 Corporate Yards (Including Maintenance/Storage Yards)

Maintenance Yards

9 Parks and Recreational Facilities—Parks, Golf Courses, Cemeteries, Entertainment Venues

Narrative Description

This Source Profile Sheet covers parks and recreational facilities including golf courses, cemeteries, and entertainment venues.

Some recreational facilities were historically classified under the Standard Industrial Classification (SIC) system. This system has been slowly replaced by the North American Industry Classification System (NAICS), which accommodates a larger number of industrial sectors and sub-sectors, and identifies hundreds of new, emerging, and advanced technology industries. As most Copermittees have yet to convert from the SIC system to the NAICS, the applicable codes from both systems are presented here for easy reference.

SIC Codes	
7992	Public Golf Courses
7997	Membership Sports and Recreation Clubs
7999	Amusement and Recreation Services, Not Elsewhere Classified
NAICS Codes	
561730	Cemetery plot care services
7139XX	Golf courses

Pollutant Generating Activities and Associated Pollutants

The following tables contain a list of activities commonly associated with parks and recreational facilities which may have a source loading potential. Possible pollutants associated with these activities are also presented. Table 9-1contains a list of activities with a source loading potential in wet weather and Table 9-2 contains a list of activities with source loading potential in dry weather.

The activities below were evaluated for potential pollutant generation during wet weather and dry weather. Wet weather potentials consider runon and runoff during wet weather events. Dry weather potentials are based on the assumption that irrigation and cleaning activities act as transport mechanisms. Furthermore, it is assumed that no BMPs are in place.

9 Parks and Recreational Facilities—Parks, Golf Courses, Cemeteries, Entertainment Venues

Table 9-1. Summary of typical activities and associated pollutants during wet weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacteria/ Pathogens*
Parks and Recreational Facilities - parks, golf courses, cemeteries, entertainment venues, etc.									
Storage/disposal of solid wastes and garden wastes	X	X	X	X			X		
Storage of any liquid materials in portable containers	X	X	X			X	X	X	
Loading and unloading		X	X	X		X	X	X	
Disposal of solid and food wastes								X	X
Cleaning portable toilets					X			X	X

Table 9-2. Summary of typical activities and associated pollutants during dry weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacteria/ Pathogens*
Parks and Recreational Facilities - parks, golf courses, cemeteries, entertainment venues, etc.									
Grounds/landscape maintenance				X	X	X	X	X	
Cleaning portable toilets					X			X	X

Discharge Potential

As part of the initial 2005 LTEA effort, a questionnaire was completed by various Copermittees to assess the likely potential of a specific source discharging pollutants. Using existing information (e.g. illicit discharge records) and field knowledge the Copermittees ranked the potential of discharging pollutants. These rankings were averaged (when a ranking was given) to obtain average discharge potential rankings for each information type. See Table 9-3 for a summary of the results. An overall ranking was also determined for the source by taking the maximum average ranking from each of the information types. When only one information type received a score, due to lack of information, the average ranking from that one information type was neglected in the overall ranking determination. In these cases the overall ranking was set to 3, meaning the currently available information does not adequately characterize the discharge

potential. The ranking below characterizes the discharge potential of landscaping activities in general.

Table 9-3.Ranking of discharge potential using existing information.

Parks and Recreational Facilities – parks, golf courses, cemeteries, entertainment venues, etc.			
Information Types	*Information Available*	*Average Ranking*	*Comments*
Dry Weather Monitoring			
Illicit Discharge Records	Y	2	
Pretreatment Compliance Records			
Underground Storage Tank Records			
Hazardous Waste Storage Records			
Inspection Records			
Other information? Please specify here			
Overall Ranking		2.0	

Note: Overall Ranking is the highest 'Average Ranking' received for the various information types. When less than 2 scores were given, due to lack of information, the Overall Ranking was adjusted to 3 - Unknown Potential.

Scoring Legend	
1	- low discharge potential
2	- medium-low discharge potential
3	- Unknown, information does not adequately characterize
4	- medium-high discharge potential
5	- high discharge potential

A review of Table 9-3 shows that there is limited information available to assess discharge potential. Of the information available a more complete evaluation should be conducted to assess discharge potential.

It should be noted that a blank ranking in Table 9-3 does not necessarily mean that there is no discharge potential but rather the Copermittee chose not to rank the potential. As more information is collected these blanks will be filled in and a more comprehensive ranking established.

Legal/Regulatory Oversight

Table 9-4 provides a summary of the types of regulatory oversight that pertain to parks and recreational facilities. In some cases, there may be some overlap in the types of regulatory oversight.

9 Parks and Recreational Facilities—Parks, Golf Courses, Cemeteries, Entertainment Venues

Table 9-4. Summary of the stormwater-related and non-stormwater related regulatory oversight of parks and recreational facilities.

Parks and Recreational Facilities – Parks, Golf Course, Cemeteries, Entertainment Venues, etc.			
Oversight Type	**Regulatory Oversight**		**Comments**
Stormwater	NPDES Municipal Permit / Local Ordinances	X	
	NPDES General Industrial Permit		
	NPDES General Construction Permit		
Other Regulatory Oversight	Industrial Pretreatment Program (EPA)		
	Hazardous Materials / CUPA (County DEH)		
	CURFFL (County DEH)		
	Local Enforcement Agency – Landfills (County DEH)		
	Air Quality Permits (APCD)		
	Fire Agencies		
	Pesticide Regulatory Program (County AW&M)		
	Coast Guard		

Existing regulatory oversight of park and recreational facility activities is limited regarding stormwater issues.

Source Prevalence and Distribution

The 2005 Baseline LTEA effort produced source distribution information, if available, is provided in this section. Numerous resources were relied upon in order to obtain an as accurate as feasible estimate of the number of sources throughout San Diego County. The objective was to locate the sources within watersheds and sub-watersheds. When this was feasible, the sources are termed 'geo-coded', meaning there geographic coordinates are known and can be included in a GIS map. In some instances, it was not feasible to geo-code some sources. In Table 9-5, the number of geo-coded landscaping sources within each watershed is shown, along with the total number of sources (geo-coded and not geo-coded together). In this case, the geographic coordinates for golf

Table 9-5. Summary of parks and recreational facilities sources within each of San Diego County's Watersheds.

Watershed Management Area	Hydrologic Unit (HU)	**Landscaping - Parks, golf Courses, Cemeteries, etc.** Total # of Geo-Coded Sources
Santa Margarita	*902.00*	1
San Luis Rey	*903.00*	15
Carlsbad	*904.00*	23
San Dieguito	*905.00*	14
Penasquitos	*906.10 - 906.20*	7
Mission Bay	*906.30 - 906.50*	7
San Diego	*907.00*	11
San Diego Bay - Pueblo	*908.00*	27
San Diego Bay - Sweetwater	*909.00*	
San Diego Bay - Otay	*910.00*	
Tijuana	*911.00*	0
Total Geo-Coded Sources		105
Total Sources (incl. Non geo-coded)		973

courses and cemeteries have been geo-coded. Other sources were not geo-coded for this LTEA effort

The source inventory is further broken down in Table 9-6 to show the prevalence of golf courses and cemeteries within each sub-watershed. Parks and entertainment venues were not accounted for in this LTEA effort.

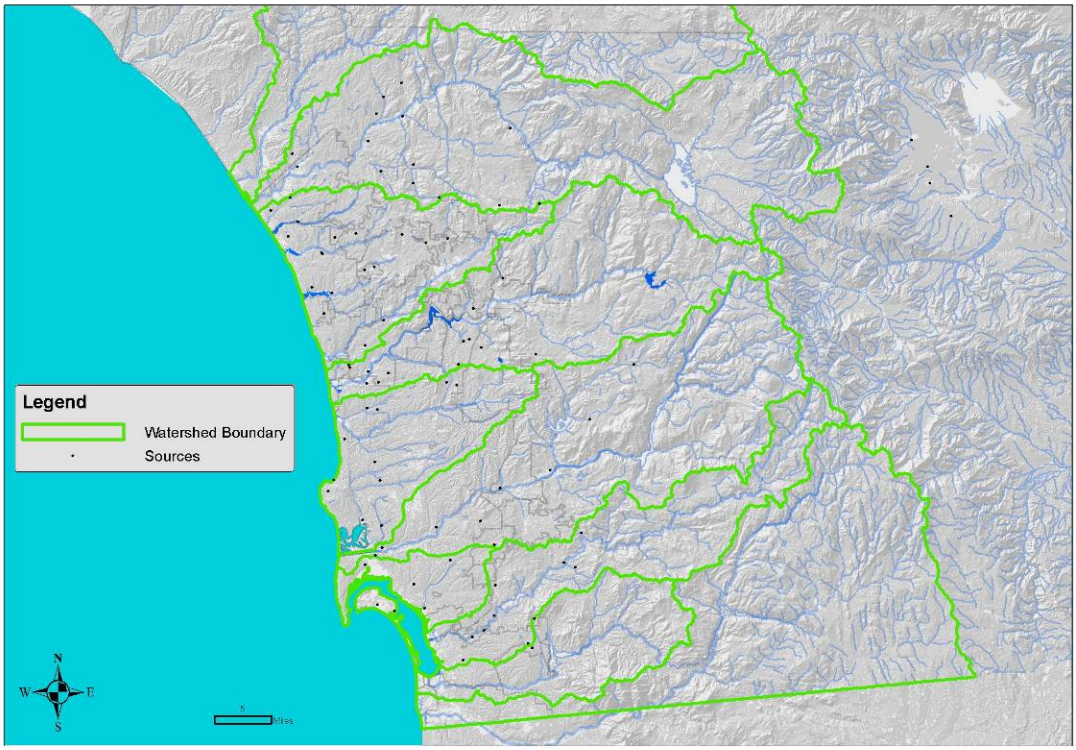
It is recommended that municipalities use updated source information from the County, as available, to develop revised source prevalence and distribution data.

Table 9-6. Summary of Golf Courses and Cemeteries within each of San Diego County's sub-watersheds

		Golf Courses and Cemeteries									
Watershed Management Area	Hydrologic Unit (HU)	*Sources Geo-Coded by Sub-watershed Hydrologic Unit*									Total # of Sources
		90X.10	*90X.20*	*90X.30*	*90X.40*	*90X.50*	*90X.60*	*90X.70*	*90X.80*	*90X.90*	
Santa Margarita	*902.XX*	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1
San Luis Rey	*903.XX*	14	1	0							15
Carlsbad	*904.XX*	3	3	4	0	8	5				23
San Dieguito	*905.XX*	7	4	1	2	0					14
Penasquitos	*906.XX*	3	4								7
Mission Bay	*906.XX*			3	3	1					7
San Diego	*907.XX*	8	2	1	0						11
San Diego Bay - Pueblo	*908.XX*	2	9	0							27
San Diego Bay - Sweetwater	*909.XX*	7	5	0							
San Diego Bay - Otay	*910.XX*	2	2	0							
Tijuana	*911.XX*	0	0	0	0	0	0	0	0		0
							Total Geo-Coded Sources				105
							Total Sources (incl. Non geo-coded)				973

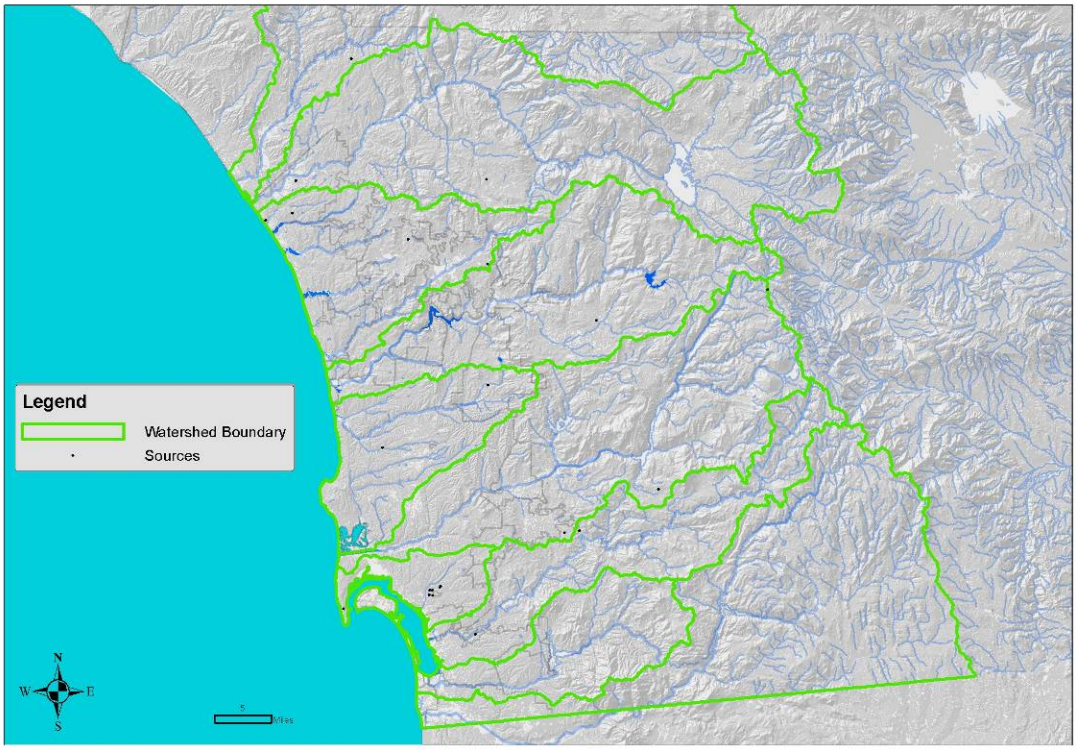
9 Parks and Recreational Facilities—Parks, Golf Courses, Cemeteries, Entertainment Venues

Golf Courses



9 Parks and Recreational Facilities—Parks, Golf Courses, Cemeteries, Entertainment Venues

Cemeteries



10 Automobile Mechanical Repair, Maintenance, Fueling, or Cleaning

Narrative Description

This Source Profile Sheet covers establishments primarily engaged in the repair and maintenance of automobiles, these establishments may also perform fueling and cleaning functions as well. This includes service stations, auto mechanics, lube and oil service facilities. Not included in this category are auto body shops, boat or airplane repair facilities, mobile auto washing, or retail gasoline outlets. These are all covered in separate Source Profile Sheets.

SIC Codes	
753X	Automotive Repair Shops
7549	Automotive Services, Except Repair and Carwashes
NAICS Codes	
81111X	Automotive Mechanical and Electrical Reair and Maintenance
81119X	Other Automotive repair and Maintenance

Some facilities that conduct automobile mechanical repair, maintenance, fueling, or cleaning were historically classified under the Standard Industrial Classification (SIC) system. This system has been slowly replaced by the North American Industry Classification System (NAICS), which accommodates a larger number of industrial sectors and sub-sectors, and identifies hundreds of new, emerging, and advanced technology industries. As most Copermittees have yet to convert from the SIC system to the NAICS, the applicable codes from both systems are presented here for easy reference.

Pollutant Generating Activities and Associated Pollutants

The following tables contain a list of activities commonly associated with auto mechanical repair, maintenance, fueling, or cleaning which may have a source loading potential. Possible pollutants associated with these activities are also presented. Table 10-1 contains a list of activities with a source loading potential in wet weather and Table 10-2 contains a list of activities with source loading potential in dry weather.

The activities below were evaluated for potential pollutant generation during wet weather and dry weather. Wet weather potentials consider runon and runoff during wet weather events. Dry weather potentials are based on the assumption that irrigation and cleaning activities act as transport mechanisms. Furthermore, it is assumed that no BMPs are in place.

10 Automobile Mechanical Repair, Maintenance, Fueling, or Cleaning

Table 10-1. Summary of typical activities and associated pollutants during wet weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacteria/ Pathogens*
Auto Mechanical Repair, Maintenance, Fueling, or Cleaning									
Waste handling and disposal	X	X	X				X	X	
Cleaning facilities	X	X	X	X	X			X	
Cleaning or washing of tools, parts, and equipment	X	X	X	X	X				
Vehicle and equipment cleaning	X	X	X	X	X				
Hazardous waste disposal	X	X	X						
Engine repair/maintenance	X	X	X						
Storage of liquid materials in stationary tanks	X	X	X						
Storage of any liquid materials in portable containers	X	X	X						
Painting, finishing, and coating automobiles	X	X		X					
Vehicle and equipment maintenance and repair	X	X	X					X	
Vehicle and equipment fueling	X	X	X					X	

Table 10-2. Summary of typical activities and associated pollutants during dry weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacteria/ Pathogens*
Auto Mechanical Repair, Maintenance, Fueling, or Cleaning									
Cleaning facilities	X	X	X	X	X			X	

Discharge Potential

As part of the initial 2005 LTEA effort, a questionnaire was completed by various Copermittees to assess the likely potential of a specific source discharging pollutants. Using existing information (e.g. illicit discharge records) and field knowledge the Copermittees ranked the potential of discharging pollutants. These rankings were averaged (when a ranking was given) to obtain average discharge potential rankings for each information type. See Table 10-3 for a summary of the results. An overall ranking was also determined for the source by taking the maximum average ranking from each of

the information types. When only one information type received a score, due to lack of information, the average ranking from that one information type was neglected in the overall ranking determination. In these cases the overall ranking was set to 3, meaning the currently available information does not adequately characterize the discharge potential.

Table 10-3. Ranking of discharge potential using existing information.

Auto mechanical repair, maintenance, fueling, or cleaning			
Information Types	***Information Available***	***Average Ranking***	***Comments***
Dry Weather Monitoring	Y	4.5	
Illicit Discharge Records	Y	4	
Pretreatment Compliance Records	Y		
Underground Stoage Tank Records	Y		
Haz Waste Storage Records	Y		
Inspection Records	Y	5	
Other information? Please specify here		4	
Overall Ranking		**5.0**	

Note: Overall Ranking is the highest 'Average Ranking' received for the various information types. When less than 2 scores were given, due to lack of information, the Overall Ranking was adjusted to 3 - Unknown Potential.

Scoring Legend	
1	- low discharge potential
2	- medium-low discharge potential
3	- Unknown, information does not adequately characterize discharge potential
4	- medium-high discharge potential
5	- high discharge potential

A review of Table 10-3 shows that there appears to be considerable information that may be used to assess the discharge potential. As more information is collected and evaluated, the ranking potential will be updated.

It should be noted that a blank ranking in Table 10-3 does not necessarily mean that there is no discharge potential but rather the Copermittee chose not to rank the potential. As more information is collected these blanks will be filled in and a more comprehensive ranking established.

Legal/Regulatory Oversight

Table 10-4 provides a summary of the types of regulatory oversight that pertain to auto mechanical repair, maintenance, fueling, or cleaning. In some cases, there may be some overlap in the types of regulatory oversight.

10 Automobile Mechanical Repair, Maintenance, Fueling, or Cleaning

Table 10-4. Summary regulatory oversight of auto mechanical repair, maintenance, fueling, or cleaning facilities.

Auto mechanical repair, maintenance, fueling, or cleaning			
Oversight Type	**Regulatory Oversight**		**Comments**
Stormwater	NPDES Municipal Permit / Local Ordinances	X	
	NPDES General Industrial Permit		
	NPDES General Construction Permit		
Other Regulatory Oversight	Industrial Pretreatment Program (EPA)	X	
	Hazardous Materials / CUPA (County DEH)	X	
	CURFFL (County DEH)		
	Local Enforcement Agency - Landfills (County DEH)		
	Air Quality Permits (APCD)	X	
	Fire Agencies		
	Pesticide Regulatory Program (County AW&M)		
	Coast Guard		

Better coordination may be warranted between the regulatory programs to minimize overlap but still focus on water quality protection.

Source Prevalence and Distribution

The 2005 Baseline LTEA effort produced source distribution information, if available, is provided in this section. It is recommended that updated source information is used to develop revised source prevalence and distribution data.

Numerous resources were relied upon in order to obtain an as accurate as feasible estimate of the number of sources throughout San Diego County. The objective was to locate the sources within watersheds and sub-watersheds. When this was feasible, the sources are termed 'geo-coded', meaning there geographic coordinates are known and can be included in a GIS map. In some instances, it was not feasible to provide a geo-spatial reference for some sources. In Table 10-5, the number of geo-coded automobile mechanical

Table 10-5. Summary of automobile mechanical repair, maintenance, fueling, or cleaning sources within each of San Diego County's watersheds.

Watershed Management Area	Hydrologic Unit (HU)	**Auto mechanical repair, maintenance, fueling, or cleaning** Total # of Geo-Coded Sources
Santa Margarita	*902.00*	29
San Luis Rey	*903.00*	57
Carlsbad	*904.00*	449
San Dieguito	*905.00*	65
Penasquitos	*906.10 - 906.20*	201
Mission Bay	*906.30 - 906.50*	119
San Diego	*907.00*	452
San Diego Bay - Pueblo	*908.00*	724
San Diego Bay - Sweetwater	*909.00*	
San Diego Bay - Otay	*910.00*	
Tijuana	*911.00*	31
Total Geo-Coded Sources		2127
Total Sources (incl. Non geo-coded)		2127

repair, maintenance, fueling, or cleaning sources within each watershed is shown, along with the total number of sources (geo-coded and not geo-coded together). In this case, the geographic coordinates for all of the identified sources were determined.

While the inventory process attempted to ensure there is no overlap between priority sources identified, there may be some overlap of the identified sources with sources identified in other Source Profile Sheets. This may be the case for the auto mechanical repair, maintenance, fueling, or cleaning sources that also perform equipment repair (SPS#10), body repair and painting services (SPS#12), or retail or wholesale fueling (SPS#16).

The source inventory is further broken down in Table 10-6 to show the prevalence of auto mechanical repair, maintenance, fueling, or cleaning facilities within each sub-watershed. This information, combined with the concurrent water quality assessment of sub-watersheds throughout San Diego County will ultimately help to assess the threat these facilities pose to water quality by source and constituent.

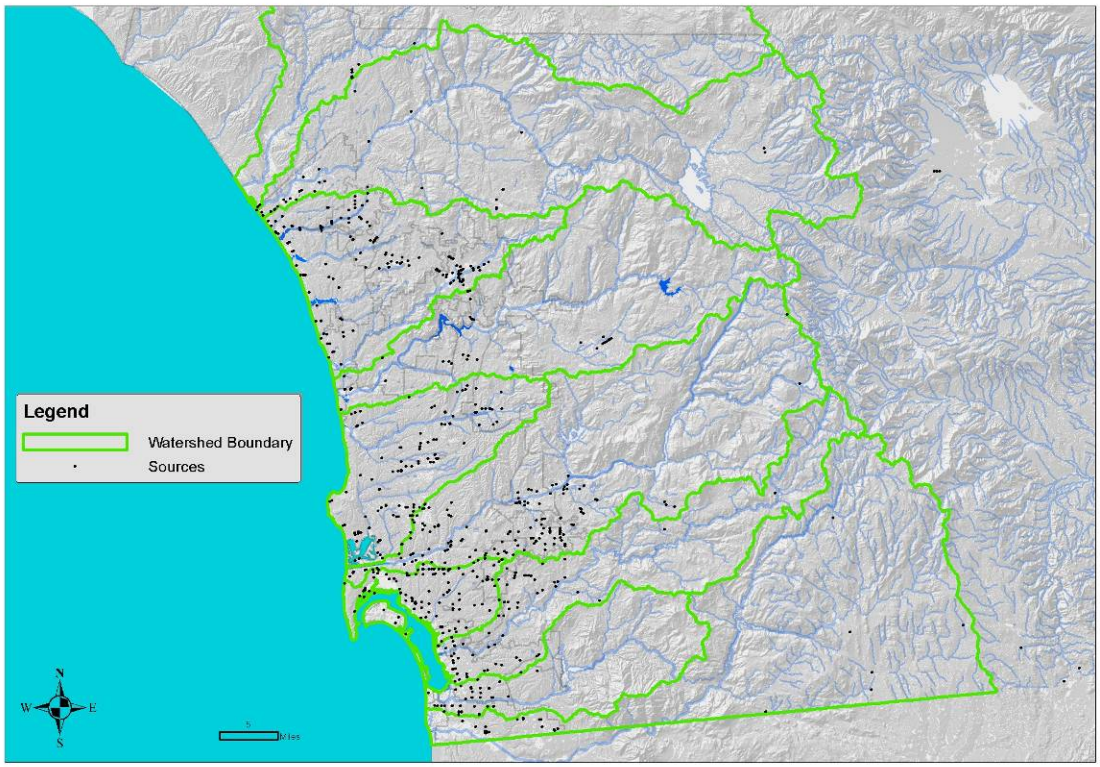
It is recommended that municipalities use updated source information from the County, as available, to develop revised source prevalence and distribution data.

Table 10-6. Summary of automobile mechanical repair, maintenance, fueling, or cleaning sources within each of San Diego County's sub-watersheds.

		Auto mechanical repair, maintenance, fueling, or cleaning									
Watershed Management Area	Hydrologic Unit (HU)	*Sources Geo-Coded by Sub-watershed Hydrologic Unit*									Total # of Sources
		90X.10	*90X.20*	*90X.30*	*90X.40*	*90X.50*	*90X.60*	*90X.70*	*90X.80*	*90X.90*	
Santa Margarita	*902.XX*	28	1	0	0	0	0	0	0	0	29
San Luis Rey	*903.XX*	54	3	0							57
Carlsbad	*904.XX*	49	94	32	5	110	159				449
San Dieguito	*905.XX*	13	18	1	33	0					65
Penasquitos	*906.XX*	148	53								201
Mission Bay	*906.XX*			32	57	30					119
San Diego	*907.XX*	439	2	8	3						452
San Diego Bay - Pueblo	*908.XX*	8	319	78							724
San Diego Bay - Sweetwater	*909.XX*	161	27	2							
San Diego Bay - Otay	*910.XX*	5	122	2							
Tijuana	*911.XX*	26	0	1	0	0	1	0	3		31
							Total Geo-Coded Sources				2127
							Total Sources (incl. Non geo-coded)				2127

10 Automobile Mechanical Repair, Maintenance, Fueling, or Cleaning

Fuel Station



11 Equipment Mechanical Repair, Maintenance, Fueling, or Cleaning

Narrative Description

This Source Profile Sheet covers establishments primarily engaged in the repair and maintenance of equipment, these establishments may also perform fueling and cleaning functions as well.

SIC Codes	
7699	Repair Shops and Related Services, Not Elsewhere Classified

NAICS Codes	
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance

Some facilities that conduct equipment mechanical repair, maintenance, fueling, or cleaning were historically classified under the Standard Industrial Classification (SIC) system. This system has been slowly replaced by the North American Industry Classification System (NAICS), which accommodates a larger number of industrial sectors and sub-sectors, and identifies hundreds of new, emerging, and advanced technology industries. As most Copermittees have yet to convert from the SIC system to the NAICS, the applicable codes from both systems are presented here for easy reference.

Pollutant Generating Activities and Associated Pollutants

The following tables contain a list of activities commonly associated with equipment mechanical repair, maintenance, fueling, or cleaning which may have a source loading potential. Possible pollutants associated with these activities are also presented. Table 11-1 contains a list of activities with a source loading potential in wet weather and Table 11-2 contains a list of activities with source loading potential in dry weather.

The activities below were evaluated for potential pollutant generation during wet weather and dry weather. Wet weather potentials consider runon and runoff during wet weather events. Dry weather potentials are based on the assumption that irrigation and cleaning activities act as transport mechanisms. Furthermore, it is assumed that no BMPs are in place.

11 Equipment Mechanical Repair, Maintenance, Fueling, or Cleaning

Table 11-1. Summary of typical activities and associated pollutants during wet weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacteria/ Pathogens*
Equipment mechanical repair, maintenance, fueling, or cleaning									
Paint removal	X	X	X					X	
Painting, finishing, and coating equipment	X	X	X						
Waste handling and disposal	X	X	X					X	
Cleaning facilities	X	X	X	X	X			X	
Equipment cleaning	X	X	X	X	X				
Cleaning or washing of tools and equipment	X	X	X	X	X				
Hazardous waste disposal	X	X	X						
Equipment maintenance and repair	X	X	X						

Table 11-2. Summary of typical activities and associated pollutants during dry weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacteria/ Pathogens*
Equipment mechanical repair, maintenance, fueling, or cleaning									
Cleaning facilities	X	X	X	X	X			X	
Equipment cleaning	X	X	X	X					
Cleaning or washing of tools and equipment	X	X	X	X					

Discharge Potential

As part of the initial 2005 LTEA effort, a questionnaire was completed by various Copermittees to assess the likely potential of a specific source discharging pollutants. Using existing information (e.g. illicit discharge records) and field knowledge the Copermittees ranked the potential of discharging pollutants. These rankings were averaged (when a ranking was given) to obtain average discharge potential rankings for each information type. See Table 11-3 for a summary of the results. An overall ranking was also determined for the source by taking the maximum average ranking from each of the information types. When only one information type received a score, due to lack of information, the average ranking from that one information type was neglected in the

overall ranking determination. In these cases the overall ranking was set to 3, meaning the currently available information does not adequately characterize the discharge potential.

Table 11-3. Ranking of discharge potential using existing information.

Equipment mechanical repair, maintenance, fueling, or cleaning			
Information Types	*Information Available*	*Average Ranking*	*Comments*
Dry Weather Monitoring	Y	3	
Illicit Discharge Records	Y		
Pretreatment Compliance Records	Y		
Underground Stoage Tank Records	Y		
Haz Waste Storage Records	Y		
Inspection Records	Y		
Other information? Please specify here			
Overall Ranking		**3.0**	

Note: Overall Ranking is the highest 'Average Ranking' received for the various information types. When less than 2 scores were given, due to lack of information, the Overall Ranking was adjusted to 3 - Unknown Potential.

Scoring Legend	
1	- low discharge potential
2	- medium-low discharge potential
3	- Unknown, information does not adequately characterize
4	- medium-high discharge potential
5	- high discharge potential

A review of Table 11-3 shows that there is limited information available to assess discharge potential. Of the information available a more complete evaluation should be conducted to assess discharge potential.

It should be noted that a black ranking in Table 11-3 does not necessarily mean that there is no discharge potential but rather the Copermittee chose not to rank the potential. As more information is collected these blanks will be filled in and a more comprehensive ranking established.

Legal/Regulatory Oversight

Table 11-4 provides a summary of the types of regulatory oversight that pertain to equipment mechanical repair, maintenance, fueling, or cleaning. In some cases, there may be some overlap in the types of regulatory oversight.

11 Equipment Mechanical Repair, Maintenance, Fueling, or Cleaning

Table 11-4. Summary of the stormwater-related and non-stormwater related regulatory oversight of equipment mechanical repair, maintenance, fueling, or cleaning facilities.

Equipment mechanical repair, maintenance, fueling, or cleaning			
Oversight Type	**Regulatory Oversight**		**Comments**
Stormwater	NPDES Municipal Permit / Local Ordinances	X	
	NPDES General Industrial Permit		
	NPDES General Construction Permit		
Other Regulatory Oversight	Industrial Pretreatment Program (EPA)		
	Hazardous Materials / CUPA (County DEH)	X	
	CURFFL (County DEH)		
	Local Enforcement Agency - Landfills (County DEH)		
	Air Quality Permits (APCD)	X	
	Fire Agencies		
	Pesticide Regulatory Program (County AW&M)		
	Coast Guard		

Better coordination may be warranted between the regulatory programs to minimize overlap but still focus on water quality protection.

Source Prevalence and Distribution

The 2005 Baseline LTEA effort produced source distribution information, if available, is provided in this section. It is recommended that updated source information is used to develop revised source prevalence and distribution data.

Numerous resources were relied upon in order to obtain an as accurate as feasible estimate of the number of sources throughout San Diego County. The objective was to locate the sources within watersheds and sub-watersheds. When this was feasible, the sources are termed ‘geo-coded’, meaning there geographic coordinates are known and can be included in a GIS map. In some instances, it was not feasible to geo-code some sources. In Table 11-5, the number of geo-coded equipment mechanical repair, maintenance, fueling, or cleaning sources within each watershed is shown, along with the total number of sources (geo-coded and not geo-coded together). In this case, the geographic coordinates for all of the identified sources have not yet been determined.

11 Equipment Mechanical Repair, Maintenance, Fueling, or Cleaning

While the inventory process attempted to ensure there is no overlap between priority sources identified, there may be some overlap of the identified sources with sources identified in other Source Profile Sheets. This may be the case for the equipment mechanical repair, maintenance, fueling, or cleaning sources that also perform auto repair (SPS#10).

The source inventory is further broken down in Table 11-6 to show the prevalence of equipment mechanical repair, maintenance, fueling, or cleaning facilities within each sub-watershed. This information, combined with the concurrent water quality assessment of sub-watersheds throughout San Diego County will ultimately help to assess the threat these facilities pose to water quality by source and constituent.

Table 11-5. Summary of equipment mechanical repair, maintenance, fueling, or cleaning sources within each of San Diego County's Watersheds.

Watershed Management Area	Hydrologic Unit (HU)	**Equipment mechanical repair, maintenance, fueling, or cleaning**
		Total # of Geo-Coded Sources
Santa Margarita	*902.00*	0
San Luis Rey	*903.00*	3
Carlsbad	*904.00*	7
San Dieguito	*905.00*	0
Penasquitos	*906.10 - 906.20*	11
Mission Bay	*906.30 - 906.50*	0
San Diego	*907.00*	48
San Diego Bay - Pueblo	*908.00*	57
San Diego Bay - Sweetwater	*909.00*	
San Diego Bay - Otay	*910.00*	
Tijuana	*911.00*	0
Total Geo-Coded Sources		126
Total Sources (incl. Non geo-coded)		214

<u>It is recommended that municipalities use updated source information from the County, as available, to develop revised source prevalence and distribution data.</u>

Table 11-6. Summary of equipment mechanical repair, maintenance, fueling, or cleaning sources within each of San Diego County's sub-watersheds.

		Equipment mechanical repair, maintenance, fueling, or cleaning									
Watershed Management Area	Hydrologic Unit (HU)	*Sources Geo-Coded by Sub-watershed Hydrologic Unit*									Total # of Sources
		90X.10	*90X.20*	*90X.30*	*90X.40*	*90X.50*	*90X.60*	*90X.70*	*90X.80*	*90X.90*	
Santa Margarita	*902.XX*	0	0	0	0	0	0	0	0	0	0
San Luis Rey	*903.XX*	2	1	0							3
Carlsbad	*904.XX*	0	4	2	0	1	0				7
San Dieguito	*905.XX*	0	0	0	0	0					0
Penasquitos	*906.XX*	0	11								11
Mission Bay	*906.XX*			0	0	0					0
San Diego	*907.XX*	48	0	0	0						48
San Diego Bay - Pueblo	*908.XX*	0	3	12							57
San Diego Bay - Sweetwater	*909.XX*	24	0	0							
San Diego Bay - Otay	*910.XX*	0	18	0							
Tijuana	*911.XX*	0	0	0	0	0	0	0	0		0
							Total Geo-Coded Sources				126
							Total Sources (incl. Non geo-coded)				214

12 Auto and Other Vehicle Body Repair and Painting

Narrative Description

This Source Profile Sheet covers establishments primarily engaged in the repair of automotive tops, bodies, and interiors, or automotive painting and refinishing. Also included are establishments primarily engaged in customizing automobiles, trucks, and vans.

SIC Codes	
7532	Automotive Body Shops and Paint Shops
5198	Paints, Varnishes & Supplies

NAICS Codes	
81112	Automotive Body, Paint, Interior, and Glass Repair
811121	Automotive Body, Paint, and Interior Repair and Maintenance

Facilities that conduct automobile and other vehicle body repair and painting were historically classified under the Standard Industrial Classification (SIC) system. This system has been slowly replaced by the North American Industry Classification System (NAICS), which accommodates a larger number of industrial sectors and sub-sectors, and identifies hundreds of new, emerging, and advanced technology industries. As most Copermittees have yet to convert from the SIC system to the NAICS, the applicable codes from both systems are presented here for easy reference.

Pollutant Generating Activities and Associated Pollutants

The following tables contain a list of activities commonly associated with automobile and other vehicle body repair and painting which may have a source loading potential. Possible pollutants associated with these activities are also presented. Table 12-1 contains a list of activities with a source loading potential in wet weather and Table 12-2 contains a list of activities with source loading potential in dry weather.

The activities below were evaluated for potential pollutant generation during wet weather and dry weather. Wet weather potentials consider runon and runoff during wet weather events. Dry weather potentials are based on the assumption that irrigation and cleaning activities act as transport mechanisms. Furthermore, it is assumed that no BMPs are in place.

Table 12-1. Summary of typical activities and associated pollutants during wet weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacteria/ Pathogens*
Automobile and Other Vehicle Body Repair and Painting									
Paint removal	X	X	X					X	
Painting, finishing, and coating vehicles and equipment	X	X	X						
Waste handling and disposal	X	X	X					X	
Cleaning facilities	X	X	X	X	X			X	
Vehicle and equipment cleaning	X	X	X	X	X				
Cleaning or washing of tools and equipment	X	X	X	X	X				
Hazardous waste disposal	X	X	X						
Auto body repair	X	X	X					X	
Vehicle and equipment maintenance and repair	X	X	X						

Table 12-2. Summary of typical activities and associated pollutants during dry weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacteria/ Pathogens*
Automobile and Other Vehicle Body Repair and Painting									
Cleaning facilities	X	X	X	X	X			X	
Vehicle and equipment cleaning	X	X	X	X	X				
Cleaning or washing of tools and equipment	X	X	X	X					

Discharge Potential

As part of the initial 2005 LTEA effort, a questionnaire was completed by various Copermittees to assess the likely potential of a specific source discharging pollutants. Using existing information (e.g. illicit discharge records) and field knowledge the Copermittees ranked the potential of discharging pollutants. These rankings were averaged (when a ranking was given) to obtain average discharge potential rankings for each information type. See Table 12-3 for a summary of the results. An overall ranking

was also determined for the source by taking the maximum average ranking from each of the information types. When only one information type received a score, due to lack of information, the average ranking from that one information type was neglected in the overall ranking determination. In these cases the overall ranking was set to 3, meaning the currently available information does not adequately characterize the discharge potential.

Table 12-3. Ranking of discharge potential using existing information.

Automobile and other vehicle body repair and painting			
Information Types	***Information Available***	***Average Ranking***	***Comments***
Dry Weather Monitoring	Y	4.5	
Illicit Discharge Records	Y	3.5	
Pretreatment Compliance Records	Y		
Underground Stoage Tank Records	Y	2	
Haz Waste Storage Records	Y		
Inspection Records	Y	5	
Other information? Please specify here		4	
Overall Ranking		**5.0**	

Note: Overall Ranking is the highest 'Average Ranking' received for the various information types. When less than 2 scores were given, due to lack of information, the Overall Ranking was adjusted to 3 - Unknown Potential.

Scoring Legend	
1	- low discharge potential
2	- medium-low discharge potential
3	- Unknown, information does not adequately characterize
4	- medium-high discharge potential
5	- high discharge potential

A review of Table 12-3 shows that there appears to be considerable information that may be used to assess the discharge potential. As more information is collected and evaluated, the ranking potential will be updated.

It should be noted that a blank ranking in Table 12-3 does not necessarily mean that there is no discharge potential but rather the Copermittee chose not to rank the potential. As more information is collected these blanks will be filled in and a more comprehensive ranking established.

Legal/Regulatory Oversight

Table 12-4 provides a summary of the types of regulatory oversight that pertain to automobile and other vehicle body repair and painting. In some cases, there may be some overlap in the types of regulatory oversight.

Table 12-4. Summary of the stormwater-related and non-stormwater related regulatory oversight of automobile and other vehicle body repair and painting facilities.

Automobile and other vehicle body repair and painting			
Oversight Type	**Regulatory Oversight**		**Comments**
Stormwater	NPDES Municipal Permit / Local Ordinances	X	
	NPDES General Industrial Permit		
	NPDES General Construction Permit		
Other Regulatory Oversight	Industrial Pretreatment Program (EPA)		
	Hazardous Materials / CUPA (County DEH)	X	
	CURFFL (County DEH)		
	Local Enforcement Agency - Landfills (County DEH)		
	Air Quality Permits (APCD)	X	
	Fire Agencies		
	Pesticide Regulatory Program (County AW&M)		
	Coast Guard		

Better coordination may be warranted between the regulatory programs to minimize overlap but still focus on water quality protection.

Source Prevalence and Distribution

The 2005 Baseline LTEA effort produced source distribution information, if available, is provided in this section. It is recommended that updated source information is used to develop revised source prevalence and distribution data.

Numerous resources were relied upon in order to obtain an as accurate as feasible estimate of the number of sources throughout San Diego County. The objective was to locate the sources within watersheds and sub-watersheds. When this was feasible, the sources are termed 'geo-coded', meaning there geographic coordinates are known and can be included in a GIS map.

Table 12-5. Summary of automobile and other vehicle body repair and painting sources within each of San Diego County's Watersheds.

Watershed Management Area	Hydrologic Unit (HU)	**Automobile and other vehicle body repair and painting**
		Total # of Geo-Coded Sources
Santa Margarita	*902.00*	2
San Luis Rey	*903.00*	7
Carlsbad	*904.00*	62
San Dieguito	*905.00*	5
Penasquitos	*906.10 - 906.20*	21
Mission Bay	*906.30 - 906.50*	12
San Diego	*907.00*	61
San Diego Bay - Pueblo	*908.00*	112
San Diego Bay - Sweetwater	*909.00*	
San Diego Bay - Otay	*910.00*	
Tijuana	*911.00*	1
Total Geo-Coded Sources		283
Total Sources (incl. Non geo-coded)		283

In some instances, it was not feasible to geo-code some sources. In Table 12-5, the number of geo-coded automobile and other vehicle body repair and painting sources within each watershed is shown, along with the total number of sources (geo-coded and not geo-coded together). In this case, the geographic coordinates for all of the identified sources were determined.

While the inventory process attempted to ensure there is no overlap between priority sources identified, there may be some overlap of the identified sources with sources identified in other Source Profile Sheets. This may be the case for the automobile and other vehicle body repair & painting sources that also perform auto repair (SPS#10).

The source inventory is further broken down in Table 12-6 to show the prevalence of automobile body repair and paint facilities within each sub-watershed. This information, combined with the concurrent water quality assessment of sub-watersheds throughout San Diego County will ultimately help to assess the threat these facilities pose to water quality by source and constituent.

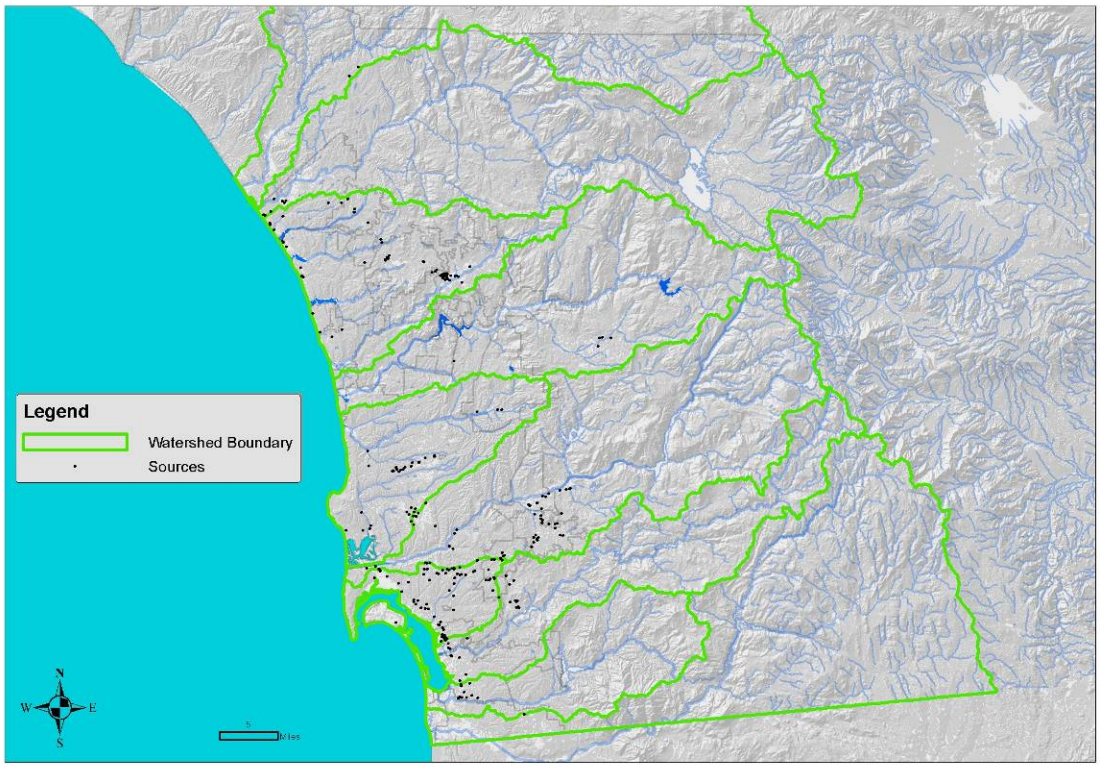
It is recommended that municipalities use updated source information from the County, as available, to develop revised source prevalence and distribution data.

Table 12-6. Summary of automobile and other vehicle body repair and painting sources within each of San Diego County's sub-watersheds.

		Automobile and other vehicle body repair and painting									
Watershed Management Area	Hydrologic Unit (HU)	*Sources Geo-Coded by Sub-watershed Hydrologic Unit*									Total # of Sources
		90X.10	*90X.20*	*90X.30*	*90X.40*	*90X.50*	*90X.60*	*90X.70*	*90X.80*	*90X.90*	
Santa Margarita	*902.XX*	2	0	0	0	0	0	0	0	0	2
San Luis Rey	*903.XX*	7	0	0							7
Carlsbad	*904.XX*	6	9	4	3	13	27				62
San Dieguito	*905.XX*	1	0	0	4	0					5
Penasquitos	*906.XX*	18	3								21
Mission Bay	*906.XX*			1	7	4					12
San Diego	*907.XX*	61	0	0	0						61
San Diego Bay - Pueblo	*908.XX*	1	52	27							112
San Diego Bay - Sweetwater	*909.XX*	18	1	0							
San Diego Bay - Otay	*910.XX*	1	12	0							
Tijuana	*911.XX*	1	0	0	0	0	0	0	0		1
							Total Geo-Coded Sources				283
							Total Sources (incl. Non geo-coded)				283

12 Auto and Other Vehicle Body Repair and Painting

Automobile Painting



13 Mobile Automobile or Vehicle Washing

Narrative Description

This Source Profile Sheet covers establishments primarily engaged in mobile automobile or vehicle washing.

SIC Codes	
7542	Carwashes

NAICS Codes	
811192	Car Washes

Some businesses that conduct mobile automobile or vehicle washing were historically classified under the Standard Industrial Classification (SIC) system. This system has been slowly replaced by the North American Industry Classification System (NAICS), which accommodates a larger number of industrial sectors and sub-sectors, and identifies hundreds of new, emerging, and advanced technology industries. As most Copermittees have yet to convert from the SIC system to the NAICS, the applicable codes from both systems are presented here for easy reference.

Pollutant Generating Activities and Associated Pollutants

The following table contains a list of activities commonly associated with mobile automobile or vehicle washing which may have a source loading potential. Possible pollutants associated with these activities are also presented. There are no activities with a source loading potential in wet weather. Table 13-1 contains a list of activities with source loading potential in dry weather.

The activities below were evaluated for potential pollutant generation during wet weather and dry weather. Wet weather potentials consider runon and runoff during wet weather events. Dry weather potentials are based on the assumption that irrigation and cleaning activities act as transport mechanisms. Furthermore, it is assumed that no BMPs are in place.

13 Mobile Automobile or Vehicle Washing

Table 13-1. Summary of typical activities and associated pollutants during dry weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacteria/ Pathogens*
Mobile automobile or vehicle washing									
Vehicle/equipment washing and steam cleaning	X	X	X	X	X				
Mobile interior washing operations				X				X	
Cleaning or washing of tools and equipment	X	X	X	X	X				
Storage of any liquid materials in portable containers	X	X	X						
Waste handling and disposal	X	X	X					X	
Operation of outdoor equipment	X	X	X	X					

Discharge Potential

As part of the initial 2005 LTEA effort, a questionnaire was completed by various Copermittees to assess the likely potential of a specific source discharging pollutants. Using existing information (e.g. illicit discharge records) and field knowledge the Copermittees ranked the potential of discharging pollutants. These rankings were averaged (when a ranking was given) to obtain average discharge potential rankings for each information type. See Table 13-2 for a summary of the results. An overall ranking was also determined for the source by taking the maximum average ranking from each of the information types. When only one information type received a score, due to lack of information, the average ranking from that one information type was neglected in the overall ranking determination. In these cases the overall ranking was set to 3, meaning the currently available information does not adequately characterize the discharge potential.

A review of Table 13-2 shows that there appears to be considerable information that may be used to assess the discharge potential. As more information is collected and evaluated, the ranking potential will be updated.

It should be noted that a blank ranking in Table 13-2 does not necessarily mean that there is no discharge potential but rather the Copermittee chose not to rank the potential. As more information is collected these blanks will be filled in and a more comprehensive ranking established.

13 Mobile Automobile or Vehicle Washing

Table 13-2. Ranking of discharge potential using existing information.

Mobile automobile or vehicle washing			
Information Types	***Information Available***	***Average Ranking***	***Comments***
Dry Weather Monitoring	Y	4.5	
Illicit Discharge Records	Y	4.5	
Pretreatment Compliance Records	Y		
Underground Stoage Tank Records			
Haz Waste Storage Records			
Inspection Records	Y	5	
Other information? Please specify here		5	
Overall Ranking		**5.0**	

Note: Overall Ranking is the highest 'Average Ranking' received for the various information types. When less than 2 scores were given, due to lack of information, the Overall Ranking was adjusted to 3 - Unknown Potential.

Scoring Legend	
1	- low discharge potential
2	- medium-low discharge potential
3	- Unknown, information does not adequately characterize
4	- medium-high discharge potential
5	- high discharge potential

Legal/Regulatory Oversight

Table 13-3 provides a summary of the types of regulatory oversight that pertain to mobile automobile or vehicle washing. In some cases, there may be some overlap in the types of regulatory oversight.

Table 13-3. Summary of the stormwater-related and non-stormwater related regulatory oversight of mobile automobile or vehicle washing businesses.

Mobile automobile or vehicle washing			
Oversight Type	**Regulatory Oversight**		**Comments**
Stormwater	NPDES Municipal Permit / Local Ordinances	X	
	NPDES General Industrial Permit		
	NPDES General Construction Permit		
Non-Stormwater	Industrial Pretreatment Program (EPA)		
	Hazardous Materials / CUPA (County DEH)		
	CURFFL (County DEH)		
	Local Enforcement Agency - Landfills (County DEH)		
	Air Quality Permits (APCD)		
	Fire Agencies		
	Pesticide Regulatory Program (County AW&M)		
	Coast Guard		

13 Mobile Automobile or Vehicle Washing

Existing regulatory oversight of mobile automobile or vehicle washing activities is limited regarding stormwater issues.

Source Prevalence and Distribution

During the 2005 Baseline LTEA effort, numerous resources were relied upon in order to obtain an as accurate as feasible estimate of the number of sources throughout San Diego County. The objective was to locate the sources within watersheds and sub-watersheds. When this was feasible, the sources are termed ‘geo-coded’, meaning there geographic coordinates are known and can be included in a GIS map. For Mobile Automobile and Vehicle washing, it was not feasible to geo-code this source due to the mobile nature of this activity. The number of businesses that conduct these activities is not known at this time as this source has not been inventoried to date.

14 Mobile Power Washing

Narrative Description

This Source Profile Sheet covers establishments primarily engaged in mobile power washing.

SIC Codes	

NAICS Codes	
561790	Power washing

Power washing was not historically classified under the Standard Industrial Classification (SIC) system. The SIC system has been slowly replaced by the North American Industry Classification System (NAICS), which accommodates a larger number of industrial sectors and sub-sectors, and identifies hundreds of new, emerging, and advanced technology industries. Therefore there is a code for power washing in the NAICS system.

Pollutant Generating Activities and Associated Pollutants

The following tables contain a list of activities commonly associated with mobile power washing which may have a source loading potential. Possible pollutants associated with these activities are also presented. Table 14-1 contains a list of activities with a source loading potential in wet weather and Table 14-2 contains a list of activities with source loading potential in dry weather. It is best professional judgment that power washing activities do not take place during wet weather.

The activities below were evaluated for potential pollutant generation during wet weather and dry weather. Wet weather potentials consider runon and runoff during wet weather events. Dry weather potentials are based on the assumption that irrigation and cleaning activities act as transport mechanisms. Furthermore, it is assumed that no BMPs are in place.

14 Mobile Power Washing

Table 14-1. Summary of typical activities and associated pollutants during wet weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacterial/ Pathogens*
Mobile Power Washing									
No Wet Weather									

Table 14-2. Summary of typical activities and associated pollutants during dry weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacterial/ Pathogens*
Mobile Power Washing									
Storage of any liquid materials in portable containers					X				
Pressure cleaning (parking lots, sidewalks, storage areas)	X	X	X	X	X			X	X

Discharge Potential

As part of the initial 2005 LTEA effort, a questionnaire was completed by various Copermittees to assess the likely potential of a specific source discharging pollutants. Using existing information (e.g. illicit discharge records) and field knowledge the Copermittees ranked the potential of discharging pollutants. These rankings were averaged (when a ranking was given) to obtain average discharge potential rankings for each information type. A similar questionnaire was not completed for this source profile sheet. As a result, best professional judgment was used to assign a discharge potential based on sources identified as concerns in the Copermittees' annual reports and permit. In this case, a discharge potential of 4 was assigned because power washing has been identified as a new potential source of pollutants.

14 Mobile Power Washing

Table 14-3. Ranking of discharge potential using existing information.

Mobile Power Washing			
Information Types	*Information Available*	*Average Ranking*	*Comments*
Dry Weather Monitoring			
Illicit Discharge Records			
Pretreatment Compliance Records			
Underground Storage Tank Records			
Haz Waste Storage Records			
Inspection Records			
Other information? Please specify here			
Overall Ranking		4.0	

Note: Overall Ranking is the highest 'Average Ranking' received for the various information types. When less than 2 scores were given, due to lack of information, the Overall Ranking was adjusted to 3 - Unknown Potential.

Scoring Legend	
1	- low discharge potential
2	- medium-low discharge potential
3	- Unknown, information does not adequately characterize
4	- medium-high discharge potential
5	- high discharge potential

Legal/Regulatory Oversight

Table 14-4 provides a summary of the types of regulatory oversight that pertain to mobile power washing. In some cases, there may be some overlap in the types of regulatory oversight.

Table 14-4. Summary of the stormwater-related and non-stormwater related regulatory oversight of mobile power washing businesses.

Mobile automobile or vehicle washing			
Oversight Type	**Regulatory Oversight**		**Comments**
Stormwater	NPDES Municipal Permit / Local Ordinances	X	
	NPDES General Industrial Permit		
	NPDES General Construction Permit		
Non-Stormwater	Industrial Pretreatment Program (EPA)		
	Hazardous Materials / CUPA (County DEH)		
	CURFFL (County DEH)		
	Local Enforcement Agency - Landfills (County DEH)		
	Air Quality Permits (APCD)		
	Fire Agencies		
	Pesticide Regulatory Program (County AW&M)		
	Coast Guard		

14 Mobile Power Washing

Existing regulatory oversight of mobile power washing activities is limited regarding stormwater issues.

Source Prevalence and Distribution

During the 2005 Baseline LTEA effort, numerous resources were relied upon in order to obtain an as accurate as feasible estimate of the number of sources throughout San Diego County. The objective was to locate the sources within watersheds and sub-watersheds. When this was feasible, the sources are termed ‘geo-coded’, meaning there geographic coordinates are known and can be included in a GIS map. For mobile power washing, it was not feasible to geo-code this source due to the mobile nature of this activity. The number of businesses that conduct these activities is not known at this time as this source has not been inventoried to date.

15 Auto Parking Lots

Narrative Description

This Source Profile Sheet covers establishments such as auto parking lots and storage facilities.

SIC Codes	
4225	General Warehousing and Storage
7521	Automobile Parking

NAICS Codes	
493190	Other Warehousing and Storage
812930	Parking Lots and Garages

Some auto parking lots and storage facilities were historically classified under the Standard Industrial Classification (SIC) system. This system has been slowly replaced by the North American Industry Classification System (NAICS), which accommodates a larger number of industrial sectors and sub-sectors, and identifies hundreds of new, emerging, and advanced technology industries. As most Copermittees have yet to convert from the SIC system to the NAICS, the applicable codes from both systems are presented here for easy reference.

Pollutant Generating Activities and Associated Pollutants

The following tables contain activities commonly associated with auto parking lots and storage facilities which may have a source loading potential. Possible pollutants associated with these activities are also presented. Table 15-1 contains a list of activities with a source loading potential in wet weather and Table 15-2 contains a list of activities with source loading potential in dry weather.

The activities below were evaluated for potential pollutant generation during wet weather and dry weather. Wet weather potentials consider runon and runoff during wet weather events. Dry weather potentials are based on the assumption that irrigation and cleaning activities act as transport mechanisms. Furthermore, it is assumed that no BMPs are in place.

15 Auto Parking Lots

Table 15-1. Summary of typical activities and associated pollutants during wet weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacteria/ Pathogens*
Auto parking lots and storage facilities									
Vehicle and equipment parking and storage	X	X	X	X					
Waste handling and disposal	X	X	X						
Storage of raw materials, products, and containers	X	X	X	X					
Loading and unloading	X	X	X	X				X	

Table 15-2. Summary of typical activities and associated pollutants during dry weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacteria/ Pathogens*
Auto parking lots and storage facilities									
Pressure cleaning (parking lots, sidewalks, storage areas)	X	X	X	X	X			X	X

Summary of Existing Information on Discharge Potential

As part of the initial 2005 LTEA effort, a questionnaire was completed by various Copermittees to assess the likely potential of a specific source discharging pollutants. Using existing information (e.g. illicit discharge records) and field knowledge the Copermittees ranked the potential of discharging pollutants. These rankings were averaged (when a ranking was given) to obtain average discharge potential rankings for each information type. See Table 15-3 for a summary of the results. An overall ranking was also determined for the source by taking the maximum average ranking from each of the information types. When only one information type received a score, due to lack of information, the average ranking from that one information type was neglected in the overall ranking determination. In these cases the overall ranking was set to 3, meaning the currently available information does not adequately characterize the discharge potential.

15 Auto Parking Lots

Table 15-3. Ranking of discharge potential using existing information.

Auto parking lots and storage facilities			
Information Types	***Information Available***	***Average Ranking***	***Comments***
Dry Weather Monitoring	Y	2.5	
Illicit Discharge Records	Y	4	
Pretreatment Compliance Records			
Underground Stoage Tank Records			
Haz Waste Storage Records			
Inspection Records	Y	3	
Other information? Please specify here		2	
Overall Ranking		**4.0**	

Note: Overall Ranking is the highest 'Average Ranking' received for the various information types. When less than 2 scores were given, due to lack of information, the Overall Ranking was adjusted to 3 - Unknown Potential.

Scoring Legend	
1	- low discharge potential
2	- medium-low discharge potential
3	- Unknown, information does not adequately characterize
4	- medium-high discharge potential
5	- high discharge potential

A review of Table 15-3 shows that there appears to be considerable information that may be used to assess the discharge potential. As more information is collected and evaluated, the ranking potential will be updated.

It should be noted that a blank ranking in Table 15-3 does not necessarily mean that there is no discharge potential but rather the Copermittee chose not to rank the potential. As more information is collected these blanks will be filled in and a more comprehensive ranking established.

Legal/Regulatory Oversight

Table 15-4 provides a summary of the types of regulatory oversight that pertain to auto parking lots and storage facilities. In some cases, there may be some overlap in the types of regulatory oversight.

15 Auto Parking Lots

Table 15-4. Summary of the stormwater-related and non-stormwater related regulatory oversight of auto parking lots and storage facilities.

Auto parking lots and storage facilities			
Oversight Type	**Regulatory Oversight**		**Comments**
Stormwater	NPDES Municipal Permit / Local Ordinances	X	
	NPDES General Industrial Permit		
	NPDES General Construction Permit		
Other Regulatory Oversight	Industrial Pretreatment Program (EPA)		
	Hazardous Materials / CUPA (County DEH)		
	CURFFL (County DEH)		
	Local Enforcement Agency - Landfills (County DEH)		
	Air Quality Permits (APCD)		
	Fire Agencies		
	Pesticide Regulatory Program (County AW&M)		
	Coast Guard		

Existing regulatory oversight of parking activities is limited regarding stormwater issues

Source Prevalence and Distribution

During the 2005 Baseline LTEA effort, numerous resources were relied upon in order to obtain an as accurate as feasible estimate of the number of sources throughout San Diego County. The objective was to locate the sources within watersheds and sub-watersheds. When this was feasible, the sources are termed ‘geo-coded’, meaning there geographic coordinates are known and can be included in a GIS map. In some instances, it was not feasible to geo-code some sources. Therefore, the number of geo-coded sources and the total number of sources is unknown at this time.

16 Retail or Wholesale Fueling

Narrative Description

This Source Profile Sheet covers establishments primarily engaged in retail or wholesale fueling.

SIC Codes	
5541	Gasoline Service Stations
5172	Petroleum and Petroleum Products Wholesalers, Except Bulk Stations and Terminals

NAICS Codes	
424710	Petroleum Bulk Stations and Terminals
424720	Petroleum and Petroleum Products Merchant Wholesalers (except Bulk Stations and Terminals)
447XXX	Gasoline Stations

Some facilities that conduct retail or wholesale fueling were historically classified under the Standard Industrial Classification (SIC) system. This system has been slowly replaced by the North American Industry Classification System (NAICS), which accommodates a larger number of industrial sectors and sub-sectors, and identifies hundreds of new, emerging, and advanced technology industries. As most Copermittees have yet to convert from the SIC system to the NAICS, the applicable codes from both systems are presented here for easy reference.

Pollutant Generating Activities and Associated Pollutants

The following tables contain a list of activities commonly associated with retail or wholesale fueling which may have a source loading potential. Possible pollutants associated with these activities are also presented. Table 16-1 contains a list of activities with a source loading potential in wet weather and Table 16-2 contains a list of activities with source loading potential in dry weather.

The activities below were evaluated for potential pollutant generation during wet weather and dry weather. Wet weather potentials consider runon and runoff during wet weather events. Dry weather potentials are based on the assumption that irrigation and cleaning activities act as transport mechanisms. Furthermore, it is assumed that no BMPs are in place.

16 Retail or Wholesale Fueling

Table 16-1. Summary of typical activities and associated pollutants during wet weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacteria/ Pathogens*
Retail or wholesale fueling									
Vehicle and equipment fueling	X	X	X						
Storage of liquid materials in stationary tanks	X	X	X						
Loading and unloading	X	X	X	X				X	
Operation of outdoor equipment	X	X	X	X					
Cleaning facilities	X	X	X	X				X	

Table 16-2. Summary of typical activities and associated pollutants during dry weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacteria/ Pathogens*
Retail or wholesale fueling									
Cleaning facilities	X	X	X	X				X	

Discharge Potential

As part of the initial 2005 LTEA effort, a questionnaire was completed by various Copermittees to assess the likely potential of a specific source discharging pollutants. Using existing information (e.g. illicit discharge records) and field knowledge the Copermittees ranked the potential of discharging pollutants. These rankings were averaged (when a ranking was given) to obtain average discharge potential rankings for each information type. See Table 16-3 for a summary of the results. An overall ranking was also determined for the source by taking the maximum average ranking from each of the information types. When only one information type received a score, due to lack of information, the average ranking from that one information type was neglected in the overall ranking determination. In these cases the overall ranking was set to 3, meaning the currently available information does not adequately characterize the discharge potential.

16 Retail or Wholesale Fueling

Table 16-3. Ranking of discharge potential using existing information.

Retail or wholesale fueling			
Information Types	***Information Available***	***Average Ranking***	***Comments***
Dry Weather Monitoring	Y	3	
Illicit Discharge Records	Y	2	
Pretreatment Compliance Records			
Underground Stoage Tank Records	Y	2	
Haz Waste Storage Records	Y		
Inspection Records	Y	3	
Other information? Please specify here		2	
Overall Ranking		**3.0**	

Note: Overall Ranking is the highest 'Average Ranking' received for the various information types. When less than 2 scores were given, due to lack of information, the Overall Ranking was adjusted to 3 - Unknown Potential.

Scoring Legend	
1	- low discharge potential
2	- medium-low discharge potential
3	- Unknown, information does not adequately characterize
4	- medium-high discharge potential
5	- high discharge potential

A review of Table 16-3 shows that there appears to be considerable information that may be used to assess the discharge potential. As more information is collected and evaluated, the ranking potential will be updated.

It should be noted that a blank ranking in Table 16-3 does not necessarily mean that there is no discharge potential but rather the Copermittee chose not to rank the potential. As more information is collected these blanks will be filled in and a more comprehensive ranking established.

Legal/Regulatory Oversight

Table 16-4 provides a summary of the types of regulatory oversight that pertain to retail or wholesale fueling. In some cases, there may be some overlap in the types of regulatory oversight.

16 Retail or Wholesale Fueling

Table 16-4. Summary of the stormwater-related and non-stormwater related regulatory oversight of retail or wholesale fueling facilities.

Retail or wholesale fueling			
Oversight Type	**Regulatory Oversight**		**Comments**
Stormwater	NPDES Municipal Permit / Local Ordinances	X	
	NPDES General Industrial Permit		
	NPDES General Construction Permit		
Other Regulatory Oversight	Industrial Pretreatment Program (EPA)		
	Hazardous Materials / CUPA (County DEH)	X	
	CURFFL (County DEH)		
	Local Enforcement Agency - Landfills (County DEH)		
	Air Quality Permits (APCD)	X	
	Fire Agencies		
	Pesticide Regulatory Program (County AW&M)		
	Coast Guard		

Better coordination may be warranted between the regulatory programs to minimize overlap but still focus on water quality protection.

Source Prevalence and Distribution

The 2005 Baseline LTEA effort produced source distribution information, if available, is provided in this section.

It is recommended that updated source information is used to develop revised source prevalence and distribution data.

Numerous resources were relied upon in order to obtain an as accurate as feasible estimate of the number of sources throughout San Diego County. The objective was to locate the sources within watersheds and sub-watersheds. When this was feasible,

Table 16-5. Summary of retail or wholesale fueling sources within each of San Diego County's Watersheds.

Watershed Management Area	Hydrologic Unit (HU)	Retail or wholesale fueling
		Total # of Geo-Coded Sources
Santa Margarita	*902.00*	11
San Luis Rey	*903.00*	33
Carlsbad	*904.00*	163
San Dieguito	*905.00*	36
Penasquitos	*906.10 - 906.20*	65
Mission Bay	*906.30 - 906.50*	56
San Diego	*907.00*	160
San Diego Bay - Pueblo	*908.00*	227
San Diego Bay - Sweetwater	*909.00*	
San Diego Bay - Otay	*910.00*	
Tijuana	*911.00*	28
Total Geo-Coded Sources		779
Total Sources (incl. Non geo-coded)		779

the sources are termed 'geo-coded', meaning there geographic coordinates are known and can be included in a GIS map. In some instances, it was not feasible to geo-code some sources. In Table 16-5, the number of geo-coded retail or wholesale fueling sources within each watershed is shown, along with the total number of sources (geo-coded and not geo-coded together). In this case, the geographic coordinates for all of the identified sources were determined.

While the inventory process attempted to ensure there is no overlap between priority sources identified, there may be some overlap of the identified sources with sources identified in other Source Profile Sheets. This may be the case for the retail or wholesale fueling sources that also perform auto repair (SPS#10) and equipment repair (SPS#11).

The source inventory is further broken down in Table 16-6 to show the prevalence of retail or wholesale fueling facilities within each sub-watershed. This information, combined with the concurrent water quality assessment of sub-watersheds throughout San Diego County will ultimately help to assess the threat these facilities pose to water quality by source and constituent.

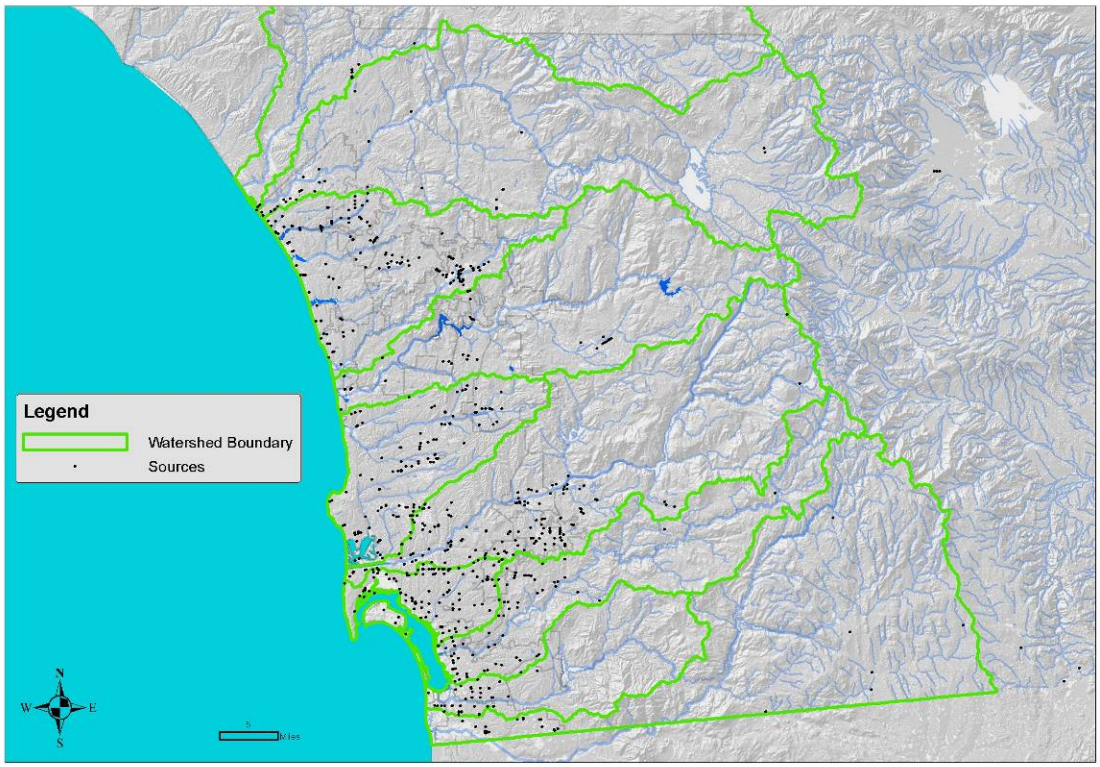
It is recommended that municipalities use updated source information from the County, as available, to develop revised source prevalence and distribution data.

Table 16-6. Summary of retail or wholesale fueling sources within each of San Diego County's sub-watersheds.

		Retail or wholesale fueling									
Watershed Management Area	Hydrologic Unit (HU)	*Sources Geo-Coded by Sub-watershed Hydrologic Unit*									Total # of Sources
		90X.10	*90X.20*	*90X.30*	*90X.40*	*90X.50*	*90X.60*	*90X.70*	*90X.80*	*90X.90*	
Santa Margarita	*902.XX*	10	1	0	0	0	0	0	0	0	11
San Luis Rey	*903.XX*	30	1	2							33
Carlsbad	*904.XX*	6	40	18	8	37	54				163
San Dieguito	*905.XX*	11	14	0	11	0					36
Penasquitos	*906.XX*	37	28								65
Mission Bay	*906.XX*			5	27	24					56
San Diego	*907.XX*	153	0	5	2						160
San Diego Bay - Pueblo	*908.XX*	11	86	10							227
San Diego Bay - Sweetwater	*909.XX*	65	11	1							
San Diego Bay - Otay	*910.XX*	5	38	0							
Tijuana	*911.XX*	22	0	0	1	1	0	0	4		28
							Total Geo-Coded Sources				779
							Total Sources (incl. Non geo-coded)				779

16 Retail or Wholesale Fueling

Fuel Station



17 Pest Control Services

Narrative Description

This Source Profile Sheet covers establishments primarily engaged in pest control services. This includes yard and structural pest control businesses.

SIC Codes	
7342	Disinfecting and Pest Control Services

Some businesses that conduct pest control services were historically classified under the Standard Industrial Classification (SIC) system. This system has been slowly replaced by the North American Industry Classification System (NAICS), which accommodates a larger number of industrial sectors and sub-sectors, and identifies hundreds of new, emerging, and advanced technology industries. As most Copermittees have yet to convert from the SIC system to the NAICS, the applicable codes from both systems are presented here for easy reference.

NAICS Codes	
115112	Soil Preparation, Planting, and Cultivating
115310	Support Activities for Forestry
561710	Exterminating and Pest Control Services
926140	Regulation of Agricultural Marketing and Commodities

Pollutant Generating Activities and Associated Pollutants

The following tables contain a list of activities commonly associated with pest control services which may have a source loading potential. Possible pollutants associated with these activities are also presented. Table 17-1 contains a list of activities with a source loading potential in wet weather. There are no activities with source loading potential in dry weather.

The activities below were evaluated for potential pollutant generation during wet weather and dry weather. Wet weather potentials consider runon and runoff during wet weather events. Dry weather potentials are based on the assumption that irrigation and cleaning activities act as transport mechanisms. Furthermore, it is assumed that no BMPs are in place.

17 Pest Control Services

Table 17-1. Summary of typical activities and associated pollutants during wet weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacteria/ Pathogens*
Pest Control Services									
Storage of pesticides		X				X			
Waste handling and disposal		X				X		X	X
Loading and unloading		X				X		X	

Discharge Potential

As part of the initial 2005 LTEA effort, a questionnaire was completed by various Copermittees to assess the likely potential of a specific source discharging pollutants. Using existing information (e.g. illicit discharge records) and field knowledge the Copermittees ranked the potential of discharging pollutants. These rankings were averaged (when a ranking was given) to obtain average discharge potential rankings for each information type. See Table 17-2 for a summary of the results. An overall ranking was also determined for the source by taking the maximum average ranking from each of the information types. When only one information type received a score, due to lack of information, the average ranking from that one information type was neglected in the overall ranking determination. In these cases the overall ranking was set to 3, meaning the currently available information does not adequately characterize the discharge potential.

17 Pest Control Services

Table 17-2. Ranking of discharge potential using existing information.

Pest Control Services			
Information Types	***Information Available***	***Average Ranking***	***Comments***
Dry Weather Monitoring	Y	2	
Illicit Discharge Records	Y		
Pretreatment Compliance Records			
Underground Stoage Tank Records			
Haz Waste Storage Records			
Inspection Records	Y	3	
Other information? Please specify here			
Overall Ranking		**3.0**	

Note: Overall Ranking is the highest 'Average Ranking' received for the various information types. When less than 2 scores were given, due to lack of information, the Overall Ranking was adjusted to 3 - Unknown Potential.

Scoring Legend	
1	- low discharge potential
2	- medium-low discharge potential
3	- Unknown, information does not adequately characterize
4	- medium-high discharge potential
5	- high discharge potential

A review of Table 17-2 shows that there is limited information available to assess discharge potential. Of the information available a more complete evaluation should be conducted to assess discharge potential.

It should be noted that a blank ranking in Table 17-2 does not necessarily mean that there is no discharge potential but rather the Copermittee chose not to rank the potential. As more information is collected these blanks will be filled in and a more comprehensive ranking established.

Legal/Regulatory Oversight

Table 17-3 provides a summary of the types of regulatory oversight that pertain to pest control services. In some cases, there may be some overlap in the types of regulatory oversight.

Table 17-3. Summary of the stormwater-related and non-stormwater related regulatory oversight of pest control service businesses.

Pest control services			
Oversight Type	**Regulatory Oversight**		**Comments**
Stormwater	NPDES Municipal Permit / Local Ordinances	X	
	NPDES General Industrial Permit		
	NPDES General Construction Permit		
Other Regulatory Oversight	Industrial Pretreatment Program (EPA)		
	Hazardous Materials / CUPA (County DEH)	X	
	CURFFL (County DEH)		
	Local Enforcement Agency - Landfills (County DEH)		
	Air Quality Permits (APCD)		
	Fire Agencies		
	Pesticide Regulatory Program (County AW&M)	X	
	Coast Guard		

Better coordination may be warranted between the regulatory programs to minimize overlap but still focus on water quality protection.

Source Prevalence and Distribution

During the 2005 Baseline LTEA effort, numerous resources were relied upon in order to obtain an as accurate as feasible estimate of the number of sources throughout San Diego County. The objective was to locate the businesses within watersheds and sub-watersheds. When this was feasible, the sources are termed ‘geo-coded’, meaning there geographic coordinates are known and can be included in a GIS map. In some instances, it was not feasible to geo-code some sources. In this case, the geographic coordinates for Pest Control Services have not yet been determined.

The use of inventories to locate pest control businesses (and associated pollutants) is somewhat misleading because the business activities creating the pollutants are mobile in nature. Instead the inventory may be used for outreach effort but not necessarily for locating pollutant loads. It is recommended that municipalities use updated source information from the County, as available, to develop revised source prevalence data.

18 Eating and Drinking Establishments

Narrative Description

This Source Profile Sheet covers primarily eating and drinking establishments.

SIC Codes	
5812	Eating Places

NAICS Codes	
722XXX	Food Services and Drinking Places

Some businesses such as eating and drinking establishments were historically classified under the Standard Industrial Classification (SIC) system. This system has been slowly replaced by the North American Industry Classification System (NAICS), which accommodates a larger number of industrial sectors and sub-sectors, and identifies hundreds of new, emerging, and advanced technology industries. As most Copermittees have yet to convert from the SIC system to the NAICS, the applicable codes from both systems are presented here for easy reference.

Pollutant Generating Activities and Associated Pollutants

The following tables contain a list of activities commonly associated with eating and drinking establishments which may have a source loading potential. Possible pollutants associated with these activities are also presented. Table 18-1 contains a list of activities with a source loading potential in wet weather and Table 18-2 contains a list of activities with source loading potential in dry weather.

The activities below were evaluated for potential pollutant generation during wet weather and dry weather. Wet weather potentials consider runon and runoff during wet weather events. Dry weather potentials are based on the assumption that irrigation and cleaning activities act as transport mechanisms. Furthermore, it is assumed that no BMPs are in place.

18 Eating and Drinking Establishments

Table 18-1. Summary of typical activities and associated pollutants during wet weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacteria/ Pathogens*
Eating or drinking establishments									
Storage of solid wastes and food wastes		X	X	X			X		
Pressure washing buildings				X					
Disposal of solid and food wastes							X	X	X
Waste handling and disposal		X	X						X
Vector/Pest control						X			
Sanitary sewer overflows									X

Table 18-2. Summary of typical activities and associated pollutants during dry weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacteria/ Pathogens*
Eating or drinking establishments									
Pressure cleaning (parking lots, sidewalks, storage areas)				X					
Sanitary sewer overflows									X

Discharge Potential

As part of the initial 2005 LTEA effort, a questionnaire was completed by various Copermittees to assess the likely potential of a specific source discharging pollutants. Using existing information (e.g. illicit discharge records) and field knowledge the Copermittees ranked the potential of discharging pollutants. These rankings were averaged (when a ranking was given) to obtain average discharge potential rankings for each information type. See Table 18-3 for a summary of the results. An overall ranking was also determined for the source by taking the maximum average ranking from each of the information types. When only one information type received a score, due to lack of information, the average ranking from that one information type was neglected in the overall ranking determination. In these cases the overall ranking was set to 3, meaning the currently available information does not adequately characterize the discharge potential.

Table 18-3. Ranking of discharge potential using existing information.

Eating or drinking establishments			
Information Types	*Information Available*	*Average Ranking*	*Comments*
Dry Weather Monitoring	Y	4.5	
Illicit Discharge Records	Y	4.5	
Pretreatment Compliance Records			
Underground Stoage Tank Records			
Haz Waste Storage Records			
Inspection Records	Y	5	
Other information? Please specify here		4	
Overall Ranking		**5.0**	

Note: Overall Ranking is the highest 'Average Ranking' received for the various information types. When less than 2 scores were given, due to lack of information, the Overall Ranking was adjusted to 3 - Unknown Potential.

Scoring Legend	
1	- low discharge potential
2	- medium-low discharge potential
3	- Unknown, information does not adequately characterize
4	- medium-high discharge potential
5	- high discharge potential

A review of Table 18-3 shows that there appears to be considerable information that may be used to assess the discharge potential. As more information is collected and evaluated, the ranking potential will be updated.

It should be noted that a blank ranking in Table 18-3 does not necessarily mean that there is no discharge potential but rather the Copermittee chose not to rank the potential. As more information is collected these blanks will be filled in and a more comprehensive ranking established.

Legal/Regulatory Oversight

Table 18-4 provides a summary of the types of regulatory oversight that pertain to eating and drinking establishments. In some cases, there may be some overlap in the types of regulatory oversight.

Table 18-4. Summary of the stormwater-related and non-stormwater related regulatory oversight of eating and drinking establishment businesses.

Eating or drinking establishments			
Oversight Type	**Regulatory Oversight**		**Comments**
Stormwater	NPDES Municipal Permit / Local Ordinances	X	
	NPDES General Industrial Permit		
	NPDES General Construction Permit		
Other Regulatory Oversight	Industrial Pretreatment Program (EPA)	X	
	Hazardous Materials / CUPA (County DEH)		
	CURFFL (County DEH)	X	
	Local Enforcement Agency - Landfills (County DEH)		
	Air Quality Permits (APCD)		
	Fire Agencies		
	Pesticide Regulatory Program (County AW&M)		
	Coast Guard		

Better coordination may be warranted between the regulatory programs to minimize overlap but still focus on water quality protection.

Source Prevalence and Distribution

The 2005 Baseline LTEA effort produced source distribution information, if available, is provided in this section. It is recommended that updated source information is used to develop revised source prevalence and distribution data.

Numerous resources were relied upon in order to obtain an as accurate as feasible estimate of the number of sources throughout San Diego County. The objective was to locate the sources within watersheds and sub-watersheds. When this was feasible, the sources are termed ‘geo-coded’, meaning there geographic coordinates are known and can be included in a GIS map. In some instances, it was not feasible to geo-code some sources. The number of geo-coded eating and drinking establishment sources within each watershed is shown, along with the total number of sources (geo-coded and not geo-coded together). In this case, the geographic coordinates for all of the identified sources have not yet been determined.

18 Eating and Drinking Establishments

While the inventory process attempted to ensure there is no overlap between priority sources identified, there may be some overlap of the identified sources with sources identified in other Source Profile Sheets.

The source inventory is further broken down in Table 18-5 to show the prevalence of eating and drinking establishment businesses within each sub-watershed. This information, combined with the concurrent water quality assessment of sub-watersheds throughout San Diego County will ultimately help to assess the threat these businesses pose to water quality by source and constituent.

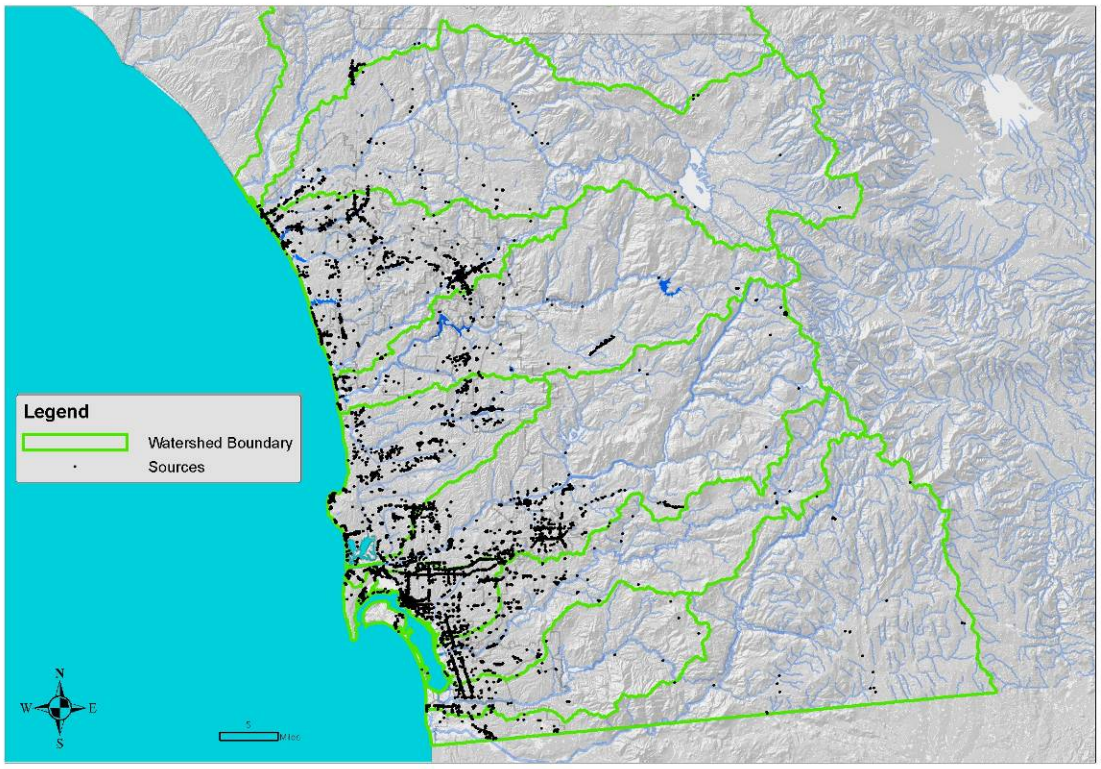
It is recommended that municipalities use updated source information from the County, as available, to develop revised source prevalence and distribution data.

Table 18-5. Summary of eating and drinking establishment sources within each of San Diego County's sub-watersheds

		Eating or drinking establishments									
Watershed Management Area	Hydrologic Unit (HU)	*Sources Geo-Coded by Sub-watershed Hydrologic Unit*									Total # of Sources
		90X.10	*90X.20*	*90X.30*	*90X.40*	*90X.50*	*90X.60*	*90X.70*	*90X.80*	*90X.90*	
Santa Margarita	*902.XX*	82	7	0	0	0	0	0	0	0	89
San Luis Rey	*903.XX*	261	9	7							277
Carlsbad	*904.XX*	152	481	217	49	552	510				1961
San Dieguito	*905.XX*	189	182	7	80	7					465
Penasquitos	*906.XX*	512	317								829
Mission Bay	*906.XX*			446	284	252					982
San Diego	*907.XX*	1829	5	42	32						1908
San Diego Bay - Pueblo	*908.XX*	98	1883	339							3574
San Diego Bay - Sweetwater	*909.XX*	613	110	7							
San Diego Bay - Otay	*910.XX*	82	435	7							
Tijuana	*911.XX*	193	6	0	7	3	0	2	12		223
							Total Geo-Coded Sources				10308
							Total Sources (incl. Non geo-coded)				10342

18 Eating and Drinking Establishments

Food Establishment



19 Mobile Carpet, Drape, and Furniture Cleaning

Narrative Description

This Source Profile Sheet covers establishments primarily engaged in mobile carpet, drape, and furniture cleaning.

SIC Codes	
7217	Carpet and Upholstery Cleaning
7641	Reupholstery and Furniture Repair

NAICS Codes	
561740	Carpet and Upholstery Cleaning Services
812320	Drycleaning and Laundry Services (except Coin-Operated)

Some businesses that conduct mobile carpet, drape, and furniture cleaning were historically classified under the Standard Industrial Classification (SIC) system. This system has been slowly replaced by the North American Industry Classification System (NAICS), which accommodates a larger number of industrial sectors and sub-sectors, and identifies hundreds of new, emerging, and advanced technology industries. As most Copermittees have yet to convert from the SIC system to the NAICS, the applicable codes from both systems are presented here for easy reference.

Pollutant Generating Activities and Associated Pollutants

The following tables contain a list of activities commonly associated with mobile carpet, drape, and furniture cleaning which may have a source loading potential. Possible pollutants associated with these activities are also presented. Table 19-1contains a list of activities with a source loading potential in wet weather and Table 19-2 contains a list of activities with source loading potential in dry weather.

The activities below were evaluated for potential pollutant generation during wet weather and dry weather. Wet weather potentials consider runon and runoff during wet weather events. Dry weather potentials are based on the assumption that irrigation and cleaning activities act as transport mechanisms. Furthermore, it is assumed that no BMPs are in place.

19 Mobile Carpet, Drape, and Furniture Cleaning

Table 19-1. Summary of typical activities and associated pollutants during wet weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacteria/ Pathogens*
Mobile carpet, drape, or furniture cleaning									
Storage of any liquid materials in portable containers		X							
Waste handling and disposal		X		X					X
Storage of raw materials, products, and containers		X							
Loading and unloading		X							

Table 19-2. Summary of typical activities and associated pollutants during dry weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacteria/ Pathogens*
Mobile carpet, drape, or furniture cleaning									
No dry weather									

Discharge Potential

As part of the initial 2005 LTEA effort, a questionnaire was completed by various Copermittees to assess the likely potential of a specific source discharging pollutants. Using existing information (e.g. illicit discharge records) and field knowledge the Copermittees ranked the potential of discharging pollutants. These rankings were averaged (when a ranking was given) to obtain average discharge potential rankings for each information type. See Table 19-3 for a summary of the results. An overall ranking was also determined for the source by taking the maximum average ranking from each of the information types. When only one information type received a score, due to lack of information, the average ranking from that one information type was neglected in the overall ranking determination. In these cases the overall ranking was set to 3, meaning the currently available information does not adequately characterize the discharge potential.

A review of Table 19-3 shows that there is limited information available to assess discharge potential. Of the information available a more complete evaluation should be conducted to assess discharge potential.

19 Mobile Carpet, Drape, and Furniture Cleaning

Table 19-3. Ranking of discharge potential using existing information.

Mobile carpet, drape, or furniture cleaning			
Information Types	***Information Available***	***Average Ranking***	***Comments***
Dry Weather Monitoring			
Illicit Discharge Records	Y	2	
Pretreatment Compliance Records			
Underground Stoage Tank Records			
Haz Waste Storage Records			
Inspection Records			
Other information? Please specify here	Y	2	
Overall Ranking		**2.0**	

Note: Overall Ranking is the highest 'Average Ranking' received for the various information types. When less than 2 scores were given, due to lack of information, the Overall Ranking was adjusted to 3 - Unknown Potential.

Scoring Legend	
1	- low discharge potential
2	- medium-low discharge potential
3	- Unknown, information does not adequately characterize
4	- medium-high discharge potential
5	- high discharge potential

It should be noted that a blank ranking in Table 19-3 does not necessarily mean that there is no discharge potential but rather the Copermittee chose not to rank the potential. As more information is collected these blanks will be filled in and a more comprehensive ranking established.

Legal/Regulatory Oversight

Table 19-4 provides a summary of the types of regulatory oversight that pertain to mobile carpet, drape, and furniture cleaning. In some cases, there may be some overlap in the types of regulatory oversight.

Table 19-4. Summary of the stormwater-related and non-stormwater related regulatory oversight of mobile carpet, drape, and furniture cleaning businesses.

Mobile carpet, drape, or furniture cleaning			
Oversight Type	**Regulatory Oversight**		**Comments**
Stormwater	NPDES Municipal Permit / Local Ordinances	X	
	NPDES General Industrial Permit		
	NPDES General Construction Permit		
Other Regulatory Oversight	Industrial Pretreatment Program (EPA)		
	Hazardous Materials / CUPA (County DEH)		
	CURFFL (County DEH)		
	Local Enforcement Agency - Landfills (County DEH)		
	Air Quality Permits (APCD)		
	Fire Agencies		
	Pesticide Regulatory Program (County AW&M)		
	Coast Guard		

19 Mobile Carpet, Drape, and Furniture Cleaning

Existing regulatory oversight of mobile carpet, drape, or furniture cleaning activities is limited regarding stormwater issues.

Source Prevalence and Distribution

During the 2005 Baseline LTEA effort, numerous resources were relied upon in order to obtain an as accurate as feasible estimate of the number of sources throughout San Diego County. The objective was to locate the sources within watersheds and sub-watersheds. When this was feasible, the sources are termed ‘geo-coded’, meaning there geographic coordinates are known and can be included in a GIS map. In this case, the geographic coordinates for all of inventoried businesses cannot be readily determined because of the mobile nature of these sources.

The use of inventories to locate mobile cleaning businesses (and associated pollutants) is not applicable because the business activities creating the pollutants are mobile in nature. Instead an inventory may be used for outreach effort but not necessarily for locating pollutant loads. It is recommended that municipalities use updated source information from the County, as available, to develop revised source prevalence data.

20 General Contractors for Home/commercial Improvements

Narrative Description

This Source Profile Sheet covers primarily general contractors that engage in home and commercial scale improvements. This includes cement mixing, painting, sandblasting, and masonry. There may be some overlap between this Source Profile Sheet and those for construction projects (SPS#2-SPS#4).

SIC Codes

17XX	Construction Special Trade Contractors

NAICS Codes

238XXX	Specialty Trade Contractors

Some general contracting services were historically classified under the Standard Industrial Classification (SIC) system. This system has been slowly replaced by the North American Industry Classification System (NAICS), which accommodates a larger number of industrial sectors and sub-sectors, and identifies hundreds of new, emerging, and advanced technology industries. As most Copermittees have yet to convert from the SIC system to the NAICS, the applicable codes from both systems are presented here for easy reference.

Pollutant Generating Activities and Associated Pollutants

The following tables contain a list of activities commonly associated with general contractors which may have a source loading potential. Possible pollutants associated with these activities are also presented. Table 20-1 contains a list of activities with a source loading potential in wet weather and Table 20-2 contains a list of activities with source loading potential in dry weather.

The activities below were evaluated for potential pollutant generation during wet weather and dry weather. Wet weather potentials consider runon and runoff during wet weather events. Dry weather potentials are based on the assumption that irrigation and cleaning activities act as transport mechanisms. Furthermore, it is assumed that no BMPs are in place.

20 General Contractors for Home/commercial Improvements

Table 20-1. Summary of typical activities and associated pollutants during wet weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacteria/ Pathogens*
General contractors for home/commercial improvements (e.g. cement mixing, masonry, painting, sandblasting, etc.)									
Loading and unloading	X	X	X	X					
Operation of outdoor equipment		X	X	X					
Building repair and construction	X	X	X	X				X	
Cement mixing				X				X	
Masonry				X				X	
Painting	X	X							
Sandblasting				X					

Table 20-2. Summary of typical activities and associated pollutants during dry weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacteria/ Pathogens*
General contractors for home/commercial improvements (e.g. cement mixing, masonry, painting, sandblasting, etc.)									
Cleaning site				X	X			X	

Discharge Potential

As part of the initial 2005 LTEA effort, a questionnaire was completed by various Copermittees to assess the likely potential of a specific source discharging pollutants. Using existing information (e.g. illicit discharge records) and field knowledge the Copermittees ranked the potential of discharging pollutants. These rankings were averaged (when a ranking was given) to obtain average discharge potential rankings for each information type. See Table 20-3 for a summary of the results. An overall ranking was also determined for the source by taking the maximum average ranking from each of the information types. When only one information type received a score, due to lack of information, the average ranking from that one information type was neglected in the overall ranking determination. In these cases the overall ranking was set to 3, meaning the currently available information does not adequately characterize the discharge potential.

20 General Contractors for Home/commercial Improvements

Table 20-3. Ranking of discharge potential using existing information.

General Contractors for home/commercial improvements			
Information Types	*Information Available*	*Average Ranking*	*Comments*
Dry Weather Monitoring			
Illicit Discharge Records	Y	5	
Pretreatment Compliance Records			
Underground Stoage Tank Records			
Haz Waste Storage Records			
Inspection Records	Y	4	
Other information? Please specify here	Y	3	
Overall Ranking		**5.0**	

Note: Overall Ranking is the highest 'Average Ranking' received for the various information types. When less than 2 scores were given, due to lack of information, the Overall Ranking was adjusted to 3 - Unknown Potential.

Scoring Legend	
1	- low discharge potential
2	- medium-low discharge potential
3	- Unknown, information does not adequately characterize
4	- medium-high discharge potential
5	- high discharge potential

A review of Table 20-3 shows that there appears to be several sources of information that may be used to assess the discharge potential. As more information is collected and evaluated, the ranking potential will be updated.

It should be noted that a blank ranking in Table 20-3 does not necessarily mean that there is no discharge potential but rather the Copermittee chose not to rank the potential. As more information is collected these blanks will be filled in and a more comprehensive ranking established.

Legal/Regulatory Oversight

Table 20-4 provides a summary of the types of regulatory oversight that pertain to general contractors. In some cases, there may be some overlap in the types of regulatory oversight.

20 General Contractors for Home/commercial Improvements

Table 20-4. Summary of the stormwater-related and non-stormwater related regulatory oversight of general contractors.

General contractors for home/commercial improvements (e.g. cement mixing, masonry, painting, etc.)			
Oversight Type	**Regulatory Oversight**		**Comments**
Stormwater	NPDES Municipal Permit / Local Ordinances	X	
	NPDES General Industrial Permit		
	NPDES General Construction Permit		
Other Regulatory Oversight	Industrial Pretreatment Program (EPA)		
	Hazardous Materials / CUPA (County DEH)		
	CURFFL (County DEH)		
	Local Enforcement Agency - Landfills (County DEH)		
	Air Quality Permits (APCD)	X	
	Fire Agencies		
	Pesticide Regulatory Program (County AW&M)		
	Coast Guard		

Better coordination may be warranted between the regulatory programs to minimize overlap but still focus on water quality protection.

Source Prevalence and Distribution

During the 2005 Baseline LTEA effort, numerous resources were relied upon in order to obtain an as accurate as feasible estimate of the number of sources throughout San Diego County. The objective was to locate the sources within watersheds and sub-watersheds. When this was feasible, the sources are termed ‘geo-coded’, meaning there geographic coordinates are known and can be included in a GIS map. In this case, the geographic coordinates for all of the inventoried general contractors that engaged in home and commercial scale improvements cannot be readily determined because of the mobile nature and location of these sources.

While the inventory process attempted to ensure there is no overlap between priority sources identified, there may be some overlap of the identified sources with sources identified in other Source Profile Sheets. This may be the case for the general contractor sources that also be classified as construction (SPS#2-SPS#4).

The use of inventories to locate general contractors for home/commercial improvements (and associated pollutants) is somewhat misleading because the business activities creating the pollutants are mobile in nature and the activities at the locations are

temporary. Instead an inventory may be used for outreach effort but not necessarily for locating pollutant loads. It is recommended that municipalities use updated source information from the County, as available, to develop revised source prevalence data.

21 Botanical or Zoological Gardens and Nurseries/Greenhouses

Narrative Description

This Source Profile Sheet covers primarily botanical or zoological gardens, as well as nurseries and greenhouses.

SIC Codes	
0181	Ornamental Floriculture and Nursery Products
0182	Food Crops Grown Under Cover
8422	Arboreta and Botanical or Zoological Gardens
NAICS Codes	
1114XX	Greenhouse, Nursery, and Floriculture Production
712130	Zoos and Botanical Gardens

Some botanical or zoological gardens and nurseries/greenhouses were historically classified under the Standard Industrial Classification (SIC) system. This system has been slowly replaced by the North American Industry Classification System (NAICS), which accommodates a larger number of industrial sectors and sub-sectors, and identifies hundreds of new, emerging, and advanced technology industries. As most Copermittees have yet to convert from the SIC system to the NAICS, the applicable codes from both systems are presented here for easy reference.

Pollutant Generating Activities and Associated Pollutants

The following tables contain a list of activities commonly associated with botanical or zoological gardens and nurseries/greenhouses which may have a source loading potential. Possible pollutants associated with these activities are also presented. Table 21-1 contains a list of activities with a source loading potential in wet weather and Table 21-2 contains a list of activities with source loading potential in dry weather.

The activities below were evaluated for potential pollutant generation during wet weather and dry weather. Wet weather potentials consider runon and runoff during wet weather events. Dry weather potentials are based on the assumption that irrigation and cleaning activities act as transport mechanisms. Furthermore, it is assumed that no BMPs are in place.

21 Botanical or Zoological Gardens and Nurseries/Greenhouses

Table 21-1. Summary of typical activities and associated pollutants during wet weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacteria/ Pathogens*
Botanical or zoological gardens and nurseries/greenhouses									
Storage of pesticides and fertilizers		X				X	X		X
Storage of any liquid materials in portable containers		X				X	X		
Storage/disposal of solid wastes and garden wastes		X		X			X		
Storage of raw materials, products, and containers		X		X			X		
Landscape maintenance				X		X	X		
Loading and unloading		X					X		

Table 21-2. Summary of typical activities and associated pollutants during dry weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacteria/ Pathogens*
Botanical or zoological gardens and nurseries/greenhouses									
Landscape maintenance				X		X	X	X	

Discharge Potential

As part of the initial 2005 LTEA effort, a questionnaire was completed by various Copermittees to assess the likely potential of a specific source discharging pollutants. Using existing information (e.g. illicit discharge records) and field knowledge the Copermittees ranked the potential of discharging pollutants. These rankings were averaged (when a ranking was given) to obtain average discharge potential rankings for each information type. See Table 21-3 for a summary of the results. An overall ranking was also determined for the source by taking the maximum average ranking from each of the information types. When only one information type received a score, due to lack of information, the average ranking from that one information type was neglected in the overall ranking determination. In these cases the overall ranking was set to 3, meaning the currently available information does not adequately characterize the discharge potential.

21 Botanical or Zoological Gardens and Nurseries/Greenhouses

Table 21-3. Ranking of discharge potential using existing information.

Botanical or zoological gardens and nurseries/greenhouses			
Information Types	*Information Available*	*Average Ranking*	*Comments*
Dry Weather Monitoring	Y	4	
Illicit Discharge Records	Y	3.5	
Pretreatment Compliance Records			
Underground Stoage Tank Records			
Haz Waste Storage Records			
Inspection Records	Y	5	
Other information? Please specify here		4	
Overall Ranking		**5.0**	

Note: Overall Ranking is the highest 'Average Ranking' received for the various information types. When less than 2 scores were given, due to lack of information, the Overall Ranking was adjusted to 3 - Unknown Potential.

Scoring Legend	
1	- low discharge potential
2	- medium-low discharge potential
3	- Unknown, information does not adequately characterize
4	- medium-high discharge potential
5	- high discharge potential

A review of Table 21-3 shows that there appears to be considerable information that may be used to assess the discharge potential. As more information is collected and evaluated, the ranking potential will be updated.

It should be noted that a blank ranking in Table 21-3 does not necessarily mean that there is no discharge potential but rather the Copermittee chose not to rank the potential. As more information is collected these blanks will be filled in and a more comprehensive ranking established.

Legal/Regulatory Oversight

Table 21-4 provides a summary of the types of regulatory oversight that pertain to botanical or zoological gardens and nurseries/greenhouses. In some cases, there may be some overlap in the types of regulatory oversight.

21 Botanical or Zoological Gardens and Nurseries/Greenhouses

Table 21-4. Summary of the stormwater-related and non-stormwater related regulatory oversight of botanical or zoological gardens and nurseries/greenhouses.

Botanical or zoological gardens and nurseries/greenhouses			
Oversight Type	**Regulatory Oversight**		**Comments**
Stormwater	NPDES Municipal Permit / Local Ordinances	X	
	NPDES General Industrial Permit		
	NPDES General Construction Permit		
Other Regulatory Oversight	Industrial Pretreatment Program (EPA)		
	Hazardous Materials / CUPA (County DEH)	X	
	CURFFL (County DEH)		
	Local Enforcement Agency - Landfills (County DEH)		
	Air Quality Permits (APCD)		
	Fire Agencies		
	Pesticide Regulatory Program (County AW&M)	X	
	Coast Guard		

Better coordination may be warranted between the regulatory programs to minimize overlap but still focus on water quality protection.

Source Prevalence and Distribution

The 2005 Baseline LTEA effort produced source distribution information, if available, is provided in this section. It is recommended that updated source information is used to develop revised source prevalence and distribution data.

Table 21-5. Summary of botanical or zoological garden and nursery/greenhouse sources within each of San Diego County's Watersheds.

Watershed Management Area	Hydrologic Unit (HU)	Botanical or Zoological Gardens and Nurseries/Greenhouses
		Total # of Geo-Coded Sources
Santa Margarita	*902.00*	64
San Luis Rey	*903.00*	315
Carlsbad	*904.00*	331
San Dieguito	*905.00*	68
Penasquitos	*906.10 - 906.20*	7
Mission Bay	*906.30 - 906.50*	11
San Diego	*907.00*	45
San Diego Bay - Pueblo	*908.00*	69
San Diego Bay - Sweetwater	*909.00*	
San Diego Bay - Otay	*910.00*	
Tijuana	*911.00*	7
Total Geo-Coded Sources		917
Total Sources (incl. Non geo-coded)		948

Numerous resources were relied upon in order to obtain an as accurate as feasible estimate of the number of sources throughout San Diego County. The objective was to locate the sources within watersheds and sub-watersheds. When this was feasible, the sources are termed 'geo-coded', meaning there geographic coordinates are known and can be included in a GIS map. In some instances, it was not feasible to geo-code some sources. In Table 21-5, the

number of geo-coded botanical or zoological garden and nursery/greenhouse sources within each watershed is shown, along with the total number of sources (geo-coded and not geo-coded together). In this case, the geographic coordinates for all of the identified sources have not yet been determined.

While the inventory process attempted to ensure there is no overlap between priority sources identified, there may be some overlap of the identified sources with sources identified in other Source Profile Sheets.

The source inventory is further broken down in Table 21-6 to show the prevalence of botanical or zoological gardens and nurseries/greenhouses within each sub-watershed. This information, combined with the concurrent water quality assessment of sub-watersheds throughout San Diego County will ultimately help to assess the threat these facilities pose to water quality by source and constituent.

It is recommended that municipalities use updated source information from the County, as available, to develop revised source prevalence and distribution data.

Table 21-6. Summary of botanical or zoological garden and nursery/greenhouse sources within each of San Diego County's sub-watersheds.

		Botanical or Zoological Gardens and Nurseries/Greenhouses									
Watershed Management Area	Hydrologic Unit (HU)	*Sources Geo-Coded by Sub-watershed Hydrologic Unit*									Total # of Sources
		90X.10	*90X.20*	*90X.30*	*90X.40*	*90X.50*	*90X.60*	*90X.70*	*90X.80*	*90X.90*	
Santa Margarita	*902.XX*	7	57	0	0	0	0	0	0	0	64
San Luis Rey	*903.XX*	281	34	0							315
Carlsbad	*904.XX*	2	39	85	10	138	57				331
San Dieguito	*905.XX*	12	17	16	22	1					68
Penasquitos	*906.XX*	4	3								7
Mission Bay	*906.XX*			5	4	2					11
San Diego	*907.XX*	41	2	0	2						45
San Diego Bay - Pueblo	*908.XX*	1	13	4							69
San Diego Bay - Sweetwater	*909.XX*	12	25	1							
San Diego Bay - Otay	*910.XX*	2	7	4							
Tijuana	*911.XX*	6	0	0	0	0	0	0	1		7
							Total Geo-Coded Sources				917
							Total Sources (incl. Non geo-coded)				948

21 Botanical or Zoological Gardens and Nurseries/Greenhouses

Nurseries

22 Mobile Landscaping

Narrative Description

This Source Profile Sheet covers establishments engaged in mobile landscaping activities. Not included in this category are parks, golf courses, and cemeteries. These are all covered in a separate Source Profile Sheet.

SIC Codes

782	Lawn and Garden Services
783	Ornamental Shrub and Tree Services

NAICS Codes

561730	Landscaping Services

Some businesses that conduct mobile landscaping were historically classified under the Standard Industrial Classification (SIC) system. This system has been slowly replaced by the North American Industry Classification System (NAICS), which accommodates a larger number of industrial sectors and sub-sectors, and identifies hundreds of new, emerging, and advanced technology industries. As most Copermittees have yet to convert from the SIC system to the NAICS, the applicable codes from both systems are presented here for easy reference.

Pollutant Generating Activities and Associated Pollutants

The following tables contain a list of activities commonly associated with mobile landscaping which may have a source loading potential. Possible pollutants associated with these activities are also presented. Table 22-1 contains a list of activities with a source loading potential in wet weather and Table 22-2 contains a list of activities with source loading potential in dry weather.

The activities below were evaluated for potential pollutant generation during wet weather and dry weather. Wet weather potentials consider runon and runoff during wet weather events. Dry weather potentials are based on the assumption that irrigation and cleaning activities act as transport mechanisms. Furthermore, it is assumed that no BMPs are in place.

22 Mobile Landscaping

Table 22-1. Summary of typical activities and associated pollutants during wet weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacterial/ Pathogens*
Mobile Landscaping									
Storage of pesticides and fertilizers		X				X	X		
Storage/disposal of solid wastes and garden wastes		X		X			X		
Storage of any liquid materials in portable containers		X				X	X		
Landscape maintenance				X		X	X		

Table 22-2. Summary of typical activities and associated pollutants during dry weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacterial/ Pathogens*
Mobile Landscaping									
Landscape maintenance				X		X	X		

Discharge Potential

As part of the initial 2005 LTEA effort, a questionnaire was completed by various Copermittees to assess the likely potential of a specific source discharging pollutants. Using existing information (e.g. illicit discharge records) and field knowledge the Copermittees ranked the potential of discharging pollutants. These rankings were averaged (when a ranking was given) to obtain average discharge potential rankings for each information type. A similar questionnaire was not completed for this source profile sheet. As a result the overall ranking was set to 3, meaning the currently available information does not adequately characterize the discharge potential.

22 Mobile Landscaping

Table 22-3. Ranking of discharge potential using existing information.

Mobile Landscaping			
Information Types	*Information Available*	*Average Ranking*	*Comments*
Dry Weather Monitoring			
Illicit Discharge Records			
Pretreatment Compliance Records			
Underground Storage Tank Records			
Haz Waste Storage Records			
Inspection Records			
Other information? Please specify here			
Overall Ranking		3.0	

A review of Table 22-3 shows that there appears to be considerable information that may be used to assess the discharge potential. As more information is collected and evaluated, the ranking potential will be updated.

It should be noted that a blank ranking in Table 22-3 does not necessarily mean that there is no discharge potential but rather the Copermittee chose not to rank the potential. As more information is collected these blanks will be filled in and a more comprehensive ranking established.

Legal/Regulatory Oversight

Table 22-4 provides a summary of the types of regulatory oversight that pertain to mobile landscaping. In some cases, there may be some overlap in the types of regulatory oversight.

Table 22-4. Summary of the stormwater-related and non-stormwater related regulatory oversight of mobile landscaping businesses.

Landscaping - parks, golf courses, cemeteries, etc.			
Oversight Type	**Regulatory Oversight**		**Comments**
Stormwater	NPDES Municipal Permit / Local Ordinances	X	
	NPDES General Industrial Permit		
	NPDES General Construction Permit		
Other Regulatory Oversight	Industrial Pretreatment Program (EPA)		
	Hazardous Materials / CUPA (County DEH)	X	
	CURFFL (County DEH)		
	Local Enforcement Agency - Landfills (County DEH)		
	Air Quality Permits (APCD)		
	Fire Agencies		
	Pesticide Regulatory Program (County AW&M)	X	
	Coast Guard		

Better coordination may be warranted between the regulatory programs to minimize overlap but still focus on water quality protection.

Source Prevalence and Distribution

Numerous resources were relied upon in order to obtain an as accurate as feasible estimate of the number of sources throughout San Diego County. The objective was to locate the sources within watersheds and sub-watersheds. When this was feasible, the sources are termed ‘geo-coded’, meaning there geographic coordinates are known and can be included in a GIS map. In some instances, it was not feasible to geo-code some sources. Mobile landscaping services were not geo-coded because identification of mobile landscaping office locations does not facilitate determination of regional source loading potentials.

23 Pool and Fountain Cleaning

Narrative Description

This Source Profile Sheet covers establishments primarily engaged in pool and fountain cleaning.

SIC Codes

7389	Business Services, Not Elsewhere Classified

NAICS Codes

561790	Other Services to Buildings and Dwellings

Some businesses that conduct pool and fountain cleaning were historically classified under the Standard Industrial Classification (SIC) system. This system has been slowly replaced by the North American Industry Classification System (NAICS), which accommodates a larger number of industrial sectors and sub-sectors, and identifies hundreds of new, emerging, and advanced technology industries. As most Copermittees have yet to convert from the SIC system to the NAICS, the applicable codes from both systems are presented here for easy reference.

Pollutant Generating Activities and Associated Pollutants

The following tables contain a list of activities commonly associated with pool and fountain cleaning which may have a source loading potential. Possible pollutants associated with these activities are also presented. Table 23-1 contains a list of activities with a source loading potential in wet weather and Table 23-2 contains a list of activities with source loading potential in dry weather.

The activities below were evaluated for potential pollutant generation during wet weather and dry weather. Wet weather potentials consider runon and runoff during wet weather events. Dry weather potentials are based on the assumption that irrigation and cleaning activities act as transport mechanisms. Furthermore, it is assumed that no BMPs are in place.

23 Pool and Fountain Cleaning

Table 23-1. Summary of typical activities and associated pollutants during wet weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacterial/ Pathogens*
Pool and Fountain Cleaning									
Pool and fountain cleaning		X						X	X
Wastewater handling and disposal		X							
Storage of any liquid materials in portable containers	X	X							

Table 23-2. Summary of typical activities and associated pollutants during dry weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacterial/ Pathogens*
Pool and Fountain Cleaning									
Pool and fountain cleaning		X			X			X	X
Wash waster handling and disposal		X							X

Discharge Potential

As part of the initial 2005 LTEA effort, a questionnaire was completed by various Copermittees to assess the likely potential of a specific source discharging pollutants. Using existing information (e.g. illicit discharge records) and field knowledge the Copermittees ranked the potential of discharging pollutants. These rankings were averaged (when a ranking was given) to obtain average discharge potential rankings for each information type. See Table 23-3 for a summary of the results. An overall ranking was also determined for the source by taking the maximum average ranking from each of the information types. When only one information type received a score, due to lack of information, the average ranking from that one information type was neglected in the overall ranking determination. In these cases the overall ranking was set to 3, meaning the currently available information does not adequately characterize the discharge potential.

23 Pool and Fountain Cleaning

Table 23-3. Ranking of discharge potential using existing information.

Pool and fountain cleaning			
Information Types	***Information Available***	***Average Ranking***	***Comments***
Dry Weather Monitoring			
Illicit Discharge Records	Y	3	
Pretreatment Compliance Records			
Underground Stoage Tank Records			
Haz Waste Storage Records			
Inspection Records			
Other information? Please specify here			
Overall Ranking		**3.0**	

Note: Overall Ranking is the highest 'Average Ranking' received for the various information types. When less than 2 scores were given, due to lack of information, the Overall Ranking was adjusted to 3 - Unknown Potential.

Scoring Legend	
1	- low discharge potential
2	- medium-low discharge potential
3	- Unknown, information does not adequately characterize
4	- medium-high discharge potential
5	- high discharge potential

A review of Table 23-3 shows that there is limited information available to assess discharge potential. Of the information available a more complete evaluation should be conducted to assess discharge potential.

It should be noted that a blank ranking in Table 23-3 does not necessarily mean that there is no discharge potential but rather the Copermittee chose not to rank the potential. As more information is collected these blanks will be filled in and a more comprehensive ranking established.

Legal/Regulatory Oversight

Table 23-4 provides a summary of the types of regulatory oversight that pertain to pool and fountain cleaning. In some cases, there may be some overlap in the types of regulatory oversight.

Table 23-4. Summary of the stormwater-related and non-stormwater related regulatory oversight of pool and fountain cleaning businesses.

Pool & fountain cleaning			
Oversight Type	**Regulatory Oversight**		**Comments**
Stormwater	NPDES Municipal Permit / Local Ordinances	X	
	NPDES General Industrial Permit		
	NPDES General Construction Permit		
Other Regulatory Oversight	Industrial Pretreatment Program (EPA)		
	Hazardous Materials / CUPA (County DEH)		
	CURFFL (County DEH)		
	Local Enforcement Agency - Landfills (County DEH)		
	Air Quality Permits (APCD)		
	Fire Agencies		
	Pesticide Regulatory Program (County AW&M)		
	Coast Guard		

Existing regulatory oversight of pool and fountain cleaning activities is limited regarding stormwater issues.

Source Prevalence and Distribution

During the 2005 Baseline LTEA effort, numerous resources were relied upon in order to obtain an as accurate as feasible estimate of the number of sources throughout San Diego County. The objective was to locate the sources within watersheds and sub-watersheds. When this was feasible, the sources are termed ‘geo-coded’, meaning there geographic coordinates are known and can be included in a GIS map. In some instances, it was not feasible to geo-code some sources. In this case, the geographic coordinates for inventoried businesses that provide pool and fountain cleaning cannot be readily determined because of the mobile nature of these sources. Therefore the number of geo-coded sources is zero.

The use of inventories to locate activities covered under pool and fountain cleaning (and associated pollutants) is not applicable because the business activities creating the pollutants are mobile in nature. Instead an inventory may be used for outreach effort but not necessarily for locating pollutant loads.

24 Marinas

Narrative Description

This Source Profile Sheet primarily covers Marinas.

SIC Codes	
4493	Marinas
4499	Water Transportation Services, Not Elsewhere Classified

NAICS Codes	
713930	Marinas

Some marinas were historically classified under the Standard Industrial Classification (SIC) system. This system has been slowly replaced by the North American Industry Classification System (NAICS), which accommodates a larger number of industrial sectors and sub-sectors, and identifies hundreds of new, emerging, and advanced technology industries. As most Copermittees have yet to convert from the SIC system to the NAICS, the applicable codes from both systems are presented here for easy reference.

Pollutant Generating Activities and Associated Pollutants

The following tables contain a list of activities commonly associated with marinas which may have a source loading potential. Possible pollutants associated with these activities are also presented. Table 24-1 contains a list of activities with a source loading potential in wet weather and Table 24-2 contains a list of activities with source loading potential in dry weather.

The activities below were evaluated for potential pollutant generation during wet weather and dry weather. Wet weather potentials consider runon and runoff during wet weather events. Dry weather potentials are based on the assumption that irrigation and cleaning activities act as transport mechanisms. Furthermore, it is assumed that no BMPs are in place.

Table 24-1. Summary of typical activities and associated pollutants during wet weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacterial/ Pathogens*
Marinas									
Boat building, maintenance, and repair	X	X	X	X			X		
Storage of pesticides	X	X	X	X		X	X		X
Storage of any liquid materials in portable containers	X	X	X			X	X		
Storage of liquid materials in stationary tanks	X	X	X			X	X		
Waste handling and disposal	X	X	X						X
Hazardous waste disposal	X	X	X						
Loading and unloading	X	X	X	X			X		
Operation of outdoor equipment	X	X	X	X					

Table 24-2. Summary of typical activities and associated pollutants during dry weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacterial/ Pathogens*
Marinas									
Pressure cleaning (buildings, docks, boats)		X	X	X	X				X
Grounds maintenance	X	X	X	X	X			X	

Discharge Potential

As part of the initial 2005 LTEA effort, a questionnaire was completed by various Copermittees to assess the likely potential of a specific source discharging pollutants. Using existing information (e.g. illicit discharge records) and field knowledge the Copermittees ranked the potential of discharging pollutants. These rankings were averaged (when a ranking was given) to obtain average discharge potential rankings for each information type. See Table 24-3 for a summary of the results. An overall ranking was also determined for the source by taking the maximum average ranking from each of the information types. When only one information type received a score, due to lack of information, the average ranking from that one information type was neglected in the overall ranking determination. In these cases the overall ranking was set to 3, meaning

the currently available information does not adequately characterize the discharge potential.

Table 24-3. Ranking of discharge potential using existing information.

Marinas			
Information Types	***Information Available***	***Average Ranking***	***Comments***
Dry Weather Monitoring		3	
Illicit Discharge Records	Y		
Pretreatment Compliance Records			
Underground Stoage Tank Records	Y		
Haz Waste Storage Records	Y		
Inspection Records	Y		
Other information? Please specify here			
Overall Ranking		**3.0**	

Note: Overall Ranking is the highest 'Average Ranking' received for the various information types. When less than 2 scores were given, due to lack of information, the Overall Ranking was adjusted to 3 - Unknown Potential.

Scoring Legend	
1	- low discharge potential
2	- medium-low discharge potential
3	- Unknown, information does not adequately characterize
4	- medium-high discharge potential
5	- high discharge potential

A review of Table 24-3 shows that there is limited information available to assess discharge potential. Of the information available a more complete evaluation should be conducted to assess discharge potential.

It should be noted that a blank ranking in Table 24-3 does not necessarily mean that there is no discharge potential but rather the Copermittee chose not to rank the potential. As more information is collected these blanks will be filled in and a more comprehensive ranking established.

Legal/Regulatory Oversight

Table 24-4 provides a summary of the types of regulatory oversight that pertain to marinas. In some cases, there may be some overlap in the types of regulatory oversight.

Table 24-4. Summary of the stormwater-related and non-stormwater related regulatory oversight of marinas.

Marinas			
Oversight Type	**Regulatory Oversight**		**Comments**
Stormwater	NPDES Municipal Permit / Local Ordinances	X	
	NPDES General Industrial Permit		
	NPDES General Construction Permit		
Other Regulatory Oversight	Industrial Pretreatment Program (EPA)		
	Hazardous Materials / CUPA (County DEH)	X	
	CURFFL (County DEH)		
	Local Enforcement Agency - Landfills (County DEH)		
	Air Quality Permits (APCD)		
	Fire Agencies		
	Pesticide Regulatory Program (County AW&M)		
	Coast Guard		

Better coordination may be warranted between the regulatory programs to minimize overlap but still focus on water quality protection.

Source Prevalence and Distribution

The 2005 Baseline LTEA effort produced source distribution information, if available, is provided in this section. It is recommended that updated source information is used to develop revised source prevalence and distribution data.

Numerous resources were relied upon in order to obtain an as accurate as feasible estimate of the number of sources throughout San Diego County. The

Table 24-5. Summary of marinas sources within each of San Diego County's Watersheds.

Watershed Management Area	Hydrologic Unit (HU)	Marinas
		Total # of Geo-Coded Sources
Santa Margarita	*902.00*	0
San Luis Rey	*903.00*	0
Carlsbad	*904.00*	5
San Dieguito	*905.00*	0
Penasquitos	*906.10 - 906.20*	0
Mission Bay	*906.30 - 906.50*	2
San Diego	*907.00*	2
San Diego Bay - Pueblo	*908.00*	26
San Diego Bay - Sweetwater	*909.00*	
San Diego Bay - Otay	*910.00*	
Tijuana	*911.00*	0
Total Geo-Coded Sources		35
Total Sources (incl. Non geo-coded)		39

objective was to locate the sources within watersheds and sub-watersheds. When this was feasible, the sources are termed 'geo-coded', meaning there geographic coordinates are known and can be included in a GIS map. In some instances, it was not feasible to geo-code some sources. In Table 24-5, the number of geo-coded marina sources within each watershed is shown, along with the total number of sources (geo-coded and not geo-coded together). In this case, the geographic coordinates for all of the identified sources have not yet been determined.

The source inventory is further broken down in Table 24-6 to show the prevalence of marinas within each sub-watershed. This information, combined with the concurrent water quality assessment of sub-watersheds throughout San Diego County will ultimately help to assess the threat these facilities pose to water quality by source and constituent.

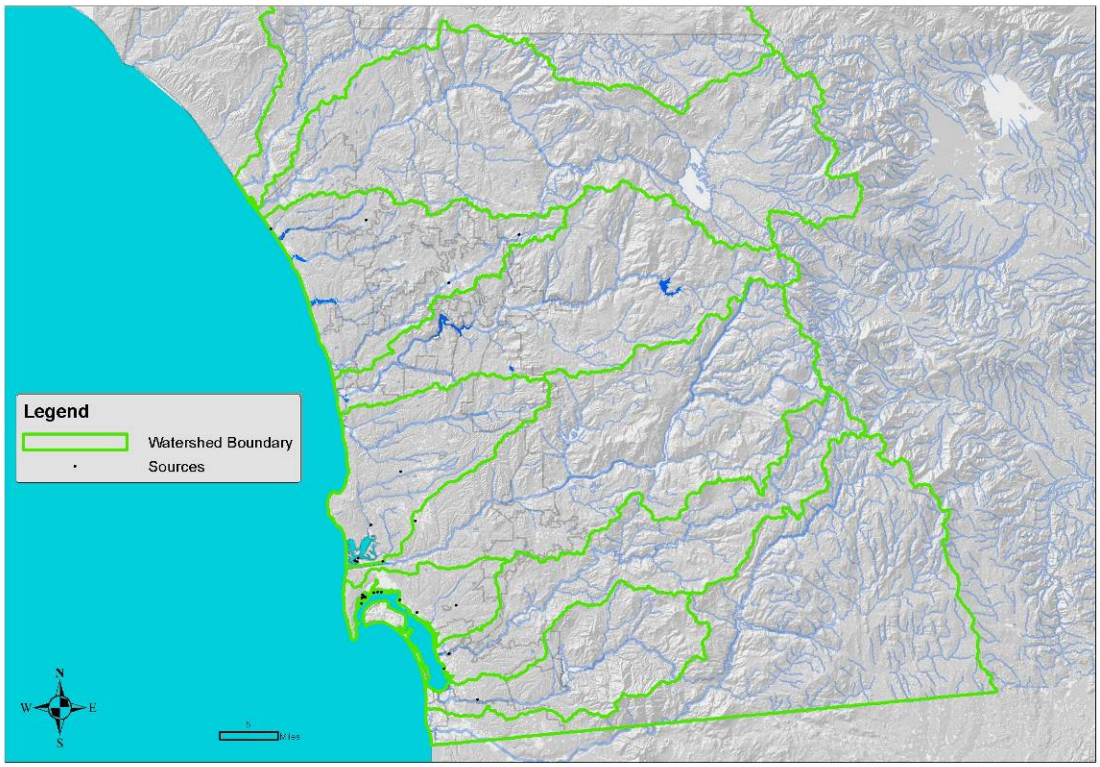
It is recommended that municipalities use updated source information from the County, as available, to develop revised source prevalence and distribution data.

Table 24-6. Summary of marina sources within each of San Diego County's sub-watersheds.

		Marinas									
Watershed Management Area	Hydrologic Unit (HU)	*Sources Geo-Coded by Sub-watershed Hydrologic Unit*									Total # of Sources
		90X.10	*90X.20*	*90X.30*	*90X.40*	*90X.50*	*90X.60*	*90X.70*	*90X.80*	*90X.90*	
Santa Margarita	*902.XX*	0	0	0	0	0	0	0	0	0	0
San Luis Rey	*903.XX*	0	0	0							0
Carlsbad	*904.XX*	1	1	0	0	0	3				5
San Dieguito	*905.XX*	0	0	0	0	0					0
Penasquitos	*906.XX*	0	0								0
Mission Bay	*906.XX*			0	2	0					2
San Diego	*907.XX*	2	0	0	0						2
San Diego Bay - Pueblo	*908.XX*	19	2	0							26
San Diego Bay - Sweetwater	*909.XX*	4	0	0							
San Diego Bay - Otay	*910.XX*	0	1	0							
Tijuana	*911.XX*	0	0	0	0	0	0	0	0		0
							Total Geo-Coded Sources				35
							Total Sources (incl. Non geo-coded)				39

24 Marinas

Marina



25 Animal Kennels

Narrative Description

This Source Profile Sheet primarily covers animal facilities.

Some animal facilities were historically classified under the Standard Industrial Classification (SIC) system. This system has been slowly replaced by the North American Industry Classification System (NAICS), which accommodates a larger number of industrial sectors and sub-sectors, and identifies hundreds of new, emerging, and advanced technology industries. As most Copermittees have yet to convert from the SIC system to the NAICS, the applicable codes from both systems are presented here for easy reference.

SIC Codes	
0279	Animal Specialties, Not Elsewhere Classified
0291	General Farms, Primarily Livestock and Animal Specialties
0752	Animal Specialty Services, Except Venterinary
NAICS Codes	
112XXX	Animal Production
115210	Support Activities for Animal Production
812910	Pet Care (except Veterinary) Services

Pollutant Generating Activities and Associated Pollutants

The following tables contain a list of activities commonly associated with animal facilities which may have a source loading potential. Possible pollutants associated with these activities are also presented. Table 25-1 contains a list of activities with a source loading potential in wet weather and Table 25-2 contains a list of activities with source loading potential in dry weather.

The activities below were evaluated for potential pollutant generation during wet weather and dry weather. Wet weather potentials consider runon and runoff during wet weather events. Dry weather potentials are based on the assumption that irrigation and cleaning activities act as transport mechanisms. Furthermore, it is assumed that no BMPs are in place.

25 Animal Kennels

Table 25-1. Summary of typical activities and associated pollutants during wet weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacterial/ Pathogens*
Animal Kennels									
Storage of pesticides and fertilizers		X		X		X	X		X
Storage of solid wastes and animal wastes		X		X			X		X
Animal waste disposal				X			X		X
Storage of any liquid materials in portable containers		X				X	X		
Loading and unloading		X		X			X		

Table 25-2. Summary of typical activities and associated pollutants during dry weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacterial/ Pathogens*
Animal Kennels, Horse Stables									
No dry weather									

Discharge Potential

As part of the initial 2005 LTEA effort, a questionnaire was completed by various Copermittees to assess the likely potential of a specific source discharging pollutants. Using existing information (e.g. illicit discharge records) and field knowledge the Copermittees ranked the potential of discharging pollutants. These rankings were averaged (when a ranking was given) to obtain average discharge potential rankings for each information type. See Table 25-3 for a summary of the results. An overall ranking was also determined for the source by taking the maximum average ranking from each of the information types. When only one information type received a score, due to lack of information, the average ranking from that one information type was neglected in the overall ranking determination. In these cases the overall ranking was set to 3, meaning the currently available information does not adequately characterize the discharge potential.

25 Animal Kennels

Table 25-3. Ranking of discharge potential using existing information.

Animal facilities			
Information Types	***Information Available***	***Average Ranking***	***Comments***
Dry Weather Monitoring			
Illicit Discharge Records	Y	2	
Pretreatment Compliance Records			
Underground Stoage Tank Records			
Haz Waste Storage Records			
Inspection Records			
Other information? Please specify here			
Overall Ranking		**3.0**	

Note: Overall Ranking is the highest 'Average Ranking' received for the various information types. When less than 2 scores were given, due to lack of information, the Overall Ranking was adjusted to 3 - Unknown Potential.

Scoring Legend	
1	- low discharge potential
2	- medium-low discharge potential
3	- Unknown, information does not adequately characterize
4	- medium-high discharge potential
5	- high discharge potential

A review of Table 25-3 shows that there is limited information available to assess discharge potential. Of the information available a more complete evaluation should be conducted to assess discharge potential.

It should be noted that a blank ranking in Table 25-3 does not necessarily mean that there is no discharge potential but rather the Copermittee chose not to rank the potential. As more information is collected these blanks will be filled in and a more comprehensive ranking established.

Legal/Regulatory Oversight

Table 25-4 provides a summary of the types of regulatory oversight that pertain to animal facilities. In some cases, there may be some overlap in the types of regulatory oversight.

Table 25-4. Summary of the stormwater-related and non-stormwater related regulatory oversight of animal facilities.

Animal facilities			
Oversight Type	**Regulatory Oversight**		**Comments**
Stormwater	NPDES Municipal Permit / Local Ordinances		
	NPDES General Industrial Permit		
	NPDES General Construction Permit		
Other Regulatory Oversight	Industrial Pretreatment Program (EPA)		
	Hazardous Materials / CUPA (County DEH)		
	CURFFL (County DEH)		
	Local Enforcement Agency - Landfills (County DEH)		
	Air Quality Permits (APCD)		
	Fire Agencies		
	Pesticide Regulatory Program (County AW&M)		
	Coast Guard		

25 Animal Kennels

Existing regulatory oversight of animal kennel and horse stable activities is limited regarding stormwater issues.

Source Prevalence and Distribution

The 2005 Baseline LTEA effort produced source distribution information, if available, is provided in this section. Numerous resources were relied upon in order to obtain an as accurate as feasible estimate of the number of sources throughout San Diego County. The objective was to locate the sources within watersheds and sub-watersheds. When this was feasible, the sources are termed 'geo-coded', meaning there geographic coordinates are known and can be included in a GIS map. In some instances, it was not feasible to geo-code some sources. In Table 25-5, the number of geo-coded animal kennel and horse stable sources within each watershed is shown, along with the total number of sources (geo-coded and not geo-coded together). In this case, the geographic coordinates for all of the identified sources have not yet been determined. While the inventory process attempted to ensure there is no overlap between priority sources identified, there may be some overlap of the identified sources with sources identified in other Source Profile Sheets.

The source inventory is further broken down in Table 25-6 to show the prevalence of animal kennel and horse stable facilities within each sub-watershed. This information, combined with the concurrent water quality assessment of sub-watersheds throughout San Diego County will ultimately help to assess the threat these facilities pose to water quality by source and constituent.

It is recommended that municipalities use updated source information from the County, as available, to develop revised source prevalence and distribution data.

Table 25-5. Summary of animal kennel and horse stable sources within each of San Diego County's Watersheds.

Watershed Management Area	Hydrologic Unit (HU)	Animal Facilities
		Total # of Geo-Coded Sources
Santa Margarita	*902.00*	2
San Luis Rey	*903.00*	47
Carlsbad	*904.00*	89
San Dieguito	*905.00*	70
Penasquitos	*906.10 - 906.20*	33
Mission Bay	*906.30 - 906.50*	34
San Diego	*907.00*	60
San Diego Bay - Pueblo	*908.00*	42
San Diego Bay - Sweetwater	*909.00*	
San Diego Bay - Otay	*910.00*	
Tijuana	*911.00*	4
Total Geo-Coded Sources		381
Total Sources (incl. Non geo-coded)		484

25 Animal Kennels

Table 25-6. Summary of animal kennel and horse stable sources within each of San Diego County's sub-watersheds.

Watershed Management Area	Hydrologic Unit (HU)	Animal Facilities: Sources Geo-Coded by Sub-watershed Hydrologic Unit									Total # of Sources
		90X.10	*90X.20*	*90X.30*	*90X.40*	*90X.50*	*90X.60*	*90X.70*	*90X.80*	*90X.90*	
Santa Margarita	*902.XX*	2	0	0	0	0	0	0	0	0	2
San Luis Rey	*903.XX*	45	1	1							47
Carlsbad	*904.XX*	0	6	9	1	40	33				89
San Dieguito	*905.XX*	34	16	2	16	2					70
Penasquitos	*906.XX*	14	19								33
Mission Bay	*906.XX*			11	15	8					34
San Diego	*907.XX*	55	3	2	0						60
San Diego Bay - Pueblo	*908.XX*	0	13	0							42
San Diego Bay - Sweetwater	*909.XX*	10	15	1							
San Diego Bay - Otay	*910.XX*	0	0	3							
Tijuana	*911.XX*	1	0	1	2	0	0	0	0		4
							Total Geo-Coded Sources				381
							Total Sources (incl. Non geo-coded)				484

26 Offices with Onsite and Outdoor Storage Facilities

Narrative Description

This Source Profile Sheet covers establishments with onsite and outdoor storage facilities such as towing and landscaping businesses. These businesses may store machinery, vehicles, or raw materials outside. In some cases there may be an overlap with other business specific source profile sheets.

SIC Codes	
7549	Automotive Services, Except Repair and Carwashes
078X	Landscape and Horticulture Services
NAICS Codes	
488410	Towing
4842XX	Mobile Home Towing
561730	Landscape Services

Some facilities with onsite and outdoor storage facilities were historically classified under the Standard Industrial Classification (SIC) system. This system has been slowly replaced by the North American Industry Classification System (NAICS), which accommodates a larger number of industrial sectors and sub-sectors, and identifies hundreds of new, emerging, and advanced technology industries. As most Copermittees have yet to convert from the SIC system to the NAICS, the applicable codes from both systems are presented here for easy reference.

Pollutant Generating Activities and Associated Pollutants

The following tables contain a list of activities commonly associated with offices with onsite and outdoor storage facilities which may have a source loading potential. Possible pollutants associated with these activities are presented. Table 26-1 contains a list of activities with a source loading potential in wet weather and Table 26-2 contains a list of activities with source loading potential in dry weather.

The activities below were evaluated for potential pollutant generation during wet weather and dry weather. Wet weather potentials consider runon and runoff during wet weather events. Dry weather potentials are based on the assumption that irrigation and cleaning activities act as transport mechanisms. Furthermore, it is assumed that no BMPs are in place.

26 Offices with Onsite and Outdoor Storage Facilities

Table 26-1. Summary of typical activities and associated pollutants during wet weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacteria/ Pathogens*
Offices with Onsite and Storage Facilities									
Loading and unloading	X	X	X	X			X		
Storage of raw materials, products, and containers		X	X	X					
Storage of any liquid materials in portable containers	X	X	X						
Vehicle and equipment maintenance and repair	X	X	X						
Cleaning or washing of tools, parts, and equipment	X	X	X	X	X			X	
Landscape maintenance						X	X	X	
Waste handling and disposal	X	X	X					X	

Table 26-2. Summary of typical activities and associated pollutants during wet weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacteria/ Pathogens*
Offices with Onsite and Storage Facilities									
Vehicle cleaning	X	X	X	X				X	
Cleaning or washing of tools, parts, and equipment	X	X	X	X				X	
Pressure cleaning (parking lots, sidewalks, storage areas)	X	X	X	X				X	

Discharge Potential

As part of the initial 2005 LTEA effort a questionnaire was completed by various Copermittees to assess the likely potential of a specific source discharging pollutants. Using existing information (e.g. illicit discharge records) and field knowledge the Copermittees ranked the potential of discharging pollutants. These rankings were averaged (when a ranking was given) to obtain average discharge potential rankings for each information type. A similar questionnaire was not completed for this source profile sheet. As a result, best professional judgment was used to assign a discharge potential based on sources identified as concerns in the Copermittees' annual reports and permit. In

this case, a discharge potential of 4 was assigned because offices with onsite and outdoor storage facilities have been identified as a new potential source of pollutants.

Table 26-3. Ranking of discharge potential using existing information.

Offices with Onsite and Outdoor Storage			
Information Types	*Information Available*	*Average Ranking*	*Comments*
Dry Weather Monitoring			
Illicit Discharge Records			
Pretreatment Compliance Records			
Underground Storage Tank Records			
Haz Waste Storage Records			
Inspection Records			
Other information? Please specify here			
Overall Ranking		4.0	

Note: Overall Ranking is the highest 'Average Ranking' received for the various information types. When less than 2 scores were given, due to lack of information, the Overall Ranking was adjusted to 3 - Unknown Potential.

Scoring Legend	
1	- low discharge potential
2	- medium-low discharge potential
3	- Unknown, information does not adequately characterize
4	- medium-high discharge potential
5	- high discharge potential

Legal/Regulatory Oversight

Table 26-4 provides a summary of the types of regulatory oversight that pertain to offices with onsite and outdoor storage facilities. In some cases, there may be some overlap in the types of regulatory oversight.

Table 26-4. Summary regulatory oversight for offices with onsite and outdoor storage.

Construction Sites			
Oversight Type	**Regulatory Oversight**		**Comments**
Stormwater	NPDES Municipal Permit / Local Ordinances	X	
	NPDES General Industrial Permit		
	NPDES General Construction Permit		
Other Regulatory Oversight	Industrial Pretreatment Program (EPA)		
	Hazardous Materials / CUPA (County DEH)	X	
	CURFFL (County DEH)		
	Local Enforcement Agency – Landfills (County DEH)		
	Air Quality Permits (APCD)		
	Fire Agencies		
	Pesticide Regulatory Program (County AW&M)	X	
	Coast Guard		

Better coordination may be warranted between the regulatory programs to minimize overlap but still focus on water quality protection.

26 Offices with Onsite and Outdoor Storage Facilities

Source Prevalence and Distribution

The 2005 Baseline LTEA effort did not produce source distribution information for offices with onsite and outdoor storages. It is recommended that new source information be obtained from the County, as available, to develop source prevalence and distribution data.

27 Building Materials Retailers and Storage

Narrative Description

This Source Profile Sheet covers establishments with sell and store building materials. These businesses may include general home improvement centers, and stores specializing in home improvement supplies such as doors, fencing, roofing materials, or masonry. Not included in this category are concrete, stone, and glass manufacturers. These manufacturers are covered in separate Source Profile Sheets.

SIC Codes	
521X	Retail Trade Building Materials, Hardware, and Garden Supply
50XX	Wholesale Trade-durable Goods

NAICS Codes	
444110	Home Centers, Building Materials
444190	Building Materials Supply Dealers

Some building materials retailers and storage facilities were historically classified under the Standard Industrial Classification (SIC) system. This system has been slowly replaced by the North American Industry Classification System (NAICS), which accommodates a larger number of industrial sectors and sub-sectors, and identifies hundreds of new, emerging, and advanced technology industries. As most Copermittees have yet to convert from the SIC system to the NAICS, the applicable codes from both systems are presented here for easy reference.

Pollutant Generating Activities and Associated Pollutants

The following tables contain a list of activities commonly associated with building material retailers and storage which may have a source loading potential. Possible pollutants associated with these activities are also presented. Table 27-1 contains a list of activities with a source loading potential in wet weather and Table 27-2 contains a list of activities with source loading potential in dry weather.

The activities below were evaluated for potential pollutant generation during wet weather and dry weather. Wet weather potentials consider runon and runoff during wet weather events. Dry weather potentials are based on the assumption that irrigation and cleaning activities act as transport mechanisms. Furthermore, it is assumed that no BMPs are in place.

27 Building Materials Retailers and Storage

Table 27-1. Summary of typical activities and associated pollutants during wet weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacteria/ Pathogens*
Building Materials Retail and Storage									
Storage of raw materials, products, and containers	X	X	X	X				X	
Loading and unloading	X	X	X	X					
Equipment operations, maintenance, and storage	X	X	X	X					
Cleaning or washing of tools, parts, and equipment	X	X	X	X	X				
Parking and storage area maintenance	X	X	X	X				X	
Waste handling and disposal	X	X	X	X				X	

Table 27-2. Summary of typical activities and associated pollutants during dry weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacteria/ Pathogens*
Building Materials Retail and Storage									
Cleaning or washing of tools, parts, and equipment	X	X	X	X	X				
Cleaning or washing of tools, parts, and equipment	X	X	X	X	X			X	
Pressure cleaning (parking lots, sidewalks, storage areas)	X	X	X	X	X			X	

Discharge Potential

As part of the initial 2005 LTEA effort a questionnaire was completed by various Copermittees to assess the likely potential of a specific source discharging pollutants. Using existing information (e.g. illicit discharge records) and field knowledge the Copermittees ranked the potential of discharging pollutants. These rankings were averaged (when a ranking was given) to obtain average discharge potential rankings for each information type. A similar questionnaire was not completed for this source profile sheet. As a result, best professional judgment was used to assign a discharge potential

27 Building Materials Retailers and Storage

based on sources identified as concerns in the Copermittees' annual reports and permit. In this case, a discharge potential of 4 was assigned because building materials retailers and storage have been identified as a new potential source of pollutants.

Table 27-3. Ranking of discharge potential using existing information.

Building Materials Retailers and Storage			
Information Types	*Information Available*	*Average Ranking*	*Comments*
Dry Weather Monitoring			
Illicit Discharge Records			
Pretreatment Compliance Records			
Underground Storage Tank Records			
Haz Waste Storage Records			
Inspection Records			
Other information? Please specify here			
Overall Ranking		4.0	

Note: Overall Ranking is the highest 'Average Ranking' received for the various information types. When less than 2 scores were given, due to lack of information, the Overall Ranking was adjusted to 3 - Unknown Potential.

Scoring Legend	
1	- low discharge potential
2	- medium-low discharge potential
3	- Unknown, information does not adequately characterize
4	- medium-high discharge potential
5	- high discharge potential

Legal/Regulatory Oversight

Table 27-4 provides a summary of the types of regulatory oversight that pertain to offices with onsite and outdoor storage facilities. In some cases, there may be some overlap in the types of regulatory oversight.

Table 27-4. Summary regulatory oversight for building materials retailers and storage.

Construction Sites			
Oversight Type	**Regulatory Oversight**		**Comments**
Stormwater	NPDES Municipal Permit / Local Ordinances	X	
	NPDES General Industrial Permit		
	NPDES General Construction Permit		
Other Regulatory Oversight	Industrial Pretreatment Program (EPA)		
	Hazardous Materials / CUPA (County DEH)	X	
	CURFFL (County DEH)		
	Local Enforcement Agency – Landfills (County DEH)		
	Air Quality Permits (APCD)		
	Fire Agencies		
	Pesticide Regulatory Program (County AW&M)		
	Coast Guard		

Better coordination may be warranted between the regulatory programs to minimize overlap but still focus on water quality protection.

27 Building Materials Retailers and Storage

Source Prevalence and Distribution

The 2005 Baseline LTEA effort did not produce source distribution information for these types of businesses. It is recommended that new source information be obtained from the County, as available, to develop source prevalence and distribution data.

28 Chemical and Allied Products

Narrative Description

This Source Profile Sheet covers establishments primarily engaged in manufacture of chemicals and allied products.

SIC Codes	
5162	Plastics Materials and Basic Forms and Shapes
5169	Chemicals and Allied Products, Not Elsewhere Classified

NAICS Codes	
325XXX	Chemical Manufacturing

Some facilities that manufacture chemical and allied products were historically classified under the Standard Industrial Classification (SIC) system. This system has been slowly replaced by the North American Industry Classification System (NAICS), which accommodates a larger number of industrial sectors and sub-sectors, and identifies hundreds of new, emerging, and advanced technology industries. As most Copermittees have yet to convert from the SIC system to the NAICS, the applicable codes from both systems are presented here for easy reference.

Pollutant Generating Activities and Associated Pollutants

The following tables contain a list of activities commonly associated with chemical and allied product which may have a source loading potential. Possible pollutants associated with these activities are also presented. Table 28-1 contains a list of activities with a source loading potential in wet weather and Table 28-2 contains a list of activities with source loading potential in dry weather.

The activities below were evaluated for potential pollutant generation during wet weather and dry weather. Wet weather potentials consider runon and runoff during wet weather events. Dry weather potentials are based on the assumption that irrigation and cleaning activities act as transport mechanisms. Furthermore, it is assumed that no BMPs are in place.

Table 28-1. Summary of typical activities and associated pollutants during wet weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacteria/ Pathogens*
Chemical and allied products									
Storage of raw materials, products, and containers	X	X	X	X			X		
Process equipment operation and maintenance	X	X	X						
Waste handling and disposal	X	X	X						X
Loading and unloading	X	X	X	X			X		
Site maintenance	X	X	X					X	

Table 28-2. Summary of typical activities and associated pollutants during dry weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacteria/ Pathogens*
Chemical and allied products									
Pressure cleaning (parking lots, sidewalks, storage areas)	X	X	X	X	X			X	X

Discharge Potential

As part of the initial 2005 LTEA effort, a questionnaire was completed by various Copermittees to assess the likely potential of a specific source discharging pollutants. Using existing information (e.g. illicit discharge records) and field knowledge the Copermittees ranked the potential of discharging pollutants. These rankings were averaged (when a ranking was given) to obtain average discharge potential rankings for each information type. See Table 28-3 for a summary of the results. An overall ranking was also determined for the source by taking the maximum average ranking from each of the information types. When only one information type received a score, due to lack of information, the average ranking from that one information type was neglected in the overall ranking determination. In these cases the overall ranking was set to 3, meaning the currently available information does not adequately characterize the discharge potential.

28 Chemical and Allied Products

Table 28-3. Ranking of discharge potential using existing information.

Chemical and allied products			
Information Types	***Information Available***	***Average Ranking***	***Comments***
Dry Weather Monitoring	Y	2	
Illicit Discharge Records	Y	2	
Pretreatment Compliance Records			
Underground Stoage Tank Records	Y	2	
Haz Waste Storage Records	Y		
Inspection Records	Y	3	
Other information? Please specify here			
Overall Ranking		**3.0**	

Note: Overall Ranking is the highest 'Average Ranking' received for the various information types. When less than 2 scores were given, due to lack of information, the Overall Ranking was adjusted to 3 - Unknown Potential.

Scoring Legend	
1	- low discharge potential
2	- medium-low discharge potential
3	- Unknown, information does not adequately characterize
4	- medium-high discharge potential
5	- high discharge potential

A review of Table 28-3 shows that there appears to be considerable information that may be used to assess the discharge potential. As more information is collected and evaluated, the ranking potential will be updated.

It should be noted that a blank ranking in Table 28-3 does not necessarily mean that there is no discharge potential but rather the Copermittee chose not to rank the potential. As more information is collected these blanks will be filled in and a more comprehensive ranking established.

Legal/Regulatory Oversight

Table 28-4 provides a summary of the types of regulatory oversight that pertain to chemical and allied products. In some cases, there may be some overlap in the types of regulatory oversight.

28 Chemical and Allied Products

Table 28-4. Summary of the stormwater-related and non-stormwater related regulatory oversight of chemical and allied product facilities.

Chemical and allied products			
Oversight Type	**Regulatory Oversight**		**Comments**
Stormwater	NPDES Municipal Permit / Local Ordinances	X	
	NPDES General Industrial Permit	X	
	NPDES General Construction Permit		
Other Regulatory Oversight	Industrial Pretreatment Program (EPA)	X	
	Hazardous Materials / CUPA (County DEH)	X	
	CURFFL (County DEH)		
	Local Enforcement Agency - Landfills (County DEH)		
	Air Quality Permits (APCD)	X	
	Fire Agencies		
	Pesticide Regulatory Program (County AW&M)		
	Coast Guard		

Better coordination may be warranted between the regulatory programs to minimize overlap but still focus on water quality protection.

Source Prevalence and Distribution

The 2005 Baseline LTEA effort produced source distribution information, if available, is provided in this section. Numerous resources were relied upon in order to obtain an as accurate as feasible estimate of the number of sources throughout San Diego County. The objective was to locate the sources within watersheds and sub-watersheds.

Table 28-5. Summary of chemical and allied product sources within each of San Diego County's Watersheds.

Watershed Management Area	Hydrologic Unit (HU)	Chemical Manufacturing
		Total # of Geo-Coded Sources
Santa Margarita	*902.00*	0
San Luis Rey	*903.00*	2
Carlsbad	*904.00*	26
San Dieguito	*905.00*	3
Penasquitos	*906.10 - 906.20*	30
Mission Bay	*906.30 - 906.50*	6
San Diego	*907.00*	12
San Diego Bay - Pueblo	*908.00*	5
San Diego Bay - Sweetwater	*909.00*	
San Diego Bay - Otay	*910.00*	
Tijuana	*911.00*	1
Total Geo-Coded Sources		85
Total Sources (incl. Non geo-coded)		97

When this was feasible, the sources are termed 'geo-coded', meaning there geographic coordinates are known and can be included in a GIS

map. In some instances, it was not feasible to geo-code some sources. In Table 28-5, the number of geo-coded chemical and allied product sources within each watershed is shown, along with the total number of sources (geo-coded and not geo-coded together). In this case, the geographic coordinates for all of the identified sources have not yet been determined.

While the inventory process attempted to ensure there is no overlap between priority sources identified, there may be some overlap of the identified sources with sources identified in other Source Profile Sheets.

The source inventory is further broken down in Table 28-6 to show the prevalence of chemical and allied product facilities within each sub-watershed. This information, combined with the concurrent water quality assessment of sub-watersheds throughout San Diego County will ultimately help to assess the threat these facilities pose to water quality by source and constituent.

It is recommended that municipalities use updated source information from the County, as available, to develop revised source prevalence and distribution data.

Table 28-6. Summary of chemical and allied product sources within each of San Diego County's sub-watersheds.

		Chemical Manufacturing									
Watershed Management Area	Hydrologic Unit (HU)	*Sources Geo-Coded by Sub-watershed Hydrologic Unit*									Total # of Sources
		90X.10	*90X.20*	*90X.30*	*90X.40*	*90X.50*	*90X.60*	*90X.70*	*90X.80*	*90X.90*	
Santa Margarita	*902.XX*	0	0	0	0	0	0	0	0	0	0
San Luis Rey	*903.XX*	1	0	1							2
Carlsbad	*904.XX*	2	2	11	7	4	0				26
San Dieguito	*905.XX*	2	0	0	1	0					3
Penasquitos	*906.XX*	25	5								30
Mission Bay	*906.XX*			2	4	0					6
San Diego	*907.XX*	12	0	0	0						12
San Diego Bay - Pueblo	*908.XX*	0	0	1							5
San Diego Bay - Sweetwater	*909.XX*	3	1	0							
San Diego Bay - Otay	*910.XX*	0	0	0							
Tijuana	*911.XX*	1	0	0	0	0	0	0	0		1
							Total Geo-Coded Sources				85
							Total Sources (incl. Non geo-coded)				97

29 Fabricated Metal

Narrative Description

This Source Profile Sheet covers establishments primarily engaged in the manufacture of fabricated metal.

SIC Codes

34XX	Fabricated Metal Products, Except Machinery And Transportation Equipment

NAICS Codes

332XXX	Fabricated Metal Product Manufacturing

Some facilities that conduct fabricated metal were historically classified under the Standard Industrial Classification (SIC) system. This system has been slowly replaced by the North American Industry Classification System (NAICS), which accommodates a larger number of industrial sectors and sub-sectors, and identifies hundreds of new, emerging, and advanced technology industries. As most Copermittees have yet to convert from the SIC system to the NAICS, the applicable codes from both systems are presented here for easy reference.

Pollutant Generating Activities and Associated Pollutants

The following tables contain a list of activities commonly associated with fabricated metal which may have a source loading potential. Possible pollutants associated with these activities are also presented. Table 29-1 contains a list of activities with a source loading potential in wet weather and Table 29-2 contains a list of activities with source loading potential in dry weather.

The activities below were evaluated for potential pollutant generation during wet weather and dry weather. Wet weather potentials consider runon and runoff during wet weather events. Dry weather potentials are based on the assumption that irrigation and cleaning activities act as transport mechanisms. Furthermore, it is assumed that no BMPs are in place.

29 Fabricated Metal

Table 29-1. Summary of typical activities and associated pollutants during wet weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacteria/ Pathogens*
Fabricated metal									
Manufacturing and post-processing of metal products	X	X	X	X				X	
Storage of liquid materials in stationary tanks	X	X	X			X	X		
Storage of any liquid materials in portable containers	X	X	X			X	X		
Storage of raw materials, products, and containers	X	X	X	X			X		
Process equipment operation and maintenance	X	X	X						
Waste handling and disposal	X	X	X						X
Loading and unloading	X	X	X	X			X		
Site maintenance	X	X	X	X				X	

Table 29-2. Summary of typical activities and associated pollutants during dry weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacteria/ Pathogens*
Fabricated metal									
Pressure cleaning (parking lots, sidewalks, storage areas)	X	X	X	X	X			X	X

Discharge Potential

As part of the initial 2005 LTEA effort, a questionnaire was completed by various Copermittees to assess the likely potential of a specific source discharging pollutants. Using existing information (e.g. illicit discharge records) and field knowledge the Copermittees ranked the potential of discharging pollutants. These rankings were averaged (when a ranking was given) to obtain average discharge potential rankings for each information type. See Table 29-3 for a summary of the results. An overall ranking was also determined for the source by taking the maximum average ranking from each of the information types. When only one information type received a score, due to lack of information, the average ranking from that one information type was neglected in the overall ranking determination. In these cases the overall ranking was set to 3, meaning

the currently available information does not adequately characterize the discharge potential.

Table 29-3. Ranking of discharge potential using existing information.

Fabricated metal			
Information Types	*Information Available*	*Average Ranking*	*Comments*
Dry Weather Monitoring	Y	2.5	
Illicit Discharge Records	Y	2	
Pretreatment Compliance Records			
Underground Stoage Tank Records			
Haz Waste Storage Records	Y		
Inspection Records	Y	4	
Other information? Please specify here			
Overall Ranking		**4.0**	

Note: Overall Ranking is the highest 'Average Ranking' received for the various information types. When less than 2 scores were given, due to lack of information, the Overall Ranking was adjusted to 3 - Unknown Potential.

Scoring Legend	
1	- low discharge potential
2	- medium-low discharge potential
3	- Unknown, information does not adequately characterize
4	- medium-high discharge potential
5	- high discharge potential

A review of Table 29-3 shows that there appears to be several sources of information that may be used to assess the discharge potential. As more information is collected and evaluated, the ranking potential will be updated.

It should be noted that a blank ranking in Table 29-3 does not necessarily mean that there is no discharge potential but rather the Copermittee chose not to rank the potential. As more information is collected these blanks will be filled in and a more comprehensive ranking established.

Legal/Regulatory Oversight

Table 29-4 provides a summary of the types of regulatory oversight that pertain to fabricated metal. In some cases, there may be some overlap in the types of regulatory oversight.

29 Fabricated Metal

Table 29-4. Summary of the stormwater-related and non-stormwater related regulatory oversight of fabricated metal facilities.

Fabricated metal			
Oversight Type	**Regulatory Oversight**		**Comments**
Stormwater	NPDES Municipal Permit / Local Ordinances	X	
	NPDES General Industrial Permit	X	
	NPDES General Construction Permit		
Other Regulatory Oversight	Industrial Pretreatment Program (EPA)	X	
	Hazardous Materials / CUPA (County DEH)	X	
	CURFFL (County DEH)		
	Local Enforcement Agency - Landfills (County DEH)		
	Air Quality Permits (APCD)	X	
	Fire Agencies		
	Pesticide Regulatory Program (County AW&M)		
	Coast Guard		

Better coordination may be warranted between the regulatory programs to minimize overlap but still focus on water quality protection.

Source Prevalence and Distribution

Table 29-5. Summary of fabricated metal sources within each of San Diego County's Watersheds.

Watershed Management Area	Hydrologic Unit (HU)	**Fabricated Metal Product Manufacturing**
		Total # of Geo-Coded Sources
Santa Margarita	*902.00*	5
San Luis Rey	*903.00*	4
Carlsbad	*904.00*	53
San Dieguito	*905.00*	4
Penasquitos	*906.10 - 906.20*	50
Mission Bay	*906.30 - 906.50*	10
San Diego	*907.00*	64
San Diego Bay - Pueblo	*908.00*	51
San Diego Bay - Sweetwater	*909.00*	
San Diego Bay - Otay	*910.00*	
Tijuana	*911.00*	5
Total Geo-Coded Sources		246
Total Sources (incl. Non geo-coded)		288

The 2005 Baseline LTEA effort produced source distribution information, if available, is provided in this section. Numerous resources were relied upon in order to obtain an as accurate as feasible estimate of the number of sources throughout San Diego County. The objective was to locate the sources within watersheds and sub-watersheds. When this was feasible, the sources are termed 'geo-coded', meaning there geographic coordinates are known and can be included in a GIS map. In some instances, it was not feasible to geo-code some sources. In Table 29-5, the

number of geo-coded fabricated metal sources within each watershed is shown, along with the total number of sources (geo-coded and not geo-coded together). In this case, the geographic coordinates for all of the identified sources have not yet been determined.

While the inventory process attempted to ensure there is no overlap between priority sources identified, there may be some overlap of the identified sources with sources identified in other Source Profile Sheets. This may be the case for the fabricated metal sources that may also be classified as primary metal sources (SPS#30)

The source inventory is further broken down in Table 29-6 to show the prevalence of fabricated metal facilities within each sub-watershed. This information, combined with the concurrent water quality assessment of sub-watersheds throughout San Diego County will ultimately help to assess the threat these facilities pose to water quality by source and constituent.

It is recommended that municipalities use updated source information from the County, as available, to develop revised source prevalence and distribution data.

Table 29-6. Summary of fabricated metal sources within each of San Diego County's sub-watersheds.

		Fabricated Metal Product Manufacturing									
Watershed Management Area	Hydrologic Unit (HU)	*Sources Geo-Coded by Sub-watershed Hydrologic Unit*									Total # of Sources
		90X.10	*90X.20*	*90X.30*	*90X.40*	*90X.50*	*90X.60*	*90X.70*	*90X.80*	*90X.90*	
Santa Margarita	*902.XX*	5	0	0	0	0	0	0	0	0	5
San Luis Rey	*903.XX*	4	0	0							4
Carlsbad	*904.XX*	8	1	26	1	8	9				53
San Dieguito	*905.XX*	4	0	0	0	0					4
Penasquitos	*906.XX*	38	12								50
Mission Bay	*906.XX*			1	7	2					10
San Diego	*907.XX*	64	0	0	0						64
San Diego Bay - Pueblo	*908.XX*	4	23	13							51
San Diego Bay - Sweetwater	*909.XX*	10	1	0							
San Diego Bay - Otay	*910.XX*	0	0	0							
Tijuana	*911.XX*	5	0	0	0	0	0	0	0		5
							Total Geo-Coded Sources				246
							Total Sources (incl. Non geo-coded)				288

30 Primary Metal

Narrative Description

This Source Profile Sheet covers establishments primarily engaged in the manufacture of primary metal products.

SIC Codes	
33XX	Primary Metal Industries

NAICS Codes	
331XXX	Primary Metal Manufacturing

Some facilities that manufacture primary metal were historically classified under the Standard Industrial Classification (SIC) system. This system has been slowly replaced by the North American Industry Classification System (NAICS), which accommodates a larger number of industrial sectors and sub-sectors, and identifies hundreds of new, emerging, and advanced technology industries. As most Copermittees have yet to convert from the SIC system to the NAICS, the applicable codes from both systems are presented here for easy reference.

Pollutant Generating Activities and Associated Pollutants

The following tables contain a list of activities commonly associated with primary metal which may have a source loading potential. Possible pollutants associated with these activities are also presented. Table 30-1 contains a list of activities with a source loading potential in wet weather and Table 31-2 contains a list of activities with source loading potential in dry weather.

The activities below were evaluated for potential pollutant generation during wet weather and dry weather. Wet weather potentials consider runon and runoff during wet weather events. Dry weather potentials are based on the assumption that irrigation and cleaning activities act as transport mechanisms. Furthermore, it is assumed that no BMPs are in place.

30 Primary Metal

Table 30-1. Summary of typical activities and associated pollutants during wet weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacteria/ Pathogens*
Primary metal									
Manufacturing and post-processing of metal products	X	X	X	X				X	
Storage of liquid materials in stationary tanks	X	X	X			X	X		
Storage of raw materials, products, and containers	X	X	X	X			X		
Process equipment operation and maintenance	X	X	X						
Waste handling and disposal	X	X	X						X
Loading and unloading	X	X	X	X			X		
Site maintenance	X	X	X					X	

Table 30-2. Summary of typical activities and associated pollutants during dry weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacteria/ Pathogens*
Primary metal									
Pressure cleaning (parking lots, sidewalks, storage areas)	X	X	X	X	X			X	X

Discharge Potential

As part of the initial 2005 LTEA effort, a questionnaire was completed by various Copermittees to assess the likely potential of a specific source discharging pollutants. Using existing information (e.g. illicit discharge records) and field knowledge the Copermittees ranked the potential of discharging pollutants. These rankings were averaged (when a ranking was given) to obtain average discharge potential rankings for each information type. See Table 30-3 for a summary of the results. An overall ranking was also determined for the source by taking the maximum average ranking from each of the information types. When only one information type received a score, due to lack of information, the average ranking from that one information type was neglected in the overall ranking determination. In these cases the overall ranking was set to 3, meaning the currently available information does not adequately characterize the discharge potential.

30 Primary Metal

Table 30-3. Ranking of discharge potential using existing information.

Primary metal			
Information Types	***Information Available***	***Average Ranking***	***Comments***
Dry Weather Monitoring	Y	2.5	
Illicit Discharge Records	Y	2	
Pretreatment Compliance Records			
Underground Stoage Tank Records			
Haz Waste Storage Records	Y		
Inspection Records	Y	3	
Other information? Please specify here			
Overall Ranking		**3.0**	

Note: Overall Ranking is the highest 'Average Ranking' received for the various information types. When less than 2 scores were given, due to lack of information, the Overall Ranking was adjusted to 3 - Unknown Potential.

Scoring Legend	
1	- low discharge potential
2	- medium-low discharge potential
3	- Unknown, information does not adequately characterize
4	- medium-high discharge potential
5	- high discharge potential

A review of Table 30-3 shows that there appears to be several sources of information that may be used to assess the discharge potential. As more information is collected and evaluated, the ranking potential will be updated.

It should be noted that a blank ranking in Table 30-3 does not necessarily mean that there is no discharge potential but rather the Copermittee chose not to rank the potential. As more information is collected these blanks will be filled in and a more comprehensive ranking established.

Legal/Regulatory Oversight

Table 30-4 provides a summary of the types of regulatory oversight that pertain to primary metal. In some cases, there may be some overlap in the types of regulatory oversight.

30 Primary Metal

Table 30-4. Summary of the stormwater-related and non-stormwater related regulatory oversight of primary metal facilities.

Primary metal			
Oversight Type	**Regulatory Oversight**		**Comments**
Stormwater	NPDES Municipal Permit / Local Ordinances	X	
	NPDES General Industrial Permit	X	
	NPDES General Construction Permit		
Other Regulatory Oversight	Industrial Pretreatment Program (EPA)	X	
	Hazardous Materials / CUPA (County DEH)	X	
	CURFFL (County DEH)		
	Local Enforcement Agency - Landfills (County DEH)		
	Air Quality Permits (APCD)	X	
	Fire Agencies		
	Pesticide Regulatory Program (County AW&M)		
	Coast Guard		

Better coordination may be warranted between the regulatory programs to minimize overlap but still focus on water quality protection.

Source Prevalence and Distribution

The 2005 Baseline LTEA effort produced source distribution information, if available, is provided in this section. Numerous resources were relied upon in order to obtain an as accurate as feasible estimate of the number of sources throughout San Diego County. The objective was to locate the sources within watersheds and sub-watersheds. When this was feasible, the sources are termed 'geo-coded', meaning there geographic coordinates are known and can be included in a GIS map. In some instances, it was not feasible to geo-code some sources. In Table 30-5, the number of geo-coded primary metal sources within each watershed is shown, along with the total number of sources (geo-coded and not geo-coded together).

Table 30-5. Summary of primary metal sources within each of San Diego County's Watersheds.

		Primary Metal Manufacturing
Watershed Management Area	Hydrologic Unit (HU)	Total # of Geo-Coded Sources
Santa Margarita	*902.00*	0
San Luis Rey	*903.00*	1
Carlsbad	*904.00*	4
San Dieguito	*905.00*	2
Penasquitos	*906.10 - 906.20*	5
Mission Bay	*906.30 - 906.50*	2
San Diego	*907.00*	8
San Diego Bay - Pueblo	*908.00*	14
San Diego Bay - Sweetwater	*909.00*	
San Diego Bay - Otay	*910.00*	
Tijuana	*911.00*	3
Total Geo-Coded Sources		39
Total Sources (incl. Non geo-coded)		42

In this case, the geographic coordinates for all of the identified sources have not yet been determined.

While the inventory process attempted to ensure there is no overlap between priority sources identified, there may be some overlap of the identified sources with sources identified in other Source Profile Sheets. This may be the case for the primary metal sources that may also be classified as fabricated metal sources (SPS#29).

The source inventory is further broken down in Table 30-6 to show the prevalence of primary metal facilities within each sub-watershed. This information, combined with the concurrent water quality assessment of sub-watersheds throughout San Diego County will ultimately help to assess the threat these facilities pose to water quality by source and constituent.

It is recommended that municipalities use updated source information from the County, as available, to develop revised source prevalence and distribution data.

Table 30-6. Summary of primary metal sources within each of San Diego County's sub-watersheds.

		Primary Metal Manufacturing									
Watershed Management Area	Hydrologic Unit (HU)	*Sources Geo-Coded by Sub-watershed Hydrologic Unit*									Total # of Sources
		90X.10	*90X.20*	*90X.30*	*90X.40*	*90X.50*	*90X.60*	*90X.70*	*90X.80*	*90X.90*	
Santa Margarita	*902.XX*	0	0	0	0	0	0	0	0	0	0
San Luis Rey	*903.XX*	1	0	0							1
Carlsbad	*904.XX*	3	0	0	0	1	0				4
San Dieguito	*905.XX*	1	1	0	0	0					2
Penasquitos	*906.XX*	5	0								5
Mission Bay	*906.XX*			0	1	1					2
San Diego	*907.XX*	8	0	0	0						8
San Diego Bay - Pueblo	*908.XX*	0	11	2							14
San Diego Bay - Sweetwater	*909.XX*	1	0	0							
San Diego Bay - Otay	*910.XX*	0	0	0							
Tijuana	*911.XX*	3	0	0	0	0	0	0	0		3
							Total Geo-Coded Sources				39
							Total Sources (incl. Non geo-coded)				42

31 Recycling, Junkyards, Scrap Metal

Narrative Description

This Source Profile Sheet primarily covers recycling, junk yard, and scrap metal facilities.

SIC Codes	
5012	Automobiles and Other Motor Vehicles
5093	Scrap and Waste Materials

NAICS Codes	
423110	Automobile and Other Motor Vehicle Merchant Wholesalers
423930	Recyclable Material Merchant Wholesalers
425120	Wholesale Trade Agents and Brokers
562920	Materials Recovery Facilities

Some facilities that conduct recycling, junk yards, and scrap metal were historically classified under the Standard Industrial Classification (SIC) system. This system has been slowly replaced by the North American Industry Classification System (NAICS), which accommodates a larger number of industrial sectors and sub-sectors, and identifies hundreds of new, emerging, and advanced technology industries. As most Copermittees have yet to convert from the SIC system to the NAICS, the applicable codes from both systems are presented here for easy reference.

Pollutant Generating Activities and Associated Pollutants

The following tables contain a list of activities commonly associated with recycling, junk yards, and scrap metal facilities which may have a source loading potential. Possible pollutants associated with these activities are also presented. Table 31-1 contains a list of activities with a source loading potential in wet weather and Table 31-2 contains a list of activities with source loading potential in dry weather.

The activities below were evaluated for potential pollutant generation during wet weather and dry weather. Wet weather potentials consider runon and runoff during wet weather events. Dry weather potentials are based on the assumption that irrigation and cleaning activities act as transport mechanisms. Furthermore, it is assumed that no BMPs are in place.

31 Recycling, Junkyards, Scrap Metal

Table 31-1. Summary of typical activities and associated pollutants during wet weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacteria/ Pathogens*
Recycling, Junk Yards, Scrap Metal									
Vehicle and equipment parking and storage	X	X	X	X					
Storage of raw materials, products, and containers	X	X	X	X					
Parking and storage area maintenance	X	X	X	X				X	
Equipment maintenance and repair	X	X	X						

Table 31-2. Summary of typical activities and associated pollutants during dry weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacteria/ Pathogens*
Recycling, Junk Yards, Scrap Metal									
Vehicle washing and steam cleaning	X	X	X	X	x				
Cleaning or washing of tools and equipment	X	X	X	X	X				

Legal/Regulatory Oversight

Table 31-3 provides a summary of the types of regulatory oversight that pertain to recycling, junk yards, and scrap metal. In some cases, there may be some overlap in the types of regulatory oversight.

31 Recycling, Junkyards, Scrap Metal

Table 31-3. Summary of the stormwater-related and non-stormwater related regulatory oversight of recycling, junk yards, and scrap metal facilities.

Recycling, junk yards, scrap metal			
Oversight Type	**Regulatory Oversight**		**Comments**
Stormwater	NPDES Municipal Permit / Local Ordinances	X	
	NPDES General Industrial Permit	X	
	NPDES General Construction Permit		
Other Regulatory Oversight	Industrial Pretreatment Program (EPA)		
	Hazardous Materials / CUPA (County DEH)	X	
	CURFFL (County DEH)		
	Local Enforcement Agency - Landfills (County DEH)		
	Air Quality Permits (APCD)		
	Fire Agencies		
	Pesticide Regulatory Program (County AW&M)		
	Coast Guard		

Better coordination may be warranted between the regulatory programs to minimize overlap but still focus on water quality protection.

Source Prevalence and Distribution

The 2005 Baseline LTEA effort produced source distribution information, if available, is provided in this section. Numerous resources were relied upon in order to obtain an as accurate as feasible estimate of the number of sources throughout San Diego County. The objective was to locate the sources within watersheds and sub-watersheds. When this was feasible, the sources are termed 'geo-coded', meaning there geographic coordinates are known and can be included in a GIS map. In some instances, it was not feasible to geo-code some sources. In Table 31-4, the number of geo-coded recycling, junk yards, and scrap metal sources within each watershed is shown, along with the total number of sources (geo-coded and not geo-coded together). In this case, the geographic coordinates for all of the identified sources were determined.

Table 31-4. Summary of recycling, junk yards, and scrap metal sources within each of San Diego County's Watersheds.

Watershed Management Area	Hydrologic Unit (HU)	**Recycling , Junk Yards, Scrap Metal**
		Total # of Geo-Coded Sources
Santa Margarita	*902.00*	0
San Luis Rey	*903.00*	5
Carlsbad	*904.00*	3
San Dieguito	*905.00*	1
Penasquitos	*906.10 - 906.20*	0
Mission Bay	*906.30 - 906.50*	1
San Diego	*907.00*	5
San Diego Bay - Pueblo	*908.00*	78
San Diego Bay - Sweetwater	*909.00*	
San Diego Bay - Otay	*910.00*	
Tijuana	*911.00*	1
Total Geo-Coded Sources		94
Total Sources (incl. Non geo-coded)		94

31 Recycling, Junkyards, Scrap Metal

While the inventory process attempted to ensure there is no overlap between priority sources identified, there may be some overlap of the identified sources with sources identified in other Source Profile Sheets.

The source inventory is further broken down in Table 31-5 to show the prevalence of recycling, junk yards, and scrap metal facilities within each sub-watershed. This information, combined with the concurrent water quality assessment of sub-watersheds throughout San Diego County will ultimately help to assess the threat these facilities pose to water quality by source and constituent.

It is recommended that municipalities use updated source information from the County, as available, to develop revised source prevalence and distribution data.

Table 31-5. Summary of recycling, junk yards, and scrap metal sources within each of San Diego County's sub-watersheds.

		Recycling , Junk Yards, Scrap Metal									
Watershed Management Area	Hydrologic Unit (HU)	*Sources Geo-Coded by Sub-watershed Hydrologic Unit*									Total # of Sources
		90X.10	*90X.20*	*90X.30*	*90X.40*	*90X.50*	*90X.60*	*90X.70*	*90X.80*	*90X.90*	
Santa Margarita	*902.XX*	0	0	0	0	0	0	0	0	0	0
San Luis Rey	*903.XX*	5	0	0							5
Carlsbad	*904.XX*	1	0	0	0	1	1				3
San Dieguito	*905.XX*	0	0	0	1	0					1
Penasquitos	*906.XX*	0	0								0
Mission Bay	*906.XX*			0	1	0					1
San Diego	*907.XX*	5	0	0	0						5
San Diego Bay - Pueblo	*908.XX*	0	3	2							78
San Diego Bay - Sweetwater	*909.XX*	0	0	0							
San Diego Bay - Otay	*910.XX*	0	73	0							
Tijuana	*911.XX*	1	0	0	0	0	0	0	0		1
							Total Geo-Coded Sources				94
							Total Sources (incl. Non geo-coded)				94

32 Airfields

Narrative Description

This Source Profile Sheet primarily covers airfields.

SIC Codes	
4581	Airports, Flying Fields, and Airport Terminal Services

NAICS Codes	
488119	Other Airport Operations

Some facilities such as airfields were historically classified under the Standard Industrial Classification (SIC) system. This system has been slowly replaced by the North American Industry Classification System (NAICS), which accommodates a larger number of industrial sectors and sub-sectors, and identifies hundreds of new, emerging, and advanced technology industries. As most Copermittees have yet to convert from the SIC system to the NAICS, the applicable codes from both systems are presented here for easy reference.

Pollutant Generating Activities and Associated Pollutants

The following tables contain a list of activities commonly associated with airfields which may have a source loading potential. Possible pollutants associated with these activities are also presented. Table 31-1 contains a list of activities with a source loading potential in wet weather and Table 32-2 contains a list of activities with source loading potential in dry weather.

The activities below were evaluated for potential pollutant generation during wet weather and dry weather. Wet weather potentials consider runon and runoff during wet weather events. Dry weather potentials are based on the assumption that irrigation and cleaning activities act as transport mechanisms. Furthermore, it is assumed that no BMPs are in place.

32 Airfields

Table 32-1. Summary of typical activities and associated pollutants during wet weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacterial/ Pathogens*
Airfields									
Storage of raw materials, products, and containers	X	X	X	X				X	
Airplane maintenance and repair	X	X	X					X	
Building maintenance	X	X	X	X				X	
Equipment operations, maintenance, and storage	X	X	X	X					
Fueling operations	X	X	X						
Vehicle and equipment maintenance and repair	X	X	X						
Vehicle and equipment washing and steam cleaning	X	X	X	X	x				
Waste handling and disposal	X	X	X						
Loading and unloading	X	X	X	X					
Operation of outdoor equipment	X	X	X						

Table 32-2. Summary of typical activities and associated pollutants during dry weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacterial/ Pathogens*
Airfields									
Vehicle and equipment washing and steam cleaning	X	X	X	X	X				
Landscape maintenance				X		X	X	X	

Discharge Potential

As part of the initial 2005 LTEA effort, a questionnaire was completed by various Copermittees to assess the likely potential of a specific source discharging pollutants. Using existing information (e.g. illicit discharge records) and field knowledge the Copermittees ranked the potential of discharging pollutants. These rankings were averaged (when a ranking was given) to obtain average discharge potential rankings for each information type. See Table 32-3 for a summary of the results. An overall ranking was also determined for the source by taking the maximum average ranking from each of the information types. When only one information type received a score, due to lack of information, the average ranking from that one information type was neglected in the

overall ranking determination. In these cases the overall ranking was set to 3, meaning the currently available information does not adequately characterize the discharge potential.

Table 32-3. Ranking of discharge potential using existing information.

Airplane mechanical repair, maintenance, fueling, or cleaning			
Information Types	***Information Available***	***Average Ranking***	***Comments***
Dry Weather Monitoring		5	
Illicit Discharge Records	Y		
Pretreatment Compliance Records	Y		
Underground Stoage Tank Records	Y		
Haz Waste Storage Records	Y		
Inspection Records	Y		
Other information? Please specify here			
Overall Ranking		**3.0**	

Note: Overall Ranking is the highest 'Average Ranking' received for the various information types. When less than 2 scores were given, due to lack of information, the Overall Ranking was adjusted to 3 - Unknown Potential.

Scoring Legend	
1	- low discharge potential
2	- medium-low discharge potential
3	- Unknown, information does not adequately characterize
4	- medium-high discharge potential
5	- high discharge potential

A review of Table 32-3 shows that there is limited information available to assess discharge potential. Of the information available a more complete evaluation should be conducted to assess discharge potential.

It should be noted that a blank ranking in Table 32-3 does not necessarily mean that there is no discharge potential but rather the Copermittee chose not to rank the potential. As more information is collected these blanks will be filled in and a more comprehensive ranking established.

The 2005 Baseline LTEA effort produced source distribution information, if available, is provided in this section. Numerous resources were relied upon in order to obtain an as accurate as feasible estimate of the number of sources throughout San Diego County. The objective was to locate the sources within watersheds and sub-watersheds. When this was feasible, the sources are termed ‘geo-coded’, meaning there geographic coordinates are known and can be included in a GIS map. In some instances, it was not feasible to geo-code some sources. In Table 32-4, the number of geo-coded airfield sources within each watershed is shown, along with the total number of sources (geo-coded and not geo-coded together). In this case, the geographic coordinates for all of the identified sources were determined.

32 Airfields

The source inventory is further broken down in Table 32-5 to show the prevalence of airfield facilities within each sub-watershed. This information, combined with the concurrent water quality assessment of sub-watersheds throughout San Diego County will ultimately help to assess the threat these facilities pose to water quality by source and constituent.

Table 32-4. Summary of airfields sources within each of San Diego County's Watersheds.

Watershed Management Area	Hydrologic Unit (HU)	Airfields
		Total # of Geo-Coded Sources
Santa Margarita	*902.00*	0
San Luis Rey	*903.00*	2
Carlsbad	*904.00*	1
San Dieguito	*905.00*	1
Penasquitos	*906.10 - 906.20*	0
Mission Bay	*906.30 - 906.50*	0
San Diego	*907.00*	2
San Diego Bay - Pueblo	*908.00*	1
San Diego Bay - Sweetwater	*909.00*	
San Diego Bay - Otay	*910.00*	
Tijuana	*911.00*	1
Total Geo-Coded Sources		8
Total Sources (incl. Non geo-coded)		8

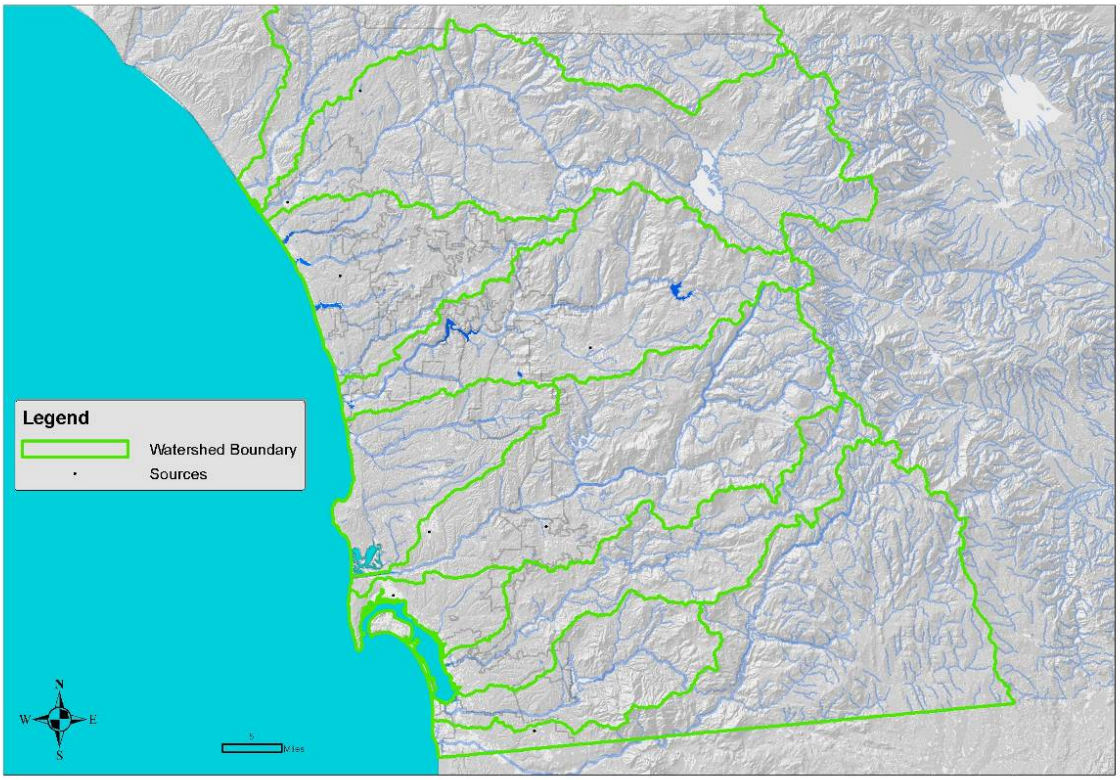
It is recommended that municipalities use updated source information from the County, as available, to develop revised source prevalence and distribution data.

Table 32-5. Summary of airfield sources within each of San Diego County's sub-watersheds.

Watershed Management Area	Hydrologic Unit (HU)	Airfields									
		Sources Geo-Coded by Sub-watershed Hydrologic Unit									Total # of Sources
		90X.10	*90X.20*	*90X.30*	*90X.40*	*90X.50*	*90X.60*	*90X.70*	*90X.80*	*90X.90*	
Santa Margarita	*902.XX*	0	0	0	0	0	0	0	0	0	0
San Luis Rey	*903.XX*	2	0	0							2
Carlsbad	*904.XX*	0	0	0	1	0	0				1
San Dieguito	*905.XX*	0	0	0	1	0					1
Penasquitos	*906.XX*	0	0								0
Mission Bay	*906.XX*			0	0	0					0
San Diego	*907.XX*	2	0	0	0						2
San Diego Bay - Pueblo	*908.XX*	0	1	0							1
San Diego Bay - Sweetwater	*909.XX*	0	0	0							
San Diego Bay - Otay	*910.XX*	0	0	0							
Tijuana	*911.XX*	1	0	0	0	0	0	0	0		1
							Total Geo-Coded Sources				8
							Total Sources (incl. Non geo-coded)				8

32 Airfields

Airfield Sources



33 Motor Freight

Narrative Description

This Source Profile Sheet covers establishments primarily engaged in motor freight activities.

SIC Codes	
4213	Trucking, Except Local
4231	Terminal and Joint Terminal Maintenance Facilities for Motor Freight Transportation

NAICS Codes	
484220	Specialized Freight (except Used Goods) Trucking, Local
484230	Specialized Freight (except Used Goods) Trucking, Long-Distance

Some facilities that conduct motor freight were historically classified under the Standard Industrial Classification (SIC) system. This system has been slowly replaced by the North American Industry Classification System (NAICS), which accommodates a larger number of industrial sectors and sub-sectors, and identifies hundreds of new, emerging, and advanced technology industries. As most Copermittees have yet to convert from the SIC system to the NAICS, the applicable codes from both systems are presented here for easy reference.

Pollutant Generating Activities and Associated Pollutants

The following tables contain a list of activities commonly associated with motor freight which may have a source loading potential. Possible pollutants associated with these activities are also presented. Table 33-1 contains a list of activities with a source loading potential in wet weather and Table 33-2 contains a list of activities with source loading potential in dry weather.

The activities below were evaluated for potential pollutant generation during wet weather and dry weather. Wet weather potentials consider runon and runoff during wet weather events. Dry weather potentials are based on the assumption that irrigation and cleaning activities act as transport mechanisms. Furthermore, it is assumed that no BMPs are in place.

33 Motor Freight

Table 33-1. Summary of typical activities and associated pollutants during wet weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacteria/ Pathogens*
Motor Freight									
Storage of raw materials, products, and containers	X	X	X	X				X	
Loading and unloading	X	X	X	X				X	
Operation of outdoor equipment	X	X	X						
Vehicle and equipment maintenance and repair	X	X	X						
Vehicle and equipment fueling	X	X	X						
Vehicle and equipment cleaning	X	X	X	X	X			X	
Parking and storage area maintenance	X		X	X				X	

Table 33-2. Summary of typical activities and associated pollutants during dry weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacteria/ Pathogens*
Motor Freight									
Vehicle and equipment cleaning	X	X	X	X	X			X	

Discharge Potential

As part of the initial 2005 LTEA effort, a questionnaire was completed by various Copermittees to assess the likely potential of a specific source discharging pollutants. Using existing information (e.g. illicit discharge records) and field knowledge the Copermittees ranked the potential of discharging pollutants. These rankings were averaged (when a ranking was given) to obtain average discharge potential rankings for each information type. See Table 33-3 for a summary of the results. An overall ranking was also determined for the source by taking the maximum average ranking from each of the information types. When only one information type received a score, due to lack of information, the average ranking from that one information type was neglected in the overall ranking determination. In these cases the overall ranking was set to 3, meaning the currently available information does not adequately characterize the discharge potential.

33 Motor Freight

Table 33-3. Ranking of discharge potential using existing information.

Motor Freight			
Information Types	***Information Available***	***Average Ranking***	***Comments***
Dry Weather Monitoring	Y	3.5	
Illicit Discharge Records	Y	2.5	
Pretreatment Compliance Records			
Underground Stoage Tank Records	Y	4	
Haz Waste Storage Records	Y		
Inspection Records	Y	4	
Other information? Please specify here			
Overall Ranking		**4.0**	

Note: Overall Ranking is the highest 'Average Ranking' received for the various information types. When less than 2 scores were given, due to lack of information, the Overall Ranking was adjusted to 3 - Unknown Potential.

Scoring Legend	
1	- low discharge potential
2	- medium-low discharge potential
3	- Unknown, information does not adequately characterize
4	- medium-high discharge potential
5	- high discharge potential

A review of Table 33-3 shows that there appears to be considerable information that may be used to assess the discharge potential. As more information is collected and evaluated, the ranking potential will be updated.

It should be noted that a blank ranking in Table 33-3 does not necessarily mean that there is no discharge potential but rather the Copermittee chose not to rank the potential. As more information is collected these blanks will be filled in and a more comprehensive ranking established.

Legal/Regulatory Oversight

Table 33-4 provides a summary of the types of regulatory oversight that pertain to motor freight. In some cases, there may be some overlap in the types of regulatory oversight.

Table 33-4. Summary of the stormwater-related and non-stormwater related regulatory oversight of motor freight facilities

Motor freight			
Oversight Type	**Regulatory Oversight**		**Comments**
Stormwater	NPDES Municipal Permit / Local Ordinances		
	NPDES General Industrial Permit	X	
	NPDES General Construction Permit		
Other Regulatory Oversight	Industrial Pretreatment Program (EPA)	X	
	Hazardous Materials / CUPA (County DEH)	X	
	CURFFL (County DEH)		
	Local Enforcement Agency - Landfills (County DEH)		
	Air Quality Permits (APCD)	X	
	Fire Agencies		
	Pesticide Regulatory Program (County AW&M)		
	Coast Guard		

Better coordination may be warranted between the regulatory programs to minimize overlap but still focus on water quality protection.

Source Prevalence and Distribution

The 2005 Baseline LTEA effort produced source distribution information, if available, is provided in this section. Numerous resources were relied upon in order to obtain an as accurate as feasible estimate of the number of sources throughout San Diego County. The objective was to locate the sources within watersheds and sub-watersheds. When this was feasible, the sources are termed 'geo-coded', meaning there geographic coordinates are known and can be included in a GIS map. In some instances, it was not feasible to geo-code some sources. In Table 33-5, the number of geo-coded motor freight sources within each watershed is shown, along with the total number of sources (geo-coded and not geo-coded together). In this case, the geographic coordinates for all of the identified sources have not yet been determined.

Table 33-5. Summary of motor freight sources within each of San Diego County's Watersheds.

Watershed Management Area	Hydrologic Unit (HU)	Transportation & Warehousing
		Total # of Geo-Coded Sources
Santa Margarita	*902.00*	1
San Luis Rey	*903.00*	2
Carlsbad	*904.00*	32
San Dieguito	*905.00*	3
Penasquitos	*906.10 - 906.20*	27
Mission Bay	*906.30 - 906.50*	10
San Diego	*907.00*	37
San Diego Bay - Pueblo	*908.00*	61
San Diego Bay - Sweetwater	*909.00*	
San Diego Bay - Otay	*910.00*	
Tijuana	*911.00*	19
Total Geo-Coded Sources		192
Total Sources (incl. Non geo-coded)		242

While the inventory process attempted to ensure there is no overlap between priority sources identified, there may be some overlap of the identified sources with sources identified in other Source Profile Sheets.

The source inventory is further broken down in Table 33-6 to show the prevalence of motor freight facilities within each sub-watershed. This information, combined with the concurrent water quality assessment of sub-watersheds throughout San Diego County will ultimately help to assess the threat these facilities pose to water quality by source and constituent.

It is recommended that municipalities use updated source information from the County, as available, to develop revised source prevalence and distribution data.

33 Motor Freight

Table 33-6. Summary of motor freight sources within each of San Diego County's sub-watersheds.

Watershed Management Area	Hydrologic Unit (HU)	Transportation & Warehousing									
		Sources Geo-Coded by Sub-watershed Hydrologic Unit									Total # of Sources
		90X.10	*90X.20*	*90X.30*	*90X.40*	*90X.50*	*90X.60*	*90X.70*	*90X.80*	*90X.90*	
Santa Margarita	*902.XX*	1	0	0	0	0	0	0	0	0	1
San Luis Rey	*903.XX*	2	0	0							2
Carlsbad	*904.XX*	10	1	1	10	8	2				32
San Dieguito	*905.XX*	2	1	0	0	0					3
Penasquitos	*906.XX*	7	20								27
Mission Bay	*906.XX*			0	5	5					10
San Diego	*907.XX*	37	0	0	0						37
San Diego Bay - Pueblo	*908.XX*	0	19	6							61
San Diego Bay - Sweetwater	*909.XX*	21	0	0							
San Diego Bay - Otay	*910.XX*	0	15	0							
Tijuana	*911.XX*	19	0	0	0	0	0	0	0		19
							Total Geo-Coded Sources				192
							Total Sources (incl. Non geo-coded)				242

34 POTWs (Water and Wastewater)

Narrative Description

This Source Profile Sheet primarily covers publicly owned treatment works (POTWs).

Some facilities such as POTWs (water and wastewater) were not historically classified under the Standard Industrial Classification (SIC) system. This system has been slowly replaced by the North American Industry Classification System (NAICS), which accommodates a larger number of industrial sectors and sub-sectors, and identifies hundreds of new, emerging, and advanced technology industries. As most Copermittees have yet to convert from the SIC system to the NAICS, the applicable codes from both systems are presented here for easy reference.

SIC Codes

NAICS Codes

221320	Sewage Treatment Facilities

Pollutant Generating Activities and Associated Pollutants

The following tables contain a list of activities commonly associated with POTWs (water and wastewater) which may have a source loading potential. Possible pollutants associated with these activities are also presented. Table 34-1 contains a list of activities with a source loading potential in wet weather and Table 34-2 contains a list of activities with source loading potential in dry weather.

The activities below were evaluated for potential pollutant generation during wet weather and dry weather. Wet weather potentials consider runon and runoff during wet weather events. Dry weather potentials are based on the assumption that irrigation and cleaning activities act as transport mechanisms. Furthermore, it is assumed that no BMPs are in place.

34 POTWs (Water and Wastewater)

Table 34-1. Summary of typical activities and associated pollutants during wet weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacterial/ Pathogens*
POTWs (water and wastewater)									
Disposal and treatment of sewage sludge	X			X			X		X
Storage of raw materials, products, and containers	X	X	X	X			X		
Waste handling and disposal	X	X	X						X
Cleaning facilities	X	X		X	X			X	
Storage of liquid materials in stationary tanks	X	X	X						
Storage of any liquid materials in portable containers	X	X	X						
Cleaning or washing of tools, parts, and equipment	X	X	X	X	X				
Loading and unloading	X	X	X	X					
Operation of outdoor equipment	X	X	X						

Table 34-2. Summary of typical activities and associated pollutants during dry weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacterial/ Pathogens*
POTWs (water and wastewater)									
Cleaning facilities	X	X		X	X			X	

Discharge Potential

As part of the initial 2005 LTEA effort, a questionnaire was completed by various Copermittees to assess the likely potential of a specific source discharging pollutants. Using existing information (e.g. illicit discharge records) and field knowledge the Copermittees ranked the potential of discharging pollutants. These rankings were averaged (when a ranking was given) to obtain average discharge potential rankings for each information type. See Table 34-3 for a summary of the results. An overall ranking was also determined for the source by taking the maximum average ranking from each of the information types. When only one information type received a score, due to lack of information, the average ranking from that one information type was neglected in the overall ranking determination. In these cases the overall ranking was set to 3, meaning

the currently available information does not adequately characterize the discharge potential.

Table 34-3. Ranking of discharge potential using existing information.

Airfields			
Information Types	***Information Available***	***Average Ranking***	***Comments***
Dry Weather Monitoring	Y	3	
Illicit Discharge Records	Y		
Pretreatment Compliance Records			
Underground Stoage Tank Records	Y	3	
Haz Waste Storage Records	Y		
Inspection Records	Y		
Other information? Please specify here			
Overall Ranking		**3.0**	

Note: Overall Ranking is the highest 'Average Ranking' received for the various information types. When less than 2 scores were given, due to lack of information, the Overall Ranking was adjusted to 3 - Unknown Potential.

Scoring Legend	
1	- low discharge potential
2	- medium-low discharge potential
3	- Unknown, information does not adequately characterize
4	- medium-high discharge potential
5	- high discharge potential

A review of Table 34-3 shows that there is limited information available to assess discharge potential. Of the information available a more complete evaluation should be conducted to assess discharge potential.

It should be noted that a blank ranking in Table 34-3 does not necessarily mean that there is no discharge potential but rather the Copermittee chose not to rank the potential. As more information is collected these blanks will be filled in and a more comprehensive ranking established.

Legal/Regulatory Oversight

Table 34-4 provides a summary of the types of regulatory oversight that pertain to POTWs. In some cases, there may be some overlap in the types of regulatory oversight.

Table 34-4. Summary regulatory oversight of POTW (water and wastewater) facilities.

POTWs (water and wastewater)			
Oversight Type	**Regulatory Oversight**		**Comments**
Stormwater	NPDES Municipal Permit / Local Ordinances	X	
	NPDES General Industrial Permit	X	
	NPDES General Construction Permit		
Other Regulatory Oversight	Industrial Pretreatment Program (EPA)		
	Hazardous Materials / CUPA (County DEH)	X	
	CURFFL (County DEH)		
	Local Enforcement Agency - Landfills (County DEH)		
	Air Quality Permits (APCD)		
	Fire Agencies		
	Pesticide Regulatory Program (County AW&M)		
	Coast Guard		

34 POTWs (Water and Wastewater)

Better coordination may be warranted between the regulatory programs to minimize overlap but still focus on water quality protection.

Source Prevalence and Distribution

The 2005 Baseline LTEA effort produced source distribution information, if available, is provided in this section. Numerous resources were relied upon in order to obtain an as accurate as feasible estimate of the number of sources throughout San Diego County. The objective was to locate the sources within watersheds and sub-watersheds. When this was feasible, the sources are termed 'geo-coded', meaning there geographic coordinates are known and can be included in a GIS map. In some instances, it was not feasible to geo-code some sources. In Table 34-5, the number of geo-coded POTW (water and wastewater) sources within each watershed is shown, along with the total number of sources (geo-coded and not geo-coded together). In this case, the geographic coordinates for all of the identified sources have not yet been determined.

Table 34-5. Summary of POTW (water and wastewater) sources within each of San Diego County's Watersheds.

Watershed Management Area	Hydrologic Unit (HU)	POTWs (water and wastewater)
		Total # of Geo-Coded Sources
Santa Margarita	*902.00*	4
San Luis Rey	*903.00*	17
Carlsbad	*904.00*	28
San Dieguito	*905.00*	14
Penasquitos	*906.10 - 906.20*	4
Mission Bay	*906.30 - 906.50*	1
San Diego	*907.00*	4
San Diego Bay - Pueblo	*908.00*	29
San Diego Bay - Sweetwater	*909.00*	
San Diego Bay - Otay	*910.00*	
Tijuana	*911.00*	1
Total Geo-Coded Sources		102
Total Sources (incl. Non geo-coded)		131

While the inventory process attempted to ensure there is no overlap between priority sources identified, there may be some overlap of the identified sources with sources identified in other Source Profile Sheets. This may be the case for the POTW (water and wastewater) sources that also perform body repair and painting services.

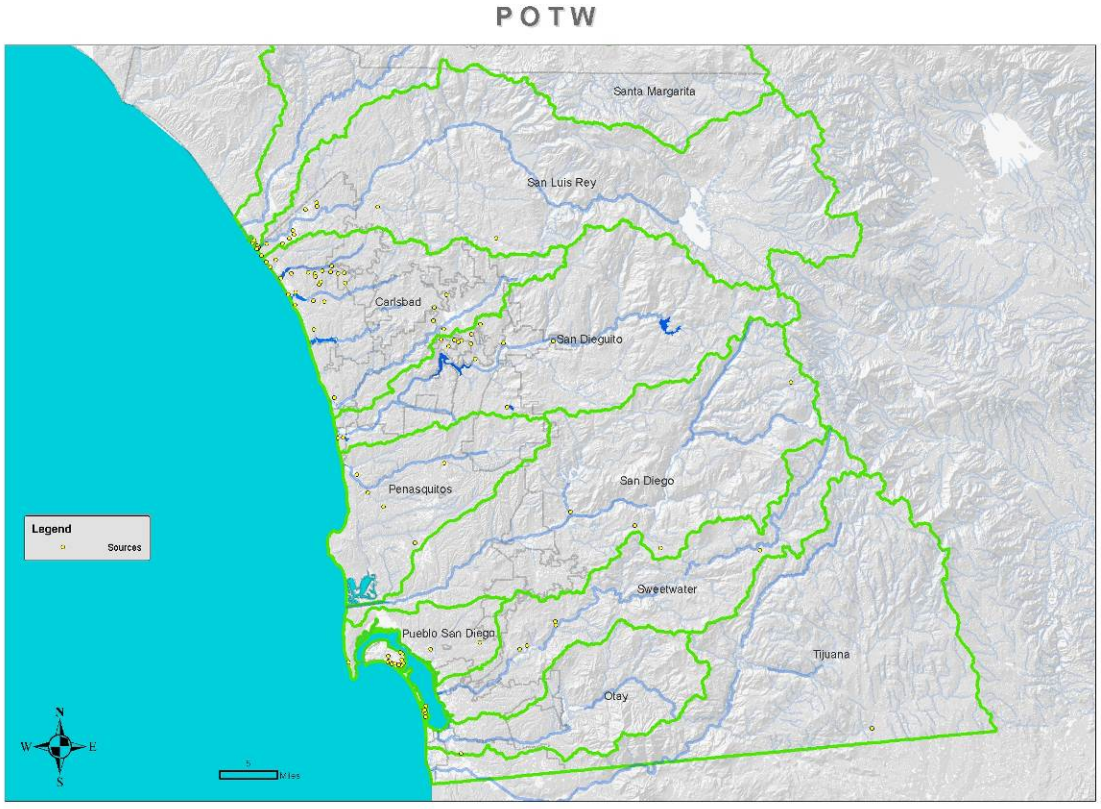
The source inventory is further broken down in Table 34-6 to show the prevalence of POTW (water and wastewater) facilities within each sub-watershed. This information, combined with the concurrent water quality assessment of sub-watersheds throughout San Diego County will ultimately help to assess the threat these facilities pose to water quality by source and constituent.

<u>It is recommended that municipalities use updated source information from the County, as available, to develop revised source prevalence and distribution data.</u>

34 POTWs (Water and Wastewater)

Table 34-6. Summary of POTW (water and wastewater) sources within each of San Diego County's sub-watersheds.

Watershed Management Area	Hydrologic Unit (HU)	POTWs (water and wastewater)									
		Sources Geo-Coded by Sub-watershed Hydrologic Unit									Total # of Sources
		90X.10	*90X.20*	*90X.30*	*90X.40*	*90X.50*	*90X.60*	*90X.70*	*90X.80*	*90X.90*	
Santa Margarita	*902.XX*	4	0	0	0	0	0	0	0	0	4
San Luis Rey	*903.XX*	17	0	0							17
Carlsbad	*904.XX*	4	7	10	1	2	4				28
San Dieguito	*905.XX*	2	10	2	0	0					14
Penasquitos	*906.XX*	3	1								4
Mission Bay	*906.XX*			0	1	0					1
San Diego	*907.XX*	2	0	1	1						4
San Diego Bay - Pueblo	*908.XX*	1	2	0							29
San Diego Bay - Sweetwater	*909.XX*	0	4	1							
San Diego Bay - Otay	*910.XX*	20	1	0							
Tijuana	*911.XX*	0	0	0	0	0	0	0	1		1
							Total Geo-Coded Sources				102
							Total Sources (incl. Non geo-coded)				131



35 Concrete Manufacturing

Narrative Description

This Source Profile Sheet covers concrete manufacturers. Building materials retailers are not included, but instead covered in a separate Source Profile Sheet.

SIC Codes	
32XX	Stone, Clay, Glass, and Concrete Products
NAICS Codes	
3273XX	Concrete manufacturing

Some concrete manufacturers were historically classified under the Standard Industrial Classification (SIC) system. This system has been slowly replaced by the North American Industry Classification System (NAICS), which accommodates a larger number of industrial sectors and sub-sectors, and identifies hundreds of new, emerging, and advanced technology industries. As most Copermittees have yet to convert from the SIC system to the NAICS, the applicable codes from both systems are presented here for easy reference.

Pollutant Generating Activities and Associated Pollutants

The following tables contain a list of activities commonly associated with concrete manufacturing and source loading potential. Possible pollutants associated with these activities are also presented. Table 35-1 contains a list of activities with a source loading potential in wet weather and Table 35-2 contains a list of activities with source loading potential in dry weather.

The activities below were evaluated for potential pollutant generation during wet weather and dry weather. Wet weather potentials consider runon and runoff during wet weather events. Dry weather potentials are based on the assumption that irrigation and cleaning activities act as transport mechanisms. Furthermore, it is assumed that no BMPs are in place.

35 Concrete Manufacturing

Table 35-1. Summary of typical activities and associated pollutants during wet weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacteria/ Pathogens*
Concrete									
Parking lot cleaning/sweeping	X	X	X	X				X	
Concrete and asphalt production	X	X	X						
Concrete cutting				X					
Storage of raw materials, products, and containers	X	X	X	X					
Loading and unloading	X			X					
Equipment operations, maintenance, and storage	X	X	X	X					
Cleaning or washing of tools, parts, and equipment	X	X	X	X	X			X	
Parking and storage area maintenance	X	X	X	X				X	
Storage of solid wastes	X	X	X	X				X	
Waste handling and disposal	X	X	X	X				X	

Table 35-2. Summary of typical activities and associated pollutants during dry weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacteria/ Pathogens*
Concrete									
Cleaning or washing of tools, parts, and equipment	X	X	X	X	X			X	

Discharge Potential

As part of the initial 2005 LTEA effort, a questionnaire was completed by various Copermittees to assess the likely potential of a specific source discharging pollutants. Using existing information (e.g. illicit discharge records) and field knowledge the Copermittees ranked the potential of discharging pollutants. These rankings were averaged (when a ranking was given) to obtain average discharge potential rankings for each information type. A similar questionnaire was not completed for this source profile sheet. As a result, best professional judgment was used to assign a discharge potential based on sources identified as concerns in the Copermittees' annual reports and permit. In

this case, a discharge potential of 4 was assigned because concrete manufacturing has been identified as a new potential source of pollutants.

Table 35-3. Ranking of discharge potential using existing information.

Concrete Manufacturing			
Information Types	*Information Available*	*Average Ranking*	*Comments*
Dry Weather Monitoring			
Illicit Discharge Records			
Pretreatment Compliance Records			
Underground Storage Tank Records			
Haz Waste Storage Records			
Inspection Records			
Other information? Please specify here			
Overall Ranking		4.0	

Note: Overall Ranking is the highest 'Average Ranking' received for the various information types. When less than 2 scores were given, due to lack of information, the Overall Ranking was adjusted to 3 - Unknown Potential.

Scoring Legend	
1	- low discharge potential
2	- medium-low discharge potential
3	- Unknown, information does not adequately characterize
4	- medium-high discharge potential
5	- high discharge potential

Legal/Regulatory Oversight

Table 35-4 provides a summary of the types of regulatory oversight that pertain to concrete manufacturers. In some cases, there may be some overlap in the types of regulatory oversight.

Table 35-4. Summary regulatory oversight of building materials retailers.

Concrete Manufacturing			
Oversight Type	Regulatory Oversight		Comments
Stormwater	NPDES Municipal Permit / Local Ordinances	X	
	NPDES General Industrial Permit	X	
	NPDES General Construction Permit		
Other Regulatory Oversight	Industrial Pretreatment Program (EPA)	X	
	Hazardous Materials / CUPA (County DEH)	X	
	CURFFL (County DEH)		
	Local Enforcement Agency – Landfills (County DEH)		
	Air Quality Permits (APCD)		
	Fire Agencies		
	Pesticide Regulatory Program (County AW&M)		
	Coast Guard		

Better coordination may be warranted between the regulatory programs to minimize overlap but still focus on water quality protection.

Source Prevalence and Distribution

The 2005 Baseline LTEA effort did not produce source distribution information for these types of facilities. Therefore, it is recommended that new source information be obtained from the County, as available, to develop source prevalence and distribution data.

36 Glass and Stone Manufacturing

Narrative Description

This Source Profile Sheet covers glass and stone manufacturers. Building materials retailers are not included, but instead covered in a separate Source Profile Sheet.

SIC Codes	
3211	Flat Glass
3281	Cut Stone and Stone Products

NAICS Codes	
327211	Flat Glass Manufacturing
327991	Stone Manufacturing

Some glass and stone manufacturers were historically classified under the Standard Industrial Classification (SIC) system. This system has been slowly replaced by the North American Industry Classification System (NAICS), which accommodates a larger number of industrial sectors and sub-sectors, and identifies hundreds of new, emerging, and advanced technology industries. As most Copermittees have yet to convert from the SIC system to the NAICS, the applicable codes from both systems are presented here for easy reference.

Pollutant Generating Activities and Associated Pollutants

The following tables contain a list of activities commonly associated with concrete manufacturing and source loading potential. Possible pollutants associated with these activities are also presented. Possible pollutants associated with these activities are also presented. Table 36-1 contains a list of activities with a source loading potential in wet weather and Table 36-2 contains a list of activities with source loading potential in dry weather.

The activities below were evaluated for potential pollutant generation during wet weather and dry weather. Wet weather potentials consider runon and runoff during wet weather events. Dry weather potentials are based on the assumption that irrigation and cleaning activities act as transport mechanisms. Furthermore, it is assumed that no BMPs are in place.

36 Glass and Stone Manufacturing

Table 36-1. Summary of typical activities and associated pollutants during wet weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacterial/ Pathogens*
Stone/Glass Manufacturing									
Storage of raw materials, products, and containers	X	X	X	X	X				
Stone cutting				X					
Loading and unloading	X			X	X				
Equipment operations, maintenance, and storage	X	X	X	X					
Cleaning or washing of tools, parts, and equipment	X	X	X	X	X			X	
Parking and storage area maintenance	X	X	X	X				X	
Storage of solid wastes	X	X	X	X				X	
Waste handling and disposal	X	X	X	X				X	
Air deposition from stacks				X					

Table 36-2. Summary of typical activities and associated pollutants during dry weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacterial/ Pathogens*
Stone/Glass Manufacturing									
Cleaning facilities	X	X		X	X			X	

Discharge Potential

As part of the initial 2005 LTEA effort a questionnaire was completed by various Copermittees to assess the likely potential of a specific source discharging pollutants. Using existing information (e.g. illicit discharge records) and field knowledge the Copermittees ranked the potential of discharging pollutants. These rankings were averaged (when a ranking was given) to obtain average discharge potential rankings for each information type. A similar questionnaire was not completed for this source profile sheet. As a result, best professional judgment was used to assign a discharge potential based on sources identified as concerns in the Copermittees' annual reports and permit. In this case, a discharge potential of 4 was assigned because stone and glass manufacturing has been identified as a new potential source of pollutants.

Table 36-3. Ranking of discharge potential using existing information.

Glass and Stone Manufacturing			
Information Types	*Information Available*	*Average Ranking*	*Comments*
Dry Weather Monitoring			
Illicit Discharge Records			
Pretreatment Compliance Records			
Underground Storage Tank Records			
Haz Waste Storage Records			
Inspection Records			
Other information? Please specify here			
Overall Ranking		4.0	

Note: Overall Ranking is the highest 'Average Ranking' received for the various information types. When less than 2 scores were given, due to lack of information, the Overall Ranking was adjusted to 3 - Unknown Potential.

Scoring Legend	
1	- low discharge potential
2	- medium-low discharge potential
3	- Unknown, information does not adequately characterize
4	- medium-high discharge potential
5	- high discharge potential

Legal/Regulatory Oversight

Table 36-4 provides a summary of the types of regulatory oversight that pertain to concrete manufacturers. In some cases, there may be some overlap in the types of regulatory oversight.

Table 36-4. Summary regulatory oversight of building materials retailers.

Glass and Stone Manufacturing			
Oversight Type	Regulatory Oversight		Comments
Stormwater	NPDES Municipal Permit / Local Ordinances	X	
	NPDES General Industrial Permit	X	
	NPDES General Construction Permit		
Other Regulatory Oversight	Industrial Pretreatment Program (EPA)	X	
	Hazardous Materials / CUPA (County DEH)	X	
	CURFFL (County DEH)		
	Local Enforcement Agency – Landfills (County DEH)		
	Air Quality Permits (APCD)	X	
	Fire Agencies		
	Pesticide Regulatory Program (County AW&M)		
	Coast Guard		

Better coordination may be warranted between the regulatory programs to minimize overlap but still focus on water quality protection.

36 Glass and Stone Manufacturing

Source Prevalence and Distribution

The 2005 Baseline LTEA effort did not produce source distribution information for these types of facilities. Therefore, it is recommended that new source information be obtained from the County, as available, to develop source prevalence and distribution data.

37 Food Manufacturing

Narrative Description

This Source Profile Sheet covers primarily food manufacturing businesses.

SIC Codes	
514X	Groceries and Related Products

NAICS Codes	
311XXX	Food manufacturing

Some businesses such as food manufacturing businesses were historically classified under the Standard Industrial Classification (SIC) system. This system has been slowly replaced by the North American Industry Classification System (NAICS), which accommodates a larger number of industrial sectors and sub-sectors, and identifies hundreds of new, emerging, and advanced technology industries. As most Copermittees have yet to convert from the SIC system to the NAICS, the applicable codes from both systems are presented here for easy reference.

Pollutant Generating Activities and Associated Pollutants

The following tables contain a list of activities commonly associated with food manufacturing which may have a source loading potential. Possible pollutants associated with these activities are also presented. Possible pollutants associated with these activities are also presented. Table 37-1contains a list of activities with a source loading potential in wet weather and Table 37-2contains a list of activities with source loading potential in dry weather.

The activities below were evaluated for potential pollutant generation during wet weather and dry weather. Wet weather potentials consider runon and runoff during wet weather events. Dry weather potentials are based on the assumption that irrigation and cleaning activities act as transport mechanisms. Furthermore, it is assumed that no BMPs are in place.

37 Food Manufacturing

Table 37-1. Summary of typical activities and associated pollutants during wet weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacteria/ Pathogens*
Food									
Loading and unloading		X	X					X	
Cleaning facilities		X	X	X	X			X	
Equipment maintenance and repair	X	X							
Storage of solid wastes and food wastes		X	X	X			X		
Disposal of solid and food wastes							X	X	X
Vector/Pest control						X			
Sanitary sewer overflows									X

Table 37-2. Summary of typical activities and associated pollutants during dry weather.

Activities with Source Loading Potential	Associated Pollutants								
	Heavy Metals	*Organics*	*Oil & Grease*	*Sediment*	*Dissolved Minerals*	*Pesticides*	*Nutrients*	*Trash*	*Bacteria/ Pathogens*
Food									
Cleaning facilities		X	X	X	X			X	
Sanitary sewer overflows									X

Discharge Potential

As part of the initial 2005 LTEA effort a questionnaire was completed by various Copermittees to assess the likely potential of a specific source discharging pollutants. Using existing information (e.g. illicit discharge records) and field knowledge the Copermittees ranked the potential of discharging pollutants. These rankings were averaged (when a ranking was given) to obtain average discharge potential rankings for each information type. A similar questionnaire was not completed for this source profile sheet. As a result, best professional judgment was used to assign a discharge potential based on sources identified as concerns in the Copermittees' annual reports and permit. In this case, a discharge potential of 4 was assigned food manufacturing has been identified as a new potential source of pollutants.

37 Food Manufacturing

Table 37-3. Ranking of discharge potential using existing information.

Food Manufacturing			
Information Types	*Information Available*	*Average Ranking*	*Comments*
Dry Weather Monitoring			
Illicit Discharge Records			
Pretreatment Compliance Records			
Underground Storage Tank Records			
Haz Waste Storage Records			
Inspection Records			
Other information? Please specify here			
Overall Ranking		4.0	

Note: Overall Ranking is the highest 'Average Ranking' received for the various information types. When less than 2 scores were given, due to lack of information, the Overall Ranking was adjusted to 3 - Unknown Potential.

Scoring Legend	
1	- low discharge potential
2	- medium-low discharge potential
3	- Unknown, information does not adequately characterize
4	- medium-high discharge potential
5	- high discharge potential

Legal/Regulatory Oversight

Table 37-4 provides a summary of the types of regulatory oversight that pertain to food manufacturing businesses. In some cases, there may be some overlap in the types of regulatory oversight.

Table 37-4. Summary of the stormwater-related and non-stormwater related regulatory oversight of food manufacturing businesses.

Food Manufacturing			
Oversight Type	Regulatory Oversight		Comments
Stormwater	NPDES Municipal Permit / Local Ordinances	X	
	NPDES General Industrial Permit		
	NPDES General Construction Permit		
Other Regulatory Oversight	Industrial Pretreatment Program (EPA)		
	Hazardous Materials / CUPA (County DEH)		
	CURFFL (County DEH)	X	
	Local Enforcement Agency – Landfills (County DEH)		
	Air Quality Permits (APCD)		
	Fire Agencies		
	Pesticide Regulatory Program (County AW&M)		
	Coast Guard		

Better coordination may be warranted between the regulatory programs to minimize overlap but still focus on water quality protection.

37 Food Manufacturing

Source Prevalence and Distribution

The 2005 Baseline LTEA effort did not produce source distribution information for these types of facilities. Therefore, it is recommended that new source information be obtained from the County, as available, to develop source prevalence and distribution data.

This appendix provides examples of the use of the Threat-to-Water Quality (TTWQ) methodology discussed in the 2011 Long-Term Effectiveness Assessment (LTEA) Section 4. All of the examples presented in this appendix, although may include some real data and information, are fictional in nature and are intended to be for example purposes only.

The tables presented in this appendix are provided in electronic form on the accompanying 2011 LTEA compact disc. The compact disc also contains template (blank) forms for use in conducting the TTWQ methods.

The imagery for the examples are taken from the watershed interactive mapping in the 2011 LTEA Water Quality Report included as Attachment 1 to the 2011 LTEA. The aerial imagery is from Google Earth and includes overlays from City of San Diego storm drain mapping and hydrologic areas – the data and information presented in these images are not necessarily accurate or correct, but are presented as examples only.

The plots and tables in the examples below, illustrate a process in which the TTWQ in a particular watershed is analyzed by using available data and information to prioritize sources. The primary approaches to the TTWQ process are presented for two monitoring locations in the Peñasquitos watershed. Four examples are provided:

1) Single Pollutant Approach on Large Area Scale (MLS/TWAS)
2) Multi-Pollutant Approach on Large Area Scale (MLS/TWAS)
3) Single Pollutant Approach on Small Area Scale (MLS/TWAS)
4) Investigative Method using TTWQ Approach (MS4 Outfall)

As discussed in Section 4 of the LTEA, the methodologies for the single and multi-pollutant approaches are listed below:

Steps for Single Pollutant Approach to TTWQ

1) Determine Scale to Develop Threat to Water Quality
   a. Regional
   b. Hydrologic Area
   c. Hydrologic Subarea
   d. Tributary Area
   e. Jurisdictional
2) Determine Wet or Dry Weather Conditions
3) Determine Water Quality Issues (Pollutant(s)) to Evaluate
   a. LTEA Water Quality Priorities (RW and MS4)
   b. TMDLs
   c. 303(d)
   d. Special Studies
4) Associate Sources[1] to Pollutant
   a. Source SLPs
   b. PGA Associations to Pollutants
   c. Special Studies
5) Incorporate Source Quantities
6) Incorporate Other Criteria as Desired

[1] May include land use as a source

7) Develop Priority Ranking of Sources

A multi-pollutant approach to TTWQ follows:

1) Perform Steps 1 and 2 above
2) Repeat steps 3-6 above for each pollutant, each time identifying the priority ranking of sources for each pollutant.

The first example is for an area that is tributary to a MLS in the Peñasquitos WMA and demonstrates a multi-pollutant approach to TTWQ. The mass loading station, LPC-MLS, is the monitoring location that captures a large tributary area spanning two Hydrologic Areas (HAs) in the watershed.

Multi-Pollutant Large Area Scale TTWQ Approach

1) Determine Scale to Develop Threat to Water Quality

When determining the TTWQ, the first step is to determine the scale and location where a particular monitoring location can characterize the flow from a tributary area. For the example, Figures B-1 and B-2 show the Peñasquitos watershed and the associated monitoring locations, including MLS, TWAS, and MS4 outfalls.

For this example, the ***mass loading station LPC-MLS*** has been chosen because of its large tributary area. Figure B-1 shows the Los Peñasquitos Creek WMA dry weather urban runoff and receiving water base map. To see the tributary area to the LPC-MLS station to be used in the example, Figure B-2 shows the drainage to the MLS throughout the watershed, which is turned on as one of the map layers. The station is encircled in red on the maps in order to callout its location.

2) Determine Wet or Dry Weather Conditions

The flow conditions should be selected at this point. For the example, a ***dry weather*** condition is selected.

3) Determine Water Quality Issues (Pollutant(s)) to Evaluate

Using Table 2-2 of the LTEA, the water quality issues are identified by reviewing the watershed priority constituents presented. This process identifies the pollutants that are deemed a priority based on the water quality monitoring data. This step is conducted by reviewing the priorities table (LTEA Table 2-2) and locating the appropriate row containing information pertaining to the monitoring location. Table B-1 below shows the watershed priority constituents identified for mass loading station LPC-MLS in the Peñasquitos WMA. The high priority constituents have been highlighted to show a corresponding 'high' score represented in the data. The outcome of this step is ***Nutrients and Bacteria/Pathogens*** as Dissolved Minerals (TDS) is not an analyte that is selected for Copermittee action in this example due to its nexus to groundwater and/or imported water issues.

4) Associate Sources to Pollutant

Using the high priority constituents determined in the step above, the next step is to review the final source loading potentials (SLPs) of sources within the LPC-MLS tributary area that are likely sources contributing to the selected pollutant(s). Using the information presented in Section 3 (LTEA Table 3-10), the activities with source loading potential with regards to mass loading station LPC-MLS have been highlighted based on the three high priority constituents (nutrients and bacteria/pathogens) –see Table B-2 below for sources.

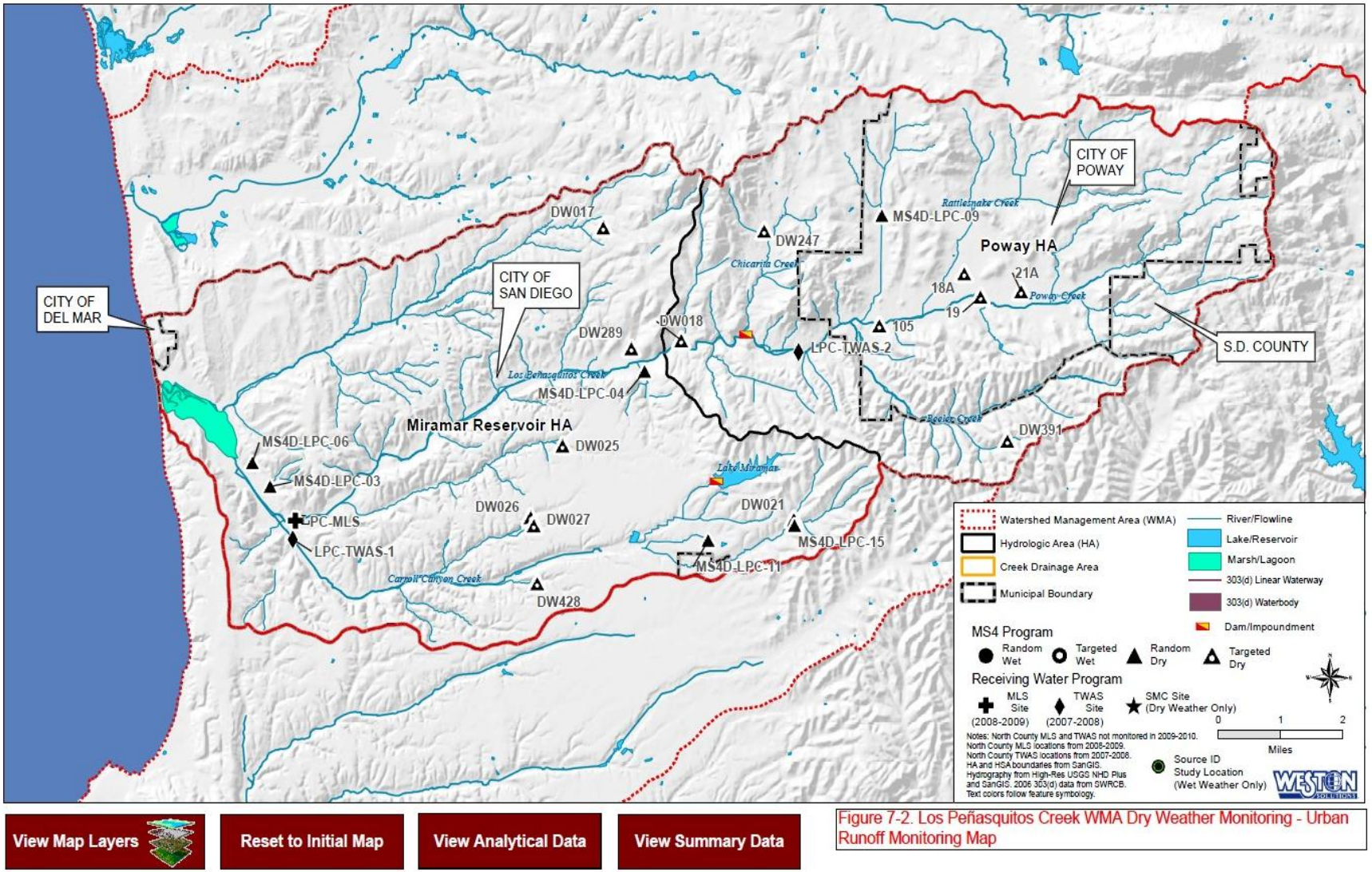


Figure 7-2. Los Peñasquitos Creek WMA Dry Weather Monitoring - Urban Runoff Monitoring Map

Figure B-1: Los Peñasquitos Creek Monitoring Map

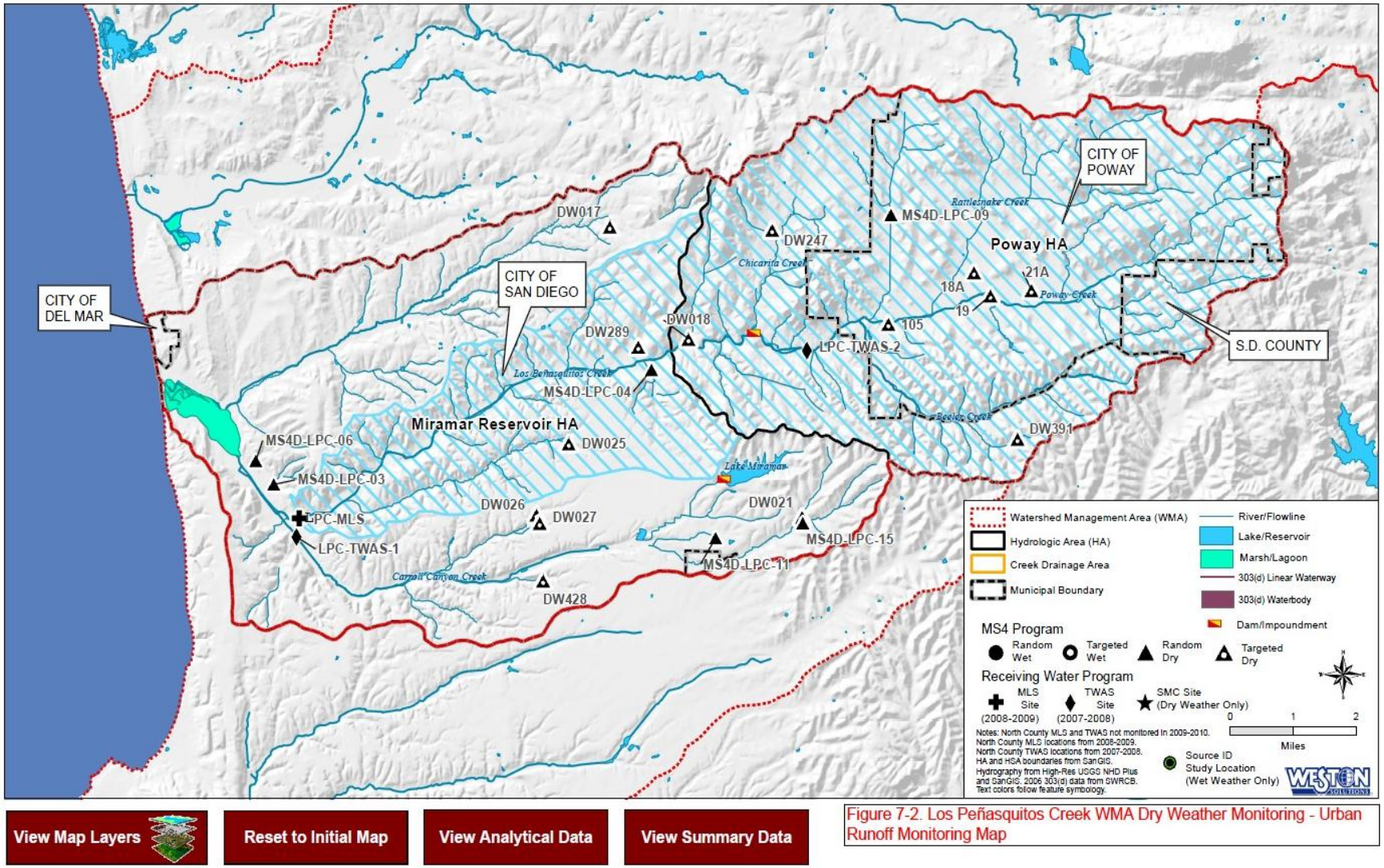


Figure 7-2. Los Peñasquitos Creek WMA Dry Weather Monitoring - Urban Runoff Monitoring Map

Figure: B-2 Los Peñasquitos Creek Monitoring Map showing tributary drainage to Mass Loading Station LPC-MLS

Table B-1: Watershed Priority Constituents Determined by Water Quality Assessment Monitoring Program at LPC-MLS

		Wet							Dry						
WMA	Station	Metals	Oil and Grease	Sediment	Pesticides	Nutrients	Bacteria/ Pathogens	Dissolved Minerals	Metals	Oil and Grease	Sediment	Pesticides	Nutrients	Bacteria/ Pathogens	Dissolved Minerals
Santa Margarita River	SMR-MLS	-	-	M	-	-	M	-	-	-	-	-	H	-	H
	SMR-MLS-2	-	-	H	H	-	H	-	-	-	-	-	H	-	H
San Luis Rey	SLR-MLS	-	-	M	M	-	H	H	-	-	M	-	H	M	H
	SLR-TWAS-1	-	-	H	H	-	H	H	-	-	-	-	M	H	H
Carlsbad	LA-TWAS-1	-	-	H	M	-	H	-	-	-	-	-	H	M	-
	BVC-TWAS-1	-	-	H	H	-	H	-	-	-	-	-	H	M	H
	AHC-MLS	-	-	H	H	-	H	H	-	-	-	-	H	H	H
	AHC-TWAS-1	-	-	H	H	-	H	M	-	-	-	-	H	M	H
	ESC-MLS	-	-	H	H	-	H	H	-	-	-	-	H	H	H
	ESC-TWAS-1	-	-	H	H	-	H	M	-	-	-	-	H	M	H
San Dieguito Creek	SDC-MLS	-	-	M	M	-	H	H	-	-	H	-	H	M	H
	SDC-TWAS-1	-	-	H	H	-	M	M	-	-	-	-	H	M	H
	SDC-TWAS-2	-	-	H	-	H	H	M	-	-	H	-	H	H	H
Los Peñasquitos Creek	LPC-MLS	-	-	M	M	-	H	H	-	-	-	-	H	H	H
	LPC-TWAS-1	-	-	H	M	-	H	M	-	-	-	-	-	H	H
	LPC-TWAS-2	-	-	H	H	-	H	-	-	-	-	-	H	H	H
Mission Bay / La Jolla	MB-TWAS-1	-	-	H	H	-	H	H	-	-	-	M	M	-	H
	MB-TWAS-2	-	-	H	H	-	H	-	-	-	-	M	H	H	-
	TC-MLS	-	-	H	H	-	H	-	-	-	-	-	H	-	-
San Diego River	SDR-MLS	-	-	H	M	-	H	-	-	-	-	-	H	H	H
	SDR-TWAS-1	-	-	H	H	-	H	M	-	-	-	-	H	H	H
	SDR-TWAS-2	-	-	H	H	-	H	-	-	-	-	-	H	M	H
	SDR-TWAS-3	-	-	H	H	-	H	-	-	-	-	-	M	M	H
San Diego Bay - Pueblo	CC-SD8-1	H	-	H	H	-	H	-	H	M	M	M	H	M	-
San Diego Bay - Sweetwater	SR-MLS	-	-	M	M	-	H	H	-	-	-	-	H	M	H
	SR-TWAS-1	-	-	M	M	-	H	M	-	-	-	-	H	M	H
San Diego Bay - Otay	OR-TWAS-1	M	-	M	H	-	-	M	-	-	-	-	H	-	H
Tijuana River	TJR-MLS	-	-	H	H	H	H	-	-	-	M	-	H	H	-
	TJR-TWAS-1	-	-	-	-	H	M	H	-	-	-	-	-	-	-
	TJR-TWAS-2	-	-	H	-	H	H	-	-	-	-	-	-	-	-

Note: H=High Priority, M=Medium Priority pollutant based on the monitoring station data.
Green cells represent the intersection of the site location and the high priority issues for dry conditions.

Table B-2. Final Source Loading Potentials at LPC-MLS

Source Profile #	Activities with Source Loading Potential	Metals	Oil & Grease	Sediment	Pesticides	Nutrients	Bacteria/ Pathogens	Dissolved Minerals	Organics
1	Residential Areas and Activities	L	L	L	L	L	L	L	L
2	Construction Sites > 1 acre	UL	UL	L	UL	UL	UL	L	UL
3	Construction Sites < 1 acre	UL	UL	L	UL	UL	UL	UL	UL
4	Construction Sites: ESA or hillside or sediment TMDL	UL	UL	L	UL	UL	UL	UL	UL
5	Development subject to SUSMPs (> 5,000 sq. ft. impervious area)	UK	UK	UK	UK	UK	UK	UL	UK
6	Roads, streets, highways, and parking facilities	L	L	L	UL	L	L	L	L
7	MS4s - Catch Basins, Drain Inlets, Conveyance, Pump Stations	N	N	L	N	N	UK	UL	N
8	Corporate yards (incl. maintenance/storage yards)	L	L	L	UK	UK	UL	UL	L
9	Parks and Recreational Facilities - parks, golf courses, cemeteries, entertainment venues, etc.	UK	UK	UK	UK	L	UK	UL	UK
10	Auto Mechanical Repair, Maintenance, Fueling, or Cleaning	L	L	UL	UL	UK	UL	L	L
11	Equipment mechanical repair, maintenance, fueling, or cleaning	L	L	UL	UL	UK	UL	UL	L
12	Automobile and Other Vehicle Body Repair and Painting	L	L	UL	UL	UL	UL	L	L
13	Mobile automobile or vehicle washing	L	L	L	UL	UL	UL	UL	L
14	Mobile Power washing*	UK	UK	UK	UK	UK	UK	UK	UK
15	Auto parking lots and storage facilities	L	L	L	UK	UK	UK	UL	L
16	Retail or wholesale fueling	UK	L	UK	N	N	N	N	L
17	Pest Control Services	N	UK	N	L	N	UK	N	UK
18	Eating or drinking establishments	N	L	UL	UK	UK	L	UL	L
19	Mobile carpet, drape, or furniture cleaning	N	UK	UL	N	UK	UL	N	UL
20	General contractors for home/commercial improvements	UL	UL	L	UL	UL	UL	UL	UL
21	Botanical or zoological gardens and nurseries/greenhouses	L	UL	L	L	L	L	UL	UL
22	Mobile Landscaping	N	UL	L	L	L	L	UL	N
23	Pool and Fountain Cleaning	N	N	N	N	UK	N	N	UK
24	Marinas	L	L	N	UK	UK	UK	N	UK
25	Animal Kennels	N	UL	L	UK	L	L	N	L
26	Building Materials Retail and Storage	L	L	L	UL	UL	UL	UL	L
27	Chemical and allied products	UK	UK	UK	UK	UK	UL	N	L
28	Fabricated metal	L	L	UK	UK	UK	UL	UL	L
29	Primary metal	L	UK	UK	UK	UK	UL	N	UK
30	Recycling, Junk Yards, Scrap Metal	L	L	L	UL	UL	UL	L	L
31	Airfields	UK	UK	UK	UK	UK	N	UL	UK
32	Motor Freight	L	L	UK	UK	UK	UK	UL	L
33	POTWs (water and wastewater)	UK	UK	UK	N	UK	L	UL	UK
34	Concrete Manufacturing	L	L	L	UL	UL	UL	UL	L
35	Stone/Glass Manufacturing	L	L	L	UL	UL	UL	UL	L
36	Food Manufacturing	UL	UL	UL	UL	UL	UL	UL	UL

N = None, UK = Unknown, UL = Unlikely, L = Likely

In addition to using the SLPs, Copermittees can also use PGA associations to pollutants and other special studies to associate sources to pollutant.

5) Incorporate Source Quantities

After determining the high priority pollutant constituents and the source loading potentials, identify the number of sources in the particular tributary/drainage area for the monitoring station. For this exercise, it is recommended that the Copermittees use the most up-to-date inventory information and GIS software, if necessary, to identify an accurate number of sources in the particular drainage area. Additionally, if it is available, the area of residential land use and any other pertinent land use should be calculated. The sources within the example drainage are shown in Figure B-3.

Once these source numbers have been compiled, consolidate the results of the number of sources, residential acreage, and source loading potential into a table for the pollutants of concern. See Tables B-3 through B-5 for the high priority constituents at LPC-MLS. If only using a single-pollutant approach, follow up the single table with the prioritization.

6) Incorporate Other Criteria as Desired

At this point, the Copermittees should look to consider other criteria that may be important in deciding upon which sources are of greatest importance. Taken from the LTEA (Section 4), the following are additional considerations.

In selecting the source(s) to evaluate for the TTWQ, some additional considerations the Copermittee(s) should evaluate are as follows:

1) Land use (quantity and activity) should be included and the following considered:
    a. Wet weather TTWQ processes should include an evaluation of the land use areas in the area of focus
    b. Need a surrogate value for residential and open space land areas to compare to inventoried sources
2) Special studies information regarding sources in the focus area
3) Potential sources that are not easily quantifiable including: bacterial regrowth in MS4 systems; erosion in open space areas; accelerated erosion in creeks (hydromodification); and aerial deposition

For the purposes of this example, the residential land-use is identified as being of great importance. In order to compare the residential land acres to the number of inventoried sources, a conservative assumption is made for this tributary watershed area – average lot size of 0.5 acres, therefore ***each acres of residential land use equates to two (2) residential units***.

7) Develop Priority Ranking of Sources

For the multi-pollutant approach, the process combines the single-pollutant tables (Tables B-3 through B-5) into a single master table where sources can be ranked on the basis of source loading potential and number of sources in the associated tributary watershed area. See Table B-6 for the results of the example process. Using this process, and the consideration that residential areas are of great importance, ***the highest TTWQ source is the residential areas in the tributary watershed area.***

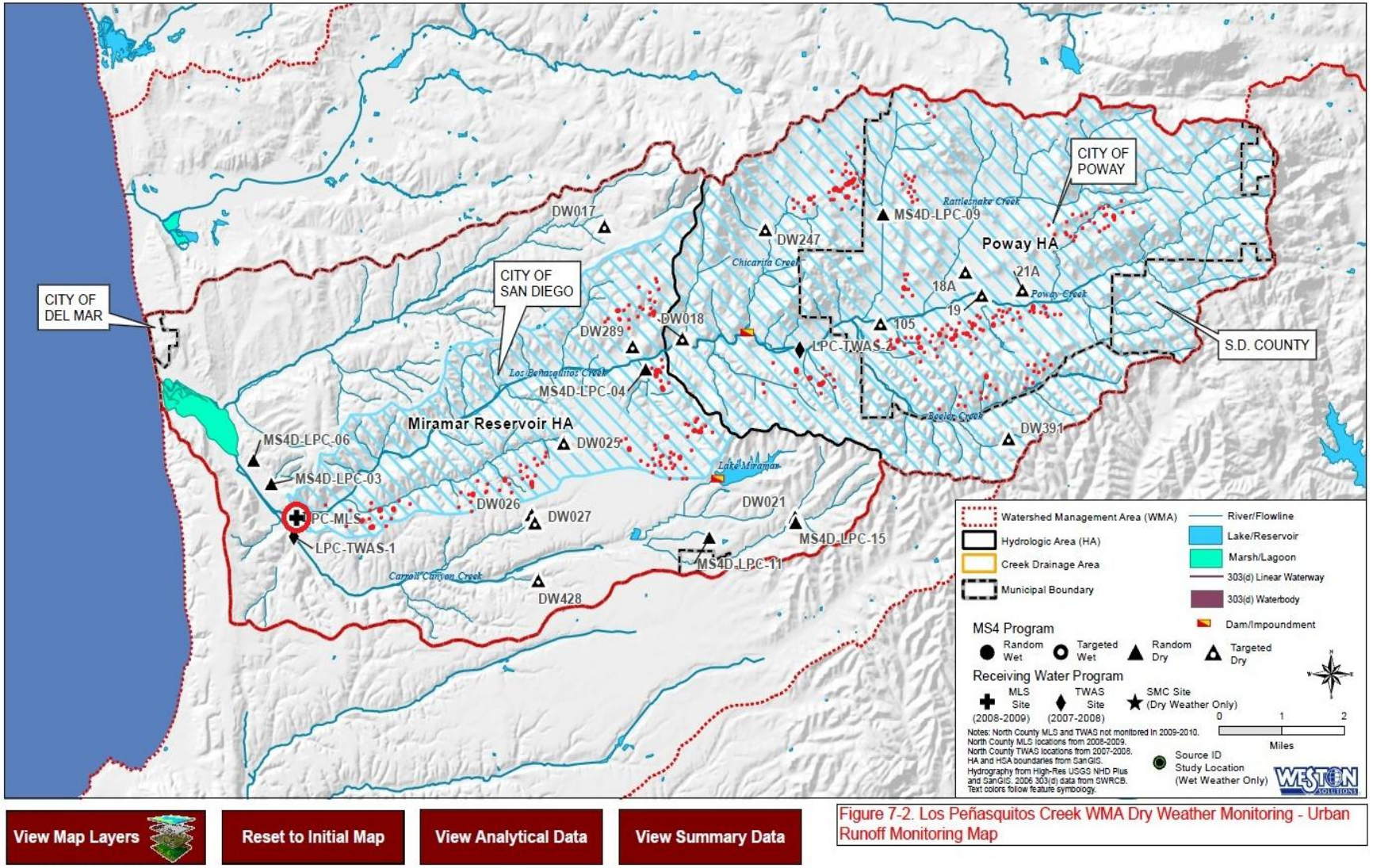


Figure 7-2. Los Peñasquitos Creek WMA Dry Weather Monitoring - Urban Runoff Monitoring Map

Figure B-3. Los Peñasquitos Creek Monitoring Map showing tributary drainage and potential sources above Mass Loading Station LPC-MLS.

Table B-3. Source Quantities, Water Quality Priority, and SLPs for Bacteria/Pathogens at LPC-MLS.

LPC-MLS				
Bacteria/Pathogens		# Sources	Water Quality Priority	Source Loading Potential
Source ID	Source			
1	Residential Areas and Activities – 4,468 acres	8,936		L
2	Sites > 1 acre	-		L
3	Sites < 1 acre	-		UL
4	ESA or Hillside or Sediment TMDL	-		UL
5	Development Subject to SUSMPs (> 5,000 sq. ft. Impervious Area)	-		UL
6	Roads, Streets, Highways, and Parking Facilities	-		UL
7	MS4s - Catch Basins, Drain Inlets, Conveyance, Pump Stations	-		UL
8	Corporate Yards (incl. Maintenance/Storage Yards)	2		UL
9	Parks and Recreational Facilities - Parks, Golf Courses, Cemeteries, Entertainment Venues, etc.	4		UL
10	Auto Mechanical Repair, Maintenance, Fueling, or Cleaning	59		UL
11	Equipment Mechanical Repair, Maintenance, Fueling, or Cleaning	-		N
12	Automobile and Other Vehicle Body Repair and Painting	3		UL
13	Mobile Automobile or Vehicle Washing	-		UL
14	Mobile Power Washing	-		N
15	Auto Parking Lots and Storage Facilities	-		UL
16	Retail or Wholesale Fueling	35		N
17	Pest Control Services	-		UL
18	Eating or Drinking Establishments	421		L
19	Mobile Carpet, Drape, or Furniture Cleaning	-	H	UL
20	General Contractors for Home/Commercial Improvements	-		UL
21	Botanical or Zoological Gardens and Nurseries/Greenhouses	3		L
22	Mobile Landscaping	-		UL
23	Pool and Fountain Cleaning	-		UL
24	Marinas	-		UL
25	Animal Kennels, Horse Stables	-		UL
26	Offices with Onsite and Outdoor Storage Facilities	-		N
27	Building Materials Retail and Storage	-		N
28	Chemical and Allied Products	-		UL
29	Fabricated Metal	-		UL
30	Primary Metal	-		UL
31	Recycling, Junk Yards, Scrap Metal	-		UL
32	Airfields	-		N
33	Motor Freight	-		UL
34	POTWs (Water and Wastewater)	1		UL
35	Concrete Manufacturing	-		N
36	Stone/Glass Manufacturing	-		N
37	Food Manufacturing	-		UL

N = None, UK = Unknown, UL = Unlikely, L = Likely

Table B-4. Source Quantities, Water Quality Priority, and SLPs for Nutrients at LPC-MLS.

LPC-MLS				
Nutrients		# Sources	Water Quality Priority	Source Loading Potential
Source ID	Source			
1	Residential Areas and Activities – 4,468 acres	8,936		L
2	Sites > 1 acre	-		L
3	Sites < 1 acre	-		UL
4	ESA or Hillside or Sediment TMDL	-		UL
5	Development Subject to SUSMPs (> 5,000 sq. ft. Impervious Area)	-		UL
6	Roads, Streets, Highways, and Parking Facilities	-		L
7	MS4s - Catch Basins, Drain Inlets, Conveyance, Pump Stations	-		UL
8	Corporate Yards (incl. Maintenance/Storage Yards)	2		UL
9	Parks and Recreational Facilities - Parks, Golf Courses, Cemeteries, Entertainment Venues, etc.	4		UL
10	Auto Mechanical Repair, Maintenance, Fueling, or Cleaning	59		L
11	Equipment Mechanical Repair, Maintenance, Fueling, or Cleaning	-		N
12	Automobile and Other Vehicle Body Repair and Painting	3		UL
13	Mobile Automobile or Vehicle Washing	-		UL
14	Mobile Power Washing	-		N
15	Auto Parking Lots and Storage Facilities	-		UL
16	Retail or Wholesale Fueling	35		N
17	Pest Control Services	-		N
18	Eating or Drinking Establishments	421		L
19	Mobile Carpet, Drape, or Furniture Cleaning	-	H	N
20	General Contractors for Home/Commercial Improvements	-		UL
21	Botanical or Zoological Gardens and Nurseries/Greenhouses	3		L
22	Mobile Landscaping	-		L
23	Pool and Fountain Cleaning	-		N
24	Marinas	-		UL
25	Animal Kennels, Horse Stables	-		UL
26	Offices with Onsite and Outdoor Storage Facilities	-		UL
27	Building Materials Retail and Storage	-		N
28	Chemical and Allied Products	-		UL
29	Fabricated Metal	-		UL
30	Primary Metal	-		UL
31	Recycling, Junk Yards, Scrap Metal	-		UL
32	Airfields	-		N
33	Motor Freight	-		UL
34	POTWs (Water and Wastewater)	1		UL
35	Concrete Manufacturing	-		N
36	Stone/Glass Manufacturing	-		N
37	Food Manufacturing	-		UL

N = None, UK = Unknown, UL = Unlikely, L = Likely

Table B-5. TTWQ Ranking of Multi-Pollutant Approach at LPC-MLS.

LPC-MLS				
Source ID	Source	# Sources	Source Loading	
			Bacteria	Nutrients
1	Residential Areas and Activities – 4,468 acres	8,936	L	L
18	Eating or Drinking Establishments	421	L	L
10	Auto Mechanical Repair, Maintenance, Fueling, or Cleaning	59	UL	L
16	Retail or Wholesale Fueling	35	N	N
21	Botanical or Zoological Gardens and Nurseries/Greenhouses	3	L	L
12	Automobile and Other Vehicle Body Repair and Painting	3	UL	UL
9	Parks and Recreational Facilities - Parks, Golf Courses, Cemeteries, Entertainment Venues, etc.	4	UL	UL
8	Corporate Yards (incl. Maintenance/Storage Yards)	2	UL	UL
34	POTWs (Water and Wastewater)	1	UL	UL
2	Sites > 1 acre	-	L	L
3	Sites < 1 acre	-	UL	UL
4	ESA or Hillside or Sediment TMDL	-	UL	UL
5	Development Subject to SUSMPs (> 5,000 sq. ft. Impervious Area)	-	UL	UL
6	Roads, Streets, Highways, and Parking Facilities	-	UL	L
7	MS4s - Catch Basins, Drain Inlets, Conveyance, Pump Stations	-	UL	UL
11	Equipment Mechanical Repair, Maintenance, Fueling, or Cleaning	-	N	N
13	Mobile Automobile or Vehicle Washing	-	UL	UL
14	Mobile Power Washing	-	N	N
15	Auto Parking Lots and Storage Facilities	-	UL	UL
17	Pest Control Services	-	UL	N
19	Mobile Carpet, Drape, or Furniture Cleaning	-	UL	N
20	General Contractors for Home/Commercial Improvements	-	UL	UL
22	Mobile Landscaping	-	UL	L
23	Pool and Fountain Cleaning	-	UL	N
24	Marinas	-	UL	UL
25	Animal Kennels, Horse Stables	-	UL	UL
26	Offices with Onsite and Outdoor Storage Facilities	-	N	UL
27	Building Materials Retail and Storage	-	N	N
28	Chemical and Allied Products	-	UL	UL
29	Fabricated Metal	-	UL	UL
30	Primary Metal	-	UL	UL
31	Recycling, Junk Yards, Scrap Metal	-	UL	UL
32	Airfields	-	N	N
33	Motor Freight	-	UL	UL
35	Concrete Manufacturing	-	N	N
36	Stone/Glass Manufacturing	-	N	N
37	Food Manufacturing	-	UL	UL

Rankings based on number of sources/residential acreage and Source Loading Potentials
N = None, UK = Unknown, UL = Unlikely, L = Likely

Single-Pollutant Small Area Scale TTWQ Approach

The following example uses a MS4 Outfall Station and its sampling results to illustrate the single-pollutant TTWQ approach on a smaller area scale. This example uses monitoring data from the 2011 LTEA Water Quality Report to identify pollutants exceedances above the water quality benchmarks. These constituents will then be used to determine the pollutant priority categories and ultimately the high TTWQ sources.

1) Determine Scale to Develop Threat to Water Quality

As with the multi-pollutant approach, the first step is to determine the scale and location where a particular monitoring location can characterize the flow from a tributary area. Figure B-4 shows the ***drainage area to the example MS4 outfall in the Peñasquitos watershed***.

2) Determine Wet or Dry Weather Conditions

The flow conditions should be selected at this point. For the example, a ***wet weather*** condition is selected.

3) Determine the Water Quality Issue (Pollutant) to Evaluate

Determine water quality issues by reviewing the MS4 outfall monitoring data for the appropriate watershed. Then identify the pollutants that are high priority as a result of the water quality monitoring data. Open the monitoring data table (included on LTEA compact disc- also derived from 2011 LTEA Water Quality Report) and locate the appropriate row containing info pertaining to the monitoring location. Table B-7 shows the watershed priority constituents determined by the assessment program for MS4 outfall LPC-02 in the Peñasquitos WMA. The monitoring data for the example MS4 outfall and the high priority constituents have been boxed in red to show a corresponding 'high' score represented in the data.

4) Associate Sources to Pollutant

From Table B-7, Total Nitrogen, Total Phosphorous, TDS, and Enterococcus are considered high priority analytes at MS4 monitoring station LPC-02 as monitored during both the wet and dry seasons. These analytes are then grouped into one of the nine priority pollutant categories as seen in Table B-8. The corresponding high priority pollutants are shown in Table B-8.

Using the high priority constituents determined in the step above, the next step is to review the final source loading potentials (SLPs) of sources within the LPC-MLS tributary area that are likely sources contributing to the selected pollutant(s). Using the information presented in Section 3 (LTEA Table 3-10), the activities with source loading potential with regards to mass loading station LPC-MLS have been highlighted based on the three high priority constituents (nutrients and bacteria/pathogens) –see Table B-9 below for sources.

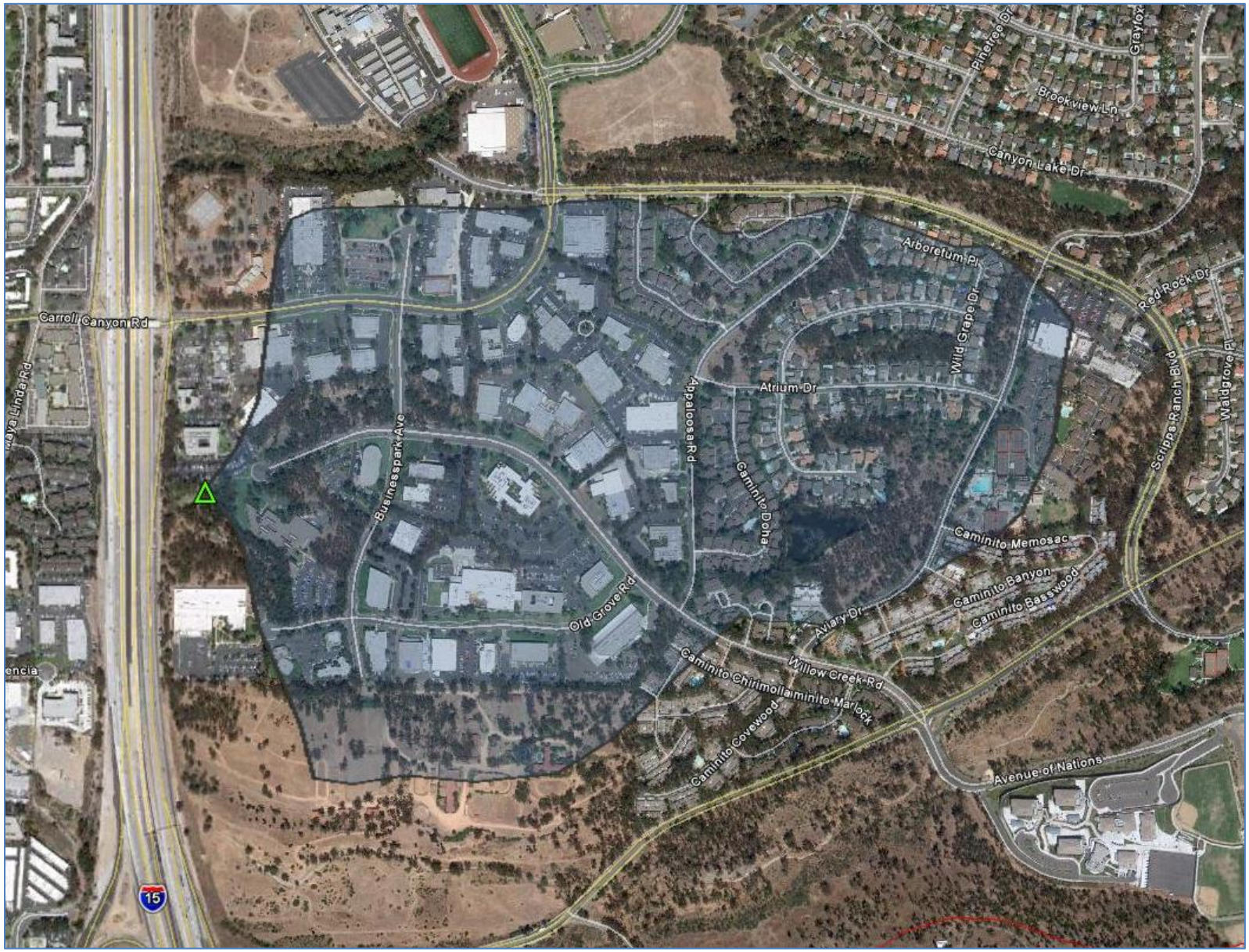


Figure B-4. Map of MS4-LPC-02 Monitoring Station and Drainage Area

Table B-7. Watershed Priority Constituents determined by MS4 monitoring data at LPC-02

Station	Dry and Wet	HSA	Analyte																		Analyte									
			pH		Nitrate as N		Nitrate/Nitrite as N		Nitrite as N		Total Nitrogen (calculated)		Phosphorus, Total		Total Suspended Solids		Total Dissolved Solids		Fecal Coliform		Enterococcus		Ammonia-N		Turbidity		Copper (Cu), Dissolved		Diazinon		MBAS	
			n	% > Criteria	n	% > Criteria	n	% > Criteria	n	% > Criteria	n	% > Criteria	n	% > Criteria	n	% > Criteria	n	% > Criteria	n	% > Criteria	n	% > Criteria	n	% > Criteria	n	% > Criteria	n	% > Criteria	n	% > Criteria	n	% > Criteria
19	Dry	906.20	0	NA	0	NA	2	0%	0	NA	2	50%	2	50%	2	0%	2	100%	2	0%	2	0%	0	NA	0	NA	0	NA	0	NA	0	NA
105	Dry	906.20	0	NA	0	NA	2	0%	0	NA	2	100%	2	100%	2	0%	2	100%	2	100%	2	100%	0	NA	0	NA	0	NA	0	NA	0	NA
80024778	Wet	906.1	2	50%	1	0%	2	0%	1	0%			2	0%	2	0%	2	0%	2	50%												
18A	Dry	906.20	0	NA	0	NA	2	100%	0	NA	2	100%	2	50%	2	0%	2	100%	2	100%	2	100%	0	NA	0	NA	0	NA	0	NA	0	NA
21A	Dry	906.20	0	NA	0	NA	2	0%	0	NA	2	100%	2	100%	2	0%	2	100%	2	100%	2	100%	0	NA	0	NA	0	NA	0	NA	0	NA
DW017	Dry	906.10	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	2	0%	2	100%	2	0%	2	50%	0	NA	0	NA	0	NA	0	NA	0	NA
DW018	Dry	906.20	1	0%	1	0%	0	NA	0	NA	2	50%	2	50%	2	0%	3	100%	3	33%	3	100%	1	0%	1	0%	0	NA	0	NA	1	0%
DW021	Dry	906.10	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	2	0%	2	100%	2	50%	2	100%	0	NA	0	NA	0	NA	2	0%	0	NA
DW025	Dry	906.10	0	NA	0	NA	0	NA	0	NA	2	100%	2	100%	2	0%	2	100%	2	50%	2	100%	0	NA	0	NA	2	0%	0	NA	0	NA
DW026	Dry	906.10	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	2	0%	2	100%	2	0%	2	100%	0	NA	0	NA	2	50%	2	0%	2	0%
DW027	Dry	906.10	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	2	0%	2	100%	2	50%	2	100%	0	NA	0	NA	0	NA	0	NA	0	NA
DW247	Dry	906.20	0	NA	0	NA	0	NA	0	NA	2	100%	2	100%	2	0%	2	100%	2	50%	2	100%	0	NA	0	NA	0	NA	0	NA	0	NA
DW289	Dry	906.10	0	NA	0	NA	0	NA	0	NA	2	100%	2	0%	2	0%	2	100%	2	50%	2	100%	0	NA	0	NA	0	NA	0	NA	0	NA
DW391	Dry	906.20	0	NA	0	NA	0	NA	0	NA	2	100%	2	100%	2	0%	2	100%	2	100%	2	100%	0	NA	0	NA	0	NA	0	NA	0	NA
DW428	Dry	906.10	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	2	50%	2	100%	2	50%	2	100%	0	NA	0	NA	0	NA	0	NA	0	NA
LPC-01-2008	Wet	906.2	1	0%	0	NA	1	0%	0	NA			1	0%	1	0%	1	0%	1	100%												
LPC-02-2009	Wet	906.1	1	0%	1	0%	1	0%	1	0%			1	0%	1	0%	1	0%	1	100%												
LPC-03-2008	Dry	906.10	1	0%	1	0%	1	0%	1	0%	1	100%	1	0%	1	0%	1	100%	1	0%	1	100%	0	NA	0	NA	0	NA	0	NA	0	NA
LPC-03-2008	Wet	906.1	1	0%	1	0%	1	0%	1	0%			1	0%	1	0%	1	100%	1	0%												
LPC-03-2009	Dry	906.10	1	0%	1	0%	1	0%	1	0%	1	100%	1	100%	1	0%	1	100%	1	0%	1	100%	0	NA	0	NA	0	NA	0	NA	0	NA
LPC-04-2008	Dry	906.10	1	0%	1	0%	1	0%	1	0%	1	100%	1	100%	1	100%	1	100%	1	0%	1	100%	0	NA	0	NA	0	NA	0	NA	0	NA
LPC-04-2009	Dry	906.10	1	0%	1	0%	1	0%	1	0%	1	0%	1	100%	1	0%	1	100%	1	0%	1	100%	0	NA	0	NA	0	NA	0	NA	0	NA
LPC-06-2008	Dry	906.10	1	0%	1	0%	1	0%	1	0%	1	0%	1	100%	1	0%	1	100%	1	0%	1	100%	0	NA	0	NA	0	NA	0	NA	0	NA
LPC-06-2009	Dry	906.10	1	0%	1	0%	1	0%	1	0%	1	100%	1	100%	1	0%	1	100%	1	0%	1	100%	0	NA	0	NA	0	NA	0	NA	0	NA
LPC-06-2009	Wet	906.1	1	0%	1	0%	1	0%	1	0%			1	0%	1	0%	1	0%	1	0%												
LPC-09-2008	Dry	906.10	1	0%	1	0%	1	0%	1	0%	1	100%	1	100%	1	0%	1	100%	1	0%	1	100%	0	NA	0	NA	0	NA	0	NA	0	NA
LPC-09-2009	Dry	906.20	1	0%	1	0%	1	0%	1	0%	1	0%	1	0%	1	0%	1	100%	1	100%	1	100%	0	NA	0	NA	0	NA	0	NA	0	NA
LPC-09-2009	Wet	906.2	1	100%	1	0%	1	0%	1	0%			1	0%	1	100%	1	0%	1	100%												
LPC-10-2008	Dry	906.20	1	0%	1	0%	1	0%	1	0%	1	100%	1	100%	1	0%	1	100%	1	100%	1	100%	0	NA	0	NA	0	NA	0	NA	0	NA
LPC-10-2008	Wet	906.2	1	0%	1	0%	1	0%	1	0%			1	0%	1	0%	1	0%	1	100%												
LPC-11-2009	Dry	906.10	1	0%	1	0%	1	0%	1	0%	1	100%	1	100%	1	0%	1	100%	1	0%	1	100%	0	NA	0	NA	0	NA	0	NA	0	NA
LPC-12-2008	Dry	906.10	1	0%	1	0%	1	0%	1	0%	1	100%	1	100%	1	0%	1	100%	1	100%	1	100%	0	NA	0	NA	0	NA	0	NA	0	NA
LPC-12-2008	Wet	906.1	0	NA	1	0%	1	0%	1	0%			1	0%	1	0%	0	NA	1	100%												
LPC-12-2009	Wet	906.1	1	0%	1	0%	1	0%	1	0%			1	0%	1	0%	1	0%	1	0%												
LPC-13-2008	Wet	906.2	0	NA	1	0%	1	0%	1	0%			1	0%	1	0%	0	NA	1	100%												
LPC-15-2009	Dry	906.10	1	0%	1	0%	1	0%	1	0%	1	100%	1	0%	1	0%	1	100%	1	0%	1	100%	0	NA	0	NA	0	NA	0	NA	0	NA
LPC-18-2009	Wet	906.2	1	0%	1	0%	1	0%	1	0%			1	0%	1	0%	1	100%	1	100%												

Note: Orange=High Priority, Yellow=Medium Priority pollutant based on the monitoring station data.

Table B-8: Pollutant Categories

Metals	Oil and Grease	Sediments	Pesticides	Nutrients	Bacteria/ Pathogens	Dissolved Minerals	Organics	Trash	Benthic Alterations	Toxicity	Gross Pollutants	Chemistry
Antimony	Oil and Grease	TSS	Chlorpyrifos	Dissolved Phosphorus	Enterococcus	TDS	Total Organic Carbon	Trash	Poor IBI	Ceriodaphnia survival	BOD	Chloride
Arsenic		Turbidity	Diazinon	Orthophosphate	Fecal Coliforms				O/E	Ceriodaphnia reproduction	COD	Sulfate
Cadmium			Malathion	Total Phosphorus	Total Coliforms				IBI	Hyalellasurvival	MBAS	
Chromium			Allethrin	Total Kjeldahl Nitrogen					CRAM	Selenastrumsurvival	Dissolved Oxygen	
Copper			Bifenthrin	Total Nitrogen							pH	
Lead			Cyfluthrin	Eutrophication							Conductivity	
Nickel			Cypermethrin	Benthic Algae							Nitrate as N	
Selenium			Danitol								Ammonia as N	
Zinc			Deltamethrin									
			Esfenvalerate									
			Fenvalerate									
			Fluvalinate									
			L-Cyhalothrin									
			Permethrin									
			Prallethrin									

Table B-9. Final Source Loading Potentials at LPC-02

Source Profile #	Activities with Source Loading Potential	Metals	Oil & Grease	Sediment	Pesticides	Nutrients	Bacteria/ Pathogens	Dissolved Minerals	Organics
1	Residential Areas and Activities	L	L	L	L	L	L	L	L
2	Construction Sites > 1 acre	UL	UL	L	UL	UL	UL	L	UL
3	Construction Sites < 1 acre	UL	UL	L	UL	UL	UL	UL	UL
4	Construction Sites: ESA or hillside or sediment TMDL	UL	UL	L	UL	UL	UL	UL	UL
5	Development subject to SUSMPs (> 5,000 sq. ft. impervious area)	UK	UK	UK	UK	UK	UK	UL	UK
6	Roads, streets, highways, and parking facilities	L	L	L	UL	L	L	L	L
7	MS4s - Catch Basins, Drain Inlets, Conveyance, Pump Stations	N	N	L	N	N	UK	UL	N
8	Corporate yards (incl. maintenance/storage yards)	L	L	L	UK	UK	UL	UL	L
9	Parks and Recreational Facilities - parks, golf courses, cemeteries, entertainment venues, etc.	UK	UK	UK	UK	L	UK	UL	UK
10	Auto Mechanical Repair, Maintenance, Fueling, or Cleaning	L	L	UL	UL	UK	UL	L	L
11	Equipment mechanical repair, maintenance, fueling, or cleaning	L	L	UL	UL	UK	UL	UL	L
12	Automobile and Other Vehicle Body Repair and Painting	L	L	UL	UL	UL	UL	L	L
13	Mobile automobile or vehicle washing	L	L	L	UL	UL	UL	UL	L
14	Mobile Power washing*	UK	UK	UK	UK	UK	UK	UK	UK
15	Auto parking lots and storage facilities	L	L	L	UK	UK	UK	UL	L
16	Retail or wholesale fueling	UK	L	UK	N	N	N	N	L
17	Pest Control Services	N	UK	N	L	N	UK	N	UK
18	Eating or drinking establishments	N	L	UL	UK	UK	L	UL	L
19	Mobile carpet, drape, or furniture cleaning	N	UK	UL	N	UK	UL	N	UL
20	General contractors for home/commercial improvements	UL	UL	L	UL	UL	UL	UL	UL
21	Botanical or zoological gardens and nurseries/greenhouses	L	UL	L	L	L	L	UL	UL
22	Mobile Landscaping	N	UL	L	L	L	L	UL	N
23	Pool and Fountain Cleaning	N	N	N	N	UK	N	N	UK
24	Marinas	L	L	N	UK	UK	UK	N	UK
25	Animal Kennels	N	UL	L	UK	L	L	N	L
26	Building Materials Retail and Storage	L	L	L	UL	UL	UL	UL	L
27	Chemical and allied products	UK	UK	UK	UK	UK	UL	N	L
28	Fabricated metal	L	L	UK	UK	UK	UL	UL	L
29	Primary metal	L	UK	UK	UK	UK	UL	N	UK
30	Recycling, Junk Yards, Scrap Metal	L	L	L	UL	UL	UL	L	L
31	Airfields	UK	UK	UK	UK	UK	N	UL	UK
32	Motor Freight	L	L	UK	UK	UK	UK	UL	L
33	POTWs (water and wastewater)	UK	UK	UK	N	UK	L	UL	UK
34	Concrete Manufacturing	L	L	L	UL	UL	UL	UL	L
35	Stone/Glass Manufacturing	L	L	L	UL	UL	UL	UL	L
36	Food Manufacturing	UL	UL	UL	UL	UL	UL	UL	UL

N = None, UK = Unknown, UL = Unlikely, L = Likely

In addition to using the SLPs, Copermittees can also use PGA Associations to Pollutants and other special studies to associate sources to pollutant.

5) Incorporate Source Quantities

After determining the high priority pollutant constituents and the source loading potentials, find the number of sources in the particular tributary/drainage area for the monitoring station. For this exercise, it is recommended that the Copermittees use the most up-to-date inventory information and GIS software, if necessary, to pinpoint an accurate number of sources in the particular drainage. Additionally, calculate the area of residential land use in the area, if available. The single source identified within the MS4 outfall drainage is shown in Figure B-5.

Once these numbers have been compiled, bring together the results of the number of sources, residential acreage, and source loading potential into a table for the pollutants of concern. For the sake of the single-pollutant approach example, see Table B-10 for the high priority sources and activities for bacteria/pathogens within the drainage area.

6) Incorporate Other Criteria as Desired

For this example, no additional criteria are considered.

7) Develop Priority Ranking of Sources

The final step is to prioritize the table outlining the source quantities, water quality priority, and SLPs for the priority pollutant (in this case, bacteria/pathogens). The prioritization is based off of the SLP and the number of sources and residential acreage in the drainage area (see Table B-11).

Figure B-5. Map of MS4-LPC-02 Monitoring Station and Drainage Area; note pollutant sources in red.

Table B-10. Source Quantities, Water Quality Priority, and SLPs for Bacteria/Pathogens at LPC-02

LPC-02				
Bacteria		# Sources	Water Quality Priority	Source Loading Potential
Source ID	Source			
1	Residential Areas and Activities – 49.91 acres	100	H	L
2	Sites > 1 acre	-		L
3	Sites < 1 acre	-		L
4	ESA or Hillside or Sediment TMDL	-		L
5	Development Subject to SUSMPs (> 5,000 sq. ft. Impervious Area)	-		UL
6	Roads, Streets, Highways, and Parking Facilities	-		UL
7	MS4s - Catch Basins, Drain Inlets, Conveyance, Pump Stations	-		UL
8	Corporate Yards (incl. Maintenance/Storage Yards)	2		UL
9	Parks and Recreational Facilities - Parks, Golf Courses, Cemeteries, Entertainment Venues, etc.	-		UL
10	Auto Mechanical Repair, Maintenance, Fueling, or Cleaning	-		UL
11	Equipment Mechanical Repair, Maintenance, Fueling, or Cleaning	-		UL
12	Automobile and Other Vehicle Body Repair and Painting	-		UL
13	Mobile Automobile or Vehicle Washing	-		UL
14	Mobile Power Washing	-		UL
15	Auto Parking Lots and Storage Facilities	-		UL
16	Retail or Wholesale Fueling	-		UL
17	Pest Control Services	-		UL
18	Eating or Drinking Establishments	6		UL
19	Mobile Carpet, Drape, or Furniture Cleaning	-		UL
20	General Contractors for Home/Commercial Improvements	-		UL
21	Botanical or Zoological Gardens and Nurseries/Greenhouses	-		UL
22	Mobile Landscaping	-		UL
23	Pool and Fountain Cleaning	-		UL
24	Marinas	-		UL
25	Animal Kennels, Horse Stables	-		UL
26	Offices with Onsite and Outdoor Storage Facilities	3		UL
27	Building Materials Retail and Storage	1		UL
28	Chemical and Allied Products	-		UL
29	Fabricated Metal	-		UL
30	Primary Metal	-		N
31	Recycling, Junk Yards, Scrap Metal	-		N
32	Airfields	-		N
33	Motor Freight	-		N
34	POTWs (Water and Wastewater)	-		N
35	Concrete Manufacturing	2		N
36	Stone/Glass Manufacturing	1		N
37	Food Manufacturing	-		N

N = None, UK = Unknown, UL = Unlikely, L = Likely

Table B-11. Prioritized Source Quantities and SLPs for Bacteria/Pathogens at LPC-02

LPC-02				
Bacteria		# Sources	Water Quality Priority	Source Loading Potential
Source ID	Source			
1	Residential Areas and Activities – 49.91 acres	100	H	L
18	Eating or Drinking Establishments	6		UL
26	Offices with Onsite and Outdoor Storage Facilities	3		UL
8	Corporate Yards (incl. Maintenance/Storage Yards)	2		UL
27	Building Materials Retail and Storage	1		UL
35	Concrete Manufacturing	2		N
36	Stone/Glass Manufacturing	1		N
2	Sites > 1 acre	-		L
3	Sites < 1 acre	-		L
4	ESA or Hillside or Sediment TMDL	-		L
5	Development Subject to SUSMPs (> 5,000 sq. ft. Impervious Area)	-		UL
6	Roads, Streets, Highways, and Parking Facilities	-		UL
7	MS4s - Catch Basins, Drain Inlets, Conveyance, Pump Stations	-		UL
9	Parks and Recreational Facilities - Parks, Golf Courses, Cemeteries, Entertainment Venues, etc.	-		UL
10	Auto Mechanical Repair, Maintenance, Fueling, or Cleaning	-		UL
11	Equipment Mechanical Repair, Maintenance, Fueling, or Cleaning	-		UL
12	Automobile and Other Vehicle Body Repair and Painting	-		UL
13	Mobile Automobile or Vehicle Washing	-		UL
14	Mobile Power Washing	-		UL
15	Auto Parking Lots and Storage Facilities	-		UL
16	Retail or Wholesale Fueling	-		UL
17	Pest Control Services	-		UL
19	Mobile Carpet, Drape, or Furniture Cleaning	-		UL
20	General Contractors for Home/Commercial Improvements	-		UL
21	Botanical or Zoological Gardens and Nurseries/Greenhouses	-		UL
22	Mobile Landscaping	-		UL
23	Pool and Fountain Cleaning	-		UL
24	Marinas	-		UL
25	Animal Kennels, Horse Stables	-		UL
28	Chemical and Allied Products	-		UL
29	Fabricated Metal	-		UL
30	Primary Metal	-		N
31	Recycling, Junk Yards, Scrap Metal	-		N
32	Airfields	-		N
33	Motor Freight	-		N
34	POTWs (Water and Wastewater)	-		N
37	Food Manufacturing	-		N

Rankings based on number of sources/residential acreage and Source Loading Potentials
N = None, UK = Unknown, UL = Unlikely, L = Likely

Investigative TTWQ Approach

The following approach follows the general outline of the previous two examples with one difference – the past monitoring information is not a primary factor in the TTWQ assessment. Instead, the approach can be used to analyze current monitoring data and flows (immediate exceedance response) in an attempt to locate sources using other resources such as storm drain maps and local drainage patterns. This example uses the MS4 Random Monitoring Station identified during the single-pollutant TTWQ approach.

1) Determine Scale to Develop Threat to Water Quality

As with the single and multi-pollutant approach, the first step is to determine the scale and location where a particular monitoring location can characterize the flow from a tributary area. In addition, determine the flow and storm drain network in order to pinpoint the location of flows from the drainage. Figure B-6 shows the drainage area to the example MS4 outfall in the Peñasquitos watershed, including the storm drain map.

3) Determine the Water Quality Issue (Pollutant) to Evaluate

Determine water quality issues by reviewing the current monitoring data at the MS4 outfall. Any exceedances or readings above the water quality objectives should be further investigated using this approach. For any exceedances or readings above the water quality objectives, refer to Table B-8 above in order to determine the priority pollutants.

4) Associate Sources to Pollutant

Using the high priority pollutants, the next step is to review the final source loading potentials at LPC-02 to determine the likeliness of sources contributing to the pollutant. Using the information presented in Section 3 (Table 3-10), determine the activities with source loading potential with regards to the MS4 outfall (see example in Table B-9 above).

In addition to using the SLPs, Copermittees can also use PGA associations to pollutants and other special studies to associate sources to pollutant.

5) Identify Potential Sources of Pollutants

Based upon the resulting pollutant to source associations, one can identify the potential sources within the tributary area that are causing the exceedance at the MS4 outfall. Figure B-7 shows the resulting potential sources for this example.

Figure B-6. Map of MS4-LPC-02 Monitoring Station and Drainage Area, including storm drain network.

Figure B-7. Map of MS4-LPC-02 Monitoring Station and Drainage Area, including storm drain network and pollutant sources (red).

I Program Management Practices Information Sheet

Purpose

The Program Management Practices (PMPs) are activities and BMPs that Copermittees and target audiences implement to address urban runoff pollutants, pollutant generating activities, and sources. The PMP Profile sheets are provided as a step towards generally defining the PMPs, along with associated sources, pollutants, and target audiences, and beginning to look at the effectiveness potential. The Profile sheets provide a limited discussion on PMPs and further development of PMPs and the direct relationship to measurable outcomes is needed.

Effectiveness Assessment Level 1 Variation

The Copermittees have expanded upon the assessment framework initially developed by the Copermittees in 2003 and subsequently modified by the California Stormwater Quality Association in 2007 in regards to Effectiveness Assessment Outcome Level 1 (Storm Water Program Activities). Outcome Level 1 has been broken down further into the following sub-categories and is utilized throughout the PMP Profile sheets:

Level 1a) Program Administration Activities: These are the activities that are needed to administer the program.

Level 1b) Facilitation Activities: These are the activities that are implemented to bring about ("facilitate") Level 2, 3, or 4 changes in target audiences – or in some cases, maintain a targeted outcome.

Level 1c) Data Gathering Activities: These are the activities used to determine whether and to what extent Level 2 through 6 changes in target audience has occurred.

Resources/References

The Program Management Practices (PMPs) are primarily based upon reported information from Copermittee's JURMP, WURMP, and RURMP Annual Reports (2009-2010), the California Stormwater Program Effectiveness Assessment Guidance Document (May 2007), the Baseline Long Term Effectiveness Assessment (2005), and the San Diego Regional Stormwater Copermittees input during watershed data, reporting and assessment needs workshops conducted in 2010. All resources and references are also included in the bibliography of the LTEA. It is important to note that any focused analyses included in a PMP Profile sheet may have limitations and are just provided in summary. It is encouraged that the reader review the noted reports in their entirety.

1 Administrative Best Management Practices

Narrative Description

Program administrative BMPs are essential Program Management Practices for program implementation. Administrative BMP activities include:

1. Review/update source inventories and priorities (TCBMPs, construction, industrial and commercial, municipal, etc.)
2. Review/update BMP requirements
3. Develop/review/update standard operating procedures (SOPs), Storm Water Pollution Prevention Plans (SWPPPs), Storm Water Management Plans (SWMPs), manuals etc.
4. Review/update General Plans,
5. Review/update ordinances, municipal code, etc.
6. Maintain appropriate contracts
7. Review/update educational materials
8. Review/update approval process

These activities are important for establishing the foundation of a storm water program.

Target Source(s)

- Municipal Facilities
- Industrial and Commercial Facilities
- Construction Sites
- Residential
- Roads, streets, highways, and parking facilities
- MS4

Target Pollutant(s)

- Indirect relationship to all pollutants

Target Audience(s)

- Municipal Staff

1 Administrative Best Management Practices

Effectiveness Potential

Program administration is fundamental in achieving effectiveness assessment outcome levels. Administrative BMPs result in a Level 1a (administration) effectiveness assessment which is ultimately confirmation of the activity. Confirmation is often used to track plan implementation. Because administrative BMPs require other PMPs to be implemented, they have the indirect potential to be effective at changing knowledge and awareness (Level 2), behavior (Level 3), and source reduction (Level 4) which ultimately leads to Levels 5 and 6.

2 Activity Best Management Practices

Narrative Description

Activity BMPs are those related to target audience implementation as described in the 2005 BLTEA: cover, contain, prevent, good housekeeping and administrative BMPs. Some examples of activity BMPs include:

1. Cover activity/material
2. Clean floor mats, etc. indoors
3. Wash vehicles and equipment in designated areas
4. Properly manage pesticide/fertilizer use
5. Protect storm drains
6. Clean up regularly with dry methods
7. Develop and implement spill prevention plan

Minimum Activity BMPs may vary between Copermittees due to each jurisdiction's requirements, but each jurisdiction strives to require and enforce all minimum BMPs for the appropriate source.

Target Source(s)

- Municipal Facilities
- Industrial and Commercial Facilities
- Construction Sites
- Residential

Target Pollutant(s)

- Bacteria
- Trash
- Heavy Metals
- Nutrients
- Oil and Grease
- Organics
- Sediment
- Pesticides

2 Activity Best Management Practices

Target Audience(s)

- Municipal
- Construction
- Residential
- Commercial Owners
- Industrial Owners
- Land Development

Effectiveness Potential

The requirement and enforcement of Activity BMPs is a facilitation activity that when implemented by the target audience can assist in achieving Level 3 and Level 4 targeted outcomes. Tracking of behavior or monitoring over a few years may be needed to attain measurable results.

3 MS4 Inspections/Cleaning

Narrative Description

Operating and maintaining the MS4 infrastructure which includes storm drain pipes, catch basins, inlets, open channels, etc., encompasses a large variety of activities performed by the Copermittees' municipal or contract staff. Each Copermittee implements a schedule of inspection and maintenance activities for the MS4 and MS4 facilities. The maintenance activities that may be conducted include:

- Inventory and prioritization
- Inspection
- Cleaning and proper disposal of any wastes removed
- Record keeping of maintenance and cleaning including amounts removed.

Additionally, each Copermittee implements controls and measures to prevent and eliminate infiltration of seepage from municipal sanitary sewers to MS4s through thorough, routine preventive maintenance of the MS4.

Target Source(s)

- MS4

Target Pollutant(s)

- Bacteria
- Trash
- Heavy Metals
- Nutrients
- Oil and Grease
- Organics
- Sediment
- Pesticides

Target Audience(s)

- Municipal Staff

Effectiveness Potential

The facilitation of the MS4 inspection and cleaning program can provide a Level 3 effectiveness assessment outcome. Level 3 can be achieved through municipal staff implementing the MS4 inspection and cleaning at the proper frequency and within the

proper cleaning guidelines. MS4 cleaning can achieve source load reductions when the amount of debris removed from the MS4 and MS4 facility cleaning is measured - Level 4 effectiveness assessment.

4 Street Sweeping

Narrative Description

Street Sweeping is conducted to remove debris, trash, or particles from improved (possessing a curb and gutter) municipal roads, streets, highways, and parking facilities. Street sweeping can be effective in removing trash, debris and other constituents of concern, such as metals, from roadways and parking facilities before entering the storm drain system and has the potential to reach receiving waters. In addition street sweeping helps prevent blockages in storm drains caused from trash and debris that can create flooding issues during periods of heavy rainfall.

Target Source(s)

- Roads, streets, highways, and parking facilities

Target Pollutant(s)

- Bacteria
- Trash
- Heavy Metals
- Oil and Grease
- Sediment

Target Audience(s)

- Municipal Staff

Effectiveness Potential

The facilitation of the street sweeping program can provide a Level 3 effectiveness assessment outcome. Level 3 can be achieved through municipal staff implementing sweeping in the correct locations and at the proper frequency. Furthermore, the measurement of the amount of trash, debris, and constituents of concern removed through street sweeping provides information on the source load reduction - Level 4 effectiveness assessment.

The San Diego Regional Copermittees have conducted Focused Analyses that are related to street sweeping. The following are results of these analyses that support the effectiveness potential.

1. City of San Diego Targeted Aggressive Street Sweeping Pilot Study Effectiveness Assessment (June 2010):

4 Street Sweeping

As stated in the Executive Summary of the Report, the Targeted Aggressive Street Sweeping Study was designed to address the following three study questions:

1) Which sweeping machine (i.e. mechanical, regenerative air, or vacuum) is most effective in removing metals and other constituents of concern?
2) Is it more efficient and effective to aggressively sweep at a high frequency (e.g., once a week or twice a week)?
3) Is there a quantifiable link between aggressive street sweeping and the reduction of metals and other constituents of concern in storm water runoff?

The Executive Summary of the report also stated that the results from this study "indicate that street sweeping provides an effective means of reducing concentrations of some constituents in storm water runoff. While machine effectiveness varied by site, the vacuum sweeper was more effective in reducing storm water constituent concentrations than the mechanical and regenerative-air sweepers". Additionally "storm water concentrations of total suspended solids (TSS) and metals (copper, lead, and zinc) during the beginning of a storm event (first flush) in the vacuum-swept streets were significantly less than those in the mechanically-swept and unswept streets".

"Optimal load reductions were achieved by the vacuum machine at an aggressive, twice per week frequency. The mechanical sweeper was most effective at removing debris and contaminants at a less aggressive, once per week frequency. Sweeping frequency did not impact the vacuum sweeper's effectiveness. The vacuum sweeper collected the same amount of debris and metals per broom mile at both the once and twice per week frequencies. The mechanical machine was less effective, in terms of debris removed per broom mile, when sweeping twice per week versus once per week".

As a result of this special study the City of San Diego will be evaluation the following key considerations that should be weighed in combination with other environmental, social/community and economic factors. Below is an excerpt of the key considerations from the Executive Summary of the report:

- *Key route features such as street grade, and the presence/absence of curbs and gutters, eroding hillsides, or low overhanging trees should be considered when developing future targeted aggressive street sweeping programs.*
- *IN the drainages with the greatest potential for the accumulation of metals on street surfaces (e.g., Priority Section #1), using the vacuum sweeper at an aggressive frequency of twice per week should be considered to maximize load reduction potential.*

- *Along Route 3J, and other residential areas in the Chollas Creek Subwatershed, sweeping with the vacuum sweeper once per week should be considered to attain the maximum metals load reduction possible (aggressive sweeping frequency limited by public response to parking restrictions).*
- *The mechanical sweeper was effective in remove debris and metals along the steeper roads of La Jolla Shores (Routes 1C and 103) and should be considered for weekly sweeping to maximize metals removal and protect ASBS.*
- *In both the Chollas Creek and La Jolla Shores Subwatersheds, additional storm water monitoring should be considered to verify the results of the pilot study and assess the effectiveness of street sweeping on a site-specific basis (i.e., incorporate route-specific baseline sampling for the "unswept" condition, target larger drainage areas, etc.).*
- *The data from this study and future studies should be used to develop a more robust model that can incorporate environmental conditions and complexities associated with urban runoff.*

2. Target Aggressive Street Sweeping Pilot Program Phase III Median Sweeping Study, City of San Diego (August 2010):

   As stated in the Executive Summary of the Special Study Report, "the purpose of the Phase III Median Sweeping Study was to evaluate sweeping of roadway medians adjacent to high volume roadways in order to determine the water quality benefits and feasibility of sweeping the median sweeping routes. The areas are not included in the current City street sweeping routes and are not typically swept during routine sweeping activities".

   An excerpt of the results of the study from the Executive Summary of the report is included below.

   The Phase III study results indicate that median sweeping has potential to remove significant amounts of street debris and roadway constituents. Key results include:

   - *The initial median sweeping event collected 3-5 times greater amounts of debris than subsequent 3-week interval sweeping events. This suggests significant buildup of roadway debris occurs adjacent to median areas. Extrapolation of data allowed an estimate of 32,000 pounds of material to be removed by a single annual sweeping event or up to 140,000 pounds of material to be removed annually from sweeping median areas at 3-week intervals.*

- *Metals, nutrients, and hydrocarbon constituents were all detected in median street debris and the hand-swept samples in varying concentrations which may impact downstream water quality. These results suggest that median sweeping may provide a significant benefit for controlling input of constituents with potential water quality impacts to the City MS4.*
- *Operational capacity limitations are likely to limit potential implementation of median sweeping activities to quarterly or even less frequent intervals. Examination of relatively infrequent implementation scenarios using the project data indicated that approximately 3 pounds of copper, 0.75 pounds of lead, and 3.5 pounds of zinc may be removed from City streets by median sweeping. Periodic manual sweeping of raised medians will likely result in additional removal of street debris and associated roadway constituents.*

5 Structural Best Management Practices

Narrative Description

Structural BMPs are engineered facilities that are generally designed and constructed to capture or filter pollutants from urban runoff. Some structural BMPs may mitigate urban runoff volume and velocities rather than reducing urban runoff pollutants. Some examples of structural BMPs include:

1. Infiltration devices
2. Sediment basins
3. Treatment facilities (ozone, UV)
4. Bioretention
5. Detention ponds
6. Pervious pavement
7. Storm water wetlands
8. Filters

Target Source(s)

- Municipal Facilities
- Industrial and Commercial Facilities
- Construction Sites
- Residential
- Roads, streets, highways, and parking facilities
- MS4

Target Pollutant(s)

- Bacteria
- Trash
- Heavy Metals
- Nutrients
- Oil and Grease
- Organics
- Sediment
- Pesticides

5 Structural Best Management Practices

Target Audience(s)

- Municipal Staff
- Construction
- Residential
- Commercial Owners
- Industrial Owners
- Land Development

Effectiveness Potential

Installation and the applicable operation and maintenance of structural BMPs can provide information for Level 3 effectiveness assessment and data on source reductions (Level 4). Observing structural BMP implementation or maintenance trends from year to year can provide information regarding Level 3 effectiveness. Source reductions may be achieved through direct monitoring results or pollutant load estimations, as described in the CASQA Effectiveness Assessment Guidance (2007).

6 Education and Outreach

Narrative Description

Education and outreach activities are Program Management Practices (PMPs) conducted to increase the knowledge and awareness of a target community regarding stormwater, change the behavior of the target community, and/or ultimately reduce pollutants and runoff into the MS4 and receiving waters. In general, an education and outreach strategy is developed and the programs typically address high priority pollutants, pollutant-generating activities, and the following target communities, as applicable and appropriate:

- Municipal Departments and Personnel (described in employee training PMP Profile sheet)
- Construction Site Owners and Developers
- Industrial Owners and Operators
- Commercial Owners and Operators
- Residential Community, General Public and School Children

Methods utilized for education and outreach vary and may include mass media, mailers, door hangers, booths at public events, workshops, focus groups, classroom education, field trips, hands-on experiences, clean-up events, websites, etc. Education and outreach can be conducted by a single Copermittee or several Copermittees may combine funds and efforts to conduct activities or develop materials.

Target Source(s)

- Municipal
- Industrial and Commercial Facilities
- Construction Sites
- Residential

Target Pollutant(s)

- Bacteria
- Trash
- Heavy Metals
- Nutrients
- Oil and Grease
- Sediment
- Pesticides

6 Education and Outreach

Target Audience(s)

- Municipal Staff
- Construction
- Residential
- General Public
- Commercial Owners
- Industrial Owners
- Land Development

Effectiveness Potential

Education and outreach activities can be facilitation and/or data gathering activities with targeted outcomes focused primarily on Level 2 and Level 3 effectiveness assessments with occasional Level 4 assessments. Education and outreach effectiveness can be measured and assessed through surveys (i.e. web-based, at events, or on the phone) BMP implementation rates, focus groups, observations, participation in events or workshops, hotline calls, and questionnaires.

The San Diego Regional Copermittees have conducted Focused Analyses that are related to education and outreach. The following are results of these analyses that support the effectiveness potential.

Regional Residential Education Program

Telephone Survey

As part of the Regional Residential Education Program, a Regional Residential Education Plan (Plan) was developed and finalized in March 2008. The Plan provides recommended strategies for education and outreach activity implementation. One recommendation was to conduct a baseline regional residential telephone survey with an additional survey conducted late in the permit cycle to assess the changes resulting from program implementation. The Copermittees established targets to hopefully achieve during the permit cycle: 10% change in knowledge that storm drains are separate from sanitary sewer systems, 10% increase in the awareness that all storm drains are connected to local waterways, and a 15% increase in the number of participants who can identify residential sources of stormwater pollution.

The regional baseline storm water survey was conducted in 2009, but an additional regional telephone survey has not been conducted to compare results. A summary of the baseline survey results as reported in the FY 2009-2010 RURMP Annual Report is included below.

As required under the Municipal Permit Order No. R9-2007-0001 the Regional Residential Sources Workgroup developed and implemented a telephone survey of adult

residents living in San Diego County. The purpose of the study was to begin to evaluate the effectiveness of the co-permittee's storm water pollution education efforts by measuring baseline current levels of polluting practices and awareness of how the storm drain system works. The study was conducted between June 16 and June 26, 2009. A total of 808 telephone interviews were conducted with adult residents randomly identified from across San Diego County. Results of the 2009 baseline telephone survey were as follows:

- ***Knowledge of storm drain system:*** *37% of respondents knew that water in storm drains is not treated before it is released into local waterways.*
- ***Knowledge of pollutants in urban runoff:*** *41% if respondents volunteered that litter and trash were common sources of pollution in storm drains, 34% mentioned automobile fluids, 16% mentioned cleaning products, 15% mentioned fertilizers and pesticides, 10% mentioned yard trimmings and dirt, 8% mentioned human and animal wastes, and smaller percentages named other sources; 11% could not name a source of pollution in storm drains.*
- ***Pet waste pick up:*** *In 76% of households with dogs, the person who walks the dog always or nearly always picks up pet waste; 91% of those who picked up put it in the garbage, 3% hosed it or put it in the street, and 11% left it on the ground.*
- ***Over-irrigation:*** *11% of those with sprinklers said a noticeable amount of water ends up in the street; 76% adjusted the sprinklers to reduce water in the previous year.*
- ***Reduced use of fertilizer:*** *49% of those with yards said they used fertilizer in the previous year; 28% said they used pesticides or chemicals.*
- ***Sweeping instead of hosing:*** *77% of those with driveways said they sweep it, 23% said they hose it down, and 39% blow materials off it.*
- ***Litter in trash cans:*** *14% said they saw litter very frequently on their block; 33% said they always or nearly always pick up litter on their block and dispose of it in a trash container.*

The 2009 Regional Residential Sources survey provided substantial information on baseline levels of awareness about how the storm drain system works and current levels of polluting practices. These results were used to inform existing outreach and will be also used as a basis of comparison from which to evaluate the effectiveness of the co-permittee's outreach efforts.

<u>Regional Calendar</u>

Between January and June 2010, Think Blue implemented a two-tiered assessment protocol that was designed to provide both qualitative and quantitative evaluation of the 2010 "Be the Solution to Storm Water Pollution" calendar. The Think Blue San Diego Regional calendar was designed to increase awareness, and educate residents on behaviors that prevent storm water pollution. The goal of the assessment activities was to provide an evaluation of both the clarity and usage of the calendar as well as the impact of the calendar on attitudes and behavior.

6 Education and Outreach

Data were collected through pre- and post-test surveys and in-depth interviews with a subset of calendar recipients. 332 pre-tests were collected at the time of calendar distribution, 59 calendar recipients returned a post-test, and 30 participated in an in-depth telephone interview about the calendar.

Among calendar recipients, who completed both the pre- and post-test surveys:

- There was a 14% increase in knowledge that storm water is not treated (83% correct at pre-test, 95% correct at post-test).
- There was a 69% decrease in the number of participants who reported hosing as clean-up method (16% at pre-test compared to 5% at follow-up).
- Reports of doing nothing for weed and pest control more than doubled. At pre-test 18% reported "none" as their method compared to 39% at post-test.
- After receiving the calendar, people were more significantly more likely to be able to mention a specific pollution-prevention behavior. Prior to receiving the calendar 15% of respondents were unable to mention a specific action that they could do to prevent storm water pollution. At post-test, only 2% could not name a specific action.

Telephone interviews with a subset of 30 individuals who remembered receiving the calendar revealed that:

- 73% of participants still had the calendar. Those who no longer had the calendar said that they gave it away to students, friends, or coworkers.
- 59% reported that they looked at the calendar on a daily basis; 39% looked at it weekly, and 5% looked monthly, indicating that the calendar is used regularly.
- Sixty-five percent (65%) of respondents who read the calendar said they made changes to their behavior as a result, validating that the calendar is an effective medium for education and outreach.

Think Blue's regional calendar received a positive response in regards to graphics, size, and layout. More importantly, the calendar successfully increased knowledge and awareness, suggesting that it is a viable medium for educating people about storm water pollution and promoting behavior change.

Community Based Social Marketing (CBSM): Gen-Y Youth Study

The Copermittees conducted a pilot study of littering behavior among youth in four regions throughout the county, which included observations and in-person interviews with youth (under the age of 24 with specific focus on middle school, high school, and college-age youth). The purpose of the study was to identify the sources of litter, establish a baseline littering rate, and identify avenues for outreach and education to reduce and prevent litter. The study was conducted in 2010, and pilot and control sties were chosen across four regions and included: Central County (beaches), East County (transit centers), North County (skate parks), and South County (parks). The study utilized intercept interviews, behavioral observations, and observations of accumulated trash as the methods of assessment.

The report has not been finalized yet, but initial results indicate that there were positive changes in knowledge and awareness, behavior, and load reductions at some of the sites in the study as a result of intervention-implementation activities.

Individual Copermittee Focused Analyses

In addition to regional efforts, some Copermittees conducted focused analyses to provide assessment information for their jurisdiction. There were four analyses conducted by jurisdictions where education and outreach program effectiveness information was provided in JURMP Annual Reports.

1. City of San Diego – FY 2010 Event Surveys:
   - A total of 10,762 event survey cards were collected
   - 56% of the individuals who completed an event survey had heard of *Think Blue San Diego* prior to attending the event (a 6% increase as compared to FY 2009)
   - 61% of respondents knew that storm water is not treated
   - Nearly 56% of those who filled out a survey card provided some type of contact information

2. City of San Diego – FY 2010 Residential Telephone Survey:
   - 47% of all San Diego residents have heard the *Think Blue* slogan, up from 39% in FY 2009 (a 52% increase since 2001)
   - 52% of residents know that storm water is not treated, which is an increase from 44% in FY 2009 and up from 39% in FY 2008
   - Residents who had heard of *Think Blue* or steps the city has been taking to prevent storm drain pollution were more than twice as likely to make behavior change.

3. City of San Diego – Business Outreach: Focus Groups – FY 2010

Think Blue completed seven focus groups, among business owners and managers who were in either the restaurant industry, the automotive repair industry or in the landscaping industry. Key findings included:

- High awareness of *Think Blue* ads and storm water pollution issues
- Knowledge of Storm Water Regulations, mostly from contact with the City
- English language business owners and managers readily made the connection between water pollution, the economy, and themselves
- Regulations seen as needed, but a sense of unfairness and imbalance could undermine willingness to comply
- Cost, labor, and lack of reliable alternatives were stated as a major barrier to compliance among gardeners and landscapers.

4. City of Chula Vista – Storm Water Quality Public Awareness Survey Analysis:

The City of Chula Vista implemented an 11-question survey in FY 2010 and was able to utilize a similar survey administered in 2005 as a general baseline in order to assess effectiveness. However, some of the questions were re-written or re-worded which

can have an impact on the results. Results from two questions that were able to be compared are provided.

- Car washing on the driveway increased from 3.7% in 2005 to 24.21% in 2009 – this may be more of a result of the downturn of the economy (residents prefer to wash cars at home rather than pay for a car wash), than the education and outreach to residents on car washing.
- The majority of respondents knew the best way to dispose of pet waste in both the 2005 baseline survey and the 2009 survey

7 Incentives

Narrative Description

Incentives are typically established programs utilized to entice and induce an individual, company, or group to do something. An incentive program may be established for industrial or commercial businesses, municipal employees, general public, or construction site owners and operators. Incentives may include programs such as water conservation rebates or storm water fee credits.

Target Source(s)

- Municipal
- Industrial and Commercial Facilities
- Construction Sites
- Residential

Target Pollutant(s)

- Bacteria
- Trash
- Heavy Metals
- Nutrients
- Oil and Grease
- Sediment
- Pesticides

Target Audience(s)

- Municipal Staff
- Construction
- Residential
- General Public
- Commercial Owners
- Industrial Owners
- Land Development

Effectiveness Potential

The development of incentive programs are administrative activities. When incentive programs are utilized by individuals or groups then Level 3 and Level 4 effectiveness assessments may be reached. Typically if an individual, company, or group utilizes an incentive this can indicate a behavior change which may result in a load reduction. For

example, if a jurisdiction offers a smart irrigation incentive program, then a homeowner may decide to upgrade their sprinkler system in order to get a rebate or other form of incentive. The homeowner will then have changed their behavior related to irrigation, and there is a potential load reduction due to the probable decrease in over-irrigation at the homeowner's location.

8 Employee Training

Narrative Description

Municipal employee storm water training is conducted to increase the knowledge of the target audience in regards to laws, regulations, permits and requirements; BMPs; general urban runoff concepts; and any other relevant topics as deemed appropriate. Trainings may be job specific (i.e. MS4 cleaning procedures) or may be more general but ultimately provides a mechanism to communicate JURMP requirements to the appropriate employees. Training methods that may be utilized could be computer based interactive tutorials, classroom style trainings, audiovisual methods (i.e. DVD) or on-the-job training (i.e. training on how to use a street sweeper).

Target Source(s)

- Municipal Facilities
- Roads, streets, highways, and parking facilities
- MS4

Target Pollutant(s)

- Bacteria
- Trash
- Heavy Metals
- Nutrients
- Oil and Grease
- Sediment
- Pesticides

Target Audience(s)

- Municipal Staff

Effectiveness Potential

Municipal employee training can be conducted as facilitation or data gathering activities that can provide Level 2 or Level 3 effectiveness assessments. Municipal employee training can provide important information on whether training conducted is effective at increasing employees general and/or job specific knowledge regarding stormwater. This type of assessment is often measured and assessed utilizing pre-and post-test questionnaires/surveys. Several jurisdictions implemented pre-and post-test questions at trainings conducted to assess whether there was an increase in knowledge of storm water issues among employees. In general, there was typically an increase in the pass rate from

the pre-test to the post-test indicating that the trainings were effective in increasing the municipal staff's knowledge and awareness.

In addition to knowledge and awareness, BMP implementation or changes in behavior may be assessed through employee activity. For example, if training for street sweeper operators was conducted to provide routes, sweeping priorities, and frequency of street sweeping and at the end of the year it was implemented properly, then it can be deduced that the training was successful and the operation and maintenance BMPs were implemented. Additionally, if general storm water training was conducted for municipal staff to provide them the tools to identify potential illegal discharges, and then the program receives an increase in the municipal staff reporting of illegal discharges, then it would indicate that there was a change in behavior based upon the training provided.

9 Inspections

Narrative Description

Inspections are Program Management Practices (PMPs) conducted to examine facilities or sites for storm water requirements and BMP implementation and are often utilized as an opportunity to educate facility operators or owners regarding storm water and BMPs. Typically, inspections consist of two primary components: a visual/observational assessment of the conditions and operations at facility or site; and, verbal interviewing of the facility or site representative. The purpose of the inspections is to identify issues or potential issues and initiate a course of action to correct identified issues. Typical issues include:

1. Active discharges
2. Presence of evidence identifying previous discharges
3. Required BMPs not implemented
4. Lack of required documentation or paperwork
5. Required operation and maintenance not conducted

As part of the inspection program a complete facility inventory is maintained and facilities are prioritized. In general, an inspection frequency is determined based upon priority, and inspection and enforcement information, along with any applicable follow-up, is retained in a database.

When inspections are conducted, either by Municipal staff or contracted staff, the inspector typically has a checklist or inspection form that is utilized to assist in determining compliance. Some of the items inspectors will look for during inspections are included below.

Development Planning:

- Verifying effective operation and maintenance of Treatment Control BMPs (TCBMPs)
- Verifying TCBMPs compliance with all ordinances, permits, codes, etc.
- Prior to occupancy of each Priority Development Project subject to SUSMP requirements, verifying that the constructed LID, source control, and TCBMPs have been constructed in compliance with all specifications, plans, permits, ordinances, etc.

Construction:

- Check for coverage under the General Construction Permit (Notice of Intent (NOI) and/or Waste Discharge Identification No.) during initial inspections;
- Assessment of Compliance with Permittee ordinances and permits related to urban runoff, including the implementation and maintenance of designated minimum BMPs;
- Assessment of BMP effectiveness;
- Visual observations for non-storm water discharges, potential illicit connections, and potential discharge of pollutants in storm water runoff;
- Education and outreach on storm water pollution prevention, as needed; and

9 Inspections

- Creation of a written or electronic inspection report.

Industrial and Commercial:

- Review of BMP implementation plans, if the site uses or is required to use such a plan;
- Review of facility monitoring data, if the site monitors its runoff;
- Check for coverage under the General Industrial Permit (Notice of Intent (NOI) and/or Waste Discharge Identification No.), if applicable;
- Assessment of compliance with Copermittee ordinances and permits related to urban runoff;
- Assessment of BMP implementation, maintenance and effectiveness;
- Visual observations for non-storm water discharges, potential illicit connections, and potential discharge of pollutants in storm water runoff; and
- Education and training on storm water pollution prevention, as conditions warrant.

Municipal Areas and Activities

- Review of BMP implementation plans, if the site uses or is required to use such a plan;
- Assessment of compliance with Copermittee ordinances and permits related to urban runoff;
- Assessment of BMP implementation, maintenance and effectiveness;
- Visual observations for non-storm water discharges, potential illicit connections, and potential discharge of pollutants in storm water runoff.

Based upon inspection findings, each Copermittee should implement follow-up actions necessary to comply with the Municipal Permit and any applicable ordinances, permits, etc.

Target Source(s)

- Municipal Facilities
- Industrial and Commercial Facilities
- Construction Sites
- Roads, streets, highways, and parking facilities
- MS4

Target Pollutant(s)

- Bacteria
- Trash
- Heavy Metals
- Nutrients

9 Inspections

- Oil and Grease
- Organics
- Sediment
- Pesticides

Target Audience(s)

- Municipal Staff
- Construction
- Commercial Owners
- Industrial Owners
- Land Development

Effectiveness Potential

Inspections are a data gathering PMP that have the potential to provide data for effectiveness levels 2 through 4. Inspections can target land development, construction, industrial, commercial, and municipal audiences in order to gather the necessary data for program evaluations and effectiveness assessments. Additionally, inspections can address single or multiple pollutants such as bacteria, trash, heavy metals, nutrients, oil and grease, organics, sediment, and pesticides, depending upon the facility type being inspected. However, the effectiveness of inspections in reducing runoff pollutants and discharges is highly variable and dependent upon site-specific conditions, including but not limited to: motivation of facility or site representative/owner; level of difficulty in making required corrections; BMP complexity and others. An example of the variability of effectiveness potential is the knowledge assessments and BMP assessments that were conducted by some jurisdictions during industrial and commercial inspections. In reviewing the results from JURMP Annual Reports, the results were variable depending upon the jurisdiction and the reporting period. Furthermore, measurable results may require tracking over a few years or inspection cycles.

The Copermittees have developed and conducted focused analyses in order to improve the understanding between Program Management Practices and effectiveness assessment. Two special studies applicable to inspections are summarized below.

1. City of San Diego Automotive Facility Watershed Inspections (November 2010):

   This special study conducted by the City of San Diego involved the development and implementation of a two-year focused inspection activity in order to answer the following management questions:
   1) Does inspecting more frequently at automotive facilities improve BMP implementation rates?

2) Does type of business ownership change the required inspection frequencies?
3) Based on information collected during inspections, can the inventory of specific source types, in this case automotive facilities, be feasibly prioritized?

As stated in the Executive Summary of the report, the study found that increased inspections over a one-year period of automotive facilities does not increase the implementation rates or reduce the amount of pollutant discharge potential at automotive facilities. It also found that based on the result of the inspections, there is potential for the City to feasibly prioritize its inventory specific to automotive facilities based on their site specific characteristics. There may be underlying reasons that had the potential for affecting the findings of the study and further exploration may be needed. For further information see the City of San Diego's WURMP Activity Report.

2. City of San Diego Geographically Based Watershed Inspections (November 2010):

   The City of San Diego conducted this special study to answer the following questions related to the implementation of commercial/industrial inspection programs:

   1) What activities and locations at businesses should be targeted during inspections based on severity of observed/reported issues?
   2) Can the City increase its commercial/industrial program efficiency by using a tiered inspection process (variable inspection forms and procedures) based on site specific characteristics of the businesses?
   3) Does the City's commercial/industrial inventory need to be reevaluated (additions of business types or modifications to prioritization process)?

   There were two primary findings from the activity as stated in the Executive Summary of the report: (1) in many instances the City can perform inspections and collect valuable information without making contact with owners/manager – potentially increasing the efficiency of the inspection program, and; (2) confirmation that the severity of the issues related to trash areas; onsite storm drains systems and over-irrigation warrant the focus of the inspection program as well as other programs that can support the effort to reduce the impacts of these areas.

10 Investigations

Narrative Description

Investigations are a Program Management Practice that is conducted to try to identify illegal discharges and illicit connections as a result of public reporting (hotline, website, etc.), inspection findings, staff referrals, and/or monitoring results. Investigations may include visual observations, closed circuit television (CCTV) often used for the MS4, or additional monitoring. Investigations can occur in municipal, land development, construction, industrial, commercial, or residential areas. Investigations may also address a wide range of pollutants and pollutant generating activities based upon the type of illegal discharge, illicit connection, or possibly natural source discovered. The purpose of investigations is to identify and eliminate any illegal discharges or illicit connections to the MS4. Typical illegal discharges identified through investigations include:

1. Motor oil or antifreeze from automobiles
2. Sanitary wastewater
3. Runoff from excess irrigation
4. Groundwater
5. Household toxic substances
6. Sediment
7. Trash

Target Source(s)

- Municipal Facilities
- Industrial and Commercial Facilities
- Construction Sites
- Residential
- Roads, streets, highways, and parking facilities
- MS4

Target Pollutant(s)

- Bacteria
- Trash
- Heavy Metals
- Nutrients
- Oil and Grease
- Organics
- Sediment
- Pesticides

10 Investigations

Target Audience(s)

- Municipal Staff
- Construction
- Residential
- Commercial Owners
- Industrial Owners
- Land Development

Effectiveness Potential

Investigations are a common tool used to respond to reports of potential violations, and this data gathering activity can be effective in finding and eliminating illegal discharges and illicit connections. This can result in a Level 4 source reduction. The Copermittees have discovered that most effective means of identifying illegal discharges or illicit connections is through hotline call or complaint referral response and investigation or visual surveys of the stormwater conveyance system during routine maintenance and/or cleaning.

11 Enforcement

Narrative Description

Each Copermittee implements and enforces its ordinances, codes, or other legal authority to prevent illegal discharges and connections to its MS4. Enforcement methods are utilized to affect a return to compliance at either a construction, municipal, industrial, commercial, or residential area. Some enforcement methods utilized include verbal warning, letters, educational materials, citations, notices of violation, stop work orders, or civil penalties. Each Copermittee also implements all follow-up actions necessary to achieve the return to compliance for a particular site.

Target Source(s)

- Municipal Facilities
- Industrial and Commercial Facilities
- Construction Sites
- Residential
- Roads, streets, highways, and parking facilities
- MS4

Target Pollutant(s)

- Bacteria
- Trash
- Heavy Metals
- Nutrients
- Oil and Grease
- Organics
- Sediment
- Pesticides

Target Audience(s)

- Municipal Staff
- Construction
- Residential
- Commercial Owners
- Industrial Owners
- Land Development

11 Enforcement

Effectiveness Potential

Enforcement is a common tool used to not only return violators to compliance but also to educate and promote compliance. Enforcement is a facilitation activity where the tabulation of enforcement data can be associated with a load reduction. If a site or residence where a pollutant is leaving, or has the potential to leave, the site has been stopped or mitigated through enforcement efforts there is an implied load reduction (Level 4). The tabulation of enforcement data may also provide information on assessment Levels 2-3. For example, as noted in the CASQA Effectiveness Assessment Guidance (May 2007), the number of enforcement actions can be compared from year to year to identify trends and to show program progress.

12 Regulatory Revisions

Narrative Description

Regulatory revisions, or "off-ramps", are essential in an adaptive management approach for storm water programs. For example, if valid monitoring data indicate a pollutant should be removed off of the 303(d) list, then it should be removed and may not be a primary focus of storm water program efforts. Additionally, if a jurisdiction determines that conducting inspections in a certain area or a certain facility classification is the most effective, then the jurisdiction should be able to focus efforts accordingly and not necessarily held to a minimum number. Some examples of regulatory revisions are:

1. 303(d) list changes
2. Beneficial Use modifications
3. Water Quality Objective adjustments
4. Program modifications
5. TMDL amendments

Target Source(s)

- Municipal Facilities
- Industrial and Commercial Facilities
- Construction Sites
- Residential
- Roads, streets, highways, and parking facilities
- MS4

Target Pollutant(s)

- Bacteria
- Trash
- Heavy Metals
- Nutrients
- Oil and Grease
- Organics
- Sediment
- Pesticides

12 Regulatory Revisions

Target Audience(s)

- Municipal Staff
- Construction
- Residential
- Commercial Owners
- Industrial Owners
- Land Development

Effectiveness Potential

While regulatory revisions do not have a direct link to an effectiveness assessment level, they do provide an indirect correlation. When regulatory revisions are made typically based upon scientific data, it provides an opportunity to reallocate resources to other issues which can be more efficient and effective.

13 True Source Control

Narrative Description

Eliminating the potential for urban runoff to come in contact with constituents of concern is defined as true source control. True source control reduces or prevents pollution, or pollutants, at their source. For example if Industry A was using pollutant X and pollutant X was having a negative impact on a receiving water, then true source control results in Industry A halting the use of pollutant X or replacing pollutant X with a less harmful alternative.

Target Source(s)

- Municipal Facilities
- Industrial and Commercial Facilities
- Construction Sites
- Residential
- Roads, streets, highways, and parking facilities
- MS4

Target Pollutant(s)

- Bacteria
- Trash
- Heaving Metals
- Nutrients
- Oil and Grease
- Organics
- Sediment
- Pesticides

Target Audience(s)

- Municipal Staff
- Construction
- Residential
- General Public
- Commercial Owners and Operators
- Industrial Owners and Operators
- Land Development

13 True Source Control

Effectiveness Potential

True source control is a facilitation activity aimed at Level 4 effectiveness assessment, and, depending upon the source control, has the potential to target any one or more of the target audiences, sources, and pollutants.

Currently, there are two examples of true source control applicable to the San Diego region as described below.

1. City of San Diego – SB346 – Brake Pad Partnership:
   As reported in the City's FY 2010 WURMP Annual Reports, *the City of San Diego (City) and other MS4 dischargers in the Chollas Creek Watershed are mandated by Total Maximum Daily Load (TMDL) Waste Load Allocations (WLAs) to reduce the amount of dissolved copper, lead, and zinc that are discharged to the creek. Previous City investigations determined that copper from automotive brake pads was a major contributor of dissolved copper to Chollas Creek and other waterbodies within City jurisdiction. Because the regulation of automotive brake pads is beyond the authority of any local government, the City collaborated with other California local governments, through California Stormwater Quality Association, to achieve true source control by reducing copper at its source. It was determined that the best way to achieve this goal was through the development of legislation, mandating reductions and then replacement of copper in automotive brake pads.*

   During FY 2010, the City of San Diego assisted with writing the proposed Senate Bill (SB346: Motor Vehicle Brake Friction Materials, Removal of Copper in Automotive Brake Pads), provided financial resources for technical experts to assist with its development, participated in negotiations with the automobile and brake pad manufacturers, and provided lobbyist assistance to Senator Kehoe to obtain political support for the bill's passage. Due to the automobile manufacturers renewed interest in this bill, negotiations were re-initiated to obtain support from all stakeholders, as required by the governor. The bill was rewritten multiple times and discussed by all parties before it was presented to Assembly subcommittees for review and approval. After the reporting period, SB346 was passed by both houses, signed into legislation by the governor on September 25, 2010, and incorporated into the California Health and Safety Code, Article 13.5, commencing with Section 25250.50.

   SB346 calls for reductions of copper down to 5% by weight by 2021 and 0.05% by 2025. It is anticipated that copper loads from automotive brake pads will decline after the first reduction date in 2021.

2. Diazinon Ban – Nationwide:

A highly effective example of true source control is the ban on the pesticide, Diazinon. In January 2005, a nationwide ban was placed on the retail sale Diazinon. Since that time, Diazinon concentrations have been steadily declining at the Mass Loading Stations (MLS) throughout the San Diego region.