Attachment # 1
City of Signal Hill Comment Letter
LA River Bacteria TMDL

"The limits of storm-water treatment," Long Beach Press Telegram, April 27, 2003

SUNDAY FORUM

The limits of storm-water treatment

By James E. Moore II, Peter Gordon, Harry Richardson, John Kuprenas, and Jiin-Jen Lee

The April 7 neutering of Assembly Bill 1517 increases the likehood that large fiscal burdens will be imposed on California's cities and counties for storm-water treatment programs. Introduced in February by Assemblyman George Plescia, R-San Diego, the original version of AB 1517 unambiguously barred the State Water Resources Control Board and regional boards from ever prohibiting the discharge of municipal stormwater into California water bodies.

The bill was vehemently opposed by the environmentalists controlling the State and regional boards. The amended version of the bill is watered down to the point of merely stating the state Legislature's intent to "foster science-based, environmentally beneficial, results-oriented, and cost-effective water quality programs.

In 2001, the San Diego regional water quality board mandated what are perhaps the nation's furthest-reaching controls on urban run-off, which includes storm water. Unfortunately, the Los Angeles regional board views San Diego's measures as a good model.

Every five years, the Los Angeles board issues a permit on behalf of the federal government defining waste discharge requirements for the Los Angeles county and cities.

Our University of Southern California research team recently concluded that advanced treatment of storm water is the most likely outcome of current federal and state water-quality regulations. This would be massively expensive, and local regulators know it. They contend that they have never intended to require advanced treatment of storm water, and that cities can meet water quality standards by taking inexpensive steps, such as additional street sweeping. We conclude the opposite.

The federal Clean Water Act requires local authorities to list the water bodies that do not yet meet applicable water quality standards. The draft 2002 list includes almost all of the major bodies of water in Los Angeles County. Placing a water body on this list triggers a planning process to establish the Total Daily Maximum Load of pollutants that the water body can receive. The new allowable load for trash in Los Angeles stormwater is zero.

Neither the County nor the City of Los Angeles has the means to accommodate this requirement, and this is just the tip of the regulatory iceberg. The U.S. Environmental Protection Agency entered a consent decree with several litigants requiring that the Los Angeles Regional Water Quality Board adopt many more such limits by 2012. The board's permit process will be used to implement load allocations for municipal storm water discharges.

Bacteria is listed as major problem by the Los Angeles Regional Water Board. Bacteria would most likely have to be controlled by use of chlorination, the way sewage is now treated in the region's nine wastewater plants. We estimate that the capital costs for facilities to provide this level of treatment to storm-water flows 364 days per year would approach $30 billion.

The state water quality standard category defining the maximum level of metals in storm water requires that discharges into many of the region's water bodies meet drinking water and ground water recharge standards. Strict maximum limits on pesticides would be necessary to support fishing and swimming. Reverse osmosis or microfiltration are the only technologies available to remove the pesticides and heavy metals from storm water. The capital costs of regional-scale, reverse-osmosis facilities sufficient to provide treatment to storm water flows 364 days per year would approach $130 billion.

There is more. Even if the region constructs treatment facilities, we cannot expect to rely on existing flood retention areas like the Sepulvada Basin and the Whittier Narrows to store untreated storm water. The Clean Water Act requires that storm water be cleaned prior to release into such federal waterways. The land assembly costs for storm water retention areas sufficient to accommodate flows 364 days per year would be very high, approaching $50 billion.

The federal Clean Water Act was passed in 1973 to address major sources of surface water pollution such as large factories and sewage treatment plants. The results are impressive. Water quality is improving in Los Angeles and Long Beach Harbors, and fisherman report the return of species of sea and bird life absent for many years. However, the environmentalists dominating state and regional water quality boards are reluctant to recognize that we cannot afford to apply the same discharge standards to homes, small businesses, schools, parks, roads, and other facilities.

Fortunately, a great deal can yet be accomplished by sticking to the basics. Los Angeles County and local cities are experimenting with trash removal devices along several of the region's flood control channels. The County and City of Los Angeles have agreed to divert dry season urban runoff to the sanitary sewer system in locations where storm drains flow onto local beaches. On average, the region is dry for 333 days per year, and more dry weather diversion of urban runoff promises further improvements in water quality at exactly the times when people use the area's beaches and rivers.

These steps are important, but will not satisfy local water quality authorities. The political failure of Plescia's bill is a wake-up call. Los Angeles and San Diego members of the State Legislature should join forces now to block the state and regional water quality control boards' march toward uneconomic and unintended consequences.

The authors are faculty members at the University of Southern California and authors of the recent report, "An Economic Impact Evaluation of Proposed Storm Water Treatment for Los Angeles County." James E. Moore, II, is Professor of Civil Engineering and of Public Policy and Management. Peter Gordon and Harry Richardson are Professors of Policy, Planning, and Development and of Economics. John Kuprenas is Research Assistant Professor of Civil Engineering, and Jiin-Jen Lee is Professor of Civil and Environmental Engineering.

Attachment # 2
City of Signal Hill Comment Letter
LA River Bacteria TMDL

The Lower Los Angeles River Water Conservation Plan (WCP)

Lower Los Angeles River Water Conservation Plan (WCP)

An Alternative to the Regional Board's Proposed Bacteria TMDL

For the Cities of:

Arcadia
Carson
Commerce
Downey
Duarte
Irwindale
Monterey Park
Paramount
Signal Hill
South El Monte
Vernon

June 4, 2010

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I. INTRODUCTION

The purpose of this plan is to set forth an alternative to the Regional Board's Proposed Bacteria TMDL for Reaches 1 and 2 (and their tributaries) of the Los Angeles River (the River). This plan recognizes that the River must provide flood control and has been significantly altered from its natural state for this purpose, but that water conservation is becoming increasingly important in Southern California and that implementing a Water Conservation Plan will assist in reducing the amount of bacteria entering the Los Angeles River through the municipal storm drain system. In furthering the Regional Board's goal of addressing the existence of bacteria in the Los Angeles River, this plan also provides for the conducting of a pilot program and a study to assess bacteria treatment devices and bacteria re-growth in the River.

SPECIFIC PLAN

The Lower Los Angeles River Water Conservation Plan (WCP) is an alternative to the Regional Board's proposed Bacteria TMDL implementation Plan specific to Reach 1 and Reach 2 of the Los Angeles River and three tributaries – Compton Creek, Rio Hondo and Arroyo Seco.

BACKGROUND

The Los Angeles River and eleven tributaries are presently listed as impaired water bodies for bacteria indicators. The Cleaner Rivers through Effective Stakeholder-led TMDLs (CREST) initiated an intensive and cooperative effort bringing together MS4 permittees, the Regional Board, environmental organizations and scientific experts in order to develop a dry-weather bacteria TMDL. CREST's work included an extensive Bacteria Source Identification (BSI) study of bacteria levels in dry-weather flows entering the Los Angeles River via the storm drain system and an evaluation of whether those bacteria were from human or non-human sources. The WCP is based in part on the efforts and findings of the CREST scientific and engineering team.

CREST's work has been prodigious by any measure and is by far the most comprehensive effort to characterize the River to date. Its conclusions can be summarized as follows:

1: The waters in the low-flow channel of the River will likely exceed current bacteria standards even if all dry-weather urban runoff is eliminated (*i.e.* the natural conditions of the river will exceed current standards).

2: In addition to the water naturally occurring in the low flow channel of the river, which as pointed out above already exceeds current standards, the dry-weather urban runoff via the storm drain system is a supplemental contributor to elevated bacteria levels. These urban discharges may or may not cause dry-weather flows to exceed current bacteria standards. Recent BSI work shows (at least in Reach 2, that 10 to 50 percent of in-stream bacteria is from storm drain outfalls and tributaries).

3: The cost to treat (divert) the dry-weather runoff from targeted (identified high-priority) outfalls only will be approximately $1.1 billion including inflation and financing costs of 3 percent per year. Annual maintenance is anticipated to be $22 million. These costs do not include any land acquisitions or major construction of conveyance facilities to transport the runoff to the eventual treatment site locations.

The CREST effort was never intended to include studies of wet-weather runoff. Neither CREST nor the Regional Board have evaluated the measures that might be required to comply with a wet weather TMDL and thus there are no equivalent data regarding the bacteria levels in the wet-weather flows within the Los Angeles River or the relative contribution of individual storm drain outfalls to bacteria concentrations during wet-weather flow conditions. The Regional Board's April 20, 2010 Bacteria TMDL staff report provided a preliminary cost estimate of $5.4 billion, based on extrapolations from Ballona Creek, in order to achieve compliance for both dry and wet-weather conditions. This lack of detailed wet weather data and information on potential implementation measures, along with the very real concerns that the Los Angeles River has been developed over the past 70 years for flood control purposes, not human recreational purposes, at considerable cost to the public; that the concrete-lined portions of the River are not appropriate for human recreation during wet weather or dry weather; that it is particularly dangerous to recreate in the River during wet-weather; and that such designated uses of the subject portions of the River have never actually been attained; have all led the participating agencies to focus this Alternative on water conservation of dry weather discharges, but with the indirect benefit of reducing the amount of dry weather into the River, thereby reducing the amount of bacteria entering the River.

The indicator bacteria objectives of the Basin plan are associated with the REC-1 (full body water contact such as swimming) and REC-2 (incidental water contact such as fishing, kayaking, walking along the shoreline), which are suspended in certain channels during high intensity storms when swimming and other forms of contact recreation are unsafe.[1] Other beneficial uses of the River (including WARM, WILD, WET, etc.) are not suspended during high flow conditions but are not relevant to a Bacteria TMDL.

II. PROBLEM IDENTIFICATION

Reach 1 and 2 have been listed since 1998 on the CWA section 303d list as impaired for bacteria. Three major tributaries to the Lower Los Angeles River: Arroyo Seco, Rio Hondo and Compton Creek, are also included on the 303d list as impaired by bacteria.[2] It has been reported that exceedances of bacteria standards in these waterbodies occurs 50 to 100% of the time.[3]

The Basin Plan identifies several beneficial uses in Reaches 1, Reach 2, Compton Creek, Rio Hondo and Arroyo Seco. Despite the occasional illegal forays by fisherman and the homeless into the concrete

[1] 2003 High Flow Suspension, Basin Plan Amendment.
[2] 1998 and subsequent 303(d) listings
[3] April 20, 2010 LARWQCB Staff report, Los Angeles River Bacteria TMDL, pg 12

lined channels, in stream REC-1 and REC-2 uses of these portions of the River have to date never actually been attained and the time when such REC-1 and REC 2 will actually be attained, and thus the concerns over bacteria levels becoming something other than theoretical, if ever, are far off in the future. REC-1 uses during wet-weather is extremely dangerous and one of the reasons that the high-flow suspension was put in place for the main stem of the River. Reaches 1 and 2 have been significantly modified by the Army Corps of Engineers and the County of Los Angeles Flood Control District beginning in 1935 for flood control purposes. The River and tributaries are fully concreted lined in these River sections, with no natural soft bottom sections. The mainstream River in Reaches 1 and 2 is 400 feet in width and was recently extensively modified by the federal and county government to control for overtopping of the levee from the City of Vernon to the Estuary. The River in Reaches 1 and 2 are access restricted to the public for safety purposes as noted in the Water Quality Control Plan for the Los Angeles Region. Overall, the REC-1 standards should be indefinitely suspended.

REC-2 usage generally covers a broader array of uses that includes incidental contact with water and the aesthetics of the waterways. There have been numerous proposals over the years to "green" the river through the use of parks, soft-bottoming, terraced channels, etc. The LACDA Project did add bike and walking paths on the top of the River's levees in Reaches 1 and 2, however these bike and walking paths are behind the fenced area. Steep concrete banks, at times 40 feet in height, make it unsafe for cyclists and hikers to access the River in these locations. The bike and walking paths do not go into the River in these Reaches. To date, as with REC-1 uses of the River, no in-stream REC-2 uses of the River have been attained. While future-REC-2 uses, other than in-stream REC-2 uses, may not be as unlikely as REC-1, even these non in-stream REC-2 uses are for the most part, also far off into the future. At this time, non in-stream REC-2 standards' should be strived for as an eventual goal, such uses will not likely having any bearing on a bacteria TMDL for the River itself.

III. WATER QUALITY OBJECTIVES

The Regional Board has previously established water quality objectives (WQOs) to protect REC-1 beneficial uses. These WQOs were for both fecal coliform (200 MPN/100 ml) and *E.coli* (126 MPN/100 ml) for geometric mean and 400 MPN/100 ml and 235 MPN/100 ml respectively for single samples. Acknowledging the U.S. EPA's recommended criteria, the Regional board plans to amend the Basin Plan to delete REC-1 objectives for fecal coliform, and the proposed TMDL will be only for *E. coli*. Additional WQO for fecal coliform (geometric mean of 2000 MPN/100 ml and no more than 10 percent of individual samples to exceed 4,000 MPM/100 ml) apply to Rec-2 beneficial use.

IV. SOURCE ASSESSMENT

In assessing the potential sources and impact of these sources, it is important to draw a distinction between direct human deposition and indirect human deposition such as equestrian, livestock and pet waste, which is believed to present a far lesser human health risk. The potential direct and indirect human sources of bacteria in stormwater runoff include[4]:

- Direct Human deposition, (although, as stated on page 29 of the April 20, 2010 staff report: "it was concluded by the authors of the BSI report that in-channel sources of *E. coli* in Reach 2 between 6th street and Rosecrans Avenue were non-human.")
- Equestrian,
- Agricultural facilities
- Nurseries
- Dairy/intensive livestock facilities
- Manure composting and soil amendment operations
- Septic systems
- Sanitary Sewer Overflows (SSOs)
- Some "exempted" water discharges (ex: decorative fountains)

Non-anthropogenic sources are identified in the TMDL as:

- Wildlife, birds
- Regrowth
- Resuscitation

V. WATER AND FLOOD CONTROL PLANS

The City of Los Angeles adopted a Los Angeles River Revitalization Plan to guide development along the River and to facilitate the "greening" of the River. However, this plan is limited to the territories within the City of Los Angeles. The plan recognized that other agencies, including the Army Corp of Engineers, Los Angeles County Flood Control District and the watershed cities have not adopted this revitalization plan. There is no master plan for Reaches 1 and 2. The Lower Los Angeles River Water Conservation Plan relies upon the California Water Plan (as described below) and the plans being developed by the Gateway Region Integrated Water Management Authority.

[4] April 20, 2010 LARWQCB Staff Report, Los Angeles River Bacteria TMDL
February 10, 2010, Final Technical Report, Bacteria TMDLs for Beaches and Creeks, pg 109 SDRWQCB
August 26, 2005 Resolution RB8-2005-0001 SARWQCB (Middle Santa Ana River Bacteria TMDL)

California Water Plan/Water Quality Control Plan for the Los Angeles Region/Gateway Region Integrated Water Management Authority

The State of California updated its water policies in 2009 and the Lower Los Angeles River Water Conservation Plan is based on the California Water Plan (CWP).[5] The State plan identified five major threats that Californians face – greater drought impacts, increasing flood risks from flood-prone areas, water system reliability, addressing the impacts causing water body impairments and the problems of aging infrastructure, especially California's flood protection system. The State Plan also addressed the lack of government funding to address these five major threats by indicating that "State and regional budget shortfalls and a tightened credit market may delay new projects and programs".

The WCP is also based on the policies and requirements of the Water Quality Control Plan for the Los Angeles Region (Basin Plan). The Basin Plan was adopted in 1975, without any apparent consideration of whether the in-stream REC-1 and REC-2 uses of the Los Angeles River for Reaches 1 and 2 had actually been attained in the River, or any consideration to the fact that the River had been redeveloped into a major flood control channel, with high, steep concrete walls, and with access being prohibited in such areas. Yet, the River, including Reaches 1 and 2, were designated as having potential REC-1 and existing REC-2 uses in 1975, and the Basin Plan contained an important footnote to the potential REC-1 designation as follows: "public access to fenced flood control channel anticipated in the future."[6] The subsequent 1994 update to the Basin Plan listed the River as an "existing" REC-1 use, with a footnote specifying for many reaches "Access prohibited by Los Angeles County DPW."[7] These footnotes recognize the overriding importance of public safety in these concrete-lined channels.

The WCP is based upon the principals of Integrated Regional Water Management (IRWM), outlined by State policy. Much of the Lower Los Angeles River is in the planning territory of the Gateway Region Integrated Water Management Authority (GRIWMA), a joint-powers authority, which is developing programs designed to use and reuse water more efficiently in the Lower Los Angeles and San Gabriel River watersheds. The GRIWMA intends to implement significantly greater water conservation, recycling, and reuse programs to help meet future water demands and adapt to climate change. The goals of the GRIWMA also mirror the goals of the State in preparing the region for future droughts, floods and climate change.

The Importance of Maintaining the Los Angeles River for Flood Control Purpose

Extensive regional flooding in 1914 lead to the creation of the Los Angeles County Flood Control District one year later. The LACFCD began a series of improvements to the River, until Congress intervened in 1936 after extensive flooding of the Los Angeles River in 1934 lead to major property damage and loss of life. The Army Corp of Engineers then began a plan of channelizing the River. The flood in 1938 demonstrated the need for additional flood control measures. This flood left 113 dead and resulted in $795 million in damages (1990 dollars) The plan for channelizing the River was approved by Congress in

[5] DWR bulletin 160-09
[6] Water Quality Control Plan report, Los Angeles River Basin (48), part I at pp. I-2-10.
[7] Water Quality control Plan, Los Angeles Region, 1994, at p. 2-10.

1941 and authorized the construction of five major flood control basins, improvement of 93 miles of main channel and 147 miles of tributary channels and the reconstruction of 316 bridges on the Rio Hondo, Los Angeles and San Gabriel Rivers. It was to become the largest flood control project west of the Mississippi River. Flow conditions in much of the River and its tributaries make it unsafe for public recreation during both wet and dry weather conditions. Much of the River is fenced and access is restricted in order to protect public safety, including all of Reaches 1 and 2.

The River's extensive flood control system was severely tested during the flood of 1980. The levee near the City of Long Beach was very nearly overtopped. If the levee had been overtopped and actually failed due to erosion of the back side of the levee, the resultant flooding could have caused a catastrophic loss of life in addition to the economic damages to the residential, commercial and industrial properties along the lower River. The Army Corps of Engineers and the County of Los Angeles invested over $212 million in raising the levees and armoring the sides of the River for a 22 mile stretch, from the City of Vernon to the estuary (Reach 1 and a small portion of Reach 2). Known as the Los Angeles County Drainage Area Review (LACDA Project), this major flood control improvement project was only recently completed in 2002 at a reported cost of $216 million. This Lower Los Angeles River Water Conservation Plan recognizes that these extensive man-made improvements preclude attainment of the REC-1 and in-stream REC-2 uses.

VI. IMPLEMENTATION STRATEGY – ACTION BASED BMPs

The BMP implementation strategy will be presented herein in five major tasks, with a description of how each of the major tasks will address the sources identified above. These will be further divided into wet-weather and dry-weather implementation.

First, **Beneficial uses – New scientifically-based Recreational Use designation – Reach 1 and Reach 2**

A scientific panel should be convened with the assistance and corporation of the Regional Board, US EPA and MS4 permittees to determine the need for a WQO for bacteria levels for non in-stream REC-2 uses of the concrete flood control channels (e.g., biking and jogging outside the fencing along the top of the concrete-lined channel walls) . This will include extending the high-flow suspension to all of Reach 1, Reach 2 and tributaries, regardless of their being concrete lined or not; and will reassess the number of high-flow suspension days allowances to be more in accordance with the natural storm cycles.

Second, **Dry-Weather Diversion**
These BMPs can be regional and sub-watershed (multi-city) in scope

CREST identified over 3,700 outfalls into the main stream river and its tributaries. The CREST team also documented that 280 outfalls flow in dry-weather conditions in the main stem of the River and that 330 flow during dry-weather conditions in the tributaries. CREST further identified 122 high priority outfalls

that are recommended for dry-weather diversion to an existing Publicly Owned Treatment Works (POTWs, often referred to as sewage treatment plants). The Water Conservation Alternative would identify high priority outfalls for diversion in Reaches 1 and 2, but would not utilize diversion to existing POTWs since little water conservation is achieved for such diverted water. These high priority outfalls would be those that have a consistent, chronic human signal (as determined using Bacteroidales of other suitable measures of human source) and high concentrations of *E. coli* over multiple events, but with significant consideration being given to the practical and economic achievability of the dry weather diversion efforts, and the amount of water that may be conserved at such outfalls.

CREST performed a series of BSI studies for Reach 2. A priority list of diversions can be developed from this list and from the data collected during the BSI study (e.g., a more intensive evaluation of Bacteroidales data to indicate chronic human sources). The Cities in Reach 1 will be required to develop a similar BSI study for Reach 1 in order to develop a priority diversion list. Time will be required for the Cities to develop the BSI study for Reach 1.

By diverting runoff at or near outfalls, an indirect benefit of these water conservation BMPs will be to address high human caused bacteria levels in runoff.

Third, **Evaluation of effectiveness of collection and diversion facilities. These BMPs would be regional and sub-watershed (multi-city) in scope**

Instead of constructing hundreds of storm water diversions to POTWs, participating agencies would investigate the feasibility of a smaller number of strategically-located localized infiltration and similar facilities to intercept dry-weather flows. These infiltration facilities would eliminate two of the restrictions that the diversion facilities are subject to: sanitary sewer will not be required nor will capacity at the POTW be a concern. Again, diversion to POTWs does not further the overriding purpose of the plan of conserving water. Available land and funds for construction and operation will still be an overriding criteria.

The effectiveness and achievability of such diversion methods will be evaluated on a watershed and catchment areas basis. Two localized plants have been proposed and grants have been applied for through the Gateway Region Integrated Water Management Authority. The cost of these treatment plants is preliminarily estimated in the $8-$10 million range for each plant. The reclaimed water would be used for irrigation purposes and recharging ground water. Construction of these facilities is completely dependent at this time upon: feasibility determinations, environmental assessments as well as receiving grant funding. Such plants, however, will help achieve the primary goal of the WCP, i.e., to recycle water.

An important component of this will be a survey of existing flows for future sitting of infiltration and reclamation systems.

Fourth, **Operational BMPs**

These BMPs will be on a subwatershed (multi-city) or catchment (individual city) basis.

Water Conservation- MS4 permittees are required by state statue to implement landscape/water conservation measures.[8] These measures will reduce the amount of water used and by inference will reduce the amount of dry-weather runoff on a per parcel basis. Some permittees have gone further and have active enforcement of outdoor water use restrictions such as limiting currently exempt discharges such as landscape watering and residential car washing. As these restrictions are implemented, bacteria in landscape areas, pet wastes, etc. will be less likely to be washed into the streets, and dry-weather flow rates to the river will be reduced. In the instances where dry-weather flow does occur, there will be less water to transport the bacteria in the street, thus providing the street sweepers more opportunity to collect these materials.

SUSMP/LID As it pertains to the SUSMP program, LID or Low Impact Development of new projects will continue to be implemented as appropriate direct all dry-weather and all wet-weather flows up to the 85th percentile storm (3/4 inch) into the ground, across vegetative swales and/or into biofiltration systems. The effectiveness of these BMPS is well established in reducing the bacteria levels in runoff. Many MS4 permittees are already implementing these measures and they are expected to be incorporated into the next MS4 permit.

Equestrian controls Equestrian activities can be associated with high bacteria levels. Studies will be conducted to establish link between equestrian activities and *E. coli* (see special studies below). Based upon these studies, areas of equestrian activities will be identified and operations or structural BMPs may be implemented. These will likely include: working with landowners to minimize runoff from those sites, property owners to cover or protect manure compost piles, direct dry-weather flows to sanitary sewers, etc.

Outreach / education Basic "bacteria-in–runoff" facts can be incorporated into outreach efforts. Based on the results of the special studies, outreach can be further tailored to reach target audiences. These are likely to include: a pet-waste campaign, proper management of horse manure, proper septic tank operations, etc.

[8] AB 1881

Fifth, Special Studies, Pilot Programs and Monitoring

Long Beach Breakwater Study (East San Pedro Bay Ecosystem Restoration Study)

The City of Long Beach has completed the federally required 905(b) analysis, which is the first step required for the Army Corp of Engineers to move forward with the full feasibility study. The 905(b) analysis examined the potential costs and benefits from reconfiguring the breakwater to improve beach water quality, as well as extending and reconfiguring the mouth of the Los Angeles River to prevent bacteria from reaching the recreational beach areas. The entire study will cost $8 million, which the City of Long Beach is required to fund or provide in-kind services for $4 million. The Cities in Reaches 1 and 2 support these approaches and plan to work with the City of Long Beach to improve these and other measures. The Cities wish to make recreation safe at the beaches, where swimming is legal and encouraged, rather than to invest scarce public resources to attempt to meet REC-1 water quality standards in the lower reaches of the River, where swimming is dangerous and illegal.

The monitoring plan will be developed in discussion with the Regional Board.

Anti-microbial filter Study

Preliminary data are available indicating that certain proprietary catch basin filters may have the ability to reduce bacteria levels in urban runoff. The available data are preliminary and additional testing is required and will be addressed further below under Special Studies. If confirmed, this has the potential to allow MS4 permittees to select hotspots for treatment as the water enters the storm drain system rather that at the outfalls.

Additional Studies

The appropriateness of additional studies will be evaluated on an ongoing basis.

VII. ADAPTIVE STRATEGY and TIMELIME

Task 1:

Within 6 months of the effective date of this TMDL, join with the Regional Board and U.S. EPA to study wet weather conditions, bacteria sources, and potential implementation measures to adopt reasonable Wet Weather TMDL targets and Implementation Programs for the River. Consider extending the existing CREST working group and process for this purpose.

Task 2:

Within 6 months of the effective date of the TMDL, identify Equestrian/major nurseries/agriculture operators and locations and prepare and distribute public educational and outreach information to the targeted audience.

Task 3:

Based on the results of the special studies, within 4 years of the effective date of the TMDL, develop a dry-weather Implementation plan and a wet-weather Implementation Plan for the BMPs identified above.

Attachment # 3
City of Signal Hill Comment Letter
LA River Bacteria TMDL

LAR Bacteria TMDL Implementation Plan Watershed Cost Estimate, May 11, 2010

LAR Bacteria TMDL Implementation Plan Watershed [2] Cost Estimate May 11, 2010

City	Watershed Area sq miles	Percentage	Estimated Annual Costs for 25 Year Implementation Period [1] $216,000,000
Alhambra	7.60	1.22583%	$3,171,750
rcadia	10.93	1.76293%	$4,088,267
Bell	2.74	0.44194%	$1,834,131
Bell Gardens	2.48	0.40001%	$1,762,571
Bradbury	1.40	0.22581%	$1,465,322
Burbank	17.35	2.79843%	$5,855,245
Caltrans	11.24	1.81293%	$4,173,588
Calabasas	5.58	0.90001%	$2,615,785
Carson	0.88	0.14194%	$1,322,203
Commerce	6.56	1.05808%	$2,885,510
Compton	8.60	1.38712%	$3,446,980
Cudahy	1.12	0.18065%	$1,388,258
Downey	5.66	0.91292%	$2,637,803
Duarte	2.30	0.37097%	$1,713,030
El Monte	6.97	1.12421%	$2,998,355
Glendale	30.62	4.93879%	$9,507,550
Hidden Hills	1.57	0.25323%	$1,512,111
Huntington Park	3.03	0.48872%	$1,913,948
Irwindale	1.89	0.30484%	$1,600,185
La Canada Flintridge	8.57	1.38228%	$3,438,723
Long Beach	16.66	2.68714%	$5,665,336
Los Angeles	281.44	45.39428%	$78,540,800
Lynwood	4.85	0.78227%	$2,414,867
Maywood	1.18	0.19033%	$1,404,772
onrovia	10.34	1.66777%	$3,925,881
ontebello	8.36	1.34841%	$3,380,925
Monterey Park	7.66	1.23550%	$3,188,264
Paramount	4.34	0.70001%	$2,274,499
Pasadena	22.70	3.66135%	$7,327,727
Pico Rivera	3.12	0.50323%	$1,938,718
Rosemead	5.14	0.82905%	$2,494,683
San Fernando	2.41	0.38872%	$1,743,305
San Gabriel	4.12	0.66453%	$2,213,949
San Marino	3.76	0.60646%	$2,114,866
Sierra Madre	2.99	0.48227%	$1,902,938
Signal Hill	1.13	0.18226%	$1,391,010
South El Monte	2.09	0.33710%	$1,655,231
South Gate	7.48	1.20647%	$3,138,722
South Pasadena	3.43	0.55323%	$2,024,040
Temple City	4.01	0.64678%	$2,183,673
Vernon	5.08	0.81937%	$2,478,170
LA County Unincorp.	80.61	13.00182%	$23,266,310
Total	619.99	100.0000%	$216,000,000

[1] Draft LAR MTMDL Staff Report page 76. $5.4 Billion over 25 years. No inflation/bond/construction cost adjustment

[2] Assumes Shared Watershed Costs Allocated 21% base and 79% area. Other IP options could dramatically change

EXHIBIT D

Attachment # 4
City of Signal Hill Comment Letter
LA River Bacteria TMDL

Estimated Copper WER/Lead Recalculation Cost Allocations
for
40 TMDL Identified Cities, LA County and Caltrans

EXHIBIT B - Estimated Copper WER/Lead Recalculation Cost Allocations for 40 TMDL Identified Cities, LA County & Caltrans*

City	Watershed Area sq miles	Watershed Area Percentage	FY 2010-1 Apportionment** Base Rate	FY 2010-1 Apportionment** Area	FY 2010-1 Invoice Amount	FY 2011-2 Apportionment** Base Rate	FY 2011-2 Apportionment** Area	FY 2011-2 Invoice Amount	FY 2012-3 Apportionment** Base Rate	FY 2012-3 Apportionment** Area	FY 2012-3 Invoice Amount	Total Estimated Costs per Agreement Term
Alhambra	7.6	1.22583%	$6,017	$11,654	$17,672	$4,316	$8,358	$12,674	$492	$953	$1,445	$31,790.92
Arcadia	10.93	1.76293%	$6,017	$16,761	$22,778	$4,316	$12,021	$16,336	$492	$1,371	$1,863	$40,977.31
Bell	2.74	0.44194%	$6,017	$4,202	$10,219	$4,316	$3,013	$7,329	$492	$344	$836	$18,383.77
Bell Gardens	2.48	0.40001%	$6,017	$3,803	$9,820	$4,316	$2,728	$7,043	$492	$311	$803	$17,666.51
Bradbury	1.4	0.22581%	$6,017	$2,147	$8,164	$4,316	$1,540	$5,855	$492	$176	$668	$14,687.14
Burbank	17.35	2.79843%	$6,017	$26,606	$32,623	$4,316	$19,082	$23,397	$492	$2,176	$2,668	$58,687.99
Caltrans	11.24	1.81293%	$6,017	$17,236	$23,253	$4,316	$12,362	$16,677	$492	$1,410	$1,902	$41,832.50
Calabasas	5.58	0.90001%	$6,017	$8,557	$14,574	$4,316	$6,137	$10,453	$492	$700	$1,192	$26,218.40
Carson	0.88	0.14194%	$6,017	$1,349	$7,367	$4,316	$968	$5,283	$492	$110	$602	$13,252.63
Commerce	6.56	1.05808%	$6,017	$10,059	$16,077	$4,316	$7,215	$11,530	$492	$823	$1,315	$28,921.90
Compton	8.6	1.38712%	$6,017	$13,188	$19,205	$4,316	$9,458	$13,774	$492	$1,079	$1,571	$34,549.60
Cudahy	1.12	0.18065%	$6,017	$1,717	$7,735	$4,316	$1,232	$5,547	$492	$140	$633	$13,914.71
Downey	5.66	0.91292%	$6,017	$8,679	$14,697	$4,316	$6,225	$10,540	$492	$710	$1,202	$26,439.09
Duarte	2.3	0.37097%	$6,017	$3,527	$9,544	$4,316	$2,530	$6,845	$492	$288	$781	$17,169.95
El Monte	6.97	1.12421%	$6,017	$10,688	$16,705	$4,316	$7,666	$11,981	$492	$874	$1,366	$30,052.96
Glendale	30.62	4.93879%	$6,017	$46,955	$52,972	$4,316	$33,676	$37,992	$492	$3,840	$4,332	$95,295.60
Hidden Hills	1.57	0.25323%	$6,017	$2,408	$8,425	$4,316	$1,727	$6,042	$492	$197	$689	$15,156.12
Huntington Park	3.03	0.48872%	$6,017	$4,646	$10,664	$4,316	$3,332	$7,648	$492	$380	$872	$19,183.78
Irwindale	1.89	0.30484%	$6,017	$2,898	$8,916	$4,316	$2,079	$6,394	$492	$237	$729	$16,038.89
La Canada Flintridge	8.57	1.38228%	$6,017	$13,142	$19,159	$4,316	$9,425	$13,741	$492	$1,075	$1,567	$34,466.84
Long Beach	16.66	2.68714%	$6,017	$25,547	$31,565	$4,316	$18,323	$22,638	$492	$2,089	$2,581	$56,784.51
Los Angeles	281.44	45.39428%	***	***	***	$4,316	$135,722	$140,038	$492	$35,296	$35,788	$175,826.06
Lynwood	4.85	0.78227%	$6,017	$7,437	$13,455	$4,316	$5,334	$9,650	$492	$608	$1,100	$24,204.57
Maywood	1.18	0.19033%	$6,017	$1,809	$7,827	$4,316	$1,298	$5,613	$492	$148	$640	$14,080.24
Monrovia	10.34	1.66777%	$6,017	$15,856	$21,873	$4,316	$11,372	$15,688	$492	$1,297	$1,789	$39,349.69
Montebello	8.36	1.34841%	$6,017	$12,820	$18,837	$4,316	$9,194	$13,510	$492	$1,048	$1,541	$33,887.51
Monterey Park	7.66	1.23550%	$6,017	$11,746	$17,764	$4,316	$8,424	$12,740	$492	$961	$1,453	$31,956.44
Paramount	4.34	0.70001%	$6,017	$6,655	$12,672	$4,316	$4,773	$9,089	$492	$544	$1,036	$22,797.65
Pasadena	22.7	3.66135%	$6,017	$34,810	$40,827	$4,316	$24,966	$29,281	$492	$2,847	$3,339	$73,446.90
Pico Rivera	3.12	0.50323%	$6,017	$4,784	$10,802	$4,316	$3,431	$7,747	$492	$391	$883	$19,432.06
Rosemead	5.14	0.82905%	$6,017	$7,882	$13,899	$4,316	$5,653	$9,969	$492	$645	$1,137	$25,004.58
San Fernando	2.41	0.38872%	$6,017	$3,696	$9,713	$4,316	$2,651	$6,966	$492	$302	$794	$17,473.40
San Gabriel	4.12	0.66453%	$6,017	$6,318	$12,335	$4,316	$4,531	$8,847	$492	$517	$1,009	$22,190.74
San Marino	3.76	0.60646%	$6,017	$5,766	$11,783	$4,316	$4,135	$8,451	$492	$472	$964	$21,197.61
Sierra Madre	2.99	0.48227%	$6,017	$4,585	$10,602	$4,316	$3,288	$7,604	$492	$375	$867	$19,073.44
Signal Hill	1.13	0.18226%	$6,017	$1,733	$7,750	$4,316	$1,243	$5,558	$492	$142	$634	$13,942.30
South El Monte	2.09	0.33710%	$6,017	$3,205	$9,222	$4,316	$2,299	$6,614	$492	$262	$754	$16,590.63
South Gate	7.48	1.20647%	$6,017	$11,470	$17,488	$4,316	$8,227	$12,542	$492	$938	$1,430	$31,459.88
South Pasadena	3.43	0.55323%	$6,017	$5,260	$11,277	$4,316	$3,772	$8,088	$492	$430	$922	$20,287.25
Temple City	4.01	0.64678%	$6,017	$6,149	$12,166	$4,316	$4,410	$8,726	$492	$503	$995	$21,887.28
Vernon	5.08	0.81937%	$6,017	$7,790	$13,807	$4,316	$5,587	$9,903	$492	$637	$1,129	$24,839.06
LA County Unincorp.	80.61	13.00182%	$6,017	$123,612	$129,629	$4,316	$88,655	$92,971	$492	$10,109	$10,602	$233,201.71
Total	619.99	100.0000%	$246,708	$519,153	$765,861	$181,256	$508,060	$689,316	$20,669	$77,754	$98,423	$1,553,600.00
											WER Development =	$611,400.00
											Estimated Study Cost=	$2,165,000.00

* Based on total costs of $2,165,000, which includes administrative, management, and oversight, but and no CPI adjustment.

** 21% and 79% of allocation from base and area apportionments respectively.

*** City of Los Angeles is credited $437,594 in the first year and $173,806 in the second year, in repayment of $611,400 WER Development costs..