JANUARY 2013

Revolon Slough/Beardsley Wash 2011-2012 Trash TMDL TMRP/MFAC Annual Report

submitted to

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION

on behalf of the

COUNTY OF VENTURA, VENTURA COUNTY WATERSHED PROTECTION DISTRICT, CITY OF CAMARILLO, PARTICIPANTS IN THE VCAILG, AND CALTRANS

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Table of Contents

Table of Tables

Table of Figures

Table of Appendices

Executive Summary

This Annual Report is being submitted to fulfill the compliance requirements of the Amendments to the Water Quality Control Plan – Los Angeles Region for the Revolon Slough and Beardsley Wash Trash TMDL (Trash TMDL), Resolution No. R4-2007-007. The purpose of this report is to present the results of the third-year monitoring efforts conducted in accordance with the Revolon Slough Beardsley Wash Trash TMDL (effective March 6, 2008) and Trash Monitoring Reporting Plan (TMRP) Minimum Frequency Assessment Collection/ Best Management Practice (MFAC/ BMP) Program approved on January 28, 2009. Responsible parties participating in the Program include the City of Camarillo, County of Ventura, Ventura County Watershed Protection District (VCWPD), California Department of Transportation (Caltrans), and participating members of the Ventura County Agricultural Irrigated Lands Group (VCAILG). Non-point source-responsible parties may comply with the Trash TMDL through the implementation of the MFAC/ BMP Program while point source-responsible parties may comply with Trash TMDL either through the installation of full capture systems on conveyances discharging to Revolon Slough/ Beardsley Wash, or by achieving a certain percent reduction in trash from the baseline Waste Load Allocation (WLA) phased over a five-year period. As such, the point and non-point source-responsible parties implemented a Los Angeles Regional Water Quality Control Board-approved TMRP MFAC/ BMP Program and documented the results in this Annual Report to satisfy the reporting requirements for the MFAC/ BMP Program implemented during 2011-2012.

As presented in the 2010-2011 annual report, monitoring during the second year of the TMRP had indicated that significant reductions in trash were occurring in Revolon Slough/Beardsley Wash and that the responsible parties were well on their way to complying with the interim milestone reductions for March 2013. However, while conducting the MFAC Program during 2011-2012, it was evident that trash totals were higher this monitoring year than the previous monitoring year. As soon as the increasing trend was identified, the point and non-point source responsible parties began reviewing their existing implementation programs and identifying modifications to the existing programs or additional actions that could be implemented to address the TMDL requirements. As a result of this review, point and non-point source responsible parties identified additional actions, as discussed below. Additionally, the responsible parties have implemented monthly reviews of the data to evaluate trends and try to keep trash reductions on pace to meet TMDL requirements.

To address trash in Revolon Slough and Beardsley Wash, the responsible parties performed the required MFAC events and continued implementing BMPs including trash clean-ups. To facilitate the immediate removal trash once increasing trends were identified, additional clean ups were conducted in April 2012 and May 2012, beyond the MFAC events, which resulted in the removal of over 1,200 pounds of trash. In September 2012, City of Camarillo, County of Ventura, and VCWPD conducted another trash clean-up resulting in the removal of 235 pounds of trash and initiated reoccurring monthly trash cleanups, which are additional to the MFAC events, and are currently scheduled through September 2013.

Additionally, the responsible parties determined that compliance with the point source requirements could only be achieved through the installation of trash full capture systems. The high variability in trash data, non-point source contributions, and weather variability prevent successful monitoring of trash reductions in the watershed for point sources. Therefore, point

source-responsible parties began installing full capture systems on conveyances discharging to Revolon Slough and Beardsley Wash. The responsible parties intend to comply with the point source requirements of the Trash TMDL through the phased implementation of trash full capture systems at the schedule listed in Table 7-24.2a of Resolution R4-2007-007 with the goal of meeting the 100% installation deadline by March 2016. Non-point source-responsible parties will continue to conduct all required MFAC events and implement and/ or install non-structural and structural BMPs at high trash generating areas as well as watershed-wide to reduce the discharge of trash from their jurisdictions to minimize the impact of trash in the watershed.

Third-year monitoring was conducted between October 2011 and September 2012. The main types of trash collected included plastic and paper materials. Other types of trash collected include household, landscaping, metal, automotive, glass, biohazard, toxic/ hazardous, personal, and sports-related materials. For the 2011-2012 monitoring year, the most pieces of trash were collected in November 2011 and March 2012, with Site 1 and Site 8 having significantly more pieces of trash compared with the other monitored sites. The total amount of trash collected was 6,238 pieces, which is a 28% reduction in trash from the baseline waste load allocation (WLA) of 8,679 pieces. The amount of trash collected was completely unexpected given that a 54% reduction in trash from the baseline WLA was observed in the monitoring data during the previous year and the responsible parties were implementing more BMPs than the previous monitoring year. The responsible parties investigated the data and cannot definitively explain the increase. It is likely that the weather conditions, a significantly windier year than the previous monitoring years, played a role, but the variable nature of trash and non-point trash sources make it challenging to definitively identify the reason.

Based upon the experiences gathered from the third year of monitoring and to improve the MFAC/ BMP Program, the following MFAC revisions are recommended for approval:

1. **<u>MFAC Trash Metric</u>**
   After the first year of monitoring, total pieces of trash was identified as the metric to be used to determine compliance with the Trash TMDL and a total pieces of trash baseline number was provided in the first year Monitoring Report. This metric was chosen when the responsible parties intended to comply with both point and non-point source requirements through the use of the MFAC/ BMP Program. However, as point source compliance will now be attained through the installation of full capture devices and non-point source compliance through the MFAC/ BMP Program, a baseline number is no longer required to determine compliance. That is, the responsible parties will no longer need to show a phased percent reduction in total trash pieces collected per year. Therefore, total trash weight is being proposed as the new metric to assess and quantify trash within the watershed and to guide implementation of the MFAC/ BMP Program. The reasoning for this is that weighing trash instead of counting individual pieces provides the same information, yet saves time and resources, which the field staff will then use to cover more areas for trash collection. Additionally, the time and resources that are saved will be reinvested in installing and implementing structural and non-structural BMPs to address trash within the watershed. The upcoming fourth-year annual report for next monitoring year will provide a trash weight comparison between the 2011-2012 and 2012-2013 monitoring years to assess and quantify trash within the watershed.

2. **Removing Site 6 from the MFAC Program**

The total amount of trash collected at this site during the first year of monitoring was 24 pieces and the total amount of trash collected during the second and third years of monitoring was 49 pieces per year. The trash data from the monitoring completed to date indicate that trash is not accumulating in deleterious amounts at Site 6 and therefore, Site 6 should be removed from the MFAC/ BMP Program. Removal of this site will allow for more BMP implementation at high trash generating areas. This change was proposed last year, but as the responsible parties did not hear from the Regional Board regarding the proposed change, Site 6 was monitored during 2011-2012. Both changes to the MFAC Program will be initiated beginning April 1, 2013 unless directed otherwise by the Regional Board.

Overview

This Annual Report is being submitted to fulfill the compliance requirements of the Amendments to the Water Quality Control Plan – Los Angeles Region for the Revolon Slough and Beardsley Wash Trash TMDL (Trash TMDL), Resolution No. R4-2007-007. The purpose of this Annual Report is to present the results of the third-year monitoring efforts associated with the Calleguas Creek Watershed - Revolon Slough/ Beardsley Wash Trash TMDL (effective March 6, 2008) Trash Monitoring Reporting Plan-defined (TMRP) Minimum Frequency Assessment Collection/ Best Management Practice (MFAC/ BMP) Program.

The Annual Report includes:

- Results from monitoring efforts completed from October 2011 through September 2012 including:
  - A summary of completed collection events per site; and
  - A summary of trash data collected during the third year of monitoring;
- Data evaluation;
- Compliance assessment;
- BMPs strategy;
- Analysis of the effectiveness of the MFAC/ BMP Program; and
- Proposed revisions to MFAC/ BMP Program.

This effort is being completed on behalf of the responsible parties to the Trash TMDL as listed in **Table 1**.

Table 1. Responsible Parties Participating in this TMRP and MFAC/ BMP Program

Responsible Party	Nonpoint Source	Point Source
City of Camarillo	X	X
Ventura County (County)	X	X
Ventura County Watershed Protection District (VCWPD)	X	X
Participants in the VCAILG[1]	X	X[2]
Caltrans[3]	X	X

1. Ventura County Agricultural Irrigated Lands Group.
2. Not listed as a point source under the Trash TMDL.
3. Caltrans was not given a NPS Load Allocation (LA) in the TMDL yet is voluntarily participating in the MFAC to meet the TMDL goals.

To complete this effort, the responsible parties hired the California Conservation Corps (CCC) to conduct all field monitoring efforts and Larry Walker Associates (LWA) to oversee monitoring and complete reporting requirements. The monitoring efforts were conducted according to a modified version of the Rapid Trash Assessment Protocol (RTAP) that was developed by members of the San Francisco Bay Regional Board's Surface Water Ambient Monitoring Program (SWAMP). The RTAP was modified in some ways to be better suited to the goals of the TMRP and MFAC/ BMP Programs.

Assessment Site Locations

SITE LOCATIONS

The initial TMRP required trash assessments at nine locations including set assessment sites and rotating assessment sites. However, after the first year monitoring effort, Site 7 was dropped from the MFAC/ BMP Program due to safety issues and the rotating assessment sites were changed to set assessment sites because monitoring these sites on a consistent basis, rather than on a rotating basis, provides a better understanding of the trash found in the watershed. The assessment sites listed below are also depicted in **Figure 1** and detailed in **Appendix 1.** Assessment Site Descriptions.

Assessment Sites:

- Site 1: Revolon Slough and its adjacent land areas at Wood Road (the end of the concrete-lined channel). (MFAC)
- Site 2: Beardsley Wash at Wright Road and adjacent land areas. (MFAC)
- Site 3: Four drain outlets on the north side of Camarillo Hills Drain between Las Posas Road and Wood Road identified as 3a, 3b, 3c, and 3d from east to west. (MFAC)
- Site 4: Las Posas Estate Drain between Central Avenue and the 101 Freeway. (MFAC)
- Site 5: Agriculture Drain – East of Wood Road on Etting Road.
- Site 6: Inlet to the North Ramona Place drain debris basin. (MFAC)
- Site 8: Caltrans Site at 101 Freeway Bridge at Revolon Slough.
- Site 9: Revolon Slough at Pleasant Valley Road.

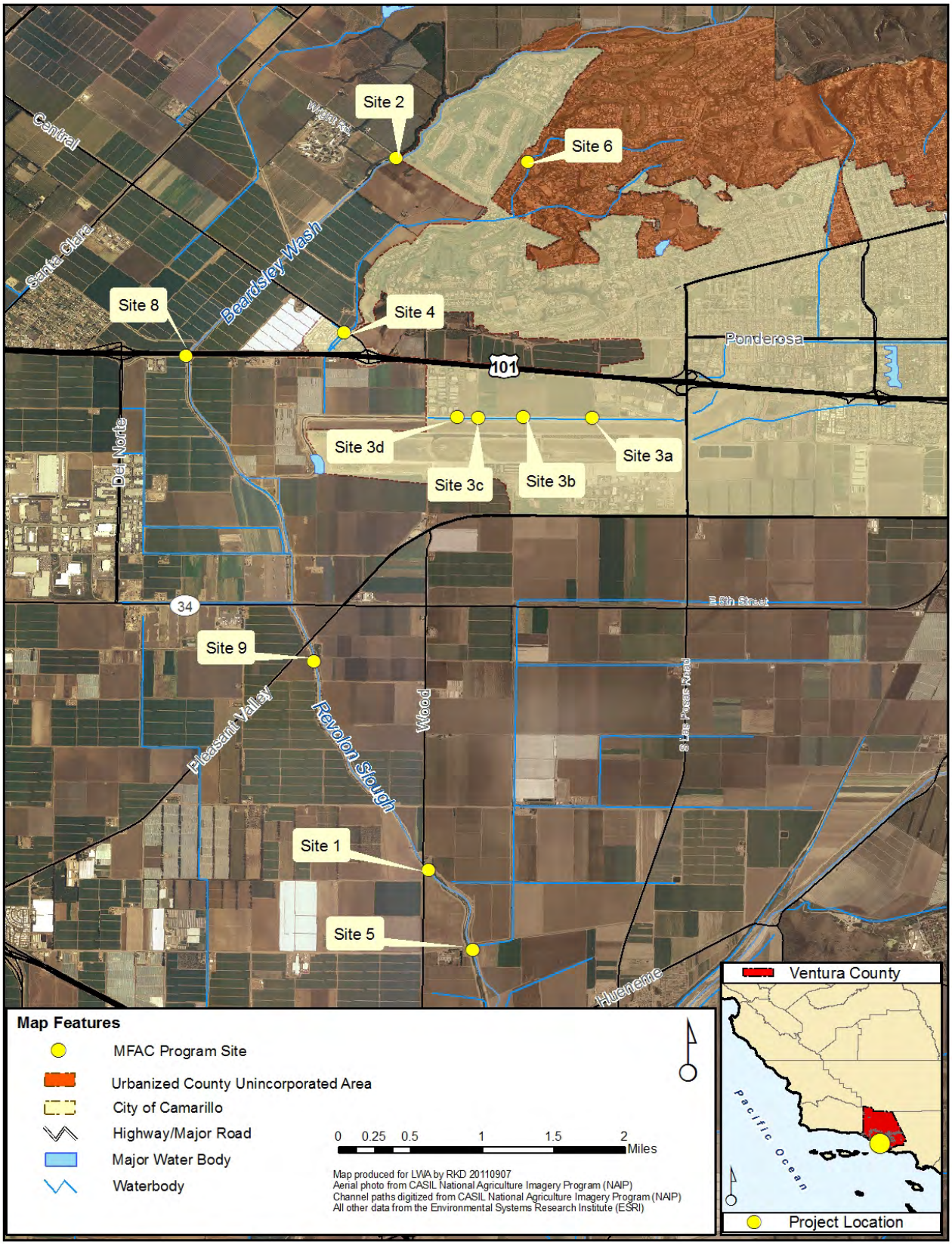

Figure 1. TMRP/ MFAC Program Sites

Completed Monitoring Events

Third-year monitoring for the Trash TMDL was conducted from October 2011 to September 2012 at the frequencies detailed in **Table 2.** See **Table 3** for a schedule of the completed monitoring events.

Table 2. TMRP Third-Year Monitoring Event Frequency

Site	Frequency
Site 1 - Revolon Slough At Wood Road	Once Monthly (MFAC)
Site 2 - Beardsley Wash at Wright Road	Once Monthly (MFAC)
Site 3 - Four storm drain outlets on the north side of Camarillo Hills Drain between Las Posas Road and Wood Road identified as 3a, 3b, 3c, and 3d from east to west	Once Monthly (MFAC)
Site 4 - Las Posas Estate Drain between Central Avenue and the 101 Freeway	Once Monthly (MFAC)
Site 5 - Agricultural Drain East of Etting Road	Once Monthly
Site 6 - Inlet to the North Ramona Place drain debris basin	Once Monthly (MFAC)
Site 8 - Caltrans Site	Once Monthly
Site 9 - Revolon Slough at Pleasant Valley Road	Once Monthly

Table 3. Completed Monitoring Events (October 2011 – September 2012)

Site	Month											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	X	X	X	X	X	X	X	X	X	X	X	X
2	X	X	X	X	X	X	X	X	X	X	X	X
3a	X	X	X	X	X	X	X	X	X	X	X	X
3b	X	X	X	X	X	X	X	X	X	X	X	X
3c	X	X	X	X	X	X	X	X	X	X	X	X
3d	X	X	X	X	X	X	X	X	X	X	X	X
4	X	X	X	X	X	X	X	X	X	X	X	X
5	X	X	X	X	X	X	X	X	X	X	X	X
6	X	X	X	X	X	X	X	X	X	X	X	X
8	X	X	X	X	X	X	X	X	X	X	X	X
9	X	X	X	X	X	X	X	X	X	X	X	X

X = monitoring event completed

Data Summary and Analysis

This section presents the types, quantities, and locations of trash collected during the third year of monitoring.

TYPES OF TRASH COLLECTED

The CCC collected or accounted for all trash greater than five millimeters. Trash collected in the field was separated into general categories and then further categorized by the actual brand or other specific identifiers when feasible. Generalized categories for the trash collected during the third-year monitoring effort are as follows:

- **Plastics/ Styrofoam Material** - including Styrofoam food containers, plastic bags, plastic cup lids, agricultural plastic
- **Paper/ Biodegradable Material** - including newspapers, boxes, paper wrappers
- **Household Items** - including chairs, buckets, other household items not including appliances
- **Landscape Items** - including yard waste items like grass clippings and wood debris
- **Metal Items** - including aluminum foil, cans, scrap metal
- **Automotive** - including auto parts and tires
- **Toxics/ Hazardous Items** - including aerosols and other materials that are deemed toxic or hazardous
- **Glass Materials** - including glass bottles or pieces of broken glass
- **Biohazard** - including pet waste, diapers, and dead animals
- **Personal Items** - including clothing, condoms, and cigarette butts
- **Sports Items** - including basketballs, baseballs, and golf balls
- **Miscellaneous Items** - including any items that cannot be identified in the above categories

Typically, the most common category (by number of pieces) of trash collected at each site was Plastic/ Styrofoam Materials while the second most common category collected at each site was Paper/ Biodegradable Materials, Metal Items, or Glass Materials.

TOTAL PIECES OF TRASH

During the third year of monitoring 6,238 pieces of trash were collected. Elevated levels of trash were collected from November 2011 through April 2012, with the overall highest amounts of trash collected in November 2011 and March 2012. In addition, Site 1 and Site 8 had higher amounts of trash compared with the other sites. **Table** 4 lists the total pieces of trash collected per month and per site. **Figure 2** shows the total pieces of trash per month, **Figure 3** shows the monthly totals per site, and **Figure 4** shows the total pieces of trash per month per site.

Table 4. Total Pieces of Trash Collected per Site and per Month (October 2011 – September 2012)

Site	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total pieces per site
Site 1	161	383	258	107	101	357	257	49	35	90	142	27	**1,967**
Site 2	4	119	20	16	15	13	5	21	5	4	7	7	**236**
Site 3a	13	115	35	58	28	156	26	50	7	12	1	0	**501**
Site 3b	20	95	45	19	36	39	18	9	11	9	97	6	**404**
Site 3c	20	103	37	26	29	39	26	27	5	5	9	3	**329**
Site 3d	25	131	42	23	36	55	34	20	5	6	2	4	**383**
Site 4	27	117	11	26	57	13	7	10	9	7	19	45	**348**
Site 5	9	70	104	88	68	39	81	25	10	25	49	19	**587**
Site 6	0	12	5	2	8	0	4	3	0	10	0	5	**49**
Site 8	97	186	118	156	201	187	82	28	26	65	76	100	**1,322**
Site 9	20	34	23	19	6	4	5	0	0	0	0	1	**112**
Total pieces per month	**396**	**1365**	**698**	**540**	**585**	**902**	**545**	**242**	**113**	**233**	**402**	**217**	**6,238**

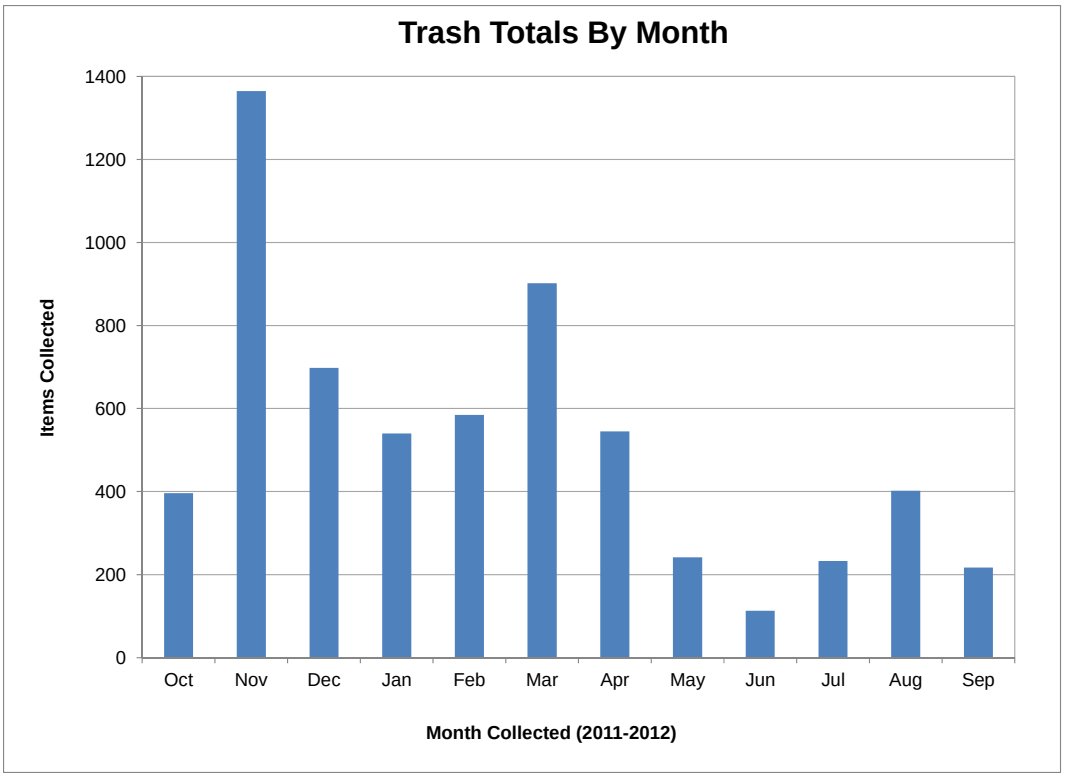

Figure 2. Total Pieces of Trash Collected Per Month (October 2011 – September 2012)

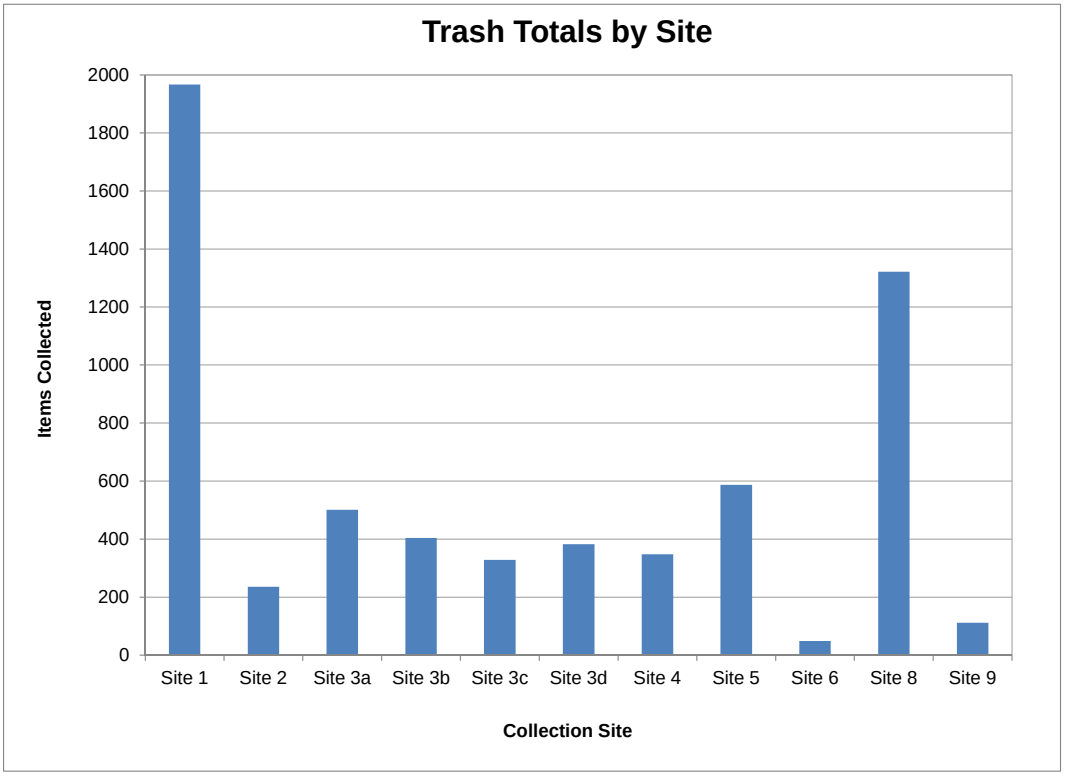

Figure 3. Total Pieces of Trash Collected Per Site (October 2011 – September 2012)

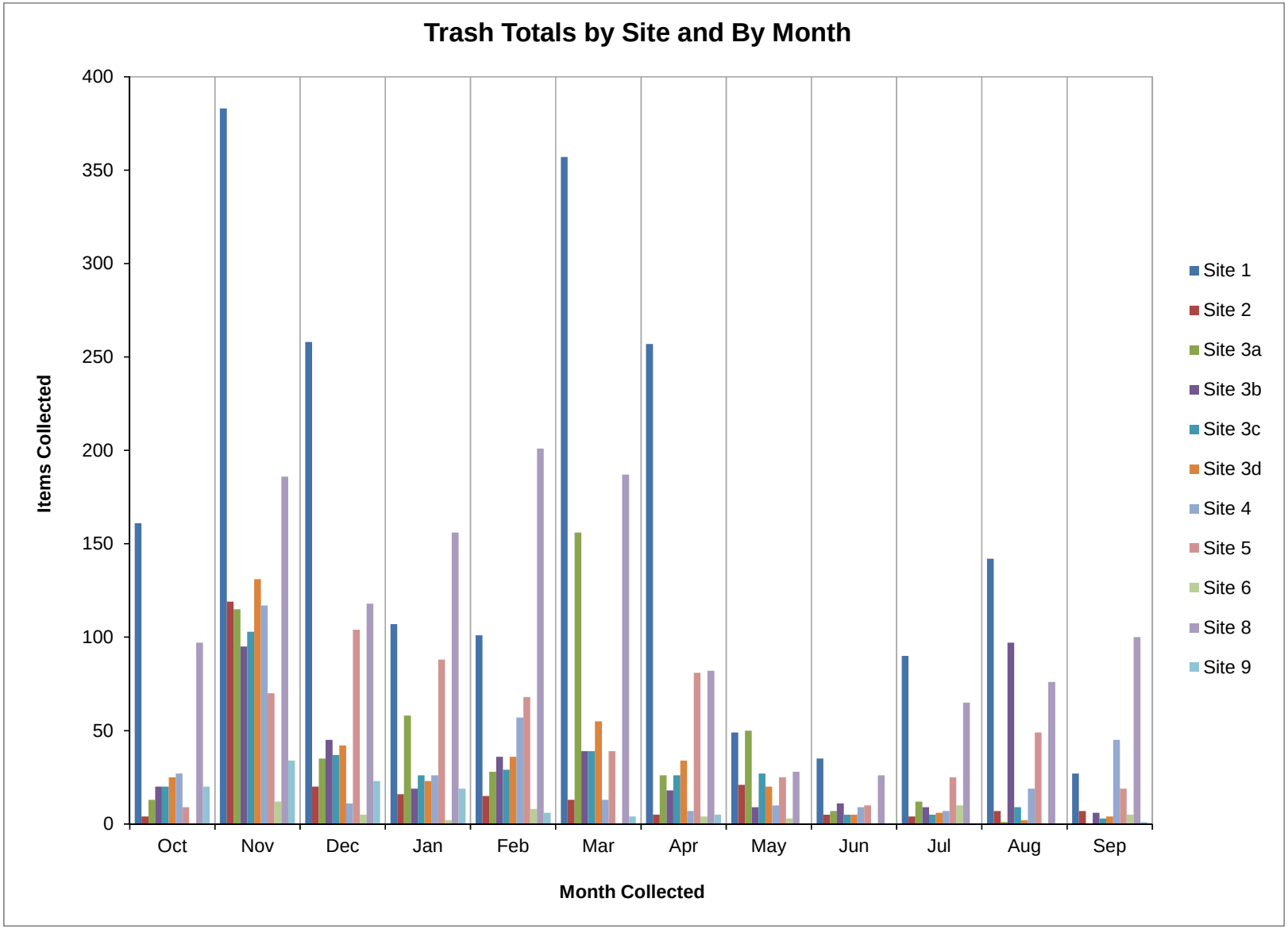

Figure 4. Total Pieces of Trash Collected Per Month per Site (October 2011 – September 2012)

TRASH WEIGHT

During the 2011-2012 monitoring year MFAC events, trash weight was also collected. Trash weight is proposed as the metric to be used in 2012-2013 (See **MFAC Revisions Section**). Presenting the weight data in this Annual Report will provide for the comparison between third-year monitoring trash weights and fourth-year monitoring trash weights in next year's Annual Report.

For the 2011-2012 monitoring year, 54.4 pounds (lbs) of total trash were collected. The sites with the highest trash weights were Site 1 and Site 5 with 26.64 lbs and 7.23 lbs respectively. In addition, the months with the highest trash weights include November 2011, December 2011, and January 2012. **Table 5** lists the weight collected per site and per month for the 2011-2012 monitoring year.

Table 5. Total Weight of Trash Collected per Site and per Month (October 2011 – September 2012)

Site	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Weight per Site (lbs)
Site 1	1.03	8.86	2.76	5.31	0.98	1.58	1.66	0.29	0.68	1.11	1.94	0.44	**26.64**
Site 2	0.14	0.43	0.36	1.04	0.78	0.38	0.13	0.45	0.03	0.12	0.09	0.06	**3.99**
Site 3a	0.15	1.02	0.13	0.75	0.32	0.66	0.18	0.02	0.03	0.04	0.01	0.00	**3.30**
Site 3b	0.11	0.36	0.64	0.10	0.33	0.17	0.11	0.02	0.04	0.01	0.04	0.04	**1.97**
Site 3c	0.32	0.89	0.20	0.15	0.40	0.13	0.03	0.01	0.02	0.02	0.02	0.01	**2.18**
Site 3d	0.66	0.73	0.51	0.11	0.09	0.07	0.07	0.06	0.04	0.01	0.04	0.01	**2.41**
Site 4	0.20	0.07	0.06	0.06	0.24	0.04	0.09	0.01	0.07	0.01	0.13	0.03	**1.01**
Site 5	0.06	1.36	0.58	0.16	2.20	0.34	0.77	0.23	0.33	0.24	0.93	0.02	**7.23**
Site 6	0.00	0.03	0.04	0.01	0.03	0.00	0.03	0.02	0.00	0.20	0.00	0.03	**0.37**
Site 8	0.14	0.33	0.51	0.20	0.49	0.19	0.26	0.11	0.06	0.12	0.07	0.07	**2.53**
Site 9	0.11	0.94	1.32	0.04	0.04	0.27	0.06	0.00	0.00	0.00	0.00	0.01	**2.78**
Weight per Month (lbs)	**2.92**	**15.01**	**7.11**	**7.93**	**5.90**	**3.82**	**3.39**	**1.21**	**1.30**	**1.87**	**3.25**	**0.70**	**54.4**

Data Evaluation

Trash data from third-year monitoring were evaluated to determine the change in trash collected from the baseline WLA presented in the first-year TMRP Annual Report. The data were also evaluated to identify high trash generating areas where implementation actions may be focused. In addition, the data were analyzed to evaluate the effectiveness of the MFAC/ BMP Program. The following sections provide information regarding the reduction in trash from the baseline WLA, high trash generating areas, and MFAC/ BMP Program Effectiveness.

TRASH REDUCTION FROM BASELINE WLA

Trash data were reviewed to quantify the reduction from the baseline WLA to determine compliance with the Trash TMDL. Reductions in the amount of trash present are determined from the baseline WLA of 8,679 pieces of trash. The Trash TMDL requires point sources to reduce trash totals from the baseline WLA phased over a period of five years with a 20% reduction in trash by 2012, a 40% reduction by 2013, a 60% reduction by 2014, an 80%

reduction by 2015, and a 100% reduction by 2016. Responsible parties are deemed to be in compliance with the Trash TMDL if they meet the phased reduction numbers or if they install full capture devices on conveyances discharging to Revolon Slough/ Beardsley Wash at the same percentage. **Table 6** lists the compliance milestones, the required pieces of trash to meet the milestones, and the dates of the compliance milestones.

Table 6. Compliance Milestones, Allowable Pieces of Trash, and Compliance Milestone Dates

Compliance Milestone	Pieces of Trash	Compliance Milestone Date
Baseline WLA	8,679	N/A
20% Reduction or Installation	6,943	2012
40% Reduction or Installation	5,207	2013
60% Reduction or Installation	3,472	2014
80% Reduction or Installation	1,736	2015
100% Reduction or Installation	0	2016

The actual total amount of trash collected during the third year of monitoring was 6,238 pieces. However, the baseline WLA was calculated by multiplying the sum of the monthly average pieces of trash per assessment site by 12 months to get an annual total amount of trash. Therefore, to determine compliance through a like comparison to the baseline WLA, the total pieces of trash collected was calculated in the same manner as the baseline WLA. For the 2011-2012 monitoring year, the calculated annual pieces of trash collected equals the actual total pieces of trash collected (6,238). The total pieces of trash collected over the three years of monitoring during the MFAC/ BMP Program are highly variable.

The amount of trash measured exceeded the interim requirement for 2013 by approximately 1,000 pieces of trash. This result was completely unexpected given that a 54% reduction in trash from the baseline WLA was observed in the monitoring data during the previous year and the responsible parties were implementing more BMPs than during the previous year. During the monitoring year, the responsible parties identified that trash totals appeared to be increasing and began taking steps to try and reduce the amount of trash in Revolon Slough. First, the responsible parties investigated the data to try to determine if a new source or issue could be identified that could be addressed through BMPs. However, the analysis could not definitively explain the increase. It is likely that the weather conditions, a significantly windier year than the previous monitoring years, played a role, but the variable nature of trash and the non-point trash sources to the watershed make it challenging to definitively identify a reason.

In addition, the responsible parties began a review of their existing implementation program to identify areas where improvements could be made to increase the amount of trash reductions achieved as soon as an increasing trend was identified. The steps taken to reduce the trash levels are discussed under the **Compliance Strategy Section**. They also implemented monthly data review to quickly identify increasing trash trends and implement actions as necessary to try to reduce trash levels further.

Additionally, the point source-responsible parties have committed to installing full capture devices to comply with the Trash TMDL requirements with a goal of 100% installation completed by March 2016.

HIGH TRASH GENERATING AREAS

Site 1 and Site 8 were identified as high trash generating areas due to the elevated levels of pieces of trash collected at these locations compared with the other assessment sites. Site 1 had 1,967 pieces of trash, while Site 8 had 1,322 pieces of trash. **Table 4** lists the trash totals for all of the assessment sites.

As identified in the previous annual report (2010-2011 monitoring year), Site 1 and Site 8 are high trash generating areas that were prioritized for BMP implementation. Site 1 was targeted with special clean-ups that were performed in April, May, September, and October 2012 by the CCC. These special clean-ups removed trash and debris in the area surrounding Site 1. In addition, as Site 1 is primarily surrounded by agricultural areas, agricultural entities were targeted with outreach and education specifically regarding trash BMPs. VCWPD Operations and Maintenance removed 660 pounds of trash from the segment between Site 1 and Site 5 in July. Additionally, 2,614 cubic yards of combined trash, vegetation and sediment was removed from the concrete box channel upstream of Site 1 in July. Similar to Site 1, agricultural entities were targeted with outreach and education specifically regarding trash BMPs. The area surrounding Site 8 (Caltrans Site) is also an area of concern that was targeted through Caltrans-implemented BMPs as listed in the TMRP. High trash generating areas will continue to be addressed through prioritized BMP implementation to minimize the impacts of trash in these areas as identified by data collected during the MFAC events.

MFAC/BMP PROGRAM EFFECTIVENESS

As outlined in the TMRP, a further assessment of MFAC/ BMP Program effectiveness was to be conducted after the third year of monitoring. The following steps were used to assess MFAC/ BMP Program effectiveness:

1. A review of BMP implementation, including identification of BMPs, location of BMPs, and time frame (*e.g.*, when an activity was implemented or installed);
2. A comparison of monitoring results between monitoring locations and between events before and after BMP implementation; and
3. A comparison of annual monitoring data to the baseline WLA from the first year of monitoring.

Given the broad nature of most of the BMPs implemented to date (*e.g.*, education programs, ordinances, street sweeping), the highly variable amounts of trash collected over the three years, and the relatively short time frame that full capture devices have been installed, trends were not identified in the monitoring data that could be used to determine effectiveness of individual BMPs. As discussed in the **Data Summary and Analysis Section**, the trash monitoring from the past three years indicates that trash levels are highly variable. During the previous monitoring year, implementation of the MFAC/BMP program appeared to result in significant trash reductions. However, during this year, the trash levels increased at the same time that additional BMPs were being implemented and full capture devices were being installed.

As a result, the implementation of the MFAC/BMP program is not clearly reflected in the trash monitoring results from this year and the program implementation is being evaluated to consider these results. The results indicate that the MFAC/ BMP Program may not be effective enough at reducing the total number of pieces of trash collected over the monitoring year to meet the 40%

reduction in trash pieces from the baseline WLA required for point sources. However, aside from legacy trash issues, the MFAC Program resulted in zero trash in-stream immediately after all monitoring events as required by the Trash TMDL for non-point sources. From this analysis, it was determined that the MFAC/ BMP Program may not be effective enough to provide for compliance with the point source requirements of the Trash TMDL yet is effective for meeting the non-point source requirements.

Compliance Strategy

The Trash TMDL requires all annual reports to include proposals to enhance BMPs, revise the MFAC (if needed), and prioritize the installation of full capture devices or other compliance measures, including structural BMPs or trash collection events for high trash generating areas. Additionally, the Trash TMDL requires point source-responsible parties to achieve a 100% reduction from the baseline WLA by 2016. This section describes the proposed compliance strategies to be utilized to meet the non-point source and point source Trash TMDL requirements.

As discussed in the **Data Evaluation Section** of the report, the lower than expected reductions achieved during the 2011-2012 monitoring year resulted in an evaluation of steps the responsible parties could take to further reduce trash discharges into Revolon Slough/ Beardsley Wash. The evaluation resulted in some modifications to the compliance strategy proposed by the responsible parties in the previous annual reports. The proposed approach and suggested modifications are identified below.

Non-point source-responsible parties will continue complying with the Trash TMDL through an MFAC/ BMP Program that includes a combination of MFAC events and BMPs including structural and non-structural BMPs. The information gathered from the MFAC/ BMP Program will guide BMP implementation and selection to ensure efficient and effective compliance with the Trash TMDL. The responsible parties will also utilize adaptive management to allow for flexibility in determining the correct BMPs to implement and the correct locations to implement the BMPs. The proposed adaptive management compliance strategy is as follows:

1. Continue implementation of the current approved MFAC Program with the proposed revisions of using total weight as opposed to total pieces as the metric and eliminating Site 6 from the MFAC/ BMP Program;
2. Continue to implement the current suite of BMPs identified in the TMRP with the additions described in the **Current Best Management Practices Section**;
3. Implement BMPs in the future based on information generated from the MFAC/ BMP Program focusing on the high trash generating areas as discussed in the **Future Potential Best Management Practices Section**; and
4. Evaluate the effectiveness and needs for additional BMPs and/ or MFAC revisions semi-annually based on the results of the MFAC/ BMP Program. The evaluation will consider the amount of trash, on a site-by-site and watershed basis, to prioritize the areas where additional BMP implementation may be most effective in reducing trash levels. Proposed revisions to the MFAC/ BMP Program and full capture device or other measure installation/ implementation prioritization will be included in each annual report.

Point source-responsible parties will continue with the implementation of full capture devices at high trash generating areas prioritized through MFAC/ BMP Program data, which was initiated over the past two monitoring years. The goal is to meet the required phased percent reductions as listed in Table 7-24.2a with a final goal of installation of full capture devices at 100% of the conveyances discharging into Revolon Slough and Beardsley Wash by March 2016.

The following sections outline the jurisdictional BMPs currently being implemented, the additional BMPs to be implemented in prioritized areas, other BMPs being considered for implementation throughout the watershed, and a BMP implementation schedule.

CURRENT BEST MANAGEMENT PRACTICES

The TMRP listed a suite of BMPs that each responsible party was implementing in their respective jurisdictions. The BMPs listed in the TMRP are still relevant, but there have been several revisions and/ or additions to the suite of BMPs listed in the TMRP. Presented below is the original suite of BMPs listed in the TMRP as well as the revisions and/ or additions made to the BMPs listed in the TMRP.

In addition to MFAC/ BMP program proposed in the TMRP, the responsible parties completed the following cleanup events:

A. In April 2012, a two-day cleanup at Revolon Slough between Site 1 and Site 3a-d was conducted by the City of Camarillo, the County of Ventura, VCWPD, Farm Bureau, and Caltrans. The cleanup event removed approximately 581 pounds of trash from channel areas not covered by the MFAC/ BMP Program.

B. In May 2012, a one-day cleanup at Revolon Slough between Site 1 and Site 3a-d was conducted by the City of Camarillo, the County of Ventura, VCWPD, Farm Bureau, and Caltrans. The cleanup event removed approximately 408 pounds of trash from channel areas not covered by the MFAC/ BMP Program.

C. In September 2012 one-day cleanup at Revolon Slough between Site 1, Site 3a-d, and Site 5 was conducted by the City of Camarillo, the County of Ventura, and VCWPD. The cleanup event removed approximately 235 pounds of trash from channel areas not covered by the MFAC/ BMP Program.

The City of Camarillo, County of Ventura and the VCWPD have also contracted with the CCC to conduct monthly one-day trash cleanups near Sites 1, 3a-d and 5 between October 2012 and September 2013.

City of Camarillo Litter Management Program:

TMRP BMP list for the City of Camarillo (City):

1. Catch basin cleaning - all city catch basins are inspected at least once per year and those in high-trash generating areas are inspected four times per year and all are cleaned when filled with trash to 25% or more of the catch basin’s capacity.
2. Open channel maintenance - all City-maintained channels are inspected and cleaned at least once per year before the wet season.
3. Trash Management at Public Events - All special use permits for events in the public right of way require proper management of trash and litter.

The following are enhancements/ revisions made to the non-point source BMPs listed in the TMRP for the City:

1. The City requires private owners to provide proof of maintenance of their post construction treatment devices annually.
2. Trash removal is performed along City fence lines that drain to channels within the watershed. In 2012, 86.5 55-gallon bags of trash were removed.
3. City arterial streets are swept weekly and residential streets are swept monthly in an attempt to reduce trash accumulating in deleterious amounts on streets within the City.
4. The City requires conditions pertaining to trash to be met for all new development and redevelopment projects within the watershed, including:
    A. Trash full capture devices and post-construction treatment devices for other pollutants of concern must be installed in drain inlets;
    B. Trash enclosures and/ or recycling areas must be properly installed (e.g., covered and including structures to direct stormwater away from entering the enclosures/ areas);
    C. All property areas must be maintained free of litter/ debris;
    D. Onsite storm drains must be cleaned at least twice per year, including once before the beginning of the wet season; and
    E. Private roads and parking lots must be swept at a minimum of once per month, with two sweepings occurring in October before the beginning of the wet season.
5. The City engages in several outreach and education campaigns including:
    A. The City includes a litter prevention message, at least annually, in its quarterly Cityscene Newsletter, which is distributed to all residents;
    B. The City includes an insert with all utility bills soliciting volunteers to remove trash in the City on Coastal Cleanup Day and which also educates residents on pollution prevention; and
    C. The City conducts commercial, industrial, and construction facility/ site inspections to ensure proper pollutant prevention BMPs are being applied and to educate the employees on the importance of pollution prevention.
    D. The City sends out letters to all commercial, industrial, and high-density residential property managers requesting assistance in controlling trash on their property.
    E. The City participates in the Countywide Stormwater Public Outreach Program that includes litter outreach, which can be reviewed at www.cleanwatershed.org. In 2011-2012, over 5 million impressions were made via this program.

The following are enhancements/ revisions made to the point source BMPs listed in the TMRP for the City:

1. The City has installed trash full capture devices in City storm drain catch basins in high trash generating areas throughout the City including 20 devices within the Revolon Slough/ Beardsley Wash watershed. For the 2011-2012 monitoring year, the devices removed greater than 7.5 tons of debris, of which, trash comprised only approximately 2.4 tons; the remaining debris was mostly landscape material. The installation of the 20 devices resulted in approximately 7% of City conveyances discharging to Revolon Slough/ Beardsley Wash being addressed through full capture. Although, the percent reduction does not meet the 40% goal of the Trash TMDL, the MFAC/ BMP Program did result in a 28% reduction of trash from the baseline WLA. It is anticipated that the percentage of full capture devices implemented will lag from the interim percentages of the Trash TMDL. However, the MFAC/ BMP Program will continue while further devices are installed, which will help reduce the possible impact from the schedule lag. It is expected that 100% of the city's conveyances discharging to Revolon Slough/ Beardsley Wash will be addressed through full capture by the compliance deadline of March 2016.

County of Ventura and VCWPD Litter Management Program:

1. Catch basin cleaning - Catch basins are inspected at least once a year and cleaned when filled to 25% or more of the catch basin's capacity. During storm season, all drainage facilities are inspected and cleaned as necessary;
2. Open channel storm drain maintenance - All VCWPD owned and maintained channels are cleared, inspected, and cleaned as required at least once per year. For 2011-2012, 660 pounds of trash were removed during vegetation control of the earthen sections of Revolon Slough (downstream of Wood Road) during the month of July. The concrete box sections (upstream of Wood Road) were cleaned in July, with a combined total of 2,614 cubic yards of trash, vegetation and sediment removed from the concrete sections.
3. Trash Management at Public Events - A proper management of trash and litter plan is required when obtaining a permit for staging public events. This plan requires adequate facilities for trash collection and disposal;
4. Public areas - Trash receptacles have been placed within high trash generation areas. These devices are cleaned and maintained regularly to prevent trash overflow;
5. The recently amended Stormwater Quality Management Ordinance for Unincorporated Areas (Ventura County Ordinance No. 4450) includes litter and trash specific prohibitions (Section 6942) of the discharge or deposition of trash that may enter the County storm drain system or receiving waters. The revised ordinance also includes increased civil penalties for violations and provisions for issuing administrative fines, recovery of costs and misdemeanor violations;
6. County catch basins are labeled, "Don't pollute, Flows to Waterways";
7. On July 31, 2012 the County of Ventura Board of Supervisors received and filed a draft model Single-Use Bag Ordinance referred to the County by the Beach Erosion Authority for Clean Oceans and Nourishment (BEACON). The County endorsed the use of up to $8,000 as the County's pro-rata share of a regional Environmental Impact Report (EIR) to be prepared by BEACON, which is required to be completed under

the California Environmental Quality Act (CEQA) before the model single-use bag ban can be adopted. This is the first step for the County to move forward with the consideration of adoption of a single-use plastic bag ban;

8. The County and VCWPD continue to participate in the Countywide Stormwater Program to provide outreach and education retaining the services of "The Agency", a professional advertisement group that designs and conducts Countywide, bilingual outreach programs advocating proper trash disposal. The most recent addition to the outreach program is trash prevention and protection of stormwater quality education using Facebook®; and
9. The County conducts commercial, industrial, and construction facility/ site inspections to ensure proper pollutant prevention BMPs are being applied and to educate the employees on the importance of pollution prevention.

In November 2011, County of Ventura completed location study for installation of full capture devices. In December 2011, the County of Ventura Completed design of full capture devices to control trash in the watershed; The County is in the process of finishing contractor bidding documentation with a goal to complete construction by July 2013.

VCAILG Litter Management Program:

During the 2011-2012 monitoring year, VCAILG performed over 90 hours of education and outreach at 29 independent workshops to a diverse group of owners and growers throughout Ventura County. These workshops included education about trash BMPs for agricultural areas. On October 7, 2010 the Los Angeles Regional Water Quality Control Board (Regional Board) adopted a new *Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands within the Los Angeles Region* ("Conditional Waiver", Order No. R4-2010-0186).

As specified in the Conditional Waiver, if an applicable water quality benchmark has not been met, then a Water Quality Management Plan (WQMP), which includes BMPs to address constituents of concern, must be developed. Acting as a unified discharger group, VCAILG performed required monitoring for compliance with the Conditional Waiver during 2011-2012. The first-year Annual Monitoring Report (AMR) will be submitted by the February 2013 deadline. Based on the monitoring results reported in the AMR, VCAILG will submit an updated WQMP, which will include trash-specific BMPs, as required by the March 2013 deadline. These BMPs will subsequently be submitted in the upcoming fourth-year Trash TMDL Annual Report for 2012-2013.

VCAILG members also participate in a strawberry plastics recycling program that is responsible for collecting discarded plastics used during strawberry growing. The recycling of the plastic is an effective method for reducing plastic trash from entering Revolon Slough and Beardsley Wash.

Caltrans Litter Management Program:

Caltrans implements a variety of BMPs in the watershed along the freeways and highways. These BMPs are a suite of programs done to reduce trash as follows.

1. Street Sweeping

2. Trash Collection
3. Adopt-a-Highway Program

The California Highway Patrol also enforces the Vehicle Code which prohibits littering of any kind on the highway, and prescribes fines and mandatory public service for those convicted. In addition enforcement signs are located on state highways informing motorists that trash/litter is illegal and carries a mandatory fine.

FUTURE POTENTIAL BEST MANAGEMENT PRACTICES

Non-point source-responsible parties will focus BMP efforts at the high trash generating areas identified through the third year of monitoring and continue watershed-wide BMP activities as a means to further reduce the discharge of trash from their jurisdictions. Point source-responsible parties will continue the installation of full capture devices on conveyances discharging into Revolon Slough and Beardsley Wash. Future potential BMPs specific to each responsible agency are detailed below.

City of Camarillo Litter Management Program:

The City is currently installing full capture systems on the conveyances, which it has jurisdiction over, that discharge into Revolon Slough and Beardsley Wash. In addition, the City is conducting a robust analysis to determine the most appropriate and effective manner of installing the full capture systems to ensure compliance with the 100% installation requirement by 2016.

The City will also continue to install and implement structural and non-structural BMPs to address non-point source trash to minimize the discharge of trash from their jurisdictions as part of the MFAC/ BMP Program, including the monthly trash cleanups of the higher trash generating sites and periodic trash removal along the fence line areas surrounding conveyances to those sites. The scale of BMP installation and implementation will depend on the trash data collected during the 2012-2013 monitoring year.

County of Ventura and VCWPD Litter Management Program:

The County of Ventura and/or VCWPD is currently installing full capture systems on the conveyances, which it has jurisdiction over, that discharge into Revolon Slough and Beardsley Wash. In addition, the County of Ventura and/or VCWPD will install full capture systems on an appropriate schedule to ensure compliance with the 100% installation requirement by 2016.

The County of Ventura and/or VCWPD will also continue to install and implement structural and non-structural BMPs to address non-point source trash to minimize the discharge of trash from their jurisdictions as part of the MFAC/ BMP Program. BMPs will include monthly trash cleanups at high trash generating areas and periodic trash removal along fence lines surrounding the conveyances to such areas. The scale of BMP installation will depend on the trash data collected during the 2012-2013 monitoring year.

VCAILG Litter Management Program:

As part of the current Conditional Waiver, VCAILG will provide educational classes focused on improving water quality, including identifying trash as an impairment of water quality. Furthermore, based on 2011-2012 monitoring results, VCAILG will assist members with the

implementation of additional BMPs as necessary by following the adaptive process identified in the WQMP. In addition, VCAILG members will continue to be billed separately for Trash TMDLs to further reinforce the idea, through a fiscal measure, that there are trash problems in the watershed.

Caltrans Litter Management Program:

Caltrans will continue to implement its current suite of BMPs as outlined in the TMRP as well as implement future potential full trash capture devices, subject to funding availability. The continued implementation of current BMPs and the implementation of future potential BMPs will be directed by results obtained from future monitoring events as part of the adaptive management compliance approach. Caltrans anticipates installing 1 Infiltration Basin, 3 Media Filters, and 15 Gross Solid Removal Devices by 2016 or following years subject to funding availability.

BEST MANAGEMENT PRACTICES IMPLEMENTATION SCHEDULE

Non-point source-responsible parties intend to continue complying with the Trash TMDL through the MFAC/ BMP Program, which may include the installation or implementation of structural or non-structural BMPs. The initial MFAC/ BMP program, included in the TMRP, and enhanced in this report will continue to be implemented. Additional BMP implementation will be scheduled as appropriate to address the identified high trash generating areas and meet the required trash reductions

Point source-responsible parties will continue with the implementation of full capture devices at high trash generating areas prioritized through MFAC/ BMP Program data, which was begun over the past two monitoring years. The goal is to meet the required phased percent reductions as listed in Table 7-24.2a with a final goal of installing full capture devices at 100% of the conveyances discharging into Revolon Slough and Beardsley Wash by 2016.

MFAC Revisions

Based upon the experiences gathered from the monitoring completed to date and to improve the MFAC/ BMP Program, the following MFAC revision is recommended for approval:

1. **MFAC Trash Metric**
   After the first year of monitoring, total pieces of trash was identified as the metric to be used to determine compliance with the Trash TMDL and a total pieces of trash baseline number was provided in the first year Monitoring Report. This metric was chosen when the responsible parties intended to comply with both point and non-point source requirements through the use of the MFAC/ BMP Program. However, as point source compliance will now be attained through the installation of full capture devices and non-point source compliance through the MFAC/ BMP Program, a baseline number is no longer required to determine compliance. That is, the responsible parties will no longer need to show a phased percent reduction in total trash pieces collected per year. Therefore, total trash weight is being proposed as the new metric to assess and quantify trash within the watershed and to guide implementation of the MFAC/ BMP Program. The reasoning for this is that weighing trash instead of counting individual pieces provides the same information, yet saves time and resources, which the field staff will

then use to cover more areas of the estuary for trash collection. Additionally, the time and resources that are saved will be reinvested in installing and implementing structural and non-structural BMPs to address trash within the watershed. The upcoming fourth-year annual report for next monitoring year will provide a trash weight comparison between the 2011-2012 and 2012-2013 monitoring years to assess and quantify trash within the watershed.

2. **Removing Site 6 from the MFAC Program**

The total amount of trash collected at this site during the first year of monitoring was 24 pieces and the total amount of trash collected during the second and third years of monitoring was 49 pieces per year. The trash data from the monitoring completed to date indicate that trash is not accumulating in deleterious amounts at Site 6 and therefore, Site 6 should be removed from the MFAC/ BMP Program. Removal of this site will allow for more BMP implementation at high trash generating areas. This change was proposed last year, but as the responsible parties did not hear from the Regional Board regarding the proposed change, Site 6 was monitored during 2011-2012. Both changes to the MFAC Program will be initiated beginning April 1, 2013 unless directed otherwise by the Regional Board.

Appendix 1. Assessment Site Descriptions

Site 1 – Revolon Slough at Wood Road

This site consists of Revolon Slough and its adjacent land areas. It begins at the end of a concrete channel and includes the 100 foot downstream portion of Revolon Slough and the banks on both sides of the water body.

GPS Coordinates:
Lat: 34.169771
Lon: -119.095591

Site 2 – Beardsley Wash at Wright Road

This site is located in Beardsley Wash and includes the Wash itself as well as the banks on both sides.

GPS Coordinates:
Lat: 34.241681
Lon: -119.099658

Site 3a – Camarillo Hills Drain Outlet

This site begins at the upstream end of a drain outlet and includes the in-stream portions of the Camarillo Hills Drain and the banks on either side of the drain.

GPS Coordinates:
Lat: 34.215486
Lon: -119.076388

Site 3b – Camarillo Hills Drain Outlet

This site is located approximately 0.6 miles downstream of Site 3a and has similar characteristics. This site begins at the downstream end of a drain outlet and includes in-stream and bank areas.

GPS Coordinates:
Lat: 34.215491
Lon: -119.079224

Site 3c – Camarillo Hills Drain Outlet

This site is located in close proximity downstream of Site 3b and begins at the end of a drain outlet and includes in-stream and bank areas.

GPS Coordinates:
Lat: 34.215593
Lon: -119.090810

Site 3d - Camarillo Hills Drain Outlet

This site is the most downstream location of Sites 3a-d and begins at the upstream end of a drain outlet and includes in-stream and banks areas.

GPS Coordinates:
Lat: 34.215596
Lon: -119.092864

Site 4 – Las Posas Estates Drain	
This site is located within the Las Posas Estates Drain between Central Avenue and U.S. 101 Freeway. The site consists of the in-stream portion of the drain south of Central Avenue as well as the land area above the drain on the northwest side. GPS Coordinates: Lat: 34.224121 Lon: -119.104421	

Site 5 – Revolon Slough at Etting Road	
This site begins at the downstream end of an agricultural drain that discharges into Revolon Slough and includes the in-stream portions of Revolon Slough as well as the land areas within the slough and the banks. GPS Coordinates: Lat: 34.161731 Lon: -119.091460	

Site 6 – North Ramona Place Drain Debris Basin	
This site is within a debris basin at the end of North Ramona Place. The site consists of a flat vegetated area in the middle of the debris basin. GPS Coordinates: Lat: 34.241553 Lon: -119.085723	

Site 8 – Caltrans Site on U.S. 101 Freeway	
This site is located on the south side of U.S. 101 Freeway near Revolon Slough. The site begins at the end of the guard rail and ends at the fence surrounding Revolon Slough. GPS Coordinates: Lat: 34.221799 Lon: -119.120400	

Site 9 – Revolon Slough at Pleasant Valley Road	
This site is located within the Revolon Slough and includes the east side of the slough near an access point off of Pleasant Valley Road. GPS Coordinates: Lat: 34.191006 Lon: -119.107392	