City of Manhattan Beach FY 2011-12
Assessment of Stormwater Management Program Effectiveness

I. An assessment of your agency's compliance with permit requirements, based on your responses to the questions in this form:

The City of Manhattan Beach has an active storm water pollution prevention program and has adopted programs and processes to ensure that we are in compliance with the California Regional Water Quality Control Board's order number 01-182 and the NPDES Permit Number CAS004001. We believe that we are in full compliance with the permit and in many areas have gone above and beyond the minimum requirements.

II. Descriptions of any evaluation methods that your agency uses to determine the effectiveness of your storm water management program;

- Written feedback received from our annual community survey.
- Recognition through our annual community survey of storm water awareness and environmental issues as a top priority.
- Enforcement of our City's storm water ordinances through the Public Works, Police, and Code Enforcement departments.
- Catch basin cleaning records
- Public participation levels at Earth Day, our Hometown Fair, and HHW Awareness week events.
- Citizen communication via telephone and email regarding environmental issues of concern.
- Level of interest and involvement in the Environmental Task Force.
- Regularly positive monitoring reports of beach water quality.

III. A summary of the strengths and weaknesses of your agency's storm water management program;

Strengths:

- Strong support from Council and City Management
- Capable, knowledgeable, skilled and dedicated management and Public Works staff
- We have excellent housekeeping practices.
- We use a variety of public outreach, source control and structural BMPs and programs that support an integrated approach to water quality.

Weaknesses:

- Due to Prop 218 constraints we haven't been able to increase our storm water assessment fees since they were adopted, which means that we continue to maintain and improve our storm water pollution prevention programs without an increase in funding.

- Our funding and staff resources also continue to be stretched due to necessary programs and reporting required for the SMBBB TMDL.

IV. A list of specific program highlights and accomplishments;

Notable accomplishments this year include:

Plastic Bag Ban: On July 14, 2011 the City of Manhattan Beach was notified that it had prevailed in its effort to ban plastic bags. **A unanimous California Supreme Court decision ruled that:**

> *Substantial evidence and common sense support the city's determination that its ordinance would have no significant environmental effect. Therefore, a negative declaration was sufficient to comply with the requirements of the California Environmental Quality Act (CEQA).*

This is a tremendous victory for a community that sought to ban plastic bags in an effort to reduce the amount of plastic trash in the coastal and marine environment. The City's plastic bag ordinance began implementation on January 14, 2012. Enforcement of the ordinance for grocery stores and pharmacies began April 14, 2012, allowing for a 3-month transition from the implementation date to allow businesses enough time to prepare and purchase recycled content paper bags that meet the ordinance requirements. All other establishments (i.e. retail, other commercial establishments and non-profit vendors) in the City of Manhattan Beach will be required to comply with the plastic bag ordinance beginning on July 14, 2012.

On August 2nd, 2011 the City Council approved an **ordinance expanding the areas where outdoor smoking is prohibited** to include the Strand walkway adjacent to the beach and Veterans Parkway (the Valley/Ardmore Greenbelt). In 2004 the City Council had prohibited smoking on the beach, the pier and at recreational facilities such as parks, athletic fields and tennis and basketball courts.

The City has completed design of the **Greenbelt Infiltration Trench project**. The project will utilize the linear greenbelt parkland which runs through the City of Manhattan Beach (City) to intercept and infiltrate dry weather and wet weather low flows from existing storm drains to effectively retrofit 55 acres of fully developed residential area. The project will be installed below ground to preserve the existing use of the linear greenbelt as a running path along the median between Ardmore Avenue and Valley Drive from 2nd to 8th Streets. The project is being funded in part by a Prop 84 Santa Monica Bay Restoration Commission grant.

Green Zoning, Coastal, and Public Works Code Amendments -- In July of 2011, the City Council adopted ordinances amending the Zoning and Public Works codes (MBMC Titles 7 and 10) as well as the City's Local Coastal Program (LCP Chapters 2 and 3). Amended code language as approved by the City Council is available in Ordinance Nos. 2146 (PDF) and 2147 (PDF) and became effective on August 4, 2011. Stormwater-related provisions are summarized below. More comprehensive stormwater mitigation requirements will be incorporated into the Building Code (Title 9) in the future to achieve the Environmental Task Force's Stormwater mitigation goals and for consistency with next MS4 Permit requirements.

Stormwater Retention Design – Low Impact Development: Stormwater and greywater retention and detention features are allowed to project into required setbacks (yards).

Green Decks and Roofs: A green deck or roof is a surface that supports the growth of vegetation over a portion of its area generally for the purpose of water and/or energy conservation. Green roofs provide a means to decrease stormwater run-off into the public system as well as provide building insulation and improved aesthetics. The following summarizes the green deck and roof standards:

- Treated as other decks and balconies for height and setbacks.
- Director may approve green roofs on top of roof level if it is not usable as a deck, and if safety, maintenance, slope, and access issues are mitigated.
- All planting materials on green roofs and decks may not exceed the maximum allowed height of structure.

Landscaping and Irrigation: This measure provides for the reduction of water consumption through landscaping and irrigation design while still allowing flexibility for a variety of landscaping, including grass. The following summarizes the new water efficient landscaping standards:

- Maximum of 20% of the landscaped planting and hardscaped areas (private property, public parkways, & encroachment areas) may be high water use, such as grass.
- Small lots of 7,500 square feet or less may use standardized water budget worksheet per WUCOLS or may provide licensed landscape architect design and calculations.
- Lots over 7,500 square feet must provide licensed landscape architect design and calculations.

Renewable Energy: The renewable energy amendments allow administrative approval of solar energy systems (both producing electricity and heating water) up to a maximum of twelve inches (12") over the maximum allowed height limit as needed to meet State regulations. Renewable energy recommendations also address Small Wind Energy Systems (SWES) and allow alternative-fuel vehicle charging systems to project into the garage parking clearance or required side setbacks.

In 2011 the City Council of Manhattan Beach appointed a new group of members to its Environmental Task Force. The 2011 ETF has developed several recommendations to help the community reduce its energy and water consumption in order to help meet City-wide commitments to lower greenhouse gas emissions and conserve water. The program recommendations were approved by City Council on October 4, 2011 for implementation and include:

- **Watt Watcher Energy Contest**: enter by January 31, 2012 and win prizes for your school!
- **Green Business Challenge**: save money and energy, while promoting sustainable business practices
- **Solar Display at Metlox**
- **Landscape Sustainability Audit**: FREE advice from a landscape professional
- **Community Mulch Pilot Program**: visit the City's Public Works Yard to obtain as much FREE mulch as you need
- **Post Office Demonstration Garden**
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Highlights of our ongoing stormwater and related environmental programs:

Ten (10) CDS® gross pollutant hydrodynamic separators have been installed on major storm drains within the City. Nine (9) of these are publicly owned and maintained, and one is privately owned and maintained. In addition to the CDS units, the City has also installed approximately sixty (60) debris screens on catch basin openings that have historically required frequent cleaning (Priority A). As a consequence, many of those catch basins are no longer on the Priority A list for catch basin cleaning. These screens have significantly reduced trash deposited into catch basins and frequency of catch basin cleaning and together with the CDS units have reduced the discharge of trash and debris to the ocean.

The City has retrofit 130,000 square feet of porous concrete paving on seven (7) municipal parking lots through Prop 50 funding from the Santa Monica Bay Restoration Commission. The City optimized the grant funding through site selection to maximize the effective area of infiltration achieved by the porous paving with a total effective pervious area of 892,951 square feet for the installed area of 128,226 square feet, a 7:1 ratio. The largest of these, the El Porto Parking Lot, is sited at the foot of a drainage area, where it receives significant run-on from adjacent development effectively increasing the permeability of the drainage area. Flow monitoring results from the El Porto site conducted as part of the grant funding demonstrate reduction in runoff volume and flow rates during wet weather. The project data suggests that runoff from rainfall events of less than 1/10th of an inch in precipitation depth have been eliminated by installation of porous concrete pavement on the El Porto Lot.

Approximately 11,000 square feet of median between Aviation Boulevard and Aviation Way has been retrofit through a grant from West Basin Municipal Waer District's Zero-Runoff Street Median Water Conservation Program. The project replaced the existing turf throughout the median with native/drought-tolerant plants and installed a water-saving drip irrigation system. The project reduced the annual consumption of potable

water for irrigation at the site by 159,000 gallons per year and eliminated 100% of dry weather runoff from irrigation overspray. The project is located within the small area of the City which drains to the high priority Herondo Storm drain and, by reducing dry weather runoff to this storm drain, the project helps reduce the hydraulic load on the Herondo low flow diversion system thereby increasing protection for recreational water quality at the beach.

Manhattan Beach adopted a strict water conservation ordinance that became effective July 2, 2009. This water conservation is accompanied by a reduction in dry weather runoff to Santa Monica Bay as a result of the reduction in outside water use and waste.

On July 7, 2009 the City adopted a Fats Oils and Grease (FOG) ordinance which requires the installation of grease interceptors and their proper maintenance for all food service establishments that have the potential to generate FOG. The program also requires the removal of food grinders within 180 days. The use of food grinders and the discharge of grease to the sanitary sewer system are significant contributors to sewer line clogs and sanitary sewer overflows.

The City has installed and maintains pet waste collection stations equipped with disposable bags for collecting and disposing of pet waste in municipal parks and along the linear greenbelt with a high frequency of use by residents with dogs. The City strictly enforces its leash law in all public parks—although ostensibly for public safety, this law has the secondary effect of reducing the likelihood that a dog will leave a deposit without the owner's knowledge.

The City of Manhattan Beach maintains more than 450 trash receptacles in municipal parks and the public right-of-way. The City utilizes trash receptacles with lids—usually the type with a small hole in the center that allows the user to deposit trash but prevents trash from being blown out of the trash can by wind and also deters birds and other animals from spreading trash. The City also maintains more than 125 additional receptacles for recyclable glass, plastic and aluminum beverage containers along the Strand, the Pier and adjacent parking lots, in the downtown Manhattan Business District and in the North End Business District. The receptacles for recyclable materials are also covered.

The Manhattan Village Soccer Park is surfaced in synthetic turf. This eliminates the need for fertilizer, pesticides or irrigation thereby reducing pollutant loads and nuisance flows from recreational areas. These playing surfaces are maintained via dry methods (vacuuming).

The City of Manhattan Beach, along with the cities of Hermosa Beach, Redondo Beach, and Torrance in cooperation with the Santa Monica Bay Restoration Commission, has implemented the Clean Bay Restaurant Certification program targeting food service establishments with exposure to stormwater. The agencies developed a comprehensive 28-point storm water inspection checklist that requires 100% compliance in order for the facility to be awarded a Clean Bay Restaurant Certification

by the Santa Monica Bay Restoration Commission—this checklist far exceeds the minimum requirements of the current MS4 Permit as does the frequency of inspection which is annual instead of twice in five years under the permit. Compliance with the FOG ordinance is an additional provision of earning the Clean Bay Restaurant Certificate.

The City Council amended the Building Regulations (Title 9) as part of the comprehensive sustainable building measures incorporating the new statewide California Green Building Code (CalGreen). The Manhattan Beach Code incorporates all of the mandatory CalGreen building measures which became effective on January 1, 2011. On residential properties these standards require the use of "smart" irrigation controllers for outside watering which will reduce runoff. For non-residential properties, i.e., commercial properties, these standards require that landscapes be designed in conformance with the California Department of Water Resources Model Water Efficient Landscape Ordinance including the use of "smart" irrigation controllers.

V. A description of water quality improvements or degradation in your watershed over the past fiscal year:

The City of Manhattan Beach is not aware of any water quality degradation within the watershed during the reporting year and as discussed below, most shoreline monitoring sites in the City have maintained consistently higher water quality than the reference beach. All three Santa Monica Bay shoreline monitoring locations adjacent to the City of Manhattan Beach received "A" grades for Summer Dry Weather in Heal the Bay's 2011-12 Annual Beach Report Card, and either "A" or "B" for Winter Dry Weather.

The California Ocean Plan water quality standards are those applicable to marine waters such as Santa Monica Bay. Water quality standards for full-body water contact recreation beneficial use (REC-1) are based on three different types of indicator bacteria densities:

<u>30-day Geometric Mean:</u>

- *Total coliform density shall not exceed 1,000 per 100 mL*
- *Fecal coliform density shall not exceed 200 per 100 mL*
- *Enterococcus density shall not exceed 35 per 100 mL*

<u>Single Sample Maximum:</u>

- *Fecal coliform density shall not exceed 400 per 100 mL*
- *Enterococcus density shall not exceed 104 per 100 mL*
- *Total coliform density shall not exceed 10,000 per 100 mL*
- *Total coliform density shall not exceed 1,000 per 100 mL when the fecal coliform/total coliform ratio exceeds 0.1*

Due to technical problems with the method for calculation of the geometric mean described under the current SMBBB TMDL, and pending changes to the method of calculation of the geometric mean values as part of the reconsideration of the SMBBB

TMDL and Chapter 3 of the Los Angeles Basin Plan, geometric mean values for indicator bacteria are not presented for this reporting year. Results of shoreline monitoring in the context of REC-1 single-sample bacterial objectives are discussed below:

Santa Monica Bay Shoreline Monitoring Site SMB 5-1: Manhattan State Beach at 40th Street

The open beach shoreline monitoring location near 40th Street in Manhattan Beach, SMB 5-1, is located midway along the frequently visited El Porto beach which is a popular location for surfers. The monitoring site has historically exhibited a lower rate of exceedances than the reference. Although the responsible agencies under the SMBBB TMDL chose to implement once per week monitoring under the Coordinated Shoreline Monitoring Plan, this shoreline monitoring site has actually been monitored twice per week since July 2005 in contrast to the reference beach which is monitored only once per week. Michelson Laboratory under contract to Jurisdictional Groups 5 & 6 samples the site on Mondays in accordance with the SMBBB TMDL Coordinated Shoreline Monitoring Plan, and City of Los Angeles Environmental Monitoring Division (EMD) samples the site on Tuesdays in accordance with the Monitoring and Reporting Program CI 6948 under the MS4 Permit.

There are no major storm drains at this location but a series of small drains from the El Porto parking lot and adjacent residential areas outfall onto the beach far back from the shoreline such that typical dry weather flows do not reach the wave wash. And since the El Porto parking lot was repaved with porous paving in 2006, this runoff has b een further reduced such that post-construction performance flow data from this grant funded project suggests that runoff from rainfall events of less than 1/10th of an inch in precipitation depth have been eliminated by installation of the porous concrete pavement.

During the reporting year there were four exceedances of the single-sample REC-1 bacterial objectives at SMB 5-1 out of approximately 52 sampling days for this site which is monitored once per week, 52 weeks per year. This amounts to an exceedance rate of 7.7% based on year-round wet and dry weather sampling combined. By contrast the reference beach had 8 exceedance days out of 52 sampling days for combined year-round wet and dry weather sampling which is a 15% exceedance rate. Thus overall the shoreline monitoring site at SMB 5-1 exhibited an exceedance rate that was half that of the reference beach site on a year-round basis. A discussion of the four single-sample exceedance events follows:

> On October 25, 2011 enterococcus was detected at 220 MPN/100 mL. Although this monitoring site is not located at the zero point of a storm drain, the nearest storm drain was observed to be buried in sand at the time of sampling so not a cause or contribution to this exceedance. The field team also observed 20-50 birds on the beach and moderate quantities of seaweed on the beach at the time of sampling. In addition, it is noteworthy that all nine of the shoreline monitoring stations sampled by City of LA Environmental Monitoring Division (EMD) from Dockweiler beach southward also exceeded the REC-1 objectives on October

25th. The field blank QA/QC data provided by City of LA EMD indicated no evidence of contamination, so it appears that natural shoreline and/or ocean conditions across the South Santa Monica Bay may have been the cause of the exceedance.

A major storm event occurred on Sunday, November 20, 2011 wherein the LAX rain gauge recorded 0.9 inches of rain and the Redondo Beach rain gauge recorded 1.03 inches of rain. On November 22, 2011 the sample collected at SMB 5-1 exhibited exceedances of all four single sample objectives. Eight out of nine shoreline monitoring stations sampled by City of LA EMD from Dockweiler beach southward also exceeded the REC-1 objectives on November 22, 2011, a wet weather day.

On February 7, 2012 the E. Coli result was 2,600 MPN/100 mL, the Enterococcus was 190 MPN/100 mL and the ratio of fecal/total coliform was 0.74 when total coliform was greater than 1,000 in the sample collected at SMB 5-1. There was a small rain event across the South Bay with a reading of 0.03 inches of rain at LAX and 0.09 inches of rain at Redondo Beach which may have been a contributing factor. Six out of nine shoreline monitoring stations sampled by City of LA EMD from Dockweiler beach southward also exceeded the REC-1 objectives on February 7, 2012.

On June 12, 2012 enterococcus was detected at 190 MPN/100 mL in the sample collected at SMB 5-1. The nearest storm drain was again observed to be buried in sand at the time of sampling. It is noteworthy that five out of nine stations sampled by City of LA EMD from Dockweiler south exceeded the REC-1 objective for enterococcus. Field blank data provided by City of LA EMD indicated no evidence of contamination, so it appears that natural shoreline and/or ocean conditions may have caused the summer dry weather exceedance.

In order to place these exceedances in perspective, it is useful to compare the frequency of exceedances at SMB 5-1 at 40th Street in Manhattan Beach with the frequency of exceedances at the reference beach at Leo Carillo beach (SMB 1-1) which is an almost entirely undeveloped watershed with 98% of the land use as undeveloped open space. Since the two shoreline monitoring locations are sampled at different frequencies, a relevant comparison of the data requires a normalization to express the data as a percentage of exceedance days out of total number of days sampled. Accordingly, Table 1 summarizes data for seven summers at SMB 5-1 and the reference site at Leo Carillo beach. The table lists the absolute number of days on which a shoreline water quality sample exceeded one or more of the three REC-1 indicator bacteria single-sample targets (single-sample exceedance days). The table also compares exceedance rates for SMB 5-1 with the reference site at Leo Carillo beach. The exceedance rates in Table 1 are calculated by dividing the number of single-sample exceedance days by the number of estimated sampling days in the summer season. There are 214 days during the summer dry weather period April 1st through October 31st which equates to 61 sampling days for a site like SMB 5-1 which is

monitored twice per week [214 /7 x 2=61] and 31 sampling days for a site like the reference beach which is monitored just once per week [214/7=31].

TABLE 1 SANTA MONICA BAY BEACHES BACTERIA (SMBBB) TMDL EXCEEDANCE RATES SMB 5-1 COMPARED WITH REFERENCE BEACH SITE					
SUMMER DRY WEATHER – April 1-Oct 31					
		SMB 5-1		SMB 1-1 Reference Beach	
Summer		Single-Sample Exceedance Days	Exceedance Rate based on 61 estimated sampling days per summer (two days/wk)	Single-Sample Exceedance Days	Exceedance Rate based on 31 sampling days per summer (one day/wk)
2005		3	4.9%	7	23%
2006		0	0%	11	35%
2007		1	1.6%	0	0%
2008		1	1.6%	2	6.4%
2009		0	0%	0	0%
2010		1	1.6%	0	0%
2011		1	1.6%	5	16%
AVG			1.6%		11.5%

Based on the exceedance rates calculated as described in the foregoing, Table 1 illustrates that the water quality at SMB 5-1 is on average better by more than a factor of seven than the water quality at the reference site at Leo Carrillo Beach during summer dry weather, i.e., over the seven summers of data collected since 2005, the exceedance rate at SMB 5-1 has averaged 1.6% whereas the exceedance rate at the reference beach SMB 1-1 has averaged 11.5%.

A similar comparison of winter dry weather exceedance rates is provided in Table 2. The exceedance rates in Table 2 are calculated by dividing the number of single-sample exceedance days by the number of sampling days in the winter season. There are 151 days during the winter dry weather period November 1st through March 30st (152 days during a leap year) which equates to 43 sampling days for a site like SMB 5-1 which is monitored twice per week [151 /7 x 2] and 22 sampling days for a site like the reference beach which is monitored just once per week [151/7].

TABLE 2 SANTA MONICA BAY BEACHES BACTERIA (SMBBB) TMDL EXCEEDANCE RATES SMB 5-1 MONITORING SITE COMPARED WITH REFERENCE BEACH SITE					
WINTER DRY WEATHER – November 1- April 30					
		SMB 5-1 50 yards south		SMB 1-1 Reference Beach	
Winter		**Single-Sample Exceedance Days**	**Exceedance Rate based on 43 estimated sampling days per winter (five days/wk)**	**Single-Sample Exceedance Days**	**Exceedance Rate based on 22 sampling days per winter (one day/wk)**
2005-06		0	0%	1	4.5%
2006-07		0	0%	1	4.5%
2007-08		0	0%	2	9.1%
2008-09		1	2.3%	0	0%
2009-10		0	0%	0	0%
2010-11		0	0%	1	4.5%
2011-12		1	2.3%	3	14%
AVG			0.7%		5.2%

Based on the comparative exceedance rates calculated as described in the foregoing, over the past seven winters the water quality at SMB 5-1 has remained far better than the reference beach during winter dry weather and has shown no evidence of degradation. Since there is no flow from storm drains that reaches the surf during dry weather hese infrequent exceedances of the bacterial objectives at SMB 5-1 are attributed to natural background causes such as presence of ocean debris, birds, dead birds or marine mammals, heavy surf, increased wave height and wind speed.[1]

Santa Monica Bay Shoreline Monitoring Site SMB 5-3: Manhattan Beach Pier

The shoreline monitoring location near Manhattan Beach Pier, SMB 5-3, is a historical monitoring site that was originally monitored at a location 50 yards south of the pier. There are two storm drain outfalls under the pier at this location, both storm drains are less than 36 inches in diameter and have relatively small drainage areas. The southern storm drain has the larger drainage area of 70 acres and was selected for zero point monitoring under the SMBBB TMDL Coordinated Shoreline Monitoring Plan; so SMB 5-

[1] February 2008 Los Angeles County Department of Public Works. Santa Monica Bay Beaches Bacterial Indicator TMDL Compliance Study-Final Report, prepared by Weston Solutions.

3 was relocated to be in line with the zero point of this storm drain outfall. This southern storm drain is equipped with a low flow diversion to the sanitary sewer, and since both storm drain outfalls are located more than 200 feet from the shoreline against the strand wall, typical dry weather flow from these storm drains does not reach the shoreline.

Although the responsible agencies under the SMBBB TMDL chose to implement once per week monitoring under the Coordinated Shoreline Monitoring Plan, this shoreline monitoring site, has actually been monitored twice per week since July 2005. Michelson Laboratory under contract to Jurisdictional Groups 5 & 6 samples the site on Mondays in accordance with the SMBBB TMDL Coordinated Shoreline Monitoring Plan, and City of Los Angeles Environmental Monitoring Division (EMD) samples the site on Tuesdays in accordance with the Monitoring and Reporting Program CI 6948 under the MS4 Permit.

During the reporting year there were five exceedances of the single-sample REC-1 bacterial objectives at SMB 5-3 out of approximately 104 sampling days for this site which is monitored twice per week, 52 weeks per year. This amounts to an exceedance rate of 4.8% based on year-round wet and dry weather sampling combined. By contrast the reference beach had 8 exceedance days out of 52 sampling days for combined year-round wet and dry weather sampling which is a 15% exceedance rate. Thus overall the shoreline monitoring site at SMB 5-1 exhibited an exceedance rate that was one third that of the reference beach site on a year-round basis. A discussion of the five single-sample exceedance events follows:

> On October 25th, 2011 enterococcus was detected at 830 MPN/100 mL and the fecal/total coliform ratio was 0.19 with total coliform above 1,000.. The zero point storm drain was observed to be dry with no flow at the time of sampling. As discussed previously, all nine of the shoreline monitoring stations sampled by City of LA Environmental Monitoring Division (EMD) from Dockweiler beach southward also exceeded the REC-1 objectives on October 25th, and since the field blanks provided by City of LA EMD indicated no evidence of contamination, it appears that natural shoreline and/or ocean conditions across the South Santa Monica Bay may have been the cause of the exceedance.
>
> On November 8, 2011 enterococcus was detected at 110 MPN/100 mL, just barely above the single-sample objective of 104 MPN/100 mL. No other bacterial indicators exceeded the targets and the zero point storm drain was dry with no flow. There had been a significant rainfall event two days before with 0.42 inches of rainfall recorded at the LAX rain gauge and 0.34 inches at Redondo Beach on November 6th, 2011 so this is considered to be a wet weather exceedance.
>
> On January 23rd, 2012 there was a significant rain event with 0.56 inches of rainfall recorded at the LAX rain gauge and 0.35 inches at Redondo Beach. All three indicator bacteria densities were detected above the single-sample objectives at SMB 5-3 on that day, though the ratio of fecal to total coliform did not exceed 0.1.

On March 6, 2012 enterococcus was detected at a density of 120 MPN/100 mL in the sample collected at SMB 5-3. No other bacterial indicators exceeded the objectives. The zero point storm drain was observed to be dry with no flow at the time of sampling.

On June 12, 2012 enterococcus was detected at a density of 120 MPN/100 mL neither E.Coli nor Total coliform was detected in the sample. The zero point storm drain was observed to be dry with no flow at the time of sampling.

Table 3 compares the frequency of exceedances at SMB 5-3 at Manhattan Beach Pier with the frequency of exceedances at the reference beach at Leo Carillo beach (SMB 1-1) an almost entirely undeveloped watershed with 98% of the land use as undeveloped open space. Since the two shoreline monitoring locations are sampled at different frequencies, a relevant comparison of the data requires a normalization to express the data as a percentage of exceedance days out of total number of days sampled. The table lists the absolute number of days on which a shoreline water quality sample exceeded one or more of the three indicator bacteria single-sample targets (single-sample exceedance days). The exceedance rates in Table 3 are calculated by dividing the number of single-sample exceedance days by the number of sampling days in the summer season.

Based on the exceedance rates as calculated, Table 3 illustrates that the water quality at SMB 5-3 is an order-of-magnitude better than the water quality at the reference site at Leo Carrillo Beach during summer dry weather, i.e., over the seven summers of data collected since 2005, the exceedance rate at SMB 5-3 has averaged 1.4% whereas the exceedance rate at the reference beach SMB 1-1 has averaged 11.5%. The data in Table 3 clearly show that the shoreline monitoring location at SMB 5-3 has maintained its historically high water quality and there has been no degradation over the past seven years during summer dry weather periods and that the site continues to exhibit fewer exceedances than the reference beach.

TABLE 3 SANTA MONICA BAY BEACHES BACTERIA (SMBBB) TMDL EXCEEDANCE RATES SMB 5-3 MANHATTAN BEACH PIER MONITORING SITE COMPARED WITH REFERENCE BEACH SITE					
SUMMER DRY WEATHER – April 1-Oct 31[2]					
		SMB 5-3 Manhattan Pier		SMB 1-1 Reference Beach	
Summer		Single-Sample Exceedance Days	Exceedance Rate based on 61 estimated sampling days per summer (two days/wk)	Single-Sample Exceedance Days	Exceedance Rate based on 31 sampling days per summer (one day/wk)
2005		0	0%	7	23%
2006		1	1.6%	11	35%
2007		2	3.3%	0	0%
2008		1	1.6%	2	6.4%
2009		1	1.6%	0	0%
2010		0	0%	0	0%
2011		1	1.6%	5	16%
AVG			1.4%		11.5%

The findings are similar for winter dry weather at SMB 5-3. Table 4 summarizes the winter dry weather data for the past seven years at SMB 5-3 at Manhattan Beach Pier and compares it with data for the reference site at Leo Carillo beach. Again the exceedance rates in Table 4 are calculated by dividing the number of single-sample exceedance days by the number of sampling days in the winter season. Based on the exceedance rates calculated as described in the foregoing, over the past seven winters the water quality at SMB 5-3 has remained significantly better than the reference beach during winter dry weather and has shown no evidence of degradation. These infrequent exceedances of the bacterial objectives at SMB 5-3, reflect the fact that there is no dry weather discharge from storm drains to receiving waters in the vicinity of this monitoring site so the exceedances are attributed to natural background causes such as presence of ocean debris, birds, dead birds or marine mammals, heavy surf, increased wave height and wind speed.[3]

[2] Summer 2011 data shown through June 2011

[3] February 2008 Los Angeles County Department of Public Works. Santa Monica Bay Beaches Bacterial Indicator TMDL Compliance Study-Final Report, prepared by Weston Solutions.

TABLE 4 SANTA MONICA BAY BEACHES BACTERIA (SMBBB) TMDL EXCEEDANCE RATES SMB 5-3 MANHATTAN BEACH PIER MONITORING SITE COMPARED WITH REFERENCE BEACH SITE						
WINTER DRY WEATHER – November 1- April 30						
		SMB 5-3 Manhattan Pier			SMB 1-1 Reference Beach	
Winter		Single-Sample Exceedance Days	Exceedance Rate based on 43 estimated sampling days per winter (five days/wk)		Single-Sample Exceedance Days	Exceedance Rate based on 22 sampling days per winter (one day/wk)
2005-06		0	0%		1	4.5%
2006-07		0	0%		1	4.5%
2007-08		0	0%		2	9.1%
2008-09		1	2.3%		0	0%
2009-10		0	0%		0	0%
2010-11		0	0%		1	4.5%
2011-12		1	2.3%		3	14%
AVG			0.7%			5.2%

Santa Monica Bay Shoreline Monitoring Site SMB 5-2: 28th Street Extended

The SMB 5-2 shoreline monitoring site located at the zero point of the 28th Street storm drain outfall in Manhattan Beach is being sampled five days per week. This shoreline monitoring location was not an historical monitoring location at the time the Santa Monica Bay Beaches Bacteria (SMBBB) TMDL was issued in 2002. The Los Angeles County Department of Health Services had just added the area near the terminus of 28th Street in Manhattan Beach to its beach monitoring program at about the time the TMDL was issued. Two years later in November of 2004, the Responsible Agencies under the SMBBB TMDL relocated the sampling point to the zero point of the 28th Street storm drain outfall to comply with the monitoring requirements of the TMDL. Sampling and analysis at SMB 5-2 is conducted by Los Angeles County Department of Health Services (DHS) routinely once per week on Mondays under the SMBBB TMDL Coordinated Shoreline Monitoring Plan. Additionally, under the Monitoring and Reporting Program (CI 6948) of the MS4 Permit, additional routine monitoring occurs on four other days of the week (Tues-Fri) at site SMB 5-2 by the City of Los Angeles Environmental Monitoring Division. In contrast, the reference beach monitoring site is sampled just once per week under the Coordinated Shoreline Monitoring Plan.

The 28th Street storm drain is owned by the Los Angeles County Flood Control District (LACFCD) and has a drainage area of 1,473 acres. A large stormwater detention basin operated by LACFCD located in Manhattan Beach's Polliwog Park serves

approximately 1/3 of the drainage area of the 28th Street storm drain system. This basin detains runoff during storm events. Once the storm is over and capacity is restored in the 28th Street storm drain, large flood pumps at Polliwog Park are activated to lower the level in the detention basin and restore capacity in the basin for the next storm. This may have the effect of extending the runoff period following a major storm event, depending on the intensity and duration of the storm.

Two low flow diversions (LFDs) are operational on the 28th Street storm drain system to divert dry weather runoff from the 28th Street storm drain system to the sanitary sewer for treatment. One low flow diversion is located at the outfall of the 28th Street storm drain. The diversion operates year-round during dry weather and a rain switch connected to the pump controls disables the diversion once 1/10th of an inch of rain has accumulated so that only minor wet weather flows are diverted to the sanitary sewer. Los Angeles County Department of Public Works also constructed a second diversion upstream within the 28th Street storm drain system at the pump station for the stormwater detention pond in Polliwog Park which drains approximately 1/3 of the land area tributary to the 28th Street storm drain outlet.

During the FY2011-12 reporting year there were thirty-five reported exceedances of the single-sample REC-1 bacterial objectives at SMB 5-2 out of 260 sampling days for this site which is monitored five days per week, 52 weeks per year. This amounts to an exceedance rate of 13.5% based on year-round wet and dry weather sampling combined. By contrast the reference beach had 8 reported exceedance days out of 52 sampling days for combined year-round wet and dry weather sampling which is a 15% exceedance rate. Thus overall the shoreline monitoring site at SMB 5-2 exhibited an exceedance rate that was comparable to that of the reference beach site; however the much greater quantity of data collected at SMB 5-2 gives the impression that SMB 5-2 has a higher exceedance rate. A summary of the shoreline monitoring data at SMB 5-2 follows:

> No exceedances of the REC-1 bacterial single-sample objectives occurred in samples collected at SMB 5-2 during the months of July, August and September 2011.
>
> On October 4, 2011 all three bacterial indicators exceeded the single sample objectives. The rain gauge at LAX recorded a trace of rainfall on that day while the Redondo Beach rain gauge recorded 0.05 inches of rainfall. LACFCD verified that both low flow diversions (LFDs) within the 28th Street storm drain system were operational (the rain switches on the LFDs are not designed to trip until 1/10th of an inch is recorded). Low flow was observed from the storm drain, however this storm drain outfalls very close to the shore and is inundated during high tide, so it is not possible to determine by observation whether such a low flow is the result of a release of trapped seawater discharging as the tide recedes or actual storm drain flow. The sampling crew also noted that there was a heavy amount of ocean debris on the beach with moderate quantities of seaweed at the time of sampling.

On October 5th, 2011 the LAX rain gauge recorded 0.61 inches of rainfall and the Redondo Beach rain gauge recorded 0.25 inches. The following day on October 6, 2011 all three bacterial indicators as well as the fecal/total coliform ratio exceeded the REC-1 objectives. However by the next day, October 7th, all bacterial indicators were below the REC-1 objectives.

On October 14, 24, and 25th, 2011 exceedances of the REC-1 objectives occurred, however in all instances the low flow diversions were operational and no flow from the storm drain was observed. As discussed previously, all nine of the shoreline monitoring stations sampled by City of LA Environmental Monitoring Division (EMD) from Dockweiler beach southward also exceeded the REC-1 objectives on October 25th. It is also noteworthy that on October 24th seventeen out of 41 samples (41%) collected by DHS, including the reference site, exceeded the REC-1 objective for enterococcus; this suggests that there may have been natural shoreline and/or ocean conditions across the South Santa Monica Bay which may have been the cause of the exceedances.

On November 11, 2011 the enterococcus density was 150 MPN/100 mL, just above the REC-1 target of 104. No other bacterial indicators were exceeded. Both LFDs were operational and no flow from the outfall was observed at the time of sampling.

On November 14 and 15, 2011, E. coli and enterococcus objectives were exceeded and the fecal/total coliform ratio exceeded 0.1 with total coliform density was above 1000 MPN/100 mL. These were both considered to be wet weather days due to a rainfall event that occurred on November 12th when the rain gauge at LAX recorded 0.15 inches and the rain gauge at Redondo Beach recorded 0.27 inches.

On November 16, 2011, three of the four REC-1 single sample objectives were exceeded. However, both low flow diversions were operational and the storm drain outfall was buried in sand with no evidence of flow.

A major storm event occurred on Sunday, November 20, 2011 wherein the LAX rain gauge recorded 0.9 inches of rain and the Redondo Beach rain gauge recorded 1.03 inches of rain. On the following five days, November 21-25, 2011, the enterococcus results exceeded REC-1 objectives on each day, while the E. Coli results were exceeded on three out of five days. LACFCD advised that the LFDs were operational from November 23rd thru 25th, that is, beginning on the third day after the storm. It is also noteworthy that on November 24th and 25th which were considered dry weather days because they were more than 3 days after the qualifying rain event, the storm drain outfall at 28th street was buried in sand with no flow observed to the outfall.

On December 12th another significant rain event occurred wherein 0.65 inches of rain was recorded at LAX rain gauge and 0.75 inches at Redondo Beach. All

three bacterial indicators exceeded the single sample objectives on December 12th, however by December 13th only enterococcus remained elevated and there were no exceedances on the 14th.

An exceedance of the enterococcus single sample objective occurred on December 23rd. This was a dry weather day, no rainfall had occurred for a week, both low flow diversions were operational and the storm drain outfall was buried in sand with no evidence of flow.

Two major rainfall events occurred nearly back-to-back when on January 21st, 2012 there was 0.62 inches of rain recorded at LAX and 0.61 inches at Redondo Beach, and on January 23rd there was 0.56 inches at LAX and 0.35 inches at Redondo Beach. Samples collected at SMB 5-2 from January 21st through January 26th exhibited exceedances of the REC-1 bacterial single-sample objectives (these were all considered to be wet weather days associated with the twin storms).

On February 3, 2012, all three bacterial single-sample objectives were exceeded in a sample collected at SMB 5-2. This was a dry weather day when both low flow diversions were operational and the storm drain outfall was buried in sand with no observed flow.

On February 7, 2012 a rainfall event occurred wherein 0.03 inches of rain was recorded at LAX and three times that amount, 0.09 inches was recorded at the Redondo Beach rain gauge (almost a qualifying event). All three bacterial indicators were above the single-sample REC-1 objective in the sample collected at SMB 5-2. Both low flow diversions were operational, and though water was ponded at the outfall, no flow was observed reaching the wave wash. It is notable that although not technically a qualifying rainfall event, seven out of eleven shoreline monitoring samples collected from Dockweiler Beach southward exceeded one or more REC-1 objectives on that day. The sampling crew also noted more than 100 birds on the beach in the area at the time of sampling.

Between February 16th and April 26 there were a total of nine samples collected from SMB 5-2 which exceeded one or more REC-1 single sample objectives. These all occurred on official wet weather days resulting from rainfall events that occurred in February, March and April 2012. The LAX rain gauge recorded a total rainfall accumulation of 1.78 inches of rain during March 2012, and 1.51 inches during April 2012. The Redondo Beach rain gauge recorded accumulated rainfall of 2.28 inches during March 2012 and 1.37 inches of rain during April 2012.

On May 1, 2012 there was a scant 0.01 inches of rain recorded at LAX rain gauge while a qualifying rainfall of 0.1 inches was recorded at Redondo Beach. The shoreline monitoring sample collected at SMB 5-2 exceeded all three single-sample bacterial objectives that day. Although both low flow diversions were operational, heavy flow was observed at the storm drain outfall at the time of

sampling. The sampling crew also noted heavy ocean debris and seaweed on the beach at the time of sampling.

No exceedances of the REC-1 bacterial single-sample objectives occurred during the remainder of May or during June of 2012.

Table 5 summarizes comparative data for seven summers under the Coordinated Shoreline Monitoring Plan at SMB 5-2 and the reference site at Leo Carillo beach. The table lists the absolute number of days on which a shoreline water quality sample exceeded one or more of the three indicator bacteria single-sample targets (single-sample exceedance days). The exceedance rates in Table 5 are calculated by dividing the number of single-sample exceedance days by the number of sampling days in the summer season. There are 214 days during the summer dry weather period April 1st through October 31st which equates to 153 sampling days for a site like SMB 5-2 which is monitored Monday through Friday [214 /7 x 5=153] and 31 sampling days for a site like the reference beach which is monitored just once per week [214/7=31]. Dividing the number of exceedance days by the number of sampling days at each respective site yields a normalized exceedance rate.

Based on the exceedance rates calculated as described in the foregoing, the water quality at SMB 5-2 is on average better than the water quality at the reference site at Leo Carrillo Beach during summer dry weather, i.e., over the seven summers of data collected since 2005, the exceedance rate at SMB 5-2 has averaged 2.2% since the low flow diversions was brought online, or 5% if the two years prior are also included, whereas the exceedance rate at the reference beach SMB 1-1 has averaged 11.5%. Thus the low flow diversions appear to be effective in reducing exceedances associated summer dry weather low flows from the MS4.

TABLE 5 SANTA MONICA BAY BEACHES BACTERIA (SMBBB) TMDL EXCEEDANCE RATES SMB 5-2 SAMPLING STATION COMPARED WITH REFERENCE SITE						
SUMMER DRY WEATHER – April 1-Oct 31						
Summer		**Single-Sample Exceedance Days at SMB 5-2**	**Exceedance Rate based on 153 estimated sampling days per summer season (five days/wk)**		**Single-Sample Exceedance Days at Reference Beach**	**Exceedance Rate based on 31 sampling days per summer season (one day/wk)**
2005		12	7.8%		7	23%
2006		24	16%		11	35%
2007[4]		6	3.9%		0	0%
2008		1	0.65%		2	6.4%
2009		1	0.65%		0	0%
2010		5	3.3%		0	0%
2011		4	2.6%		5	16%
AVG			5.0% overall or 2.2% since LFD installation			11.5%

The SMB 5-2 shoreline monitoring site is also being sampled five days per week during the winter as well as during the summer periods. Table 6 summarizes dry weather sampling data for seven winters under the Coordinated Shoreline Monitoring Plan at SMB 5-2 in comparison with the reference site at Leo Carillo beach. The table lists the absolute number of days on which a shoreline water quality sample exceeded one or more of the three indicator bacteria single-sample targets (single-sample exceedance days). The table also compares exceedance rates for SMB 5-2 with the reference site at Leo Carillo beach. The exceedance rates in Table 2 are calculated by dividing the number of single-sample exceedance days by the number of sampling days in the winter season. There are 151 days during the winter dry weather period April 1st through October 31st (152 days during a leap year) which equates to 108 sampling days for a site like SMB 5-2 which is monitored Monday through Friday [151 /7 x 5] and 22 sampling days for a site like the reference beach which is monitored just once per week [151/7]. Dividing the number of exceedance days by the number of sampling days at each respective site yields a normalized exceedance rate.

[4] The low flow diversion at the outfall of the 28th Street storm drain was started up April 2007 as marked by the dotted line in the table above

TABLE 6					
SANTA MONICA BAY BEACHES BACTERIA (SMBBB) TMDL EXCEEDANCE RATES SMB 5-2 SAMPLING STATION COMPARED WITH REFERENCE BEACH					
WINTER DRY WEATHER – November 1- April 30					
		SMB 5-2 at 28th Street		**SMB 1-1 Reference Beach**	
Winter		**Single-Sample Exceedance Days**	**Exceedance Rate based on 108 estimated sampling days per winter (five days/wk)**	**Single-Sample Exceedance Days**	**Exceedance Rate based on 22 sampling days per winter (one day/wk)**
2005-06		18	17%	1	4.5%
2006-07		22	20%	1	4.5%
2007-08[5]		10	9.3%	2	9.1%
2008-09		4	3.7%	0	0%
2009-10		0	0%	0	0%
2010-11		8	7.4%	1	4.5%
2011-12		8	7.4%	3	14%
AVG			9.3% overall or 5.6% since LFDs installed		5.2%

Based on the calculated exceedance rates, it is apparent that the winter dry weather water quality at SMB 5-2 has improved significantly since the operation of the low flow diversions began and is comparable to exceedance rates at the reference beach.

Santa Monica Bay Shoreline Monitoring Site SMB 6-1: Herondo

The SMB 6-1 shoreline monitoring site located at the zero point of the Herondo storm drain outfall is being sampled five days per week. Sampling and analysis at SMB 6-1 is conducted by Los Angeles County Department of Health Services (DHS) on Mondays under the SMBBB TMDL Coordinated Shoreline Monitoring Plan. Additionally, under the Monitoring and Reporting Program (CI 6948) of the MS4 Permit, additional routine monitoring on four other days of the week (Tues-Fri) has been conducted at monitoring site SMB 6-1 by the City of Los Angeles Environmental Monitoring Division. In contrast, the reference beach monitoring site is sampled just once per week under the Coordinated Shoreline Monitoring Plan.

The Herondo storm drain collects runoff from a large area of land including area in the Cities of Torrance, Redondo Beach, Hermosa Beach and Manhattan Beach. Land areas within the City of Manhattan Beach tributary to the Herondo storm drain comprise a *de*

[5] The low flow diversion at the outfall of the 28th Street storm drain was started up April 2007

minimis 53.2 acres or just 2% of the total Herondo drainage area; most of the tributary area of the Herondo storm drain is within the cities of Redondo Beach and Torrance. The total drainage area to the Herondo storm drain varies from (3,042 to 2,644 acres) depending on how the discharge from the Amie Sump, a flood control basin in the City of Torrance, is being operated.

The Herondo storm drain was retrofit in 2005 with a low flow diversion to the sanitary sewer. Beginning in November 2009, operation of the Herondo low flow diversion was modified to allow operation 12 months per year and 24-hours per day during dry weather instead of just during the off-peak hours from 6pm-6am during the summer dry period. The maximum permitted pumping rate of the Herondo low flow diversion is 60 gallons per minute during peak use and 120 gallons per minute off-peak. Because the Herondo storm drain is tidally influenced, in order to prevent the diversion of sea water to the sanitary sewer during high tide, the low flow diversion is located approximately ¼ mile from the outfall. Tributary areas of the City of Manhattan Beach to SMB 6-1 are upstream of the diversion.

There are two means of discharge from the Amie Sump flood control basin in the City of Torrance: during the summer months the discharge is pumped to a storm drain leading to the Dominguez Channel, however during the winter months when the force main storm drain line to the Dominguez Channel is hydraulically limited under wet weather conditions, discharge from the Amie Sump is pumped to the Herondo storm drain via a force main with a larger capacity. The City of Torrance staff has stated that it is their policy to pump dry weather summer season flows from the Amie Basin to the Dominguez Channel and wet weather winter season flows to the Herondo storm drain by switching force mains. The Amie Pump Station has two pumps, one 100HP and the other 150HP. The 100HP pump has a capacity of 1370 GPM at 82.5 Ft. TDH. The 150HP pump has a capacity of 2245 GPM at 106 Ft. TDH. Since the maximum permitted pumping rate of the Herondo low flow diversion is 60 gallons per minute during peak use and 120 gallons per minute off-peak, post-storm flows can exceed the diversion capacity. According to City of Torrance staff, pumping from the Aime Basin typically occurs for three (3) to five (5) days after a rainfall event depending on the size of the storm and which of the pumps is online. This could result in discharge from the Herondo outfall that would appear to be dry weather non-stormwater discharges but in reality is from stormwater runoff originating in the City of Torrance. Several documented instances of this are discussed below.

During the FY2011-12 reporting year there were 38 exceedance days of the single sample REC-1 bacterial objectives at SMB 6-1 out of results from 260 sampling days on a year-round wet and dry weather basis for this site which is monitored five days per week, 52 weeks per year. This is an effective exceedance rate of 15%. By contrast the reference beach had 8 exceedance days out of 52 sampling days for combined year-round wet and dry weather sampling which is also a 15% exceedance rate. Thus overall the shoreline monitoring site at SMB 6-1 exhibited an exceedance rate that was equivalent to that of the reference beach site even though the much greater quantity of

data collected at SMB 6-1 gives the impression that SMB 6-1 has a higher exceedance rate.

Because of the daily frequency of sampling at the SMB 6-1 location and the large quantity of data collected, comparison of data between the reference beach SMB 1-1 (which is only monitored once per week) and SMB 6-1 at Herondo necessitates a normalization of exceedance days expressed as a percentage of exceedance days out of total number of days sampled in order to make a relevant and informed comparison of the water quality at the two sites. Table 7 summarizes comparative data for seven summers at SMB 6-1 and the reference site at Leo Carillo beach. The table lists the absolute number of days on which a shoreline water quality sample exceeded one or more of the three indicator bacteria single-sample targets (single-sample exceedance days). The table also compares exceedance rates for SMB 6-1 with the reference site at Leo Carillo beach. The exceedance rates in Table 4 are calculated by dividing the number of single-sample exceedance days by the number of sampling days in the summer season. There are 214 days during the summer dry weather period April 1st through October 31st which equates to 153 sampling days for a site like SMB 6-1 which is monitored Monday through Friday [214 /7 x 5=153] and 31 sampling days for a site like the reference beach which is monitored just once per week [214/7=31]. Dividing the number of exceedance days by the number of sampling days at each respective site yields a normalized exceedance rate.

Based on the exceedance rates calculated as described in the foregoing, the water quality at SMB 6-1 is on average better by a factor of seven (7) than the water quality at the reference site at Leo Carrillo Beach during summer dry weather, i.e., over the seven summers of data collected since 2005, the exceedance rate at SMB 6-1 Herondo has averaged 1.7% whereas the exceedance rate at the reference beach SMB 1-1 has averaged 11.5%. Thus, the normalized data substantiate that the shoreline monitoring site SMB 6-1 has exhibited a frequency of exceedances that is on average lower by a factor of ten than the reference beach so that the low flow diversion appears to be effective in mitigating the summer dry weather low flows from the Herondo outfall.

TABLE 7					
SANTA MONICA BAY BEACHES BACTERIA (SMBBB) TMDL EXCEEDANCE RATES SMB 6-1 SAMPLING STATION COMPARED WITH REFERENCE BEACH					
SUMMER DRY WEATHER – April 1-Oct 31					
		SMB 6-1 at Herondo		SMB 1-1 Reference Beach	
Summer		Single-Sample Exceedance Days	Exceedance Rate based on 153 estimated sampling days per summer (five days/wk)	Single-Sample Exceedance Days	Exceedance Rate based on 31 sampling days per summer season (one day/wk)
2005		4	2.6%	7	23%
2006		6	3.9%	11	35%
2007		1	0.6%	0	0%
2008		2	1.3%	2	6.4%
2009		1	0.6%	0	0%
2010		1	0.6%	0	0%
2011		4	2.6%	5	16%
AVG			1.7%		11.5%

The SMB 6-1 shoreline monitoring site located at the zero point of the Herondo outfall is being sampled five days per week during the winter as well as the summer periods. Again, comparison of data between the reference beach SMB 1-1 and SMB 6-1 at Herondo necessitates a normalization of exceedance days expressed as a percentage of exceedance days out of total number of days sampled in order to make a relevant and informed comparison of the water quality at the two sites. Table 8 summarizes data for seven winters under the Coordinated Shoreline Monitoring Plan at SMB 6-1 in comparison with the reference site at Leo Carillo beach. There are 151 days during the winter dry weather period April 1st through October 31st (152 days during a leap year) which equates to 108 sampling days for a site like SMB 6-1 which is monitored Monday through Friday [151 /7 x 5] and 22 sampling days for a site like the reference beach which is monitored just once per week [151/7]. Dividing the number of exceedance days by the number of sampling days at each respective site yields a normalized exceedance rate.

Based on the exceedance rates calculated as described in the foregoing, Table 8 demonstrates that the water quality at SMB 6-1 is exhibiting a winter dry weather exceedance rate that appears to be somewhat higher than the reference beach.

However, as described in several instances above, it appears that the operation of the Aime flood control sump may be extending the wet weather runoff period following storms creating what appear to be non-stormwater discharges when they are actually stormwater discharges associated with post-rainfall flood pumping. In other words, it is possible that the extended discharge of storm water from Aime (often days after a storm event) perpetuate wet weather conditions on “dry” days by continuing to discharge stormwater from the Aime detention basin at rates that exceed the capture capacity of the low-flow diversion.

TABLE 8					
SANTA MONICA BAY BEACHES BACTERIA (SMBBB) TMDL EXCEEDANCE RATES SMB 6-1 SAMPLING STATION COMPARED WITH REFERENCE BEACH					
WINTER DRY WEATHER – November 1- April 30					
		SMB 6-1 at Herondo		SMB 1-1 Reference Beach	
Winter		Single-Sample Exceedance Days	Exceedance Rate based on 108 sampling days per winter (five days/wk)	Single-Sample Exceedance Days	Exceedance Rate based on 22 sampling days per winter (one day/wk)
2005-06		13	12%	1	4.5%
2006-07		4	3.7%	1	4.5%
2007-08		10	9.3%	2	9.1%
2008-09		7	6.5%	0	0%
2009-10[6]		5	4.6%	0	0%
2010-11		12	11%	1	4.5%
2011-12		12	11%	3	14%
AVG			8.3%		5.2%

[6] Low Flow Diversion on Herondo storm drain began operation year-round during dry weather

VI. Interagency coordination between cities to improve the storm water management program;

The City expended $176,913 of its limited funds to jointly fund implementation activities under the Jurisdictional Groups 5 and 6 (J5&6) Implementation Plan which in combination with contributions from other J5&6 agencies totaled $591,028 in Phase I and Phase II implementation activities. While the implementation plan focuses ostensibly on winter dry weather and wet weather compliance measures, benefits are also realized for summer dry weather. The J5&6 Implementation Plan is a three-pronged approach incorporating programmatic/institutional elements, source identification and control, and structural BMP siting.

Jurisdictional Groups 5 & 6 also conduct joint monitoring under the Coordinated Shoreline Monitoring Plan through a memorandum of agreement.

The City's representative participates in the monthly Executive Advisory Committee of the Los Angeles County Municipal Stormwater Permittees, the quarterly Ballona Creek WMC meetings, the quarterly Countywide public education coordination meetings, and the monthly Jurisdictional Group 5 & 6 coordination meetings.

The City of Manhattan Beach is also an active participant in the South Bay Cities Council of Governments and its committees, working groups, task forces and other special meetings. The City participates in the Green Task Force of the South Bay COG which is an advisory group that serves as a clearinghouse for policies, programs and projects on energy efficiency, air quality, resource conservation and climate action.

VII. Future plans to improve your agency's storm water management program; and

The City will continue to work actively with the Jurisdictional Group 5 & 6 agencies to implement programmatic and source control solutions in a consistent manner throughout the south Santa Monica Bay area and to seek funding for the structural BMPs sited in the high priority watersheds.

The City is anticipates that the construction of the Greenbelt Infiltration Trench will further protect shoreline water quality and provide beneficial recharge of groundwater, but it will also provide City staff valuable insight and experience which can be leveraged in future projects.

VIII. Suggestions to improve the effectiveness of your program or the County model programs.

The greatest constraint on improving the effectiveness of stormwater programs is a lack of sufficient funding for both capital improvements and operation and maintenance of structural solutions. While the City appreciates and has availed itself of grant funding

opportunities for making capital improvements for stormwater quality, such funding is very limited and does not begin to provide the level of capital needed nor long-term operation and maintenance costs required to achieve the RWQCB's ambitious TMDLs for wet weather. A long-term, reliable source of funding for stormwater quality is essential in order for municipalities to meet the Regional Board's Basin Plan objectives. Additionally, the City will continue to seek out new grants and alternative funding sources to help with the costs of capital improvements and operation and maintenance costs for its stormwater management program.