

FINAL PROJECT REPORT

CIVIC CENTER STORMWATER TREATMENT FACILITY

MARCH 2008

PREPARED BY:

City of Malibu
Public Works Department
23815 Stuart Ranch Road
Malibu, CA 90265

SUBMITTED TO:

State Water Resources Control Board
1001 I Street
Sacramento, CA 95814
Agreement No. 01-219-550-3
Clean Beaches Initiative Project No. CBI#2_305

Table of Contents

	Page
EXECUTIVE SUMMARY	1
INTRODUCTION	2
PROJECT BACKGROUND INFORMATION	4
TASKS & DELIVERABLES	9
PRELIMINARY MONITORING DATA & RESULTS	10
SUMMARY OF EXPENDITURES	13
APPENDIX A	
APPENDIX B	
FIGURE 1 – VICINITY MAP	B-1
FIGURE 2 – LOCATION MAP	B-2
FIGURE 3 – SAMPLING LOCATIONS	B-3
APPENDIX C	
APPENDIX D	
APPENDIX E	
APPENDIX F	
APPENDIX G	
APPENDIX H	

EXECUTIVE SUMMARY

In accordance with State Water Resources Control Board (SWRCB) Agreement No. 01-219-550-3 pertaining to the City's Civic Center Stormwater Treatment Facility project, a Draft Final Project Report was prepared to summarize project accomplishments and present information collected in accordance with the project monitoring and reporting plan, including a determination of the effectiveness of the best management practices or management measures implemented as part of the project in preventing or reducing non-point source pollution.

A draft report was submitted in February 2008. Comments from the SWRCB to the Draft Final Project Report were provided in a letter, a copy of which is included in Appendix A. Nineteen comments were made with respect to the Draft Final Project report dated January 2008. All comments have been addressed and made a part of this Final Project Report with the exception of item number 11 in the list of comments. Item number 11 pertains to historical flow data of the three storm drains. Historical flow data is not available for any of the three drains.

This report summarizes the activities performed under the SWRCB agreement. The report also provides a project background and historical water quality data from the three drains. Water quality monitoring performed as part of the project is also presented to show the performance of the treatment facility. Additional data is to be provided later this year and appended to this final report to document data for a full one year period.

The Civic Center Stormwater Treatment Facility project is one of 38 projects that were granted funding under the Clean Beaches Initiative (Proposition 13) in 2001 to address postings and closures at California public beaches caused by bacterial contamination. The City's Treatment Facility project included planning, design and implementation of a \$5.8 million dollar facility to address pollution from three major drains in the Civic Center area. The project construction was completed in February 2007. After several months of shakedown to resolve operational difficulties, the treatment facility was put into fulltime operation in September 2007. The data collected at the treatment facility and presented in this report demonstrates that the facility is performing as intended and reduction of bacteria loading into Malibu Creek and Malibu Lagoon is being achieved. The Treatment Facility can be seen as the first step in improving the water quality at Malibu Beach and Surfrider Beach and in reducing the number of beach postings and beach closures. Future projects, such as the City's Legacy Park project will make additional strides in accomplishing further water quality enhancements at Malibu Beach and Surfrider Beach.

INTRODUCTION

An estimated 1.2 million visitors explore the City of Malibu's mountains and shores annually and are particularly attracted to Surfrider Beach, a world-class surfing beach. Surfrider Beach is located at the outlet of Malibu Creek and has been identified as one of the top three most polluted beaches in Santa Monica Bay, consistently exceeding minimum bacteriological standards required for safe recreational use. Three major storm drains outlet into Malibu Creek and Lagoon and are well documented as being significant sources of bacterial contamination from non-point source urban runoff. The three storm drains are the Malibu Road drain, Cross Creek Road drain and Civic Center Way drain. To address these non-point sources, the City has constructed the Civic Center Stormwater Treatment facility to provide filtration and disinfection treatment for these three drains in the Civic Center area that discharge to Malibu Creek and Malibu Lagoon.

The non-point sources of pollution emanate from three sub watersheds that feed the three major drains. The parameter being targeted by the City's treatment facility is bacteria which is a common non-point source pollutant. Non-point source pollution can be attributed to water moving over and through the ground and picking up and carrying away natural and human-made pollutants. The polluted water is ultimately deposited into receiving waters such as lakes, rivers, wetlands, and coastal waters. Bacteria is a common non-point source pollutant and is expected to be encountered in urban runoff and stormwater. Sources of the bacteria may include litter and refuse, pet and wildlife waste, leaking sanitary systems, illicit discharges, and from a wide variety of other human activities. The sources of bacteria can be more prevalent in a semi-rural area such as Malibu where wildlife and livestock can be a large contributor of bacteria. The Civic Center area also includes a commercial area which can also be a large contributor of bacteria. Commercial areas typically include large paved areas where pollution can accumulate and ultimately be washed away into the storm drain system during dry weather and wet weather conditions.

With the support of several agencies, the City was able to plan, design and implement the Civic Center Stormwater Treatment Facility which provides filtration and disinfection of dry-weather flows and first flush stormwater runoff of approximately 1000 gallons per minute (gpm) from the Civic Center storm drain plus approximately 200 gpm from the Cross Creek storm drain plus approximately 200 gpm from the Malibu Road storm drain. The project includes pump stations at the Cross Creek drain, Civic Center Way drain, and Malibu Road drain and a central treatment facility at the Civic Center site. Flows from each of the three storm drains are to be treated at the treatment facility and discharged to Malibu Creek. During periods of dry-weather, treated flows will be re-used through an interim dispersal system. Ultimately, re-use of the treated flows will be accomplished at the City's future Legacy Park site.

Specific goals of this project are to treat flows to meet EPA Contact Recreation-1 standards for bacterial contamination, to remove trash and other floatable solids with no detrimental impacts to the ecosystems of Malibu Lagoon and to reduce high bacterial counts in the nearby surf zone of the world famous Surfrider Beach.

Multiple sources of funding were utilized in order to accomplish the project. Funding was provided by the State Water Resources Control Board (SWRCB), Santa Monica Bay Restoration Commission (through the California State Coastal Conservancy), the California Integrated Waste Management Board (CIWMB), and the City of Malibu. The City received a total of \$4,000,000 in grant funds from the State Water Resources Control Board (SWRCB) for this project from two separate funding programs. Clean Beaches Initiative (CBI) Proposition 13 funding was provide in the amount \$2,000,000. Another \$2,000,000 was provided from the CBI Proposition 40 funding program. Funding provided by the Santa Monica Bay Restoration Commission (through the California State Coastal Conservancy) was in the amount of \$1,000,000. The CIWMB provided funds in the amount of \$500,000. The City contributed funds in the amount of \$300,000.

This report was prepared in accordance with the SWRCB grant (Agreement No. 01-219-550-3) and was prepared to summarizes project accomplishments and information collected in accordance with the project monitoring and reporting plan, including a determination of the effectiveness of the best management practices or management measures implemented as part of the project in preventing or reducing non-point source pollution.

Comments or inquires related to this report should be directed to:

Claudio Sanchez, P.E.
Deputy City Engineer
23815 Stuart Ranch Road
Malibu, CA 90265
Phone: 310.456.2489, extension 237
Fax: 310.456.3356
Email: csanchez@ci.malibu.ca.us

PROJECT BACKGROUND INFORMATION

The Civic Center Stormwater Treatment facility project is one of 38 projects that were granted funding under Clean Beaches Initiative (Proposition 13) in 2001. The Clean Beaches Initiative Grant Program began with the Budget Act of 2001. The Budget appropriated \$32.298 million from Proposition 13 to implement 38 specific projects. The projects were to address postings and closures at California public beaches caused by bacterial contamination by reducing bacterial contamination at beaches. The Civic Center Stormwater Treatment Facility project goal was to improve water quality from three drains in the Civic Center area to REC-1 standard in an effort to improve water quality at public beaches to meet current ocean water bacterial standards for total coliform, e. coli, and enterococcus.

Project Scope of Work

The Civic Center Stormwater Treatment Facility project involved the design and installation of a stormwater treatment facility to provide filtration and disinfection of dry-weather flows and first flush runoff of approximately 1000 gallons per minute (gpm) from the Civic Center storm drain plus approximately 200 gpm from the Cross Creek storm drain plus approximately 200 gpm from the Malibu Road storm drain. The project includes pump stations at the Cross Creek drain, Malibu Road drain, and Civic Center storm drain. A central treatment facility which includes a filter device and ozone disinfection equipment is located at the Civic Center site. Flows from each of the three storm drains are to be treated at the treatment facility and discharged to Malibu Creek during wet weather. During periods of dry weather, the treated flows will be re-used at an interim dispersal field and ultimately the treated water will be reused at the City's future Legacy Park site that is currently in the design development phase.

Specific goals of the project are to treat flows to meet EPA Contact Recreation-1 standards for bacterial contamination, to remove trash and other floatable solids with no detrimental impacts to the ecosystems of Malibu Lagoon and to reduce high bacterial counts in the nearby surf zone of the world famous Surfrider Beach.

The City of Malibu is the lead agency and is responsible for the operation of the Civic Center Stormwater Treatment Facility. The Treatment Facility is to be maintained and operated by the City's Public Works Department. The operations are to be handled by a project team consisting of City staff in consultation with hired contractors and consultants. A laboratory has been retained to conduct water quality monitoring and analysis of the inflow and treated outflow from the treatment facility in order to demonstrate that the goals of the project are being achieved. The laboratory retained for the project is Aquatic Bioassay & Consulting Laboratories located in Ventura, California.

Site Location

The project is located in the Malibu Civic Center area in the City of Malibu, County of Los Angeles, as shown on Figure 1 in Appendix B. The project consists of three sites: Malibu Road diversion site, the Cross Creek Road diversion site and the Civic Center Way diversion

site. The Civic Center site is also the location of the central treatment facility (see Figure 2, Appendix B).

Site Background

Malibu Creek is the second largest watershed (109 square miles) draining into Santa Monica Bay. Malibu Lagoon is a small 13 acres shallow water embayment located at the outlet. Malibu Creek and the storm drains entering Malibu Lagoon provide sources of freshwater, sediment, microorganisms, nutrients and other pollutants. The salt marsh habitat of Malibu Lagoon is an uncommon wetland resource in the Los Angeles region.

Environmental degradation of Malibu Lagoon has been caused, in part, by three storm drains discharging contaminated urban runoff into the lagoon ecosystem. The three major storm drains that outlet into Malibu Creek and Malibu Lagoon are sources of bacterial contamination from nonpoint source urban runoff. The three storm drains are the Malibu Road drain, Cross Creek Road drain and Civic Center Way drain, which are named after the roadways that drain to them. Contamination of the lagoon by bacteria and pathogens has significantly impaired beneficial uses of Malibu Lagoon and the adjacent Surfrider Beach. Impaired beneficial uses include rare, threatened and endangered species, bird sanctuary, migration of aquatic organisms, spawning, reproduction and rearing habitat, wetland habitat, estuarine habitat, marine habitat, wildlife habitat, contact recreation, and non-contact recreation. Malibu Lagoon estuary is open during the wet weather season (October to May) or mostly closed during periods of the dry weather season (from May to October). While the Malibu Lagoon flows into the ocean, the waters off Surfrider Beach consistently exceed minimum bacteriological standards for human contact. Previous lagoon studies indicate that high concentrations of coliform and streptococci are present in the water column of Malibu Lagoon above levels for recreational use within the Lagoon and this extends to the surf zone at different times

Through implementation of the Civic Center Stormwater Treatment Facility project, the City is taking a proactive approach to address treatment of runoff from three major storm drains that outlet into Malibu Creek and to reduce pollutants from flowing into Malibu Lagoon and Surfrider Beach.

Project Participants

The project is sponsored by the City of Malibu with support from the State Water Resources Control Board, State Coast Conservancy, and Santa Monica Bay Restoration Commission, and California Integrated Waste Management Board. Local support for the project includes Heal the Bay, County of Los Angeles, Resource Conservation District of Santa Monica Mountains, Malibu Creek Watershed Council, and Malibu Lagoon Task Force.

Project Accomplishments

The project design efforts commenced in March 2002 following the issuance of a Request for Proposals and the selection of a design consultant for the project. The 95% submittal of the design plans was made in December 2002. In January 2003, the design consultant went out of business and resulted in delays in the completion of the final design. The design was

subsequently completed by City staff as there were difficulties in retaining a consultant that was willing to take over the project design of another consultant.

In July 2005, the design plans were completed and all permits secured and the project was put out for formal competitive bidding in August 2005. Bids were opened in September 2005. Only one bid was received and the bid was rejected because it was over the project budget amount. The sole bid received was for the amount of \$4,150,002.00 which exceeded the budget amount of approximately \$1,955,000 available for construction.

The project was put out for bid a second time and bids were opened in December 2005. The second bid produced two bid proposals, however, the bids were still over the budget amount. The low bid received was for an amount of \$4,828,002.00. The City sought additional funding to make up the shortfall in the construction budget for the project. The need to secure additional funding created additional delays. After securing the needed funding, a contract for construction was awarded and construction commenced in March 2006. The construction phase of the project was completed in February 2007. A list and summary of tasks and deliverables provided as part of the SWRCB agreement is provided below under *Tasks & Deliverables*.

Reference Documents

A set of the project plans is included in Appendix C. Photographs of the central treatment facility are included in Appendix D.

Treatment Process and Historical Water Quality

Historical water quality data for each of the three drains that are a part of this project and that discharge to Malibu Creek and Malibu Lagoon shows high bacteria levels. The historical data was compiled as part of this project. In 2002, as part of the design process to identify design input and criteria, MEC Analytical Systems performed water quality monitoring at the Cross Creek drain and at the Civic Center drain for bacteria. The results of the monitoring performed by MEC are provided in Table 1.

Historical data from 2000 and 2001 is available from monitoring performed by URS Woodward Clyde. The data includes bacteria testing results for the Malibu Road drain and is provided in Table 2.

Table 1. Historical Monitoring Results for Cross Creek and Civic Center Drains

DATE	STATION	
	CROSS CREEK	CIVIC CENTER
TOTAL COLIFORMS (MPN/ 100 mL)		
4/4/2002	1005000	6131
4/11/2002	1261000	8840
4/17/2002	54750	695000
4/26/2002	6770	261300

E. coli (MPN/ 100 mL)		
4/4/2002	4080	19
4/11/2002	4570	25
4/17/2002	836	399
4/26/2002	20	520
Enterococci (MPN/ 100 mL)		
4/4/2002	146	24
4/11/2002	211	25
4/17/2002	95	153
4/26/2002	20	52

Table 2. Historical Monitoring Results for Malibu Road Drain

DATE	STATION
	MALIBU ROAD DRAIN
TOTAL COLIFORMS (MPN/ 100 mL)	
12/13/2000	16000
12/28/2000	8000
1/24/2000	300000
E. coli (MPN/ 100 mL)	
12/13/2000	11185
12/28/2000	240
1/24/2000	22000
Enterococci (MPN/ 100 mL)	
12/13/2000	187
12/28/2000	700
1/24/2000	160000

The primary goal of the project is to meet the beneficial use standard for Water Contact Recreation (REC-1) standard. Other pollutants targeted by this project include trash and sediments. The project is capable of handling low flows through diversion structures constructed at each of the three drains. The flows are directed through a coarse screen at each location to remove trash and coarse particulates. The flows are then pumped to a central treatment facility for disinfection to reduce bacteria loading. The project is capable of handling first flush stormwater up to 1400 gpm, approximately 1000 gpm from the Civic Center drain, 200 gpm from the Cross Creek drain and 200 gpm from the Malibu Road drain.

During dry weather periods, flows are diverted and passed through the screen device to remove trash and sediment. The flows next enter a wet well where the water is pumped to the central treatment facility and passes through a perlite media filter to remove finer sediment. Flows next go to a receiving bay where they are pumped to the main contact chamber of the ozonation (disinfection) process. Ozone is injected in the main contact chamber where the

water is circulated and disinfected. The water next flows to a separate chamber and through a fluidized GAC bed before flows are pumped to a dispersal system for reuse during dry weather conditions. The dispersal system is an interim water re-use measure. Once the City's Legacy Park is developed, the treated water from the Civic Center Stormwater Treatment Facility is to be re-used at the Legacy Park site. It is anticipated that the design work for the Legacy Park project will be completed in 2008. The Legacy Park project will maximize the reuse of treated urban runoff and stormwater as an irrigation supply for the Park and adjacent landscaping within the Civic Center area. To the extent urban runoff supply is available in the late spring to early fall months when irrigation demand is highest, treated water will be used to the maximum extent possible in lieu of other irrigation supplies. Legacy Park has an estimated irrigation demand of 20 acre-feet per year (AFY), with a peak demand of 3.6 AF (1.1 MG) occurring during the month of July.

During wet weather periods (during a rain event) flows up to the maximum, will be diverted and treated as mentioned above. The treated stormwater will be discharged directly to the Civic Center drain downstream of the diversion point for discharge to Malibu Creek. The discharge of treated stormwater during wet weather is expected to also be re-used at Legacy Park once the stormwater treatment elements of the Park have been developed. As a condition of the Santa Monica Bay Restoration Commission grant that was awarded to the City for the Civic Center Stormwater Treatment Facility project, discharge from the facility to Malibu Creek will not be allowed during wet-weather after April 1, 2012. The City fully intends to comply with this requirement.

The project is anticipated to reduce bacteria from flows emanating from the three drains during both wet and dry weather conditions. In order to evaluate the effectiveness of the treatment facility and the attainment of water quality goals, a monitoring program has been developed to produce the necessary data to evaluate the performance of the system. A copy of the monitoring plan prepared for the project is included in Appendix E.

Sampling and Analyses

Water quality monitoring data from September 2007 through January 2008 conducted at the treatment facility is presented in Table 3 under *Preliminary Monitoring Data & Results*.

TASKS & DELIVERABLES

Task products to be delivered for this project are delineated in the Schedule of Completion in the agreement with the SWRCB (Agreement No. 01-219-550-3) for this project. A summary of the task products submitted for the project is provided below:

Task	Product	Due Date	Completion Date
1.0	Project Management and Administration	--	--
1.2	Monthly/ Quarterly Progress Reports	Monthly/ Quarterly from January 2002 to completion of project	Provided from January 2002 through December 2007
1.5	Contract Summary Form	September 2004	January 2003
1.6	Subcontractor Documentation	May 2007	December 2002
1.7	Project Survey Form	May 2007	March 2005
2.0	CEQA	--	--
2.1	CEQA documents	January 2002	January 2002
3.0	QAPP	--	--
3.1	QAPP	September 2006	January 2008
4.0	Engineering	--	--
4.1	Evidence of consultant Selection	May 2002	March 2002
4.2	Pre-design technical memorandum	August 2002	July 2002
4.3	Final Plans and Specifications and contract documents for construction	October 2002	October 2005
4.4	Applicable permits for project	December 2002	July 2005
5.0	Construction Management & Inspection Services	--	--
5.1	Copy(ies) of signed consultant contract(s)	April 2006	April 2006
6.0	Project Construction	--	--
6.1	Signed Construction Contract	June 2006	July 2006
6.3	Final O & M Manual	March 2007	March 2007
6.4	Performance Evaluation Report	March 2007	October 2007
6.5	Training material	January 2007	March 2007
6.6	As-built Drawings	February 2007	February 2008
7.0	Reporting	--	--
7.1	Monitoring and Reporting Plan	September 2006	December 2007
7.2	Draft Report	January 2008	February 2008
7.3	Final Report	February 2008	March 2008

PRELIMINARY MONITORING DATA & RESULTS

Water quality monitoring data from September 2007 through January 2008 conducted at the treatment facility is summarized and presented in Table 3. The water quality test result reports from the laboratory are included in Appendix F. Water quality monitoring is performed in accordance with the approved Monitoring and Reporting Plan dated November 2007. A map showing the sampling locations is included in Appendix B (Figure 3).

Table 3. Monitoring Data & Results

Standard	INFLOW (a)			OUTFLOW (a)			MALIBU LAGOON BEACH (a) (b)			AVERAGE FLOW FOR PERIOD (Gallons /day)
	Total Coliform	E. Coli	Enterococcus	10000	200	35	Total Coliform	E. Coli	Enterococcus	
9/14/2007	556	20	30	345	10	<10	<67	<67	<10	57
9/21/2007	10,111	288	1,071	<10	<10	31	NA	NA	NA	85,815
9/28/2007	10,111	375	820	412	<10	<10	210	<67	<10	97,102
10/4/2007	2,010	<10	50	<10	<10	10	<67	<67	10	2,869
10/12/2007	>24192	327	30	134	<10	<10	N/A (Rain)	N/A (Rain)	N/A (Rain)	0
10/18/2007	>24192	63	243	>24192	10	<10	1000	280	20	0
10/30/2007	>24192	213	278	63	<10	<10	580	580	120	149
11/16/2007	4,569	20	41	3282	20	41	<67	<67	10	48,348
11/20/2007	17,329	84	183	6488	30	84	280	67	10	8,094
11/30/2007	1,100	20	10	31	<10	<10	N/A (Rain)	N/A (Rain)	N/A (Rain)	2,335
12/7/2007	4,884	<10	<10	84	<10	<10	N/A (Rain)	N/A (Rain)	N/A (Rain)	69,592
12/14/2007	6,131	<10	<10	1317	<10	<10	500	<67	10	12,279
12/21/2007	1,722	<10	<10	528	<10	<10	N/A (Rain)	N/A (Rain)	N/A (Rain)	4,751
12/28/2007	631	<10	<10	565	<10	<10	2600	430	64	4,751
1/2/2008	1,616	10	20	537	<10	<10	N/A (Rain)	N/A (Rain)	N/A (Rain)	22,436
1/11/2008	>24192	62	305	495	<10	<10	4400	1800	2000	21,394
1/16/2008	>24192	10	801	63	<10	<10	N/A	N/A	N/A	15,316
1/25/2008	>24192	1,860	3,076	>24192	2098	3873	N/A (Rain)	N/A (Rain)	N/A (Rain)	83,060

Note(s):
(a) All Values are in MPN/ 100mL
(b) Data is from the Santa Monica Bay Beaches Bacterial Total Maximum Daily Load Coordinated Shoreline Monitoring Program conducted by the City of Los Angeles Environmental Monitoring Division for the responsible Jurisdictional Groups

Data for the sampling location at Malibu Lagoon/ Malibu Beach is from the Santa Monica Bay Beaches Bacterial Total Maximum Daily Load Coordinated Shoreline Monitoring Program conducted by the City of Los Angeles Environmental Monitoring Division for the responsible Jurisdictional Groups. The water quality data results provided by the City of Los Angeles are included in Appendix G and summarized in Table 3.

Monitoring at the treatment facility is to be performed on a weekly basis as described in the approved Monitoring Plan. The monitoring is to be conducted and reported through November 2008 to comply with the SWRCB monitoring and reporting requirements. Specifically, quarterly reporting of the monitoring results collected between February 1, 2008 and November 30, 2008 will be submitted to the SWRCB in accordance with the approved Monitoring Plan (included in Appendix E). The monitoring data will be summarized and added as an addendum to this Final Project Report by December 30, 2008.

Table 3 also shows flow measurement of the inflows into the treatment facility. The flow data presented is a daily average for the preceding period which is generally the sampling date to the preceding sample date and is typically a 7 day period. The figures represent the composite of flows from the three drains. The highest volumes have ranged from about 50,000 to 100,000 gallons per day over a seven day period. On average this computes to a range of 35 to 70 gallons per minute (GPM). This does not represent the peak flow into the treatment facility at any single point in time, but rather is the average over an extended period. The treatment facility is design to handle up to 1400 GPM, which corresponds to a design peak rate associated with the first flush and may occur for only a short duration depending on the storm event. Both dry weather and wet weather flows into the treatment facility are expected to fluctuate over time and cannot be predicated. The flows will depend on the amount of rainfall including intensity and duration.

The data in Table 3 shows that the treatment facility is operating as intended with the exception of four data points (October 18, 2007, November 16, 2007, November 20, 2007, and January 25, 2008). The January 25th sample event can be attributed to a rain event that occurred during the monitoring. The pre-project water quality data presented in Tables 1 and 2 is consistent with the post-project data for each of the three monitoring parameters. With the exception of the four data points mentioned above, the outflow water quality concentrations are below the EPA REC-1 limits. Although the treatment facility does not capture all discharges into Malibu Creek, the amounts captured in particular during the dry weather are intended to demonstrate an improvement in the reduction of beach closures at Surfrider Beach and Malibu Beach and show a reduction in bacteria loading into Malibu Creek and Malibu Lagoon.

Beach closures and postings obtained from the SWRCB web site are presented in Appendix H and summarized in Table 4. The data is provided for three locations for the four year period prior to the implementation of the Civic Center Stormwater Treatment Facility and the year

after the completion of construction of the facility. The data shows that there are a reduced number of postings at each of the three locations including Surfrider Beach. It is expected that the number of postings would decrease as a result of the implementation of the treatment facility project, however it may be too early to draw final conclusions on the overall impact. It is not expected that postings will be eliminated entirely since not all of the flows into Malibu Creek and Malibu Lagoon are being processed at the Civic Center Treatment Facility. With the implementation of the Legacy Park project, it is expected that further reductions in the number of postings can be achieved as a larger component of runoff is to be captured and treated with the implementation of the Park project.

Table 4. Beach Postings & Closures

YEAR	MALIBU BEACH - Malibu Colony		MALIBU BEACH - Malibu Pier		SURFRIDER BEACH	
	POSTINGS	CLOSURES	POSTINGS	CLOSURES	POSTINGS	CLOSURES
PRE-PROJECT						
2003	10	0	8	0	35	0
2004	0	0	5	0	28	0
2005	11	1	7	0	28	0
2006	6	0	5	0	22	0
POST-PROJECT						
2007	2	0	4	0	15	0

SUMMARY OF EXPENDITURES

A summary of the project expenditures is presented below in Table 5.

Table 5. Project Expenditures

TASK	DESCRIPTION	AMOUNT
1	Project Management	\$65,000
2	CEQA	\$1008
3	Quality Assurance Project Plan	\$5,000
4	Engineering	\$325,000
5	Construction Management & Inspection	\$219,940
6	Construction	\$5,090,122
7	Reporting	\$10,500
TOTAL		\$5,716,570