Ventura Countywide Stormwater Quality Management Program

2014-2015 Permit Year

Ventura Countywide Stormwater Quality Management Program Annual Report

Attachment E10

Malibu Creek Watershed Trash TMDL TMRP/MFAC Second Annual Report

Camarillo
County of Ventura
Fillmore
Moorpark
Ojai
Oxnard
Port Hueneme
Santa Paula
Simi Valley
Thousand Oaks
Ventura
Ventura County Watershed Protection District

December 14, 2015

City of Thousand Oaks
County of Ventura and
Ventura County Watershed Protection District

Malibu Creek Watershed Trash TMDL

TMRP/MFAC Second Annual Report

November 2014

Malibu Creek Watershed TMRP Second Annual Report

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Malibu Creek Watershed TMRP Second Annual Report

Introduction

This Annual Report for the second year of Trash Total Maximum Daily Load (TMDL) implementation (2012-2013) is being submitted by the City of Thousand Oaks (the City), County of Ventura (the County), and Ventura County Watershed Protection District (the District) to fulfill compliance requirements for the Amendments to the Water Quality Control Plan – Los Angeles Region for the Malibu Creek Watershed Trash TMDL, Resolution No. R4-2008-007 (effective July 7, 2009). The purpose of this report is to present the 2012-2013 trash monitoring results and to assess compliance with waste load allocations (WLAs) for point and non-point source trash loading. The monitoring efforts that generated the data discussed in this report were conducted according to the TMRP for the Malibu Creek Trash TMDL submitted by the City, the County, and the District to Regional Water Quality Control Board (RWQCB) on April 30, 2010.

This report includes:

- Results from monitoring efforts completed from July 1, 2012 through June 30, 2013 including:
    - A summary of weather events with potential to transport trash and litter, and
    - A summary of trash data for the first year of monitoring.
- Data evaluation:
    - Comparison with 2011-2012 baseline WLAs,
    - Loading source evaluation,
    - Ongoing evaluation of the effectiveness of MFAC/BMP Program, and
    - Determination of compliance with Point Source WLAs and Non-point Source Load Allocations (LAs),
- Proposed modifications to improve BMP effectiveness, and
- Proposed revisions to the TMRP Program.

The components of this program are being supplied through collaboration among the City, the County, and the District, listed responsible parties to the Malibu Creek Watershed Trash TMDL. To complete this effort, the County hired the California Conservation Corps (CCC) to conduct field trash collection efforts and the City provides staff to manage data handling, data evaluation, Best Management Practices (BMP) optimization, and report writing.

Overview

To remedy impairment caused by trash at Lindero and Medea Creeks, the proposed TMRP was devised with representative monitoring locations so that trash accumulation within creek areas could be estimated. The contribution of trash and litter transported by

critical events (high winds and sufficiently intense rainstorms) has been estimated. Therefore, impacts of these events are able to be considered as part of a trash and litter loading evaluation. As specified in the TMRP, a minimum of one collection per month was done at each site. All collections were completed as indicated in Table 1.

Table 1. Collection Date Summary

Monitoring Date	Lindero Creek Reach 2, LC-1	Medea Creek Reach 2, MC-1
7/19/12	X	X
8/29/12	X	X
9/27/12	X	X
10/19/12	X	X
11/26/12	X	X
12/20/12	X	X
1/29/13	X	X
2/14/13	X	X
3/21/13	X	X
4/25/13	X	X
5/30/13	X	X
6/27/13	X	X

Assessment of the first year monitoring data and comparison with the baseline data brought greater insight for 1) refining the prioritization of trash and litter sources for both point source (PS) and non-point source (NPS) trash and 2) providing supplemental Best Management Practice (BMP) options to improve control of both PS and NPS litter. The respective monitoring locations are shown in Figures 1 and 2.

Figure 1. Location Map for Lindero Creek Assessment Site (LC-1)

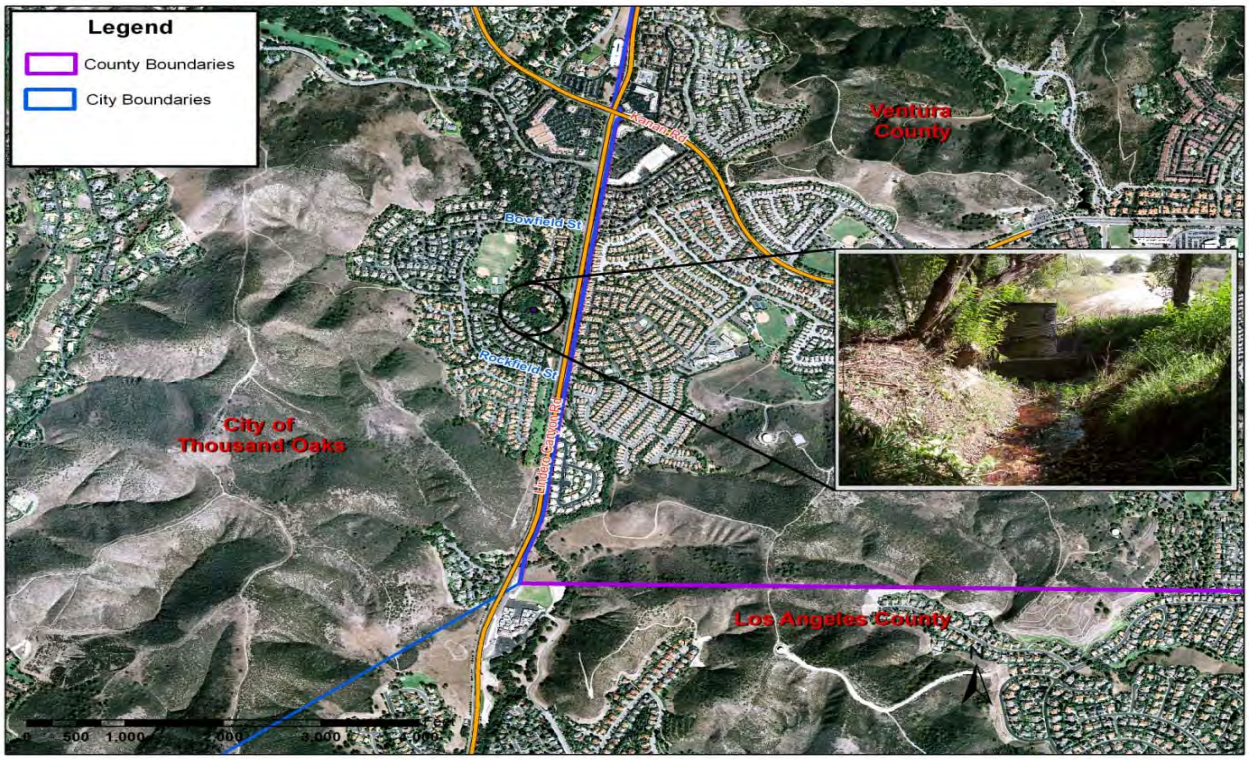
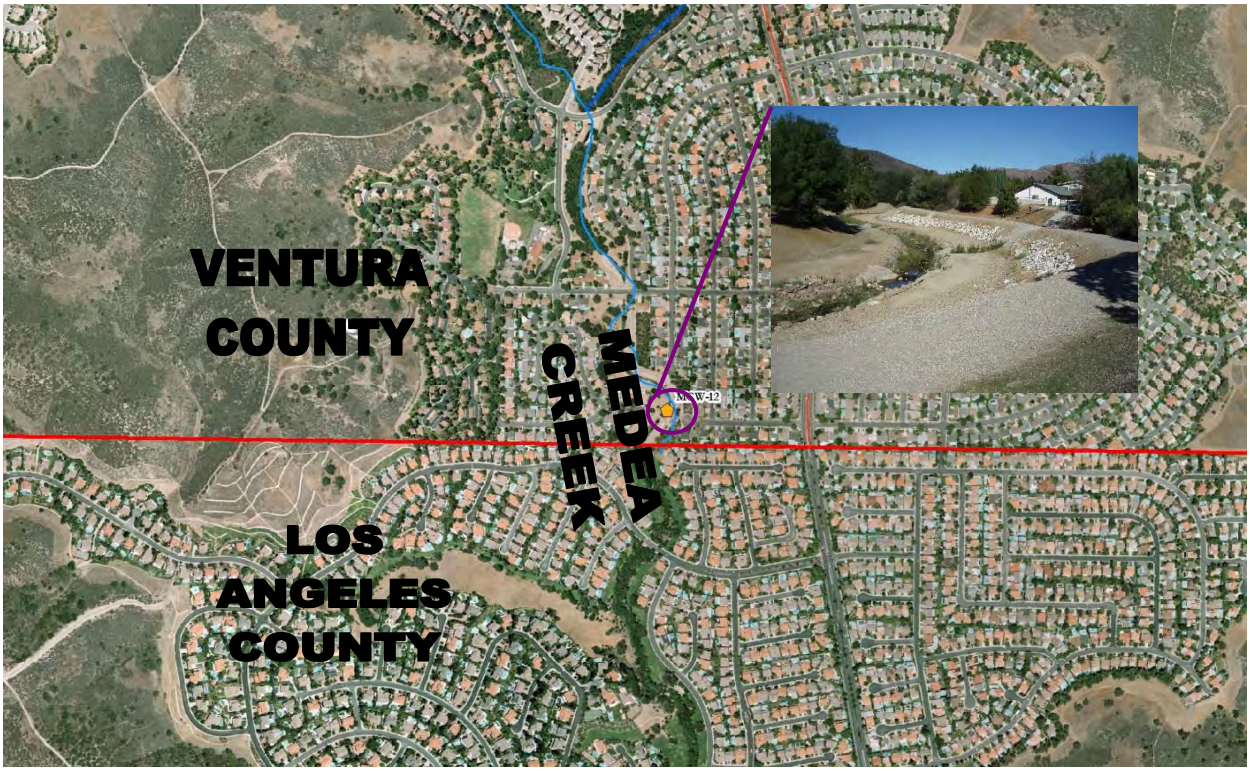


Figure 2. Location Map for Medea Creek Assessment Site (MC-1)



Assessment Area Characteristics

A detailed review of land uses in a drainage area provides another lens with which to identify potential trash sources and activities that affect the movement of trash. For example, commercial areas receive supply deliveries through truck loading operations can be a source of packing material and other litter. In another example, medium density residential areas appear to be more prone to refuse collection as a loading source. Higher density residential areas, in contrast, often use common dumpsters reducing the number of times that individual trash containers need to be lifted up a refuse truck's conveyor. During conveyor operation, trash is susceptible to be blown into the roadway. Spilled trash is not allowed per Waste Hauler contracts, but, in practice, small spills may occur.

Lindero Creek Subwatershed

The area within the City of Thousand Oaks with drainage to Reach 2 of Lindero Creek is 2.08 square miles. A breakdown of land uses in this area is as follows: 49.03% open space, 44.71% residential; 6.25% Public and Institutional Lands (includes a golf course and parks); and 1.29% Commercial. Population is estimated to be 1,970 persons. Areas in unincorporated Ventura County also have drainage to Lindero Creek. This area is 0.9 square miles. The land uses of this area are 9.5% commercial; 49.7% residential; and 40.8% open space. Population data for this area is not available.

The Lindero Creek assessment site is part of a debris basin that receives braided flow that converges at a perforated stand pipe for below flood-stage discharges that bypass the overflow structure. The reduction in hydraulic gradient at the debris basin, in addition to the standpipe's size restriction, promotes trash and debris accumulation in the flood plain after storm-level flows recede.

Medea Creek Subwatershed

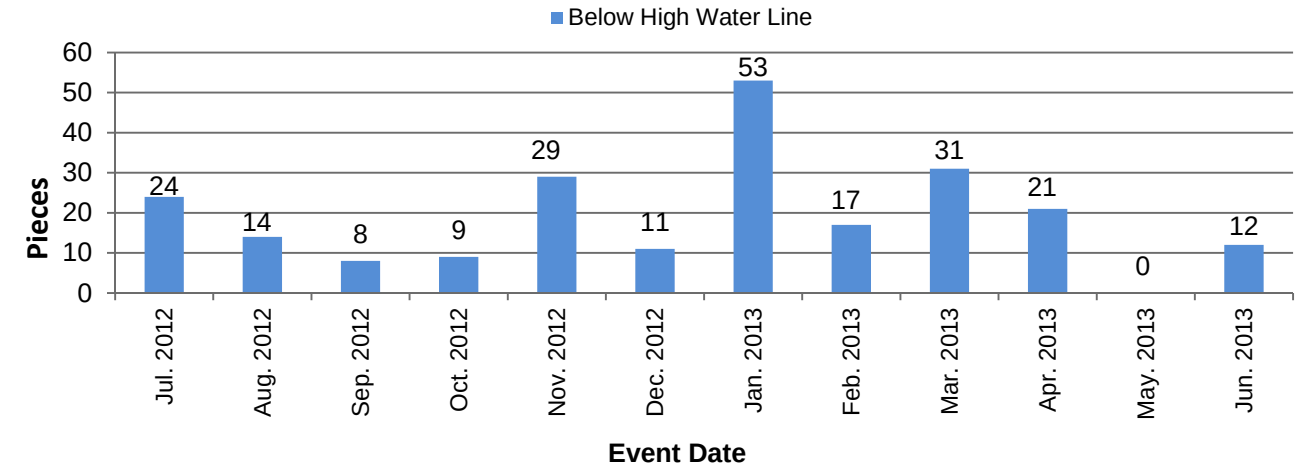
The area within unincorporated Ventura County (Oak Park) with drainage to Reach 2 of Medea Creek is 3.32 square miles. A breakdown of land uses is as follows: 6.93% commercial and community facilities; 30.08% residential; and 62.98% open space. A population estimate has not been calculated yet.

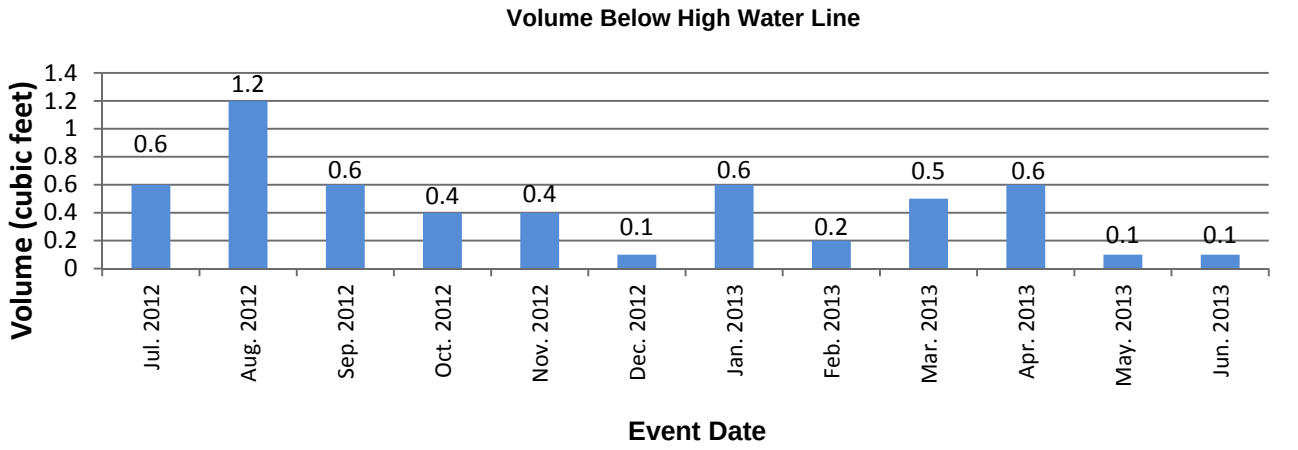
Medea Creek as it flows through the assessment area follows a single, defined path. When flow levels rise due to a storm event, the stream configuration causes bank overflow and deposition of transported trash and debris into an existing flood plain.

Monthly and Yearly Trash Comparisons

Comparison of monthly piece counts helps identify temporal patterns such as increases due to seasonal usage or isolated incidents that cause a spike in trash levels. Figures 3 and 4 show the monthly levels of trash and litter collected for each of the metrics:

Figure 3. Lindero Creek Monthly Loading





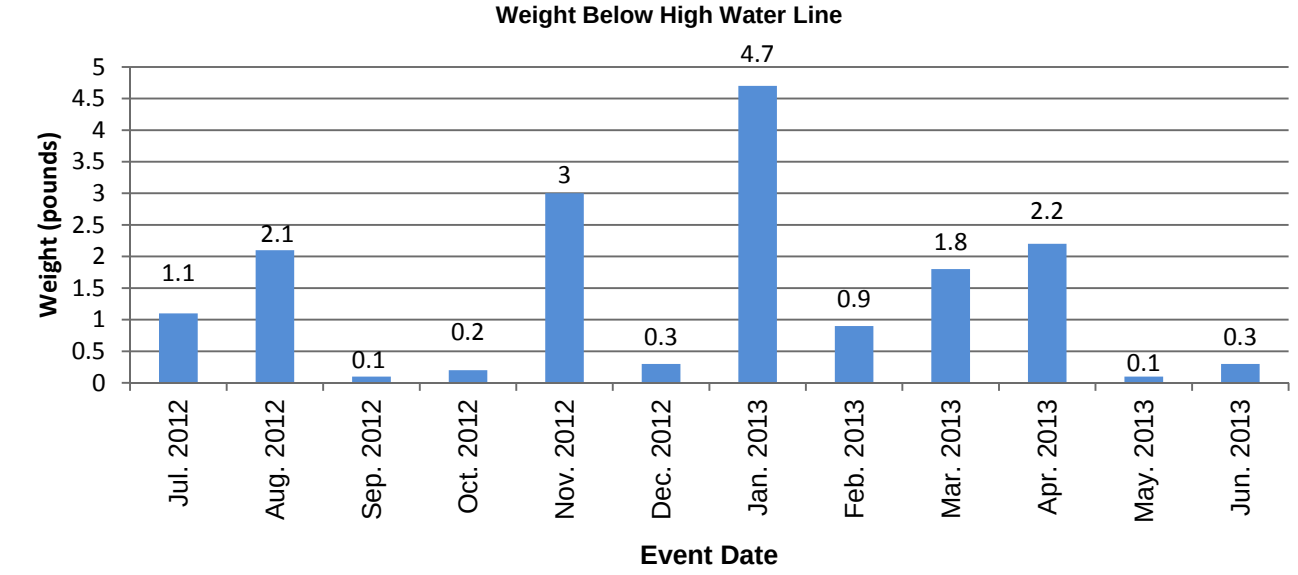
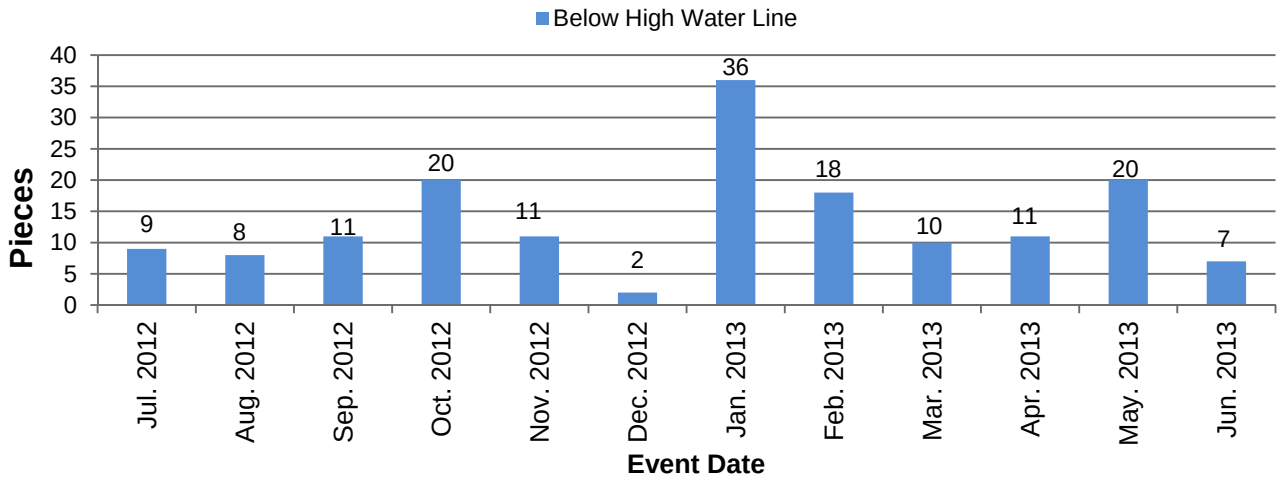
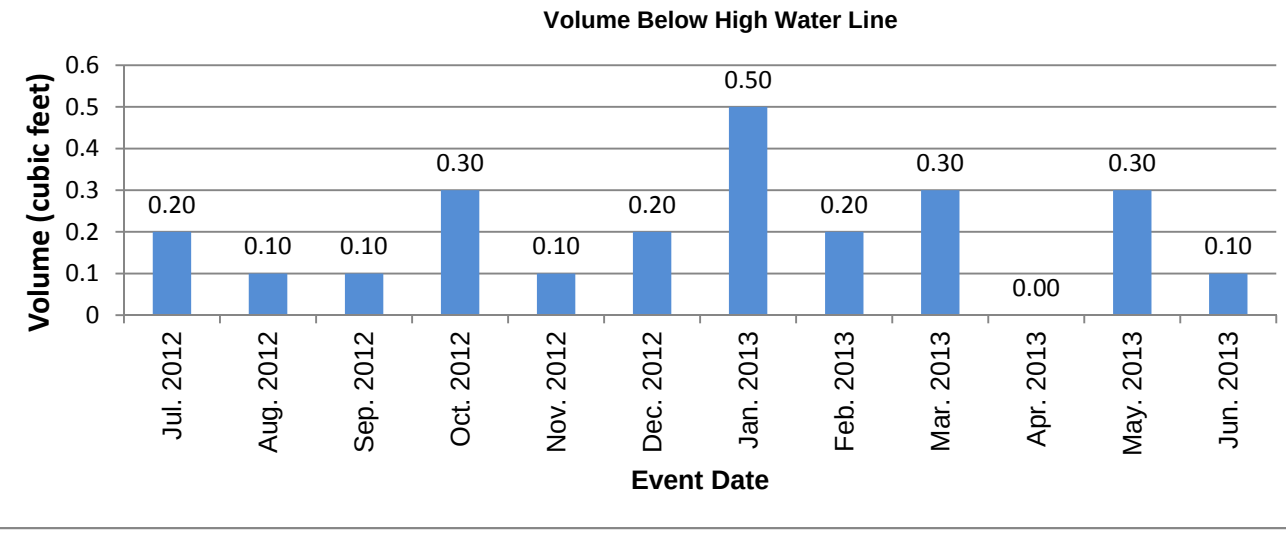


Figure 4. Medea Creek Monthly loading





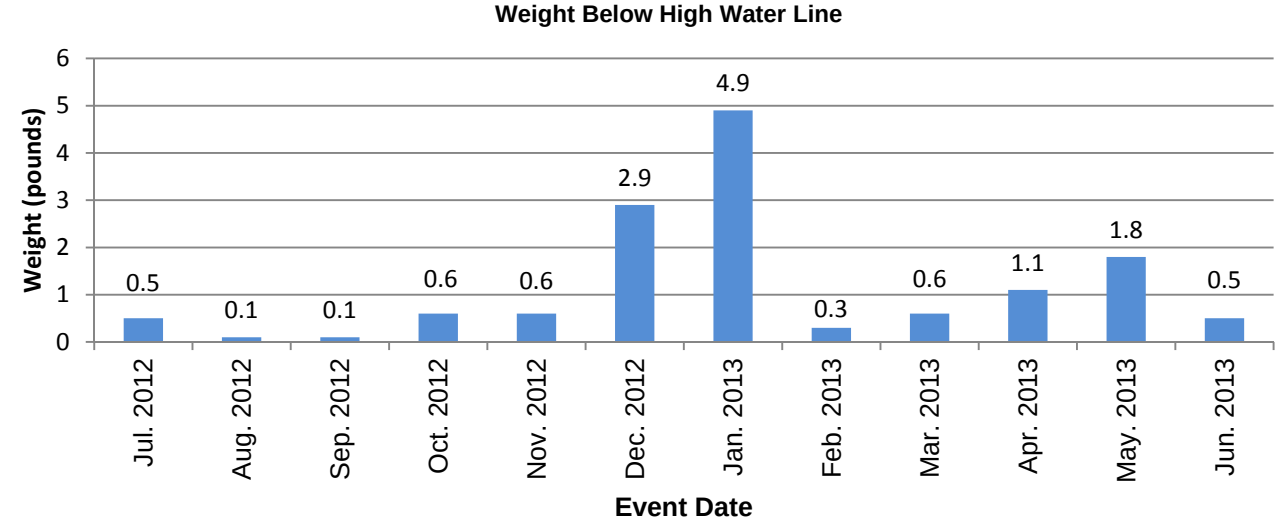


Table 2 shows that there were substantial reductions in litter pieces for most of the monthly collections at both Lindero and Medea Creek assessment sites. The average monthly piece counts at both the sites were reduced from the Baseline year to the first year of implementation by more than 70%. This greatly exceeds the required WLA reduction of 20% by July 7, 2013.

Table 2. Lindero and Medea Creek Monthly Pieces

Date	Lindero Creek		Medea Creek	
	2011-12 Baseline	2012-13 Year 1	2011-12 Baseline	2012-13 Year 1
7/19/12	94	24	44	9
8/29/12	125	14	130	8
9/27/12	43	8	88	11
10/19/12	69	9	270	20
11/26/12	245	29	299	11
12/20/12	16	11	12	2
1/29/13	0	53	5	36
2/14/13	24	17	15	18
3/21/13	15	31	0	10
4/25/13	112	21	34	11
5/30/13	91	0	28	20
6/27/13	36	12	21	7
Average	73	19	79	14
Ave. % Reduction	74		82	

Trash Category Comparison

Reviewing the category to which individual pieces of trash and debris belong is another method to gain information about loading trends. During monitoring year No. 1 (2012-13), the magnitude of trash in most categories was substantially reduced compared to the baseline year monitoring (2011-12). At Lindero Creek, there is significant reduction in all categories, averaging 70% (see Table 3).

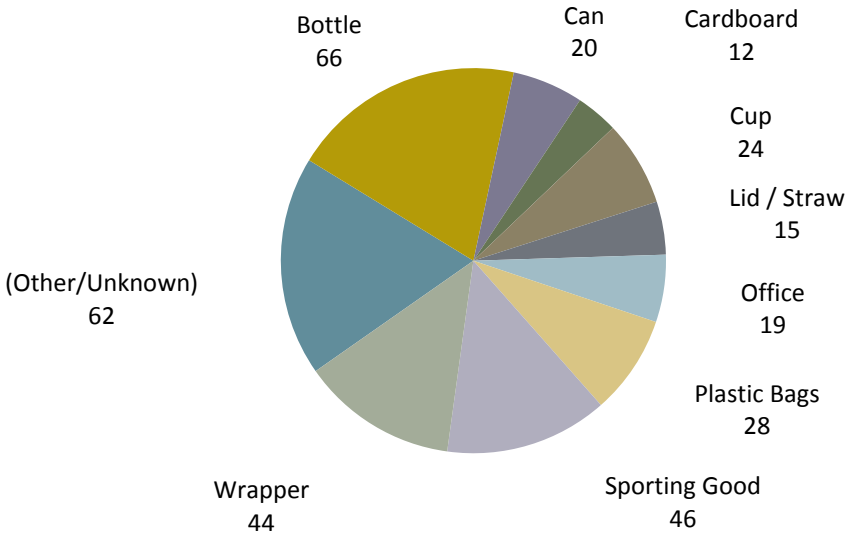
Table 3. Percent Category Change Lindero Creek

Category	2011-12 Baseline	2012-13 Year 1	% Reduction
Lid/Straw	32	15	53
Cans	86	20	77
Plastic Bags	62	28	55
Bottle Caps	18	4	78
Other/Unknown	400	62	85
Wrapper	124	44	65

Category (Continued)	2011-12 Baseline	2012-13 Year 1	% Reduction
Shattered Glass	16	0	100
Sporting Goods	142	46	68
Plastic Bottle	125	66	47
Cups	72	24	67
Food Container	17	5	71
Average % Reduction			70

The relative contributions from trash categories at the reduced levels found in year 1 are shown in the pie-chart in Figure 5.

Figure 5. Lindero Creek Trash Composition (pieces)



The trash categories that are still accumulating in sizable amounts are Plastic Bottles, Other/Unknown, Sporting Goods, Wrappers, Plastic Bags, and cups. The recurring presence of these litter types is understandable given their utility and availability. There was also a continued presence of sports equipment such as tennis and golf balls.

Similar to Lindero Creek, reductions in most trash categories occurred in year 1 at Medea Creek (see Table 4). The average piece reduction in the categories was 70%.

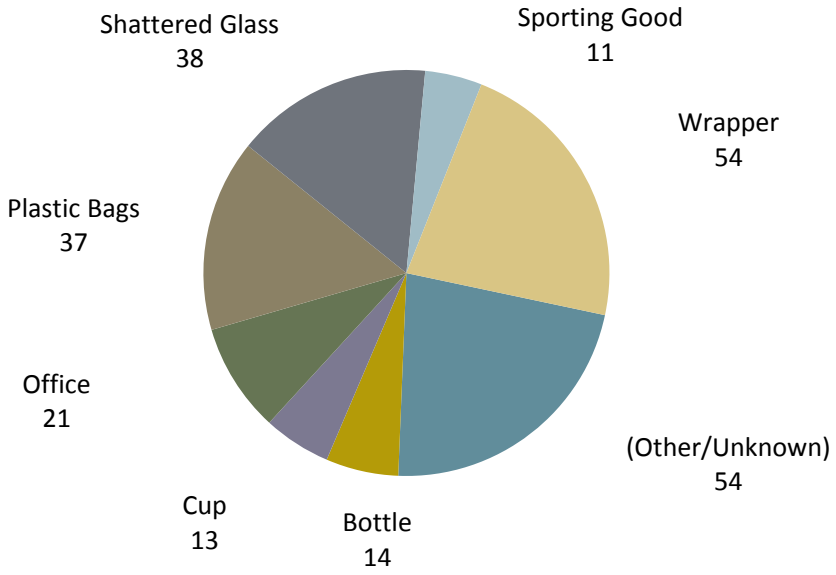
Table 4. Percent Category Change Medea Creek

Category	2011-12 Baseline	2012-13 Year 1	% Reduction
Lid/straw	18	5	72
Cigarettes	38	4	89

Category (Continued)	2011-12 Baseline	2012-13 Year 1	**% Reduction**
Cans	21	5	76
Plastic Bags	37	37	0
Bottle Caps	18	5	72
Other/Unknown	577	54	91
Wrapper	132	54	59
Shattered Glass	520	38	93
Sporting Good	19	11	42
Ammo	343	5	99
Average % Reduction			70

The relative contributions of each of trash categories at this location are shown in the pie chart (Figure 6).

Figure 6. Medea Creek Trash Composition (pieces)



The categories of litter that are still occurring at the Medea Creek site again are those more commonly used and available items. In this case, they were Wrappers, Shattered Glass, and Plastic Bags. Wrappers implicate children as a likely source: Wrappers are often from candy. Broken glass continued to be impacted by random vandalism where one careless act can cause a significant impact. The Other/Unknown composite category is also still prominent. The Factors causing its presence were yet unknown. Undiminished Plastic Bag litter at this site may be related to higher recreational use due to easily accessed trails. Secondly, there is a greater amount of medium-density housing in close proximity to the assessment area. As discussed, there is greater likelihood of increased trash spillage associated with this land use.

Analysis of Trash Loading

Looking at trash loading in all three metrics simultaneously is to view how a site and its circumstances can favor certain patterns of accumulation. For example, weight and volume metrics can correlate well with piece counts. When they do not, this may indicate particular circumstances such as a lower intensity weather event with the inability to transport heavier materials.

More than one peak increases the likelihood that excessive loading occurred. To help assess the cause of loading impacts revealed in such a way, the data sheets were reviewed for information. Possible source are discussed along with the pattern of simultaneous peaks in multiple metrics presented in Tables 5 and 6. Note that a peak (alternatively, spike) is defined as a level that exceeds the monthly average for the year by 20% or greater. Note that, more credence was given to piece count and weight metrics. This is because of the difficulty in uniformly packing litter materials to eliminate spaces in the measuring container. At the Lindero Creek assessment area, spikes co-occurred in two or more metrics shown by month in Table 5:

Table 5. Lindero Creek Multiple Peaks

Site	**Month**						
Lindero Creek	**Jul.**	**Aug.**	**Sept.**	**Nov.**	**Jan.**	**Mar.**	**Apr.**
Piece Count Peak	Y	N	N	Y	Y	Y	N
Volume Peak	Y	Y	Y	N	Y	N	Y
Weight Peak	N	Y	N	Y	Y	Y	Y

July—Pieces and Volume: A larger amount of heavier items such as soft drink cans and bottles accumulated due to increased outdoor presence in summer.
November—Pieces and Weight: Many of the collected materials were from the sports equipment category with components that tend to be higher in weight.
March—Pieces and Weight: Again, a large amount of errant sports equipment (assorted balls) added both weight and numbers to trash loading.
August—Weight and Volume: There was an obvious impact caused by the youngsters who made a cement overflow structure next to the assessment area the locus of their recreation. A handsaw, pair of shorts, and spray-paint can were among the materials collected that is suggestive of their presence.
April—Weight and Volume: This month was another instance where a number of lost tennis balls contributed to a spike in weight. Cardboard pieces may account for the increased volume.
January—Pieces, Weight, and Volume: Spikes occurred across all metrics indicating maximal loading. The recurring presence of lost or discarded sports equipment is a factor especially for increased weight. Added to this, there were

over a dozen drink cans and plastic bottles and numerous air-gun ammos that contributed to piece count.

At the Medea Creek assessment area spikes co-occurred in two or more metrics as shown by month in Table 6:

Table 6. Medea Creek Multiple Peaks

Site	Month		
Medea Creek	**Oct.**	**Jan.**	**May**
Piece Count Peak	Y	Y	Y
Volume Peak	Y	Y	N
Weight Peak	N	Y	Y

October—Piece and Volume: The pieces came from a variety of categories with no recognizable pattern except for frequent contribution from sports equipment. Volume may have been read artificially high, due to water bottles.

January—Piece, Weight, and Volume: Peaks occurred in all metrics indicative of a maximal loading. The appearance of trash categories seemed to be random. The high volume was likely influenced by not compressing the several plastic bags that were collected.

May—Piece and Weight: A high number of candy wrappers accounted for 40% of the pieces. Six wet paper bags artificially influenced weight due to water content.

Critical Events Loading

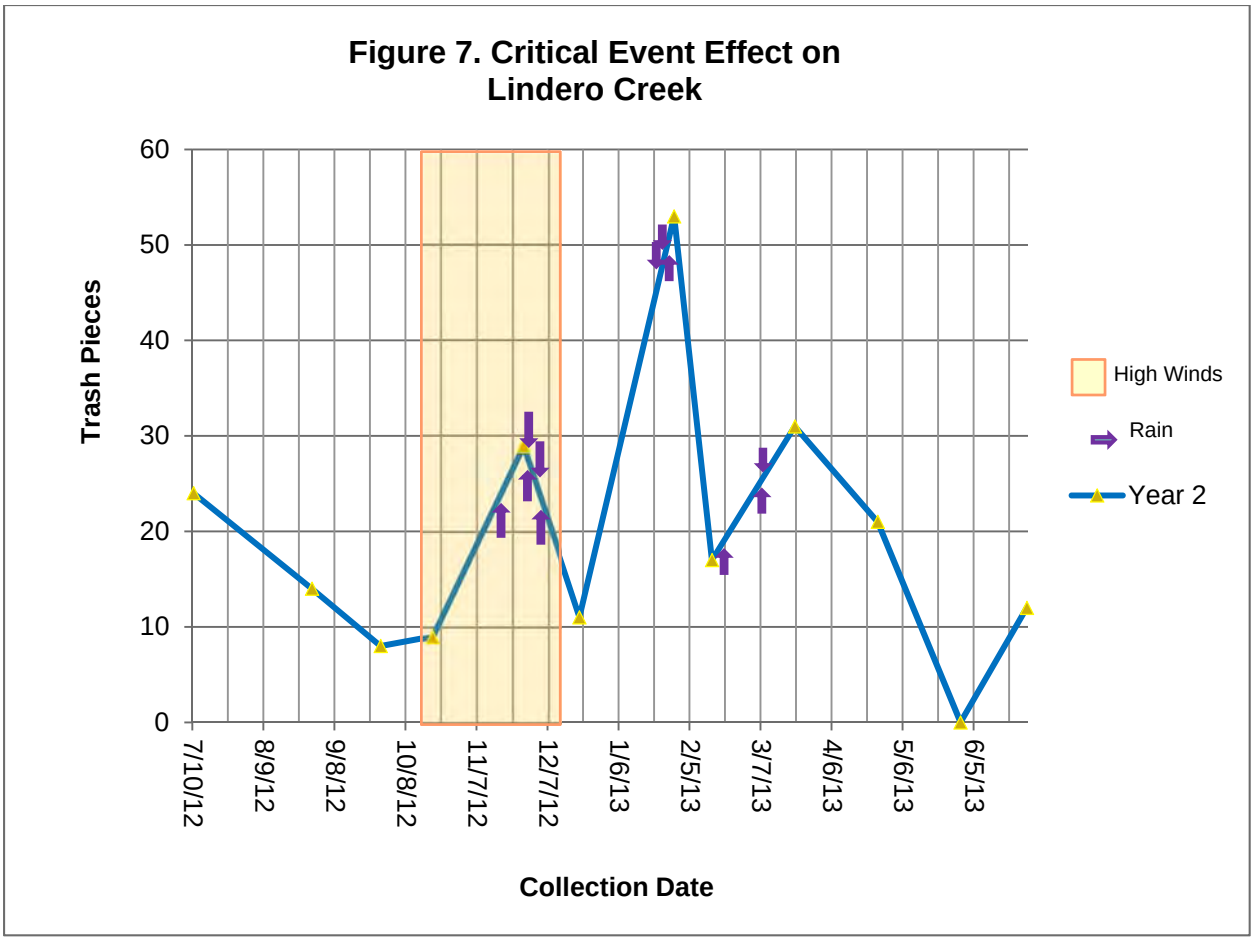
A drier weather pattern is occurring in the Lindero Creek and Medea Creek subwatersheds. The original intent to judge trash loading impacts from critical rain events with precipitation ≥ 0.7” has been modified. Now, any storm ≥ 0.10” is evaluated to facilitate the collection of critical event transport data. Loading can then be compared to a monthly average to help determine if transported litter is caused by weather conditions. Depending on how close litter is to a creek or how light weight it is a smaller storm could impact loading. Therefore, this relaxation is deemed valuable. Table 7 summarizes the significant weather events.

Table 7. Critical High Wind and Significant Rain Events

Wind Events		Wind Events		Rain	Wind Events		Rain
Date	Speed, mph	Date	Speed, mph	Volume >0.10”	Date	Speed, mph	Volume >0.10”
10/13/12	44	11/1/12	46		12/2/12		0.20
10/14/12	49	11/2/12	45		12/3/12		0.27
10/15/12	47	11/3/12	45		12/5/12	44	
10/16/12	47	11/4/12	46		12/6/12	43	
10/17/12	47	11/5/12	44		12/7/12	44	
10/18/12	46	11/7/12	45		12/8/12	47	
10/19/12	46	11/10/12	49		12/9/12	42	
10/22/12	43	11/11/12	47		12/10/12	44	
10/23/12	47	11/14/12	44		12/11/12	44	
10/24/12	47	11/17/12		0.25	1/23/13		0.50
10/25/12	47	11/20/12	42		1/25/13		0.33
10/26/12	46	11/22/12	43		1/26/13		0.20
10/27/12	46	11/23/12	43		2/19/13		0.21
10/28/12	44	11/26/12	42		3/7/13		0.21
10/29/12	46	11/27/12	42		3/8/13		0.35
10/30/12	46	11/29/12		0.16			
10/31/12	47	11/30/12		0.20			

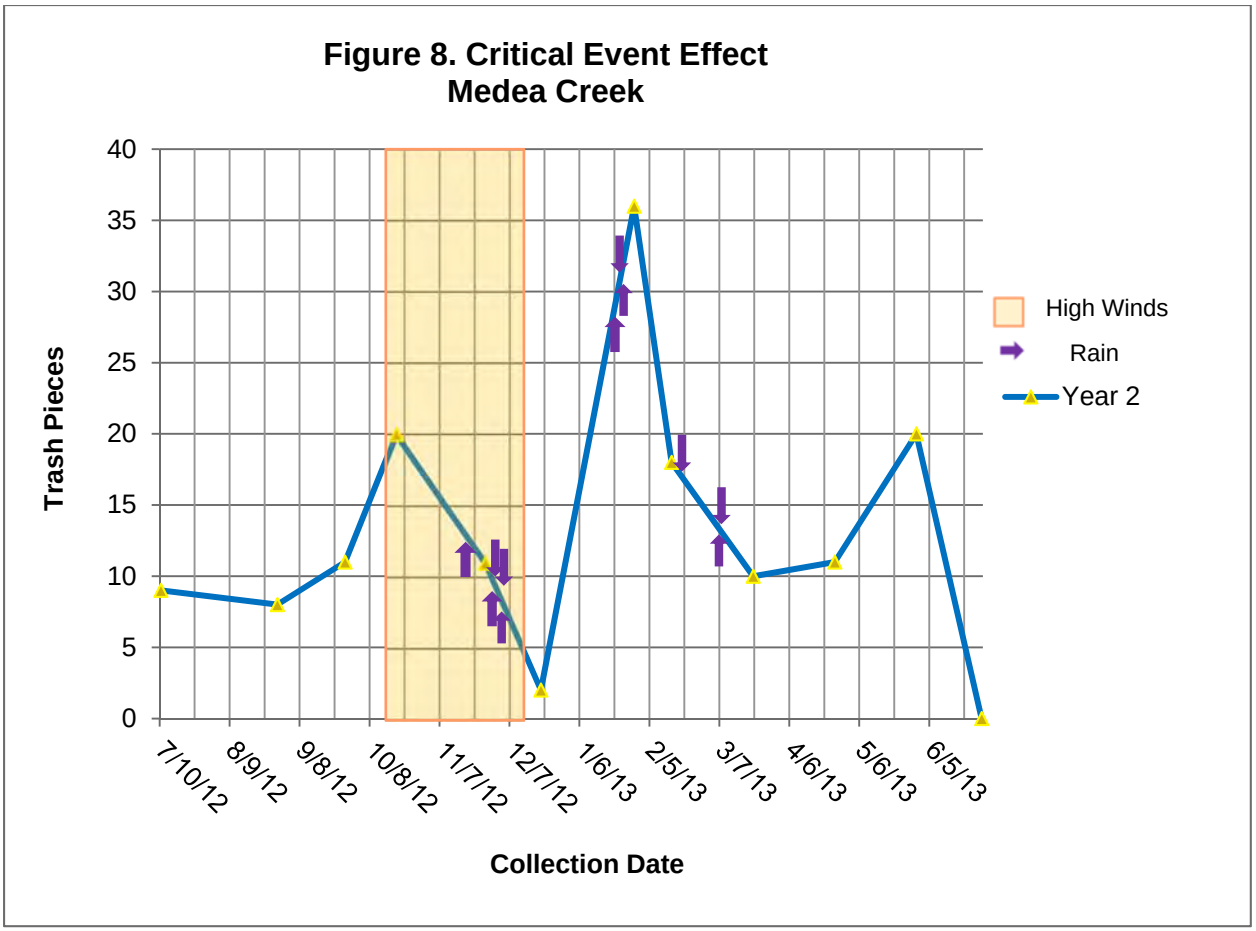
To better assess a significant weather event’s impact on site trash loading, significant and critical wind and rain event dates were superimposed on a line graph of the monthly piece counts for each assessment site. Data points represent collection dates.

At Lindero Creek, the most conspicuous detail regarding piece counts and critical or significant weather events was that each peak count was preceded by high winds and/ or a significant rain event (see Figure 7). This could be coincidental, but more likely it is an illustration of high wind and rains’ ability to transport trash and debris. Further evidence suggesting that rain transport causes an increase in loading is that the largest peak in trash pieces occurs after the highest intensity rain events.



The additive effect of wind and rains caused increased loading as evidenced in November's piece count peak. Being the first storm of the season, a greater relative amount of trash might have been expected. Alternatively, the forces related to the magnitudes of these smaller storms may have been inadequate to dislodge trash and move it through the system. This hypothesis gains additional strength considering that the largest peak occurred after the most intense rain event (January).

The Medea Creek assessment area, in contrast to the Lindero Creek site, does not consistently show a piece count increase in response to significant or critical weather events (Figure 8).



The high wind period and first rains, for example, coincide with a decreasing trend in total pieces. The trio of storms in January, however, does prove adequate to cause an increase in trash pieces (20 vs. average of 14). This storm favored the movement of light-weight pieces or there were more of them available. Smaller tandem rain events in March 2013 were insufficient at causing a loading peak for the month. These storms may have lacked adequate motive force.

Trash and Debris Loading

The amount of litter collected at the assessment sites each month is summarized in Table 8. Annual totals are included so these values can be compared to the PS WLAs in effect at each site.

Table 8. Trash Loading at Lindero Creek and Medea Creek

Date	Medea Creek (MC1)			Lindero Creek (LC1)		
	Count pieces	**Vol., cf**	**Weight lbs.**	**Count pieces**	**Vol., cf**	**Weight lbs.**
7/19/12	9	0.2	0.5	24	0.6	1.1
8/29/12	8	0.1	0.1	14	1.2	2.1
9/27/12	11	0.1	0.1	8	0.6	0.1
10/19/12	20	0.3	0.1	9	0.4	0.2
11/26/12	11	0.3	0.6	29	0.4	3
12/20/12	2	0.3	2.9	11	0.1	0.3
1/29/13	36	0.5	0.3	53	0.6	4.7
2/14/13	18	0.5	0.3	17	0.2	0.9
3/21/13	10	0.6	0.6	31	0.5	1.8
4/25/13	11	0.04	1.1	21	0.6	2.2
5/30/13	20	0.6	1.8	0	0	0
6/27/13	7	0.2	0.2	12	0.1	0.3
Annual Total	**163**	**3.7**	**8.6**	**229**	**5.4**	**16.8**

Point Source Compliance

As stated in the Trash TMDL, in order to comply with the Trash Reduction Implementation Schedule, a 20% reduction of trash from Baseline WLA is required by July 7th 2013. The Baseline WLA was submitted with the Malibu Creek Trash TMDL Baseline and Annual Report on 7/31/13 and is shown in Table 9. Point source compliance for trash was achieved in all metrics at both assessment sites.

Table 9. WLA Versus Trash Loading

Data Type	Lindero Creek			Medea Creek		
	Pieces	Vol. (cf)	Weight (lbs)	Pieces	Vol.(cf)	Weight (lbs)
Baseline WLA	902	13.4	69	970	7.2	16.3
Required 20% Reduction	722	10.7	55.2	776	5.8	13.0
1st Year Annual Loading	229	5.4	16.8	163	3.7	8.6

Non-Point Source Compliance

This was a year of field survey and option evaluation with regard to controlling NPS trash. The logistics of conducting volunteer cleanups have been piloted at 2 events at Lindero Creek (Appendix 1) and an Oak Park community event called Big Sunday on May 5, 2013 (Appendix 5). Another volunteer trash collection event at Medea Creek had to be cancelled due to insufficient attendance. Since then, support groups and calling trees have been established for the Medea Creek subwatershed. At the collection events, adjoining areas at each assessment site were cleaned of all trash to meet zero trash requirements for non-point sources.

Trash Sources Discussion

Lindero Creek Subwatershed

Recreation is a sizeable component of individual and family activities in the Lindero Creek subwatershed. Accordingly, the many recreational facilities available at the 12-acre North Ranch Playfield are well used. It has tennis courts, jungle gyms, and areas for baseball and soccer. The playfield is situated about ¼-mile upstream of the LC-1 assessment area. Lost or discarded balls from tennis, golf, softball, and soccer cause a noticeable increase in debris loading at the assessment site. The Park Director has been amenable to installing signage at the park to raise awareness of those participating in recreational activities. Signs requesting tennis players refrain from casting away no longer usable balls are planned. Other signage has been installed as discussed in the section on “BMP Modifications.”

Areas surrounding and including the Lindero Creek assessment site are owned by Westlake Ranch Property Owners Association. As a result, many creek areas are semi-private. The Conejo Open Space Conservancy Agency (COSCA) maintains a narrow, undeveloped trail next to the creek with minimal signage at the trailheads. These factors appear to lead to a lesser amount of recreational hiking along Lindero Creek.

Despite the trail’s lack of amenities, youth have adopted a spill-way structure immediately adjacent to the Lindero Creek assessment area for cycling and skate board use. Their presence is the likely source of graffiti, as well as scattered litter and debris. Because these areas are privately owned and not easily patrolled, the City has limited ability to suppress such vandalism.

During a field survey, it was discovered that one of the commercial areas in the subwatershed has a catch basin with drainage to the LC-1 assessment area. Packing material and food container litter were also seen in this lot. These materials are likely broken into fragments by vehicular traffic. Debris fragments created in this way may be a

source contributing to the largest category of trash at LC-1, Other/Unknown (refer to Figure 5).

Medea Creek Subwatershed

Similar to Thousand Oaks, there is significant recreational activity in the Medea Creek subwatershed. In contrast to Lindero Creek, trails here are accessible and clearly indicated by signs. Trail improvements include paved pathways, dog bag stations, and trash receptacles. Park areas are maintained by the Rancho Simi Recreation and Park District. The result of better access and close proximity to a high school may be factors increasing the frequency of random vandalism including bottle breakage.

An analysis of land use types was done to determine the potential sources of trash to Medea Creek. No commercial land uses were found in the vicinity of the Medea Creek assessment area in unincorporated Ventura County. Medea Creek receives a trickle overflow from a duck pond fed by runoff and base flow. Due to adequate maintenance and low flow, this pond poses minimal risk of contributing trash to Medea Creek. There are four schools in this subwatershed. Of these schools, field reconnaissance revealed that Oak Park High School (OPHS) was a contributor of litter. This school also has sports fields and tennis courts.

Existing BMPs

The BMPs currently in use in areas surrounding and including assessment sites LC-1 and MC-1 are itemized as follows:

City of Thousand Oaks

- Catch basin cleaning - Catch basins are inspected annually. If trash has accumulated to 25% or more of the unit's capacity, it is cleaned by a vactor truck.

- Street sweeping - all residential areas (public and private) are swept 19 times per year and commercial areas are swept once per week.

- Open channel storm drain maintenance: All city-maintained channels are inspected and cleaned as required once per year prior to the wet season.

- Public Event - A recycling plan is required when obtaining a permit for staging public events. This plan requires adequate facilities for trash collection and disposal and reclamation of recyclable materials.

- Public areas - Trash receptacles have been placed at public use areas. These devices are monitored and emptied regularly.

- Freeway Ramp and Interchange Collection Program - The City pays for trash and debris collection at freeway on-ramps and exits and from the freeway interchange.

- Free Landfill Day - The City sponsors two days one in April and one in September when residents may take waste and recyclables, including electronics, to the Simi Valley Landfill for free disposal.

- The City-sponsored “Neighborhood Cleanup Program” provides 40-yard dumpsters and free disposal to residential neighborhoods desiring to organize and conduct cleanup events.

- Residents may safely and legally dispose of household hazardous waste at the City’s monthly collection events. In addition, the City provides household battery collection services at twelve locations.

- Thousand Oaks residents may dispose of up to four “bulky items” per year, such as appliances, mattresses and old furniture, simply by calling their trash company and arranging for free pickup.

- Thousand Oaks Municipal Code Sec.7-8.201 (7) prohibits the disposal and accumulation of trash in public and private areas.

- Catch basins are labeled “Drains to Creek, Do Not Dump” or “Drains to Lake, Do Not Dump.”

- Public outreach/education addressing trash pollution is conducted at multiple public events, through radio and newspapers ads, and on the City’s website.

- Utility bill inserts - Promotional inserts are used to advertise for Coastal Clean-up Day, Community Clean-up Day, Free Landfill Day, and other City-sponsored trash reduction/clean-up programs.

County of Ventura and VCWPD Litter Management Program:

- 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.
- 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.
- Ventura County's catch basins are labeled, "Don't Pollute, Flows to Waterways."
- Open channel storm drain maintenance - All channels owned and maintained by VCWPD are cleared, inspected, and cleaned as required at least once per year.
- 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.
- Public areas - Trash receptacles have been placed within high trash generation areas. These devices are cleaned and maintained regularly to prevent trash overflow.
- Residents of Thousand Oaks, Oak Park, bell Canyon, Lake Sherwood, and unincorporated areas can dispose of household hazardous waste & electronic waste for free as offered by the City of Thousand Oaks Program each 1st Saturday of the month except for December.
- The amended Ventura County Stormwater Quality Management Ordinance for Unincorporated Areas (Ventura County Ordinance No. 4450) has been in effect since August 2012. It includes litter and trash specific prohibitions (§ 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.
- 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®.

- 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.

BMP Modifications

There are steps that could be done to further reduce trash loading in the subwatersheds. For example, some of the trash categories found in high numbers in the assessment areas e.g., Wrappers (candy) and Plastic Ammo suggest that children were a source. To lessen such contribution, educational messaging should be provided to nearby schools describing the harmful effects of litter in an aquatic habitat.

New BMP measures were employed to mitigate trash loading from the suspected sources and existing accumulations of non-point source trash.

Lindero Creek

- Two volunteer cleanups were done to remove non-point source trash which has the potential to be transported into the creek (Appendix 1).

    1. May 4, 2013—ten volunteers removed an estimated 80 pounds of trash and debris.
    2. September 7, 2013—twenty one volunteers removed 92 pounds of trash and debris (weighed).

- A Shopping center owner was asked to install a full-capture device to prevent trash discharge to the creek (see Appendix 2).

- A sign was added that advertises the presence of Malibu Creek Watershed at the North Ranch Playfields to heighten awareness of valuable water resources. The sign explicitly asks the viewer to “Keep it Clean” (Appendix 3).

Medea Creek

Non-point source accumulation field surveys were done in subwatershed areas outside of the assessment site to pinpoint sources of trash loading. BMP were added at priority locations with others being planned.

- A sign was added next to Oak Park High School that encourages the protection of Malibu Creek Watershed and its water resources with the reminder message to "Keep it Clean" (Appendix 3).

- A free "Ocean Friendly Gardens" class was offered to the public on 6/15/13. Reduced runoff lessens transport of trash and debris (see Appendix 4).

- Plans are underway with support from the Oak Park High School Principal as well as neighborhood groups to begin NPS trash removal this spring.

TMRP Modifications

The trigger to evaluate a Critical Rain Event for its transport effect is changed from one delivering 0.7" of precipitation in 24-hours to any storm producing 0.1" or more of precipitation in 24-hours. This modification will provide more data points given the drier meteorological conditions now found in the related areas. Additionally, the change will help discern an increase in loading from rain transport of litter that is near, but not in the flow zone (above high-water line).

Appendix 1: Pilot Volunteer Cleanups at Lindero Creek

Appendix 2: Shopping Center BMP Request

City of Thousand Oaks

Public Works Department

[illegible]

February 11, 2014

Jay T. Spurgin
Public Works Director

Ms. Carla Martin, Site manager
Genity Group
977 Lomas Santa Fe Dr.
Solara Beach, CA 92075

Dear Ms. Martin:

This letter is follow-up to my initial phone call from November 20, 2013, regarding the discharge of trash from the shopping center complex (including 1165 Lindero Canyon Road) into the storm drain system owned and operated by the City of Thousand Oaks (the City). As Manager acting on behalf of the property owner, Island Pacific Management, you put me in contact with Paul Weiss. I met Mr. Weiss at the site on December 4, 2013. I showed him how active littering in the parking area, as well as its grade, and the configuration and grating of the catch basin were each conducive to trash being transmitted into the City's storm drain system.

The location of this stormwater inlet is of particular concern, because discharge from that site flows to a designated trash assessment area. The City has been ordered to meet rigorous water quality standards that are judged at this assessment area for trash. I mentioned to Mr. Weiss that the best option of which I am aware to restrict the flow of trash debris from a catch basin down to 5mm is to have a perforated screen mounted over the outflow pipe (called a connector pipe screen). Though I cannot claim that the companies I have contacted provide the best service at the least cost, I have a couple of price quotes that you can use either as a reference or a source:

Company	Contact	Email	Phone	Total Cost
StormTek	Octavio	octavio@stormtekcps.com	714-457-3283	$1,289.00
United Stormwater	Terry Flury	terry@unitedstormwater.com	887-717-8676	$497.00

I appreciate your helping the City to maintain its stormwater system requirements. If I can provide further information, please call me at 805-449-2386 or email me at rmanwill@toaks.org.

Sincerely,

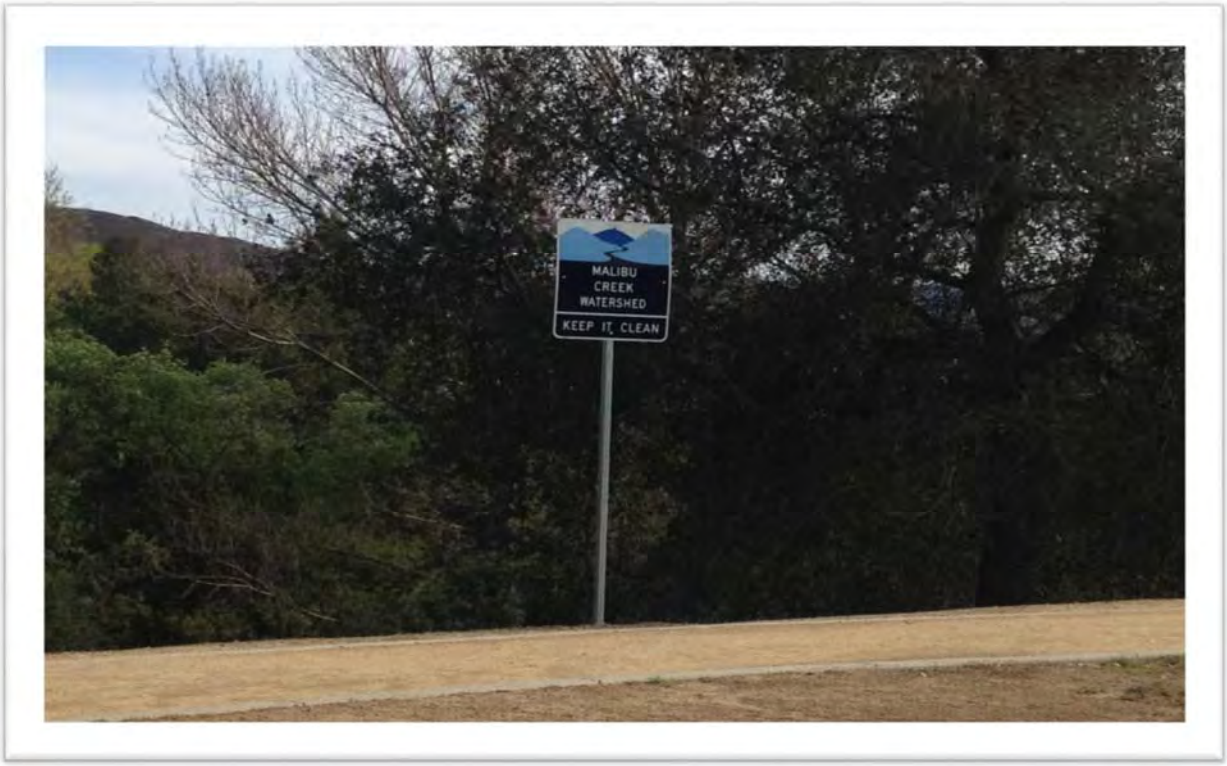
Ron Manwill
Environmental Programs Analyst

c: Felicia Serra
Paul Weiss

DPW:530-25\rmjus\Fine Manwill\MCW Trash TMDL 1165 Lindero Cyn Rd.docx

toaks.org

Appendix 3: Signage BMP



Appendix 4: Ocean Friendly Gardens Class

Ocean Friendly Gardens™ Class

Reduce Urban Runoff Pollution + Conserve Water

OCEAN FRIENDLY GARDENS™

When: Saturday, October 26, 2013 • 9:00 a.m. to 12:00 noon

Where: Oak Park Community Center, 1000 Kanan Rd. in Oak Park

Sign Up Today! It's

FREE

Space is Limited!

Call Now!

818-889-8996

Registration Deadline
October 23

Attend this interactive, action-packed class taught by a Green Gardens Group landscape designer and learn to develop an

Ocean Friendly Garden™

- Install permeable surfaces and on-site water retaining systems
- Use native, water-wise plants
- Understand water-efficient irrigation devices

Use Surfrider Foundation's Principles of CPR© (Conservation • Permeability • Retention) to transform your thirsty landscape into an ocean friendly asset that saves time and money, helps prevent beach and ocean pollution, and creates wildlife habitat.

TRIUNFO SANITATION DISTRICT

Watershed Protection District VENTURA COUNTY

City of Thousand Oaks

SURFRIDER FOUNDATION VENTURA COUNTY CHAPTER

Questions? Call 818-889-8996 or email opwater@triunfosanitation.com


EXIT


EXIT


Ocean Friendly
Gardens Class
Welcome!

Appendix 5: Oak Park Community Big Sunday Event

The Acorn
Serving Agoura Hills, Calabasas, Oak Park and Westlake Village

Big Sunday, a day of giving

By Stephanie Bertholdo
sbertholdo@theacorn.com

Hundreds of students, teachers, moms, dads and business owners are planning to volunteer their time on Big Sunday to help make their community— and communities beyond their borders—a better place to live.

Big Sunday is a statewide volunteer event during which people offer aid to nonprofits, schools and other agencies that need help.

Oak Park Unified School District has partnered with the Community Outreach Committee to organize volunteers to participate in Big Sunday on May 5. Last year more than 300 people offered their time and services.

Big Sunday committee chair, Toni Caruso, said this year's volunteer force is even bigger. So far, nearly 500 people have pledged to provide a half-day of work.

The national Big Sunday event is a day of serving the community through volunteering and a "little elbow grease," Caruso said.

Volunteers of all ages and abilities have a host of projects to choose from. At local schools, new trees will be planted, and planters at all Oak Park schools will be cleaned and filled with new flowers and other plants.

Parking and loading zones at schools and on streets will painted; storm drains will be cleared to keep pollution from making its way to creeks and the ocean, and litter will be cleared from hiking trails.

Pavers at Medea Creek Middle School will be repaired; the copy room at Brookside Elementary School is being painted, and a new shed is being built in the kindergarten area. Every school in the district has a project that needs completing, Caruso said.

Altogether, the Big Sunday committee plans to complete 37 projects.

Caruso said one dad from Agoura Hills has already fixed a gate for an Oak Park senior who couldn't handle the job on her own.

The Rancho Simi Recreation and Park District requested that volunteers pick up trash on three trails in Oak Park. Park representatives will be on hand to collect all the filled bags, Caruso said.

Ventura County officials asked that Big Sunday volunteers focus on storm drains that funnel water, branches and other debris to the ocean. County representatives said that people often think the drains are the perfect place to dump motor oil and other pollutants. Big Sunday volunteers will paint the drains with a message: "Don't dump, drains to creek."

"We need little hands to do weeding, medium hands to do cleaning, larger hands to do painting and professional hands to handle more difficult jobs," Caruso said.

Numerous sponsors have contributed money and supplies to the Big Sunday effort.

Caruso said $4,200 has been raised to defer costs of equipment. Greg Epstein, owner of Enhanced Landscape in Thousand Oaks, donated about 200 trees and plants to the cause.

The Big Sunday gang has also partnered with clubs at Oak Park High to collect donations for a variety of charities. Items can be brought to the event or dropped off at any school site from May 2 to 3.

Caruso named the charities and their needs:

* Surf Club: Canned food for Ventura Country Rescue Mission.

* Grossman Burn Center Club: New socks—adult and child sizes.

* Key Club: New or used books for Oak Park Library.

* Red Cross Club: New or gently used pillow cases.

* National Honor Society: School supplies and DVDs for Support for the Kids.

* Students for Protection of Animals and Environment: Pet products—toys, leashes, adjustable collars—Science Diet dog food and cat food, PetSmart gift cards.

* Freshman and sophomore soccer teams: New or gently used soccer items—shoes, shirts, shin guards, balls.

Monetary donations are being collected for the Ventura County Rescue Mission, Red Cross, American Cancer Society, the Oak Park Foundation, Make-AWish Foundation and others.

The day will begin around 8 a.m. with breakfast, a group photo and registration at the high school. Projects begin at 9 a.m. Caruso said she anticipates all projects will be completed no later than noon.

For further information on volunteering from 8:30 a.m. to 12:30 p.m. on Big Sunday, May 5, visit www.oakparkusd.org/communityoutreach or email community@oakparkusd.org.

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