April 27, 2007

Mr. Gerard J. Thibeault, Executive Officer
Santa Ana Regional Water Quality Control Board
3737 Main Street, Suite 500
Riverside, California 92501-3339

Re: Report of Waste Discharge for the Santa Ana River Region of Riverside County
Order No. R8-2002-0011,
NPDES No. CAS618033

Dear Mr. Thibeault:

Enclosed are two copies of the Report of Waste Discharge (ROWD) for the area-wide municipal separate storm sewer system (MS4) National Pollutant Discharge Elimination System (NPDES) permit No. CAS618033, Santa Ana Regional Water Quality Control Board Order No. R8-2002-0011. This ROWD is an application for renewal of the area-wide MS4 NPDES permit for Riverside County Flood Control and Water Conservation District (RCFC&WCD), the County of Riverside (County), and the incorporated cities of Riverside County within the Santa Ana River basin (Beaumont, Calimesa, Canyon Lake, Corona, Hemet, Lake Elsinore, Moreno Valley, Murrieta, Norco, Perris, Riverside, San Jacinto) collectively referred to herein as "Permittees."

In accordance with Section X.VI.A of Order No. R8-2002-0011, this ROWD describes:

- Revisions to the Drainage Area Management Plan (DAMP) including, but not limited to, activities the Permittees propose to undertake during the next permit term, goals and objectives of such activities, and evaluation of the need for additional source control and/or structural BMPs, proposed pilot studies, etc;
- Any new or revised program elements and compliance schedule(s) necessary to comply with Section III (Receiving Water Limitations) of Order No. R8-2002-0011;
- Changes in land use and/or population including map updates;
- Significant changes to the MS4s, outfalls, detention or retention basins or dams, and other controls, including updated maps of the MS4s.

In 2002 both the Permittees and the Santa Ana Regional Water Quality Control Board (Regional Board) staff invested significant time and resources in the development of the current MS4 NPDES permit (hereinafter referred to as the 2002 MS4 Permit). It is noteworthy that the adoption of the 2002 MS4 Permit was supported by the Regional Board staff, Permittees and the Regional Board in that every other MS4 NPDES permit issued in Southern California during that period had been appealed.

In addition to avoiding appeals and litigation, the significant investment in the development of the 2002 MS4 Permit has facilitated cooperation between the Permittees and the Regional Board and limited the effort required by the Regional Board in administering the MS4 compliance program.

Permittee representatives met with Regional Board staff on January 22 to obtain guidance for preparation of the ROWD. In that meeting, Regional Board staff provided a draft document entitled "Riverside County MS4 Permit – Findings from the Audits." That document provided useful information regarding the Regional Board staff's expectations regarding the ROWD. Based on the Permittee internal discussions and discussions with Regional Board staff, the Permittees propose to maintain the provisions of the 2002 MS4 Permit and DAMP with limited modifications to reflect:

- Removed descriptions of studies that have been completed;
- Updated references to related orders by the Santa Ana Regional Board and State Water Resources Control Board (State Board);
- Adoption of Total Maximum Daily Load requirements;
- Evolution of compliance programs;
- Further standardization and definition of terms;
- Consolidation of similar compliance requirements (training requirements, reporting requirements, Illicit Connection/Illegal Discharge requirements) to simplify the permit, increase readability and prevent the need for duplicative language;
- Deletion of requirements in the 2002 MS4 Permit that described the development of compliance program elements which were incorporated into the 2005 DAMP;
- Amendment by Order No. R8-2005-0038 of the Watershed-Wide Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with New Developments in the San Jacinto Watershed (Santa Ana Region Order No. 01-34, NPDES No. CAG 618005);
- Development of Local Implementation Plans by the Permittees during the 2007-2012 MS4 permit term;
- Addition of Permittee coverage under the Small Linear Underground Projects (State Board Order No. 2003-0007-DWQ, NPDES No. CAS000005), De Minimus Discharges (Santa Ana Regional Board Order No. R8-2003-0061, NPDES No. CAG998001 as amended by Order Nos. R8-2006-0004 and R8-2005-0041) and Utility Vaults (State Board Order No. 2006-0008-DWQ, NPDES No. CAG990002) General Permits;

- Recognition that the Municipal Facilities Strategy and Enforcement Compliance Strategies have been incorporated into the DAMP; and
- Regional Board staff comments made during the term of the 2002 MS4 Permit, including comments received during the January 22, 2007 ROWD coordination meeting.

Our goal is to work with the Regional Board staff to further refine the provisions of the 2002 MS4 Permit to ensure that the requirements and expectations of the fourth term MS4 NPDES permit are clear and unambiguous and that the focus is on addressing identified water quality problems in the Receiving Waters. A "track changes" version of the 2002 MS4 Permit reflecting the proposed revisions is included as an appendix to the ROWD. The proposed revisions also reflect the Permittee's need to clarify the requirements of the Permit, remove duplication of requirements that are contained in both the DAMP and the Permit (both documents are enforceable), and remove completed 2002 MS4 Permit requirements that are no longer useful to the Regional Board or the Permittees. In general, it is our experience that a simpler, more understandable MS4 NPDES permit facilitates compliance and protection of Receiving Water quality. A copy of the proposed fourth term MS4 NPDES permit with revisions accepted is also included in the ROWD for your convenience.

In addition, a revised DAMP that has been modified consistent with the proposed revisions of the 2002 MS4 Permit is provided as an appendix in the ROWD. The Permittees identified several DAMP enhancements that they believed were necessary to improve the efficacy of existing compliance programs mandated by the 2002 MS4 Permit or to address Regional Board staff comments regarding overall compliance programs. However, due to time limitations, not all of revisions proposed within this ROWD have been incorporated into the revised DAMP included as an appendix in the ROWD. For each program element, the ROWD identifies whether changes to the DAMP have already been addressed, or whether the Permittees are committing to make changes within 12 months of permit adoption. For your convenience, Permittee commitments in the ROWD to enhance the DAMP have also been incorporated into the proposed fourth term MS4 NPDES permit as compliance requirements.

The Permittees would also like to note that, based on the January 22, 2007 meeting with Regional Board staff, options to enhance industrial, commercial and construction operator compliance through alternative enforcement tools were carefully evaluated. Enforcement of Permittee storm water ordinances and permits is a concern shared by the Permittees and the Regional Board staff. Many of the requirements of the local ordinances and permits overlap with requirements of the General Permit for Storm Water Discharges Associated with Industrial Activities and the General Permit for Storm Water Discharges Associated with Construction Activity. Although the Permittees have a greater local enforcement presence, their ability to impose fines is limited by State law. As suggested by Regional Board staff, the Permittees have considered increased use of stop work orders and bonding requirements at construction sites and have concluded that these enforcement tools have limited

Mr. Gerard J. Thibeault, Executive Officer April 27, 2007
California Regional Water Quality Control Board
Santa Ana Region
Re: Report of Waste Discharge for Santa Ana River Region of Riverside County Order No. R8-2002-0011, NPDES No. CAS618033

applicability beyond their current use. However, the Regional Board has substantial regulatory authority that we believe can be brought to bear to assist in dealing with developers and industrial facility operators who are not responsive to Permittee enforcement efforts. We are look forward to closer coordination between the Permittees and the Regional Board staff in enforcing the requirements of our respective storm water ordinances and permits.

Finally, the Permittees would like to note that the Permittees of the San Diego County MS4 NPDES Permit have initiated litigation seeking reimbursement from the State of California for MS4 NPDES permit requirements that they believe are unfunded mandates exceeding the federal storm water regulatory requirements. To facilitate expeditious renewal of the MS4 NPDES permit, the enclosed ROWD addressed the requirements of the 2002 MS4 Permit and requirements described by Regional Board staff. In the event that the San Diego County MS4 Permittees prevail, the Permittees reserve the right to seek reimbursement and/or modification of the fourth term MS4 NPDES permit for those requirements determined to exceed federal requirements.

We look forward to working with the Regional Board staff in the renewal of the area-wide MS4 NPDES permit. If you have any questions, please call Jason Uhley at 951.955.1273 or Benjie Cho at 951.955.2901.

Very truly yours,

WARREN D. WILLIAMS
General Manager-Chief Engineer

Enclosures:
ROWD (Two hard copies and one CD)

c: Santa Ana River Region MS4 Permittees, w/CD
Eugene Bromley, USEPA Region IX, w/CD
Robert Collacott, URS, w/CD
David Huff, Riverside County Office of Legal Counsel, w/CD

Mr. Gerard J. Thibeault, Executive Officer April 27, 2007
California Regional Water Quality Control Board
Santa Ana Region
Re: Report of Waste Discharge for Santa Ana River Region of Riverside County Order No. R8-2002-0011, NPDES No. CAS618033

bcc: S. Stump
J. Uhley
B. Cho

REPORT OF WASTE DISCHARGE

FOR
MUNICIPAL SEPARATE STORM SEWER SYSTEM
WASTE DISCHARGE REQUIREMENTS AND
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT

SANTA ANA RIVER REGION
RIVERSIDE COUNTY

Submitted to

SANTA ANA REGIONAL WATER QUALITY CONTROL BOARD
(ORDER NO. R8-2002-0011)

AND

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY – REGION IX
(NPDES NO. CAS618033)

APRIL 27, 2007

CERTIFICATION

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

Signature: _____

Name: Warren D. Williams

Title: General Manager – Chief Engineer

Date: April 27, 2007

REPORT OF WASTE DISCHARGE

Submitted To

SANTA ANA REGIONAL WATER QUALITY CONTROL BOARD
(Order No. R8-2002-0011)

and

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY – REGION IX
(NPDES No. No. CAS618033)

APRIL 27, 2007

SANTA ANA RIVER REGION

RIVERSIDE COUNTY

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT,
COUNTY OF RIVERSIDE, CITY of BEAUMONT, CITY of CALIMESA,
CITY of CANYON LAKE, CITY of CORONA, CITY of HEMET,
CITY of LAKE ELSINORE, CITY of MORENO VALLEY, CITY of MURRIETA,
CITY of NORCO, CITY of PERRIS, CITY of RIVERSIDE, and CITY of SAN JACINTO

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1.0 Executive Summary

The Santa Ana Regional Water Quality Control Board (Regional Board) adopted an area-wide (Order No. R8-2002-0011) municipal separate storm sewer system (MS4) National Pollutant Discharge Elimination System (NPDES) permit (2002 MS4 Permit) on October 25, 2002. This Report of Waste Discharge (ROWD) is a required component for renewal of the 2002 MS4 Permit (NPDES No. CAS618033). The 2002 MS4 Permit authorizes discharges of Urban Runoff by the following Permittees: Riverside County Flood Control & Water Conservation District (District), County of Riverside (County), and the cities of Beaumont, Calimesa, Canyon Lake, Corona, Hemet, Lake Elsinore, Moreno Valley, Murrieta, Norco, Perris, Riverside, and San Jacinto.

The 2002 MS4 Permit requires the Permittees to submit this ROWD 180 days prior to permit expiration (by April 27, 2007). This ROWD includes a Proposed 2007 MS4 Permit and a 2007 Drainage Area Management Plan (DAMP) that maintain the fundamental structure and content of the 2002 MS4 Permit and the 2005 DAMP. The Proposed 2007 MS4 Permit and a "track changes" version of the 2002 MS4 Permit showing the revisions are attached as Appendix A. The following updates and improvements have are reflected in the Proposed 2007 MS4 Permit:

- Removed descriptions of studies that have been completed;
- Updated references to related orders by the Santa Ana Regional Board and State Water Resources Control Board (State Board);
- Adoption of Total Maximum Daily Load (TMDL) requirements;
- Evolution of compliance programs;
- Further standardization and definition of terms;
- Consolidation of similar compliance requirements [training requirements, reporting requirements, Illicit Connection/Illegal Discharge (IC/ID) requirements] to simplify the permit, increase readability and prevent the need for duplicative language;
- Deletion of requirements in the 2002 MS4 Permit that described the development of compliance program elements which were incorporated into the 2005 DAMP;
- Amendment by Order No. R8-2005-0038 of the Watershed-Wide Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with New Developments in the San Jacinto Watershed (Santa Ana Region Order No. 01-34, NPDES No. CAG 618005);
- Development of Local Implementation Plans (LIPs) by the Permittees during the 2007-2012 MS4 permit term;
- Addition of Permittee coverage under the Small Linear Underground Projects (State Board Order No. 2003-0007-DWQ, NPDES No. CAS000005), De Minimus Discharges (Santa Ana Regional Board Order No. R8-2003-0061, NPDES No. CAG998001 as amended by Order Nos. R8-2006-0004 and R8-2005-0041) and Utility Vaults (State Board Order No. 2006-0008-DWQ, NPDES No. CAG990002) General Permits;
- Recognition that the Municipal Facilities Strategy and Enforcement Compliance Strategies have been incorporated into the DAMP; and

- Santa Ana Regional Board staff comments received by the Permittees during the term of 2002 MS4 Permit, including comments received during our January 22, 2007 ROWD kick-off meeting regarding topics such as low impact development, hydromodification, LIPs, etc.

This ROWD also highlights program accomplishments during the 2002 MS4 Permit term. The major accomplishments for the Permittees are:

- Revisions to the DAMP that include 28 Construction Site and 36 Municipal and Industrial Source Control Best Management Practices (BMPs) designed to reduce Urban Runoff pollution.
- Development and implementation of a Water Quality Management Plan (WQMP) that addresses post-construction Urban Runoff management for New Development.
- Participation in the development and implementation of TMDLs for Lake Elsinore, Canyon Lake and the Middle Santa Ana River.
- Initiation of a cooperative program with County Department of Environmental Health to implement Supplemental Environmental Projects in lieu of a portion of fines for environmental crime cases.
- Development of handbook to standardize post-construction BMP selection and design in Riverside County. Ongoing updates to the handbook include a plan to incorporate low impact development design concepts.
- Development of coordinated BMP manual for fire fighting agencies.
- Development, implementation and maintenance of Permittee databases to track construction sites 1-acre or larger. In addition, the Permittees have standardized a construction reporting spreadsheet used for Annual Reports, updated inspection forms, and enhanced the construction outreach program.
- Creation of Permittee databases to track industrial and commercial facilities.
- Creation and maintenance of the Storm Water Protection website that offers educational resources and free brochures targeting residents, businesses, developers, contractors, and elementary school children.
- Categorization and quantification of litter types.
- Partnership with the Riverside-Corona Resource Conservation District and Mission Resource Conservation District to provide an educational outreach programs targeting schools and adults.
- Continued participation in the Consolidated Program for Water Quality Monitoring (Consolidated Monitoring Program) that includes collection of water quality samples at MS4 outfalls and Receiving Waters.
- Participation in regional and statewide monitoring efforts such as the Southern California Monitoring Committee, Southern California Coastal Water Commission and National Water Resources Institute.
- Participation in the California Stormwater Quality Association, including the leadership roles of Board Member, Legislative Chair, and Monitoring and Science Co-Chair.
- Development and enhancements to templates for project-specific WQMPs

- Development of a Frequently Asked Question (FAQ) document to assist developers and plan review staff in understanding WQMP requirements and expectations.

2.0 Introduction

On October 25, 2002 the Santa Ana Regional Board adopted Order No. R8-2002-0011, an area-wide MS4 NPDES permit (2002 MS4 Permit). This ROWD is an application for renewal of the 2002 MS4 Permit (NPDES No. CAS618033) for the District, the County, and the incorporated cities of Riverside County within the Santa Ana River basin. Terms used in this document are defined in the glossary of both the Proposed 2007 MS4 Permit and the 2007 DAMP, which are included as Appendices A and B, respectively.

2.1 Contents of ROWD

The 2002 MS4 Permit expires on October 26, 2007 and requires that this ROWD be submitted no later than 180 days in advance of the expiration date (April 29, 2007). The 2002 MS4 Permit also specifies that the ROWD "shall, at a minimum, include the following:

- Revisions to the DAMP including, but not limited to, activities the Permittees propose to undertake during the next permit term, goals and objectives of such activities, and evaluation of the need for additional source control and/or structural BMPs, proposed pilot studies, etc;
- Any new or revised program elements and compliance schedule(s) necessary to comply with Section III of the MS4 NPDES Permit Order;
  - Changes in land use and/or population including map updates;
  - Significant changes to the MS4, outfalls, detention or retention basins or dams, and other controls, including updated maps of the MS4."

The ROWD includes the following appendices:

A Proposed 2007 MS4 Permit ("track changes" and revisions-accepted versions),

B 2007 DAMP,

C Permit Area Boundary Map / 2006 Land Use Map, and

D Santa Ana River Region MS4 facility maps.

2.2 Regulatory History

In May 1990 the District, the County, and the Cities of Beaumont, Corona, Hemet, Lake Elsinore, Moreno Valley, Norco, Perris, Riverside, and San Jacinto submitted an application for an area-wide municipal storm water NPDES permit for the portion of the county within the Santa Ana River basin. On July 10, 1990, the newly incorporated cities of Calimesa and Canyon Lake were added to the application. An "Early" Permit[1] was adopted by the Santa Ana Regional Board on July 13, 1990. The "Early" Permit designated the District as the Principal Permittee and the County and the 11 cities were designated as Co-Permittees. Collectively, the Principal Permittee and the Co-Permittees are referred to as the Permittees.

[1] Some municipalities applied for and received storm water discharge permits prior to the United States Environmental Protection Agency's promulgation of the "Final Rule for NPDES Permit Application for Storm Water Discharges" on November 16, 1990. Such permits have been referred to as "Early" permits.

In compliance with the "Early" Permit, the Permittees submitted an application for renewal of their area-wide municipal storm water NPDES permit in January 1995. Due predominantly to statewide negotiations over proposed provisions regarding receiving water limitations, the 1996 MS4 Permit (Order No. 96-30) was not adopted by the Santa Ana Regional Board until March 8, 1996. As in the "Early" Permit, the 1996 MS4 Permit designated the District as the Principal Permittee, and the County and the 11 cities as Co-Permittees.

In 2002 both the Permittees and the Santa Ana Regional Board invested significant time and resources in the development of the 2002 MS4 Permit (Order No. R8-2002-0011). Representatives from the Permittees and the Santa Ana Regional Board met at least weekly from May through October 2002 to review each element and definition identified in the MS4 Permit. The purpose of the weekly meetings was to reduce ambiguity and to ensure that compliance requirements and schedules were appropriate for the conditions in the Santa Ana Region and attainable. It is noteworthy that the adoption of the 2002 MS4 Permit was supported by the Santa Ana Regional Board staff, Permittees and the Santa Ana Regional Board. Every other MS4 permit issued in Southern California during that period was appealed. In addition to avoiding appeals and litigation, the significant investment in the development of the MS4 permit facilitated cooperation between the Permittees and the Santa Ana Regional Board in protecting water quality and reduced the effort required by the Santa Ana Regional Board in administering the MS4 compliance program.

Recognizing the significant investments made in developing the 2002 MS4 permit and the significant commitment the Permittees are making to address water quality impairments, including those identified in the 2006 303(d) List as high priority for establishment of TMDLs, the Permittees propose to maintain the fundamental structure and content of the 2002 MS4 Permit and the 2005 DAMP with modifications limited to reflect:

- Removed descriptions of studies that have been completed;
- Updated references to related orders by the Santa Ana Regional Board and State Board;
- Adoption of TMDL requirements;
- Evolution of compliance programs;
- Further standardization and definition of terms;
- Consolidation of similar compliance requirements [training requirements, reporting requirements, IC/ID requirements] to simplify the permit, increase readability and prevent the need for duplicative language;
- Deletion of requirements in the 2002 MS4 Permit that described the development of compliance program elements which were incorporated into the 2005 DAMP;
- Amendment by Order No. R8-2005-0038 of the Watershed-Wide Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with New Developments in the San Jacinto Watershed (Santa Ana Region Order No. 01-34, NPDES No. CAG 618005);
- Development of LIPs by the Permittees during the 2007-2012 MS4 permit term;
- Addition of Permittee coverage under the Small Linear Underground Projects (State Board Order No. 2003-0007-DWQ, NPDES No. CAS000005), De Minimus Discharges (Santa Ana Regional

Board Order No. R8-2003-0061, NPDES No. CAG998001 as amended by Order Nos. R8-2006-0004 and R8-2005-0041) and Utility Vaults (State Board Order No. 2006-0008-DWQ, NPDES No. CAG990002) General Permits;

- Recognition that the Municipal Facilities Strategy and Enforcement Compliance Strategies have been incorporated into the DAMP; and
- Santa Ana Regional Board staff comments received by the Permittees during the term of 2002 MS4 Permit, including comments received during our January 22, 2007 ROWD kick-off meeting regarding topics such as low impact development, hydromodification, LIPs, etc.

2.3 Permit Area

The Permit Area is defined in the Proposed 2007 MS4 Permit[2] as the portion of the Santa Ana River watershed that is within the County of Riverside and identified as "Urban Area" and those portions of "Agriculture" and "Open Space" that do convert to industrial, commercial, or residential use during the term of the Order. The Permit Area is referred to as the "Santa Ana Region." The following lands are excluded from the Santa Ana Region:

- Federal lands and state properties, including, but not limited to, military bases, national forests, hospitals, colleges and universities, and highways;
- Native American tribal lands;
- Open space and rural (non-urbanized) area;
- Agricultural lands; and
- Utilities and special districts.

A map delineating the Santa Ana Region is provided in Appendix C.

[2] A map of the Permit Area is included as Appendix C.

3.0 Description of Santa Ana River Region

3.1 Physiography and Geology

The Santa Ana River watershed is located in the Peninsular Ranges and Transverse Ranges Geomorphic Portion of Southern California (CA Geological Survey Note 36). The highest elevations (upper reaches) of the watershed occur in the San Bernardino (San Grogonio Peak – 11,485 feet in elevation) eastern San Gabriel (transverse Ranges Province; Mt. Baldy – 10,080 feet in elevation) and San Jacinto Mountains (Peninsular Ranges Province, Mt. San Jacinto – 10,804 ft). Further downstream, the Santa Ana Mountains and the Chino Hills form a topographic high before the Santa Ana River flows into the Coastal Plain (in Orange County) and then the Pacific Ocean. Primary slope direction is northeast to southwest, with secondary slopes controlled by local topography.[3]

The geology of the Santa Ana River watershed is defined and created by seismic activity. Motion along the San Andreas Fault zone, caused by uplift of the San Bernardino and San Gabriel mountain ranges, is in a southeast-northwest direction at the base of the San Bernardino Mountains. Other major fault structures include the San Jacinto fault zone and the Elsinore Fault Zone; the San Jacinto Mountains are caused by motion from both the San Andreas and San Jacinto zones. The area between the San Jacinto zone and the Elsinore Zones is a down-dropped block that is partly in-filled with sediments from the surrounding mountains.[4]

There are several geologic units in the Santa Ana River watershed, but the predominant features are intrusive rocks of the southern California batholith (granitic and andesitic rocks) that have been uplifted/eroded to form the mountain ranges, alluvial/fluvial sediments (materials eroded from the mountains and deposited in the basins, shown in tan/light tones), and semi-consolidated sedimentary units.[5]

3.2 Climate

The Santa Ana River watershed is known for its temperate climate and relatively low rainfall, about 15 inches per year.[6] This Mediterranean climate is characterized by dry, hot summers and cooler wetter winters. Most precipitation occurs between November and March in the form of rain, and some snow in the higher mountain elevations. This Mediterranean climate results in higher surface water flows in the spring and early summer followed by low to no flows in the dry season. During wet years, spring and winter floods are common. In the dry summer months, infrequent storm events can cause flooding in local streams.[7]

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[3] Santa Ana Watershed Project Authority (SAWPA). 2002. *About the Watershed*. http://www.sawpa.org/about/watershed.htm

[4] SAWPA. 2002. *About the Watershed*. http://www.sawpa.org/about/watershed.htm

[5] SAWPA. 2002. *About the Watershed*. http://www.sawpa.org/about/watershed.htm

[6] State Water Resources Control Board. 2006. Region 8 Fact Sheet: Santa Ana Regional Water Quality Control Board. (www.waterboards.ca.gov/santaana/pdf/Reg8FactSheet.pdf)

[7] SAWPA. 2002. *About the Watershed*. http://www.sawpa.org/about/watershed.htm

3.3 Population and Land Use

3.3.1 Population

Within the portion of Riverside County under the jurisdiction of the Santa Ana Regional Board, the population has grown from 1,104,362 in late 2002 to 1,237,388 in 2006. The areas of the most significant percentage growth in population from 2002 to 2006 include the Cities of Beaumont, Lake Elsinore, and Perris. Long-range population forecasting indicates population growth in the Santa Ana Region to approximately 1,425,500 by 2010. The most significant percentage growth in population between 2006 and 2010 is expected in the Cities of Beaumont, Calimesa, and San Jacinto. Table 1 contains population estimates and projections for each Co-Permittee. Since the District is not a general purpose government, it is not included in this listing.

Table 1. Population of Santa Ana Region Co-Permittees

Co-Permittee	Year			Change (2006 to 2010)
	Estimate 2002 [a]	Estimate 2006 [a]	Projected 2010 [b]	
City of Beaumont	13,959	23,145	33,951	47%
City of Calimesa	7,427	7,200 [c]	12,000 [c]	67%
City of Canyon Lake	10,647	10,500 [d]	11,400	9%
City of Corona	138,761	144,661	150,177	4%
City of Hemet	63,001	69,544	78,000 [e]	12%
City of Lake Elsinore	33,460	40,985	51,138	25%
City of Moreno Valley	151,847	174,565	194,403 [f]	11%
City of Murrieta	- -			
City of Norco	25,511	27,263	29,058	7%
City of Perris	38,690	47,139	65,415 [g]	39%
City of Riverside	277,459	292,883 [h]	307,781 [h]	5%
City of San Jacinto	26,374	31,066	51,332	65%
Unincorporated County of Riverside	317,226	368,437 [i]	440,853 [i]	20%
Total	1,104,362	1,237,388	1,425,508	15%

Notes:

(a) Unless otherwise noted, population estimates were obtained from State of California, Department of Finance, *E-4 Population Estimates for Cities, Counties and the State, 2001-2006, with 2000 Benchmark.* Sacramento, California, May 2006. www.dof.ca.gov/HTML/DEMOGRAP/ReportsPapers/Estimates/E4/E4-01-06/documents/Hist_E-4.xls)

(b) Unless otherwise noted, projected population was obtained from Western Riverside Council of Governments (WRCOG, Subregional Growth Forecast, Riverside County Projection (Revised Draft), November 22, 2006. www.wrcog.cog.ca.us/wrcogsubregforecast.pdf

(c) Data provided by City of Calimesa.

(d) Data provided by City of Canyon Lake.

(e) Valley Economic Development Corporation, Hemet.

(f) Data provided by City of Moreno Valley.

(g) Data provided by City of Perris.

(h) Data provided by City of Riverside.

(i) Data provided by County of Riverside, Executive Office

3.3.2 Land Use

Land uses in Riverside County within the Santa Ana River Region include open space, residential, commercial, light industrial, heavy industrial, and agriculture. The agricultural land uses include row crops, nurseries, citrus groves and vineyards, dairies, ranches, poultry and hog farms, and other agricultural related uses with one single-family residence allowed per 10 acres (County of Riverside General Plan, Land Use Element 2003). The conversion of agricultural lands and open space to other "developed" land uses has been ongoing and will continue. Land uses in the Santa Ana Region are shown in Table 2. These land uses are based on the County of Riverside Assessor Parcel Data, current as of February 2006. A map of current land uses is provided in Appendix C.

Table 2. Current Land Uses

Urban Land Use	Acreage[(a)]	% of Land Use Subtotal	% of Total Land Use
Commercial	15,584	13	2
Industrial	13,857	11	2
Urban Residential (< 1 acre)	70,499	58	8
Parks & Recreation Facilities	9,872	8	1
Streets & Roads	11,798	10	1
Subtotal – Urban Land Use	121,610	100	14
Non Urban Land Uses			
Preserves & Open Space	453,976	59	51
Rural Residential (> 1 acre)	70,164	9	8
Agriculture	48,627	6	5
Federal/State/Tribal Lands/Non-County Jurisdiction	199,064	26	22
Subtotal Non Urban Land Use	771,831	100	86
Total Urban & Non Urban Land Use	893,441		

(a) Based upon County of Riverside Assessor Parcel Data as of February 2006.

3.3.3 Proposed New Development 2007-2012

Proposed development during the next permit term is an important indicator of potential new Urban Runoff sources. This section describes the expected development within Permittee cities.

3.3.3.1 County of Riverside

Projected trends for the County of Riverside's land use can be referenced in the Riverside County General Plan. Maps depicting the areas of future development and type of land use can be found in the General Plan maps that are accessible at http://www.rctlma.org/generalplan/area_maps.html.

3.3.3.2 City of Beaumont

The City of Beaumont's development is mostly within specific plan areas that that have been master planned. There are approximately eleven specific plan areas currently under development. These specific plan areas are in all corners of and surround the core of the City of Beaumont. There are commercial specific plans along the 10 Freeway and west of Highland Springs Avenue. The Beaumont Market Place

Specific Plan includes a new shopping center totaling 194,569 square feet of commercial both retail and restaurants. There industrial developments expected to be built south of State Route 60 as described in the Rolling Hills Ranch Specific Plan and the Moran Raceway Industrial Specific Plan, together totaling approximately 360 acres of industrial development.

Approximately 9,000 homes have been constructed over the last five years in the City of Beaumont. With the changes in the housing market, the City of Beaumont expects approximately 800 housing units to be built per year during the next five years. The majority of the growth in the City of Beaumont is expected to occur in four major specific plan areas: Sundance, located in the north eastern region; Four Seasons, located in south eastern region; Hidden Canyon, Heartland, and Oak Valley PGA located in the eastern portion; and Noble Creek specific plan located in the northern portion. The remaining growth with be through infill and build out on the remaining specific plan areas.

3.3.3.3 City of Calimesa

Assuming there will be no major drops in the housing markets and/or the general Southern California economy, the population of the City of Calimesa will rise dramatically during the next permit term. In January 2007, the City of Calimesa started the review process for a subdivision containing over 1,600 lots. This project, commonly called the Suncal Development, is located between San Timoteo Road and Interstate 10, northwest of Singleton Road. The Suncal Development is expected to be built to completion by 2009. Other smaller developments are occurring throughout the City of Calimesa, but none will be of the same scale as the Suncal Development.

3.3.3.4 City of Canyon Lake

There are less than four hundred vacant lots still available for developing. The City of Canyon Lake averages approximately 40 new homes a year, so over the next five years approximately 200 new homes are expected.

3.3.3.5 City of Corona

Generally, development in accordance with the City of Corona General Plan would result in infill of vacant lands and redevelopment of existing sites in the Downtown Revitalization and North Main Street Specific Plan areas, as well as effective reuse of obsolete industrial lands. Additionally, incremental growth, mainly consisting of low density residential in the southern periphery of the City of Corona, is anticipated. Most potential new development would be the result of annexation of land within the City of Corona's sphere of influence (SOI) as described below.

- City of Corona Potential New Development 2007-2012 (excluding SOI)
  - Residential - approximately 1,550 units
  - Commercial - Neighborhood/Regional Retail & Office- approximately 2,100,000 square feet
  - Industrial - 5,600,000 square feet
- City of Corona SOI Potential New Development 2007-2012
  - West Sphere consisting of Prado Basin, Coronita, and Foothill would primarily include development along the foothills south of Coronita consisting of low-density, rural housing. Approximate addition of 200 residential units is anticipated by 2012. This area consisting of 6,844 acres would need to be annexed from the County of Riverside.

- East Sphere consisting of Home Gardens, Eagle Valley East, and El Cerrito would potentially include development of residential, commercial, and industrial categories. This area consisting of 5,279 acres would need to be annexed from the County of Riverside.
- South Sphere consisting of Temescal Valley would include development of planned residential communities that integrate a variety of housing types, schools, parks, and other amenities; business and industrial parks; supporting local and highway serving commercial, recreation resorts, and continued mining uses. This area consisting of 9,829 acres would need to be annexed from the County of Riverside.

3.3.3.6 City of Hemet

The City of Hemet expects both residential and commercial development to continue at a steady pace over the next 5 years based on the number of projects currently in construction and project applications presently under consideration for approval. Residential development is expected to total 1,495 acres with an estimated 4,553 lots. Multifamily residential development is expected to total 154 acres with an estimated 3,444 units. Commercial development of retail and office units is expected to total 117.8 acres, with an additional 18 acres that will be developed as an industrial park.

3.3.3.7 City of Lake Elsinore

No information provided.

3.3.3.8 City of Moreno Valley

Much of the residential development in Moreno Valley is expected to occur in smaller infill tracts of less than 200 lots. One of the major projects that will begin construction includes the 2,922-unit Aquabella Specific Plan. This age-restricted project consists of various housing projects. The 760-acre site will be fully graded during the review period, and infrastructure will be installed. It is expected that about a quarter of the units, or an estimated 725 units, will be built during the review period. In addition, Beazer Homes is under construction on a planned community in the Stoneridge area for a total of 511 units. This site is fully graded and the model homes have recently been completed. Full build-out of this project would be expected during the 2007-2012 MS4 Permit term.

With regard to commercial development, it is also expected that development of the Stoneridge commercial center will be largely completed within the 2007-2012 MS4 Permit term. This would include 579,295 square feet of commercial development. The site has already been graded. In addition, within the Towngate Specific Plan, additional development of approved commercial and office uses are anticipated for about 150,000 square feet of building area. This will also likely include a 120-room hotel. Most of this property is already graded under authorized permit.

With regard to industrial development, it is estimated that about 5,000,000 square feet of warehousing and industrial uses would be completed or constructed during the 2007-2012 MS4 Permit term. This total includes about 2.5 million square feet of warehousing uses that is currently under construction.

3.3.3.9 City of Norco

There are no open areas remaining for large-scale tract map residential development. The largest of the open areas that is anticipated to eventually be subdivided for residential development is 23+ acres which will likely yield approximately 15-20 lots based on zoning and topography. The remaining residential

development in the City of Norco will be the subdivision of large lots into four or fewer lots with a few exceptions that may yield a couple more. These infill lots are spread throughout the City of Norco so there is no specific pattern or growth area that can be identified. It is anticipated that the number of overall housing units will increase approximately 26 units a year until 2010. And again there will be no pattern or area of concentration for these units.

Commercial development is planned for the southern part of the City of Norco (south of First Street) along Hamner Avenue and Hidden Valley Parkway, which are the two primary commercial corridors in this area. The City of Norco anticipates the development of 25,000+ square feet of retail/restaurant space on the north side of Hidden Valley Parkway east of the I-15 freeway in 2007. The remaining commercial areas within this area of the City of Norco are all infill lots that are vacant or underutilized. The City of Norco anticipates approximately 16,000 square feet of development in the first year of the 2007-2012 MS4 Permit term accelerating to approximately 20,000 square feet per year toward the end of the term. Total anticipated development in terms of square feet in this area by the end of this term is 71,148 square feet.

Along Hamner Avenue from First Street north to Second Street the City of Norco anticipates the development of 41,629 square feet of hotel space (82 units) in 2007. The remaining commercial acreage is either vacant or is underutilized in terms of allowed uses per existing zoning. The City of Norco anticipates approximately 6,000 square feet of commercial space per year in this area at the beginning of the 2007-2012 MS4 permit term, increasing to approximately 15,000 per year by the end of the term for an approximate total of 77,629 square feet of commercial space over this permit term.

Along Hamner Avenue from Second Street north to Third Street is a commercial corridor that is primarily built out with the exception of the southwest corner of Third Street and Hamner Avenue. This area also includes a secondary commercial corridor along Four Wheel Drive within the Auto Mall that is currently underutilized and may be developed for commercial or more industrial-type uses in the future. The City of Norco anticipates approximately 70,000 square feet of commercial development through the 2007-2012 MS4 permit term along Hamner Avenue and 15,000 square feet along Four Wheel Drive that could be either commercial or more industrial in nature. The total square-footage anticipated in this area over this permit term is 85,000 square feet.

The commercial corridor along Hamner Avenue between Third and Fourth Streets is a largely developed but underutilized commercial area within the City of Norco. Development will be completed for 45,532 square feet of commercial office development in 2007. Remaining development is anticipated to occur as infill only. Therefore, the City of Norco anticipates approximately 65,532 square feet of commercial development in the first year of the 2007- 2012 MS4 permit term and 20,000 in the second for a total of 85,532 square feet of commercial development for this area during the permit term.

Between Fourth and Fifth Streets, the Hamner Avenue commercial corridor is less developed with more vacant parcels for future development. The City of Norco anticipates construction of 54,834 square feet of retail, office, and restaurant space on the west side of the street and 14,000 square feet of retail and restaurant space on the east side of the street within the first year of the 2007-2012 MS4 Permit term. The City of Norco anticipates more development of vacant properties on the east side of the street probably beginning the second year of the 2007-2012 MS4 Permit term with approximately 10,000 square feet increasing to 20,000 square feet of commercial development during the third year. The City of Norco anticipates 15,000 square feet on the west side of the street at the beginning of this term. The total

anticipated square footage of commercial development in this area during the 2007-2012 MS4 Permit term is 113,834 square feet.

The section of Hamner Avenue continuing north between Fifth and Sixth Streets is mostly vacant with some commercial development. The City of Norco anticipates the development of a 48,177 square-foot hotel (73 units) with a restaurant and banquet hall by the second year of the 2007-2012 MS4 Permit term. The City of Norco also anticipates the development of 50,000 square feet of office and commercial development within the same time frame. The City of Norco anticipates another 45,000 square feet of commercial and restaurant development toward the end of the 2007-2012 MS4 Permit term. The total amount of development anticipated in this area of the City of Norco during the 2007-2012 MS4 Permit term is 143,177 square feet.

The remainder portion of the commercial corridor along Hamner Avenue north of Sixth Street is mostly vacant, and what has been developed is underutilized and is not spatially set in such a way that is conducive to major commercial development. The City of Norco anticipates approximately 17,500 square feet of development in this area in the beginning years of the 2007-2012 MS4 Permit term.

There are two small commercial areas in the southwest area of the City of Norco where one site is fully developed with a commercial center and an adjoining site is only partially developed. The other commercial site is not connected to these sites and is vacant. The City of Norco anticipates approximately 10,000 square feet of commercial development along River Road during the 2007-2012 MS4 Permit term.

The last remaining commercial corridor is Sixth Street. This corridor consists of a number of residential conversions and infill development on small lots, with many underutilized parcels. There are only a few large assembled properties where a large center could be accommodated in the near future. The City of Norco anticipates a commercial center with both retail and restaurant uses with a total of 41,700 square feet to be developed in the first year of the 2007-2012 MS4 Permit term. It is anticipated that the remaining commercial development along Sixth Street throughout this term will be infill development over the entire area. The City of Norco anticipates 15,000 square feet in the second year and 30,000 square feet over the rest of the 2007-2012 MS4 Permit term for a total of 85,700 square feet.

The remaining undeveloped industrial sites in the City of Norco are located primarily in the southwest and west-center portions of the city. It is anticipated that there will be 40,000 square feet of industrial development in the first year of the 2007-2012 MS4 Permit term and 60,000 square feet over the remainder of the permit term. Total industrial square footage will be 220,000 square feet citywide through the 2007-2012 MS4 Permit term.

3.3.3.10 City of Perris

The City of Perris is experiencing a large volume of detached residential home construction mainly north of Nuevo Avenue and east of the Perris Valley Storm Drain. There are a total of 1,607 homes currently under construction, which are expected to be added to the City of Perris housing stock by the end of 2007.

Plans have been approved for an additional 3,205 homes that are expected to be constructed by 2010. Similar to the current development, the majority of homes are being constructed north of Nuevo Avenue and east of the Perris Valley Storm Drain. By 2012, it is estimated that an additional 2,767 homes could

be developed by 2012. This last round of development would most likely be south of Nuevo Avenue and west of the Perris Valley Storm Drain.

There is a large volume of industrial construction occurring north of Rider Street, west of Perris Valley Storm Drain. By the end of 2007, it is expected that 1,769,756 square feet of warehousing, distribution and manufacturing buildings will be constructed. An additional 770,040 square feet of industrial park build out is expected to be constructed by 2010. By 2012, an additional 4,748,590 square feet of industrial development is expected to occur, continuing to be concentrated north of Rider Street and west of the Perris Valley Storm Drain.

The majority of commercial development is located south of Mapes Road and east of Perris Valley Storm Drain. By the end of 2007, 650,000 square feet of regional commercial and other retail chain stores and restaurants will be constructed. An additional 405,830 square feet of commercial development is anticipated by 2010. By 2012, it is likely that an additional 2,035,000 square feet of commercial space could be developed with most of this development occurring north of State Highway 74 and west of the Perris Valley Storm Drain.

During the 2007-2012 MS4 Permit period, in addition to the 2,539,796 square feet of industrial development expected between 2007 and 2010, it is likely that an additional 4,748,590 square feet of industrial development to be constructed by 2012. The second round of industrial development is expected to follow the same pattern as the current industrial development; concentrated north of Rider Street and west of the Perris Valley Storm Drain.

3.3.3.11 City of Riverside

Over the next five years, the City of Riverside has six focus areas for major redevelopment efforts, as well as incorporation of eleven potential areas to be annexed into the city. Furthermore, the City of Riverside has outlined a Riverside Renaissance Initiative that includes new parks and park facilities, landscaping, traffic management efforts and economic redevelopment. Throughout the City's improvement plans are increased density for residential, commercial and mixed use opportunities. Areas of potential annexation are targeted for coordinated development and maintaining open space.

In the downtown area, the City plans 500,000 square feet of new office space, 1,000 new residential units and expanded cultural opportunities. Planned new cultural amenities include education facilities, a Center for Visual Arts and a Regional Performing Arts facility. The new developments will change the land use of existing developed areas that currently include commercial office, automotive repair shops and surface parking into denser residential and commercial uses. With the downtown changes, parking will move from surface lots to underground parking structures and traffic will move more efficiently, resulting in an expected decrease of Pollutant contribution to Urban Runoff.

In central portion of the city, near the Plaza, and in the La Sierra neighborhood, the City plans to redevelop adjacent lots into high density projects, possibly including high density residential, mixed use or commercial uses; however, no project has been established.

Similarly, in the Casa Blanca and Lincoln neighborhoods, the City of Riverside seeks to develop high-density projects on currently developable properties. In the Airport neighborhood, the City of Riverside plans for improved architectural design and landscaping in some industrial areas.

Growth during the 2007-2012 MS4 Permit term includes annexation areas currently within the City's sphere of influence. The combined area likely to be annexed during the term of the proposed permit covers approximately 2,150 acres. While some areas may continue development, particularly residential development, many areas are expected to remain at their current low levels of development and open space, unless they are developed before incorporation into the City.

3.3.3.12 City of San Jacinto

The amount of growth projected for the period between 2007 and 2012 is expected to be significant. Development is expected to occur in all of the following areas: single family residential, multi-family residential, retail commercial, office commercial, business park, and industrial. The growth is expected to occur city-wide.

In the southeast portion of the City of San Jacinto there will be continued single-family residential development. However, due to the fact that much of the available land is either under construction or already developed, the numbers of new homes are not expected to be significant. In the northeast portion of the City of San Jacinto, it is expected that approximately 1000 single-family homes and 200 multi-family units will be constructed. In the north central portion of the City of San Jacinto, approximately 1,000 single-family homes are anticipated and approximately 200,000 square feet of retail is projected. In the central and western areas, continued development of homes and apartments is anticipated with up to 1,500 homes and 300 apartments built in this area. In addition, office, business park and industrial development activity is expected to occur in these central and western areas of the city.

The northwest area of the City of San Jacinto, near the Ramona Expressway and Sanderson, is expected to see its first significant development activity. There are currently several development applications being processed, including residential specific plans, mixed use specific plans, and retail commercial specific plans. In total, there are more than 3,000 homes projected for this area, over 1 million square feet of retail proposed in this area, and more than 600 acres earmarked for mixed-use development.

3.4 Surface Water Bodies and Beneficial Uses

Approximately one-quarter of Riverside County drains into surface water bodies within the jurisdiction of the Santa Ana Regional Board. Those surface water bodies (or portions thereof) are listed in Sections 3.4.1 and 3.4.2.

3.4.1 Rivers and Streams

Santa Ana River, Reaches 3 and 4
Tributaries to the south bank of the Santa Ana River
    Temescal Creek, Reaches 1, 2, 3, 4, 5, and 6
        Tributaries to Temescal Creek
            Coldwater Canyon Creek and its tributary drainages
            Bedford Canyon Creek and its tributary drainages
    Tequesquite Arroyo (Sycamore Creek) and its tributary drainages
Tributaries to the north bank of the Santa Ana River
    Day Creek
    San Sevaine Creek
San Jacinto River Basin
    San Jacinto River, Reaches 1, 2, 3, 4, 5, 6, and 7
    San Jacinto River, North Fork
    Bautista Creek, headwaters to debris dam
    Fuller Mill Creek
    Salt Creek
    Strawberry Creek
    Stone Creek
    Other tributaries: Indian, Hurkey, Poppet, and Potrero
San Timoteo Creek Basin
    San Timoteo Creek, Reaches 3 and 4 and tributaries
    Little San Gorgonio Creek and its tributaries

3.4.2 Lakes and Reservoirs

- Canyon Lake
- Lake Elsinore
- Lake Evans
- Lake Fulmor
- Lake Hemet
- Lake Mathews
- Lake Perris
- Lee Lake
- Mockingbird Reservoir

The Beneficial Uses of these surface water bodies include: municipal and domestic water supply, agricultural water supply, industrial service water supply, industrial process water supply, groundwater recharge, water contact recreation, non-contact water recreation, warm freshwater habitat, cold freshwater habitat, wildlife habitat, and preservation of rare and endangered species. Several of these surface water bodies have been identified by the State of California as "impaired" because they do not meet Water Quality Standards for the designated Beneficial Uses[8].

[8] Under Section 303(d) of the Clean Water Act, states, territories, and authorized tribes are required to develop lists of impaired waters. Impaired waters are waters that do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. Priority rankings must be identified for impaired waters and Total Maximum Daily Loads (TMDLs) must be developed for impaired waters.

3.5 Current Water Quality Concerns and Issues

As required by Section 303(d) of the Clean Water Act, the State Board maintains a list all waters in the State that do not meet the Water Quality Standards established in the Basin Plans prepared by the Regional Water Quality Control Boards for protection of Beneficial Uses. This list, referred to as the "303(d) List," details the Pollutant or stressor on each named water body, the potential source of Pollution, estimated affected area, as well as a priority for development of the associated TMDL. A TMDL is a plan that identifies how much Pollutant load a specific impaired water body can sustain without impacts to its Beneficial Uses. In addition to identifying the maximum Pollutant load, a TMDL is used to develop implementation plans to meet Water Quality Standards for a designated water body. Table 3 summarizes the 2006 303(d) List of Impaired Water Bodies within the Santa Ana Region, as well as the year in which a TMDL is proposed for approval. Table 4 summarizes the TMDLs that have been adopted and are being implemented (or will soon be implemented) within the Santa Ana Region.

Table 3. 2006 303(d) List for Riverside County within the Santa Ana Region

Water Body	Pollutant	Potential Sources	Proposed TMDL Completion
Canyon Lake (Railroad Canyon Reservoir)	Pathogens	Non-point Source	2006
Lake Elsinore	Polychlorinated biphenyls (PCBs) Unknown Toxicity	Source Unknown Unknown Nonpoint Source	2019 2007
Lake Fulmor	Pathogens	Unknown Nonpoint Source	2019
Santa Ana River, Reach 4	Pathogens	Nonpoint Source	2019

Table 4. TMDLs in Riverside County within the Santa Ana Region

Impaired Water Body	Pollutant	TMDL Project	Status
Santa Ana River, Reach 3	Pathogens	Bacterial Indicator TMDLs for the Middle Santa Ana River watershed water bodies	Adopted by RWQCB, awaiting EPA approval
Canyon Lake (Railroad Canyon Reservoir)	Nutrients	Nutrient TMDLs for Lake Elsinore and Canyon Lake	Implementation Phase
Lake Elsinore	Nutrients Organic Enrichment Low Dissolved Oxygen	Nutrient TMDLs for Lake Elsinore and Canyon Lake	Implementation Phase

The 303(d) List and the TMDLs noted in Tables 3 and 4 have direct implications for the Santa Ana Region MS4 Permittees. As shown in Table 5, the TMDLs include assigned Waste Load Allocations (WLA) for Permittees.

Table 5. TMDL Waste Load Allocations Assigned to Santa Ana Region MS4 Permittees

Water Body	Pollutant / Stressor	Assigned Dischargers	WLA
Canyon Lake	Total Phosphorus – MS4 Dischargers	County of Riverside, Cities of Lake Elsinore, Canyon Lake, Hemet, San Jacinto, Perris, Moreno Valley, Murrieta, Riverside, and Beaumont	306 kg/yr (total) based on a running average to be achieved as soon as possible, but no later than by December 31, 2020
	Total Phosphorus – Septic System Discharges	County of Riverside, Cities of Beaumont, Canyon Lake, Hemet, Lake Elsinore, Moreno Valley, Murrieta, Perris, Riverside and San Jacinto.	139 kg/yr (total) based on a 10 year running average to be achieved as soon as possible, but no later than by December 31, 2020
	Total Nitrogen – MS4 Discharges	County of Riverside, Cities of Lake Elsinore, Canyon Lake, Hemet, San Jacinto, Perris, Moreno Valley, Murrieta, Riverside and Beaumont	3,974 kg/yr (total) based on a 10 year running average to be achieved as soon as possible, but no later than by December 31, 2020
	Total Nitrogen – Septic System Discharges	County of Riverside, Cities of Beaumont, Canyon Lake, Hemet, Lake Elsinore, Moreno Valley, Murrieta, Perris, Riverside and San Jacinto.	4,850 kg/yr (total) based on a 10 year running average to be achieved as soon as possible, but no later than by December 31, 2020
Lake Elsinore	Total Phosphorus – MS4 Dischargers	County of Riverside and City of Lake Elsinore	124 kg/yr (total) based on a running average to be achieved as soon as possible, but no later than by December 31, 2020
	Total Phosphorus – Septic System Discharges	County of Riverside and City of Lake Elsinore	69 kg/yr (total) based on a 10 year running average to be achieved as soon as possible, but no later than by December 31, 2020
	Total Nitrogen – MS4 Discharges	County of Riverside and City of Lake Elsinore	349 kg/yr (total) based on a running average to be achieved as soon as possible, but no later than by December 31, 2020
	Total Nitrogen – Septic System Discharges	County of Riverside and City of Lake Elsinore	608 kg/yr (total) based on a 10 year running average to be achieved as soon as possible, but no later than by December 31, 2020
Santa Ana River	Pathogen Indicators – MS4 Discharges	County of Riverside, Cities of Corona, Riverside and Norco	Fecal Coliform: log mean less than 200 organisms/100 ml based on five or more samples per 30 day period, and not more than 10% of the samples exceed 400 organisms/100 mL for any 30-day period to be achieved as soon as possible, but no later than December 31, 2020

3.6 Municipal Separate Storm Sewer System (MS4)

3.6.1 Permittees' Existing MS4

The MS4 facilities operated by the District consist of an estimated 134 miles of drainage facilities (59 miles open channel and 75 miles of underground storm drain). The MS4 facilities operated by the Co-Permittees are approximately 460 miles (395 miles of underground pipe and 65 miles open channel) in length. Maps depicting the location of the Permittees' MS4 facilities are included as Appendix D.

Each year, the Permittees are asked to report new additions to their respective MS4 facilities to the District. These new facilities are then added to the updated MS4 facilities maps that are included in the Annual Report.

3.6.1.1 District

Significant changes and additions made to District MS4 facilities during the term of the 2002 MS4 Permit include:

- Sunnymead Master Drainage Plan – Line D-1
- Eastvale Master Drainage Plan – Line A-1, Line B, Line B-2, Line C Blossom Street Lateral, Line C 65th Street Lateral, Lateral C-2, Line D, D-3, D-5, Lateral D-6, D-7, Line E-2 Riverside Drive Lateral, Fieldstream Court Storm Drain, Line E, Line E-2A and E2-B, Quail Run, Aspen Leaf, Gypsum Creek Drive Storm Drain, Menifee Valley Laterals A and B
- Menifee Valley – Palomar Road Detention Basin, Palomar Road Storm Drain, Overland Court Storm Drain
- Perris Valley Master Drainage Plan Laterals T-2, S-3, T-3, Line S, Line V-3 Extension
- Salt Creek Channel Honeyrun Road Lateral, Country Fair Drive Storm Drain, Ridgemoore Road Storm Drain, La Ladera Road Storm Drain, Eastern Municipal Water District Channel, Clover Creek Storm Drain
- Sun City – Rouse Road Storm Drain
- Bradley Road Channel – Rim Creek Path Storm Drain, Early Dawn Road Storm Drain
- Menifee Lakes – Menifee Road Storm Drain, Autumn Sunset Way Storm Drain, Holland Road Storm Drain
- Valle Vista – Bethlam Avenue Storm Drain
- Montecito Ranch Levee
- Perris Valley Channel – Lateral B
- Temescal Creek – Renaissance Storm Drain, Slope Revetment near the intersection of Temescal Canyon Road and Tuscany Street.
- Homeland Master Drainage Plan – Line 1B, Line 2, Sultanas Road Storm Drain
- Day Creek Master Drainage Plan – Pats Ranch Road, Venture Drive Storm Drain, Line F and F-2, Line J, Lateral A-2
- Joseph Canyon Wash Storm Drain
- University Area Master Drainage Plan – Line 6-A
- University Wash Channel
- Horsethief – Mountain Road Storm Drain, Calendula Avenue Storm Drain
- Stetson Avenue Channel
- Moreno Master Drainage Plan – Line F-14

- West End Moreno Master Drainage Plan – Line AA Lateral C
- Montecito Ranch – Jameson Road Storm Drain
- Gavilan Hills – Smith Road Channel and Basin
- West Elsinore Master Drainage Plan – Line A-1
- Arizona Channel – Line C4, Victoria Avenue Lateral
- Four Corners Storm Drain
- San Jacinto Master Drainage Plan – Line E
- Norco Master Drainage Plan – Line NA-S

3.6.1.2 County

The most current collection of existing MS4 facilities for Riverside County can be found in the NPDES maps included with the District's Annual Report.

3.6.1.3 City of Beaumont

Significant changes and additions made to the City of Beaumont's MS4 facilities during the term of the 2002 MS4 Permit are:

- Oak Valley Greens Storm Drain
- Marshall Creek Channel
- Hurstland Avenue Storm Drain
- Ring Ranch Road Storm Drain
- Hendrick Court & Camumet Way Storm Drain
- Oak Valley Parkway Storm Drain

3.6.1.4 City of Calimesa

There has been no new construction of storm water facilities during the previous permit period of 2002 to 2007.

3.6.1.5 City of Canyon Lake

There were no new MS4 facilities (36-inch diameter or larger) constructed between 2002-2007 that are owned or operated by the City of Canyon Lake.

3.6.1.6 City of Corona

During the 2002 MS4 Permit term, the City of Corona added approximately 10.2 miles (53,859 linear feet) of storm drain pipes between 36-inch and 96-inch in diameter. The new storm drain was constructed as part of over 32 various sized projects within the City of Corona.

3.6.1.7 City of Hemet

Significant changes and additions made to the City of Hemet's MS4 facilities during the term of the 2002 MS4 Permit are:

- Autumn Ridge (KB Homes) – Sanderson & Fruitvale
- Autumn Ridge 2 (KB Homes) - Sanderson & Fruitvale
- Bridlewood (Lennar) – Fisher & Mustang
- Cottonwood (Lennar) – Fisher & Mustang
- Covenent Homes – Kirky & Eaton
- Crean Homes Sanderson & Eaton
- Empire Homes – Sanderson & Eaton
- Enclave at Hemet (Oaktree) – Lincoln & Hemet
- Flowerwood – Fruitvale & Buena Vista
- Heartland (K. Hov)(KB Homes) – Florida & California
- Heather Estates (Osborne) – Fruitvale & Palm
- Kendellwood (Lennar) – Fisher & Mustang
- McSweeny Farms – Warren & Esplanade
- Menlo Estates 1 (Meeker) – Fruitvale & Cawston
- Menlo Estates 2 (Meeker) – Fruitvale & Cawston
- Mountain View (Kalpesh) – Hemet & Berkley
- Mountain View Ranch (Kalpesh) – Berkley & Soboba
- Osborne (Devonshire) – Columbia & Devonshire
- Osborne (Eaton) – Palm & Eaton
- Page Ranch / Springfield – Cawston & Thorton
- Stoney Mountain Ranch – Warren & Esplanade

3.6.1.8 City of Lake Elsinore

No information provided.

3.6.1.9 City of Moreno Valley

Significant changes and additions made to the City of Moreno Valley's MS4 facilities during the term of the 2002 MS4 Permit are:

- Old 215 / Frontage Road / Day Street
- Calle Agua
- Oliver Street & Cactus Avenue
- Iris Avenue & Santa Rosa Drive
- Presidio Hiss Road
- Lawless Road
- Miramontes Court
- Via Solana
- Espada Creek
- Espada Creek Road
- Turnberry Street
- Collander Street
- La Costa Alta Drive
- Chaucer Street
- Greyson Road
- Cottonwood Street & Lasselle Avenue
- JFK Drive & Eaglehead Mountain Drive
- Day Street & Dracaea Avenue

- La Casa Drive & Adobe Way
- Via de La Real between Legendary & La Palma
- Primrose Way / Barbazon Drive / Fir Street
- Stamlin Court & Hammet Court
- Iris Avenue & Hammet Court
- Alicante Avenue / JFK Drive / Cactus Avenue
- Cadiz Court / JFK Drive / Cactus Avenue
- Avalon Avenue / JFK Drive / Cactus Avenue
- Somerset Drive
- Sage Court / Thoroughbred Lane / Iris Avenue
- Call Agua & Palomino Lane

3.6.1.10 City of Norco

Significant changes and additions made to the City of Norco's MS4 facilities during the term of the 2002 MS4 Permit are:

- California Avenue - Sixth Street to East Street (including a portion of Buckskin)
- Fifth Street- Dapple Grey to Hillside Avenue
- Hillside Avenue - Fifth Street 1,200 feet north
- Kips Korner Park - Parkridge Avenue to River Road.
- Vaughn Street – Tract 27580 west to Hillside Avenue

3.6.1.11 City of Perris

No information provided.

3.6.1.12 City of Riverside

Over the course of the term of the 2002 MS4 Permit, the City of Riverside has gained less than 9.6 miles (50,607 linear feet) of storm drain pipes greater than 36-inch diameter. Likewise, the City of Riverside gained less than 10.7 miles (56,306 linear feet) of storm drain pipes less than 36-inch in diameter. The new pipes were built City-wide through numerous private development projects.

3.6.1.13 City of San Jacinto

Significant changes and additions made to the City of San Jacinto's MS4 facilities during the term of the 2002 MS4 Permit are:

- Tract 31794 (Hemet & Mountain), retention basin
- Tract 29917 (Park & Hewitt), detention basin and debris basin
- Tract 32188 (San Jacinto & Commonwealth), 36-inch diameter storm drain on both San Jacinto and Commonwealth Avenues, detention basin
- Tract 31036 (7^{th} & Las Rosas), retention basin
- Tracts 30644 & 31035 (San Jacinto & Tradewinds), portion of MDP Line J grass lined trapezoidal channel

- Tract 31246 (Cottonwood & Palm), retention basin
- Tract 29384 (Cottonwood & Palm), retention basin and rectangular open channel (concrete sides/soft bottom)
- Tract 30603 (7th & Pine), onsite storm drain (varies 36-inch to 60-inch diameter)
- Tract 31384 (Lyon between Cottonwood & De Anza), retention basin
- Tract 31154 (Lyon & De Anza), retention basin
- Tract 31037 (Potter & Ramona Blvd), 54-inch diameter storm drain on Ramona Blvd, retention basin
- Tract 30878 (Lyon & 7th), onsite storm drain (varies 36-inch to 42-inch diameter)
- Tract 31296 (Cottonwood & Kirby), detention basin
- Tract 30813 (Cottonwood & Kirby), retention basin
- Tract 30828 (Cottonwood & Cawston), retention basins (2)
- Tract 30462 (Sanderson & 7th), retention basin

3.6.2 Proposed MS4 Facility Additions and Modifications 2007-2012

3.6.2.1 District

The following facilities are included in the District's five-year Capital Improvement Plan. Most of these facilities are proposed for construction; however, some of the facilities on this list may include damage repair projects, enhancement projects, or may be projects that may be completed or nearing completion:

- Calimesa – Avenue L Storm Drain
- Perris Valley Lateral B
- Perris Valley Channel
- Heacock Channel Sunnymead Line B
- San Jacinto River
- San Jacinto Master Drainage Plan Line G, Line C, C-4 & C-5
- Menifee – Hawthorne Avenue Storm Drain
- Stetson Avenue Channel
- Hemet Master Drainage Plan Line D & D-5, Line C Stage 2
- Little Lake Master Drainage Plan, Line B
- Romoland Master Drainage Plan, Line A
- Moreno Master Drainage Plan, Line K, Line K-1 (To Petite Street), Sinclair Basin
- Lakeview Master Drainage Plan Lateral D-1
- Lakeview / Nuevo Master Drainage Plan Line K
- Nuevo – Vista Road Storm Drain
- Green Acres Dam
- Mead Valley Master Drainage Plan Line A
- Goodhope Master Drainage Plan Line A
- Perris Valley Master Drainage Plan Line Q, B-7
- Sunnymead Master Drainage Plan Line G-1, M-16, P-6
- Lake Elsinore Outlet Channel (Gunnerson Pond, Collier Marsh)

- Sedco Master Drainage Plan – Line E, Bryant Street Storm Drain
- Arroyo Del Toro Channel
- West Elsinore Master Drainage Plan Line A
- Lakeland Village – Adelfa Channel
- Ortega Channel Debris Basin
- Skylark Channel
- Third Street Storm Drain
- Norco Master Drainage Plan Line NA-3, LN N-1, NB-3, S-1, S-2, S-5
- Santa Ana River – Norco Bluffs, Prado Dam, 7 Oaks Dam
- Santa Ana Canyon – Below Prado
- North Norco Channel, Stage 10
- West Norco Storm Drain
- Mockingbird Canyon
- Corona Drain, Line 1-G, 1-H, 1-J, 7-A, 46, 52, 9A, 5, Cota Avenue Channel, Main Street Storm Drain
- Corona Storm Water Treatment Facility
- Lincoln Avenue Storm Drain (City of Corona)
- Bedford Canyon Wash
- Gavilan Hills / Smith Road Channel and Basin
- County Line Channel
- Eastvale Master Drainage Plan Cloverdale Crossing Line A, E-1
- Temescal Creek Foster Road Storm Drain
- Temescal Channel
- Temescal Canyon Wash
- North Main Street Channel
- Ontario Avenue Storm Drain
- Golden Harvest Storm Drain
- San Sevaine Channel
- La Sierra Master Drainage Plan Cypress Avenue Lateral, Campbell Avenue Lateral, La Sierra Channel Upgrade
- University Wash
- Columbia Basin Expansion
- Mira Loma – Beach Street Storm Drain
- Pedley Hills Bolero Drive Storm Drain
- Belltown – Market Street Channel and Lateral B-1
- SW Riverside Master Drainage Plan Line C, Line G, G-1 & F-1, Cross Street Storm Drain
- Jurupa Basin- Storm Drain Extension
- Day Creek Channel – Bellgrave Basin
- Pyrite Channel Bypass
- Pedley – Scheelite Street Storm Drain

3.6.2.2 County

The following projects will be completed by the County of Riverside during the next permit term and would likely include culverts or other MS4 facilities.

- Van Buren Blvd. Bridges at the Santa Ana River.
- River Road Bridge at the Santa Ana River
- Leon Road and Rice Road Bridges at Salt Creek
- Valley Way at State Route 60

- Date Palm Drive Interchange at Interstate 10
- Valley Way / Armstrong Road – State Rout 60 to Sierra Ave.
- Scott Road – Antelope Road to El Centro Lane

3.6.2.3 City of Beaumont

The City of Beaumont plans to construct a storm water channel running parallel to Cherry Avenue. A catch basin will be constructed at the terminus of the new storm water channel at the corner of Cherry Avenue and East 14th Street.

3.6.2.4 City of Calimesa

Currently the City of Calimesa is collecting storm drainage fees in anticipation of a major capital improvement project sometime after the year 2013. Even though the subdivision plans for the Summer Wind Specific Plan Area have not been accepted by the City of Calimesa, the Suncal Development will in all likelihood include various kinds of MS4 facilities. However, the exact pipe size, pipe routing, and retention/detention pond locations for the Suncal Development are unknown at this time and there have been no plans approved for MS4 facility construction in the Garden Aire Wash. Typically developments of this size and magnitude would include several thousand feet of both 48-inch and 60-inch pipe. Due to the hilly terrain, it is unlikely that the Suncal Development will install storm water lift stations, stilling wells, etc. The Hydrology/Hydraulic Report for the Suncal Development is expected to be submitted by the end of in 2007.

3.6.2.5 City of Canyon Lake

There are no new MS4 facilities (36-inch diameter or larger) to be constructed between 2007-2012 that are to be owned or operated by the City of Canyon Lake.

3.6.2.6 City of Corona

- Golden Harvest Storm Drain (between Lester Avenue and Lemon Grove) - approximately 1,450 feet of 54-inch storm drain
- Lincoln Avenue Storm Drain (between Railroad Street and Pomona Road) - approximately 1,300 feet of 36-inch storm drain
- Main Street Storm Drain (between 8^{th} and 10^{th} Streets) - approximately 720 feet of 36-inch storm drain
- Radio Road Storm Drain (between Arlington Channel and E. 6^{th} Street) - approximately 1,200 feet of 54-inch storm drain
- Joseph Canyon Wash- channel improvements of Joseph Canyon Wash at Bedford Canyon and I-15 Freeway
- Foothill Parkway West Extension - storm drain improvements consisting of box culvert, open channel and pipeline for an approximately 2-mile stretch of new roadway between Skyline Drive and Paseo Grande
- Smith Avenue Storm Drain (between Davril Circle and W. Rincon Street to Temescal Wash) - approximately 1,800 feet of 48-inch storm drain

3.6.2.7 City of Hemet

- Brenson Project – Eaton & Kirby
- Centex Homes – State & Fruitvale
- Emmerson Ranch (Ryland) – Cawston & Devonshire
- JP Ranch (Corman Leigh) – Warren & Devonshire
- Los Rancherias – Deveonshire & Los Ran.
- McSweeny Farms – State & Newport
- Peppertree – Menlo & Cawston
- Ranch Diamonte (Pulte) – Warren & Mustang
- Scrimsher Development – Fruitvale & Palm
- Stoney Mountain Ranch – Warren & Esplanade
- Tres Cerritos (Corman Leigh) – Devonshire & Warren
- Young Homes (Corwin) – Mountain & Soboba

3.6.2.8 City of Lake Elsinore

No information provided.

3.6.2.9 City of Moreno Valley

Between 2007 and 2012 the City does not expect to construct or accept for maintenance any developer-constructed MS4 facilities of 36-inch diameter or greater, except for those capital projects cited below, but only if cooperative agreements are not executed with the Flood Control District for the same.

- Lasselle Street from Alessandro Boulevard to John F. Kennedy Drive – this project will contain sections of 36-inch diameter storm drain in Lasselle Street.
- Indian Street from Cactus Avenue to Delphinium Avenue – this project will contain sections of 36-inch diameter storm drain in Indian Street.

3.6.2.10 City of Norco

- Fourth Street - Temescal Avenue to Corona (800 feet) Corona Avenue Fourth Street north 800 feet
- Western Avenue - Fifth Street to Pacer Park
- North Norco Channel - Parkridge to River Road
- Mountain Avenue - First Street to Second Street
- NNC Line - Pedley Avenue - Sixth Street south 1200 feet
- Seventh Street - south to Norco Channel
- North Norco Channel - Rose Court to Sixth Street

- South Norco Channel - Third Street - 2,400 feet east
- South Norco Channel - Second Street Hillside 1,800 feet east
- Temescal Avenue 2,400 feet east to Hillside Avenue

3.6.2.11 City of Perris

No information provided.

3.6.2.12 City of Riverside

During the upcoming permit term, the City of Riverside plans to gain MS4 facilities in the Sycamore Canyon area. Additionally, funds are allocated for miscellaneous private development projects.

3.6.2.13 City of San Jacinto

- Lyon Ave Flood Control Detention Basin (Lyon & De Anza)
- MDP Line H grass lined trapezoidal channel (State Street)
- Tract 32053 (Main & Ramona Expressway) retention basin
- Tract 30379 (between Vernon & Camino los Banos) retention basin
- Tract 32582 (between Alessandro & Vernon) retention basin
- Tract 32376 (San Jacinto & Ramona Expressway) onsite storm drain (varies 36-inch to 60-inch diameter) and detention basin
- Tract 30484 (Soboba Road) debris basin and open channel (likely trapezoidal, natural)
- Tract 30598 (State St & Record Rd), onsite storm drain (varies 36-inch to 42-inch diameter) and retention basin
- Tract 31886 (Ramona Blvd & Bridge) onsite grass lined trapezoidal channel and retention basin
- Tract 31282 (Lyon & De Anza) retention basin
- Tract 32250 (7^{th} & Kirby) retention basin
- Tract 31929 (7^{th} & Kirby) retention basin
- Tract 31701 (Esplanade & Kirby) retention basin
- Tract 32247 (7^{th} & Lyon) detention basin
- Tract 32352 (Cottonwood & Sanderson) retention basin
- Tract 32499 (Esplanade & Kirby) retention basin
- Tract 30597 (7^{th} & Cawston) retention basin
- Tract 32155 (Cottonwood & Cawston) retention basin
- Tract 30943 (Sanderson & Ramona Blvd) retention basin

- SP 1-01 The Cove (Tracts 30033, 34, 35, 36, 84), (Warren & Cottonwood) onsite storm drain (varies 36-inch to 90-inch diameter), Warren Rd Box Culvert (5 feet by 10 feet), two detention basins, and four debris basins

4.0 Santa Ana/Santa Margarita Region Drainage Area Management Plan

The Santa Ana/Santa Margarita Region DAMP is a programmatic document developed by the Permittees and approved by the Santa Ana Regional Board Executive Officer. It outlines the major programs and policies that the Permittees individually and/or collectively implement to manage Urban Runoff for the protection of Receiving Waters in Western Riverside County, including the Santa Ana Region.

4.1 Program Management

4.1.1 Principal Permittee and Co-Permittee Responsibilities and Interagency Programs

The Permittees operate under an Implementation Agreement that sets forth the responsibilities of the Principal Permittee and the Co-Permittees as defined in the MS4 Permit that is in effect.

The Principal Permittee and some Co-Permittees administer, or participate in, several interagency and regional programs in consultation with the Co-Permittees. Regional programs include:

- Lake Elsinore / San Jacinto Watershed Authority Technical Advisory Committee
- San Jacinto River Watershed Council
- Middle Santa Ana River Bacterial Indicator TMDL Task Force
- Lake Elsinore / Canyon Lake Nutrient TMDL Task Force
- Canyon Lake Bacterial Indicator TMDL Stakeholder Workgroup
- Hazardous Materials Emergency Response Team
- Hazardous Materials Spill Response Program
- Household Hazardous Waste Collection (HHW) / Antifreeze, Battery, Oil and Latex Paint (ABOP) Program
- Commercial / Industrial Compliance Assistance Program (CAP)
- Various Public Education and Outreach Programs
- Consolidated Monitoring Program
- Implementation of the 2005 DAMP Regional Programs – including ongoing DAMP updates to keep the Litter Management Program and Sanitary Sewer Overflow Procedures current
- Various NPDES Training Programs

The District, as the Principle Permittee, also participates in the following organizations on behalf of the Permittees:

- California Stormwater Quality Association (CASQA);
- Southern California Coastal Water Research Project Authority (SCCWRP);
- Stormwater Monitoring Coalition (SMC);

- League of Cities; and
- County Engineers Association of California.

4.1.2 Legal Authority

The Co-Permittees have adopted ordinances regarding the management of Urban Runoff. The ordinances provide the Permittees with the legal authority to implement the requirements of the 2002 MS4 Permit and 40 CFR Section 122.26(d)(2)(i)(A-F). However, there are limitations to the authority the Permittees have for enforcement actions. The Permittees also provided to the Santa Ana Regional Board certification of adequate legal authority to comply with the 2002 MS4 Permit and to implement the DAMP.

4.1.3 Program Management Accomplishments

During the term of the 2002 MS4 Permit the following accomplishments were achieved.

- Revised DAMP: Includes 28 Construction Site and 36 Municipal and Industrial Source Control BMPs that are to be implemented by the Permittees for purposes of controlling Pollution associated with Urban Runoff to the Maximum Extent Practicable (MEP). Enhanced the construction site inspections, the industrial/commercial facilities inspections, new development review requirements, and the Permittee facilities and activities program.
- Updated the Implementation Agreement.
- Cooperated in the establishment of TMDL Task Forces and workgroups for Lake Elsinore, Canyon Lake, and the Middle Santa Ana River.
- Developed and updated methods to track program effectiveness such as resident surveys, tracking hotline inquiries, and web counters.
- Revised the program management structure as presented in the ROWD submitted to the Santa Ana Regional Board in 2000 including:
  - Established the Management Steering Committee that brings together the city managers in the Santa Ana Region promoting consensus and communication on a regional basis.
  - Formation of sub-committees to guide and develop specific program elements (Construction Activities, Industrial/Commercial Activities, New Development/Significant Redevelopment, Public Education, Municipal Facilities & Activities, Monitoring, & Finance).
- Expanded implementation of the CAP.
- Assisted in development and implementation of the TMDLs for Canyon Lake, Lake Elsinore and the Middle Santa Ana River.
- Enhanced Public Education program through development of new outreach materials and programs.
- Enhanced enforcement and compliance elements of the DAMP.
- Pursued and received Proposition 50 Planning Grant to develop an Integrated Regional Watershed Management Plan for the San Jacinto watershed and to facilitate implementation of the Canyon Lake/Lake Elsinore Nutrient TMDL.

- Pursued and received two Proposition 40 Integrated Regional Watershed Management Plan implementation grants to facilitate the Middle Santa Ana River Pathogen TMDL and Lake Elsinore and Canyon Lake Nutrient TMDLs.
- Evaluated and revised ordinances, regulations, rules, and codes to ensure legal authority.

4.1.4 Proposed Revisions to Program Management and MS4 Permit

As requested by Santa Ana Regional Board staff, the Permittees propose to complete preparation of LIPs within 12 months of permit adoption. The Permittees propose to develop LIPs that will:

- Specify how each program element of the DAMP shall be implemented;
- Describe the ordinances, plans, policies, procedures, and tools (e.g., checklists, forms, educational materials, etc.) used to execute the DAMP;
- Identify the organizational units responsible for implementation of each program element;
- Establish internal reporting requirements to ensure and promote accountability; and
- Describe an adaptive method of evaluation and assessment of program effectiveness for the purpose of identifying program improvements.

Proposed 2007 MS4 Permit Sections I.A.1.e and I.B.1.h address the requirement to prepare LIPs.

4.2 Elimination of Illicit Connections and Illegal Discharges

The Permittees have programs in place to eliminate Illicit Connections (ICs). Some of the Permittees conduct this aspect of their storm water program as a part of the routine maintenance of their MS4 facilities and/or through the use of the encroachment permit process.

The Permittees also have programs in place to respond to Illegal Discharges (IDs). Predominantly, IDs are reported by the public or by Permittee field personnel. As part of the area-wide program, the District continues to provide financial support to the toll free public hotline for reporting spills and for the County's Hazardous Materials Emergency Response Team to ensure that hazardous materials from spills or dumping have minimal impact on the MS4 and Receiving Waters. The District also provides funding to support the County Department of Environmental Health's HHW/ABOP collection program.

The Permittees developed an Enforcement Compliance Strategy during the 1996 MS4 permit term to assist with elimination of IC/IDs from various land uses by ensuring that construction sites, commercial establishments, and industrial facilities operate in compliance with the local storm water and urban runoff ordinances and/or local erosion control ordinances. The Enforcement Compliance Strategy was consolidated into the DAMP during the 2002 MS4 Permit term. In August 1999 the District and the County's Environmental Health Department executed an agreement that provides the framework for an area-wide Commercial and Industrial CAP.

4.2.1 IC/ID Program Element Accomplishments

- Developed Sanitary Sewer Overflow Procedures in coordination with the sanitary sewer operators in the Santa Ana Region

- Established an electronic tracking system for NPDES complaints received through the toll free "Report Storm Water Pollution" hotline, OES or otherwise reported to the District.
- Enhanced public outreach regarding illegal dumping including brochures for: Outdoor Activities, Fountains & Swimming Pools, and Pet Waste, establishment of a Santa Ana Watershed Clean-Up Day and coordination with the County of Riverside Trash Task Force.
- Initiated cooperative program with Environmental Health to promote Environmental Enhancement Projects in lieu of fines for environmental crime cases. This initiative resulted in the billboard advertising campaign to promote and BMP posters addressing appropriate BMPs for gas stations and garages.
- Prepared a one-year evaluation of Litter Management BMPs. This evaluation assessed the relative efficiency and cost effectiveness of anthropogenic litter management BMPs including: street sweeping, catch basin cleaning, deployment of trash receptacles, public education, and MS4 maintenance. As a result, a Litter Removal Inspection Form was developed that assists the Permittees in identifying and prioritizing areas with litter problems. The Permittees augmented the litter management programs including employee/contractor training, industrial/commercial activity inspections, recycling programs including bulk-item collection, participation in watershed clean-up efforts, and illegal dumping retrieval.

4.2.2 Proposed Revisions to IC/ID Program Element and MS4 Permit

4.2.2.1 Consolidation of IC/ID Reporting Requirements

The Permittees proposed a consolidation and simplification of IC/ID reporting requirements in the 2005 DAMP. These reporting requirements have been incorporated into the Proposed 2007 MS4 Permit. IC/ID reporting requirements were spread throughout the construction, industrial, commercial, and IC/ID sections of the 2002 MS4 Permit. The Proposed 2007 MS4 Permit provisions now reference the unified IC/ID reporting procedures currently contained within the DAMP for simplicity and clarity.

4.2.2.2 Consolidation of Training Requirements

All training requirements have been consolidated to Section XIV of the Proposed 2007 MS4 Permit for simplicity and clarity.

4.3 Permittee Facilities and Activities

The Permittees' Municipal Facilities Strategy was conditionally approved by the Executive Officer of the Santa Ana Regional Board on October 30, 1997. The Municipal Facilities Strategy provides guidance for identifying potential storm water pollutant sources and for selecting appropriate BMPs for implementation at identified facilities of concern owned and operated by the Permittees. The Permittees are implementing the provisions of the Municipal Facilities Strategy within their respective jurisdictions. The Municipal Facilities Strategy was consolidated into the Section 5 of the DAMP during the current MS4 permit term. The Permittees implement the DAMP provisions within their respective jurisdictions. To assist the Permittees in implementing this program, training focused on storm water regulatory requirements and BMPs related to Permittee maintenance facilities and roadway maintenance activities were conducted annually during the 2002 MS4 Permit term.

4.3.1 Permittee Facilities and Activities Program Element Accomplishments

- The District coordinated GIS-based maps for Permittee MS4 facilities. The MS4 maps are updated annually with new information provided by the Permittees as part of the Annual Reporting process. The GIS layers are also now available on the District's website through an internet GIS browser.
- Updated Model Facilities Pollution Prevention Plan for Permittee facilities not requiring coverage under the General Permit for Storm Water Discharges Associated with Industrial Activities (General Permit-Industrial).
- The Permittees completed a MS4 assessment in 2004 to identify opportunities for incorporation of regional BMP retrofits within the limits of existing infrastructure. The final report "BMP Siting Study for the Santa Ana Permit Area" was released in May 2005. The sites identified in this study are likely to be further evaluated for opportunities to implement Regional BMPs necessary to comply with existing and future TMDLs.
- Permittees developed a coordinated Best Management Practices for Urban Runoff document.

4.3.2 Proposed Revisions to Permittee Facilities and Activities Program Element and MS4 Permit

4.3.2.1 Consolidation of IC/ID Reporting Requirements

The Permittees proposed a consolidation and simplification of reporting requirements in the 2005 DAMP. IC/ID reporting requirements in the 2002 MS4 Permit were spread throughout the construction, industrial, commercial and IC/ID sections of the Permit. The Proposed 2007 MS4 Permit provisions now reference the unified IC/ID reporting procedures currently contained within the DAMP for simplicity and clarity.

4.3.2.2 Consolidation of Training Requirements

All training requirements have been consolidated to Section XIV of the Proposed 2007 MS4 Permit for simplicity and clarity.

4.3.2.3 Consolidation of Overlapping NPDES Permit Requirements

During the 2002 MS4 Permit term the Permittees reviewed the applicability of the General Permit-Small Linear Underground Projects (State Board Order No. 2003-0007-DWQ, NPDES No. CAS000005), the General Permit-De Minimus Discharges (Order No. R8-2003-0061 as amended by Order Nos. R8-2005-0041 and R8-2006-0004), and the General Permit-Utility Vaults (Order No. 2006-0008-DWQ, NPDES No. CAG990002) to their activities such as hydrant flushing, maintenance on potable water supply system(s), construction dewatering, and the short-term and intermittent discharges from the de-watering of utility vaults and underground structures. Since the DAMP incorporates BMPs for the activities covered by these general permits, separate coverage under the Small Linear Underground Projects, De Minimus Discharges, or Utility Vaults General Permits is not necessary.

Specific identification of the types of discharges that must have coverage under the General Permit-De Minimus Discharges and the General Permit-Utility Vaults, including appropriate BMPs to mitigate impacts, will be included in Section 5 of the 2007 DAMP. Some categories of discharges, such as water line flushing, may be allowed under the MS4 Permit but may still need Waste Discharge Requirements

issued by the Santa Ana Regional Board. A notification process similar to that used for Permittee construction activities will be included in Section 5 of the 2007 DAMP.

4.4 Development Planning

This program element links a Co-Permittee's General Plan, environmental review process, and development approval and permitting processes to the later phases of detailed design, construction and operation. A General Plan specifies policies that guide development. The environmental review process examines potential impacts from proposed development with respect to the General Plan policies and environmental issues, including water quality, and includes consideration of mitigation measures to reduce any identified significant impacts. The development approval and permitting processes carries forth project-specific requirements in the form of conditions of approval, design specifications, tracking, inspection, and enforcement actions. These three "front-end" planning processes must be coordinated and linked to the later phases of design, construction and operation for development projects to ensure Urban Runoff quality protection features are planned, designed and evaluated in accordance with the Permittees' goals for protection of Receiving Waters.

4.4.1 Development Planning Program Element Accomplishments

- The Riverside County Santa Ana and Santa Margarita Regions Model WQMP was developed in 2004. The Model WQMP is a post-construction planning tool to address Urban Runoff from New Development and Significant Redevelopment. The Model WQMP is implemented on a watershed-specific level, and provides guidance for project specific post-construction BMPs to address the quantity and quality of Urban Runoff from New Development and Significant Redevelopment projects. Any New Development or Significant Redevelopment project that requires discretionary approval must submit a project-specific WQMP to the appropriate Permittee. The project-specific WQMP ensures that management of Urban Runoff to protect Receiving Water quality is considered a priority during project design and operation.
- Provided outreach to the Association of Environmental Professionals.
- Development of a GIS Web Browser to assist developers and Permittees in identifying pertinent water quality information for proposed development projects.
- Developed Planning Application forms for Permittee use to ensure that the need for a project-specific WQMP was properly identified early in the planning process.
- Developed a FAQ and watershed impairments maps to assist Permittees and developers with preparing and reviewing project-specific WQMPs.
- Developed a BMP design handbook to standardize BMP selection and design in Riverside County.
- Initiated development of an enhanced BMP Design Handbook to provide additional guidance for low impact development and post-construction BMP design.
- Participation in the SMC efforts to evaluate low impact development options and establish Southern California guidance for BMP implementation.
- Participation in SCCWRP's hydromodification studies to develop scientifically based design guidance for Southern California.

4.4.2 Proposed Revisions to Development Planning Program Element and MS4 Permit

4.4.2.1 Consolidation of Training Requirements

All training requirements have been consolidated to Section XIV of the Proposed 2007 MS4 Permit for simplicity and clarity.

4.4.2.2 Low Impact Development

The Permittees will revise the Riverside County Storm Water Quality Best Management Practice Design Handbook to (1) better incorporate low impact development design concepts, and (2) incorporate guidance to describe how Developments can offset hydromodification impacts with low impact development.

4.4.2.3 Hydromodification

As committed to in the 2004 WQMP (now Appendix O to the DAMP), the Permittees are working with SCCWRP to develop hydromodification guidance for Southern California. The Permittees will use the completed guidance to update the WQMP, BMP Design Handbook and other guidance as necessary, to effectively mitigate hydromodification impacts.

4.4.2.4 BMP Design Criteria

The Permittees will revise the Riverside County Storm Water Quality Best Management Practice Design Handbook to incorporate additional design guidance to ensure maintainability and functionality of BMPs, throughout the life of the development.

4.4.2.5 TMDLs

The Permittees will revise the Riverside County Storm Water Quality Best Management Practice Design Handbook to identify and include design criteria for BMPs that are necessary to mitigate the impacts of developments on impaired waterbodies.

4.5 Private Development Construction Activities

The Permittees have reviewed their ordinances to ensure that they are adequate to control discharges to the MS4 from construction sites to the MEP. For construction projects that will disturb 1 acre or more, the Co-Permittees require proof of compliance with the General Permit for Storm Water Discharges Associated with Construction Activity (General Permit-Construction) prior to issuance of building/grading permits. The Co-Permittees require a copy of the Notice of Intent filed with the State Board. Each of the Co-Permittees provides training for their construction inspectors regarding the proper installation and maintenance of erosion and sediment control BMPs. Education and outreach to the building industry (developers, construction contractors, engineering firms, etc.) regarding managing discharges from construction sites is also incorporated into the "Only Rain in the Storm Drain Pollution Prevention Program," the Permittees' area-wide public education and outreach program.

4.5.1 Private Development Construction Activities Program Element Accomplishments

- The Permittees distributed construction activities posters to construction sites as part of construction outreach program.
- A standardized construction activity reporting spreadsheet was developed for the Annual Reports.

- The construction inspection forms were updated.
- Co-Permittees developed and maintain an inventory database (or databases) of construction sites 1-acre or larger for which they have issued a building or grading permit. For each construction site/project included in a Co-Permittee's inventory, the Co-Permittees have assigned a priority of "high," "medium," or "low" to reflect the construction site's potential for impairing Receiving Water quality.

4.5.2 Proposed Revisions to the Private Development Construction Activities Program Element and MS4 Permit

4.5.2.1 Consolidation of IC/ID Reporting Requirements

The Permittees proposed a consolidation and simplification of reporting requirements in the 2005 DAMP. IC/ID reporting requirements were spread throughout the construction, industrial, commercial, and IC/ID sections of the 2002 MS4 Permit. The Proposed 2007 MS4 Permit provisions now reference the unified IC/ID reporting procedures currently contained within the DAMP for simplicity and clarity.

4.5.2.2 Consolidation of Training Requirements

All training requirements have been consolidated to Section XIV of the Proposed 2007 MS4 Permit for simplicity and clarity.

4.5.2.3 Consolidation of Inspection Program Requirements

The Permittees have consolidated the Construction, Industrial and Commercial Inspection program requirements into Section IX of the Proposed 2007 MS4 Permit. The consolidation simplifies and clarifies the permit by removing redundant text.

4.5.2.4 Enforcement

During our January 22, 2007 ROWD kick-off meeting Santa Ana Regional Board staff provided a draft document entitled "Riverside County MS4 Permit – Findings from the Audits" in which they recommended increased use of performance bonds and stop work orders as a compliance mechanism for construction sites. The Permittees currently use various combinations of performance bonds and stop work orders for BMP enforcement but these enforcement mechanisms are limited. At this time the Permittees do not propose revising the DAMP to require or to expand the use of performance bonds as a construction site compliance measure. The process associated with the use of stop work orders and limitations of performance bonds are further described in the subsections that follow.

4.5.2.4.1 Use of Stop Work Orders to Enforce Erosion and Sediment Control BMPs

Erosion and sediment control work including installation of BMPs typically is work that must be completed within short periods of time (i.e., 24 hours in advance of a rain forecast and/or a particular phase of construction). Stop work orders are designed to address performance in a changing environment with tight or short performance periods of hours or days for installation of improvements (i.e., BMPs) that must be in-place and based upon daily changes to the site and inspector interpretation of needed BMPs that differ from approved plans. The stop work order process followed by most municipalities is:

1. **Determine if a stop work order is necessary**. If an inspector observes a condition that is unsafe or requires immediate attention to protect the contractor or the public he will issue a stop work

order. Stop work orders cease all work on the project site and immediately redirect the contractor to focus his resources on the work necessary to remedy the default identified in the stop work order. There is not an agreement with a stop work order and there are no third parties involved (i.e. bonding or insurance company). If the inspector does not observe an obvious threat to the health and safety of the contractor or the public or there is not a foreseen threat, typically, a stop work order is not issued. Other orders (i.e., Verbal/Written Warning, Notice of Violation) are more appropriate.

2. **Stop work order enforcement**. Stop work orders are costly to the contractor on a daily basis. Typically the realized costs to the contractor are much higher than civil fines that may be levied as authorized by local ordinance. These costs include material, equipment and man-hours to remedy the default and paying for lost labor and equipment sitting idle until the default is corrected. During a rough grading operation on a typical 50-acre high priority construction site project stop work orders may run into hundreds or even thousands of dollars per hour. With inter-departmental cooperation, stop work orders can be effective enforcement mechanisms. Typically a construction project involves various departments (i.e., Public Works, Building and Safety, Fire Prevention, Transportation Engineering, etc.) all with inspectors. Without inter-departmental cooperation a stop work order is only effective if the work stopped is on the critical path of the project at the time issued. Otherwise, a contractor will pull his crews off that area of work and continue to work other areas of the project where the stop work order does not have jurisdiction (i.e., public works infrastructure work vs. stuccoing the exterior of a structure).

4.5.2.4.2 Use of Performance Bonds to Enforce Erosion and Sediment Control BMPs

Performance bonds are typically used when a contractor has a prescribed time period to perform work, and once work is completed the municipality releases the bond. The bond is used as a means to ensure faithful performance and completion of the stipulated work. As construction site BMP needs and construction site conditions are constantly changing, it becomes problematic to align construction BMP needs to the completion of the administrative processes needed for the bond agreement.

Erosion and sediment control work, including installation of BMPs, typically must be completed within short periods of time (i.e., 24 hours in advance of a rain forecast and/or a particular phase of construction). Performance bonds are not designed to address performance in a changing environment with tight or short performance periods of hours or days for installation of improvements (i.e., BMPs) that must be in-place. Further, the need for BMPs is based upon daily changes to the construction site and inspectors may differ in their interpretation of needed BMPs from those specified in approved plans. The performance bond process followed by most municipalities is:

1. **Determine the length (term) of the bond**. Performance bonds are typically required for a prescribed period for which a contractor must complete his work, after which the municipality releases the bond. This is usually after completion and final approval of the stipulated work. Municipalities and contractors execute Improvement/ Performance Agreements for the stipulated work. Performance bonds are attached to the agreement as a means to ensure faithful performance and completion of the stipulated work. Sediment and erosion control work in accordance with a Storm Water Pollution Prevention Plan would be very difficult to "fit" into a prescribed performance period with any certainty. Further, construction sites and BMP needs are constantly changing, so it would be difficult to specify what needs to be bonded.

2. **Agreement**. The performance agreement sets the requirements for performance and notice of default or lack of improvements. Municipalities must outline the time period for completion of the improvements before issuing a notice of default, after which the notice is served upon the contractor with a copy to the bond company. In addition, the agreement establishes a time period for response from the contractor and/or the bonding company to agree or not agree with the municipality's findings and/or to perform the work or pay the municipality for the agreed upon work if the contractor fails to meet his contractual obligation stipulated in the agreement. As the typical initial response time ranges from days to weeks, performance bonds would not be effective in enforcing construction BMPs.
3. **Bond enforcement**. If the contractor does not successfully complete all required work or violates any requirement of the agreement, the municipality spells out the enforcement measures it deems necessary to ensure completion. Municipalities typically prepare punch lists and solicit the work to correct the problems after expiration all administrative remedies of the agreement have been exhausted by the contractor and the bonding company. The administrative remedy takes months and sometimes years if it is escalated to the legislative body. As enforcement of performance bonds requires a lengthy process, construction site conditions may have changed significantly and even the need for the required sediment and erosion controls may be eliminated over this period by completion of the project.

Although not as time sensitive as construction site BMPs, the use of performance bonds for post-construction BMPs has limits, also. Typically, a performance bond involves a third party (i.e., insurance company, bank, etc.) and an agreement with the Co-Permittee. Failure of the private party to perform the required maintenance of a post-construction BMP will necessitate the Co-Permittee to build a "case" against the non-performing party that may lead to a hearing by an arbitrator or in a court of law. The necessary resources, including code enforcement staff, legal counsel, consulting services, etc., to build such a case strains a municipality. Performance bonds are burdensome and require both diligence and patience on the side of the "enforcer" to ensure the case is solid for either payment or services by the third party or moving the case to litigation.

4.6 Commercial and Industrial Sources

The Principal Permittee and the County have implemented the CAP through which the County Department of Environmental Health specifically addresses storm water compliance survey/inspections of restaurants facilities that must secure a hazardous materials permit for either storing, handling or generating hazardous materials. The CAP is implemented in those cities and unincorporated areas that do not maintain an individual industrial/commercial inspection program through other mechanisms such as POTW waste pre-treatment programs or business license inspection programs. As described in Section 8 of the DAMP, the Permittees must either participate in the CAP or implement an equivalent inspection program. The Cities of Corona and Riverside maintain such programs through their respective POTW pre-treatment programs.

The Riverside County Department of Building and Safety has been tasked with developing a pilot project to establish a stand alone Storm Water Compliance Inspection and Enforcement Program (CIEP) for industrial/commercial facilities in the unincorporated areas of the Count Ordinance 857 (Business Registration and Licensing) was adopted on September 12, 2006 by the County Board of Supervisors and provides the basis for registering all businesses that are within the unincorporated areas of the County. Once a database has been established and businesses are registered, inspections will occur to determine

the compliance status of the registrants with the County's Storm Water Ordinance. Businesses that are determined to have a potential impact on the requirements of the MS4 Permit will be prioritized and inspected based upon a yet-to-be-defined compliance inspection schedule. The CIEP will be phased in over time with the initial inspections to start during fiscal year 2007-2008. As the CIEP is implemented, the CAP will diminish except in the incorporated cities that rely on the CAP to meet their inspection requirements or until another compliance inspection option becomes available.

4.6.1 Commercial and Industrial Program Element Accomplishments

- Reviewed and updated several educational brochures for distribution to inspected facilities.
- Developed outreach posters for gas and automotive service stations.
- Developed standardized inspection reporting forms for Annual Reports.
- Updated food service surveys.
- Extended the agreement with the County's Department of Environmental Health executed in 1999 for the area-wide CAP for the inspection of commercial and industrial facilities through June 30, 2009.
- Created Permittee databases for the inspected Commercial and Industrial facilities.
- Revised the DAMP to reflect development of the industrial and commercial facility database that contains the following information: facility name, address, city, zip code, mailing address (if different), location reference (e.g., geographic coordinates, cross streets, etc.), facility contact phone number, Standard Industrial Classification codes, Waste Discharge Identification number associated with the General Permit-Industrial (if any), other NPDES permit or Waste Discharge Requirements, assessor's parcel number, and site size.
- Provided public education information regarding NPDES storm water permits to any new businesses listed in the Press Enterprise.

4.6.2 Proposed Revisions to Commercial and Industrial Sources Program Element and MS4 Permit

4.6.2.1 Consolidation of IC/ID Reporting Requirements

The Permittees proposed a consolidation and simplification of reporting requirements in the 2005 DAMP. IC/ID reporting requirements were spread throughout the construction, industrial, commercial, and IC/ID sections of the 2002 MS4 Permit. The Proposed 2007 MS4 Permit provisions now reference the unified IC/ID reporting procedures currently contained within the DAMP for simplicity and clarity.

4.6.2.2 Consolidation of Training Requirements

All training requirements have been consolidated to Section XIV of the Proposed 2007 MS4 Permit for simplicity and clarity.

4.6.2.3 Consolidation of Inspection Program Requirements

The Permittees have consolidated the Construction, Industrial and Commercial Inspection program requirements into Section IX of the Proposed 2007 MS4 Permit. The consolidation simplifies and clarifies the permit by removing redundant text.

4.6.2.4 Alternative Inspection Program

Several Permittees have developed enhanced industrial/commercial inspection programs to address the specific needs of their municipalities. The Proposed 2007 MS4 Permit recognizes these alternative programs, and requires, at a minimum, that they be equivalent to the CAP.

4.7 Public Education and Outreach

To leverage finite resources, the public education program has frequently partnered with various entities (County of Riverside Waste Management Department, Western Riverside Council of Governments, Riverside County Code Enforcement Division, Riverside County Department of Environmental Health, Riverside County Agricultural Commissioner's Office, Riverside-Corona Resource Conservation District etc.) to promote conservation, pollution prevention and environmental awareness. The education program also expands outreach opportunities by collaborating with entities such as County of Riverside Agricultural Commissioner, Flower Shows, and Home & Garden Shows to promote proper use of pesticides and herbicides to specific target groups such as pesticide applicators and home gardeners.

The public education program developed the Storm Water Protection Website (www.floodcontrol.co.riverside.ca.us/stormwater/) to provide information to residents, businesses, developers, contractors, school, teachers, and children about the problem of storm water pollution and offers simple measures to protect Receiving Waters. The website provides a materials order form for educational materials and tracks the number of queries. The public education program operates a toll-free hotline for reporting illegal dumping activity and to provide public education information.

4.7.1 Public Education and Outreach Program Element Accomplishments

The Storm Water Protection Website contains resources for residential homes, businesses, developers, contractors, and children. The website is accessible from the District home page. The Storm Water Protection Website offers free brochures that all web site visitors can print in quantities or can order including:

- *After the Storm* – a citizen's guide to understanding MS4 pollution in your neighborhood or when performing daily activities.
- *Automotive Maintenance & Car Care* – guidelines for keeping your auto shop or retail fuel facility in environmental shape.
- *Outdoor Cleaning Activities* – guideline for outdoor cleaning activities and wastewater disposal.
- *Pools, Spas and Fountains* –Environmental maintenance suggestions for pool, spa, and fountain owners.
- *What's the Scoop* – tips for a healthy pet and a healthier environment.
- *Household Hazardous Waste* – A schedule of collection locations for proper disposal of HHW.
- *Stormwater Pollution Found in Your Neighborhood* – door hanger.

In addition to the information provided on the Storm Water Protection Website, the Public Education and Outreach Program has:

- Tested and/or implemented several new Public Education and Outreach Program effectiveness tracking mechanisms including call tracking, web counters, testing, and surveys.
- Conducted a review of the efficacy of Permittee employee training programs.
- Enhanced the toll free storm water pollution reporting hot line to include public education information and support for the Public and other interested stakeholders.
- Enhanced on-line registration access for NPDES training to help facilitate training of appropriate Permittee employees.
- Worked with the Riverside-Corona Resource Conservation District to develop home garden workshops and presentations to elementary and middle schools and staff to raise public awareness of Urban Runoff management issues and source control methods and to encourage volunteers, partners, and groups to gather annually for a trash and debris clean-up day at the Santa Ana River.
- Developed special newspaper and billing inserts, fliers and advertisements to raise public awareness of Urban Runoff management issues and source control methods. A radio advertising campaign was also developed and implemented for a time.
- Developed and presented workshops regarding household hazardous waste use and proper disposal at major home improvement stores through out Riverside County.
- Placed numerous advertisements in the Penny Saver and Bargain Bulletin to raise public awareness of Urban Runoff management.
- In cooperation with certain County Service Areas or other programs, pet waste signs with bag dispensers have been installed at various parks to help encourage the proper disposal of animal waste.
- Coordinated with County-wide Animal Control Facilities, as well as city-owned animal control facilities and Humane Societies, to distribute specific materials to the County Agricultural inspectors as well as Santa Ana Regional Board staff inspectors for use on facility inspections.
- Distributed educational and outreach materials to the County Agricultural inspectors as well as Santa Ana Regional Board staff inspectors for use on facility inspections.
- Cooperated with the Western Riverside Council of Government (WRCOG) in the Used Oil Block Cycle Grant that decreases the amount of illegally dumped motor oil by promoting the addition of new Certified Oil Collection Centers.
- Participated in WRCOG's "Cleanest County in the West" program to address issues relating to litter and illegal dumping which targeted both students and adults.
- Supplemental Environmental Projects: As a result of an environmental enforcement case settlements brought by the County Department of Environmental Health, Conoco Phillips and Downs Energy developed two posters and a billboard, respectively. These items were designed to increase the awareness of appropriate BMPs for retail fuel businesses.

4.7.2 Proposed Revisions to Public Education and Outreach Program Element and MS4 Permit

4.7.2.1 Public Education Outreach Program Enhancements

During the next MS4 Permit term the following revisions to the Public Education and Outreach program will be priorities:

- Enhance coordination of public education outreach with adjacent MS4s.
- Enhance outreach materials for IC/IDs, nutrients, fertilizers, and pesticides.
- Focus the Public Education and Outreach Program on the pollutants causing the greatest impacts to water quality, determined by the monitoring results.

4.7.2.2 Training Program Consolidation

All training requirements have been consolidated to Section XIV of the Proposed 2007 MS4 Permit for simplicity and clarity. In addition, training program requirements have been modified in the Proposed 2007 MS4 Permit to allow for adjustable training schedules to accommodate individuals who have already been trained, allow for local training, and provide alternative training formats. The goal of these training revisions would be to infuse storm water pollution prevention training knowledge into daily activities of Permittee staff. Providing a Santa Ana Regional Board approved alternative to the repetitive classroom-style training required by the 2002 MS4 Permit would result in more enthusiastic staff participation and retention.

4.8 Monitoring Program

4.8.1 Overview of the Consolidated Program for Water Quality Monitoring

As Riverside County is within the jurisdiction of three Regional Boards, the Consolidated Monitoring Program was developed in 1994 to integrate the requirements of the three area-wide MS4 Permits. The overall goal of the Consolidated Monitoring Program continues to be to develop information that can be used to support effective implementation of the Urban Runoff management programs throughout Riverside County.

The purpose of the MS4 Urban Runoff program is to manage the quality of Urban Runoff to the MEP to prevent impacts to Receiving Waters. The monitoring program goals necessary to support this purpose are:

- Identify those Receiving Waters, which, without additional action to control pollution from Urban Runoff, cannot reasonably be expected to achieve or maintain applicable Water Quality Standards.
- Characterize Pollutants associated with Urban Runoff and assess the influence of urban land uses on Receiving Water quality.
- Analyze and interpret the collected data to identify trends, if any, both to prevent impairments through the implementation of preventive BMPs and to track improvements based on the Urban Runoff management program.

4.8.2 Inherent Limitations to Analyzing Water Quality Data

There are inherent limitations to analyzing water quality data from storm water. Storm water runoff is very different from mechanical processes that usually incorporate water quality monitoring. Discharges from mechanical processes such as treated wastewater effluent and industrial discharges usually:

- Come from a single or a few readily identifiable sources;
- Are generally consistent in chemical character from day to day; and
- Can be easily instrumented.

Conversely, Urban Runoff non-point source flows, such as those collected and analyzed as part of the NPDES MS4 monitoring programs usually:

- Come from multitudes of unidentifiable or hidden sources, many of which are non-Urban in nature:
  - State, federal or tribal lands
  - Natural leaching of soils
  - Wildlife
  - Aerial deposition
  - Wildfires
- Vary widely in chemical character at any given moment due to:
  - Unidentified episodic issues related to natural phenomena
  - Magnitude of rainfall and extent of contributing area
  - Potential one-time illicit discharges that were not identified at the time of sampling
  - Unforeseen or unidentified consequences of changes in numerous land use policies (fire management, development, etc)
- Are subject to significant natural random variation; and
- Cannot be easily instrumented due to the wide variation in depth and velocity and associated impacts of natural or unnatural aggredation and degredation of natural stream beds.

Because ephemeral storm water flows are, by their very nature, particularly random in character, it may take many years before monitoring data trends can be detected or to determine the effectiveness of an Urban Runoff control measure. As an example, power analysis was conducted of the water quality data to determine how many years of monitoring would be required to detect a given trend in the data. This tool was developed by the Southern California Coastal Water Research Project. Power analyses were conducted for fecal coliform, metals, and nutrients at the stations monitored during the 2005/06 permitting period. Based on the results, for biennial monitoring, and having an 80% chance of detecting a change in concentration, it would take about 5-10 years of data collection to detect a change of 50% in concentration, 10-15 years of data to detect a 25% change, and 15-30+ years of data to detect a 10% change. It is expected that results would be similar for other parameters measured in the monitoring program.

4.8.3 Monitoring Program Accomplishments

4.8.3.1 Revised Consolidated Monitoring Program

The Permittees have revised the Consolidated Monitoring Program to address the objectives of the 2002 MS4 Permit and to more effectively utilize finite monitoring resources. The Consolidated Monitoring Program identifies general monitoring elements common to the three MS4 permits applicable to Riverside County, and watershed-specific requirements are addressed in the appendices.

The Consolidated Monitoring Program addresses the following elements:

- TMDL/303(d) monitoring
- Microbial monitoring
- Bioassessment monitoring
- Field Reconnaissance
- Evaluation of other sources of data
- Mass emission monitoring
- Water column toxicity monitoring
- Hydrologic monitoring
- Land use correlations
- Special studies

The water quality monitoring program requires sampling and analysis from both wet and dry weather flows. Wet weather sampling involves weather forecasting, scheduling and mobilization of field crews, collection of representative samples from the runoff hydrograph, compositing samples, laboratory analysis, and maintenance of the laboratory analytical results in a water quality database. Dry weather monitoring includes procedures to indicate a source not related to a rainfall event, which may reflect an illicit connection, an illegal discharge, rising groundwater or other permitted or non-permitted non-storm water discharges. Therefore, the Consolidated Monitoring Program also addresses mobilization guidance; water quality sampling procedures; quality assurance and quality control (QA/QC) procedures; data collection and analysis guidance; monitoring costs; and health and safety issues.

The Consolidated Monitoring Program monitoring stations primarily sample Receiving Waters and discharges from MS4 outfalls. Receiving Water sampling locations were selected to provide baseline information of ambient water quality. The Receiving Water sampling stations include creeks, rivers, lakes, and reservoirs. A summary of the Consolidated Monitoring Program stations is maintained in a sampling data base (spreadsheet format) that includes channel type, location information, nearest rain gauge, type of sampling location (MS4 outfall vs. Receiving Water), sampling methods and equipment, tributary area, and land use mix.

4.8.3.2 Participation in Regional Monitoring Efforts

- Participation in the monitoring programs to support development of the Canyon Lake, Middle Santa Ana River and Lake Elsinore TMDLs.
- Cooperated with Santa Ana Watershed Project Authority (SAWPA), SJRWC, and LESJWA to obtain three grants, totaling more than $2.25 million, to address TMDL impairments by facilitating monitoring and data collection (two for the San Jacinto watershed, one for the Santa Ana River watershed).
- Continued participation by District staff as the CASQA Monitoring and Science Co-Chair.

- Continued participation in Regional and Statewide Monitoring and Science efforts such as the Southern California Monitoring Committee to develop guidance for:
  - Bioassessment in arid Southern California
  - Lab inter-calibration of chemical, bioassessment and toxicity testing methods
  - Hydromodification analysis
  - Review and development of testing methods for bioassessment and toxicity in Southern California Streams
  - Establishing appropriate effluent limits for storm water permits
  - Review of efficacy of low impact development technologies in Southern California
- Coordinated with SCCWRP on developing hydromodification guidance for Southern California including participation in a series of hydromodification workshops for a CASQA conference.

4.8.4 Proposed Revisions to Monitoring Program and MS4 Permit

4.8.4.1 Incorporation of TMDL Monitoring Requirements

The adoption of the Middle Santa Ana River Pathogen TMDL and the Canyon Lake and Lake Elsinore Nutrient TMDLs have added significant receiving waters and source assessment monitoring and analysis obligations to the Permittees monitoring programs. The Permittees implement these additional monitoring programs through participation in Task Forces that conduct the monitoring for the Permittees and other named dischargers, in conjunction with the Flood Control District.

The Permittees propose to comply with TMDL monitoring requirements (which are described in the TMDL Implementation Plans) by adding new compliance sections to the DAMP and the Proposed 2007 Permit. The Proposed 2007 MS4 Permit adds Section X, TMDL Compliance. The new section requires the Permittees to comply with TMDL Implementation Plan requirements and to describe their compliance programs in Section 13 of the DAMP.

It is expected that the pending release of the Canyon Lake Pathogen TMDL and other TMDLs yet to be developed will continue to add to the Permittees monitoring and analysis obligations.

4.8.4.2 Bioassessment

Bioassessment sampling measures the presence, condition and numbers of types of fish, insects, algae, plants, and other organisms are data that together provide direct, accurate information about the health of specific bodies of water (EPA 2006). The abundance and diversity of these bioassessment measures reflects the health of a water body. The Permittees are currently coordinating with the SMC to develop Bioassessment metrics for low gradient southern California stream systems. Upon completion of the SMC metrics, the Permittees commit to developing and implementing a bioassessment program in the Santa Ana Region.

4.8.4.3 Other Program Enhancements

During the course of the 2002 Permit term, the Permittees significantly enhanced the reporting and analysis of monitoring data in the annual reports. The Permittees are committed to continuing this level of analysis. The Permittees are also participating in several SMC and SCCWRP efforts to provide for

inter-calibration of lab data and standardization of various test methods. The Permittees will continue to incorporate the findings of these efforts into their monitoring programs as the results of the studies are released.

The Permittees would also note that, through the TMDL process, the Santa Ana Regional Board has significantly increased the monitoring and analysis obligations of the Permittees. In addition, the new monitoring obligations require that limited resources be diverted from other compliance program elements to address the monitoring of these high priority water quality issues within the watershed. The TMDL monitoring programs are also stretching existing Permittee staffing resources for monitoring programs. For this reason, the Permittees are not proposing any other significant modifications to their existing MS4 monitoring programs at this time. The Permittees, do however, wish to reserve the right to re-evaluate and restructure MS4 compliance monitoring obligations to compliment and support TMDLs and prevent duplication of effort. Restructuring may include removal or relocation of MS4 compliance monitoring stations, conversion of sampling sites to automated sampling equipment, or other methods deemed necessary to ensure that programs are complimentary and not duplicative.

4.9 Program Evaluation, Reporting and Revision

Each year the District, as Principal Permittee, coordinates the preparation of the Annual Report submitted to the Santa Ana Regional Board. The Annual Report details the Permittees' activities and accomplishments in regard to implementing the DAMP. Each Permittee submits to the District an Annual Report for their jurisdiction that assesses the improvement in water quality through indirect qualitative and quantitative measures. Evaluation of overall program effectiveness includes evaluation of achievement of short and long term strategies (that is, not directly based on the quality of Urban Runoff or receiving water quality).

The long-term strategy for assessing effectiveness focuses on water quality data obtained as part of the Consolidated Monitoring Program. This is by necessity a long-term strategy since the first step is developing and understanding baseline data. Due to the inherent variability of Urban Runoff, years of monitoring data collection are necessary to identify statistically significant trends or draw conclusions on program effectiveness. Additionally, because there are (1) numerous program elements being implemented and revised concurrently, (2) other environmental regulations indirectly impact Urban Runoff, and (3) numerous other climatological, man-made, and environmental changes that occur in the watershed, the ability to identify cause-and-effect relationships between a specific program element and/or BMP and improvement in the quality of Urban Runoff is complicated, if not infeasible, in many cases.

The short-term strategy for assessing the effectiveness focuses on quantitative, indirect methods of assessment. Each year the Permittees collect various metrics defined in the DAMP to assist with program evaluation. As part of the ROWD, the Permittees will evaluate these metrics, including water quality data, in an effort to assess overall program effectiveness. On an annual basis, the Permittees will review the metrics to determine if any course corrections on existing program elements may be beneficial.

4.9.1 Program Evaluation, Reporting and Revision Accomplishments

During the term of the 2002 MS4 Permit the Permittees implemented a revised program effectiveness assessment as described in Section 12 of the DAMP. Based on our effectiveness assessment analysis, the following significant changes were incorporated into the Permittees compliance programs:

- Development of a FAQ for WQMP projects to assist the development community in implementing the WQMP.
- Enhanced online watershed maps to assist developers and the public with identifying areas tributary to impaired water bodies.
- Revised Model WQMP template to assist developers with developing a project-specific WQMP.
- Revised Notice of Intent and Notice of Termination for Permittee construction projects to assist Santa Ana Regional Board staff with identifying locations and owners of Permittee projects.
- Implemented annual updates to Sanitary Sewer Overflow Procedures to ensure proper contact information for outside agencies.

Prioritized inspections, monitoring and expenditures based on sampling and monitoring results and other metrics to help target dischargers activities that present the highest risk to water quality.

4.9.2 Proposed Program Evaluation and Reporting Element Revisions and MS4 Permit

As a result of continued program effectiveness assessment the Permittees propose to update annual reporting forms to incorporate specific reporting requirements for all effectiveness assessment metrics.

Appendix A. Proposed 2007 MS4 Permit

Appendix B. 2007 Drainage Area Management Plan (without appendices)

Appendix C. Permit Area Boundary Map / 2006 Land Use Map

Appendix D. Santa Ana River Region MS4 Facility Maps