NRDC
THE EARTH'S BEST DEFENSE

NATURAL RESOURCES DEFENSE COUNCIL

April 3, 2007

Via Federal Express

Executive Officer and Members of the Board
California Regional Water Quality Control Board, San Diego Region
9174 Sky Park Court, Suite 100
San Diego, CA 92123

Re: Tentative Order No. R9-2007-0002, NPDES NO. CAS0108740

Dear Mr. Robertus and Members of the Board:

On behalf of the Natural Resources Defense Council ("NRDC") and Defend the Bay, we submit the following comments on the Tentative Order, "Waste Discharge Requirements for Discharges of Urban Runoff from the Municipal Separate Storm Sewer Systems (MS4s) Draining the Watersheds of the County of Orange, the Incorporated Cities of Orange County, and the Orange County Flood Control District Within the San Diego Region" ("Proposed Permit"), the fourth iteration of the co-permittees' Phase I municipal storm water permit under the Clean Water Act's National Pollution Discharge Elimination System.

We submit the attached comments to bring to the Board Members' attention specific opportunities to more swiftly address the matter of storm water runoff by strengthening the Proposed Permit with respect to its development planning requirements. Specifically, we urge the Board to adopt language similar to that in analogous municipal storm water codes around the country that would effectuate broad implementation of Low Impact Development ("LID") strategies to address storm water runoff. Accordingly, the comments focus on the Proposed Permit's LID requirements in the development planning program (Section D.1). Low impact development uses a collection of site design and treatment controls to maintain the natural hydrologic character of developed sites, and has been demonstrated to be the most effective and cost-efficient method for managing storm water and protecting the environment. As discussed in this submittal, such an approach has numerous benefits with respect to a variety of water quality and supply objectives. Further, it is necessary in order to implement the State Water Resources Control Board's "Low Impact Development - Sustainable Storm Water Management" policy objective adopted on January 20, 2005,

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file 10-6000-02

which includes incorporating low impact development in Standard Urban Storm Water Mitigation requirements.[1]

Since NRDC recently submitted extensive comments to the San Diego Regional Board in connection with the San Diego storm water permit, we are attaching our June 20, 2006 comment letter and Proposed Permit with redlined edits for the Board's re-review. We urge the Board to adopt a revised version of the Proposed Permit that incorporates our specific proposals to effect the changes that are needed in storm water management practices in the Southern Orange County area.

Sincerely,

Michelle Mehta
Natural Resources Defense Council

Robert Caustin
Defend the Bay

[1] State Water Resources Control Board, "Low Impact Development – Sustainable Storm Water Management," (Jan. 2005) ("Low Impact Development (LID) is a sustainable practice that benefits water supply and contributes to water quality protection. . . . LID has been a proven approach in other parts of the country and is seen in California as an alternative to conventional storm water management. The Water Boards are advancing LID in California in various ways [including] . . . [r]esearching how to incorporate LID language in to Standard Urban Storm Water Mitigation Requirements."), at http://www.waterboards.ca.gov/lid/index.html, last accessed March 29, 2007.

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NATURAL RESOURCES DEFENSE COUNCIL

June 20, 2006

Via hand delivery

Executive Officer and Members of the Board
California Regional Water Quality Control Board, San Diego Region
9174 Sky Park Court, Suite 100
San Diego, CA 92123

Re: Tentative Order No. R9-2006-0011

Dear Mr. Robertus and Members of the Board:

The Natural Resources Defense Council ("NRDC") is a national environmental organization with over 600,000 members, more than 100,000 of whom are California residents and approximately 8,000 of whom live within the San Diego Region. NRDC has reviewed the Tentative Order, "Waste Discharge Requirements for Discharges of Urban Runoff from the Municipal Separate Storm Sewer Systems (MS4s) Draining the Watersheds of the County of San Diego, the Incorporated Cities of San Diego County, the San Diego Unified Port District, and the San Diego County Regional Airport Authority" ("Proposed Permit"), the third iteration of the co-permittees' Phase I municipal stormwater permit under the Clean Water Act's National Pollution Discharge Elimination System.

We submit the following comments to bring the Board Members' attention to specific opportunities to more swiftly address the matter of storm water runoff by strengthening the Proposed Permit with respect to its Development Planning requirements. Specifically, we urge the Board to adopt language similar to that in analogous municipal storm water codes around the country that would effectuate broad implementation of Low Impact Development ("LID") strategies to address storm water runoff. As discussed in this submittal, such an approach has numerous benefits with respect to a variety of water quality and supply objectives. Further, it is necessary in order to implement the State Water Resources Control Board's "Low Impact Development - Sustainable Storm Water Management" policy objective adopted on January 20, 2005, which includes incorporating low impact development in Standard Urban Storm Water Mitigation requirements.[1] In addition, and more broadly, a concluding section of this letter describes why the Proposed Permit must include numeric limitations on the discharge of pollutants.

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1. Water quality problems persist in San Diego County receiving waters, and in some cases have gotten worse during the last permit cycle.

Over the past five years, the County of San Diego, the incorporated cities in San Diego County, the San Diego Unified Port District, and the San Diego County Regional Airport Authority ("Copermittees") have been implementing jurisdictional urban runoff management programs under Order No. 2001-01. Nonetheless, as Board staff has recognized, "urban runoff discharges continue to cause or contribute to violations of water quality standards" in the San Diego region.[2] Indeed, the copermittees' own water quality monitoring data show that urban runoff remains a primary cause of water quality impairment in San Diego County:

> Persistent exceedances of Basin Plan water quality objectives for various urban runoff-related pollutants [including] diazinon, fecal coliform bacteria, total suspended solids, turbidity, metals, etc. . . . At some monitoring stations, *statistically significant upward trends in pollutant concentrations* have been observed. Persistent toxicity has also been observed. . . . [U]rban runoff discharges are [not only] causing or contributing to water quality impairments, [but] are a *leading cause of such impairments in San Diego County.*[3]

While the past permit has no doubt effected a positive impact on storm water quality, runoff volume, and erosion control, reissuance presents an opportunity to modify the permit's structure and requirements to better achieve the underlying goals.[4] In light of the persistence of significant water quality problems in the San Diego Region, Board staff has recognized that it is imperative that the focus for evaluating the success of copermittees' stormwater programs shift from program implementation to the realization of water quality results in the coming permit cycle.[5]

2. Specific aspects of the 2001 permit likely contributed to the failure to see adequate water quality improvements over the past permit cycle.

The provisions of the previous permit made significant strides in stormwater regulation,[6] including designating certain categories of development as requiring SUSMP application. However, evidence—such as that mentioned above—indicating that water quality problems persist and in some cases are worsening makes it clear that the steps taken in the previous permit are insufficient. They are failing to "keep up" with the increasing impacts of development in San Diego County. The following discussion highlights two specific aspects of the previous permit that contributed to the failure of JURMPs implemented under the permit to achieve broad improvements in stormwater runoff: the thresholds at which "priority project" status is triggered for various categories of new development and redevelopment; and the insufficient emphasis on low impact site design best management practices ("BMPs").[7]

A. The proposed permit's definitions of "Priority Development Project" are insufficiently protective of water quality.

It is widely recognized[8]—and the Regional Board and staff have repeatedly emphasized[9]—that urban development increases impervious land cover and exacerbates problems of storm water volume, rate, and pollutant loading. Development and redevelopment activities that occur without effective post-construction BMPs contribute to these problems. In addition to the failure to realize water quality improvements, there are three general indicators that the existing Priority Development Project categories are under-inclusive and must be amended in the reissued Permit.

(i) The existing thresholds do not meet MEP because they are significantly under-inclusive compared to those in place in comparable communities.

First, the maximum extent practicable standard requires just that—a maximum level of storm water control effort in the Permit. As Regional Board staff has noted, "since MEP is a dynamic performance standard which evolves over time as urban runoff management knowledge increases, the Copermittees' urban runoff management programs must continually be assessed and modified to incorporate improved programs, control measures, best management practices, etc."[10] Across the nation, states, counties, and cities have adopted requirements to address runoff from development projects that are far more inclusive and stringent than the Proposed Permit would mandate. For example:

- City of Santa Monica, California - defines "new development," to which specific storm water runoff control requirements apply, as "any construction project that (a) results in improvements to fifty percent or greater of the square footage of a building, (b) creates or adds at least five thousand square feet of impervious surfaces, or (c) creates or adds fifty percent or more of impervious surfaces." (Santa Monica Municipal Code, Chapter 7.10.030(d)(3));

- Contra Costa County, California – applies storm water runoff control requirements to "new and redevelopment projects that create 10,000 square feet or more of impervious area." (RWQCB, San Francisco Bay Region, Contra Costa Countywide NPDES Municipal Stormwater Permit Amendment Order No. R2-2003-0022 (amending Order No. 989-058, NPDES Permit No. CAS0029912) at pp. 9-10 (lowering the current one-acre threshold for the application of performance standards effective August 15, 2006);

- State of New Jersey - defines "major development," to which specific storm water runoff control requirements apply, as "any development that ultimately provides for disturbing one or more acres of land or increasing impervious surface by one-quarter acre or more." (New Jersey Stormwater Rules, N.J.A.C. § 7:8-1.2);

- State of Washington – applies numeric storm water treatment requirements to any project adding 5,000 square feet or more of new impervious surface. (Phase I Municipal Stormwater NPDES General Permit (Draft Feb. 15, 2006) Appendix I (Minimum Technical Requirements for New Development and Redevelopment), at pp. 7, 8, 20);

- State of Maryland – requires storm water management plans for any development that disturbs 5,000 square feet or greater. (Maryland Code, Title 26, Subtitle 17, Chapter 2, §5B; see also Maryland Model Stormwater Management Ordinance (July 2000) at pp. 2, 5, 8);

- City of Portland, Oregon – employs "a citywide pollution reduction requirement for all development projects with over 500 square feet of impervious development footprint area, and all existing sites that propose to create new off-site stormwater discharges." (Stormwater Management Manual (adopted July 1, 1999; updated September 1, 2004) Chapter 1.5.2 (Pollution Reduction Requirements) at p.1-25);

- State of Missouri - requires storm water management plans for any new development that "disturbs greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale." (Missouri State Operating Permit No. MO-R00-4000 (Mar. 10, 2003) at p. 15);

- State of Illinois - requiring implementation of plans to control storm water runoff "from new development and redevelopment projects that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale." (Illinois General NPDES Permit No. ILR40 (Dec. 20, 2002) at p. 6);

- State of West Virginia – requires a "program to address post-construction storm water runoff from new development and redevelopment projects that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale" (West Virginia General NPDES Permit No. WV0116025 (March 7, 2003) at p. 5).

- Stafford County, Virginia – uses an exemption approach under which low impact development practices apply to all development except a) mining/oil & gas operations; b) agriculture; c) *linear development projects that are less than 1-acre, insignificant increases in peak flow, and no flooding or downstream erosion problems*; d) single family not part of a subdivision; e) structure ancillary to single-family homes; and e) "land development projects that disturb less than two thousand five hundred (2,500) square feet of land." (Stafford County Muni. Code § 25.5-1(f).)

These examples illustrate what is practicable in terms of requiring and enforcing specific storm water management practices for new and redevelopment in communities comparable to, or smaller than, the San Diego Region. Indeed, they show that an appropriate new development threshold for SUSMP purposes is 5,000 square feet or less for all development, no matter its characterization as a restaurant, housing development, or other category.

The 5,000 square feet threshold for redevelopment projects, as required by the 2001 permit, has been upheld by courts and the State Water Board.[11] Applying the threshold as a "catch-all" category in the Proposed Permit would further the purpose of SUSMP and low impact development ("LID") type practices, i.e. expressly to ensure that when highly developed communities, such as those in San Diego County, replace themselves through generations, the opportunity to mitigate the adverse impacts of storm water pollution from urbanization is not lost. This threshold could be used not to weaken any currently applicable category, but rather to strengthen less stringent categories and sweep additional project types into the "Priority Development Project" category. (We have included "redline" edits to the Proposed Permit that effectuate this and other comments in this letter, attached hereto as Attachment III.) Because the 5,000 square feet threshold is consistent with those used in other regions and states and is appropriate in light of the rapid pace of development and the irrefuted storm water pollution problems in the San Diego Region, it should be included in the new permit.

Indeed, the Proposed Permit's "Priority Development Project" categories are also insufficiently inclusive when compared to federal storm water rules. While some "Priority Development Projects" are relatively small, such as a restaurant, many others must be enormous before being subject to the SUSMP requirements, such as commercial developments of 100,000 square feet. By contrast, a one-acre standard is a conventional threshold that applies generally to post-construction storm water management requirements. EPA requires this threshold for Phase II MS4 under 40 C.F.R. § 122.34(b)(5)(i), which states that municipalities "must develop, implement, and enforce a program to address storm water runoff from new development and redevelopment projects that disturb greater than or equal to one acre . . . ." Even this standard, employed as a "catch-all" in addition to the current Priority categories, would improve the efficacy of the SUSMP program. This requirement illustrates that, in key respects, the Proposed Permit would be less stringent than Phase II permits, if adopted without modification.

The fact that Phase I Permits and rules have been issued for nearly 15 years now, while Phase II Permits are first generation permits throughout the nation, makes it impossible to justify such an outcome. In fact, EPA give "maximum flexibility" in promulgating Phase II rules to smaller cities since they were obtaining permits for the first time. (64 Fed. Reg at 68,739.) Yet, in many instances, their new development control requirements are broader than those that apply in San Diego. Moreover, as noted above, water quality conditions in the San Diego Region necessitate a lower threshold.

For these reasons, the threshold and definition of a "Priority Development Project" category must be augmented to capture a greater degree of development activity. It is apparent from the broader applicability to new development reflected in analogous programs that are

currently in place elsewhere in California and around the country that the Priority Development Project thresholds in both the previous permit and the current language of the Tentative Order do not meet the maximum extent practicable standard. Indeed, the failure of the Proposed Permit to address any development on an acre or more or creating more than 25% impervious surface makes the Proposed Permit less stringent than Phase II storm water rules. In this case, the evidence shows that a 5,000 square feet threshold applicable to all types and categories of development is consistent with the MEP standard. Such a standard, therefore, must be included in the Proposed Permit.

(ii) The existing thresholds appear to be arbitrary in light of persistent water quality problems.

Second, where an agency sets thresholds for storm water management requirements that are not supported by evidence, courts have rejected such actions.[12] Here, water quality data for the San Diego Region provides stark evidence that the previous permit's BMP requirements for new development and significant redevelopment have not affected the urban landscape at an acceptable pace.[13] Moreover, as discussed above, evidence from other programs in California and around the country indicates that the current thresholds do not reflect MEP, either. In light of data showing that the existing thresholds are inadequate to meet water quality standards, evidence that more inclusive thresholds would better represent MEP, and absent any evidence to support maintaining the thresholds at the existing levels, there is no basis in the record upon which to continue those thresholds in the new permit.[14]

The seemingly arbitrary nature of at least some of the existing threshold levels is further underscored by the observation that thresholds for some of the Priority Development Project categories in the previous permit are objectively large. For instance, the threshold for commercial developments in the previous permit, which has not changed in the Tentative Order, is 100,000 square feet. To put this figure in perspective, 100,000 square feet is equivalent to 2.3 acres—larger than two football fields together—which is a very large development in any setting but represents an enormous development in the urban context. So-called big-box retail stores such as Home Depot, Target, and large grocery stores are typically 50,000 sq ft or more; these massive developments often would fall below the commercial priority project threshold under the existing permit, while it would take a "supercenter" type development to trigger the 100,000 square feet threshold in the commercial category.[15] Given the documented water quality challenges that remain and the centrality of the SUSMP program to achieving beneficial improvement, there is no support for continuing to exclude projects such as these that, by their sheer size, can substantially contribute to runoff volume and pollutant loading.

(iii) The existing thresholds do not meaningfully match the pace of development in the San Diego region.

Third, information regarding the types of building permits being issued in the San Diego Region raises a significant red flag about the extent to which the current regime applies SUSMP requirements to new development and redevelopment. For instance, several of the copermittees'

annual JURMP reports cite strikingly low figures for the number of development projects that have been SUSMP-conditioned over the past permit term. For example, for permit year 2004-2005, the County of San Diego issued 9,376 permits,[16] and reported in its annual report that 115 discretionary projects were SUSMP-conditioned.[17]

Even taking in to account that these figures include permits that do not represent construction on the ground (e.g., electrical, plumbing, gas line), the data evidence a huge disparity between the overall amount of development occurring in the area and the amount of development that actually falls within a Priority Project Category. Thus, while the categories as defined in the existing permit apply SUSMP requirements to some of the largest or most polluting types of development, the landscape of the San Diego Region continues to rapidly urbanize through the addition of development that does not trigger SUSMP requirements. This is significant because broadly speaking, nearly all development ("urbanization") contributes to the creation of impervious surface in the landscape.[18] Although some of the copermittees appear to require BMPs for non-priority development projects, many conventional BMPs (e.g., stenciling, signage, and providing pet waste bags), applied without accompanying site design practices, are inadequate to achieve significant runoff volume and pollutant loading reduction. Moreover, the fact that some copermittees may apply more stringent BMP requirements—and in some cases, SUSMP-level BMP requirements—to non-priority development projects is further evidence that implementing more inclusive SUSMP thresholds is indeed practicable, and that not doing so is arbitrary.

B. Language in the previous permit resulted in insufficient implementation of low impact site design BMPs ("LID").

The previous permit highlighted natural-process site design BMPs as effective methods to reduce urban runoff pollution.[19] In many instances such BMPs are consistent with low impact development techniques (i.e., low impact site design BMPs). However, while site design BMPs were promoted in the previous permit, none were strictly required of priority or non-priority development projects. Specifically, the previous permit directed copermittees to require "site design/landscape characteristics *where feasible* which maximize infiltration, provide retention, slow runoff, and minimize impervious land coverage for all development projects."[20] Even though this provision applied to both non-priority and priority development, the permit did not provide guidance on how the copermittees should determine the feasibility of site design BMPs on a case-by-case basis; nor did it require the SUSMP to include a list of recommended site design BMPs. By contrast, the previous permit did require the copermittees to include in the SUSMP a list of source control and structural treatment BMPs. Furthermore, despite recognizing priority development projects' "greater potential to significantly impact receiving waters"[21] and the efficacy and added benefits of natural process site design BMPs,[22] the previous permit did not require priority projects to include site design BMPs. Rather, the permit directed that at minimum, priority projects implement source control and structural treatment BMPs.[23]

Predictably, the BMP requirements for new development in the Model SUSMP developed by the copermittees was consistent with the previous permit's language: while site

design BMPs were promoted as "innovative approaches to urban storm water management . . . that do[] not rely on the conventional end-of-pipe or in-the-pipe structural measures but instead uniformly [and] strategically integrate[] storm water controls throughout the urban landscape," the Model SUSMP did not make site design BMPs a mandatory requirement for new development projects.[24] The resulting lack of emphasis on site design BMPs under the copermittees' JURMPs is evidenced by repeated comments in the 2004 and 2005 audit reports of selected copermittees' JURMP programs to the effect that site design BMPs were not being broadly required by copermittees as conditions for building permit approval.[25] Indeed, increasing the use of site design BMP requirements was a recommendation for each of the 10 copermittees audited in 2005:

> *Many of the SUSMP plans . . . did not adequately address site design.* The Model SUSMP requires priority projects to 'consider, incorporate, and implement where determined applicable and feasible' a series of site design BMPs. Copermittees should require project proponents to describe how they met each of the site design options, including where the project proponent deemed an option not feasible.

(Tetra Tech, Inc., San Diego SUSMP Report (2005) at p.4 (emphasis added).) As the copermittees have recognized, feasibility alone is an inadequate standard to achieve broad implementation of LID practices in project site design in part because development review "if feasible analys[e]s" are time-consuming and contentious, and because soft standards are not widely accepted by the regulated community.[26] Ultimately, while the previous permit took significant strides toward laying the foundation for LID practices in the San Diego Region, its language left too much latitude to project proponents and permitting authorities to actually achieve widespread use of low impact site design strategies in new development. Likewise, the Proposed Permit does not solve these problems sufficiently or adequately require LID approaches to address ongoing water quality problems in the San Diego region. Because of the robust ability of LID approaches to address water quality and water supply problems, the Proposed Permit must require LID techniques as the presumptive tool to address the impacts of new and redevelopment projects.

3. LID practices have significant benefits over conventional BMPs.

As the copermittees have acknowledged, LID "[s]ite design and source control solutions are often more effective than many types of structural treatment for protecting water quality since design considerations eliminate the necessity of addressing sources of pollution, rather than attempting to remove a percentage of the pollution after it has entered stormwater runoff."[27] In fact, LID practices offer myriad benefits—including both the primary benefits of pollution reduction and reducing storm water runoff volume and rate, as well as secondary benefits such as greater cost-effectiveness, groundwater recharge, and habitat protection—over conventional BMPs. NRDC's report on storm water management strategies, *Rooftops to Rivers: Green Strategies for Controlling Stormwater and Combined Sewer Overflows* (2006), comprehensively

addresses both the primary and secondary benefits of LID practices and is included with these comments as Attachment II.

Moreover, NRDC commissioned a formal study and report by a leading, nationally-recognized expert, Dr. Richard Horner, entitled *Investigation of the Feasibility and Benefits of Low-Impact Site Design Practices ("LID") for the San Diego Region* (2006) (attached hereto as Attachment I). Dr. Horner confirms that the benefits of LID would be substantial in the San Diego Region and that these benefits can, in fact, be obtained given local building patterns. The Report verifies that implementing LID practices would make the Permit more consistent with MEP and is necessary to meet water quality objectives.

A. The primary benefits of low impact development practices are proven and effective.

In the context of the NPDES municipal storm water permit for the San Diego Region, the primary benefits of LID techniques are reducing runoff volume, rate, and pollution load—results that have been studied and documented in dozens of reports, case studies, and pilot projects in California and across the nation.[28] These primary benefits are described in great detail in the materials that accompany this letter, including reports by state and federal government agencies, building industry organizations, scientists, and non-governmental organizations.[29] Many such reports have been recommended as resources to *and by* the copermittees since the issuance of the previous permit.[30] For instance, the copermittees' own Model SUSMP—which was developed and approved in 2002—recommends an EPA report, *Preliminary Data Summary of Urban Runoff Best Management Practices*, as a guideline for the selection of BMPs for priority projects.[31] The EPA report discusses several LID strategies, noting that LID practices "can significantly reduce runoff volumes that are generated, reduce the impacts associated with runoff and reduce the need for conventional structural BMPs."[32] The report also contains a chapter on BMP costs, providing detailed figures on cost savings and reductions in impervious cover associated with land use practices that incorporate LID techniques.[33] Additionally, Appendix B of the copermittees' Model SUSMP lists some two dozen storm water guidance documents, reports, and design manuals, several of which discuss LID techniques and the cost-effectiveness of LID storm water management strategies.[34] Contrary to the copermittees' unsubstantiated assertion in the 2005 Report of Waste Discharge that low impact development techniques are not proven and are too costly,[35] the overwhelming body of literature shows that LID strategies are effective and can be cost-saving in both the short and long-term.

B. Implementing low impact development practices for storm water runoff control has significant secondary benefits.

In addition to helping reduce pollutant loading in storm water and reducing the volume and rate of storm water runoff, LID practices offer other economic, aesthetic, and practical benefits to developers, municipalities, and homeowners in addition to benefiting natural ecosystems by conserving natural resources such as soil, water, and vegetation and restoring natural hydrologic processes in the watersheds. The following summary of the secondary

benefits of LID practices is but an overview of the voluminous information in the resources provided in Attachment V. (See Attachment IV, providing a table of contents to the materials in Attachment V).

Groundwater recharge – The extensive groundwater resources beneath the San Diego River provide a cost-effective and reliable water supply to four water districts and the City of San Diego.[36] On undeveloped land, a considerable percentage of rainfall infiltrates into the soil and contributes to the groundwater. These aquifers not only provide drinking water but also help maintain base flow essential to the biological and habitat integrity of streams.[37]

As San Diego becomes more developed, a much larger percentage of rainwater hits impervious surfaces including streets, sidewalks, and parking lots rather than infiltrating into the ground. By using LID techniques that reduce the amount of impervious surfaces and increase vegetation and soil features, the landscape can retain more of its natural hydrological function.[38] Thus, LID practices have the added benefit of recharging groundwater aquifers and preserving baseflow to streams and wetlands.[39]

Improving groundwater supplies in Southern California would also save money now spent on imported water, and "may be the key to continued development in the area."[40] As the Board Members are no doubt well aware, southern California faces serious water supply challenges.[41] Continued, rapid growth in the San Diego Region puts increasing pressure on the local water resources including water supply, and the Region already imports most of its water.[42] The traditional storm water management regime, with its infrastructure emphasis on collection and conveyance, simply wastes a valuable resource.

For instance, the City of San Diego Water Department pays a commodity rate of $420 per acre-foot for untreated water and $545 per acre-foot for treated water.[43] The Metropolitan Water District of Southern California ("MWD"), which supplies the San Diego County Water Authority, charges $331 to $412 per acre-foot for untreated water, and $443 to $545 per acre-foot for treated water.[44] On average, the wholesale cost of untreated water is $388 per acre-foot and treated water is $511 per acre-foot in the San Diego Region. As Table 1 shows, LID practices have the ability to capture 100% of storm water runoff in many typical development types. Captured water can recharge the water supply or be otherwise reused; in both scenarios, LID's runoff prevention is a benefit that represents substantial cost savings, as further shown in Table 1 (page 11).

Table 1. Post-Development Water Saving Comparisons[45, a]

	MFR	Sm-SFR	REST	OFF	Lg-SFR	COMM
Annual post-development water recharged from site with only basic treatment BMPs	3.06	1.31	0.31	1.23	57.0	0.56
Annual post-development water recharged and harvested from site with LID	9.35	2.59	0.66	1.82	113.0	4.44
Annual water saved through LID per site	6.29	1.28	0.35	0.58	56.0	3.88
Value of annual LID water savings per site (untreated water)	$2,441	$497	$136	$225	$21,728	$1,505
Value of annual LID water savings per site (treated water)	$3,214	$654	$179	$296	$28,616	$1,983

[a] Figures given in acre-feet
[b] MFR (156-unit multi-family residential complex); Sm-SFR (23-unit single-family residential development); REST (3220-sq ft restaurant); OFF (7500-sq ft office building); Lg-SFR (1000-unit single-family residential development); COMM (2-acre commercial development)

Minimize infrastructure requirements – Low impact development practices can also reduce conventional stormwater drainage infrastructure, such as pipes, gutters, and detention basins, thereby reducing infrastructure costs.[46] Traditional curbs, gutters, storm drain inlets, piping and detention basins can cost two to three times more than engineered grass swales and other low impact development techniques to handle stormwater runoff from roadways.[47] Clustering homes can reduce infrastructure costs to the builder, since fewer feet of pipe, cable, and pavement are needed, and maintenance costs are reduced for homeowners.[48] "Studies in Maryland and Illinois show that new residential developments using green infrastructure stormwater controls saved $3,500 to $4,500 per lot (quarter- to half-acre lots) when compared to new developments with conventional stormwater controls."[49]

Low impact development can also minimize the need for irrigation systems.[50] This can be crucial in a hot, dry climate, where as much as 60 percent of the municipal water demand can be attributed to irrigation.[51] LID techniques can even improve air quality by filtering air pollution and helps to counteract urban heat island effect by lowering surface temperatures.[52]

Increased parkland and wildlife habitat, preserving natural features and natural processes – LID strategies include vegetative and grassy swales, tree-box filters, and preserved vegetation, thereby increasing the amount of green spaces in a community.[53] These strategies can also protect regional trees and flora and fauna.[54] Thus, LID measures result in less disturbance of the development area and conservation of natural features.[55] In fact, harvesting rainwater for use in gardens, rather than allowing stormwater runoff into storm drains, can even result in "bigger, healthier plants" because rainwater is better for plants than chlorinated tap water.[56]

Using LID techniques, development can be reconfigured in a more eco-efficient and community-oriented style.[57] Clustering homes on slightly smaller lot areas can allow more preserved open space to be used for recreation, visual aesthetics, and wildlife habitat.[58] Builders in many areas have been able to charge a premium price for "view lots" facing undisturbed natural vistas, or pond areas that also function as bioretention cells.[59]

Enhanced property values – In addition to the aesthetic appeal of more parkland and vegetation, "greening" a neighborhood can often increase property values.[60] "Visitors stroll down Seattle's 'SEA [Street Edge Alternatives] Streets' project marveling at the beautiful landscaping while residents in adjacent blocks continually ask the city when their street will be redesigned to be a 'SEA Street.'[61] The NOAA Coastal Services Center reports that the Trust for Public Lands and National Park Service provide many examples of communities whose property values increased due to their proximity to open space. For example, a cluster development in New York that preserved 97 acres of natural wooded environment is benefiting from its open space. One developer commented, "It may not be the woods that bring (buyers) to us initially, but it seems to make all the difference when they see what it's like."[62]

Cheaper development costs – LID not only raises property values for owners, but it can result in more cost savings for developers as well.[63] Using LID can reduce land clearing and grading costs, potentially reduce impact fees and increase lot yield, and increase lot and community marketability.[64] For example, the Gap Creek residential subdivision in Sherwood, Arkansas used LID methods instead of conventional methods. The results were 17 additional lots, $3000 more per lot than the competition, $4800 less cost per lot, 23.5 acres of green spaces and parks, and ultimately, over $2.2 million in additional profit.[65]

4. The new Permit should correct the weaknesses of the previous permit by defining more inclusive Priority Development Project categories, requiring implementation of LID practices, and improving other aspects of the previous permit.

As the Board recognized five years ago with the adoption of the previous permit, "[b]ecause the urbanization process is a direct and leading cause of water quality degradation in this Region, fundamental changes to existing policies and practices about urban development are needed if the beneficial uses of San Diego's natural water resources are to be protected."[66] In spite of the significant policy and practices changes embodied in the previous permit, the need for fundamental changes remains. Indeed, "when viewed relative to the magnitude of the urban runoff problem, enormous challenges remain. . . . Today, *urban runoff continues to be the leading cause of water quality impairment in the San Diego Region.*"[67] NRDC recognizes and applauds aspects of the Tentative Permit that represent significant improvements over the past permit. In particular, we note that the inclusion of restaurants where land development is less than 5,000 square feet in the Restaurants Priority Development Project category marks a substantial improvement in the new development portion of the permit. Given the scope of the storm water challenge that still confronts the San Diego Region, we urge staff and the Members of the Board to correct the fundamental problems of the existing development program: inappropriately high Priority Development Project thresholds, and insufficient LID requirements. We also urge that several other aspects of the Tentative Order be modified in order to improve the new Permit across the board.

In this connection, NRDC proposes several specific amendments and additions to the language of the Tentative Order. As noted throughout the following discussion of our proposed amendments, these changes have precedent in analogous permits, codes and programs currently

in effect in other municipalities in California as well as states and municipalities across the country. Moreover, Dr. Horner's report (at Attachment I) demonstrates that the amendments proposed by NRDC are both necessary and practical specifically in the San Diego region.

A. Add a 5000 square foot threshold "catch-all" category to the list of Priority Development Project categories to achieve broader implementation of low impact site design BMPs and other source control and treatment BMPs. This "catch-all" category would cover all development types, whether already listed in the Priority Development Project categories in the Permit or not, but would not supersede lower thresholds that already apply to some of the Priority Development Project categories such as retail gasoline outlets, restaurants, and paved areas. NRDC's edits to the language in the Proposed Permit would make development a "Priority Development Project" if it met (1) the development type and sizing criteria in existing categories in the Proposed Permit or, if it did not meet one or both criteria, (2) if it took place on or disturbed more than 5,000 square feet, no matter its type. As discussed above in section 2.A, this threshold is in place in other jurisdictions around the nation.

B. Include public projects as a Priority Development Project category. The MEP standard is informed by other communities' stormwater regimes that apply evenly to private and public development projects[68]; indeed some demand greater effort for public projects.[69] The new Permit should at least reflect such requirements in keeping with the Regional Board's duty to protect the beneficial uses of California's water resources. More fundamentally, a project's public or private ownership is unrelated to its impact on storm water quality, and basing an exclusion on this criterion appears to be illogical, arbitrary, and impermissible.[70] Seeing no evidence in the record that would support preserving this exclusion, we urge the Board to remedy this aspect of the previous permit and apply the same SUSMP requirements to public projects as apply to private Priority Development Projects.

C. Include heavy industrial development projects in the Priority Development Project category. As noted in the preceding paragraph and in section 2.A above, the exclusion of a broad category of new development without evidentiary support is impermissible. This proposition applies to the previous permit's exclusion of industrial projects as well, particularly in light of the pollutant loading associated with industrial land use.[71] It appears that the exclusion of new industrial development projects as a category may be based on the presumption that industrial sources are already regulated under other schemes. This view of the statutory and regulatory requirements in incorrect. Federal regulations broadly require municipal storm water permits to regulate industrial activities and discharges.[72] Further, copermittees must provide legal authority demonstrating their ability to control "the contribution of pollutants to the [MS4] by storm water discharges associated with industrial activity."[73] Moreover, a SUSMP category is appropriate where evidence shows that the "category can be a significant source of pollutants and/or runoff following development."[74] Studies show that industrial activities "can be considered as a hot spot" source of pollutants, and have demonstrated the importance of controlling such pollutants from new development.[75] Because the existing regulatory regime covers the operation of existing industrial development, but does not impose standards on the development of industrial development, and in light of evidence that new industrial development

significantly contributes to pollutant loading in storm water runoff, it is necessary to apply SUSMP requirements to new industrial development in order to maintain consistence with MEP and water quality standards.

D. Require that all Priority Development Projects use low impact site design BMPs to meet the requirement that each copermittee's local SUSMP "(1) reduces the discharge of pollutants from Development Projects to the MEP, (2) ensures urban runoff discharges from Development Projects do not cause or contribute to a violation of water quality standards, and (3) controls urban runoff discharges from Development Projects that have the potential to cause increased erosion of stream beds and banks, silt pollutant generation, or other impacts to beneficial uses and stream habitat due to increased erosive force."[76]

Low impact development practices have been documented to be effective and cost-saving for over a decade,[77] and should be included in the Regional Board's permit as a primary tool to meet the challenges posed by urban runoff in the San Diego Region.[78] The new Permit should explicitly require the implementation of low impact site design BMPs because the language in the previous permit, which required site design BMPs to be implemented where determined to be applicable and feasible, failed to effect broad implementation of site design BMPs.[79] Indeed, in light of the pervasive problem of priority project proponents selecting BMPs without regard to their efficiency, an affirmative requirement to employ LID techniques in new development is imperative for enforcement of low impact site design BMP requirements.[80]

Therefore, the new Permit should require all Priority Development Projects to meet the 85th percentile runoff event treatment standard using LID practices.[81] In the event that specific site conditions render it impossible to meet the numeric SUSMP treatment standard solely using LID techniques, the proponent of such a Priority Development Project would submit an application, based on site-specific data, for a waiver that would allow the project to use treatment control BMPs in addition to LID BMPs to meet the standard.[82] Such an approach would obviate the need for most feasibility analyses because project proponents would employ LID practices as a rule. In addition to achieving much broader implementation of LID, and the realization of LID-associated storm water management and secondary benefits, the benefits of this plain-requirement approach include "time and cost savings to jurisdictions and applicants," as well as "increased acceptance of LID controls in jurisdictional development regulations and design standards [and] [g]reater usage of LID controls by applicants."[83]

E. Permit the use of infiltration devices for development projects in areas of industrial or light industrial activity; areas subject to high vehicular traffic; automotive repair shops; car washes; fleet storage areas; nurseries; and other "high threat to water quality land uses and activities" designated by copermittees where the groundwater contamination risk is demonstrated to be below an acceptable level. By requiring proponents of development projects in these categories or land use areas to perform hydrogeological analysis using site-specific soils and groundwater data to demonstrate low risk, the goals of reducing runoff, recharging groundwater, and avoiding groundwater contamination can be accomplished.[84]

F. Require incorporation of low impact site design BMPs prior to issuing permits for the addition of impervious surface in existing developments to increase the scope of stormwater controls in the urban landscape. While it is imperative to incorporate LID practices into the design of new developments, much of the San Diego Region is already built out. By requiring low impact site design BMPs when impervious surface is added in existing development, the Permit can more effectively address the source of stormwater runoff: the developed urban landscape.

G. Improve record-keeping and reporting of SUSMP implementation by requiring copermittees to maintain a searchable database of all development and redevelopment in their jurisdictions that tracks Priority Development Projects, and documents the specific post-construction BMPs implemented at each development site.[85] Improved reporting of SUSMP implementation is essential to ensure proper BMP maintenance and, therefore, the effective enforcement of the Permit.[86] Over the past permit term, inconsistent record-keeping practices among the copermittees has at best obscured, and at worst prevented, meaningful evaluation of the extent to which SUSMPs are being implemented in the San Diego Region's urban landscape.[87] The 2005 audit of ten of the copermittees noted of nearly all of the copermittees that "[s]ome of the SUSMP reports reviewed by the evaluation team lacked the necessary detail to determine whether the plan fully complied with the SUSMP requirements."[88]

In attempting to gather information from several of the copermittees to evaluate the effectiveness of the previous permit, we at NRDC encountered similar difficulties locating relevant records. Numerous rounds of phone calls to storm water staff, development services departments, and clerks; Public Records Act requests for building records; and searches of numerous copermittees' annual JURMP reports yielded little information as to the actual extent of implementation of BMPs in SUSMP-applicable projects. Given the premise that the municipal storm water permits are to continually evolve and improve,[89] and that evaluating the effectiveness of existing programs is necessary in order to make adjustments and improvements, we urge that record-keeping and reporting is a fundamentally important aspect of the Permit.

5. The Proposed Permit should also be modified to include numeric effluent limitations to address continuing water quality degradation.

Making the Proposed Permit's development planning program LID-focused constitutes a critical and practicable improvement that should be made before the Permit is issued. Likewise, apart from its development planning program, a more general inadequacy of the Proposed Permit is its failure to otherwise limit the flow of pollution using the most effective and tailored permit limits: numeric effluent limitations.

EPA policy requires numeric effluent limitations in individual storm water permits wherever feasible, that is, whenever there are sufficient data to determine the limits.[90] EPA reiterated that numeric limitations are appropriate for toxic pollutants in storm water flows wherever possible when it promulgated the California Toxics Rule (40 C.F.R. Part 131.38, the "CTR"). (CTR, 65 Fed. Reg. 31682, 31703, May 18, 2000.) EPA's view reflects more than

thirty years of experience in conditioning pollutant discharges. This experience has led EPA to conclude that numeric limitations are the most efficacious way of limiting the discharge of pollutants.

More generally, water quality-based effluent limitations (WQBELs) are mandatory when necessary to meet water quality standards, including toxics standards.[91] The test is whether the Regional Board finds that a pollutant "may be discharged at a level which will cause, or have the reasonable potential to cause, or contribute to an excursion above any State water quality standard . . .."[92] This is precisely what the Regional Board found here. As Board staff has recognized, "urban runoff discharges continue to cause or contribute to violations of water quality standards" in the San Diego region.[93] Indeed, the copermittees' own water quality monitoring data show that urban runoff remains a primary cause of water quality impairment in San Diego County:

> Persistent exceedances of Basin Plan water quality objectives for various urban runoff-related pollutants [including] diazinon, fecal coliform bacteria, total suspended solids, turbidity, metals, etc. . . . At some monitoring stations, statistically significant upward trends in pollutant concentrations have been observed. Persistent toxicity has also been observed. . . . [U]rban runoff discharges are [not only] causing or contributing to water quality impairments, [but] are a leading cause of such impairments in San Diego County.[94]

In light of the persistence of significant water quality problems in the San Diego area, Board staff has recognized that it is imperative that the focus for evaluating the success of copermittees' stormwater programs shift from program implementation to the realization of water quality results in the coming permit cycle: "After over 15 years of Copermittee program implementation, it is critical that the Copermittees link their efforts with positive impacts on water quality."[95]

The structure of the Proposed Permit, however, does not sufficiently reflect the facts in the record—or staff's own recognition that water quality demands better-tailored limitations on pollutants. The Proposed Permit relies on a BMP-based approach, both with respect to meeting the applicable Clean Water Act technology-based limitation, MEP, and in meeting the requirement not to cause or contribute to excursions of water quality standards. Indeed, with respect to WQBELs, evidently no specific limitation has been calculated or set forth in the Proposed Permit, either expressed as a number *or* expressed as one or more BMPs. There is no evidence, nor are there findings, that adequately support this approach under the circumstances. Indeed, a generic BMP-based approach is precisely the tack taken over the last fifteen years. This structure has resulted in a lack of sufficient progress, which is reflected in the record and acknowledged by the copermittees and Board staff.

Some parties may contend that numeric WQBELs, or numeric interpretation of MEP in the form of numeric effluent limitations, are not *required* for storm water permits. This is not the

case. EPA requires that numeric limitations be incorporated into individual storm water permits whenever there is sufficient information to develop them:

> In cases where adequate information exists to develop more specific conditions or limitations to meet water quality standards, these conditions or limitations are to be incorporated into storm water permits as necessary and appropriate. This interim permitting approach is not intended to affect those storm water permits that already include appropriately derived numeric water quality-based effluent limitations.

(EPA, Interim Permitting Approach for Water Quality-Based Effluent Limitations in Storm Water Permits, 61 Fed. Reg. 43761, Aug. 26, 1996.) In fact, California courts have emphasized that "[I]n most cases, the easiest and most effective chemical-specific limitation would be numeric."[96]

Likewise, the fact that federal regulations authorize BMPs for storm water where numeric effluent limitations are infeasible, does not support departure from the usual approach here. (40 C.F.R. § 122.44(k).) The additional authority provided by Section 122.44 for storm water does not change the underlying rule that numeric limitations are the presumptive tool. Likewise, the infeasibility provision only applies when the *determination of effluent limits* is infeasible due to lack of data, something which the record here does not support. Indeed, no subsection of Section 122.44(k) provides that non-numeric limitations shall be the only limitation imposed on the flow of pollutants in storm water permits.

For these reasons, the Proposed Permit's failure to include numeric limitations on the discharge of pollutants violates the Clean Water Act, the Porter-Cologne Act, and is otherwise an abuse of discretion. The situation here is simple: the record contains overwhelming evidence that discharges from the MS4 are causing violations of water quality standards; the Proposed Permit, however, retains the same structural approach to pollution limitation that, for fifteen years, has not yielded sufficient results. No evidence or analysis demonstrates that the Proposed Permit contains limitations which will effectively address the region's leading source of water quality impairment. To fail to include better-tailored, more specific, and more effective pollution limitations on these facts cannot be justified.

We thank the Board Members and Board Staff for this opportunity to comment on the Tentative Order, and for your continued commitment to protecting the water resources in the San Diego Region.

Sincerely,

David S. Beckman, Senior Attorney

Dorothée A. Alsentzer, Legal Fellow

ENDNOTES

[1] State Water Resources Control Board, "Low Impact Development – Sustainable Storm Water Management," (Jan. 2005) ("Low Impact Development (LID) is a sustainable practice that benefits water supply and contributes to water quality protection. . . . LID has been a proven approach in other parts of the country and is seen in California as an alternative to conventional storm water management. The Water Boards are advancing LID in California in various ways [including] . . . [r]esearching how to incorporate LID language in to Standard Urban Storm Water Mitigation Requirements."), at http://www.waterboards.ca.gov/lid/index.html, last accessed June 13, 2006.

[2] Regional Water Quality Control Board, San Diego Region, Tentative Order No. 2006-0011 at p. 5 (hereinafter "Tentative Order" or "Proposed Permit").

[3] Tentative Order at p. 4; see also RWQCB, Fact Sheet/ Technical Report for Tentative Order No. 2006-0011 (March 10, 2006) at pp. 7, 15-18 (hereinafter "Fact Sheet").

[4] See Fact Sheet at p. 23 (noting that U.S. EPA stated with respect to "municipal storm water regulations that 'successive iterations of the mix of BMPs and measurable goals will be driven by the objective of assuring maintenance of water quality standards'") (quoting 61 Fed. Reg. 43,761 (Aug. 26, 1996)).

[5] See Fact Sheet at pp. 7-8 ("After over 15 years of Copermittee program implementation, it is critical that the Copermittees link their efforts with positive impacts on water quality.")

[6] As Board staff notes, many efforts currently conducted on a regular basis under the copermittees' Jurisdictional Urban Runoff Management Programs "were not conducted on a widespread basis prior to the adoption of Order No. 2001-01 . . . [such as] construction site storm water inspections, industrial and commercial facility storm water inspections, municipal facility storm water inspections, management of storm water quality from new development, development of best management practice requirements of existing development, and assessment of storm water program effectiveness." (Fact Sheet at p. 7.)

[7] Requirements relating to the new development and redevelopment components of the copermittees' Jurisdictional Urban Runoff Management Programs ("JURMPs") are addressed in sections F.1 and D.1 of the previous permit and tentative order, respectively.

[8] See e.g., Michael Mallin, *Wading in Waste*, SCIENTIFIC AMERICAN, June 2006, at pp. 54-56; NRDC, *Stormwater Strategies: Community Responses to Runoff Pollution* (1999); NRDC, *Rooftops to Rivers: Green Strategies for Controlling Stormwater and Combined Sewer Overflows* (2006) at pp. 2.2-2.5 (hereinafter "Rooftops to Rivers") (attached hereto as Attachment II); U.S. EPA *Preliminary Data Summary of Urban Storm Water Best Management Strategies* (Aug. 1999) at p. 85.

[9] See Regional Water Quality Control Board, San Diego Region, Order No. 2001-01 (as amended by State Water Resources Control Board Order WQ 2001-15 (Nov. 15 2001)) at pp. 2, 4 (hereinafter "RWQCB Order No. 2001-01" or "previous permit"); Tentative Order at pp. 4-5; Fact Sheet at pp. 18-21.

[10] Fact Sheet at p. 22.

[11] *In re Cities of Bellflower*, SWRCB WQ 2000-11 (2001 WL 33158724) at *12.

[12] *Natural Resources Defense Council v. Costle* (D.C. Cir. 1977) 568 F.2d 1369, 1371.

[13] See Tentative Order No. 2006-0011 at pp. 4-5; Fact Sheet at pp. 7, 15-18.

[14] *Natural Resources Defense Council v. Costle* (D.C. Cir. 1977) 568 F.2d 1369; *Topanga Ass'n for a Scenic Community v. County of Los Angeles* (1974) 11 Cal.3d 506, 514-15.

[15] While the parking lots associated with such large retail stores would likely fall under the parking lot Priority Development Project category, "[a] project can fall under more than one category, thereby requiring additional source controls for each category." (Tetra Tech, Inc. *San Diego SUSMP Report* (Apr. 29, 2005) at p. 20.) Thus, including large commercial developments that are less than 100,000 square feet would result in broader SUSMP applicability even if such projects would trigger the parking lot priority project threshold separately.

[16] County of San Diego Dept. of Planning and Land Use, *Weekly Permits Issued by Type From 1/1/2003 to 5/3/2006.*

[17] County of San Diego, JURMP Annual Report for July 1, 2004 – June 30, 2005, at p. 6-5; see also, *inter alia*, City of Carlsbad, JURMP Annual Report for July 1, 2002 – June 30, 2003, at Part 6.2 (reporting that of 5,621 permits/projects that were issued and/or approved, "65 discretionary projects were reviewed and required to submit applicable SWPPPs and SWMPs"); City of Carlsbad, JURMP Annual Report for July 1, 2003 – June 30, 2004, at p. iv (73 of 7,106 permit/projects that were issued or approved were required to submit applicable SWPPPs in permit year 2003-2004); City of Carlsbad, JURMP Annual Report for July 1, 2004 – June 30, 2005, at p. iv (in permit year 2004-2005, 7,089 permits/projects were issued and/or approved and 73 discretionary projects were required to submit SWPPPs).

[18] RWQCB Order No. 2001-001at p. 2 (discussing the increase in impervious cover and associated increase in runoff volume resulting from urban development, and noting "[s]ignificant declines in the biological integrity and physical habitat of streams and other receiving waters" are associated with "as little as a 10% conversion from natural to impervious surfaces. [Even] developments of medium density single family homes range between 25 to 60% impervious."); Tentative Order at pp. 4-5 (same); NRDC, *Rooftops to Rivers* (2006) at pp. 2.2-2.5.

[19] See RWQCB Order No. 2001-01 at p. 3 (noting that "[t]hese types of BMPs, such as grassy swales and constructed wetlands, can frequently be as effective as less natural BMPs, while providing additional benefits such as aesthetics and habitat.").

[20] RWQCB Order No. 2001-01 at p. 15 (emphasis added).

[21] RWQCB Order No. 2001-01 at p. 2.

[22] See RWQCB Order No. 2001-01 at p. 3.

[23] See RWQCB Order No. 2001-01 at p. 17.

[24] Model Standard Urban Storm Water Mitigation Plan for San Diego County, Port of San Diego, and Cities in San Diego County, (2002) at p. 21(hereinafter "Model SUSMP").

[25] Tetra Tech, Inc., San Diego Area Stormwater Program: Cities of Encinitas, Lemon Grove, Poway, and Santee (NPDES Permit No. CAS0108758) (June 11, 2004) at p. 8; Tetra Tech, Inc., San Diego Standard Urban Storm Water Mitigation Plan (SUSMP) Evaluation (April 29, 2005) at pp. 8, 10, 12, 14, 18, 21, 24, 47, 29, 30, 34, 37, 40 (hereinafter "San Diego SUSMP Report 2005").

[26] See San Diego Municipal Stormwater Copermittees, Report of Waste Discharge (Aug. 2005) at p. 44.

[27] See San Diego Municipal Stormwater Copermittees, Report of Waste Discharge (Aug. 2005) at p. 43.

[28] See e.g., State Water Resources Control Board, "Low Impact Development – Sustainable Storm Water Management," (Jan. 2005) ("LID is a sustainable practice that *benefits water supply and contributes to water quality protection*. . . . LID has been a *proven approach* in other parts of the country") (emphasis added).

[29] See Attachments IV, V (Table of Contents and Collection of LID reference materials).

[30] See, e.g., RWQCB Fact Sheet/Technical Report for Order No. 2001-01 at p. 185 (citing *inter alia*, Bay Area Stormwater Management Agencies Association (BASMAA), *Start at the Source* (1999)); San Diego Co-Permittees Final Model SUSMP (2002) Appendix B, pp. 40-42 (citing numerous manuals and reports relating to storm water management and LID practices, including U.S. EPA, *Preliminary Data Summary of Urban Runoff Best Management Practices* (1999); and Price George's County, MD Dept. of Environmental Resource Programs and Planning Division, *Low-Impact Design Strategies – An Integrated Design Approach* (1999)); City of Chula Vista, *Development and Redevelopment Projects Storm Water Management Standards Requirements Manual* (Nov. 2002) Appendix E (Suggested Resources); City of Carlsbad, Standard Urban

Storm Water Mitigation Plan Storm Water Standards (Apr. 2003) Appendix G (Suggested Resources).

[31] See Model SUSMP at p. 9.

[32] U.S. EPA, *Preliminary Data Summary of Urban Runoff Best Management Practices* (Aug. 1999) at p. 5-39.

[33] See U.S. EPA, *Preliminary Data Summary of Urban Runoff Best Management Practices* (Aug. 1999) at pp. 6-25-27.

[34] Final Model SUSMP (2002), Appendix B, pp. 40-42.

[35] In response to the Regional Board's 2004 re-issuance letter, the copermittees state without reference to any supporting evidence that "[LID concepts] are often . . . considerably more expensive. . . . [and] are relatively new and lack proven design standards that are widely accepted by land use professionals and adopted into jurisdictional design regulations." (San Diego Municipal Stormwater Copermittees, *Report of Waste Discharge* (Aug. 2005) at p. 43.) This assertion inexplicably ignores the large body of technical design manuals, case studies, and reports that have been published over the past decade documenting both the effectiveness and cost benefits of LID practices, as well as the numerous jurisdictional design regulations implementing LID approaches. (See Attachments IV, V.) Indeed, in the April 2005 Audit report of ten of the copermittees' JURMPs, three LID resources are cited for the copermittees' reference. (Tetra Tech, Inc., *San Diego Standard Urban Storm Water Mitigation Plan (SUSMP) Evaluation* (April 2005) at p. 5 (citing BASMAA, *Using Site Design Techniques to Meet Development Standards for Storm Water Quality* (May 2003), available at http://www.ehs.berkeley.edu/whatwedo/airwater/ccg/usingstartatthesource.pdf; Santa Clara Valley Urban Runoff Program at http://www.ci.fremont.ca.us/Construction/StormwaterRegulations/SiteDesignTechniques.htm; The Low Impact Development Center at http://www.lid-stormwater.net/intro/sitemap.htm).) The copermittees' baseless assertion is further belied by the copermittees' own Model SUSMP, which in 2002 referenced BMP manuals that cover LID techniques. Moreover, RWQCB Order No. 2001-01 referred the copermittees to *Start at the Source,* a comprehensive low impact site design BMP manual produced in 1999 by the Bay Area Stormwater Management Agencies Association. Indeed, as to the copermittees' implication that because LID practices are relatively new, they must not be effective, one need only point to the persistent—and in some cases worsening—water quality problems in the San Diego Region as evidence that the copermittees' preferred course is not working. "[M]anagement practices widely adopted in the past twenty years like stenciling catch basins and street sweeping, can be considered 'first wave BMPs.' These housekeeping practices have value, and deserve to be continued. But they perpetuate a conventional approach to stormwater management *based on collection and conveyance.* Given development pressures and the environmental goals established by the Clean Water Act, more fundamental changes are required. Because *the most economical and effective strategies arise in site planning and design*, this document emphasizes ways to minimize the creation of new

runoff, and to infiltrate or detain runoff in the landscape. These 'second wave BMPs' go beyond incremental changes to a conveyance storm drain system. They require a new way of thinking about impervious land coverage and stormwater management. They are a collection of *proven methods and techniques* that integrates stormwater management into planning and design, that reduces overall runoff, and manages stormwater as a resource, by starting at the source." (BASMAA, *Starting at the Source* (1999) at p. 26 (emphasis added).)

[36] Project Clean Water, San Diego River Watershed, at http://www.projectcleanwater.org/html/ws_san_diego_river.html, last accessed June 20, 2006.

[37] Prince George's County, Maryland, Dept. of Environmental Resources, *Low Impact Development Hydrologic Analysis* (July 1999), at p. 4, at http://www.epa.gov/owow /nps/lid_hydr.pdf, last accessed June 20, 2006; Devinny, J. Kamieniecki, S., Stenstrom, M., *Alternative Approaches to Stormwater Quality Control* (June 2004) at p. 42 (University of Southern California and University of California at Los Angeles study prepared for the Los Angeles Regional Water Quality Control Board).

[38] PATH, Technology Inventory, *Low Impact Development (LID) Practices for Storm Water Management*, at http://www.toolbase.org/techinv/techDetails.aspx?technologyID=223, last accessed June 20, 2006; EPA, *Low Impact Development Hydrologic Analysis* (July 1999), at p. 4.

[39] PATH Technology Inventory, *Low Impact Development (LID) Practices for Storm Water Management*, at 1; State of Massachusetts, *Smart Growth Toolkit*, at http://www.mass.gov/envir/smart_growth_toolkit /pages/mod-lid.html, last accessed June 20, 2006.

[40] Devinny, J., *et al.*, *Alternative Approaches to Stormwater Quality Control* (June 2004) at p. 42.

[41] See Gary Polakovic, *Water Quest Shifts Course*, L.A. TIMES, June 11, 2006, at B.1.

[42] Robertus, J., RWQCB Executive Officer, *Stormwater Treatment Options* (CLE International Jan. 2006) at pp. 1, 3 (watersheds in the San Diego Region have largely been "built out" in the past 80 years, but "in the remaining undeveloped areas, increasing pressure for development is focused on any remaining sites that might be suitable for construction.") (paper prepared for presentation at California Wetlands Conference (January 27-28 2006), and does not represent the views held or any action taken by the RWQCB).

[43] Email from Tedi Jackson, Supervising Public Information Officer, City of San Diego Water Department, to Dorothée Alsentzer, Legal Fellow, NRDC, May 3, 2006.

[44] See Metropolitan Water District of Southern California, Water Rates and Charges, at http://www.mwdh2o.com/mwdh2o/pages/finance/finance_03.html, last accessed June 9, 2006.

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[45] Table 1 adapted from Horner, R., *Investigation of the Feasibility and Benefits of Low-Impact Site Design Practices ("LID") for the San Diego Region* (June 2006) (attached hereto as Attachment I).

[46] Puget Sound Online: Puget Sound Action Team, *Benefits of Low Impact Development*, at http://www.psat.wa.gov/Programs/LID/LID_benefits.htm, last accessed June 20, 2006; Dept. of Defense, *United Facilities Criteria: Low Impact Development* (Oct. 2004), at p. 3.

[47] Dept. of Defense, *United Facilities Criteria: Low Impact Development* (Oct. 2004), at p. 5.

[48] *See* PATH Technology Inventory, *Low Impact Development (LID) Practices for Storm Water Management*; U.S. EPA, *Preliminary Data Summary of Urban Storm Water Best Management Practices* (Aug. 1999) at pp. 6-25-27; BASMAA, *Start at the Source* (1999) at p. 80.

[49] NRDC, *Rooftops to Rivers: Green Strategies for Controlling Stormwater and Combined Sewer Overflows* (April 2006) at 4.12 (attached hereto as Attachment II); see also Puget Sound Online: Puget Sound Action Team, *Benefits of Low Impact Development* ("A developer in Maryland saved 30 percent in construction costs by using LID practices rather than conventional mitigation methods. AHBL Engineering of Tacoma conducted a study that showed that a conventional residential development could have been designed at significant cost savings if LID techniques had been used rather than conventional ones."), at http://www.psat.wa.gov/Programs/LID/LID_benefits.htm, last accessed June 19, 2006.

[50] PATH Technology Inventory, *Low Impact Development (LID) Practices for Storm Water Management*.

[51] Texas Water Development Board, *The Texas Manual on Rainwater Harvesting* (3d ed. 2005), at p. 36, at http://www.twdb.state.tx.us/publications/reports/RainwaterHarvestingManual_3rdedition.pdf, last accessed June 19, 2006.

[52] NRDC, *Rooftops to Rivers*, at 3.10.

[53] NEMO California Partnership, *Low Impact Development (LID)*, at http://ca-walup.usc.edu/LID_Factsheet.pdf, last accessed June 20, 2006.

[54] NAHB Research Center, *Builder's Guide to Low Impact Development*, at http://www.toolbase.org/docs/MainNav/GreenBuilding/3832_Builder-final-screen.pdf, last accessed June 20, 2006.

[55] EPA, *Low Impact Development: A Literature Review* (Oct. 2002) at p. 2, at http://www.epa.gov/nps/lid.pdf, last accessed June 20, 2006.

[56] Sam Williams, *Harvesting the Rain*, GOTHAM GAZETTE, May 2006 ("It's a win-win for the environment and for gardeners."), at http://www.gothamgazette.com/article/environment/20060531/7/1871.

[57] EPA, *Low Impact Development: A Literature Review* (Oct. 2002) at p. 3.

[58] RWQCB Order No. 2001-01 at p. 3 ("BMPs which utilize natural processes. . . . can frequently be as effective as less natural BMPs, while providing additional benefits such as aesthetics and habitat."); PATH Technology Inventory, *Low Impact Development (LID) Practices for Storm Water Management*; NRDC, Rooftops to Rivers, at 3.10 ("Green infrastructure also improves urban aesthetics, has been shown to increase property values, and provides wildlife habitat and recreational space for urban residents.").

[59] PATH Technology Inventory, *Low Impact Development (LID) Practices for Storm Water Management.*

[60] See, e.g., PATH Technology Inventory, *Low Impact Development (LID) Practices for Storm Water Management*; Devinny, J., *et al.*, *Alternative Approaches to Stormwater Quality Control* (June 2004) at p. 43; BASMAA, *Start at the Source* (1999) at p. 80.

[61] Puget Sound Online: Puget Sound Action Team, *Benefits of Low Impact Development.*

[62] NOAA Coastal Services Center, at http://www.csc.noaa.gov/alternatives/ openSpace.html, last accessed June 20, 2006.

[63] See e.g., BASMAA, *Start at the Source* (1999) at p. 80; see generally Attachments IV, V.

[64] NAHB Research Center, *Builder's Guide to Low Impact Development*, at http://www.toolbase.org/docs/MainNav/GreenBuilding/3832_Builder-final-screen.pdf, last accessed June 20, 2006.

[65] NEMO California Partnership, *Low Impact Development (LID)* at http://ca-walup.usc.edu/LID_Factsheet.pdf, last accessed June 20, 2006.

[66] RWQCB Order No. 2001-01 at pp. 4-5.

[67] Fact Sheet at p. 7 (emphasis added).

[68] See e.g., New Jersey Stormwater Rules, N.J.A.C. § 7:8-1.2; State of Washington, Phase I Municipal Stormwater NPDES General Permit (Draft Feb. 15, 2006) Appendix I (Minimum Technical Requirements for New Development and Redevelopment), at pp. 7, 8, 20); Maryland Model Stormwater Management Ordinance (July 2000) at pp. 2, 5, 8); City of Portland, Stormwater Management Manual (adopted July 1, 1999; updated September 1, 2004) Chapter 1.5.2 (Pollution Reduction Requirements) at p.1-25).

[69] See City of Santa Monica Municipal Code, Chapter 7.10 (broad definition of new development to which stormwater requirements apply includes "any construction project undertaken by the City where the runoff controls required by this Chapter are feasible and economical").

[70] *Natural Resources Defense Council v. Costle* (D.C. Cir. 1977) 568 F.2d 1369, 1377, 1382 (rejecting categorical exclusion as inconsistent with purpose of Clean Water Act).

[71] See e.g., 58 Fed.Reg. 61,146 at pp. 61,156-58 (municipalities are "ultimately responsible for discharges from their MS4" and must develop a program to "establish and implement BMPs to reduce pollutants from . . . industrial facilities"); RWQCB Los Angeles Region, *The Role of Municipal Operators In Controlling the Discharge of Pollutants in Storm Water Runoff from Industrial/Commercial Facilities* (Nov. 2001) at pp. 5-7.

[72] 40 C.F.R. § 122.26(b)(5), (8), (d)(1)(i)(2), (d)(2)(ii).

[73] 40 C.F.R. § 122.26(d)(2)(i)(A).

[74] *In Re Cities of Bellflower* SWRCB WQ 2000-11 (2001 WL 33158724) at *9.

[75] RWQCB Los Angeles Region, *The Role of Municipal Operators In Controlling the Discharge of Pollutants in Storm Water Runoff from Industrial/Commercial Facilities* (Nov. 2001) at pp. 5-7.

[76] Tentative Order No. 2006-0011 at pp. 16-17.

[77] See e.g., NRDC, *Rooftops to Rivers: Green Strategies for Controlling Stormwater and Combined Sewer Overflows* (April 2006); BASMAA, *Start at the Source* (1999); Attachments IV, V.

[78] Robertus, J., RWQCB Executive Officer, *Stormwater Treatment Options* (CLE International Jan. 2006) at p. 5 (requiring low impact development "could dramatically improve the ability of the Regional Board to regulate water quality aspects for development in the San Diego region.") (paper prepared for presentation at California Wetlands Conference (January 27-28 2006), and does not represent the views held or any action taken by the RWQCB).

[79] See San Diego SUSMP Report (2005) at pp. 8, 10, 12, 14, 18, 21, 24, 47, 29, 30, 34, 37, 40.

[80] San Diego SUSMP Report (2005) at pp. 11, 15, 18, 21, 24, 27, 30, 34, 37, 40.

[81] See City of Portland, *Stormwater Management Manual* (adopted July 1, 1999; updated Sept. 1, 2004) at p. 1-25 (applying numeric pollution reduction requirements to "all development projects with over 500 square feet of impervious development footprint area, and all existing

sites that propose to create new off-site stormwater discharges") (hereinafter "Portland Stormwater Management Manual").

[82] See *Portland Stormwater Management Manual* at p. 1-41 (under a "special circumstances" exception, providing for case-specific waivers and in-lieu-of fee program).

[83] San Diego Municipal Stormwater Copermittees, Report of Waste Discharge (Aug. 2005) at p. 44. While the copermittees advocate in the ROWD for a voluntary low-impact design "credit program," the strategy we believe is necessary includes the *mandatory* use of low impact site design BMPs to meet numeric SUSMP treatment standards. As discussed in section 2, permit language falling short of mandatory low impact site design BMPs has failed to achieve broad LID implementation.

[84] U.S. EPA, *Potential Groundwater Contamination from Intentional and Nonintentional Stormwater Infiltration* (May 1994) at pp. 3-4.

[85] See e.g., Tetra Tech, Inc., San Diego SUSMP Report (April 29, 2005) at p. 4 ("Copermittees also must develop a system to track SUSMP projects. This will help copermittees to report the total number of SUSMP projects to the Regional Board each year and will ensure that the copermittees can identify these priority projects in the future.")

[86] Proper tracking of SUSMP-applicable projects is prerequisite to being able to inspect BMPs in the field for proper design and maintenance. See e.g., Tetra Tech, Inc., San Diego SUSMP Report (April 29, 2005) at p. 23 (finding the tracking of SUSMP-applicable facilities difficult due to record-keeping practices, and noting that many of the SUSMP facilities in City of Escondido were inadequately maintained and that sites were inconsistent with approved plans); p. 27 (noting that City of Lemon Grove "should develop a system to track installed BMPs to help verify maintenance."); p. 29 (finding that the City of National City is in need of a SUSMP tracking system "as more SUSMP projects are approved in order to assist with both reporting on SUSMP activities and verifying maintenance of SUSMP BMPs.")

[87] See e.g., Tetra Tech, Inc., San Diego SUSMP Report (April 29, 2005) at p. 9 ("Because the County does not specifically flag projects that fall under one of the SUSMP priority project categories, the County was not able to easily identify SUSMP projects for the evaluation team to review. . . . [and] is unable to effectively report the number of SUSMP projects reviewed annually to the Regional Board."); p. 23 (in evaluating City of Escondido's SUSMP tracking and screening, "[t]he evaluation team found it difficult to follow exactly how the projects were tracked for SUSMP compliance. A hand-written logbook was used to enter projects, and SUSMP-applicable projects were not clearly marked."); pp. 29, 31 (finding that City of National City "should improve their [sic] SUSMP tracking mechanism. Information on SUSMP projects is contained within individual project files. The City does not track SUSMP projects using a computerized system and therefore is unable to quickly track or summarize SUSMP projects.")

[88] Tetra Tech, Inc., San Diego SUSMP Report (April 29, 2005) at pp. 14, 18, 21, 24, 27, 30, 34, 37.

[89] Fact Sheet at p. 22.

[90] EPA, Interim Permitting Approach for Water Quality-Based Effluent Limitations in Storm Water Permits, 61 Fed. Reg. 43761, Aug. 26, 1996.

[91] 40 C.F.R. § 122.44(d)(1).

[92] Id.

[93] Tentative Order at p. 5.

[94] Tentative Order at p. 4; see also RWQCB, Fact Sheet/ Technical Report for Tentative Order No. 2006-0011 (March 10, 2006) at pp. 7, 15-18.

[95] Fact Sheet at pp. 7-8.

[96] *Communities for a Better Environment v. State Water Resources Control Board* (2003) 109 Cal.App.4th 1089, 1104-1105 (quoting *In the Matter of the Petition of Citizens for a Better Environment et al.*, WQ 91-03, May 16, 1991).

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION
TENTATIVE ORDER NO. R9-2006-0011
NPDES NO. CAS0108758
WASTE DISCHARGE REQUIREMENTS
FOR DISCHARGES OF URBAN RUNOFF FROM
THE MUNICIPAL SEPARATE STORM SEWER SYSTEMS (MS4s)
DRAINING THE WATERSHEDS OF THE COUNTY OF SAN DIEGO,
THE INCORPORATED CITIES OF SAN DIEGO COUNTY,
THE SAN DIEGO UNIFIED PORT DISTRICT,
AND THE SAN DIEGO COUNTY REGIONAL AIRPORT AUTHORITY

The California Regional Water Quality Control Board, San Diego Region (hereinafter Regional Board), finds that:

A. BASIS FOR THE ORDER

1. This Order is based on the federal Clean Water Act (CWA), the Porter-Cologne Water Quality Control Act (Division 7 of the Water Code, commencing with Section 13000), applicable state and federal regulations, all applicable provisions of statewide Water Quality Control Plans and Policies adopted by the State Water Resources Control Board (SWRCB), the Water Quality Control Plan for the San Diego Basin adopted by the Regional Board, the California Toxics Rule, and the California Toxics Rule Implementation Plan.

2. This Order renews National Pollutant Discharge Elimination System (NPDES) Permit No. CAS0108758, which was first issued on July 16, 1990 (Order No. 90-42), and then renewed on February 21, 2001 (Order No. 2001-01). On August 25, 2005, in accordance with Order No. 2001-01, the County of San Diego, as the Principal Permittee, submitted a Report of Waste Discharge (ROWD) for renewal of their MS4 Permit.

B. REGULATED PARTIES

1. Each of the persons in Table 1 below, hereinafter called Copermittees or dischargers, owns or operates a municipal separate storm sewer system (MS4), through which it discharges urban runoff into waters of the United States within the San Diego Region. These MS4s fall into one or more of the following categories: (1) a medium or large MS4 that services a population of greater than 100,000 or 250,000 respectively; or (2) a small MS4 that is "interrelated" to a medium or large MS4; or (3) an MS4 which contributes to a violation of a water quality standard; or (4) an MS4 which is a significant contributor of pollutants to waters of the United States.

Table 1. Municipal Copermittees

1.	City of Carlsbad	12.	City of Oceanside
2.	City of Chula Vista	13.	City of Poway
3.	City of Coronado	14.	City of San Diego
4.	City of Del Mar	15.	City of San Marcos
5.	City of El Cajon	16.	City of Santee
6.	City of Encinitas	17.	City of Solana Beach
7.	City of Escondido	18.	City of Vista
8.	City of Imperial Beach	19.	County of San Diego
9.	City of La Mesa	20.	San Diego Unified Port District
10.	City of Lemon Grove	21.	San Diego County Regional Airport Authority
11.	City of National City		

C. DISCHARGE CHARACTERISTICS

1. Urban runoff contains waste, as defined in the California Water Code (CWC), and pollutants that adversely affect the quality of the waters of the State. The discharge of urban runoff from an MS4 is a "discharge of pollutants from a point source" into waters of the U.S. as defined in the CWA.

2. The most common categories of pollutants in urban runoff include total suspended solids, sediment (due to anthropogenic activities); pathogens (e.g., bacteria, viruses, protozoa);

heavy metals (e.g., copper, lead, zinc and cadmium); petroleum products and polynuclear aromatic hydrocarbons; synthetic organics (e.g., pesticides, herbicides, and PCBs); nutrients (e.g., nitrogen and phosphorus fertilizers), oxygen-demanding substances (decaying vegetation, animal waste), and trash.

3. The discharge of pollutants and/or increased flows from MS4s may cause or threaten to cause the concentration of pollutants to exceed applicable receiving water quality objectives and impair or threaten to impair designated beneficial uses resulting in a condition of pollution (i.e., unreasonable impairment of water quality for designated beneficial uses), contamination, or nuisance.

4. Pollutants in urban runoff can threaten human health. Human illnesses have been clearly linked to recreating near storm drains flowing to coastal waters. Also, urban runoff pollutants in receiving waters can bioaccumulate in the tissues of invertebrates and fish, which may be eventually consumed by humans.

5. Urban runoff discharges from MS4s often contain pollutants that cause toxicity to aquatic organisms (i.e., adverse responses of organisms to chemicals or physical agents ranging from mortality to physiological responses such as impaired reproduction or growth anomalies). Toxic pollutants impact the overall quality of aquatic systems and beneficial uses of receiving waters.

6. The Copermittees discharge urban runoff into lakes, drinking water reservoirs, rivers, streams, creeks, bays, estuaries, coastal lagoons, the Pacific Ocean, and tributaries thereto within ten of the eleven hydrologic units (watersheds) comprising the San Diego Region as shown in Table 2 below. Some of the receiving water bodies have been designated as impaired by the Regional Board and the United States Environmental Protection Agency (USEPA) in 2002 pursuant to CWA section 303(d). Also shown below are the watershed management areas (WMAs) as defined in the Regional Board report, Watershed Management Approach, January 2002.

Table 2. Common Watersheds and CWA Section 303(d) Impaired Waters

REGIONAL BOARD WATERSHED MANAGEMENT AREA (WMA)	HYDROLOGIC UNIT(S)	MAJOR SURFACE WATER BODIES	303(d) POLLUTANT(S) OF CONCERN OR WATER QUALITY EFFECT	COPERMITTEES
Santa Margarita River	Santa Margarita (902.00)	Santa Margarita River and Estuary, Pacific Ocean	1. Eutrophic 2. Nitrogen 3. Phosphorus 4. Total Dissolved Solids	1. County of San Diego
San Luis Rey River	San Luis Rey (903.00)	San Luis Rey River and Estuary, Pacific Ocean	1. Bacterial Indicators 2. Eutrophic 3. Chloride 4. Total Dissolved Solids	1. City of Escondido 2. City of Oceanside 3. City of Vista 4. County of San Diego
Carlsbad	Carlsbad (904.00)	Batiquitos Lagoon San Elijo Lagoon Agua Hedionda Lagoon Buena Vista Lagoon And Tributary Streams Pacific Ocean	1. Bacterial Indicators 2. Eutrophic 3. Sedimentation/Siltation 4. Nutrients 5. Total Dissolved Solids	1. City of Carlsbad 2. City of Encinitas 3. City of Escondido 4. City of Oceanside 5. City of San Marcos 6. City of Solana Beach 7. City of Vista 8. County of San Diego

REGIONAL BOARD WATERSHED MANAGEMENT AREA (WMA)	HYDROLOGIC UNIT(S)	MAJOR SURFACE WATER BODIES	303(d) POLLUTANT(S) OF CONCERN OR WATER QUALITY EFFECT	COPERMITTEES
San Dieguito River	San Dieguito (905.00)	San Dieguito River and Estuary, Pacific Ocean	1. Bacterial Indicators 2. Sulfate 3. Color 4. Nitrogen 5. Phosphorus 6. Total Dissolved Solids	1. City of Del Mar 2. City of Escondido 3. City of Poway 4. City of San Diego 5. City of Solana Beach 6. County of San Diego
Mission Bay	Peñasquitos (906.00)	Los Peñasquitos Lagoon Mission Bay, Pacific Ocean	1. Bacterial Indicators 2. Metals 3. Eutrophic 4. Sedimentation/Siltation 5. Toxicity	1. City of Del Mar 2. City of Poway 3. City of San Diego 4. County of San Diego
San Diego River	San Diego (907.00)	San Diego River, Pacific Ocean	1. Bacterial Indicators 2. Eutrophic 3. pH 4. Total Dissolved Solids 5. Oxygen (Dissolved)	1. City of El Cajon 2. City of La Mesa 3. City of Poway 4. City of San Diego 5. City of Santee 6. County of San Diego
San Diego Bay	Pueblo San Diego (908.00) Swcetwater (909.00) Otay (910.00)	San Diego Bay Sweetwater River Otay River Pacific Ocean	1. Bacterial Indicators 2. Metals 3. Sediment Toxicity 4. Benthic Community Degradation 5. Diazinon 6. Chlordane 7. Lindane 8. PAHs 9. PCBs	1. City of Chula Vista 2. City of Coronado 3. City of Imperial Beach 4. City of La Mesa 5. City of Lemon Grove 6. City of National City 7. City of San Diego 8. County of San Diego 9. San Diego Unified Port District 10.San Diego County Regional Airport Authority
Tijuana River	Tijuana (911.00)	Tijuana Rivcr and Estuary Pacific Ocean	1. Bacterial Indicators 2. Low Dissolved Oxygen 3. Metals 4. Eutrophic 5. Pesticides 6. Synthetic Organics 7. Trace Elements 8. Trash 9. Solids	1. City of Imperial Beach 2. City of San Diego 3. County of San Diego

7. The Copermittees' water quality monitoring data submitted to date documents persistent exceedances of Basin Plan water quality objectives for various urban runoff-related pollutants (diazinon, fecal coliform bacteria, total suspended solids, turbidity, metals, etc.) at various watershed monitoring stations. At some monitoring stations, such as Agua Hedionda, statistically significant upward trends in pollutant concentrations have been observed. Persistent toxicity has also been observed at some watershed monitoring stations. In addition, bioassessment data indicates that the majority of watersheds have Poor to Very Poor Index of Biotic Integrity ratings. In sum, the above findings indicate that urban runoff discharges are causing or contributing to water quality impairments, and are a leading cause of such impairments in San Diego County.

8. When natural vegetated pervious ground cover is converted to impervious surfaces such as paved highways, streets, rooftops, and parking lots, the natural absorption and infiltration abilities of the land are lost. Therefore, runoff leaving a developed urban area is significantly greater in runoff volume, velocity, peak flow rate, and duration than pre-development runoff from the same area. The increased volume, velocity, rate, and duration of runoff greatly accelerate the erosion of downstream natural channels. Significant declines in the biological integrity and physical habitat of streams and other receiving waters have been found to occur with as little as a 10% conversion from natural to impervious surfaces. The increased runoff

characteristics from new development must be controlled to protect against increased erosion of channel beds and banks, sediment pollutant generation, or other impacts to beneficial uses and stream habitat due to increased erosive force.

9. Urban development creates new pollution sources as human population density increases and brings with it proportionately higher levels of car emissions, car maintenance wastes, municipal sewage, pesticides, household hazardous wastes, pet wastes, trash, etc. which can either be washed or directly dumped into the MS4. As a result, the runoff leaving the developed urban area is significantly greater in pollutant load than the pre-development runoff from the same area. These increased pollutant loads must be controlled to protect downstream receiving water quality.

10. Development and urbanization especially threaten environmentally sensitive areas (ESAs), such as water bodies designated as supporting a RARE beneficial use (supporting rare, threatened or endangered species) and CWA 303(d) impaired water bodies. Such areas have a much lower capacity to withstand pollutant shocks than might be acceptable in the general circumstance. In essence, development that is ordinarily insignificant in its impact on the environment may become significant in a particular sensitive environment. Therefore, additional control to reduce pollutants from new and existing development may be necessary for areas adjacent to or discharging directly to an ESA.

11. Although dependent on several factors, the risks typically associated with properly managed infiltration of runoff (especially from residential land use areas) are not significant. The risks associated with infiltration can be managed by many techniques, including (1) designing landscape drainage features that promote infiltration of runoff, but do not "inject" runoff (injection bypasses the natural processes of filtering and transformation that occur in the soil); (2) taking reasonable steps to prevent the illegal disposal of wastes; (3) protecting footings and foundations; and (4) ensuring that each drainage feature is adequately maintained in perpetuity.

D. URBAN RUNOFF MANAGEMENT PROGRAMS

1. General

a. This Order specifies requirements necessary for the Copermittees to reduce the discharge of pollutants in urban runoff to the maximum extent practicable (MEP). However, since MEP is a dynamic performance standard which evolves over time as urban runoff management knowledge increases, the Copermittees' urban runoff management programs must continually be assessed and modified to incorporate improved programs, control measures, best management practices (BMPs), etc. Absent evidence to the contrary, this continual assessment, revision, and improvement of urban runoff management program implementation is expected to ultimately achieve compliance with water quality standards.

b. Although the Copermittees have generally been implementing the jurisdictional urban runoff management programs required pursuant to Order No. 2001-01 since February 21, 2002, urban runoff discharges continue to cause or contribute to violations of water quality standards. This Order contains new or modified requirements that are necessary to improve Copermittees' efforts to reduce the discharge of pollutants in urban runoff to the MEP and achieve water quality standards. Some of the new or modified requirements, such as the expanded Watershed Urban Runoff Management Program section, are designed to specifically

address these high priority water quality problems. Other new or modified requirements address program deficiencies that have been noted during audits, report reviews, and other Regional Board compliance assessment activities.

c. Updated Jurisdictional Urban Runoff Management Plans (JURMPs) and Watershed Urban Runoff Management Plans (WURMPs), and a new Regional Urban Runoff Management Plan (RURMP), which describe the Copermittees' urban runoff management programs in their entirety, are needed to guide the Copermittees' urban runoff management efforts and aid the Copermittees in tracking urban runoff management program implementation. It is practicable for the Copermittees to update the JURMPs and WURMPs, and create the RURMP, within one year, since significant efforts to develop these programs have already occurred.

d. Pollutants can be effectively reduced in urban runoff by the application of a combination of pollution prevention, source control, low impact site design and treatment control BMPs. Pollution prevention is the reduction or elimination of pollutant generation at its source and is the best "first line of defense". Source control BMPs (both structural and non-structural) minimize the contact between pollutants and flows (e.g., rerouting run-on around pollutant sources or keeping pollutants on-site and out of receiving waters). Low impact site design maintains or recovers, in significant part, the natural hydrologic functioning of the land and thus reduces the amounts of runoff and pollutants produced. Treatment control BMPs remove pollutants from urban runoff. Properly designed, low impact site design also is capable of making water available for reuse or recharge of groundwater basins that otherwise would be discharged as storm water runoff.

e. Urban runoff needs to be addressed during the three major phases of development (planning, construction, and use) in order to reduce the discharge of pollutants to the MEP and protect receiving waters. Development which is not guided by water quality planning policies and principles can unnecessarily result in increased pollutant load discharges, flow rates, and flow durations which can impact receiving water beneficial uses. Construction sites without adequate BMP implementation result in sediment runoff rates which greatly exceed natural erosion rates of undisturbed lands, causing siltation and impairment of receiving waters. Existing development generates substantial pollutant loads which are discharged in urban runoff to receiving waters.

f. Annual reporting requirements included in this Order are necessary to meet federal requirements and to evaluate the effectiveness and compliance of the Copermittees' programs.

2. Development Planning

a. The Standard Urban Storm Water Mitigation Plan (SUSMP) requirements contained in this Order are consistent with Order WQ-2000-11 adopted by the SWRCB on October 5, 2000. In the precedential order, the SWRCB found that the design standards, which essentially require that urban runoff generated by 85 percent of storm events from specific development categories be infiltrated or treated, reflect the MEP standard. The order also found that the SUSMP requirements are appropriately applied to the majority of the Priority Development Project categories contained in Section D.I of this Order. The SWRCB also gave Regional Water Quality Control

Boards the discretion to include additional categories and locations, such as retail gasoline outlets (RGOs), in future SUSMPs.

b. In addition, the SUSMP requirements are consistent with, and further, the State Water Resources Control Board's January 20, 2005 adoption of sustainability generally, and low impact development specifically, as core features of all programs of the state and regional water boards. The SWRCB "directed California Water Boards' staff to consider sustainability in future policies, guidelines, and regulatory actions," including through "site-specific and general permits" and "Standard Urban Storm Water Mitigation requirements."

~~b.~~c. Controlling urban runoff pollution by using a combination of onsite source control and low impact site design BMPs augmented with treatment control BMPs before the runoff enters the MS4 is important for the following reasons: (1) Many end-of-pipe BMPs (such as diversion to the sanitary sewer) are typically ineffective during significant storm events. Whereas, onsite source control BMPs can be applied during all runoff conditions; (2) End-of-pipe BMPs are often incapable of capturing and treating the wide range of pollutants which can be generated on a sub-watershed scale; (3) End-of-pipe BMPs are more effective when used as polishing BMPs, rather than the sole BMP to be implemented; (4) End-of-pipe BMPs do not protect the quality or beneficial uses of receiving waters between the source and the BMP; and (5) Offsite end-of-pipe BMPs do not aid in the effort to educate the public regarding sources of pollution and their prevention.

~~c.~~d. Use of low impact site design BMPs at new development projects can be an effective means for minimizing the impact of urban runoff discharges from the development projects on receiving waters. Low impact s~~S~~ite design BMPs help preserve and restore the natural hydrologic cycle of the site, allowing for filtration and infiltration which can greatly reduce the volume, peak flow rate, velocity, and pollutant loads of urban runoff. These BMPs also assist in maintaining groundwater levels and surface water baseflow conditions. Finally, low impact site design features can be multi-functional (for example, controlling both the quantity and quality of runoff and providing open space and aesthetic benefits).

~~d.~~e. Retail Gasoline Outlets (RGOs) are significant sources of pollutants in urban runoff. RGOs are points of convergence for motor vehicles for automotive related services such as repair, refueling, tire inflation, and radiator fill-up and consequently produce significantly higher loadings of hydrocarbons and trace metals (including copper and zinc) than other urban areas. To meet MEP, source control and treatment control BMPs are needed at RGOs that meet the following criteria: (a) 5,000 square feet or more, or (b) a projected Average Daily Traffic (ADT) of 100 or more vehicles per day. These are appropriate thresholds since vehicular development size and volume of traffic are good indicators of potential impacts of urban runoff from RGOs on receiving waters.

~~e.~~f. If not properly designed or maintained, certain BMPs implemented or required by municipalities for urban runoff management may create a habitat for vectors (e.g. mosquitoes and rodents). However, proper BMP design to avoid standing water can prevent the creation of vector habitat. Nuisances and public health impacts resulting from vector breeding can be prevented with close collaboration and cooperative effort between municipalities and local vector control agencies and the State Department of Health Services during the development and implementation of urban

runoff management programs.

3. Construction and Existing Development

a. In accordance with federal NPDES regulations and to ensure the most effective oversight of industrial and construction site discharges, discharges of runoff from industrial and construction sites are subject to dual (state and local) storm water regulation. Under this dual system, the Regional Board is responsible for enforcing the General Construction Activities Storm Water Permit, SWRCB Order 97-03 DWQ, NPDES No. CAS000001 (General Construction Permit) and the General Industrial Activities Storm Water Permit, SWRCB Order 99-08 DWQ, NPDES No. CAS000002 (General Industrial Permit), and each municipal Copermittee is responsible for enforcing its local permits, plans, and ordinances, which may require the implementation of additional BMPs than required under the statewide general permits.

b. Identification of sources of pollutants in urban runoff (such as municipal areas and activities, industrial and commercial sites/sources, construction sites, and residential areas), development and implementation of BMPs to address those sources, and updating ordinances and approval processes are necessary for the Copermittees to ensure that discharges of pollutants into and from its MS4 are reduced to the MEP. Inspections and other compliance verification methods are needed to ensure minimum BMPs are implemented. Inspections are especially important at high risk areas for pollutant discharges.

c. Historic and current development makes use of natural drainage patterns and features as conveyances for urban runoff. Urban streams used in this manner are part of the municipalities MS4 regardless of whether they are natural, man-made, or partially modified features. In these cases, the urban stream is both an MS4 and a receiving water.

d. As operators of the MS4s, the Copermittees cannot passively receive and discharge pollutants from third parties. By providing free and open access to an MS4 that conveys discharges to waters of the U.S., the operator essentially accepts responsibility for discharges into the MS4 that it does not prohibit or control. These discharges may cause or contribute to a condition of contamination or a violation of water quality standards.

e. Waste and pollutants which are deposited and accumulate in MS4 drainage structures will be discharged from these structures to waters of the U.S. unless they are removed or treated. These discharges may cause or contribute to, or threaten to cause or contribute to, a condition of pollution in receiving waters. For this reason, pollutant discharges into MS4s must be reduced to the MEP unless treatment within the MS4 occurs.

f. Enforcement of local urban runoff related ordinances, permits, and plans is an essential component of every urban runoff management program and is specifically required in the federal storm water regulations and this Order. Each Copermittee is individually responsible for adoption and enforcement of ordinances and/or policies, implementation of identified control measures/BMPs needed to prevent or reduce pollutants in storm water runoff, and for the allocation of funds for the capital, operation and maintenance, administrative, and enforcement expenditures necessary

to implement and enforce such control measures/BMPs under its jurisdiction.

g. Education is an important aspect of every effective urban runoff management program and the basis for changes in behavior at a societal level. Education of municipal planning, inspection, and maintenance department staffs is especially critical to ensure that in-house staffs understand how their activities impact water quality, how to accomplish their jobs while protecting water quality, and their specific roles and responsibilities for compliance with this Order. Public education, designed to target various urban land users and other audiences, is also essential to inform the public of how individual actions impact receiving water quality and how these impacts can be minimized.

h. Public participation during the development of urban runoff management programs is necessary to ensure that all stakeholder interests and a variety of creative solutions are considered.

4. Watershed and Regional Urban Runoff Management

a. Since urban runoff does not recognize political boundaries, watershed-based urban runoff management can greatly enhance the protection of receiving waters within a watershed. Such management provides a means to focus on the most important water quality problems in each watershed. By focusing on the most important water quality problems, watershed efforts can maximize protection of beneficial use in an efficient manner. Watershed management of urban runoff does not require Copermittees to expend resources outside of their jurisdictions. Watershed management requires the Copermittees within a watershed to develop a watershed-based management strategy, which can then be implemented on a jurisdictional basis.

b. Some urban runoff issues, such as residential education, can be effectively addressed on a regional basis. Regional approaches to urban runoff management can improve program consistency and promote sharing of resources, which can result in implementation of more efficient programs.

c. Both regionally and on a watershed basis, it is important for the Copermittees to coordinate their water quality protection and land use planning activities to achieve the greatest protection of receiving water bodies. Copermittee coordination with other watershed stakeholders, especially Caltrans, the Department of Defense, and Native American Tribes, is also important. Establishment of a management structure, within which the Copermittees subject to this Order will fund and coordinate those aspects of their joint obligations, will help promote implementation of urban runoff management programs on a watershed and regional basis in a most cost effective manner.

E. STATUTE AND REGULATORY CONSIDERATIONS

1. The Receiving Water Limitations (RWL) language specified in this Order is consistent with language recommended by the USEPA and established in SWRCB Water Quality Order 99-05, adopted by the SWRCB on June 17, 1999. ~~The RWL in this Order require compliance with water quality standards through an iterative approach requiring the implementation of improved and better tailored BMPs over time.~~ Compliance with receiving water limits based

on applicable water quality standards is necessary to ensure that MS4 discharges will not cause or contribute to violations of water quality standards and the creation of conditions of pollution.

2. The Water Quality Control Plan for the San Diego Basin (Basin Plan), identifies the following beneficial uses for surface waters in San Diego County: Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Industrial Process Supply (PROC), Industrial Service Supply (IND), Ground Water Recharge (GWR), Contact Water Recreation (REC1) Non-contact Water Recreation (REC2), Warm Freshwater Habitat (WARM), Cold Freshwater Habitat (COLD), Wildlife Habitat (WILD), Rare, Threatened, or Endangered Species (RARE), Freshwater Replenishment (FRSH), Hydropower Generation (POW), and Preservation of Biological Habitats of Special Significance (BIOL). The following additional beneficial uses are identified for coastal waters of San Diego County: Navigation (NAV), Commercial and Sport Fishing (COMM), Estuarine Habitat (EST), Marine Habitat (MAR), Aquaculture (AQUA), Migration of Aquatic Organisms (MIGR), Spawning, Reproduction, and/or Early Development (SPWN), and Shellfish Harvesting (SHELL).

3. This Order is in conformance with SWRCB Resolution No. 68-16 and the federal Antidegradation Policy described in 40 CFR 131.12.

4. Section 6217(g) of the Coastal Zone Act Reauthorization Amendments of 1990 (CZARA) requires coastal states with approved coastal zone management programs to address non-point pollution impacting or threatening coastal water quality. CZARA addresses five sources of non-point pollution: agriculture, silviculture, urban, marinas, and hydromodification. This NPDES permit addresses the management measures required for the urban category, with the exception of septic systems. The adoption and implementation of this NPDES permit relieves the Permittee from developing a non-point source plan, for the urban category, under CZARA. The Regional Board addresses septic systems through the administration of other programs.

5. Section 303(d)(1)(A) of the CWA requires that "Each state shall identify those waters within its boundaries for which the effluent limitations...are not stringent enough to implement any water quality standard (WQS) applicable to such waters." The CWA also requires states to establish a priority ranking of impaired waterbodies known as Water Quality Limited Segments and to establish Total Maximum Daily Loads (TMDLs) for such waters. This priority list of impaired waterbodies is called the Section 303(d) List. The current Section 303(d) List was approved by the SWRCB on February 4, 2003 and on July 25, 2003 by USEPA.

6. This Order fulfills a component of the TMDL Implementation Plan adopted by this Regional Board on August 14, 2002 for diazinon in Chollas Creek by establishing Water Quality Based Effluent Limits (WQBELs) for the Cities of San Diego, Lemon Grove, and La Mesa, the County of San Diego, and the San Diego Unified Port District; and by requiring: 1) legal authority, 2) implementation of a diazinon toxicity control plan and a diazinon public outreach/ education program, 3) achievement of the Compliance Schedule, and 4) a monitoring program. The establishment of WQBELs expressed as iterative BMPs to achieve the Waste Load Allocation (WLA) compliance schedule is appropriate and is expected to be sufficient to achieve the WLAs specified in the TMDL.

7. This Order fulfills a component of the TMDL Implementation Plan adopted by this Regional Board on February 9, 2005 for dissolved copper in Shelter Island Yacht Basin (SIYB) by establishing WQBELs expressed as BMPs to achieve the WLA of 30 kg copper / year for the

City of San Diego and the San Diego Unified Port District. The establishment of WQBELs expressed as BMPs is appropriate and is expected to be sufficient to achieve the WLA specified in the TMDL.

8. This Order establishes WQBELs and conditions consistent with the requirements and assumptions of the WLAs in the TMDLs as required by 40 CFR 122.44(d)(1)(vii)(B).

9. Requirements in this Order that are more precise than the federal storm water regulations in 40 CFR 122.26 are prescribed in accordance with the regulatory requirement that the Regional Board "develop[] permit conditions to reduce discharges to the maximum extent practicable," the CWA section 402(p)(3)(iii) and are necessary to meet the MEP standard.

10. Urban runoff treatment and/or mitigation must occur prior to the discharge of urban runoff into a receiving water. Federal regulations at 40 CFR 131.10(a) state that in no case shall a state adopt waste transport or waste assimilation as a designated use for any waters of the U.S. Authorizing the construction of an urban runoff treatment facility within a water of the U.S., or using the water body itself as a treatment system or for conveyance to a treatment system, would be tantamount to accepting waste assimilation as an appropriate use for that water body. Furthermore, the construction, operation, and maintenance of a pollution control facility in a water body can negatively impact the physical, chemical, and biological integrity, as well as the beneficial uses, of the water body. This is consistent with USEPA guidance to avoid locating structural controls in natural wetlands.

11. Urban runoff is a significant contributor to the creation and persistence of Toxic Hot Spots in San Diego Bay. CWC section 13395 requires regional boards to reevaluate waste discharge requirements (WDRs) associated with toxic hot spots. The SWRCB adopted the Consolidated Toxic Hot Spot Cleanup Plan in June 1999. The Plan states: "The reevaluation [of WDRs associated with toxic hot spots] shall consist of (1) an assessment of the WDRs that may influence the creation or further pollution of the known toxic hot spot, (2) an assessment of which WDRs need to be modified to improve environmental conditions at the known toxic hot spot, and (3) a schedule for completion of any WDR modifications deemed appropriate."

12. The issuance of waste discharge requirements and an NPDES permit for the discharge of urban runoff from MS4s to waters of the U.S. is exempt from the requirement for preparation of environmental documents under the California Environmental Quality Act (CEQA) (Public Resources Code, Division 13, Chapter 3, section 21000 et seq.) in accordance with the CWC section 13389.

F. PUBLIC PROCESS

1. The Regional Board has notified the Copermittees, all known interested parties, and the public of its intent to consider adoption of an Order prescribing waste discharge requirements that would serve to renew an NPDES permit for the existing discharge of urban runoff.

2. The Regional Board has, at public meetings on (date), held public hearings and heard and considered all comments pertaining to the terms and conditions of this Order.

IT IS HEREBY ORDERED that the Copermittees, in order to meet the provisions contained in Division 7 of the California Water Code (CWC) and regulations adopted thereunder, and the provisions of the Clean Water Act (CWA) and regulations adopted thereunder, shall each comply with the following:

A. PROHIBITIONS AND RECEIVING WATER LIMITATIONS

1. Discharges into and from municipal separate storm sewer systems (MS4s) in a manner causing, or threatening to cause, a condition of pollution, contamination, or nuisance (as defined in CWC section 13050), in waters of the state are prohibited.

2. Discharges from MS4s containing pollutants which have not been reduced to the maximum extent practicable (MEP) are prohibited.

3. Discharges from MS4s that cause or contribute to the violation of water quality standards (designated beneficial uses and water quality objectives developed to protect beneficial uses) are prohibited.

   a. Each Copermittee shall comply with section A.3 and section A.4 as it applies to Prohibition 5 in Attachment A of this Order through timely implementation of control measures and other actions to reduce pollutants in urban runoff discharges in accordance with the Jurisdictional Urban Runoff Management Program and other requirements of this Order including any modifications. The Jurisdictional Urban Runoff Management Program shall be designed to achieve compliance with section A.3 and section A.4 as it applies to Prohibition 5 in Attachment A of this Order. If exceedance(s) of water quality standards persist notwithstanding implementation of the Jurisdictional Urban Runoff Management Program and other requirements of this Order, the Copermittee shall assure compliance with section A.3 and section A.4 as it applies to Prohibition 5 in Attachment A of this Order by complying with the following procedure:

      (1) Upon a determination by either the Copermittee or the Regional Board that MS4 discharges are causing or contributing to an exceedance of an applicable water quality standard, the Copermittee shall promptly notify and thereafter submit a report to the Regional Board that describes best management practices (BMPs) that are currently being implemented and additional BMPs that will be implemented to prevent or reduce any pollutants that are causing or contributing to the exceedance of water quality standards. The report may be incorporated in the annual update to the Jurisdictional Urban Runoff Management Program unless the Regional Board directs an earlier submittal. The report shall include an implementation schedule. The Regional Board may require modifications to the report;

      (2) Submit any modifications to the report required by the Regional Board within 30 days of notification;

      (3) Within 30 days following approval of the report described above by the Regional Board, the Copermittee shall revise its Jurisdictional Urban Runoff Management Program and monitoring program to incorporate the approved modified BMPs that have been and will be implemented, the implementation schedule, and any additional monitoring required;

      (4) Implement the revised Jurisdictional Urban Runoff Management Program and monitoring program in accordance with the approved schedule.

b. So long as the Copermittee has complied with the procedures set forth above and is implementing the revised Jurisdictional Urban Runoff Management Program, the Copermittee does not have to repeat the same procedure for continuing or recurring exceedances of the same receiving water limitations unless directed by the Regional Board to do so.

c. Nothing in section A.3 shall prevent the Regional Board from enforcing any provision of this Order while the Copermittee prepares and implements the above report.

4. In addition to the above prohibitions, discharges from MS4s are subject to all Basin Plan prohibitions cited in Attachment A to this Order.

5. Discharges of any pollutant in an amount that exceeds limitations set forth in any adopted TMDL wasteload allocation are prohibited.

B. NON-STORM WATER DISCHARGES

1. Each Copermittee shall effectively prohibit all types of non-storm water discharges into its MS4 unless such discharges are either authorized by a separate National Pollutant Discharge Elimination System (NPDES) permit; or not prohibited in accordance with sections B.2 and B.3 below.

2. The following categories of non-storm water discharges are not prohibited unless a Copermittee or the Regional Board identifies the discharge category as a ~~significant~~ source of pollutants to waters of the U.S. For such a discharge category, the Copermittee shall either prohibit the discharge category or develop and implement appropriate control measures to reduce the discharge of pollutants to the MEP and report to the Regional Board pursuant to Attachment D.

   a. Diverted stream flows;
   b. Rising ground waters;
   c. Uncontaminated ground water infiltration [as defined at 40 CFR 35.2005(20)] to MS4s;
   d. Uncontaminated pumped ground water;
   e. Foundation drains;
   f. Springs;
   g. Water from crawl space pumps;
   h. Footing drains;
   i. Air conditioning condensation;
   j. Flows from riparian habitats and wetlands;
   k. Water line flushing;
   l. Landscape irrigation;
   m. Discharges from potable water sources not subject to NPDES Permit No. CAG679001, other than water main breaks;
   n. Irrigation water;
   o. Lawn watering;
   p. Individual residential car washing; and
   q. Dechlorinated swimming pool discharges.

3. Emergency fire fighting flows (i.e., flows necessary for the protection of life or property) do not require BMPs and need not be prohibited. As part of the Jurisdictional Urban

Runoff Management Plan (JURMP), each Copermittee shall develop and implement a program to reduce pollutants from non-emergency fire fighting flows (i.e., flows from controlled or practice blazes and maintenance activities) identified by the Copermittee to be significant sources of pollutants to waters of the United States.

4. Each Copermittee shall examine all dry weather field screening and analytical monitoring results collected in accordance with section D.4 of this Order and Receiving Waters Monitoring and Reporting Program No. R9-2006-11 to identify water quality problems which may be the result of any non-prohibited discharge category(ies) identified above in section B.2. Follow-up investigations shall be conducted as necessary to identify and control any non-prohibited discharge category(ies) listed above.

C. LEGAL AUTHORITY

1. Each Copermittee shall establish, maintain, and enforce adequate legal authority to control pollutant discharges into and from its MS4 through ordinance, statute, permit, contract or similar means. This legal authority must, at a minimum, authorize the Copermittee to:

   a. Control the contribution of pollutants in discharges of runoff associated with industrial and construction activity to its MS4 and control the quality of runoff from industrial and construction sites. This requirement applies both to industrial and construction sites which have coverage under the statewide general industrial or construction storm water permits, as well as to those sites which do not. Grading ordinances shall be upgraded and enforced as necessary to comply with this Order.

   b. Prohibit all identified illicit discharges not otherwise allowed pursuant to section B.2 including but not limited to:

      (1) Sewage;
      (2) Discharges of wash water resulting from the hosing or cleaning of gas stations, auto repair garages, or other types of automotive services facilities;
      (3) Discharges resulting from the cleaning, repair, or maintenance of any type of equipment, machinery, or facility including motor vehicles, cement-related equipment, and port-a-potty servicing, etc.;
      (4) Discharges of wash water from mobile operations such as mobile automobile washing, steam cleaning, power washing, and carpet cleaning, etc.;
      (5) Discharges of wash water from the cleaning or hosing of impervious surfaces in municipal, industrial, commercial, and residential areas including parking lots, streets, sidewalks, driveways, patios, plazas, work yards and outdoor eating or drinking areas, etc.;
      (6) Discharges of runoff from material storage areas containing chemicals, fuels, grease, oil, or other hazardous materials;
      (7) Discharges of pool or fountain water containing chlorine, biocides, or other chemicals; discharges of pool or fountain filter backwash water;
      (8) Discharges of sediment, pet waste, vegetation clippings, or other landscape or construction-related wastes; and
      (9) Discharges of food-related wastes (e.g., grease, fish processing, and restaurant kitchen mat and trash bin wash water, etc.).

   c. Prohibit and eliminate illicit connections to the MS4;

d. Control the discharge of spills, dumping, or disposal of materials other than storm water to its MS4;

e. Require compliance with conditions in Copermittee ordinances, permits, contracts or orders (i.e., hold dischargers to its MS4 accountable for their contributions of pollutants and flows);

f. Utilize enforcement mechanisms to require compliance with Copermittee storm water ordinances, permits, contracts, or orders;

g. Control the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements among Copermittees. Control of the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements with other owners of the MS4 such as Caltrans, the Department of Defense, or Native American Tribes is encouraged;

h. Carry out all inspections, surveillance, and monitoring necessary to determine compliance and noncompliance with local ordinances and permits and with this Order, including the prohibition on illicit discharges to the MS4. This means the Copermittee must have authority to enter, monitor, inspect, take measurements, review and copy records, and require regular reports from industrial facilities discharging into its MS4, including construction sites;

i. Require the use of BMPs to prevent or reduce the discharge of pollutants into MS4s to the MEP; and

j. Require documentation on the effectiveness of BMPs implemented to reduce the discharge of pollutants to the MS4 to the MEP.

2. Each Permittee shall include as part of its JURMP a statement certified by its chief legal counsel that the Copermittee has taken the necessary steps to obtain and maintain full legal authority to implement and enforce each of the requirements contained in 40 CFR 122.26(d)(2)(i)(A-F) and this Order. This statement shall include:

   a. Identification of all departments within the jurisdiction that conduct urban runoff related activities, and their roles and responsibilities under this Order. Include an up to date organizational chart specifying these departments and key personnel.

   b. Citation of urban runoff related ordinances and the reasons they are enforceable;

   c. Identification of the local administrative and legal procedures available to mandate compliance with urban runoff related ordinances and therefore with the conditions of this Order;

   d. A finding of adequacy of enforcement tools to ensure compliance with this Order;

   e. A description of how urban runoff related ordinances are implemented and appealed; and

   f. Description of whether the municipality can issue administrative orders and injunctions or if it must go through the court system for enforcement actions.

D. JURISDICTIONAL URBAN RUNOFF MANAGEMENT PROGRAM

Each Copermittee shall fully implement all requirements of section D of this Order no later than July 1, 2007, unless otherwise specified in this Order. Prior to July 1, 2007, each Copermittee shall at a minimum fully implement its Jurisdictional URMP document, as the document was developed to comply with the requirements of Order No. 2001-01.

Each Copermittee shall develop and implement an updated Jurisdictional Urban Runoff Management Program for its jurisdiction, which constitute enforceable provisions of this Order. Each updated Jurisdictional Urban Runoff Management Program shall meet the requirements of section D of this Order, reduce the discharge of pollutants to the MEP, and ensure that urban runoff discharges do not cause or contribute to a violation of water quality standards.

1. Development Planning Component

Each Copermittee shall implement a program which meets the requirements of this section and (1) reduces the discharge of pollutants from Development Projects to the MEP, (2) ensures urban runoff discharges from Development Projects do not cause or contribute to a violation of water quality standards, and (3) controls urban runoff discharges from Development Projects that have the potential to cause increased erosion of stream beds and banks, silt pollutant generation, or other impacts to beneficial uses and stream habitat due to increased erosive force.

a. GENERAL PLAN

Each Copermittee shall revise as needed its General Plan or equivalent plan (e.g., Comprehensive, Master, or Community Plan) for the purpose of providing effective water quality and watershed protection principles and policies that direct land-use decisions and require implementation of consistent water quality protection measures for Development Projects.

b. ENVIRONMENTAL REVIEW PROCESS

Each Copermittee shall revise as needed their current environmental review processes to accurately evaluate water quality impacts and cumulative impacts and identify appropriate measures to avoid, minimize and mitigate those impacts for all Development Projects.

c. APPROVAL PROCESS CRITERIA AND REQUIREMENTS FOR ALL DEVELOPMENT PROJECTS

For all proposed Development Projects, each Copermittee during the planning process and prior to project approval and issuance of local permits shall prescribe the necessary requirements to ensure that the discharge of pollutants from the Development Projects will be reduced to the MEP, will not cause or contribute to a violation of water quality standards, and will comply -with Copermittee's ordinances, permits, plans, and requirements, and with this Order. The requirements shall include, but not be limited to, implementation by the project proponent of the following:

(1) Applicable and effective pollution prevention BMPs;

(2) Source control BMPs that reduce storm water pollutants of concern in urban runoff, including storm drain system stenciling and signage, properly designed outdoor material storage areas, properly designed trash storage areas, and implementation of efficient irrigation systems;
(3) Low impact ~~S~~site design BMPs which maximize infiltration, provide retention, slow runoff, minimize impervious footprint, direct runoff from impervious areas into landscaping, ~~and~~ construct impervious surfaces to minimum widths necessary, and otherwise comply with the provisions of this Order;
(4) Buffer zones for natural water bodies, where feasible. Where buffer zones are infeasible, require project proponent to implement other buffers such as trees, access restrictions, etc.;
(5) Measures to ensure grading or other construction activities meet the provisions specified in section D.2 of this Order; and
(6) Submittal of proof of a mechanism which will ensure ongoing long-term maintenance of all structural post-construction BMPs.

d. STANDARD URBAN STORM WATER MITIGATION PLANS (SUSMPS) – APPROVAL PROCESS CRITERIA AND REQUIREMENTS FOR PRIORITY DEVELOPMENT PROJECTS

Each Copermittee shall implement an updated local SUSMP which meets the requirements of section D.1.d of this Order and (1) reduces the discharge of pollutants from Development Projects to the MEP, (2) ensures urban runoff discharges from Development Projects do not cause or contribute to a violation of water quality standards, and (3) controls urban runoff discharges from Development Projects that have the potential to cause increased erosion of stream beds and banks, silt pollutant generation, or other impacts to beneficial uses and stream habitat due to increased erosive force. These objectives shall be met by incorporating low impact site design BMPs into the design of Priority Development Projects so as to comply with the volumetric requirements of subsection D.1.(d)(6)(c). If low impact site design BMPs alone are not sufficient to meet these objectives, other structural source control and treatment control BMPs shall be incorporated into the design so as to meet the requirements of subsection D.1.(d)(6)(c).

(1) Definition of Priority Development Project

Priority Development Projects are: a) all new Development Projects, and b) those redevelopment projects that create, add or replace at least 5,000 square feet of impervious surfaces on an already developed site, that fall under the project categories or locations listed in section D.1.d.(2). Where redevelopment results in an increase of less than fifty percent of the impervious surfaces of a previously existing development and not more than one-quarter acre of new impervious surface, and the existing development was not subject to SUSMP requirements, the numeric sizing criteria discussed in section D.1.d.(6)(c) applies only to the addition, and not to the entire development. Where redevelopment results in an increase of more than fifty percent of the impervious surfaces of a previously existing development, or where the relative increase is less than 50% but greater than 11,000 square feet of new impervious surface, the numeric sizing criteria applies to the entire development. Where a project feature, such as a parking lot, falls into a Priority Development Project Category, the entire project footprint is subject to SUSMP requirements.

(2) Priority Development Project Categories

(a) Any development project that takes place on five thousand (5000) square feet or greater, or that otherwise disturbs more than five thousand square feet of land. This category applies without respect to the type of development and is in addition to the type-specific categories set forth in subsections (b) through (l) below. Where a development does not meet the requirements subsections (b) through (l), but does meet this requirement, it is a Priority Project.

(b) Housing subdivisions of 10 or more dwelling units. This category includes single-family homes, multi-family homes, condominiums, and apartments.

(c) Commercial developments greater than 100,000 square feet. This category is defined as any development on private land that is not for heavy industrial or residential uses where the land area for development is greater than 100,000 square feet. The category includes, but is not limited to: hospitals; laboratories and other medical facilities; educational institutions; recreational facilities; municipal facilities; commercial nurseries; multi-apartment buildings; car wash facilities; mini-malls and other business complexes; shopping malls; hotels; office buildings; public warehouses; automotive dealerships; airfields; and other light industrial facilities.

(d) Heavy industrial developments greater than five thousand (5000) square feet. This category includes, but is not limited to: manufacturing plants, food processing plants, metal working facilities, printing plants, fleet storage areas (bus, truck, etc.), railroad yards, and nurseries

(e) -Municipal and state developments greater than five thousand (5000) square feet. This category is defined as any development on publicly owned municipal or state- land.

~~(e)~~(f) Automotive repair shops. This category is defined as a facility that is categorized in any one of the following Standard Industrial Classification (SIC) codes: 5013, 5014, 5541, 7532-7534, or 7536-7539.

~~(d)~~(g) Restaurants. This category is defined as a facility that sells prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption (SIC code 5812), where the land area for development is greater than 5,000 square feet. Restaurants where land development is less than 5,000 square feet shall meet all SUSMP requirements except for structural treatment BMP and numeric sizing criteria requirement D.1.d.(6)(c) and hydromodification requirement D.1.d.(14).

~~(e)~~(h) All hillside development greater than 5,000 square feet. This category is defined as any development which creates 5,000 square feet of impervious surface which is located in an area with known erosive soil conditions, where the development will grade on any natural slope that is twenty-five percent or greater.

~~(f)~~(i) Environmentally Sensitive Areas (ESAs). All development located within or directly adjacent to or discharging directly to an ESA (where discharges from the development or redevelopment will enter receiving waters within the ESA), which either creates 2,500 square feet of impervious surface on a proposed project site or increases the area of imperviousness of a proposed project site to 10% or more of its naturally occurring condition. "Directly adjacent" means situated within 200 feet of the ESA. "Discharging directly to" means outflow from a drainage conveyance system that is composed entirely of flows from the subject development or redevelopment site, and not commingled with flows from adjacent lands.

~~(g)~~(j) Parking lots 5,000 square feet or more or with 15 or more parking spaces and potentially exposed to urban runoff. Parking lot is defined as a land area or facility for the temporary parking or storage of motor vehicles used personally, for business, or for commerce.

~~(h)~~(k) Street, roads, highways, and freeways. This category includes any paved surface that is 5,000 square feet or greater used for the transportation of automobiles, trucks, motorcycles, and other vehicles.

~~(i)~~(l) Retail Gasoline Outlets (RGOs). This category includes RGOs that meet the following criteria: (a) 5,000 square feet or more or (b) a projected Average Daily Traffic (ADT) of 100 or more vehicles per day.

(3) Pollutants of Concern

As part of its local SUSMP, each Copermittee shall develop and implement a procedure for pollutants of concern to be identified for each Priority Development Project. The procedure shall address, at a minimum: (1) Receiving water quality (including pollutants for which receiving waters are listed as impaired under CWA section 303(d)); (2) Land use type of the Development Project and pollutants associated with that land use type; and (3) Pollutants expected to be present on site.

(4) Low Impact Site Design BMP Requirements

Each Copermittee shall require each Priority Development Project to ~~meet the following~~implement low impact site design BMPs sufficient in scope to retain, reuse and/or infiltrate a volume of water no less than specified in subsection D.1.(d)(6)(c)(i) or (ii) below-. ~~BMP requirements:~~ The low impact site design BMPs to be required shall:

(a) Require all applicable source control BMPs listed in section D.1.d(5) to be implemented.

~~(a) Implement at least one site design BMP from the following list (Priority Development Projects with no landscaping or low traffic areas can be exempt from this requirement):~~

~~i. Drain a portion of rooftops into pervious areas prior to discharge to the MS4.~~

~~ii. Drain a portion of impervious sidewalks, walkways, trails, or patios into pervious areas prior to discharge to the MS4.~~

~~iii. Construct a portion of walkways, trails, overflow parking lots, alleys, or other low traffic areas with permeable surfaces, such as pervious concrete, porous asphalt, unit pavers, and granular materials.~~

~~(b) Implement at least one site design BMP from the following list:~~

~~i. Conserve natural areas.~~

~~ii. Construct streets, sidewalks, or parking lot aisles to the minimum widths necessary, provided that public safety and a walkable environment for pedestrians are not compromised.~~

~~iii. Minimize the impervious footprint of the project.~~

~~(c)~~(b) Conserve natural areas including ~~Preserve~~ existing trees, other vegetation, and soils-. ~~Implement all site design BMPs from the above lists in sections D.1.d.(4)(a) and D.1.d.(4)(b) where determined to be applicable and~~

~~feasible by the Copermittee.~~

(c) Minimize~~Minimize~~ soil excavation and compaction and vegetation disturbance.

(d) Minimize impervious rooftops and building footprints.

(e) Construct streets, driveways, sidewalks, and parking lot aisles to the minimum widths necessary, provided that public safety and a walkable environment for pedestrians are not compromised.

(f) Construct low-traffic areas with permeable surfaces such as porous asphalt, open-graded Portland cement concrete, coarse granular materials, concrete or plastic unit pavers, and plastic grid systems. Areas that should be considered for permeable surfaces include, but are not limited to, driveways, patio slabs, walkways and sidewalks, trails, alleys, and overflow or otherwise lightly-used parking lots.

(g) Drain runoff from roofs and other impervious areas into one or more of the following natural drainage systems before discharge to the MS4:
i. Bioretention area, also known as a rain garden (with compost-amended soils as needed)
ii. Vegetated swale (with compost-amended soils as needed)
iii. Vegetated filter strip (with compost-amended soils as needed)
iv. Infiltration trench
v. Roof rainwater collection cistern
vi. Vegetated roof

(h) Maintain natural drainage patterns(e.g., depressions, natural swales) as much as possible, and design drainage paths to increase the time before runoff leaves the site by:
i. Emphasizing sheet instead of concentrated flow;
ii. Increasing the number and lengths of flow paths;
iii. Maximizing non-hardened drainage conveyances; and
iv. Maximizing vegetation in areas that generate and convey runoff.

(5) Source Control BMP Requirements

Each Copermittee shall require each Priority Development Project to implement source control BMPs. The source control BMPs to be required shall:

~~Housekeeping BMPs - Proper waste handling, waste minimization and recycling, spill prevention and cleanup~~
~~Segregate, cover, contain, and/or enclose pollutant generating materials and activities~~
(a) Minimize storm water pollutants of concern in urban runoff.
(b) Isolate pollutants from contact with rainfall or runoff by segregating, covering, containing, and/or enclosing pollutant-generating materials and activities.
~~(b)~~(c) Include storm drain system stenciling and signage.
~~(c)~~(d) Include properly designed outdoor material storage areas.

~~(d)~~(e) Include properly designed trash storage areas.
~~(e)~~(f) Include efficient irrigation systems.
(g) Include water quality requirements applicable to individual priority project categories.

~~(i)~~

(6) Treatment Control BMP Requirements

For any runoff not managed with the low impact site design BMPs listed in section D.1.d(4), and for which a waiver from LID requirements is obtained from the Regional Board pursuant to subsection D.1.d.(10) below~~.~~, e~~E~~ach Copermittee shall require each Priority Development Project to implement treatment control BMPs which meet the following treatment control BMP requirements:

(a) Treatment control BMPs for all Priority Development Projects shall mitigate (infiltrate~~,~~ filter~~,~~ or treat) the required volume or flow of runoff (identified in section D.1.d.(6)(c)) from all developed portions of the project, including landscaped areas.

(b) All treatment control BMPs shall be located so as to infiltrate, filter, or treat the required runoff volume or flow prior to its discharge to any waters of the U.S. Multiple Priority Development Projects may use shared treatment control BMPs as long as construction of any shared treatment control BMPs is completed prior to the use or occupation of any Priority Development Project from which the treatment control BMP will receive runoff.

(c) All LID design elements implemented pursuant to D.1.(d)(4), and any treatment control BMPs for a single Priority Development Project, shall collectively be sized to comply with the following numeric sizing criteria:

i. Volume-based ~~treatment control~~ BMPs shall be designed to mitigate (infiltrate, filter, or treat) the volume of runoff produced from a 24-hour 85th percentile storm event, as determined from the County of San Diego's 85th Percentile Precipitation Isopluvial Map; or

ii. Flow-based ~~treatment control~~ BMPs shall be designed to mitigate (infiltrate, filter, or treat) either: a) the maximum flow rate of runoff produced from a rainfall intensity of 0.2 inch of rainfall per hour, for each hour of a storm event; or b) the maximum flow rate of runoff produced by the 85th percentile hourly rainfall intensity (for each hour of a storm event), as determined from the local historical rainfall record, multiplied by a factor of two.

(d) All treatment control BMPs for Priority Development Projects shall, at a minimum:

i. Be ranked with a high or medium removal efficiency in the Copermittees' Model SUSMP which was approved by the Regional Board. Treatment control BMPs with a low removal efficiency ranking shall only be approved by a Copermittee when a feasibility analysis has been conducted which exhibits that implementation of treatment control

BMPs with high or medium removal efficiency rankings are infeasible for a Priority Development Project or portion of a Priority Development Project.

ii. Be correctly sized and designed so as to remove pollutants to the MEP.
iii. Target removal of pollutants of concern from urban runoff.
iv. Be implemented close to pollutant sources (where shared BMPs are not proposed), and prior to discharging into waters of the U.S.
v. Not be constructed within a receiving water.
vi. Include proof of a mechanism, to be provided by the project proponent or Copermittee, which will ensure ongoing long-term maintenance.
vii. Ensure that post-development runoff does not contain pollutant loads which cause or contribute to a violation of water quality standards or which have not been reduced to the MEP.

~~(7)Site Design BMP Substitution Program~~

~~The Copermittees may develop a site design BMP substitution program for incorporation into local SUSMPs, which would allow a Priority Development Project to substitute implementation of a high level of site design BMPs for implementation of some or all treatment control BMPs. At a minimum, the program must meet the requirements below:~~

~~(a)Prior to implementation, the program must clearly exhibit that it will achieve equal or better runoff quality from each Priority Development Project which participates in the program.~~

~~(b)For each Priority Development Project participating, the program must require all applicable source control BMPs listed in section D.1.d.(5) to be implemented.~~

~~(c)For each Priority Development Project participating, the program must require that runoff originating from exposed impervious parking areas, work areas, storage areas, staging areas, trash areas, and other similar areas where pollutants are generated and/or collected, must be routed through pervious areas prior to entering the MS4.~~

~~(d)For each Priority Development Project participating, the program must require that all site design BMPs listed in section D.1.d.(4) be implemented.~~

~~(e)The program shall only apply to Priority Development Projects and Priority Development Project categories with a relatively low potential to generate high levels of pollutants. The program shall not apply to the automotive repair shops or streets, roads, highways, or freeways Priority Development Project Categories.~~

~~(f)The program must develop and utilize specific design criteria for each site design BMP to be utilized by the program.~~

~~(g)The program must ensure that each Priority Development Project participating in the program is in compliance with all applicable SUSMP requirements.~~

~~(h)The program must develop and implement a review process which ensures that each site design BMP to be implemented meets the designated design criteria. The review process must also ensure that each Priority Development Project participating in the program is in compliance with all applicable SUSMP requirements.~~

~~(8)~~(7) Low Impact Site Design and Treatment Control BMP Design Standards~~Treatment Control BMP Design Standards~~

As part of its local SUSMP, each Copermittee shall develop and require Priority Development Projects to implement siting, design, and maintenance criteria for each low impact site design and treatment control BMP listed in its local SUSMP to ensure that implemented low impact site design and treatment control BMPs are constructed correctly and are effective at pollutant removal and runoff control. Development of BMP design worksheets which can be used by project proponents is encouraged.

Sources of low impact site design BMP criteria include:

Low Impact Development, Technical Guidance Manual for Puget Sound, prepared by Puget Sound Action Team, (2005) available at www.psat.wa.gov/Publications/LID_tech_manual05/lid_index.htm;

Start at the Source, Bay Area Stormwater Management Agencies Association (BASMAA) (1999) available at http://www.basmaa.org/resources/files/Start%20at%20the%20Source%20%2D%20Design%20Guidance%20Manual%20for%20Stormwater%20Quality%20Protection%2Epdf; and

Low-Impact Development Design Strategies, An Integrated Design Approach, prepared by Prince George's County, MD, (1999) available at www.epa.gov/owow/nps/lidnatl.pdf.

The principal source of treatment BMP criteria for California is the California Stormwater Best Management Practice (BMP) Handbook, New Development and Redevelopment, prepared by the California Stormwater Quality Association, 2003.

~~(9)~~(8) Implementation Process

As part of its local SUSMP, each Copermittee shall implement a process to ensure compliance with SUSMP requirements. The process shall identify at what point in the planning process Priority Development Projects will be required to meet SUSMP requirements. The process shall also include identification of the roles and responsibilities of various municipal departments in implementing the SUSMP requirements, as well as any other measures necessary for the implementation of SUSMP requirements.

~~(10)~~(9) Downstream Erosion

As part of its local SUSMP, each Copermittee shall develop and apply criteria to Priority Development Projects to ensure that runoff discharge rates, durations, and velocities from Priority Development Projects are controlled to maintain or reduce downstream erosion conditions and protect stream habitat. Upon adoption of the Hydromodification Management Plan (HMP) by the Regional Board (section D.1.g), individual Copermittee criteria for control of downstream erosion shall be superceded by criteria identified in the HMP.

~~(11)~~(10) Waiver Provision

(a) A Copermittee may provide for a project to be waived from the requirement of implementing low impact development criteria as specified in subsection D.1.d.(4) above upon a demonstration that the project proponent has obtained a waiver from Regional Board staff on the basis of infeasibility. The basis for issuance of the waiver for infeasibility shall be that it is not possible to implement the requirements of subsection D.1.d.(4) in light of constraints imposed by the building site. Such constraints shall include considerations set forth in subsection D.1.d.(11), regarding groundwater protection. Any waiver shall apply only to that portion of the volume or flow that must be retained, reused or infiltrated pursuant to subsection D.1.d.(4) and for which infeasibility is established. Any waiver issued shall require that any portion of the volume or flow not addressed by subsection D.1.d(4) be addressed in compliance with subsection D.1.d.(6), unless a further waiver is issued pursuant to subsection D.1.d.(10)(b), below.

~~(a)~~(b) If a waiver has been obtained consistent with the provisions of subsection D.1.d.(10)(a), above, a~~A~~ Copermittee may provide for a project to be waived from the requirement of implementing treatment BMPs (section D.1.d.(6)) if infeasibility can be established. A waiver of infeasibility shall only be granted by a Copermittee when all available treatment BMPs have been considered and rejected as infeasible. Infeasibility is established if it is demonstrated through a competent analysis signed by a registered engineer that it is not possible to locate treatment BMPs on-site so as to meet the requirements of D.1.d.(6). A waiver shall be apply only to the portion of the volume or flow for which infeasibility is established. Copermittees shall notify the Regional Board within 5 days of each waiver issued and shall include the following information in the notification:

i. Name of the person granting each waiver;
ii. Name of developer receiving the waiver;
iii. Site location;
iv. Reason for waiver; and
v. Description of BMPs required.

~~(b)~~(c) The Copermittees ~~may~~ shall collectively or individually develop a program by December 1, 2006 to require project proponents who have received waivers to transfer the savings in cost, as determined by the Copermittee(s), to a storm water mitigation fund. This program may be implemented by all Copermittees that issue waivers. Funds may be used on projects to improve urban runoff quality within the watershed of the waived project. The waiver mitigation program should, at a minimum, identify:

i. The entity or entities that will manage the storm water mitigation fund (i.e., assume full responsibility for);
ii. The range and types of acceptable projects for which mitigation funds ay be expended;
iii. The entity or entities that will assume full responsibility for each mitigation project including its successful completion; and
iv. How the dollar amount of fund contributions will be determined.

~~(12)~~(11) Infiltration and Groundwater Protection

To protect groundwater quality, each Copermittee shall apply restrictions to the use of treatment control BMPs that are designed to primarily function as infiltration devices (such as infiltration trenches and infiltration basins). Such restrictions shall ensure that the use of such infiltration treatment control BMPs shall not cause or contribute to an exceedance of groundwater quality objectives. At a minimum, use of treatment control BMPs that are designed to primarily function as infiltration devices shall meet the conditions below. The Copermittees may collectively or individually develop alternative restrictions on the use of treatment control BMPs which are designed to primarily function as infiltration devices.

(a) Urban runoff shall undergo pretreatment such as sedimentation or filtration prior to infiltration;
(b) All dry weather flows containing significant pollutant loads shall be diverted from infiltration devices;
(c) Pollution prevention and source control BMPs shall be implemented at a level appropriate to protect groundwater quality at sites where infiltration treatment control BMPs are to be used;
(d) Infiltration treatment control BMPs shall be adequately maintained so that they remove pollutants to the MEP;
(e) The vertical distance from the base of any infiltration treatment control BMP to the seasonal high groundwater mark shall be at least 10 feet. Where groundwater basins do not support beneficial uses, this vertical distance criteria may be reduced, provided groundwater quality is maintained;
(f) The soil through which infiltration is to occur shall have physical and chemical characteristics (such as appropriate cation exchange capacity, organic content, clay content, and infiltration rate) which are adequate for proper infiltration durations and treatment of urban runoff for the protection of groundwater beneficial uses;
(g) Before adopting BMPs that are designed primarily to function as infiltration devices for~~,~~ development projects that could pose a risk to groundwater quality, the project proponent shall perform a hydrogeological analysis using site-specific soils and groundwater data to assess the risk to groundwater quality from stormwater infiltration~~that demonstrates to risk to be low~~. Development projects in this category include areas of industrial or light industrial activity; areas subject to high vehicular traffic (25,000 or greater average daily traffic on main roadway or 15,000 or more average daily traffic on any intersecting roadway); automotive repair shops; car washes; fleet storage areas (bus, truck, etc.); nurseries; and other high threat to water quality land uses and activities as designated by each Permittee; and ~~Infiltration treatment control BMPs shall not be used for areas of industrial or light industrial activity; areas subject to high vehicular traffic (25,000 or greater average daily traffic on main roadway or 15,000 or more average daily traffic on any intersecting roadway); automotive repair shops; car washes; fleet storage areas (bus, truck, etc.); nurseries; and other high threat to water quality land uses and activities as designated by each Permittee; and~~
(h) Infiltration treatment control BMPs shall be located a minimum of 100 feet horizontally from any water supply wells.

e. TREATMENT CONTROL BMP MAINTENANCE TRACKING

(1) Each Copermittee shall develop and utilize a watershed-based database to track and inventory approved treatment control BMPs and treatment control BMP maintenance within its jurisdiction. At a minimum, the database shall include information on treatment control BMP type, location, watershed, date of construction, party responsible for maintenance, maintenance certifications or verifications, inspections, inspection findings, and corrective actions.

(2) Each Copermittee shall develop and implement a program to ensure that approved treatment control BMPs are operating effectively and have been adequately maintained. At a minimum, the program shall include the following:

(a) An annual inventory of all approved treatment control BMPs within the Copermittee's jurisdiction. The inventory shall also include all treatment control BMPs approved during the previous permit cycle.
(b) The prioritization of all projects with approved treatment control BMPs into high, medium, and low priority categories. At a minimum, projects with drainage insert treatment control BMPs shall be designated as at least a medium priority. Prioritization of other projects with treatment control BMPs shall include consideration of treatment control BMP size, recommended maintenance frequency, likelihood of operational and maintenance issues, location, receiving water quality, and other pertinent factors.
(c) Projects with treatment control BMPs that are high priority shall be inspected by the Copermittee annually. Projects with treatment control BMPs that are medium priority shall be inspected by the Copermittee every other year. Projects with treatment control BMPs that are low priority shall be inspected once during the five year permit cycle. All inspections shall ensure effective operation and maintenance of the treatment control BMPs, as well as compliance with all ordinances, permits, and this Order. At least 20% of the projects within a jurisdiction with approved treatment BMPs shall be inspected annually.
(d) Requirement of annual verification of effective operation and maintenance of each approved treatment control BMP by the party responsible for the treatment control BMP maintenance.

(3) Operation and maintenance verifications and inspections shall be required and conducted prior to each rainy season.

f. BMP VERIFICATION

Prior to occupancy of each Priority Development Project subject to SUSMP requirements, each Copermittee shall inspect the ~~constructed~~ low impact site design, source control, and treatment control BMPs to verify that they have been constructed in compliance with all specifications, plans, permits, ordinances, and this Order. This initial BMP verification inspection does not constitute an operation and maintenance inspection, as required above in section D.1.e.(2)(c).

g. HYDROMODIFICATION - LIMITATIONS ON INCREASES OF RUNOFF DISCHARGE RATES AND DURATIONS

Each Copermittee shall collaborate with the other Copermittees to develop and implement a Hydromodification Management Plan (HMP) to manage increases in

runoff discharge rates and durations from all Priority Development Projects, where such increased rates and durations are likely to cause increased erosion of channel beds and banks, sediment pollutant generation, or other impacts to beneficial uses and stream habitat due to increased erosive force. The HMP, once approved by the Regional Board, shall be incorporated into the local SUSMP and implemented by each Copermittee so that post-project runoff discharge rates and durations shall not exceed estimated pre-project discharge rates and durations where the increased discharge rates and durations will result in increased potential for erosion or other significant adverse impacts to beneficial uses, attributable to changes in the amount and timing of runoff.

(1) The HMP shall:

(a) Identify an Erosion Potential (Ep) standard for channel segments which receive urban runoff discharges from Priority Development Projects. The stream Ep standard shall maintain the pre-development flow energy, sediment transport, and erosion characteristics of channel segments receiving urban runoff discharges from Priority Development Projects and prevent the channel segments from becoming unstable.
(b) Require that the Ep for channel segments receiving urban runoff from Priority Development Projects is maintained at a value close to 1.
(c) Utilize continuous simulation of the entire rainfall record to identify a range of rainfall events for which Priority Development Project post-development runoff rates and durations shall not exceed pre-development runoff rates and durations in order to achieve the channel Ep standard. The lower boundary of the range of rainfall events identified shall correspond with the critical channel flow (Qc) that produces the critical shear stress that initiates channel bed movement or that erodes the toe of channel banks. The identified range of rainfall events may be different for specific watersheds, channels, or channel reaches.
(d) Require Priority Development Projects to implement hydrologic control measures to (1) ensure that Priority Development Project's urban runoff discharge rates and durations do not exceed pre-development runoff rates and durations for the range of rainfall events identified under section D.1.g.(1)(c), and (2) do not result in a channel Ep which exceeds the channel Ep standard developed under sections D.1.g.(1)(a) and D.1.g.(1)(b) for channel segments downstream of Priority Development Project discharge points.
(e) Include other performance criteria (numeric or otherwise) for Priority Development Projects as necessary to prevent urban runoff from the projects from increasing erosion of channel beds and banks, silt pollutant generation, or other impacts to beneficial uses and stream habitat due to increased erosive force.
(f) Include a review of pertinent literature.
(g) Include a protocol to evaluate potential hydrograph change impacts to downstream watercourses from Priority Development Projects.
(h) Include a description of how the Copermittees will incorporate the HMP requirements into their local approval processes.
(i) Include criteria on selection and design of management practices and measures (such as detention, retention, and infiltration) to control flow rates and durations and address potential hydromodification impacts.
(j) Include technical information supporting any standards and criteria proposed.

(k) Include a description of inspections and maintenance to be conducted for management practices and measures to control flow rates and durations and address potential hydromodification impacts.
(l) Include a description of pre- and post-project monitoring and other program evaluations to be conducted to assess the effectiveness of implementation of the HMP.
(m) Include mechanisms for addressing cumulative impacts within a watershed on channel morphology.
(n) Include information on evaluation of channel form and condition, including slope, discharge, vegetation, underlying geology, and other information, as appropriate.

(2) The HMP may include implementation of planning measures (e.g., buffers and restoration activities, including revegetation, use of less-impacting facilities at the point(s) of discharge, etc.) to allow expected changes in stream channel cross sections, vegetation, and discharge rates, velocities, and/or durations without adverse impacts to channel beneficial uses. Such measures shall not include utilization of non-natural hardscape materials such as concrete, riprap, gabions, etc.

(3) Section D.1.g.(1)(d) does not apply to Priority Development Projects where the project discharges stormwater runoff into channels or storm drains where the potential for erosion or other impacts to beneficial uses, alone or in combination with other current or reasonable foreseeable future developments, will comply with applicable anti-degradation requirements and is otherwise ~~is~~ minimal. Such situations may include discharges into channels that are concrete-lined or significantly hardened (e.g., with rip-rap, sackrete, etc.) downstream to their outfall in bays or the ocean, underground storm drains discharging to bays or the ocean, and construction of projects in highly impervious (e.g., >70%) watersheds, where the potential for single-project and/or cumulative impacts is minimal. Specific criteria for identification of such situations shall be included as a part of the HMP. However, plans to restore a channel reach may re-introduce the applicability of HMP controls, and would need to be addressed in the HMP.

(4) HMP Reporting

The Copermittees shall collaborate to report on HMP development as required in section J.1.4 of this Order.

(5) HMP Implementation

180 days after adoption of the HMP by the Regional Board, each Copermittee shall incorporate into its local SUSMP and fully implement the HMP for all applicable Priority Development Projects. Prior to approval of the HMP by the Regional Board, the early implementation of measures likely to be included in the HMP shall be encouraged by the Copermittees.

(6) Interim Standards for Projects Disturbing 50 Acres or More

Starting July 1, 2007, Copermittees shall implement as part of its local SUSMP an updated review process which requires proponents of Priority Development

Projects in this size category to complete a Hydromodification Analysis Study (HAS) which demonstrates that the project's post-development runoff rates and durations shall not exceed estimated pre-project discharge rates and durations where the increased discharge rates and durations will result in increased potential for erosion or other significant adverse impacts to beneficial uses, attributable to changes in the amount and timing of runoff. The Copermittees shall require that the HAS must demonstrate that the selected hydrologic controls for the Priority Development Project will maintain an Ep value close to one in natural channels receiving runoff from the Priority Development Project.

h. ENFORCEMENT OF DEVELOPMENT SITES

Each Copermittee shall enforce its storm water ordinance for all Development Projects and at all development sites as necessary to maintain compliance with this Order. Copermittee ordinances or other regulatory mechanisms shall include appropriate and effective sanctions to ensure compliance. Sanctions shall include the following or their equivalent: Non-monetary penalties, fines, bonding requirements, and/or permit or occupancy denials for non-compliance.

2. Construction Component

Each Copermittee shall implement a construction program which meets the requirements of this section, reduces the discharge of pollutants from construction sites to the MEP, and ensures that urban runoff discharges from construction sites do not cause or contribute to a violation of water quality standards.

a. ORDINANCE UPDATE AND APPROVAL PROCESS

(1) Within 365 days of adoption of this Order, each Copermittee shall review and update its grading ordinances and other ordinances as necessary to achieve full compliance with this Order, including requirements for the implementation of all designated BMPs and other measures.

(2) Prior to approval and issuance of local construction and grading permits, each Copermittee shall:

(a) Require all individual proposed construction sites to implement designated BMPs and other measures to ensure that pollutants discharged from the site will be reduced to the maximum extent practicable and will not cause or contribute to a violation of water quality standards.
(b) Prior to permit issuance, require and review the project proponent's storm water management plan to ensure compliance with their grading ordinance, other ordinances, and this Order.
(c) Verify that project proponents subject to California's statewide General NPDES Permit for Storm Water Discharges Associated With Construction Activities, (hereinafter General Construction Permit), have existing coverage under the General Construction Permit.

b. SOURCE IDENTIFICATION

Each Copermittee shall maintain and update monthly a watershed based inventory of all construction sites within its jurisdiction. The use of an automated database

system, such as Geographical Information System (GIS) is highly recommended.

c. BMP IMPLEMENTATION

(1) Each Copermittee shall designate a minimum set of effective BMPs and other effective measures to be implemented at construction sites. The designated minimum set of BMPs shall include, at a minimum:

(a) Pollution prevention.
(b) Development and implementation of a storm water management plan to ensure pollutants in runoff are reduced to the MEP and will not cause or contribute to a violation of water quality standards.
(c) Erosion prevention, to be used as the most important measure for keeping sediment on site during construction, but never as the single method;
(d) Sediment controls, to be used as a supplement to erosion prevention for keeping sediment on-site during construction, and never as the single or primary method;
(e) Slope stabilization on all inactive slopes during the rainy season and during rain events in the dry season.
(f) Slope stabilization on all active slopes during rain events regardless of the season, unless advanced treatment is being implemented downstream of the slope.
(g) Minimization of areas that are cleared and graded to only the portion of the site that is necessary for construction;
(h) Minimization of exposure time of disturbed soil areas;
(i) Minimization of grading during the wet season and correlation of grading with seasonal dry weather periods to the extent feasible.
(j) Limitation of grading to a maximum disturbed area as determined by each Copermittee. The Copermittee has the option of temporarily increasing the size of disturbed soil areas by a set amount beyond the maximum, if the individual site is in compliance with applicable storm water regulations and the site has adequate control practices implemented to prevent storm water pollution.
(k) Implementation of advanced treatment for sediment at construction sites that are determined by the Copermittee to be a significant threat to water quality. In evaluating the threat to water quality, the following factors shall be considered by the Copermittee: (1) soil erosion potential; (2) the site's slopes; (3) project size and type; (4) sensitivity of receiving water bodies; (5) proximity to receiving water bodies; (6) non-storm water discharges; (7) ineffectiveness of other BMPs; and (8) any other relevant factors.
(l) Temporary stabilization and reseeding of disturbed soil areas as rapidly as feasible;
(m) Permanent revegetation or landscaping as early as feasible;
(n) Preservation of natural hydrologic features where feasible;
(o) Preservation of riparian buffers and corridors where feasible;
(p) Maintenance of all BMPs, until removed; and
(q) Retention, reduction, and proper management of all pollutant discharges on site to the MEP standard.

(2) Each Copermittee shall implement, or require the implementation of, the designated minimum BMPs and any additional measures necessary to comply with this Order at each construction site within its jurisdiction year round.

However, BMP implementation requirements can vary based on wet and dry seasons. Dry season BMP implementation must plan for and address rain events that may occur during the dry season.

(3) Each Copermittee shall implement, or require implementation of, additional controls for construction sites tributary to CWA section 303(d) water bodies impaired for sediment as necessary to comply with this Order. Each Copermittee shall implement, or require implementation of, additional controls for construction sites within or adjacent to or discharging directly to coastal lagoons or other receiving waters within environmentally sensitive areas (as defined in section Attachment C of this Order) as necessary to comply with this Order.

d. INSPECTION OF CONSTRUCTION SITES

Each Copermittee shall conduct construction site inspections for compliance with its local ordinances (grading, storm water, etc.), permits (construction, grading, etc.), and this Order.

(1) During the wet season, each Copermittee shall inspect at least biweekly (every two weeks), all construction sites within its jurisdiction meeting the following criteria:

(a) All sites 50 acres or more in size and grading will occur during the wet season;
(b) All sites 1 acre or more, and tributary to a CWA section 303(d) water body impaired for sediment or within or directly adjacent to or discharging directly to a receiving water within ESA; and
(c) Other sites determined by the Copermittees or the Regional Board as a significant threat to water quality. In evaluating threat to water quality, the following factors shall be considered: (1) soil erosion potential; (2) site slope; (3) project size and type; (4) sensitivity of receiving water bodies; (5) proximity to receiving water bodies; (6) non-storm water discharges; (7) past record of non-compliance by the operators of the construction site; and (8) any other relevant factors.

(2) During the wet season, each Copermittee shall inspect at least monthly, all construction sites with one acre or more of soil disturbance not meeting the criteria specified above in section D.2.d.(1).

(3) During the wet season, each Copermittee shall inspect as needed, construction sites less than 1 acre in size.

(4) Each Copermittee shall inspect all construction sites as needed during the dry season.

(5) Based upon site inspection findings, each Copermittee shall implement all follow-up actions (i.e., reinspection, enforcement) necessary to comply with this Order.

(6) Inspections of construction sites shall include, but not be limited to:

(a) Check for coverage under the General Construction Permit (Notice of Intent (NOI) and/or Waste Discharge Identification No.) during initial inspections;
(b) Assessment of compliance with Permittee ordinances and permits related to urban runoff, including the implementation and maintenance of designated minimum BMPs;
(c) Assessment of BMP effectiveness;
(d) Visual observations for non-storm water discharges, potential illicit connections, and potential discharge of pollutants in storm water runoff;
(e) Education and outreach on storm water pollution prevention, as needed; and
(f) Creation of a written record of the inspection.

(7) The Copermittees shall track the number of inspections for the inventoried construction sites throughout the reporting period to ensure that the sites are inspected at the minimum frequencies required.

e. ENFORCEMENT OF CONSTRUCTION SITES

Each Copermittee shall develop and implement an escalating enforcement process that achieves prompt and effective corrective actions at construction sites for violations of the Copermittee's water quality protection permit requirements and ordinances. This enforcement process shall include authorizing the Copermittee's construction site inspectors to take immediate enforcement actions when appropriate and necessary. The enforcement process shall include appropriate and effective sanctions such as stop work orders, non-monetary penalties, fines, bonding requirements, and/or permit denials for non-compliance.

f. REPORTING OF NON-COMPLIANT SITES

In addition to the notification requirements in section 5(e) of Attachment B, each Copermittee shall notify the Regional Board when the Copermittee issues a stop work order or other high level enforcement to a non-compliant construction site in their jurisdiction.

3. Existing Development Component

a. MUNICIPAL

Each Copermittee shall implement a municipal program which meets the requirements of this section, reduces the discharge of pollutants from municipal areas and activities to the MEP, and ensures that urban runoff discharges from municipal areas and activities do not cause or contribute to a violation of water quality standards.

(1) Source Identification

Each Copermittee shall annually update a watershed based inventory of municipal areas and activities. The inventory shall include the name, address (if applicable), and a description of the area/activity, which pollutants are potentially generated by the area/activity, and identification of whether the

area/activity is tributary to a CWA section 303(d) water body and generates pollutants for which the water body is impaired. The use of an automated database system, such as Geographical Information System (GIS) is highly recommended when applicable, but not required.

(2) BMP Implementation

(a) Each Copermittee shall implement effective pollution prevention methods in its municipal program and shall require their use by appropriate municipal departments and personnel, where appropriate.

(b) Each Copermittee shall designate a minimum set of effective BMPs for all municipal areas and activities. The designated minimum BMPs for municipal areas and activities shall be area or activity specific as appropriate.

(c) Each Copermittee shall implement, or require the implementation of, the designated minimum BMPs and any additional measures necessary to comply with this Order for each municipal area or activity within its jurisdiction.

(d) Each Copermittee shall evaluate the feasibility of retrofitting existing structural flood control devices and retrofit where needed.

(e) Each Copermittee shall incorporate low impact site design BMPs according to section D.1.d(4) when changing the hydrologic or hydraulic capacity or behavior of a drainage system. Such modifications occur particularly in road drainage systems and include, but are not limited to: a change in the time of concentration, peak flow rate, volume, or velocity of stormwater discharge; creating new or modifying existing ditches, swales, or culverts (not including maintenance to reestablish original conditions); and changing historic drainage patterns.

(f) Each Copermittee shall require the incorporation of low impact site design BMPs according to section D.1.d(4) when adding impervious surface or modifying any impervious site feature at municipal facilities (not including maintenance to reestablish original conditions), whether or not the project qualifies as a Priority Development Project according to section D.1.d(2).

~~(e)~~(g) Each Copermittee shall implement, or require implementation of, any additional controls for municipal areas and activities tributary to CWA section 303(d) impaired water bodies (where an area or activity generates pollutants for which the water body is impaired) as necessary to comply with this Order. Each Copermittee shall implement, or require implementation of, additional controls for municipal areas and activities within or directly adjacent to or discharging directly to coastal lagoons or other receiving waters within environmentally sensitive areas (as defined in Attachment C of this Order) as necessary to comply with this Order.

(3) Operation and Maintenance of Municipal Separate Storm Sewer System and Structural Controls

(a) Each Copermittee shall implement a schedule of inspection and maintenance activities to ensure proper operation of all municipal structural treatment controls designed to reduce pollutant discharges to or from its MS4s and related drainage structures.

(b) Each Copermittee shall implement a schedule of maintenance activities for the MS4. The maintenance activities shall, at a minimum, include:

i. Inspection of all Copermittee catch basins and storm drain inlets at least once a year between May 1 and September 30 of each year. If accumulated waste (e.g. sediment, trash, debris and other pollutants) is visible, the accumulated waste in the catch basin or storm drain shall be cleaned out. Additional cleaning shall be conducted as necessary.
ii. Inspection of all Copermittee open channels and removal of any observed anthropogenic litter from the open channels at least once a year between May 1 and September 30, with additional inspection and removal as necessary.
iii. Inspection, maintenance, and cleaning of other portions of the MS4 according to an established prioritized schedule.
iv. Record keeping of the maintenance and cleaning activities including the overall quantity of waste removed.
v. Proper disposal of waste removed pursuant to applicable laws.
vi. Measures to eliminate waste discharges during MS4 maintenance and cleaning activities.

(4) Management of Pesticides, Herbicides, and Fertilizers

The Copermittees shall implement BMPs to reduce the contribution of pollutants associated with the application, storage, and disposal of pesticides, herbicides and fertilizers from municipal areas and activities to MS4s. Important municipal areas and activities include municipal facilities, public rights-of-way, parks, recreational facilities, golf courses, cemeteries, botanical or zoological gardens and exhibits, landscaped areas, etc.

Such BMPs shall include, at a minimum: (1) educational activities, permits, certifications and other measures for municipal applicators and distributors; (2) integrated pest management measures that rely on non-chemical solutions; (3) the use of native vegetation; (4) schedules for irrigation and chemical application; and (5) the collection and proper disposal of unused pesticides, herbicides, and fertilizers.

(5) Sweeping of Municipal Areas

Each Copermittee shall implement a program to sweep municipal roads, streets, highways, and parking facilities. The program shall include the following measures:

(a) Roads, streets, highways, and parking facilities identified as consistently generating the highest volumes of trash and/or debris shall be swept at least two times per month.

(b) Roads, streets, highways, and parking facilities identified as consistently generating moderate volumes of trash and/or debris shall be swept at least monthly.

(c) Roads, streets, highways, and parking facilities identified as generating low volumes of trash and/or debris shall be swept as necessary, but no less than once per year.

(d) Roads, streets, highways, and parking facilities shall be swept following any special events (festivals, sporting events, etc.) at those locations.

(6) Limit Infiltration From Sanitary Sewer to MS4/Provide Preventive Maintenance of Both

Each Copermittee shall implement controls and measures to ~~limit~~ prevent infiltration of seepage from municipal sanitary sewers to MS4s through thorough, routine preventive maintenance of the MS4. Each Copermittee that operates both a municipal sanitary sewer system and a MS4 shall implement controls and measures to ~~limit~~ prevent infiltration of seepage from the municipal sanitary sewers to the MS4s that shall include overall sanitary sewer and MS4 surveys and thorough, routine preventive maintenance of both.

(7) Inspection of Municipal Areas and Activities

(a) At a minimum, each Copermittee shall inspect the following high priority municipal areas and activities annually:

i. Roads, Streets, Highways, and Parking Facilities.
ii. Flood Management Projects and Flood Control Devices.
iii. Areas and activities tributary to a C WA section 303(d) impaired water body, where an area or activity generates pollutants for which the water body is impaired. Areas and activities within or adjacent to or discharging directly to coastal lagoons or other receiving waters within environmentally sensitive areas (as defined in Attachment C of this Order).
iv. Municipal Facilities.
    [1] Active or closed municipal landfills;
    [2] Publicly owned treatment works (including water and wastewater treatment plants) and sanitary sewage collection systems;
    [3] Municipal separate storm sewer systems;
    [4] Solid waste transfer facilities;
    [5] Land application sites;
    [6] Corporate yards including maintenance and storage yards for materials, waste, equipment and vehicles; and
    [7] Household hazardous waste collection facilities.
v. Municipal airfields.
vi. Parks and recreation facilities.
vii. Special event venues following special events (festivals, sporting events, etc.)
viii. Power washing.
ix. Other municipal areas and activities that the Copermittee determines may contribute a significant pollutant load to the MS4.

(b) Other municipal areas and activities shall be inspected as needed.

(c) Based upon site inspection findings, each Copermittee shall implement all follow-up actions necessary to comply with this Order

(8) Enforcement of Municipal Areas and Activities

Each Copermittee shall enforce its storm water ordinance for all municipal areas and activities as necessary to maintain compliance with this Order.

b. INDUSTRIAL AND COMMERCIAL

Each Copermittee shall implement an industrial and commercial program which meets the requirements of this section, reduces the discharge of pollutants from industrial and commercial sites/sources to the MEP, and ensures that urban runoff discharges from industrial and commercial sites/sources do not cause or contribute to a violation of water quality standards.

(1) Source Identification

Each Copermittee shall annually update a watershed-based inventory of all industrial and commercial sites/sources within its jurisdiction (regardless of ownership) that could contribute a significant pollutant load to the MS4. The inventory shall include the following minimum information for each industrial and commercial site/source: name; address; pollutants potentially generated by the site/source (and identification of whether the site/source is tributary to a Clean Water Act section 303(d) water body and generates pollutants for which the water body is impaired); and a narrative description including SIC codes which best reflects the principal products or services provided by each facility. The use of an automated database system, such as Geographical Information System (GIS) is highly recommended.

At a minimum, the following sites/sources shall be included in the inventory:

(a) Commercial Sites/Sources:

i. Automobile repair, maintenance, fueling, or cleaning;
ii. Airplane repair, maintenance, fueling, or cleaning;
iii. Boat repair, maintenance, fueling, or cleaning;
iv. Equipment repair, maintenance, fueling, or cleaning;
v. Automobile and other vehicle body repair or painting;
vi. Mobile automobile or other vehicle washing;
vii. Automobile (or other vehicle) parking lots and storage facilities;
viii. Retail or wholesale fueling;
ix. Pest control services;
x. Eating or drinking establishments, including food markets;
xi. Mobile carpet, drape or furniture cleaning;
xii. Cement mixing or cutting;
xiii. Masonry;
xiv. Painting and coating;
xv. Botanical or zoological gardens and exhibits;

xvi. Landscaping;
xvii. Nurseries and greenhouses;
xviii. Golf courses, parks and other recreational areas/facilities;
xix. Cemeteries;
xx. Pool and fountain cleaning;
xxi. Marinas;
xxii. Port-a-Potty servicing;
xxiii. Building material retailers and storage;
xxiv. Animal facilities; and
xxv. Power washing services.

(b) Industrial Sites/Sources:

i. Industrial Facilities, as defined at 40 CFR § 122.26(b)(14), including those subject to the General Industrial Permit or other individual NPDES permit;
ii. Operating and closed landfills;
iii. Facilities subject to SARA Title III; and
iv. Hazardous waste treatment, disposal, storage and recovery facilities.

(c) All other commercial or industrial sites/sources tributary to a CWA Section 303(d) impaired water body, where the site/source generates pollutants for which the water body is impaired. All other commercial or industrial sites/sources within or directly adjacent to or discharging directly to coastal lagoons or other receiving waters within environmentally sensitive areas (as defined in Attachment C of this Order).

(d) All other commercial or industrial sites/sources that the Copermittee determines may contribute a significant pollutant load to the MS4.

(2) BMP Implementation

(a) Each Copermittee shall require the use of effective pollution prevention methods by industrial and commercial sites/sources, where appropriate.

(b) Each Copermittee shall designate a minimum set of effective BMPs for all industrial and commercial sites/sources. The designated minimum BMPs shall be specific to facility types and pollutant generating activities, as appropriate.

(c) Within the first year of implementation of the updated Jurisdictional Urban Runoff Management Program, each Copermittee shall notify the owner/operator of each inventoried industrial and commercial site/source of the BMP requirements applicable to the site/source.

(d) Each Copermittee shall implement, or require the implementation of, the designated minimum BMPs and any additional measures necessary to comply with this Order at each industrial and commercial site/source within its jurisdiction.

(e) For projects requiring a building permit, each Copermittee shall require the incorporation of low impact site design BMPs according to section D.1.d(4)

as a condition of permit approval for adding impervious surface or modifying any impervious site feature (not including maintenance to reestablish original conditions), whether or not the project qualifies as a Priority Development Project according to section D.1.d(2).

~~(e)~~(f) Each Copermittee shall implement, or require implementation of, additional controls for industrial and commercial sites/sources tributary to CWA section 303(d) impaired water bodies (where a site/source generates pollutants for which the water body is impaired) as necessary to comply with this Order. Each Copermittee shall implement, or require implementation of, additional controls for industrial and commercial sites/sources within or directly adjacent to or discharging directly to coastal lagoons or other receiving waters within environmentally sensitive areas (as defined in Attachment C of this Order) as necessary to comply with this Order.

(3) Inspection of Industrial and Commercial Sites/Sources

(a) Each Copermittee shall conduct industrial and commercial site inspections for compliance with its ordinances, permits, and this Order. Inspections shall include but not be limited to:

i. Review of BMP implementation plans, if the site uses or is required to use such a plan;
ii. Review of facility monitoring data, if the site monitors its runoff;
iii. Check for coverage under the General Industrial Permit (Notice of Intent (NOI) and/or Waste Discharge Identification No.), if applicable;
iv. Assessment of compliance with Copermittee ordinances and permits related to urban runoff;
v. Assessment of BMP implementation, maintenance and effectiveness;
vi. Visual observations for non-storm water discharges, potential illicit connections, and potential discharge of pollutants in storm water runoff; and
vii. Education and outreach on storm water pollution prevention.

(b) Each Copermittee shall annually inspect all sites determined to pose a high threat to water quality. In evaluating threat to water quality, each Copermittee shall address, at a minimum, the following:

i. Type of activity (SIC code);
ii. Materials used at the facility;
iii. Wastes generated;
iv. Pollutant discharge potential;
v. Non-storm water discharges;
vi. Size of facility;
vii. Proximity to receiving water bodies;
viii. Sensitivity of receiving water bodies;
ix. Whether the facility is subject to the General Industrial Permit or an individual NPDES permit;

x. Whether the facility has filed a No Exposure Certification/Notice of Non-Applicability;
xi. Facility design;
xii. Total area of the site, area of the site where industrial or commercial activities occur, and area of the site exposed to rainfall and runoff;
xiii. The facility's compliance history; and
xiv. Any other relevant factors.

(c) At a minimum, 40% of the sites inventoried as required in section D.3.b.(1) above (excluding mobile businesses) shall be inspected each year.

(d) In addition to conducting inspections, each Copermittee shall develop and implement a program for verifying industrial and commercial site/source compliance with its ordinances, permits, and this Order, if determined to be necessary by the Copermittee. In developing the program, each Copermittee shall consider use of:

i. Compliance certifications (including submitting monitoring results, if applicable);
ii. Third party inspections;
iii. Facility or industry specific surveys; and
iv. Other relevant factors.

(e) Based upon site inspection findings, each Copermittee shall implement all follow-up actions necessary to comply with this Order.

(f) To the extent that the Regional Board has conducted an inspection of an industrial site during a particular year, the requirement for the responsible Copermittee to inspect this facility during the same year will be satisfied.

(g) The Copermittees shall track the number of inspections for the inventoried industrial and commercial sites/sources throughout the reporting period to ensure that the sites/sources are inspected at the minimum frequencies listed in sections D.3.b.(3)(b) and D.3.b.(3)(c).

(4) Regulation of Mobile Businesses

(a) Each Copermittee shall develop and implement a program to reduce the discharge of pollutants from mobile businesses to the MEP. Each Copermittee shall keep as part of their inventory (section D.3.b.(1) above), a listing of mobile businesses known to operate within its jurisdiction. The program shall include:

i. Development and implementation of minimum standards and BMPs to be required for each of the various types of mobile businesses.
ii. Development and implementation of an enforcement strategy which specifically addresses the unique characteristics of mobile businesses.
iii. Notification of those mobile businesses known to operate within the Copermittee's jurisdiction of the minimum standards and BMP requirements and local ordinances.
iv. Development and implementation of an outreach and education strategy.

v. Inspection of mobile businesses as needed.

(b) If they choose to, the Copermittees may cooperate in developing and implementing their programs for mobile businesses, including sharing of mobile business inventories, BMP requirements, and education.

(5) Enforcement of Industrial and Commercial Sites/Sources

Each Copermittee shall enforce its storm water ordinance for all industrial and commercial sites/sources as necessary to maintain compliance with this Order. Copermittee ordinances or other regulatory mechanisms shall include appropriate and effective sanctions to ensure compliance. Sanctions shall include the following or their equivalent: Non-monetary penalties, fines, bonding requirements, and/or permit denials for non-compliance.

(6) Reporting of Industrial Non-Filers

As part of each Annual Report, each Copermittee shall report a list of industrial sites, including the name, address, and SIC code, that may require coverage under the General Industrial Permit for which a NOI has not been filed.

c. RESIDENTIAL

Each Copermittee shall implement a residential program which meets the requirements of this section, reduces the discharge of pollutants from residential areas and activities to the MEP, and ensures that urban runoff discharges from residential areas and activities do not cause or contribute to a violation of water quality standards.

(1) Threat to Water Quality Prioritization

Each Copermittee shall identify high threat to water quality residential areas and activities. At a minimum, these shall include:

(a) Automobile repair, maintenance, washing, and parking;
(b) Home and garden care activities and product use (pesticides, herbicides, and fertilizers);
(c) Disposal of trash, pet waste, green waste, and household hazardous waste (e.g., paints, cleaning products);
(d) Any other residential source that the Copermittee determines may contribute a significant pollutant load to the MS4;
(e) Any residential areas tributary to a CWA section 303(d) impaired water body, where the residence generates pollutants for which the water body is impaired; and
(f) Any residential areas within or directly adjacent to or discharging directly to a coastal lagoon or other receiving waters within an environmentally sensitive area (as defined in Attachment C of this Order).

(2) BMP Implementation

(a) Each Copermittee shall designate minimum effective BMPs for high threat to water quality residential areas and activities. The designated minimum BMPs for high threat to water quality municipal areas and activities shall be area or activity specific.

(b) Each Copermittee shall encourage the use of effective pollution prevention methods by residents, where appropriate.

(c) Each Copermittee shall facilitate the proper management and disposal of used oil, toxic materials, and other household hazardous wastes. Such facilitation shall include educational activities, public information activities, and establishment of collection sites operated by the Copermittee or a private entity. Curbside collection of household hazardous wastes is encouraged.

(d) Each Copermittee shall implement, or require implementation of, the designated minimum BMPs and any additional measures necessary to comply with this Order for high threat to water quality residential areas and activities.

(e) Each Copermittee shall implement, or require implementation of, BMPs for residential areas and activities that have not been designated a high threat to water quality, as necessary.

(f) For projects requiring a building permit, each Copermittee shall require the incorporation of low impact site design BMPs according to section D.1.d(4) as a condition of permit approval for adding impervious surface or modifying any impervious site feature (not including maintenance to reestablish original conditions), whether or not the project qualifies as a Priority Development Project according to section D.1.d(2).

~~(f)~~(g) Each Copermittee shall implement, or require implementation of, any additional controls for residential areas and activities tributary to CWA section 303(d) impaired water bodies (where a residential area or activity generates pollutants for which the water body is impaired) as necessary to comply with this Order. Each Copermittee shall implement, or require implementation of, additional controls for residential areas within or directly adjacent to or discharging directly to coastal lagoons or other receiving waters within environmentally sensitive areas (as defined in section Attachment C of this Order) as necessary to comply with this Order.

(3) Enforcement of Residential Areas and Activities

Each Copermittee shall enforce its storm water ordinance for all residential areas and activities as necessary to maintain compliance with this Order.

(4) Regional Residential Education Program

Each Copermittee shall collaborate with the other Copermittees to develop and implement the Regional Residential Education Program required in section F.7 of this Order.

4. Illicit Discharge Detection and Elimination Component

Each Copermittee shall implement an Illicit Discharge Detection and Elimination program which meets the requirements of this section and actively seeks and eliminates illicit discharges and connections.

a. ILLICIT DISCHARGES AND CONNECTIONS

Each Copermittee shall implement a program to actively seek and eliminate illicit discharges and connections into its MS4. The program shall include utilization of appropriate municipal personnel to assist in identifying illicit discharges and connections during their daily activities. The program shall address all types of illicit discharges and connections excluding those non-storm water discharges not prohibited by the Copermittee in accordance with section B of this Order.

b. DEVELOP/MAINTAIN MS4 MAP

Each Copermittee shall develop and/or update its labeled map of its entire MS4 and the corresponding drainage areas within its jurisdiction. The use of a GIS is highly recommended. The accuracy of the MS4 map shall be confirmed during dry weather field screening and analytical monitoring and shall be updated at least annually.

c. DRY WEATHER FIELD SCREENING AND ANALYTICAL MONITORING

Each Copermittee shall conduct dry weather field screening and analytical monitoring of MS4 outfalls and other portions of its MS4 within its jurisdiction to detect illicit discharges and connections in accordance with Receiving Waters Monitoring and Reporting Program No. R9-2006-0011.

d. INVESTIGATION/INSPECTION AND FOLLOW-UP

(1) Each Copermittee shall investigate and inspect any portion of the MS4 that, based on visual observations, dry weather field screening and analytical monitoring results, or other appropriate information, indicates a reasonable potential for illicit discharges, illicit connections, or other sources of non-storm water (including non-prohibited discharge(s) identified in section B of this Order). Each Copermittee shall develop/update and utilize numeric criteria action levels to determine when follow-up investigations will be performed.

(2) Within 48 hours of receiving dry weather field screening or analytical laboratory results that exceed action levels, the Copermittees shall either conduct an investigation to identify the source of the discharge or provide the rationale for why the discharge does not pose a threat to water quality and does not need further investigation. Obvious illicit discharges (i.e. color, odor, or significant exceedances of action levels) shall be investigated immediately.

e. ELIMINATION OF ILLICIT DISCHARGES AND CONNECTIONS

Each Copermittee shall eliminate all detected illicit discharges, discharge sources, and connections immediately.

f. ENFORCE ORDINANCES

Each Copermittee shall implement and enforce its ordinances, orders, or other legal authority to prevent illicit discharges and connections to its MS4. Each Copermittee shall also implement and enforce its ordinance, orders, or other legal authority to eliminate detected illicit discharges and connections to it MS4.

g. PREVENT AND RESPOND TO SEWAGE SPILLS (INCLUDING FROM PRIVATE LATERALS AND FAILING SEPTIC SYSTEMS) AND OTHER SPILLS

Each Copermittee shall prevent, respond to, contain and clean up all sewage and other spills that may discharge into its MS4 from any source (including private laterals and failing septic systems). Spill response teams shall prevent entry of spills into the MS4 and contamination of surface water, ground water and soil to the maximum extent practicable. Each Copermittee shall coordinate spill prevention, containment and response activities throughout all appropriate departments, programs and agencies to ensure maximum water quality protection at all times.

Each Copermittee shall develop and implement a mechanism whereby it is notified of all sewage spills from private laterals and failing septic systems into its MS4. Each Copermittee shall prevent, respond to, contain and clean up sewage from any such notification.

h. FACILITATE PUBLIC REPORTING OF ILLICIT DISCHARGES AND CONNECTIONS - PUBLIC HOTLINE

Each Copermittee shall promote, publicize and facilitate public reporting of illicit discharges or water quality impacts associated with discharges into or from MS4s. Each Copermittee shall facilitate public reporting through development and operation of a public hotline. Public hotlines can be Copermittee-specific or shared by Copermittees. All storm water hotlines shall be capable of receiving reports in both English and Spanish 24 hours per day / seven days per week. Copermittees shall respond to and resolve each reported incident. All reported incidents, and how each was resolved, shall be summarized in each Copermittee's individual JURMP Annual Report.

5. Education Component

Each Copermittee shall implement an education program using all media as appropriate to (1) measurably increase the knowledge of the target communities regarding MS4s, impacts of urban runoff on receiving waters, and potential BMP solutions for the target audience; and (2) to measurably change the behavior of target communities and thereby reduce pollutant releases to MS4s and the environment. At a minimum, the education program shall meet the requirements of this section and address the following target communities:

- Municipal Departments and Personnel
- Construction Site Owners and Developers
- Industrial Owners and Operators

- Commercial Owners and Operators
- Residential Community, General Public, and School Children

a. GENERAL REQUIREMENTS

(1) Each Copermittee shall educate each target community on the following topics ~~where appropriate~~:

Table 3. Education

Laws, Regulations, Permits, & Requirements	**Best Management Practices**
• Federal, state, and local water quality laws and regulations • Statewide General NPDES Permit for Storm Water Discharges Associated with Industrial Activities (Except Construction). • Statewide General NPDES Permit for Storm Water Discharges Associated with Construction Activities • Regional Board's General NPDES Permit for Ground Water Dewatering • Regional Board's 401 Water Quality Certification Program • Statewide General NPDES Utility Vault Permit • Requirements of local municipal permits and ordinances (e.g., storm water and grading ordinances and permits)	• Pollution prevention and safe alternatives • Good housekeeping (e.g., sweeping impervious surfaces instead of hosing) • Proper waste disposal (e.g., garbage, pet/animal waste, green waste, household hazardous materials, appliances, tires, furniture, vehicles, boat/recreational vehicle waste, catch basin/ MS4 cleanout waste) • Non-storm water disposal alternatives (e.g., all wash waters) • Methods to minimized the impact of land development and construction • Erosion prevention • Methods to reduce the impact of residential and charity car-washing • Preventive Maintenance • Equipment/vehicle maintenance and repair • Spill response, containment, and recovery • Recycling • BMP maintenance
General Urban Runoff Concepts	**Other Topics**
• Impacts of urban runoff on receiving waters • Distinction between MS4s and sanitary sewers • BMP types: facility or activity specific, low impact site design, source control, and treatment control • Short- and long-term water quality impacts associated with urbanization (e.g., land-use decisions, development, construction) • Non-storm water discharge prohibitions • How to conduct a storm water inspections	• Public reporting mechanisms • Water quality awareness for Emergency/ First Responders • Illicit Discharge Detection and Elimination observations and follow-up during daily work activities • Potable water discharges to the MS4 • Dechlorination techniques • Hydrostatic testing • Integrated pest management • Benefits of native vegetation • Water conservation • Alternative materials and designs to maintain peak runoff values • Traffic reduction, alternative fuel use

(2) Copermittee educational programs shall emphasize underserved target audiences, high-risk behaviors, and "allowable" behaviors and discharges, including various

ethnic and socioeconomic groups and mobile sources.

b. SPECIFIC REQUIREMENTS

(1) Municipal Departments and Personnel Education

(a) Municipal Development Planning – Each Copermittee shall implement an education program to ensure that its planning and development review staffs (and Planning Boards and Elected Officials, if applicable) have an understanding of:

i. Federal, state, and local water quality laws and regulations applicable to Development Projects;
ii. The connection between land use decisions and short and long-term water quality impacts (i.e., impacts from land development and urbanization); and
iii. Methods of minimizing impacts to receiving water quality resulting from development, including:
[1] Storm water management plan development and review;
[2] Methods to control downstream erosion impacts;
[3] Identification of pollutants of concern;
[4] Low impact ~~Site~~ site design BMP techniques;
[5] Source control BMPs; and
[6] Selection of the most effective treatment control BMPs for the pollutants of concern.

(b) Municipal Construction Activities – Each Copermittee shall implement an education program that includes annual training prior to the rainy season to ensure that its construction, building, code enforcement, and grading review staffs, inspectors, and other responsible construction staff have, at a minimum, an understanding of:

i. Federal, state, and local water quality laws and regulations applicable to construction and grading activities.
ii. The connection between construction activities and water quality impacts (i.e., impacts from land development and urbanization and impacts from construction material such as sediment).
iii. Proper implementation of erosion and sediment control and other BMPs to minimize the impacts to receiving water quality resulting from construction activities.
iv. The Copermittee's inspection, plan review, and enforcement policies and procedures to ensure consistent application.
v. Current advancements in BMP technologies.
vi. SUSMP Requirements including treatment options, site design, source control, and applicable tracking mechanisms.

(c) Municipal Industrial/Commercial Activities - Each Copermittee shall train staff responsible for conducting inspections and enforcement of industrial and commercial facilities at least once a year. Training shall cover inspection and enforcement procedures, BMP implementation, and reviewing monitoring data.

(d) Municipal Other Activities – Each Copermittee shall implement an education program to ensure that municipal personnel and contractors performing activities which generate pollutants have an understanding of the activity specific BMPs for each activity to be performed.

(2) New Development and Construction Education

As early in the planning and development process as possible and all through the permitting and construction process, each Copermittee shall implement a program to educate project applicants, developers, contractors, property owners, community planning groups, and other responsible parties. The education program shall ensure an understanding of the topics listed in Section D.5.b.(1)(b) above and the importance of educating all construction workers in the field about stormwater issues and BMPs though formal or informal training.

(3) Residential, General Public, and School Children Education

Each Copermittee shall collaboratively conduct or participate in development and implementation of a plan to educate residential, general public, and school children target communities. The plan shall evaluate use of mass media, mailers, door hangers, booths at public events, classroom education, field trips, hands-on experiences, or other educational methods.

6. Public Participation Component

Each Copermittee shall incorporate a mechanism for public participation in the updating, development, and implementation of the Jurisdictional Urban Runoff Management Program.

E. WATERSHED URBAN RUNOFF MANAGEMENT PROGRAM

1. Each Copermittee shall fully implement all requirements of section E of this Order no later than July 1, 2007, unless otherwise specified in this Order. Prior to July 1, 2007, each Copermittee shall collaborate with the other Copermittees within its watershed(s) to at a minimum fully implement its Watershed URMP document, as the document was developed to comply with the requirements of Order No. 2001-01.

2. Each Copermittee shall collaborate with other Copermittees within its watershed(s) as shown in Table 4 below to develop and implement an updated Watershed Urban Runoff Management Program for each watershed. Each updated Watershed Urban Runoff Management Program shall meet the requirements of section E of this Order, reduce the discharge of pollutants to the MEP, and ensure that urban runoff discharges do not cause or contribute to a violation of water quality standards. Each Watershed Urban Runoff Management Program shall, at a minimum:

   a. Identify the Lead Watershed Permittee for each watershed. In the event that a Lead Watershed Permittee is not selected and identified by the Copermittees, by default the Copermittee identified in Table 4 as the Lead Watershed Permittee for that watershed

shall be responsible for implementing the requirements of the Lead Watershed Permittee in that watershed.

b. Develop an updated accurate map of the watershed (preferably in Geographical Information System (GIS) format) that identifies all receiving waters (including the Pacific Ocean); all Clean Water Act section 303(d) impaired receiving waters (including the Pacific Ocean); land uses; MS4s; major highways; jurisdictional boundaries; and inventoried commercial, industrial, and municipal sites.

c. Identify all pertinent water quality data that is available or will be available for a watershed. At a minimum, this shall include data from mass loading station monitoring; bioassessment monitoring; coastal storm drain monitoring; ambient bay, lagoon, and coastal receiving water monitoring; toxic hot spots monitoring; special investigations; monitoring resulting from enforcement actions; dry weather analytical monitoring and field screening; toxicity identification evaluations; total maximum daily load (TMDL) monitoring; and other applicable monitoring data from public and private organizations.

d. Annually assess and analyze the watershed's water quality data identified under section E.2.c above. The assessment and analysis shall annually identify and prioritize the watershed's water quality problems that are partially or fully attributable to MS4 discharges. Identified priority water quality problems shall include CWA section 303(d) listings, persistent violations of water quality standards, toxicity, impacts to beneficial uses, and other pertinent conditions. From the list of priority water quality problems, the high priority water quality problems of the watershed shall be identified, which shall include those priority water quality problems which most significantly exceed or impact water quality standards (water quality objectives an beneficial uses).

e. Identify and annually update the sources, pollutant discharges, and/or other factors causing the high priority water quality problems within the watershed.

f. Develop and update annually a list of potential short and long-term Watershed Water Quality Activities that will (1) abate the sources of the watershed's high priority water quality problems, and (2) reduce the discharge of pollutants causing the watershed's high priority water quality problems.

g. Develop and implement a collective strategy to guide Copermittee implementation of Watershed Water Quality Activities and Watershed Education Activities. The strategy shall include criteria for evaluating Watershed Water Quality Activities and Watershed Education Activities and identifying those activities which are likely to effective in reducing pollutant discharges causing the watershed's high priority water quality problems.

h. Annually evaluate the pollutant reduction effectiveness of the potential Watershed Water Quality Activities and Watershed Education Activities identified under sections E.2.f and E.2.j using criteria developed under section E.2.g.

i. Implement Watershed Water Quality Activities as part of the strategy identified under section E.2.g above.

(1) Short-term - At a minimum, each Copermittee shall implement two Watershed Water Quality Activities within its portion of each watershed annually. The Watershed Water Quality Activities shall be effective at reducing pollutant discharges causing the watershed's high priority water quality problem(s) as determined by the evaluation conducted under section E.2.h above. If a Copermittee contributes its fair share of resources to a Watershed Water Quality Activity outside of its jurisdiction but within the watershed, the number of Watershed Water Quality Activities required of the Copermittee in that watershed is reduced by one. For each regional activity implemented within a watershed which meets the criteria of the Watershed Water Quality Activity definition, where the Copermittee contributes its fair share of resources to the regional activity, the number of Watershed Water Quality Activities required of the Copermittee in that watershed is reduced by one.

(2) Long-term – At a minimum, the watershed Copermittees shall collectively either implement or conduct the planning and studies necessary to implement at least one long-term Watershed Water Quality Activity which cannot be implemented on an annual basis.

j. Develop and update annually a list of potential Watershed Education Activities that will (1) target the sources of the pollutant discharges causing the watershed's high priority water quality problems, and (2) inform appropriate target audiences of watershed concepts. Each listed Watershed Education Activity shall include a description which discusses how the activity will target sources and reduce pollutant discharges causing the identified high priority water quality problems in the watershed.

k. Implement Watershed Education Activities as part of the strategy identified under section E.2.g above.

(1) Source and Pollutant Discharge - At a minimum, each Copermittee shall implement two source and pollutant discharge-based Watershed Education Activities within its portion of each watershed annually. If a Copermittee contributes its fair share of resources to a Watershed Education Activity outside of its jurisdiction but within its watershed, the number of Watershed Education Activities required of the Copermittee in that watershed is reduced by one. For each regional education activity implemented within a watershed, where the Copermittee contributes its fair share of resources to the regional education activity, the number of Watershed Education Activities required of the Copermittee in that watershed is reduced by one.

(2) Watershed Concept - At a minimum, the watershed Copermittees shall collectively conduct watershed concept-based Watershed Education Activities which inform appropriate target audiences of watershed concepts.

l. Implement a watershed-specific public participation mechanism within each watershed. The mechanism shall encourage participation from other organizations within the watershed (such as the Department of Defense, Caltrans, lagoon foundations, etc.)

m. Include Copermittee collaboration to develop and implement the Watershed Urban Runoff Management Programs. Copermittee collaboration shall include frequent

regularly scheduled meetings and implementation of mechanisms to facilitate watershed-based land use planning with other jurisdictions within the watershed.

Table 4. Copermittees by Watershed

RESPONSIBLE COPERMITTEE(S)	WATERSHED URBAN RUNOFF MANAGEMENT PROGRAM	HYDROLOGIC UNIT OR AREA	MAJOR RECEIVING WATER BODIES
1. County of San Diego	Santa Margarita River	Santa Margarita HU (902.00)	Santa Margarita River and Estuary, Pacific Ocean
1. City of Escondido **2. City of Oceanside** 3. City of Vista 4. County of San Diego	San Luis Rey River	San Luis Rey HU (903.00)	San Luis Rey River and Estuary, Pacific Ocean
1. City of Carlsbad **2. City of Encinitas** 3. City of Escondido 4. City of Oceanside 5. City of San Marcos 6. City of Solana Beach 7. City of Vista 8. County of San Diego	Carlsbad	Carlsbad HU (904.00)	Batiquitos Lagoon San Elijo Lagoon Agua Hedionda Lagoon Buena Vista Lagoon and Tributary Streams Pacific Ocean
1. City of Del Mar 2. **City of Escondido** 3. City of Poway 4. City of San Diego 5. City of Solana Beach 6. County of San Diego	San Dieguito River	San Dieguito HU (905.00)	San Dieguito River and Estuary Pacific Ocean
1. City of Del Mar 2. City of Poway 3. City of San Diego 4. County of San Diego	Peñasquitos	Miramar Reservoir HA (906.10) Poway HA (906.20)	Los Peñasquitos Creek Los Peñasquitos Lagoon Pacific Ocean
1. City of San Diego	Mission Bay	Scripps HA (906.30) Miramar HA(906.40) Tecolote HA (906.50)	Mission Bay Pacific Ocean
1. City of El Cajon 2. City of La Mesa 3. City of Poway 4. City of San Diego 5. City of Santee 6. County of San Diego	San Diego River	San Diego HU (907.00)	San Diego River Pacific Ocean
1. City of Chula Vista 2. City of Coronado 3. City of Imperial Beach 4. City of La Mesa 5. City of Lemon Grove 6. City of National City 7. City of San Diego 8. County of San Diego **9. San Diego Unified Port District** 10. San Diego County Regional Airport Authority	San Diego Bay	Pueblo San Diego HU (908.00) Sweetwater HU (909.00) Otay HU (910.00)	San Diego Bay Sweetwater River Otay River Pacific Ocean
1. City of Imperial Beach 2. City of San Diego **3. County of San Diego**	Tijuana River	Tijuana (911.00)	Tijuana River and Estuary Pacific Ocean

- The Lead Watershed Permittee for each watershed is highlighted

F. REGIONAL URBAN RUNOFF MANAGEMENT PROGRAM

The Copermittees shall fully implement all requirements of section F of this Order no later than July 1, 2007, unless otherwise specified in this Order.

Each Copermittee shall collaborate with the other Copermittees to develop, implement, and update as necessary a Regional Urban Runoff Management Program. The Regional Urban

Runoff Management Program shall meet the requirements of section F of this Order, reduce the discharge of pollutants to the MEP, and ensure that urban runoff discharges do not cause or contribute to a violation of water quality standards. The Regional Watershed Urban Runoff Management Program shall, at a minimum:

1. Develop and implement urban runoff management activities on a regional level, as determined to be necessary by the Copermittees.
2. Develop minimum standards for Jurisdictional Urban Runoff Management Program, Watershed Urban Runoff Management Program, and Regional Urban Runoff Management Program implementation and reporting, as determined to be necessary by the Copermittees.
3. Develop and implement a strategy to integrate management, implementation, and reporting of jurisdictional, watershed, and regional activities, as determined to be necessary by the Copermittees. Any such integration shall assure compliance with the jurisdictional requirements of section D and the watershed requirements of section E.
4. Facilitate TMDL management and implementation, as determined to be necessary by the Copermittees.
5. Facilitate the assessment of the effectiveness of jurisdictional, watershed, and regional programs.
6. Facilitate development of strategies for implementation of activities on a watershed level, as determined to be necessary by the Copermittees.
7. Develop and implement a Regional Residential Education Program. The program shall include:
   a. Pollutant specific education which focuses educational efforts on bacteria, nutrients, sediment, pesticides, and trash. If a different pollutant is determined to be more critical for the education program, the pollutant can be substituted for one of these pollutants.
   b. Education efforts focused on the specific residential sources of the pollutants listed in section F.7.a.
8. Develop the standardized fiscal analysis method required in section G of this Order.

G. FISCAL ANALYSIS

1. Each Copermittee shall secure the resources necessary to meet all requirements of this Order.

2. As part of the Regional Urban Runoff Management Program, the Copermittees shall collectively develop a standardized method and format for annually conducting and reporting fiscal analyses of their urban runoff management programs in their entirety (including jurisdictional, watershed, and regional activities). This standardized method shall:

   a. Identify the various categories of expenditures attributable to the urban runoff management programs, including a description of the specific items to be accounted for in each category of expenditures.
   b. Distinguish between expenditures attributable solely to permit compliance and expenditures that contribute to multiple programs or were in existence prior to implementation of the urban runoff management program.
   c. Identify a metric or metrics to be used to report program component and total program expenditures.

3. Each Copermittee shall conduct its annual fiscal analysis consistent with the standardized fiscal analysis method included in the RURMP. The annual fiscal analysis shall be conducted and reported on as part of each Copermittee's Jurisdictional Urban Runoff Management Program Annual Reports. For convenience, the fiscal analysis included in the Jurisdictional Urban Runoff Management Program Annual Reports shall address the Copermittee's urban runoff management programs in their entirety, including jurisdictional, watershed, and regional activities. The fiscal analysis shall identify the expenditures incurred by the Copermittee over the Annual Report's reporting period. The fiscal analysis shall also provide the Copermittee's urban runoff management program budget for the current reporting period. The fiscal analysis shall include a description of the source(s) of the funds that are proposed to be used to meet the necessary expenditures, including legal restrictions on the use of such funds.

H. TOTAL MAXIMUM DAILY LOADS

1. Chollas Creek Diazinon TMDL Water Quality Based Effluent Limits (WQBELs)

a. The Copermittees shall implement BMPs capable of achieving the interim and final diazinon Waste Load Allocation (WLA) concentration in the storm water discharge in Chollas Creek listed in Table 5.

Table 5. Chollas Creek Diazinon Schedule

Calendar Year	Year	Waste Load Allocation	Interim TMDL Numeric Target	% Reduction
2004	1	0.460 µg/L	0.5 µg/L	0
2005	2	0.460 µg/L	0.5 µg/L	0
2006	3	0.460 µg/L	0.5 µg/L	0
2007	4	0.414 µg/L	0.45 µg/L	10
2008	5	0.322 µg/L	0.35 µg/L	20
2009	6	0.184 µg/L	0.20 µg/L	30
2010	7	0.045 µg/L	0.05 µg/L	30

b. The Copermittees shall not cause or contribute to the violation of the Interim TMDL Numeric Targets in Chollas Creek as listed in Table 5. If the Interim TMDL Numeric Target is violated in Chollas Creek in more than one sample in any three consecutive years, the Copermittees shall submit a report that either 1) documents compliance with the WLA through additional sampling of the urban runoff discharge or 2) demonstrates, using modeling or other technical or scientific basis, the effectiveness of additional BMPs that will be implemented to achieve the WLA. The report may be incorporated into the Watershed Urban Runoff Management Program Annual Report unless the Regional Board directs an earlier submittal. The report shall include an implementation schedule.

c. The Copermittees in the Chollas Creek watershed shall implement the Diazinon Toxicity Control Plan and Diazinon Public Outreach/Education Program as described in the report titled, "Technical Report for Total Maximum Daily Load for Diazinon in Chollas Creek Watershed, San Diego County, August 14, 2002," to achieve the

WLA listed in Table 5.

2. Shelter Island Yacht Basin WQBELs

a. The Copermittees in the Shelter Island Yacht Basin watershed shall implement BMPs to maintain a total annual copper discharge load of less than or equal to 30 kg copper / year.

b. The Copermittees in the Shelter Island Yacht Basin watershed shall implement, at a minimum, the BMPs included in the Copermittees' Jurisdictional Urban Runoff Management Plan which address the discharge of copper to achieve the annual copper load in Section H.2.a above.

I. PROGRAM EFFECTIVENESS ASSESSMENT

1. Jurisdictional

a. As part of its Jurisdictional Urban Runoff Management Program, each Copermittee shall annually assess the effectiveness of its Jurisdictional Urban Runoff Management Program implementation. At a minimum, the annual effectiveness assessment shall:

(1) Provide a database giving for each development permit approval: date of approval; land area of parcel; square footage of under roof and square footage of all buildings (if different than under roof); percent impervious cover whether the project was new development or redevelopment; whether or not a SUSMP was required; Priority Development Project category or categories (if a SUSMP was required); development type (if a SUSMP was not required); BMPs required and implemented (whether or not a SUSMP was required); and percentage of site runoff managed by each low impact site design feature, treatment control BMP, and hydrologic control measure implemented under a HMP.

(2) Specifically assess the effectiveness of each of the following:
   (a) Each significant jurisdictional activity or BMP implemented;
   (b) Implementation of each major component of the Jurisdictional Urban Runoff Management Program (Development Planning, Construction, Municipal, Industrial/Commercial, Residential, Illicit Discharge Detection and Elimination, and Education); and
   (c) Implementation of the Jurisdictional Urban Runoff Management Program as a whole.

~~(2)~~(3) Identify and utilize measurable targeted outcomes, assessment measures, and assessment methods for each of the items listed in section I.1.a.(1) above.

~~(3)~~(4) Utilize outcome levels 1-6[1] to assess the effectiveness of each of the items listed in section I.1.a.(1) above, where applicable and feasible.

~~(4)~~(5) Utilize monitoring data and analysis from the Receiving Waters Monitoring Program to assess the effectiveness each of the items listed in section I.1.a.(1) above, where applicable and feasible.

~~(5)~~(6) Utilize Implementation Assessment, Water Quality Assessment, and Integrated Assessment.[2]

[1] Effectiveness assessment outcome levels are defined in Attachment C of this Order.

b. Based on the results of the effectiveness assessment, each Copermittee shall modify its jurisdictional activities or BMPs to maximize Jurisdictional Urban Runoff Management Program effectiveness. Jurisdictional activities or BMPs that are ineffective or less effective than other comparable jurisdictional activities or BMPs shall be replaced or improved upon by implementation of more effective jurisdictional activities or BMPs. Where monitoring data exhibits persistent water quality problems, jurisdictional activities or BMPs applicable to the water quality problems shall to be modified and improved on at least an annual basis to correct the water quality problems.

c. As part of its Jurisdictional Urban Runoff Management Program Annual Reports, each Copermittee shall report on its Jurisdictional Urban Runoff Management Program effectiveness assessment as implemented under each of the requirements of sections I.1.a and I.1.b above.

2. Watershed

a. As part of its Watershed Urban Runoff Management Program, each watershed group of Copermittees (as identified in Table 4) shall annually assess the effectiveness of its Watershed Urban Runoff Management Program implementation. At a minimum, the annual effectiveness assessment shall:

(1) Specifically assess the effectiveness of each of the following:
  (a) Each Watershed Water Quality Activity implemented;
  (b) Each Watershed Education Activity implemented; and
  (c) Implementation of the Watershed Urban Runoff Management Program as a whole.
(2) Identify and utilize measurable targeted outcomes, assessment measures, and assessment methods for each of the items listed in section I.2.a.(1) above.
(3) Utilize outcome levels 1-6 to assess the effectiveness of each of the items listed in sections I.2.a.(1)(a) and I.2.a.(1)(b) above, where applicable and feasible.
(4) Utilize outcome levels 1-4 to assess the effectiveness of implementation of the Watershed Urban Runoff Management Program as a whole, where applicable and feasible.
(5) Utilize outcome levels 5 and 6 to assess the effectiveness of implementation of the Watershed Urban Runoff Management Program as a whole, focusing on the high priority water quality problem(s) of the watershed. These assessments shall exhibit the impact of Watershed Urban Runoff Management Program implementation on the high priority water quality problem(s) within the watershed.
(6) Utilize monitoring data and analysis from the Receiving Waters Monitoring Program to assess the effectiveness each of the items listed in section I.2.a.(1) above, where applicable and feasible.
(7) Utilize Implementation Assessment, Water Quality Assessment, and Integrated Assessment.

b. Based on the results of the effectiveness assessment, the watershed Copermittees shall modify their Watershed Water Quality Activities, Watershed Education Activities, and other aspects of the Watershed Urban Runoff Management Program

[2] Implementation Assessment, Water Quality Assessment, and Integrated Assessment are defined in Attachment C of this Order.

in order to maximize Watershed Urban Runoff Management Program effectiveness. Watershed Water Quality Activities or Watershed Education Activities that are ineffective or less effective than other comparable Watershed Water Quality Activities or Watershed Education Activities shall be replaced or improved upon by implementation of more effective Watershed Water Quality Activities or Watershed Education Activities. Where monitoring data exhibits persistent water quality problems, Watershed Water Quality Activities and Watershed Education Activities applicable to the water quality problems shall to be modified and improved on at least an annual basis to correct the water quality problems.

c. As part of its Watershed Urban Runoff Management Program Annual Reports, each watershed group of Copermittees (as identified in Table 4) shall report on its Watershed Urban Runoff Management Program effectiveness assessment as implemented under each of the requirements of section I.2.a and I.2.b above.

3. Regional

a. As part of the Regional Urban Runoff Management Program, the Copermittees shall annually assess the effectiveness of Regional Urban Runoff Management Program implementation. At a minimum, the annual effectiveness assessment shall:

(1) Specifically assess the effectiveness of each of the following:
  (a) Each regional activity or BMP implemented, including regional residential education activities; and
  (b) The Regional Urban Runoff Management Program as a whole.
(2) Identify and utilize measurable targeted outcomes, assessment measures, and assessment methods for each of the items listed in section I.3.a.(1) above.
(3) Utilize outcome levels 1-6 to assess the effectiveness of each of the items listed in sections I.3.a.(1) above, where applicable and feasible.
(4) Utilize monitoring data and analysis from the Receiving Waters Monitoring Program to assess the effectiveness each of the items listed in section I.3.a.(1) above, where applicable and feasible.
(5) Utilize Implementation Assessment, Water Quality Assessment, and Integrated Assessment.
(6) Include evaluation of the need for minimum standards for Jurisdictional Urban Runoff Management Program, Watershed Urban Runoff Management Program, and Regional Urban Runoff Management Program implementation, and assessment of the progress in developing such standards.
(7) Include evaluation of the progress in integrating management, implementation, and reporting of jurisdictional, watershed, and regional activities.
(8) Include evaluation of the progress in facilitating TMDL management and implementation.
(9) Include evaluation of the progress in developing strategies for implementation of activities on a watershed level.
(10) Include evaluation of whether the Copermittees' jurisdictional, watershed, and regional effectiveness assessments are meeting the following objectives:
  (a) Assessment of watershed health and identification of water quality issues and concerns.
  (b) Evaluation of the degree to which existing source management priorities are properly targeted to, and effective in addressing, water quality issues and concerns.

(c) Evaluation of the need to address additional pollutant sources not already included in Copermittee programs.
(d) Assessment of progress in implementing Copermittee programs and activities.
(e) Assessment of the effectiveness and cost-efficiency of Copermittee activities in addressing priority constituents and sources.
(f) Assessment of changes in discharge and receiving water quality.
(g) Assessment of the relationship of program implementation to changes in pollutant loading, discharge quality, and receiving water quality.
(h) Identification of changes necessary to improve Copermittee programs, activities, and effectiveness assessment methods and strategies.

b. Based on the results of the effectiveness assessment, the Copermittees shall modify their regional activities and other aspects of the Regional Urban Runoff Management Program in order to maximize Regional Urban Runoff Management Program effectiveness. Regional activities that are ineffective or less effective than other comparable regional activities shall be replaced or improved upon by implementation of more effective regional activities. Where monitoring data exhibits persistent water quality problems, regional activities applicable to the water quality problems shall to be modified and improved on at least an annual basis to correct the water quality problems.

c. Based on the results of the Copermittees' evaluation of their effectiveness assessments, the Copermittees shall modify their effectiveness assessment methods to improve their ability to accurately assess the effectiveness of their urban runoff management programs.

d. As part of its Regional Urban Runoff Management Program Annual Reports, the Copermittees shall report on its Regional Urban Runoff Management Program effectiveness assessment as implemented under each of the requirements of sections I.3.a, I.3.b, and I.3.c above.

4. TMDL BMP Implementation Plan

a. For each TMDL in a watershed, the Copermittees within the watershed shall annually assess the effectiveness of its TMDL BMP Implementation Plan or equivalent plan.[3] At a minimum, the annual effectiveness assessment shall:

(1) Specifically assess the effectiveness of each of the following:
(a) Each BMP implemented; and
(b) Implementation of the TMDL BMP Implementation Plan or equivalent plan as a whole.
(2) Identify and utilize measurable targeted outcomes, assessment measures, and assessment methods for each of the items listed in sections I.4.a.(1) above.
(3) Utilize outcome levels 1-6 to assess the effectiveness of each of the items listed in section (I.4.a.(1)(a) above, where applicable and feasible.

[3] This requirement applies to those TMDLs where a TMDL BMP Implementation Plan or equivalent plan has been developed and submitted to the Regional Board.

(4) Utilize outcome levels 1-4 to assess the effectiveness of implementation of the TMDL BMP Implementation Plan or equivalent plan as a whole, where applicable and feasible.
(5) Utilize outcome levels 5 and 6 to assess the effectiveness of the TMDL BMP Implementation Plan or equivalent plan as a whole. These assessments shall exhibit the effects of the TMDL BMP Implementation Plan or equivalent plan on the impairment that is targeted.

b. Based on the results of the effectiveness assessment, the watershed Copermittees shall modify their BMPs and other aspects of the TMDL BMP Implementation Plan or equivalent plan in order to maximize TMDL BMP Implementation Plan or equivalent plan effectiveness. BMPs that are ineffective or less effective than other comparable BMPs shall be replaced or improved upon by implementation of more effective BMPs. Where monitoring data exhibits persistent water quality problems, BMPs applicable to the water quality problems shall to be modified and improved on at least an annual basis to correct the water quality problems.

c. As part of its Watershed Urban Runoff Management Program Annual Reports, each group of Copermittees in a watershed with a TMDL shall report on any TMDL BMP Implementation Plan or equivalent plan effectiveness assessments as implemented under each of the requirements of sections I.4.a and I.4.b above.

5. Long-term Effectiveness Assessment

a. Each Copermittee shall collaborate with the other Copermittees to develop a Long-term Effectiveness Assessment (LTEA), which shall build on the results of the Copermittees' August 2005 Baseline LTEA. The LTEA shall be submitted by the Principal Permittee to the Regional Board by January 31, 2010.

b. The LTEA shall be designed to address each of the objectives listed in section I.3.a.(8) of this Order, and to serve as a basis for the Copermittees' Report of Waste Discharge for the next permit cycle.

c. The LTEA shall address outcome levels 1-6, and shall specifically include an evaluation of program implementation to changes in water quality (outcome levels 5 and 6).

d. The LTEA shall assess the effectiveness of the Receiving Waters Monitoring Program in meeting its objectives and its ability to answer the five core management questions. This shall include assessment of the frequency of monitoring conducted through the use of power analysis and other pertinent statistical methods. The power analysis shall identify the frequency and intensity of sampling needed to identify a 10% reduction in the concentration of constituents causing the high priority water quality problems within each watershed over the next permit term with 80% confidence.

e. The LTEA shall address the jurisdictional, watershed, and regional programs, with an emphasis on watershed assessment.

J. REPORTING

1. Jurisdictional Urban Runoff Management Plans

a. Copermittees - The written account of the overall program to be conducted by each Copermittee to meet the jurisdictional requirements of section D of this Order is referred to as the Jurisdictional Urban Runoff Management Plan (JURMP). Each Copermittee shall revise and update its JURMP so that it describes all activities the Copermittee has undertaken or is undertaking to implement the requirements of each component of Jurisdictional Urban Runoff Management Program section D of this Order. Each JURMP shall be updated and revised to specifically address the items specified in Attachment D. Each Copermittee shall submit its updated and revised JURMP to the Principal Permittee by the date specified by the Principal Permittee.

b. Principal Permittee – The Principal Permittee shall update and revise the Unified JURMP. The Unified JURMP submittal shall contain a section describing common activities conducted collectively by the Copermittees, to be produced by the Principal Permittee, and the twenty-one individual JURMPs. The Principal Permittee shall also be responsible for collecting and assembling the individual JURMPs which cover the activities conducted by each individual Copermittee. The Principal Permittee shall submit the Unified JURMP to the Regional Board on July 1, 2007.

2. Watershed Urban Runoff Management Plans

a. Copermittees - The written account of the program conducted by each watershed group of Copermittees is referred to as the Watershed Urban Runoff Management Plan (WURMP). The Copermittees within each watershed shall be responsible for updating and revising each WURMP, as specified in Table 4 above. Each WURMP shall be updated and revised to fully describe all activities the watershed Copermittees have undertaken or will be undertaking to implement the Watershed Urban Runoff Management Program requirements of section E of this Order. Each WURMP shall include:

(1) Identification of the Lead Watershed Permittee for the watershed.
(2) An updated watershed map.
(3) Identification and description of all pertinent water quality data.
(4) Assessment and analysis of the watershed's water quality data, including identification and prioritization of the watershed's water quality problems. Priority water quality problems and high priority water quality problems shall be identified.
(5) Identification of the sources, pollutant discharges, and/or other factors causing the high priority water quality problems within the watershed.
(6) A list of potential Watershed Water Quality Activities, including a description of each activity, its location(s), and how it will abate sources and reduce pollutant discharges causing the identified high priority water quality problems in the watershed.
(7) A description of the strategy to be used to guide Copermittee implementation of Watershed Water Quality Activities and Watershed Education Activities, including criteria for evaluating and identifying effective activities.
(8) An evaluation of the likely effectiveness of the potential Watershed Water Quality Activities and Watershed Education Activities.
(9) Identification and description of the short-term Watershed Water Quality Activities to be implemented by each Copermittee for the first year of implementation, including justification for why the activities were chosen and

information exhibiting that the activities will directly and significantly reduce the discharge of pollutants causing the watershed's high priority water quality problems. Plans for activity implementation beyond the first year of implementation should also be provided.

(10) Identification and description of efforts to implement a long-term Watershed Water Quality Activity.

(11) A list of potential Watershed Education Activities, including a description of each activity and how the activity targets sources causing the identified high priority water quality problems in the watershed, if applicable.

(12) Identification and description of the pollutant-based Watershed Education Activities to be implemented by each Copermittee for the first year of implementation, including justification for why the activities were chosen and information exhibiting that the activities will directly target the sources and discharges of pollutants causing the watershed's high priority water quality problems. Plans for activity implementation beyond the first year of implementation should also be provided.

(13) Identification and description of watershed concept-based Watershed Education Activities to be implemented by the Copermittees for the first year of implementation. Plans for activity implementation beyond the first year of implementation should also be provided.

(14) A description of the public participation mechanisms to be used and the parties anticipated to be involved.

(15) A description of Copermittee collaboration to occur, including a schedule for WURMP meetings and discussion of land-use planning collaboration mechanisms.

(16) A description of any TMDL BMP Implementation Plan or equivalent plan to be implemented under section H of this Order.[4]

(17) A detailed description of the effectiveness assessment to be conducted for the WURMP, including a description how each of the requirements in section I.2 of this Order will be met.

b. Lead Watershed Permittee - Each Lead Watershed Permittee shall be responsible for producing its respective WURMP, as well as for coordination and meetings amongst all member watershed Copermittees. Each Lead Watershed Permittee is further responsible for the submittal of the WURMP to the Principal Permittee by the date specified by the Principal Permittee.

c. Principal Permittee – The Unified WURMP shall contain an updated and revised section covering common activities conducted collectively by the Copermittees, to be produced by the Principal Permittee, and the nine separate WURMPs. The Principal Permittee shall assemble and submit the Unified WURMP to the Regional Board by July 1, 2007.

3. Regional Urban Runoff Management Plan

a. Copermittees - The written account of the regional program to be conducted is referred to as the Regional Urban Runoff Management Plan (RURMP). Each Copermittee shall collaborate with the other Copermittees to develop the RURMP.

[4] For TMDLs not yet approved by the Office of Administrative Law at the time of adoption of this Order, TMDL BMP Implementation Plans shall be submitted separately 365 days following approval of the TMDL.

The RURMP shall describe all activities the Copermittees have undertaken or are undertaking to implement the requirements of each component of Regional Urban Runoff Management Program section F of this Order. At a minimum, the RURMP shall contain the following information:

(1) A description of the urban runoff management activities to be implemented on a regional level. For regional activities which are to be implemented in compliance with any jurisdictional requirements of section D or watershed requirements of section E, it shall be described how the regional activities achieve compliance with the subject jurisdictional and/or watershed requirements.
(2) A description of steps that will be taken to develop and implement minimum standards for jurisdictional, watershed, and regional implementation and reporting.
(3) A description of a strategy to integrate management, implementation, and reporting of jurisdictional, watershed, and regional activities.
(4) A description of steps that will be taken to facilitate TMDL management and implementation.
(5) A description of steps that will be taken to facilitate assessment of the effectiveness of jurisdictional, watershed, and regional programs.
(6) A description of steps that will be taken to facilitate development of strategies for implementation of activities on a watershed level.
(7) A description of the regional residential education program to be implemented.
(8) A description of the standardized fiscal analysis method developed as required by section G of this Order.
(9) A detailed description of the effectiveness assessment to be conducted for the Regional Urban Runoff Management Program, including a description how each of the requirements in section I.3 of this Order will be met.

b. The Principal Permittee shall be responsible for creating and submitting the RURMP. The Principal Permittee shall submit the RURMP to the Regional Board on July 1, 2007.

4. Hydromodification Management Plan

a. Copermittees - Each Copermittee shall collaborate with the other Copermittees to develop the HMP. The HMP shall be submitted for approval by the Regional Board.

b. Principal Permittee - The Principal Permittee shall be responsible for producing and submitting each document according to the schedule below.
(1) January 15, 2007: Submit a detailed workplan and schedule for completion of the literature review, development of a protocol to identify an appropriate Ep standard and limiting range of rainfall events, development of guidance materials, and other required information;
(2) July 15, 2007: Submit progress report on completion of requirements of the HMP;
(3) January 15, 2008: Submit a draft HMP, including the analysis that identifies the appropriate limiting storm and the identified limiting storm event(s) or event range(s);

(4) July 15, 2008: Submit the HMP for Regional Board approval.

5. Long-Term Effectiveness Assessment

In accordance with section I.5 of this Order, the Principal Permittee shall submit the LTEA to the Regional Board by January 31, 2010.

6. Report of Waste Discharge

The Principal Permittee shall submit to the Regional Board, no later than 210 days in advance of the expiration date of this Order, a Report of Waste Discharge (ROWD) as an application for issuance of new waste discharge requirements. At a minimum, the ROWD shall include the following:

a. Proposed changes to the Copermittees' urban runoff management programs.
b. Proposed changes to monitoring programs.
c. Justification for proposed changes.
d. Name and mailing addresses of the Copermittees.
e. Names and titles of primary contacts of the Copermittees.
f. Any other information necessary for the reissuance of this Order.

7. Universal Reporting Requirements

All submittals shall include an executive summary, introduction, conclusion, recommendations, and signed certified statement. Each Copermittee shall submit a signed certified statement covering its responsibilities for each applicable URMP or other submittal. The Principal Permittee shall submit a signed certified statement covering its responsibilities for each applicable URMP or other submittal and the unified sections of the submittals for which it is responsible.

K. MODIFICATION OF PROGRAMS

Modifications of Jurisdictional Urban Runoff Management Programs, Watershed Urban Runoff Management Programs, and/or the Regional Urban Runoff Management Program may be initiated by the Executive Officer or by the Copermittees. Requests by Copermittees shall be made to the Executive Officer, and shall be submitted during the annual review process. Requests for modifications should be incorporated, as appropriate, into the Annual Reports or other deliverables required or allowed under this Order.

1. Minor Modifications – Minor modifications to Jurisdictional Urban Runoff Management Programs, Watershed Urban Runoff Management Programs, and/or the Regional Urban Runoff Management Program may be accepted by the Executive Officer where the Executive Officer finds the proposed modification complies with all discharge prohibitions, receiving water limitations, and other requirements of this Order.

2. Modifications Requiring an Amendment to this Order – Proposed modifications that are not minor shall require amendment of this Order in accordance with this Order's rules, policies, and procedures.

L. ALL COPERMITTEE COLLABORATION

1. Each Copermittee collaborate with all other Copermittees regulated under this Order to address common issues, promote consistency among Jurisdictional Urban Runoff Management Programs and Watershed Urban Runoff Management Programs, and to plan and coordinate activities required under this Order.

   a. Management Structure - All Copermittees shall jointly execute and submit to the Regional Board no later than 180 days after adoption of this Order, a Memorandum of Understanding, Joint Powers Authority, or other instrument of formal agreement which at a minimum:

      (1) Identifies and defines the responsibilities of the Principal Permittee and Lead Watershed Permittees;
      (2) Identifies Copermittees and defines their individual and joint responsibilities, including watershed responsibilities;
      (3) Establishes a management structure to promote consistency and develop and implement regional activities;
      (4) Establishes standards for conducting meetings, decision-making, and cost-sharing;
      (5) Provides guidelines for committee and workgroup structure and responsibilities;
      (6) Lays out a process for addressing Copermittee non-compliance with the formal agreement; and
      (7) Includes any and all other collaborative arrangements for compliance with this Order.

M. PRINCIPAL PERMITTEE RESPONSIBILITIES

Within 180 days of adoption of this Order, the Copermittees shall designate the Principal Permittee and notify the Regional Board of the name of the Principal Permittee. The Principal Permittee shall, at a minimum:

1. Serve as liaison between the Copermittees and the Regional Board on general permit issues, and when necessary and appropriate, represent the Copermittees before the Regional Board.

2. Coordinate permit activities among the Copermittees and facilitate collaboration on the development and implementation of programs required under this Order.

3. Integrate individual Copermittee documents and reports into single unified documents and reports for submittal to the Regional Board as required under this Order.

4. Produce and submit documents and reports as required by section J of this Order and Receiving Waters Monitoring and Reporting Program No. 2006-11.

5. Submit to the Regional Board, within 180 days of adoption of this Order, a formal agreement between the Copermittees which provides a management structure for meeting the requirements of this Order (as described in section L).

6. Coordinate joint development by all of the Copermittees of standardized format(s) for all documents and reports required under this Order (e.g., JURMPs, WURMPs, annual reports, monitoring reports, etc.). The standardized reporting format(s) shall be used by all Copermittees. The Principal Permittee shall submit the standardized format(s) to the

Regional Board for review no later than 180 days after adoption of this Order.

N. RECEIVING WATERS MONITORING AND REPORTING PROGRAM

Pursuant to CWC section 13267, the Copermittees shall comply with all the requirements contained in Receiving Waters Monitoring and Reporting Program No. R9-2006-0011.

O. STANDARD PROVISIONS, REPORTING REQUIREMENTS, AND NOTIFICATIONS

1. Each Copermittee shall comply with Standard Provisions, Reporting Requirements, and Notifications contained in Attachment B of this Order. This includes 24 hour/5day reporting requirements for any instance of non-compliance with this Order as described in section 5.e of Attachment B.

2. All plans, reports and subsequent amendments submitted in compliance with this Order shall be implemented immediately (or as otherwise specified). All submittals by Copermittees must be adequate to implement the requirements of this Order.

I, John H. Robertus, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Diego Region, on (date).

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John H. Robertus
Executive Officer

Case Studies

Author/Agency/Organization	Title	Date	URL
City of Chicago	City Launches Green Roof Grants Program	11/02/05	http://egov.cityofchicago.org/city/webportal/portalContentItemAction.do?BV_SessionID=@@@@0664391742.1150324275@@@@&BV_EngineID=cccdaddidejikmgcefecelldffhdfgm.0&contentOID=536932287&contenTypeName=COC_EDITORIAL&topChannelName=HomePage
Architecture Week	A Better Suburbia	01/05	http://www.architectureweek.com/2005/0119/building_1-1.html
Rocky Mountain Institute	Village Homes, Davis, California		http://www.rmi.org/sitepages/pid209.php
EPA	Stormwater Management at the EPA Headquarters Office Complex		http://www.epa.gov/owow/nps/lid/stormwater_hq/
Clausen, J. et al.	Jordan Cove Urban Watershed Section 319 National Monitoring Program Project	02/06	http://www5.bae.ncsu.edu/programs/extension/wqg/issues/notes120.pdf
Connecticut Department of Environmental Protection	After 10 Years – Officials Celebrate Results of Important Water Monitoring Project	10/19/05	http://dep.state.ct.us/whatshap/Press/2005/101905.htm
Connecticut Department of Environmental Protection	Jordan Cove Urban Monitoring Project	10/02	http://dep.state.ct.us/wtr/nps/succstor/jordncve.pdf
National Oceanographic and Atmospheric Administration / Coastal Services	Storm Water Management: Putting Real Life to the Test in Connecticut	01-02/04	http://www.csc.noaa.gov/magazine/2004/01/conn.html
Maryland Department of the Environment	Controlling Stormwater: Some Lessons From The Maryland Experience	10/90	
EPA	Bioretention Applications: Inglewood Demonstration Project, Largo, Maryland and Florida Aquarium, Tampa, Florida	10/00	www.epa.gov/owow/nps/bioretention.pdf
PILGRIM Education Fund	Waterways at Risk: How Low-Impact Development Can Reduce Runoff Pollution in Michigan	2005	
STORMWATER, The Journal for Surface Water Quality Professionals	Beyond Flood Control: From green roofs to pervious pavement to underground treatment, Milwaukee experiments with newer water-quality and flood control measures	03-04/04	http://www.forester.net/sw_0403_beyond.html
Abrams, Glen J.	New Thinking in an Old City: Philadelphia's Movement Toward Low-Impact Development	02/04	http://www5.bae.ncsu.edu/programs/extension/wqg/issues/notes112.pdf
EPA	Vegetated Roof Cover: Philadelphia, Pennsylvania	10/00	www.epa.gov/owow/nps/roofcover.pdf
City of Portland Bureau of Environmental Services	Downspout Disconnection Program Hits the Billion Gallon Mark	06/14/05	http://www.portlandonline.com/bes/index.cfm?a=82190&c=37621#disco
Cheng, M., *et al*.	Hydrological Responses from Low Impact Development Comparing with Conventional Development	11/00	http://www.scdhec.net/water/lid/pdf/somerset.pdf
Levitt, J., and Bergan, L.	Using Nature's Plumbing to Restore Aquatic Ecosystems: The City of Seattle's Natural Drainage System	02/05	http://www5.bae.ncsu.edu/programs/extension/wqg/issues/notes116.pdf
Seattle Public Utilities	Natural Drainage Projects		http://www.seattle.gov/util/About_SPU/Drainage_&_Sewer_System/Natural_Drainage_Systems/Natural_Drainage_Overview/index.asp
Dorava, J., Vierbicher Associates, Inc.	Enhancing Storm Water Infiltration to Reduce Water Temperature Downstream		http://www.epa.gov/owow/nps/natlstormwater03/08Dorava.pdf
The City of Vancouver	Crown Street: Vancouver's First Environmentally Sustainable Street	03/30/05	http://www.tac-atc.ca/english/pdf/conf2005/s5/kauffman.pdf
Natural Resources Defense Council	Out of the Gutter: Reducing Polluted Runoff in the District of Columbia	07/02	http://www.nrdc.org/water/pollution/gutter/gutter.pdf

Government Sources

Author/Agency/Organization	Title	Date
Bay Area Stormwater Management Agencies Association (BASMAA)	Start at the Source	1999
Bay Area Stormwater Management Agencies Association (BASMAA)	Using Site Design Techniques to Meet Development Standards for Storm Water Quality	05/03
Cantú, Celeste, Executive Director, California Water Boards	Building a Vision: Putting the Pieces Together Building Livable, Sustainable Communities: Water Quality and Supply is Linked to Growth	04/05/06
Department of Defense	Unified Facilities Criteria: Low Impact Development	10/25/04
EPA	Potential Groundwater Contamination from Intentional and Nonintentional Stormwater Infiltration	05/94
EPA	Preliminary Data Summary of Urban Storm Water Best Management Practices	08/99
EPA	Field Evaluation of Permeable Pavements for Stormwater Management	10/00
EPA	Low Impact Development (LID): A Literature Review	10/00
EPA	Protecting Water Resources With Higher-Density Development	01/06
EPA	Nonpoint Source News-Notes; Low-Impact Development Pays Off	05/05
EPA	Nonpoint Source News-Notes; Many Paths Lead to Adoption of Low Impact Development	10/05
EPA	Using Smart Growth Techniques as Stormwater Best Management Practices	12/05
EPA	Low Impact Development (LID) and Other Green Design Strategies	
EPA	US EPA Storm Water Program's Webcast Series: Post Construction 101	
Los Angeles Bureau of Sanitation, Department of Public Works	Reference Guide for Stormwater Best Management Practices	07/00
Maryland Department of the Environment	Maryland Stormwater Design Manual Volumes I & II	10/00
Maryland, Prince George's County Department of Environmental Resources	Low-Impact Development Design Strategies: An Integrated Design Approach	06/99
Maryland, Prince George's County Department of Environmental Resources	Low-Impact Development Design: A New Paradigm for Stormwater Management Mimicking and Restoring the Natural Hydrologic Regime An Alternative Stormwater Management Technology	
Metropolitan Area Planning Council (Boston, MA)	Massachusetts Low Impact Development Toolkit	
Texas Water Development Board	The Texas Manual on Rainwater Harvesting	2005

Government Sources

URL
http://www.basmaa.org/resources/files/Start%20at%20the%20Source%20%2D%20Design%20Guidance%20Manual%20for%20Stormwater%20Quality%20Protection%2Epdf
http://www.basmaa.org/resources/files/Using%20Site%20Design%20Techniques%2Epdf
http://www.swrcb.ca.gov/agendas/2006/april/0405_01pres.pdf
http://www.wbdg.org/ccb/DOD/UFC/ufc_3_210_10.pdf
http://www.p2pays.org/ref/07/06744.pdf
http://www.epa.gov/OST/stormwater/
http://www.epa.gov/owow/nps/pavements.pdf
http://www.epa.gov/nps/lid.pdf
http://www.epa.gov/dced/pdf/protect_water_higher_density.pdf
http://www.epa.gov/owow/info/NewsNotes/issue75/75issue.pdf
http://www.epa.gov/owow/info/NewsNotes/issue76/76issue.pdf
http://www.epa.gov/dced/pdf/sg_stormwater_BMP.pdf
http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm?action=factsheet_results&view=specific&bmp=124
http://www.epa.gov/npdes/outreach_files/webcast/mar1606/files/lobby.html
http://www.lacity.org/SAN/wpd/WPD/download/pdfs/publications/bmp_refguide.pdf
http://www.mde.state.md.us/Programs/WaterPrograms/SedimentandStormwater/stormwater_design/index.asp
http://www.epa.gov/owow/nps/lidnatl.pdf
http://www.epa.gov/ORD/WebPubs/nctuw/Coffman.pdf
http://www.mapc.org/LID.html
http://www.twdb.state.tx.us/publications/reports/RainwaterHarvestingManual_3rdedition.pdf

Industry Sources

Author/Agency/Organization	Title	Date	URL
American Society of Civil Engineers	Stormwater Management	2004	www.asce.org/pressroom/news/policy_details.cfm?hdlid=160
California Builder: the Magazine of the California Building Industry Association (Frith, J.)	Building Green: It's Good for the Environment - and the Bottom Line	03-04/02	www.californiabuildermagazine.com/internal.asp?pid=32&spid
California Builder: the Magazine of the California Building Industry Association (Grillo, T.)	Concrete Evidence: Age-Old Material Continues to Reinvent Itself		http://www.californiabuildermagazine.com/internal.asp?pid=194
Environmental Water Resources Institute of the American Society of Civil Engineers	International Stormwater Best Management Practices Database		www.bmpdatabase.org
National Association of Home Builders	Green Home Building Guidelines	2006	http://www.nahbrc.org/greenguidelines/complete_guidelines.pdf
National Association of Home Builders Research Center	Builder's Guide to Low Impact Development		http://www.nahbrc.org/docs/MainNav/GreenBuilding/3832_Builder-final-screen.pdf
National Association of Home Builders Research Center	Low Impact Development (LID) Practices for Storm Water Management		http://www.nahbrc.org/tertiaryR.asp?TrackID=&DocumentID=2007&CategoryID=1071
National Association of Home Builders Research Center	Municipal Guide to Low Impact Development		http://www.nahbrc.org/docs/MainNav/GreenBuilding/3833_Municipal-final-screen.pdf
National Association of Home Builders, Partnership for Advancing Technology in Housing (PATH)	The Practice of Low Impact Development	07/03	http://www.huduser.org/Publications/PDF/practLowImpctDevel.pdf
Partnership for Advancing Technology in Housing (PATH)	Permeable Pavement		http://www.toolbase.org/techinv/techDetails.aspx?technologyID=98
Partnership for Advancing Technology in Housing (PATH)	Low Impact Development (LID) Practices for Storm Water Management		www.toolbase.org/techinv/techDetails.aspx?technologyID=223
ToolBase Services	Environmentally Green... Economically Green: Tools for a Green Land Development Program	2001	http://www.toolbase.org/tertiaryT.asp?TrackID=&CategoryID=18&DocumentID=3475
ToolBase Services	Low Impact Development Offers Some Solutions for Groundwater Issues	2001	http://www.toolbase.org/tertiary_printT.asp?TrackID=&CategoryID=1873&DocumentID=3652
Urban Land Institute, American Society of Civil Engineers, & National Association of Home Builders	Residential Storm Water Management	1975	http://www.toolbase.org/Docs/MainNav/LandUse/3013_storm_water.pdf?TrackID=&CategoryID=1873&DocumentID=3013

Storm Water Regulations

Author/Agency/Organization	Title	Date	URL
California (City of Carlsbad)	Standard Urban Storm Water Mitigation Plan Storm Water Standards	04/03	http://www.ci.carlsbad.ca.us/stormwater/susmppdf/susmp.pdf
California (City of Santa Monica)	Santa Monica Municipal Code, Chapter 7.10: Urban Runoff Pollution	11/28/00	http://www.qcode.us/codes/santamonica/index.php
California (RWQCB, Los Angeles Region)	Order No. 01-182 (Dec. 13, 2001) (NPDES Permit No. CAS004001)	12/13/01	http://63.199.216.5/webdata/data/docs/6948_01-182_WDR.pdf
California (RWQCB, San Francisco Bay Region)	Contra Costa Countrywide NPDES Municipal Stormwater Permit Amendment	02/19/03	http://www.swrcb.ca.gov/rwqcb2/Agenda/02-19-03/02-19-03-13finalorder.doc
Florida (St. Johns River Waste Management District)	Environmental Resource Permits: Regulations of Stormwater Management Systems	10/03/95	
Illinois	General NPDES Permit For Discharges from Small Municipal Separate Storm Sewer Systems	12/20/02	http://www.epa.state.il.us/water/permits/storm-water/general-ms4-permit.pdf
Maryland	Maryland's Stormwater Management Program	11/88	
Maryland	Explanation of Maryland's Stormwater Management Program	05/31/00	
Maryland	Maryland Model Stormwater Management Ordinance	07/00	http://www.mde.state.md.us/assets/document/sedimentstormwater/model_ordinance.pdf
Maryland	Stormwater Management Code, Title 26, Subtitle 17 Water Management, Chapter 02 Stormwater Management	10/00	http://www.dsd.state.md.us/comar/26/26.17.02.05.htm
Maryland (City of Chestertown)	Stormwater Management Ordinance	06/25/84	http://www.chestertown.com/gov/codehtml/0767-142.htm
Michigan (Grand Traverse County)	Soil Erosion, Sedimentation, and Stormwater Runoff Control Ordinance	2003	http://www.grandtraverse.org/gthomepage.nsf/f24a6a0b94c22d82862566960071bf5a/85cb74d2bcd1cab685256f0e0070d7bf/$FILE/ordinance9-9-03.pdf
Missouri	Missouri State Operating Permit	03/10/03	http://www.dnr.mo.gov/env/wpp/permits/issued/R004000.pdf
New Jersey	Stormwater Rules (N.J.A.C. Chapter 7:8)	2004	
New Jersey	Annual Groundwater Recharge Analysis	09/01/03	http://www.state.nj.us/dep/stormwater/tier_A/pdf/april2004public_excel2002njgrs_v2_0.xls
New Jersey	Tier A Municipal Stormwater NPDES Master General Permit	09/01/05	http://www.nj.gov/dep/dwq/pdf/final_tier_a_permit.pdf
New Jersey	NSPS Computations	01/31/06	http://www.state.nj.us/dep/stormwater/pdf/nsps_publicversion20060131.xls
New Jersey	NSPS User's Guide	01/06	http://www.njstormwater.org/pdf/nsps_userguide2006013.pdf
New Jersey	New Jersey Stormwater Best Management Practices Manual	02/04	http://www.state.nj.us/dep/stormwater/bmp_manual2.htm
New Jersey	Guidance for Development of Municipal Mitigation Plans	02/06	http://www.njstormwater.org/docs/munimitipplan030706.pdf
New Jersey (Zomorodi, K.)	Curve Number and Groundwater Recharge Credits for LID Facilities in NJ	2004	http://www.dewberry.com/uploadedFiles/Curve_Number_And_Groundwater_Recharge_Credits.PDF
New York	New York State Stormwater Management Design Manual	10/01	
Oregon (City of Portland)	Stormwater Management Manual	2004	http://www.portlandonline.com/bes/index.cfm?c=35122
Oregon (City of Portland)	Portland Title 33: Planning and Zoning Code, for Landscaping and Screening, and Parking and Loading	04/22/06	http://www.portlandonline.com/shared/cfm/image.cfm?id=53315
Stafford County, Virginia Board of Supervisors	Municipal Code, Chapter 21.5 Stormwater Management	12/13/05	http://library4.municode.com/mcc/DocView/11500/1/115
Washington	Stormwater Management in Washington State, Volume I, Minimum Technical Requirements	08/99	
Washington	Phase I Municipal Stormwater NPDES General Permit (Draft	02/15/06	http://www.ecy.wa.gov/programs/wq/stormwater/municipal/phase_I_permit/draft_docs/Phase_I_final_draft_2_15_06.pdf
Washington (City of Olympia)	Low-Impact Development Strategy for Green Cove Basin: A Case Study in Regulatory Protection of Aquatic Habitat in Urbanizing Watersheds	10/02	http://www.psat.wa.gov/Programs/LID/Green_Cove.pdf
Washington (City of Seattle)	City of Seattle Stormwater, Grading, and Drainage Control Code	07/05/00	http://www.seattle.gov/dclu/codes/sgdccode.pdf
West Virginia	General National Pollutant Discharge Elimination System Wate Pollution Control Permit	03/07/03	http://www.dep.state.wv.us/Docs/4582_SW_MS4_FinalDraft_issuance.pdf

Technical Manuals

Author/Agency/Organization	Title	Date	URL
Alameda Countywide Clean Water Program	Protecting Water Quality in Development Projects: A Guidebook of Post-Construction BMP Examples	08/05	http://www.basmaa.org/resources/files/ACCWP_Site_Design_Guidebook_final.pdf
Caltrans, State of California Department of Transportation	Stormwater Quality Handbooks: Project Planning and Design Guide, Stormwater Pollution Prevention Plan (SWPPP)	9/02	www.dot.ca.gov/hq/oppd/stormwtr/PPDG-with-revisions-7-26-05.pdf
Integrated Land Management, Inc.	Green Technology: The Delaware Urban Runoff Management Approach	01/04	http://www.dnrec.state.de.us/DNREC2000/Divisions/Soil/Stormwater/New/DURMM_TechnicalManual_01-04.pdf
Low Impact Development Center	Homepage		www.lowimpactdevelopment.org
Prince George's County, Maryland, Department of Environmental Resources Programs and Planning Division	Low-Impact Development Hydrologic Analysis	07/99	http://www.epa.gov/owow/nps/lid_hydr.pdf
Puget Sound Action Team / Washington State University Pierce County Extension	Low Impact Development: Technical Guidance Manual for Puget Sound	01/05	http://www.psat.wa.gov/Publications/LID_tech_manual05/LID_manual2005.pdf
Puget Sound Action Team and CH2M Hill	Technical Memorandum No. 1: Review of Low-Impact Development Techniques	1/16/04	http://www.psat.wa.gov/Programs/LID/LID_tech.htm
Puget Sound Action Team and CH2M Hill	Technical Memorandum No. 2: Analysis and Recommendations for the Use of LID Techniques in Puget Sound	1/16/04	http://www.psat.wa.gov/Programs/LID/LID_tech.htm
Puget Sound Action Team and CH2M Hill	Technical Memorandum No. 3: Suggested Adaptations to BMPs in the Washington Stormwater Management Manual to Include Benefits of LID Techniques	1/16/04	http://www.psat.wa.gov/Programs/LID/LID_tech.thm
Urban Drainage and Flood Control District of Denver, Colorado	Urban Storm Drainage Criteria Manual		www.udfcd.org/downloads/down_critmanual.htm
Watershed Protection Techniques	Better Site Design	01/00	