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8 COLIN KELLY, Bar No. 266956
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10 3151 Airway Ave., Suite F-110
11 Costa Mesa, CA 92626
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13 Attorney for ORANGE COUNTY COASTKEEPER



14 STATE OF CALIFORNIA
15 STATE WATER RESOURCES CONTROL BOARD

16 In the Matter of the Petition of NRDC and) PETITION FOR REVIEW OF SANTA
17 Orange County Coastkeeper for Review of) ANA REGIONAL WATER QUALITY
18 Action by the California Regional Water Quality) CONTROL BOARD APPROVAL OF
19 Control Board, Santa Ana Region, and by its) WATER QUALITY MANAGEMENT
20 Executive Officer, in Approving the Water) PLAN AND TECHNICAL
21 Quality Management Plan and Technical) GUIDANCE DOCUMENT
22 Guidance Document to Implement the) PURSUANT TO ORDER NO. R8-
23 Requirements of the County of Orange Areawide) 2009-0030,
24 Urban Storm Water Runoff Permit, Order No.) NPDES NO. CAS618030
25 R8-2009-0030, NPDES No. CAS618030)

26 Pursuant to Section 13320 of the California Water Code and Section 2050 of Title 23 of the
27 California Code of Regulations, the Natural Resources Defense Council (“NRDC”) and Orange
28 County Coastkeeper (“Coastkeeper”) (collectively, “Petitioners”) hereby petition the State Water
Resources Control Board (“State Board”) to review the final decision of the Executive Officer of
the California Regional Water Quality Control Board for the Santa Ana Region (“Regional
Board”) to approve the Water Quality Management Plan (“WQMP”) and Technical Guidance
Document and related appendices (“TGD”). The WQMP and TGD are intended to implement

1 obligations established by Orange County's areawide urban storm water runoff permit, Order No.
2 R8-2009-0030, NPDES No. CAS618030 ("Permit"). The Regional Board's Executive Officer
3 issued a final approval of the WQMP and TGD on May 19, 2011.

4 The Permit regulates storm water discharges from municipal separate storm sewer systems
5 ("MS4s") and other designated storm water discharges within a defined portion of Orange County.
6 The County of Orange is the principal permittee and the Orange County Flood Control District as
7 well as the incorporated cities of Orange County within the Santa Ana Region are co-permittees.
8 The Permit covers approximately 789 square miles, in 5 watersheds, and includes unincorporated
9 areas and 26 cities. The County's systems include an estimated 400 miles of storm drain systems.

10 In July 1990, the Regional Board adopted Order No. 90-71, which granted an areawide
11 NPDES for urban storm water runoff from urban areas in Orange County within the Santa Ana
12 Region. The Regional Board renewed the Permit on March 8, 1996 by adopting Order No. 96-31,
13 and again on January 18, 2002 by adopting Order No. R8-2002-0010. Order No. R8-2002-0010
14 expired on January 19, 2007. On February 20, 2007, Order No. 2002-0010, NPDES No.
15 CAS618030, was administratively extended in accordance with Title 23, Division 3, Chapter 9,
16 §2235.4 of the California Code of Regulations. On May 22, 2009, the Regional Board adopted
17 Order No. R8-2009-0030, the current Permit. One of its provisions, section XII.A.2., requires the
18 principal permittee and co-permittees to "develop a guidance document for the preparation of
19 conceptual or preliminary WQMPs to more effectively ensure that water quality protection,
20 including LID principles, is considered in the earliest phases of a project." Section XII.E.1. further
21 requires the principal permittee and co-permittees to "develop technically-based feasibility criteria
22 for project evaluation to determine the feasibility of implementing LID BMPs."

23
24 1. NAME, ADDRESS, TELEPHONE NUMBER, AND E-MAIL ADDRESS OF THE
25 PETITIONERS:

26 Natural Resources Defense Council, Inc.
27 1314 Second Street
28 Santa Monica, California 90401
Attention: Noah Garrison, Esq. (ngarrison@nrdc.org)
(310) 434-2300

1 Orange County Coastkeeper
2 3151 Airway Ave., Suite F-110
3 Costa Mesa, CA 92626
4 Attention: Colin Kelly, Esq. (colin@coastkeeper.org)
(714) 850-1965

5 2. THE SPECIFIC ACTION OR INACTION OF THE REGIONAL BOARD WHICH THE
6 STATE BOARD IS REQUESTED TO REVIEW AND A COPY OF ANY ORDER OR
7 RESOLUTION OF THE REGIONAL BOARD WHICH IS REFERRED TO IN THE
8 PETITION:

9 NRDC and Coastkeeper ("Petitioners") seek review of the Regional Board Executive
10 Officer's May 19, 2011 approval of the WQMP and TGD. A copy of the Executive Officer's
11 Approval Letter is attached as Exhibit A. A copy of an Errata Sheet for the WQMP and TGD is
12 attached as Exhibit B. A copy of the WQMP is attached as Exhibit C. A copy of the TGD and
13 Appendices are attached as Exhibit D.

14 Because this Board's regulations, and its own interpretations of those regulations, do not
15 clearly state whether recourse for alleged unlawful action by the Executive Officer in the
16 implementation of a permit is with the Regional Board or with this Board in the first instance,
17 NRDC and Coastkeeper are simultaneously requesting that the Regional Board hold a hearing to
18 review and reverse (or add conditions to) the Executive Officer's approval. Petitioners will
19 request that the State Board place the instant petition in abeyance pending the Regional Board's
20 review of our request to review this matter so as to assure that review is efficient and orderly.

21 3. THE DATE ON WHICH THE REGIONAL BOARD ACTED OR REFUSED TO ACT
22 OR ON WHICH THE REGIONAL BOARD WAS REQUESTED TO ACT:

23 May 19, 2011.

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1 4. A FULL AND COMPLETE STATEMENT OF THE REASONS THE ACTION OR
2 FAILURE TO ACT WAS INAPPROPRIATE OR IMPROPER:

3 In approving the WQMP and TGD, the Executive Officer failed to assure that they
4 implemented relevant conditions contained in the Permit or requirements of the Clean Water Act,
5 and in so doing, the Executive Officer failed to act in accordance with relevant governing law,
6 acted arbitrarily and capriciously, without substantial evidence, and without adequate findings.
7 Specifically, but without limitation:

8 A. The Regional Board and/or the Executive Officer failed to ensure that the
9 WQMP and TGD, which implement critical elements of the Permit, satisfy
10 the Clean Water Act's mandate to require "controls to reduce the discharge
11 of pollutants to the maximum extent practicable." 33 U.S.C. §
12 1342(p)(3)(B)(iii); 40 C.F.R. § 122.26(d)(2)(iv).

13 B. The Regional Board and/or the Executive Officer failed to ensure that the
14 WQMP and TGD properly implement Permit section XII.A.2., which
15 requires the principal permittee and co-permittees to "develop a guidance
16 document for the preparation of conceptual or preliminary WQMPs to more
17 effectively ensure that water quality protection, including LID principles, is
18 considered in the earliest phases of a project."

19 C. The Regional Board and/or the Executive Officer failed to ensure that the
20 WQMP and TGD properly implement Permit section XII.E.1., which
21 requires the principal permittee and co-permittees to "develop technically-
22 based feasibility criteria for project evaluation to determine the feasibility of
23 implementing LID BMPs."

24 D. The Regional Board and/or the Executive Officer acted without adequate
25 findings and without substantial evidence in the record to support approval
26 of the WQMP and TGD. See, *Topanga Assn. for a Scenic Community v.*
27 *County of Los Angeles* (1974) 11 Cal.3d 506, 515; Cal. Code Civ. Proc. §
28 1094.5.

1 E. The Regional Board and/or the Executive Officer otherwise failed to require
2 that projects implement technically feasible and superior storm water
3 management BMPs onsite in all scenarios and to require that equivalent
4 performance be guaranteed through alternative compliance measures
5 wherever onsite compliance is infeasible.

6 F. The Regional Board and/or the Executive Officer improperly approved
7 provisions which allow for the use of biotreatment or biofiltration practices
8 to substitute for feasible and superior storm water management BMPs.

9 G. The Regional Board and/or the Executive Officer acted without authority to
10 approve the WQMP and TGD, which set forth material obligations and,
11 therefore, should have been subjected to Regional Board review.

12 H. The Regional Board and/or the Executive Officer failed to respond to
13 factually and legally specific comments from public interest organizations
14 concerning the significant matters at issue.

15
16 5. THE MANNER IN WHICH THE PETITIONERS ARE AGGRIEVED:

17 Petitioners are non-profit, environmental organizations that have a direct interest in
18 protecting, *inter alia*, the quality of Orange County's inland and coastal waters. NRDC represents
19 approximately 100,000 members and activists in California, approximately 6,000 of whom reside
20 in Orange County. Orange County Coastkeeper is a non-profit organization dedicated to
21 preserving all of Orange County's water bodies and restoring them to healthy, fully functioning
22 systems that will protect recreational uses and aquatic life. Petitioners' members are aggrieved by
23 the Permit's inadequacy to control polluted urban runoff or support the beneficial uses of the
24 receiving waters in accordance with the Clean Water Act. In particular, Petitioners' members
25 directly benefit from Orange County waters in the form of recreational swimming, surfing,
26 photography, birdwatching, and boating.

27 ///
28 ///

1 The Regional Board's failure to adequately control urban storm water runoff through the
2 Permit, in the first instance,¹ and now through the WQMP and TGD, has enormous consequences
3 for the region and its residents. Urban storm water runoff is one of the most significant sources of
4 pollution in coastal and other receiving waters of the United States, and it is a particularly severe
5 problem in Orange County. Pollutants in storm water runoff adversely impact aquatic animals and
6 plant life in receiving waters and can cause serious human health impacts. Orange County's water
7 quality has worsened in the last two decades, and monitoring data show that urban runoff is a
8 primary cause of water quality impairment in the region.

9 Urban development increases impervious land cover and exacerbates problems associated
10 with storm water volume, rate, and pollutant loading. Consequently, the Orange County's rapid
11 rate of urbanization and persistent water quality problems demand that the most effective storm
12 water management tools be required immediately. Scientific studies submitted to the Regional
13 Board during the permitting process demonstrate that LID practices that retain runoff on-site are
14 the most effective tools for controlling storm water runoff volume and pollutant loading. While
15 the Permit fails to require adequate controls for new and redevelopment, the WQMP and TGD
16 make matters worse by failing to implement the controls that are required by the Permit. All of
17 these documented facts demonstrate the considerable negative impact on Petitioners' members and
18 the environment that continues today as a result of the Regional Board Executive Officer's
19 approval of the WQMP and TGD.

20
21 6. THE SPECIFIC ACTION BY THE STATE OR REGIONAL BOARD WHICH
22 PETITIONER REQUESTS:

23 Petitioners seek an Order by the State Board that:

24 Overturns the Regional Board Executive Officer's approval of the WQMP and
25 TGD; and,

26
27 ¹ In 2009, NRDC filed an appeal with the State Board for review of the Regional Board's adoption
28 of the Permit.

1 Remands the matter to the Regional Board with specific direction to the Regional
2 Board to remedy each of the violations of law as described herein.

3
4 7. A STATEMENT OF POINTS AND AUTHORITIES IN SUPPORT OF LEGAL ISSUES
5 RAISED IN THE PETITION:

6 See Section 4, above. Petitioners request that this Petition be held in abeyance, and reserve
7 the right to supplement the legal arguments and authorities in support of this Petition.

8
9 8. A STATEMENT THAT THE PETITION HAS BEEN SENT TO THE APPROPRIATE
10 REGIONAL BOARD AND TO THE DISCHARGERS, IF NOT THE PETITIONER:

11 A true and correct copy of this petition was mailed via First Class mail on June 17, 2011 to
12 the Regional Board and to the Principal Permittees.

13
14 9. A STATEMENT THAT THE SUBSTANTIVE ISSUES OR OBJECTIONS RAISED IN
15 THE PETITION WERE RAISED BEFORE THE REGIONAL BOARD, OR AN
16 EXPLANATION OF WHY THE PETITIONER WAS NOT REQUIRED OR WAS
UNABLE TO RAISE THESE SUBSTANTIVE ISSUES OR OBJECTIONS BEFORE
17 THE REGIONAL BOARD:

18 All of the substantive issues and objections raised herein were presented to the Executive
19 Officer while the WQMP and TGD were under consideration. NRDC submitted written comments
20 to the Regional Board on April 22, 2011. The letter contained as attachments copies of written
21 comments concerning drafts of the WQMP and TGD submitted by the Petitioners to the co-
22 permittees on: February 25, 2009; January 22, 2010; May 4, 2010; and, March 1, 2011.
23 Coastkeeper submitted written comments to the Regional Board under separate cover on April 21,
24 2011. Petitioners additionally provided oral testimony concerning the WQMP and TGD at a
25 Regional Board hearing on April 22, 2011. Petitioners previously submitted written comments on
26 October 14, 2010, and provided oral testimony at the Regional Board hearing on October 14, 2010,
27 in opposition to the Regional Board's decision to grant an extension of time for the permittees to
28 submit the WQMP and TGD.

1 Respectfully submitted via electronic mail and Federal Express,

2

3 Dated: June 17, 2011

NATURAL RESOURCES DEFENSE
COUNCIL, INC.

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Noah Garrison
Counsel for the Natural Resources Defense
Council, Inc.

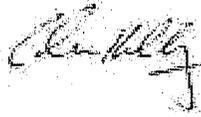
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Dated: June 17, 2011

ORANGE COUNTY COASTKEEPER

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Colin Kelly
Counsel for Orange County Coastkeeper

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1 **PROOF OF SERVICE**

2 I am employed in the County of Los Angeles, State of California. I am over the age of 18
3 and not a party to the within action. My business address is: 1314 Second Street, Santa Monica,
4 California 90401.

5 On June 17, 2011 I served the within document described as **PETITION FOR REVIEW**
6 **OF SANTA ANA REGIONAL WATER QUALITY CONTROL BOARD APPROVAL OF**
7 **WATER QUALITY MANAGEMENT PLAN AND TECHNICAL GUIDANCE**
8 **DOCUMENT PURSUANT TO ORDER NO. R8-2009-0030, NPDES NO. CAS618030** on the
9 interested parties in said action by placing a true copy thereof in the United States mail enclosed in
10 a sealed envelope with postage prepaid, addressed as follows:

11 Mary Anne Skorpanich
12 Manager, OC Watersheds Program
13 Orange County Department of Public Works
14 2301 North Glassell Street
15 Orange, CA 92865
16 maryanne.skorpanich@ocpw.ocgov.com

Kurt Berchtold
Executive Officer
Santa Ana Regional Water Quality Control Board
3737 Main Street, Suite 500
Riverside, CA 92501-3348
kberchtold@waterboards.ca.gov

17 Kevin Onuma
18 Manager, Orange County Flood Control Division
19 Orange County Dept. of Public Works
20 OC Flood Control Division, 7th Floor
21 300 North Flower Street
22 Santa Ana, CA 92703-5000
23 kevin.onuma@ocpw.ocgov.com

Bill Campbell
Chair, Orange County Board of Supervisors
10 Civic Center Plaza
Santa Ana, CA 92701
bill.campbell@ocgov.com

24 I am "readily familiar" with the firm's practice of collection and processing
25 correspondence for mailing. It is deposited with U.S. postal service on that same day in the
26 ordinary course of business. I am aware that on motion of party served, service is presumed
27 invalid if postal cancellation date or postage meter date is more than 1 day after date of deposit for
28 mailing in affidavit.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Executed on June 17, 2011, at Santa Monica, California.

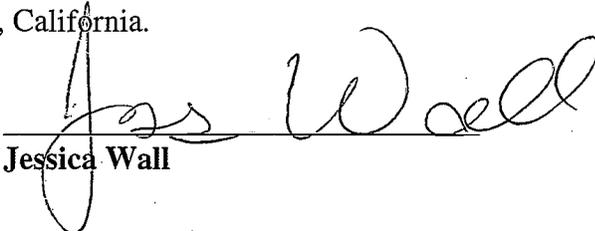

Jessica Wall

EXHIBIT A



California Regional Water Quality Control Board

Santa Ana Region



Linda S. Adams
Acting Secretary for
Environmental Protection

3737 Main Street, Suite 500, Riverside, California 92501-3348
Phone (951) 782-4130 • FAX (951) 781-6288
www.waterboards.ca.gov/santaana

Edmund G. Brown Jr.
Governor

May 19, 2011

Mary Anne Skorpanich, Manager
County of Orange
Department of Public Works - OC Watersheds
300 North Flower Street
Santa Ana, CA 92702-4048

ORDER NO. R8-2009-0030, NPDES NO. CAS618030 (MS4 Permit) - APPROVAL OF WATER QUALITY MANAGEMENT PLAN AND RELATED DOCUMENTS

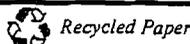
Dear Ms. Skorpanich:

On March 22, 2011, the Permittees submitted a final draft of the Model Water Quality Management Plan (Model WQMP) and a Technical Guidance Document (TGD) and sixteen appendices to the TGD. These documents were posted on our website for public review and comments. On April 22, 2011, the Regional Board conducted a public hearing at which time Regional Board staff discussed the written and oral comments, including a proposed errata sheet and responded to comments. The Board directed me to consider all the comments and take appropriate action as per Section XII.C.1 of the MS4 Permit.

The Model WQMP, TGD and the 16 appendices include requirements and guidance for the Permittees and project proponents for addressing post-construction urban runoff and storm water pollution from new development and significant redevelopment projects for areas that are within the Santa Ana (North Orange County) and the San Diego (South Orange County) Regional Boards' jurisdictions. In accordance with Section XII.C.1 of the MS4 Permit, I am hereby approving the Model Water Quality Management Plan, the Technical Guidance Documents and the sixteen appendices with the changes as indicated in the attached Errata Sheet. This approval pertains only to those portions of these documents that are applicable to the North Orange County MS4 Permit areas.

As per Section XXI.6 of the MS4 Permit, once approved, the WQMP, and the TGD with its 16 appendices shall become an enforceable part of the MS4 Permit. Section XII.J.1 of the MS4 Permit requires the Permittees to start implementing the provisions of these documents 90 days from the date of approval.

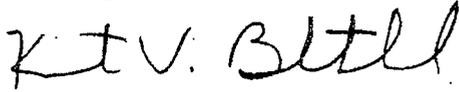
California Environmental Protection Agency



May 19, 2011

If you have any questions, please contact Michael J. Adackapara at (951)782-3238,
Mark Smythe at (951)782-4998, or you may call me at (951)782-3286.

Sincerely,



Kurt V. Berchtold
Executive Officer

Enclosure: Errata Sheet, dated May 17, 2011 (14 pages)

EXHIBIT B

April 22, 2011(revised May 17, 2011)

ERRATA SHEET

**REVISED CHANGES TO THE MODEL WATER QUALITY MANAGEMENT PLAN
AND TECHNICAL GUIDANCE DOCUMENT**

**Waste Discharge Requirements for Areawide Urban Storm Water Runoff
For**

**The County of Orange, Orange County Flood Control District and the
Incorporated Cities of Orange County with the Santa Ana Region
Order No. R8-2009-0030 as amended by Order No. R8-2010-0062**

(Language deleted is struck through)

(Language added is **bold and shaded**)

1. Model Water Quality Management Plan Section 7.II-1.5 Paragraph 3 (page 7.II 1-10) modify as follows:

Below ground linear drainage and utility construction projects may result in the replacement of more than 5,000 square feet of impervious surface within a developed public street, road or highway such as storm drains, sewers and water lines. ~~However such~~ **Such** projects would not qualify as a Priority Project **if they maintain original line and grade, hydraulic capacity, original purpose of the facility, or occur in response to an emergency to protect public health and safety. Consequently, these projects would not require the preparation of a project WQMP but would require a Non-priority Project Plan. Due to the circumstances, projects done in response to an emergency may have their Non-Priority Project Plan prepared after the fact, but within three business days of the project's completion. Projects involving extending, relocating, or replacing storm drain lines may involve replacing more than 5,000 square feet of impervious surface and maintain original line and grade at the surface. However, these projects may alter the original line and grade or hydraulic capacity of storm drain facilities below ground. Such projects are Priority Projects and will require project WQMPs.** since they are in a similar category as projects which maintain original line and grade at the surface and would not require the preparation of a Project WQMP. These projects involve trenching within existing developed rights-of-way, replacement, refurbishment or extension of storm drains, sewers, water lines and dry utilities and replacing the existing pavement, and the implementation of LID or structural treatment controls would mean a significant expansion of the project.

2. Model Water Quality Management Plan Section 7.II-2.3.4 Paragraph 3 (page 7.II 2-6) modify as follows:

... the POCs identified through the methods described in this section. **Any site-specific information used to identify additional POCs or remove a pollutant from being a presumed POC must be based on substantial evidence and justified in either the project's CEQA document and/or the project WQMP.** Watershed planning documents...

3. Model Water Quality Management Plan Section 7.II-2.4.3 Paragraph 2 (page 7.II 2-10) modify as follows:

A diversity of controls will **must** be provided, if **where** feasible,...

4. Model Water Quality Management Plan Figure 7.II-7 Top Box (page 7.II 2-14) modify as follows:

Utilize **Implement** LID BMPs

5. Model Water Quality Management Plan Figure 7.II-8 Top Box (page 7.II 2-15) modify as follows:

Utilize **Implement** LID BMPs...

6. Model Water Quality Management Plan Section 7.II-2.4.3.2 Paragraph 1, 2nd Bullet (page 7.II 2-16) modify as follows:

The sub-regional/regional BMP is sufficiently sized to receive **treat** runoff from the project, and...

7. Model Water Quality Management Plan Section 7.II-2.4.3.2 Paragraph 3 (page 7.II 2-16) modify as follows:

In the NOC Permit Area, LID BMPs **must be considered on-site as appropriate. For projects located within the planning area of a watershed-based plan (WIHMP), approved by the RWQCB Executive Officer, a rigorous project-specific feasibility analysis will be prepared using the analysis provided in the WIHMP and based on a site-specific analysis in the project WQMP. These analyses will collectively provide the basis for a project to: 1) exclude or reduce requirements for LID BMPs on-site; 2) select any on-site pre-treatment BMPs, if needed; and 3) establish the project's eligibility to rely on a regional BMP. The analysis in the project WQMP must demonstrate that the project meets any criteria developed in the watershed-based plan and that the regional BMP will meet** are not required to be considered on-site if a watershed-based plan (WIHMP), approved by the RWQCB Executive Officer, has identified a sub-regional or regional BMP opportunity will serve the project and demonstrates that this opportunity meets the following criteria:

8. Model Water Quality Management Plan Section 7.II-2.4.3.2 Paragraph 4 (page 7.II 2-17) modify as follows:

A sub-regional or regional BMP opportunity that meets all of the above criteria but that is not part of an approved watershed-based plan may also be considered **for approval by the local jurisdiction. However the project applicant must document in the project WQMP, and the local jurisdiction independently review and verify, that the sub-regional or regional BMP and the project meet all of the criteria above.**

9. Model Water Quality Management Plan Section 7.II-3.0 Paragraph 4 (page 7.II 3-2) modify as follows:

... and that the treatment control BMP is effective or highly effective **has medium or high effectiveness (as described in Table 4-3 of the TGD Section 4.9)** for removing the POCs...

10. Model Water Quality Management Plan Section 7.II-3.0 Paragraph 5 (page 7.II 3-2) modify as follows:

... and **the discharge will not cause an impairment to the** beneficial uses of receiving waters... In the NOC Permit Area, the use of structural treatment control BMPs are required before discharge to waters of the US unless there is a WIHMP which has been submitted to and approved by the Executive Officer that identifies alternative compliance approaches that achieve equivalent or better WQ benefits, and beneficial uses of receiving waters are not impaired.

11. Model Water Quality Management Plan Section 7.II-3.1 (page 3-5, starting at the top of the page) modify as follows:

would be expected to have other environmental benefits such as accelerated site clean-up. **Development in city centers, historic districts, or historic preservation areas often follows land-use patterns that existed before the introduction of the automobile and subsequent urban sprawl. New development or redevelopment in these areas is expected to follow those same patterns in order to be compatible with the surrounding area and thereby mimic many LID principles.** Alternatively, a redevelopment project could be implemented in a way that reduces the overall impervious footprint of the project site rather than increasing it.

Local jurisdictions may develop a water quality credit program that applies to certain types of development projects after they first evaluate the feasibility of meeting LID requirements onsite. **In order to determine if a project falls into any of the following categories, local jurisdictions will use the descriptions provided below as well as descriptions or definitions in local planning documents. If any of these descriptions or definitions is inadequate to determine a project's eligibility for credits, local jurisdictions will use published and generally accepted descriptions or definitions.**

If it is not feasible to meet the requirements for on-site LID, project proponents for specific project types can apply credits that would reduce project obligations for selecting and sizing other treatment BMPs or participating in other alternative programs. For Projects in the NOC Permit Area, credits can be applied before other alternative programs are evaluated and/or a Waiver request submitted. Also in the NOC Permit Area, the Permit allows for credits to be applied for hydromodification requirements. Permittee may develop a credit system for hydromodification at a future date and submit this to the Executive Officer for approval. For projects in the SOC Permit Area, credits can be applied as part of the LID Waiver Program.

12. Model Water Quality Management Plan Section 7.II-3.1 Paragraph 3, 5th Bullet (page 7.II 3-5) modify as follows:

... of a mass transit center **(e.g. bus, rail, light rail or commuter train station)**.

13. Model Water Quality Management Plan Section 7.II-3.1.1 Title (page 7.II 3-6) modify as follows:

Applying Water Quality Credits to LID and Treatment Control Performance Criteria

14. Model Water Quality Management Plan Section 7.II-3.1.1 last paragraph (page 7.II 3-7) modify as follows:

If more than one category applies to a particular project, the credit percentages would be additive. Applicable performance criteria depend on the number of LID water quality credits claimed by the proposed project. Water quality credits can be additive up to a 50 percent reduction (50 percent reduction maximum) from a proposed project's obligation for sizing **LID Treatment Control** BMPs, contributing to an urban runoff / mitigation fund, or off-site mitigation projects. The volume credit would be calculated as the design capture volume of the proposed condition multiplied by the sum of the percentages claimed above.

15. Model Water Quality Management Plan Section 7.II-3.3.2 (page 7.II 3-8, second paragraph) modify as follows:

If the cost of providing treatment control BMPs greatly outweighs the pollution control benefits they would provide, a waiver of treatment control and requirements can be requested and alternative compliance approaches must be used to fulfill the remaining unmet volume (See **Section 7.II-3.4 Section 7.II-3.3**).

16. Model Water Quality Management Plan Section 7.II-3.3 Paragraph 2 (page 7.II 3-9) modify as follows:

*... to the Executive Officer of the Regional Water Quality Control Board by-in writing 30 days prior to approval by the Permittee. If the Executive Officer of the Regional Water Quality Control Board does not respond **raise an objection** to a waiver request within 30 days, the **Permittee may approve the waiver-is deemed to be granted. Before approving a waiver and alternative compliance plan, the Permittee must determine that the Applicant's alternative compliance plan meets all criteria described in Section 7II-3.4.***

17. Model Water Quality Management Plan Section 7.II-4.1 Paragraph 2, 1st Bullet (page 7.II 4-1) modify as follows:

The Project Proponent must demonstrate that it has proposed **will** transfer of the BMP maintenance to another public entity **subject to the following provisions**. The Project Proponent will negotiate maintenance requirements with the entity that it is proposing to accept maintenance responsibilities within its jurisdiction; and negotiate with the resource agencies responsible for issuing permits for the construction and/or maintenance of the facilities. If necessary, the public entity will also demonstrate

through the CEQA review or the public entity's public review process that it can accept the maintenance responsibility. **If a public entity is named as the responsible maintenance entity, then the local jurisdiction must include that entity in its CEQA review process as a Responsible Agency where applicable.** The local jurisdiction must be identified as a third party beneficiary empowered to enforce any such maintenance agreement within their respective jurisdictions.

18. Model Water Quality Management Plan Section 7.II-5.0 Paragraphs 2 and 3 (page 7.II 5-1) modify as follows:

For all projects requiring discretionary or land use entitlement actions, a Conceptual or Preliminary WQMP should be submitted as part of the application for project approval during the environmental review phase (CEQA) and **must be submitted** prior to **relevant project-level** approval of entitlements, and Planning Commission approval of a project or other public hearing.

~~Each local jurisdiction may establish specific requirements for when a Conceptual or Preliminary WQMP should be submitted during the planning process for different planning actions which may vary depending upon the phase of planning for the Project. However, as described in Section 2, it is strongly recommended that the Conceptual or Preliminary WQMP be prepared and submitted during the preparation of environmental documentation for compliance with CEQA. The local jurisdiction will...~~

19. Model Water Quality Management Plan Section 7.II-5.1 Paragraph 2 (page 7.II 5-1) modify as follows:

A Conceptual or Preliminary WQMP supports the CEQA process **and provides documentation to support a checklist for an Initial Study and Negative Declaration or Mitigated Negative Declaration, or serves as the basis for the water quality section of an EIR. It should also** by serving as the basis for the Lead Agency and Responsible Agency to conclude that the MEP standard is being met by serving as the basis that selected BMPs will not have the potential to cause significant effects and/or that the effects have been mitigated, and ~~by providing supporting rationale for determining that WQ impacts are not significant or "are not significant with mitigation."~~ The Conceptual or Preliminary WQMP should to be circulated with the CEQA document or summarized within the circulated CEQA document.

20. Technical Guidance Document Section 2.3.2 Paragraph 2 (page 2-11) modify as follows:

These recommendations are not intended to imply that each of these analyses must be conducted for every Project **if an equally reliable source of information is available in place of any of these analyses or if the analysis outcome is obvious and can be documented based on simpler analysis methods.** For example, if groundwater is known to be very deep **based on regional surveys or other available information**, it is not necessary to conduct an evaluation of the exact water table or the potential for groundwater mounding.

21. Technical Guidance Document Section 2.3.2.3 Paragraph 4 (page 2-13) modify as follows:

It is recommended that coordination be initiated as early as possible during the Preliminary/Conceptual WQMP development process, **as part of the CEQA process (preferred) or otherwise.**

22. Technical Guidance Document Section 2.3.3.1 Paragraph 2 (page 2-17) modify as follows:

Project proponents should consult the most recent **EPA-approved** 303(d) list to identify whether the project's proximate and downstream receiving water bodies are listed as impaired. **The WQMP should document the 303(d) list that was consulted.** The most recent **EPA-approved** 303(d) list is located on the State Water Resources Control Board website.

23. Technical Guidance Document Section 2.4.2.4 Last Bullet (page 2-32) modify as follows:

~~If the project is located in HSG D soils per regional maps (Appendix XV), the project meets criteria to use regional maps for infiltration screening per Appendix VII, and the site geotechnical investigation, if otherwise required, and/or other available data identifies presence of soil characteristics which support categorization as D soils. For projects that meet the criteria to use regional maps, geotechnical investigation will not be required to include infiltration testing to confirm mapped categorization as HSG D soils; however, if other site-specific information is readily available, such as bore logs, relevant information therein must be used. Further geotechnical investigations, including infiltration testing, are not required to confirm that a project overlies HSG D soils per regional maps (Appendix XV) if available data confirms the presence of soil characteristics which support characterizing the underlying soils as D soils (see Appendix VII). All priority projects must use all available geotechnical information in order to confirm the presence of HSG D soils. If there is no additional available data, other than regional maps, and the project is not a "small project" according to Table VII.2. of TGD Appendix VII, then further geotechnical investigation will be required according to Appendix VII. Small projects will not be required to perform further geotechnical investigations even if there is no other available geotechnical information, but these situations are expected to be rare cases. Individual jurisdictions will track these situations and report them in the Annual Progress Report in order to evaluate the effectiveness of the thresholds in Table VII.2.~~

24. Technical Guidance Document Section 2.4.2.4 Last Bullet (page 2-33) modify as follows:

If there is substantial evidence that infiltration from the project would result in a significant increase in inflow and infiltration (I&I) to the sanitary sewer that cannot be sufficiently mitigated. Where it is within the reasonable scope of the project to rehabilitate the sanitary sewer to mitigate for I&I, this should be considered. **See Appendix XVII for a general countywide map of areas susceptible to high I&I.**

This map should be used for reference purposes, as more up-to-date maps should be available through the local sewer agency. The most up-to-date maps must be used when they become available. Infiltration activities that have the potential to contribute to a significant increase in I&I should be coordinated with the local sewer agency to ensure project drainage plans are protective of sewer hydraulic capacity. See Appendix XVII for screening criteria to identify projects that should consult with the local sewerage agency. It is recommended that coordination be initiated as early as possible during the Preliminary/Conceptual WQMP development process as part of the CEQA process (preferred) or otherwise.

25. Technical Guidance Document Table 2.7 Line 8 (page 2-36) modify as follows:

If any answer from row 1-3 is yes: infiltration of any volume is not feasible onsite within the DMA or equivalent.

26. Technical Guidance Document Table 2.7 (page 2-36) modify as follows:

[Add new line 8 to table] Is there substantial evidence that infiltration from the project would result in a significant increase in I&I to the sanitary sewer that cannot be sufficiently mitigated? (See Appendix XVII)

Provide narrative discussion and supporting evidence:

Summarize findings of studies provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.

[Renumber subsequent lines accordingly.]

27. Technical Guidance Document Section 2.4.2.6 Paragraph 3 (page 2-38) modify as follows:

The recommended project planning approach for addressing hydromodification requirements depends on the relative magnitude of hydromodification requirements compared to LID requirements; if the volume of water that needs to be reduced to address hydromodification requirements is greater than the treatment volume for LID requirements, then hydromodification controls may satisfy both requirements and vice versa.

28. Technical Guidance Document Section 2.4.3.4 Paragraph 2 (page 2-40) modify as follows:

[Append to paragraph] In all cases where biotreatment is used as part of compliance with LID criteria, biotreatment BMPs shall be designed to achieve the maximum feasible level of infiltration and ET and achieve the minimum feasible discharge to the MS4 by meeting the criteria contained in Appendix XI.3 and Appendix XII. Satisfaction of these criteria shall be documented in the Project WQMP.

29. Technical Guidance Document Section 2.4.3.4 (page 2-40 to 2-43) modify as follows:

[Format edit: Change all bullet lists in this section to numbered lists to clarify that these are a stepwise process.]

30. Technical Guidance Document Section 2.4.3.6 (page 2-43) modify as follows:

To demonstrate conformance with LID and treatment control criteria via this pathway, the Project WQMP should cite and/or attach the applicable watershed-based planning documentation to the Project WQMP that demonstrate **documents** that the criteria described in Section 2.4.2.2 of the Model WQMP are met.

31. Technical Guidance Document Section 2.4.3.7 (page 2-43) modify as follows:

Documentation that BMPs have been selected to address the pollutants of concern per instructions contained in Section ~~2.4.2~~ **2.4.2.5**

32. Technical Guidance Document Section 2.6.1 Paragraph 1 (page 2-44) modify as follows:

Project location map that **shows and identifies the immediate downstream receiving water(s) bodies of the project and any 303(d) listed or TMDL water bodies further downstream.**

33. Technical Guidance Document Section 2.7.1 Paragraph 1, 3rd Bullet (page 2-45) modify as follows:

Storm drain elevations may be constrained by a variety of factors in a roadway project (utility crossings, outfall elevations, etc.) that **cannot be overcome and** may override stormwater management considerations.

34. Technical Guidance Document Section 4.4 (page 4-3) modify as follows:

The utilization of captured water used should comply with codes and regulations and should not result in runoff to storm drains, or receiving waters ~~(except indirectly via the sanitary sewer/municipal wastewater treatment system).~~

35. Technical Guidance Document Section 4.9 Paragraph 1 (page 4-5) modify as follows:

Table 4.2 and Table 4.3 provide rankings of relative performance of LID BMPs and Treatment Control BMPs, respectively, to support the BMP selection criteria described in Section ~~2.4.2~~ **2.4.2.5**.

36. Technical Guidance Document Table 4.2 Line 8 (page 4-8) modify as follows:

Expected performance should be based on evaluation of unit processes provided by BMP and available testing data. **Testing data should be evaluated based primarily on the effluent quality achieved by the BMP and the ability of the BMP to provide statistically significant removal under average conditions. Percent removal alone should not be used to evaluate the performance of proprietary BMPs (See Wright Water Engineers and Geosyntec Consultants, 2007).**

The basis for determining the rating of proposed proprietary BMPs must be documented in the Project WQMP. Approval is based on the discretion of the reviewing agency. Product-specific rankings may be published in the Technical Guidance Document at a later date.

[Add citation: Wright Water Engineers and Geosyntec Consultants, 2007. Frequently Asked Questions Fact Sheet for the International Stormwater BMP Database. Why does the International Stormwater BMP Database Project omit percent removal as a measure of BMP performance? (as posted on www.bmpdatabase.org)]

37. Technical Guidance Document Section 5.2 Paragraph 5 (page 5-1) modify as follows:

[Append to paragraph] **Local jurisdictions may reject or require that a proposed hydromodification control measure be modified in order to ensure that control measures can be reasonably maintained.**

38. Technical Guidance Document Section 5.3.1 Paragraph 4 (page 5-2) modify as follows:

If the results indicate that HCOCs do not exist, then hydromodification **control** requirements are met **do not apply**. The Project WQMP should **must** document **that HCOCs do not exist and these provide all supporting calculations/documentation.**

39. Technical Guidance Document Section 6.2 Number N13 (page 6-3) modify as follows:

If wash water is used, it must be disposed of in an approved manner and not discharged to the storm drain system. If there are no other alternatives, discharge of non-stormwater flow to the sanitary sewer may be considered only if allowed by the local sewerage agency through a permitted connection. **must be at an acceptable discharge point such as a cleanout, oil/water separator, grease interceptor, or industrial sewer connection. All sewer discharges shall be in accordance with the Orange County Sanitation District's Wastewater Discharge Regulations and/or Washwater Disposal Guidelines.**

40. Technical Guidance Document Section 7.1 Number 4 (page 7-1) modify as follows:

The agreement should grant permission to a local government or its authorized agent to enter onto property to inspect BMPs **and in response to emergencies (i.e., flooding, etc.).**

41. Technical Guidance Document Section 7.1 Number 5 (page 7-2) modify as follows:

[Append to paragraph] **The relationship between failure to maintain BMPs and potential nuisance issues (vectors, etc.) should be considered in the development of maintenance agreements.**

42. Technical Guidance Document Appendix (page iii) modify as follows:

~~[Add to Table of Contents] Appendix XVII. Supporting Information Relative to Sanitary Sewer Inflow and Infiltration~~

~~[Add placeholder for supporting materials on sanitary sewer inflow and infiltration to be developed.]~~

43. Technical Guidance Document Appendix (page iv) modify as follows:

~~[Add to Table of Appendices] XVII. Supporting Information Relative to Sanitary Sewer Inflow and Infiltration~~

44. Technical Guidance Document Appendix Section VI.2.1 (page VI-3) modify as follows:

For ~~eligible~~ redevelopment projects that reduce the overall impervious footprint of the project site compared to current use, the volumetric offset provided by water quality credits shall be calculated as follows:

45. Technical Guidance Document Appendix Section VI.3.1.2 (page VI-5) modify as follows:

~~[Correct typographical issue with numbering.]~~

46. Technical Guidance Document Appendix Example VI.4 (page VI-6) modify as follows:

~~[Correct typographical issue with numbering.]~~

47. Technical Guidance Document Appendix Section VII.3.2, 5th Bullet (page VII-8) modify as follows:

~~In general, no more than five valid tests are required per development, unless more tests would be valuable or necessary (at the discretion of the qualified professional assessing the site, as well as the reviewing agency).~~

48. Technical Guidance Document Appendix Section VII.4.3 (page VII-34) modify as follows:

~~A factor of safety-is shall be used.~~

49. Technical Guidance Document Appendix Section VIII.2.2 Paragraph 2 (page VIII-3) modify as follows:

Methods for quantifying groundwater mounding potential range from detailed modeling studies to simple conservative estimation techniques. The methods employed ~~will be selected~~ by the project proponent ~~will be subject~~ to the acceptance of the reviewing agency.

50. Technical Guidance Document Appendix Section IX.1 Paragraph 2 (page IX-1) modify as follows:

They do require irrigation, so their effects on water supply demand should be considered. In addition, green roofs may use reclaimed water for irrigation and measures may be required to mitigate the risk of discharges leaving the site.

51. Technical Guidance Document Appendix Section IX.1 Paragraph 2 (page IX-1) modify as follows:

[Append to paragraph] Green roofs are considered to be self-retaining on the basis that they provide the maximum feasible area for ET and provide biotreatment for the remaining portion of the DCV. Ground-level LID BMPs must still be provided for ground level drainage areas, where feasible, and optionally can be sized to provide additional volume reduction and biotreatment of runoff from green roofs.

52. Technical Guidance Document Appendix Section IX.1 Paragraph 3 (page IX-1) modify as follows:

As such, it is not generally possible for green roofs of a reasonable thickness to provide reliable reduction of the entire DCV within the timeframe criteria applied to other HSCs.

53. Technical Guidance Document Appendix Section X.2.8 (page X-10) modify as follows:

- *[Move paragraph to end of bullet list]* Finally, it is noted that ~~¶~~ The State Board has evaluated, in general, the potential negative environmental consequences of reclaimed water on groundwater quality as part of developing its policy on reclaimed water, and the State Board supports the use of reclaimed water for landscape irrigation.
- The use of reclaimed water to supplant the use of harvested water for irrigation could contribute to groundwater quality impacts. This depends on the quality of harvested runoff that might alternatively be used compared to the quality of the reclaimed water. However, the maximum potential fraction of the total inflow to the groundwater basin influenced by the priority for reclaimed water versus harvested water is believed to be very minor based on the applicability of the New Development and Significant Redevelopment LID requirements in the foreseeable future and will therefore not have a significant impact on groundwater quality.
- In addition, It is noted that reclaimed water poses potential issues impacts to groundwater quality related to use of reclaimed water, particularly salt and nutrient accumulations, which must be evaluated and managed by providers of reclaimed water....

54. Technical Guidance Document Appendix Section XIII.1 (page XIII-1) modify as follows:

[Insert before first paragraph] The purpose of this Criterion is to help ensure that the most effective retention and biotreatment BMPs are selected for use. The Permits require that a design volume be included for retaining stormwater on site (if feasible). As the permit makes no mention of recovering this storage to be able to manage subsequent runoff events, it is possible that one could select a LID retain on site BMP that would be relatively ineffective due to low drawdown rates (for example, insufficient demand for irrigation use of harvested water) and resulting excessive overflows or bypasses of LID systems. This criterion is intended to ensure that harvest and use systems would result in equal or better performance than a biotreatment system which has been designed to maximize infiltration and evapotranspiration as required by this Model WQMP and TGD. This criterion in no way restricts one from including LID features that do not meet this criteria, but in that case the project proponent would need to include additional LID features to meet the overall requirement to retain on site, and if infeasible, biotreat on-site, 80 percent of average annual stormwater runoff volume.

55. Technical Guidance Document Appendix Section XIII.2 Paragraph 4 (page XIII-2) modify as follows:

The direct costs and other environmental and societal effects associated with such a system would include:

- Cost to provide the tank and distribution system,
- Cost to provide an additional BMP(s) to retain or biotreat the overflow from the tank up to 80 percent capture,
- Energy and resources used to manufacture of plastic, metal, or concrete tanks,

56. Technical Guidance Document Appendix Section XIII.2 (page XIII-3) modify as follows:

[Add to end of section] This analysis seeks to identify a minimum level of performance of retention BMPs at which the 'alternative scenario' (i.e., biotreatment), after all retention options have been exhausted, would achieve approximately equivalent volume reduction and a higher level of treatment. This analysis assumes that the designer is faced with a mutually exclusive choice between using an infiltration, evapotranspiration, or harvest and use retention BMP versus using a biotreatment BMP or, in the case of a tandem system (e.g. a green roof is the principal retention BMP, with the balance of the drainage area's DCV, or more, treated in a biotreatment system), a combination of both classes of BMPs.

57. Technical Guidance Document Appendix Section XIII.3 Paragraph 3 (page XIII-3) modify as follows:

When designed to these criteria, biotreatment BMPs are expected to achieve retention of a substantial volume of stormwater. A recent analysis of the monitored inflow and outflow data contained in the International Stormwater BMP Database showed a average long term volume reductions on the order of 40 percent for biofilters, 30

percent for extended detention basins, and 60 percent for bioretention areas. These values represent the average of observed total volume reductions through infiltration and transpiration during entire monitoring studies. Total volume reductions during a study were calculated based on comparison of the total inflow volume and outflow volumes measured over the duration of each study (including multiple – up to 65 – storm events). As these analyses utilized long-term observed volume reductions over a series of storm events, they provide a valid comparison to the capture efficiency and volume reduction criteria contained in this TGD that were developed upon long-term hydrologic simulations and summaries.

58. Technical Guidance Document Appendix Section XIII.3 Paragraph 4 (page XIII-4) modify as follows:

These values provide a benchmark for comparing the performance of LID BMPs (infiltration, harvest and use, and evapotranspiration) against the performance of LID biotreatment BMPs, which under some circumstances, may provide a similar level of retention plus offer other pollutant treatment mechanisms. This analysis shows that while LID biotreatment BMPs are not designed to fully retain the DCV, they are capable of providing substantial volume reductions, on the order of half of the water that is captured and managed. This analysis further shows that a well designed LID biotreatment BMP that has been designed to capture 80 percent of average annual storm water runoff and has been designed to achieve maximum feasible volume reduction would be expected to achieve total long term volume reduction on the order of 40 percent of long term runoff volume. This means that a designer, faced with a LID retention BMP with a performance of 40 percent or less could substitute the LID retention BMP with a LID biotreatment BMP that is capable of carrying 100 percent of the DCV without impairing the overall performance of the site's system of BMPs. This is because roughly 40 percent of the DCV will be incidentally infiltrated or evapotranspired by the LID biotreatment BMP – roughly equal or better than the low-performing LID retention BMP. Therefore, it is appropriate to designate 40 percent retention as a threshold for eliminating the mandatory selection and use of a specific LID retention measure in favor of using LID bioretention BMPs that achieve a comparable or greater level of retention for the system as a whole. This threshold must not be used to reduce the site's overall level of retention. reference for establishing an incremental threshold criterion. Retention BMPs should provide significantly greater volume reduction than the volume reduction achieved by biotreatment BMPs. Otherwise, there is no basis for requiring retention BMPs when biotreatment BMPs would provide equivalent volume reduction and provide treatment of captured water that is not retained, thereby not requiring a separate BMP to be added (at additional cost) to meet the remaining biotreatment obligations. On this basis, a threshold incremental benefit of approximately 40 percent is appropriate.

59. Model Water Quality Management Plan Section 7.II-2.4.3.2 Figure 7.II-7 (page 7.II.2-14) highlighted area modified to read:

Figure 7.11-7: Design the Site Incorporating LID BMPs – Without HCOCs

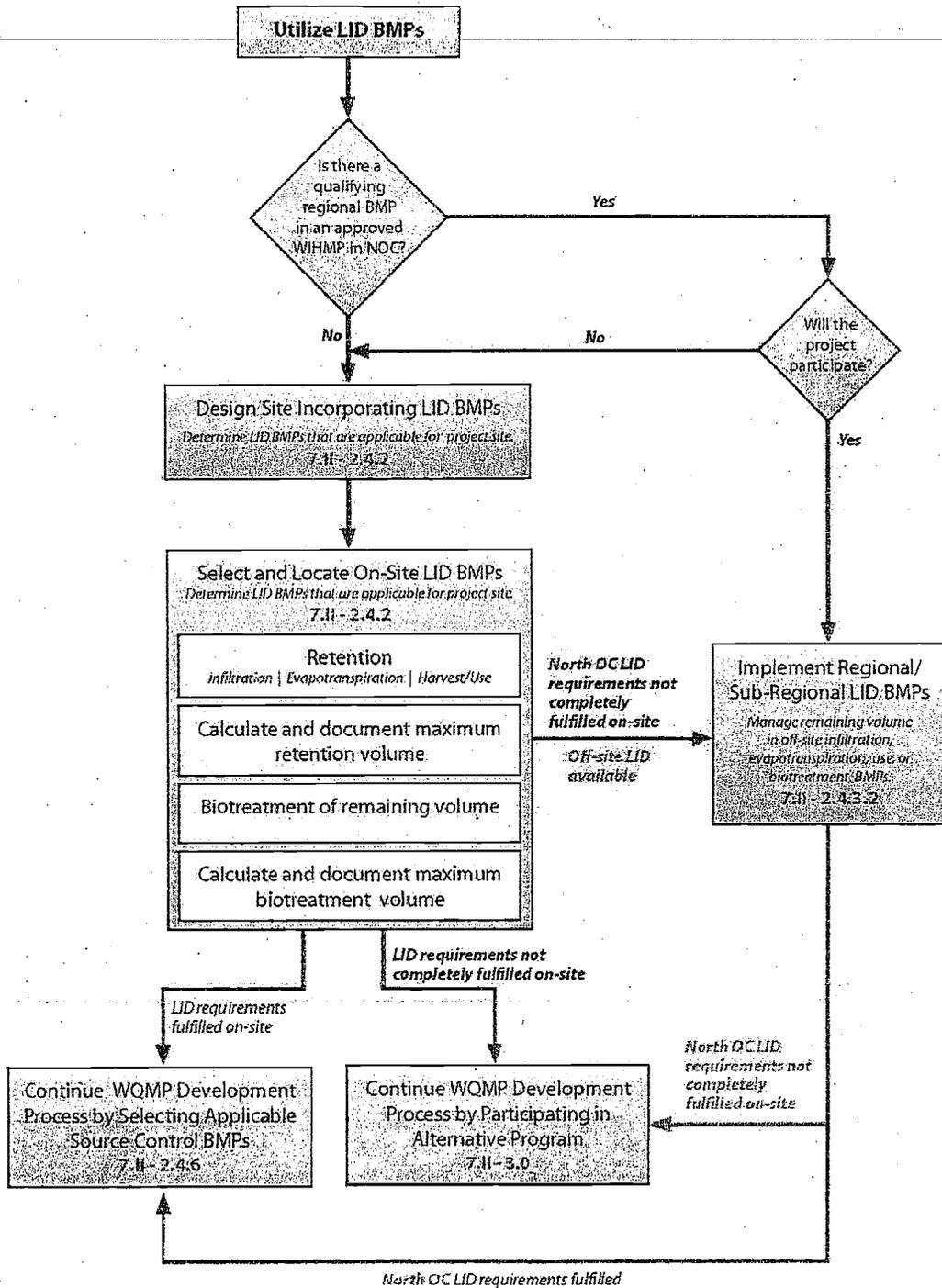


EXHIBIT C

EXHIBIT 7.II

**MODEL WATER QUALITY MANAGEMENT
PLAN
(MODEL WQMP)**

March 22, 2011

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7.II MODEL WATER QUALITY MANAGEMENT PLAN (WQMP)

7.II-1.0 INTRODUCTION

This Model Water Quality Management Plan (Model WQMP) has been developed to aid the County of Orange, the Orange County Flood Control District, and the cities in Orange County (Permittees) and project proponents with addressing post-construction urban runoff and stormwater pollution from new development and significant redevelopment projects that qualify as Priority Projects. New development Priority Projects create new impervious surface on a previously undeveloped site. The amount of new impervious surface that qualifies a project as a Priority Project depends upon the project type. Significant redevelopment projects add or replace 5,000 or more square feet of impervious surface on an already-developed site. These terms are further defined for specific project types in Section 7.II-1.2.

The purpose of the Model WQMP is to describe the process that Permittees will employ for developing a Project WQMP for individual new development and significant redevelopment projects, which, when implemented will minimize the effects of urbanization on site hydrology, runoff flow rates or velocities and pollutant loads. Following approval of the final Project WQMP and construction of the project, the Project WQMP will serve to maintain the terms, conditions and requirements with the project proponent and their successors and assigns. The effects of urbanization will be minimized through implementation of practicable and enforceable project-based controls or stormwater Best Management Practices (BMPs), or through a combination of project-based and regional BMPs. For most projects the process will first involve preparing a Conceptual or Preliminary WQMP to incorporate Low Impact Development (LID) and hydromodification control BMPs where necessary at the earliest conceptual planning stages of a project for early review. All Priority Projects will require a final Project WQMP be prepared, regardless of whether a Conceptual or Preliminary WQMP was prepared first. The process for preparing Conceptual or Preliminary WQMPs and/or final Project WQMPs is described in Section 7.II-5.0 with supplemental information provided in the Technical Guidance Document (TGD).

LID BMP – a BMP that provides retention or biotreatment as part of an LID strategy – these may include hydrologic source controls (HSCs), retention, and biotreatment BMPs

By initiating planning for water quality early in the development process, the Preliminary/Conceptual WQMP can be used as the principal mechanism for describing how water quality impacts of a project will be reduced to less than significant when developing documentation for the project to comply with the California Environmental Quality Act (CEQA). Further discussion of the CEQA process in the context of New Development and Significant Redevelopment Planning process and the role of the Preliminary/Conceptual Model WQMP can be found in the Orange County Drainage Area Management Plan (DAMP) Section 7.

This Model WQMP identifies controls, referred to as LID BMPs, as well as other BMPs and alternative compliance programs, for new development and significant redevelopment projects that are subject to WQMP requirements pursuant to DAMP Section 7.

EXHIBIT 7.II, MODEL WATER QUALITY MANAGEMENT PLAN (WQMP)

The Permittees require that certain new development and significant redevelopment projects develop and implement a Conceptual or Preliminary WQMP, and/or final Project WQMP that includes LID and/or BMPs. Depending upon the project size and characteristics, BMPs may include:

- Site design measures
- Implementing LID BMPs on-site
- Constructing or participating in sub-regional/regional LID BMPs
- Implementing hydromodification control BMPs
- Utilizing alternative programs or treatment control BMPs
- Employing applicable source control BMPs

Explanation, definitions, and examples of the above site design measures and BMP types as well as alternative programs are provided later within this document.

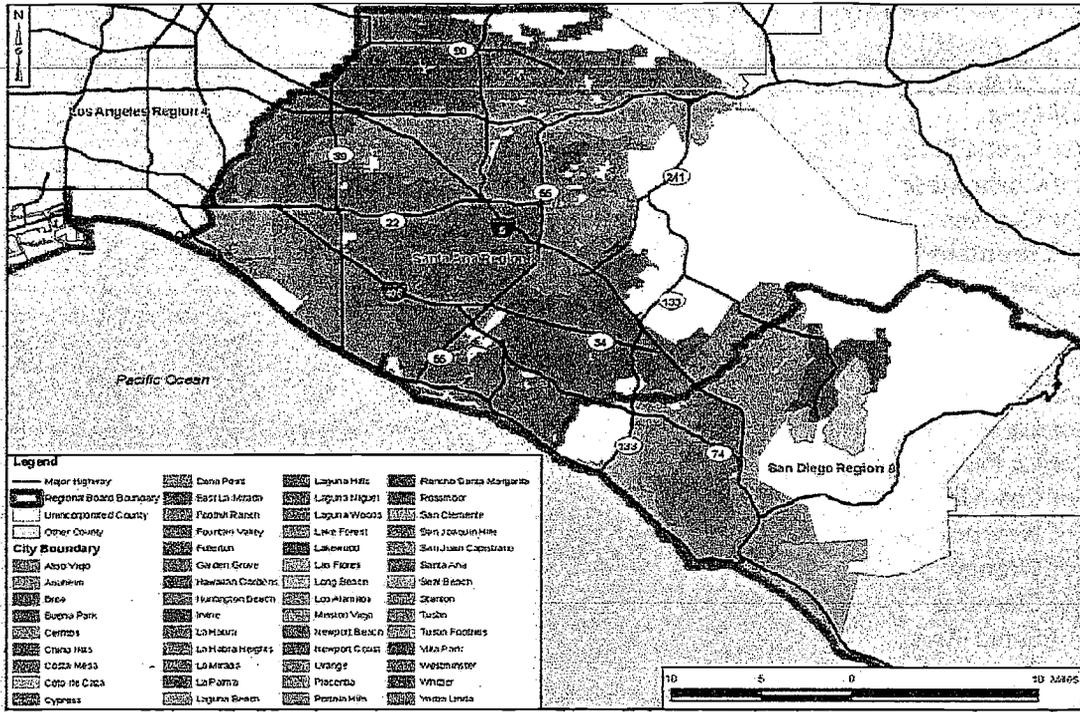
7.II-1.1 Regulatory Basis

The development of this Model WQMP and preparation of Conceptual or Preliminary WQMPs and Project WQMPs is required by two municipal National Pollutant Discharge Elimination System (NPDES) permits held jointly by the Permittees. As authorized by the Federal Clean Water Act (CWA), the NPDES permit program controls water pollution by regulating sources that discharge pollutants into waters of the United States. Two separate permits apply to the respective areas of the County that lie within the jurisdiction of two Regional Water Quality Control Boards (RWQCBs). For this document, two "permit areas" are defined "North Orange County" (NOC) is that area under the jurisdiction of the Santa Ana Regional Water Quality Control Board (SARWQCB), and "South Orange County" is the area under the jurisdiction of the San Diego Regional Water Quality Control Board (SDRWQCB). **Figure 7.II-1** shows the division of the County between North and South County areas. **Table 7.11-1** shows which cities lie within each permit area. The County unincorporated area and three cities overlay both permit areas.

Within the SARWQCB jurisdiction, the Model WQMP will be reviewed and approved by the SARWQCB in accordance with the relevant Fourth Term Permit (Order No. R8 -2009-0030) (North County Permit). Based on the requirements stated in this Model WQMP, local jurisdictions within the NOC Permit Area will review and approve Conceptual or Preliminary WQMPs and final Project WQMPs as part of the development plan and entitlement approval process and the discretionary permit approval process for new development projects as defined in **DAMP Section 7.6** and **Table 7.II-2**.

EXHIBIT 7.II, MODEL WATER QUALITY MANAGEMENT PLAN (WQMP)

Figure 7.II-1: Division of Permit Areas



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EXHIBIT 7.II, MODEL WATER QUALITY MANAGEMENT PLAN (WQMP)

Table 7.II-1: Division of Permit Areas

Jurisdictions Wholly within Santa Ana Region (NOC)	Jurisdictions Wholly within San Diego Region (SOC)	Jurisdictions within both the NOC and SOC Regions
City of Anaheim City of Brea City of Buena Park City of Costa Mesa City of Cypress City of Fountain Valley City of Fullerton City of Garden Grove City of Huntington Beach City of Irvine City of La Habra City of La Palma City of Los Alamitos City of Newport Beach City of Orange City of Placentia City of Santa Ana City of Seal Beach City of Stanton City of Tustin City of Villa Park City of Westminster City of Yorba Linda	City of Aliso Viejo City of Dana Point City of Laguna Beach City of Laguna Niguel City of Mission Viejo City of Rancho Santa Margarita City of San Clemente City of San Juan Capistrano	County of Orange Orange County Flood Control District City of Laguna Hills City of Laguna Woods City of Lake Forest

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Within the SDRWQCB jurisdiction, the SDRWQCB will review the Model WQMP for compliance with the relevant Fourth Term Permit Order (R9-2009-0002) (South County Permit). South Orange County (SOC) Area Permittees are required to adopt their own local Jurisdictional Runoff Management Program (JRMP) and Model Standard Stormwater Mitigation Plan (Model SSMP) incorporating all requirements of this Model WQMP (see DAMP, Appendix A-7). Using the Model SSMP as a guide, each SOC Area Permittee will review and approve Project WQMPs as part of the development plan and entitlement approval process or the ministerial permit approval process for new development projects as defined in DAMP Section 7.6 and Table 7.II-3.

7.II-1.2 Priority Project Categories

This Model WQMP describes the process for preparing Conceptual or Preliminary WQMPs and final Project WQMPs for certain new development and significant redevelopment projects called "Priority Projects." A project is considered a Priority Project in the NOC Permit Area or SOC Permit Area if it meets any one of the following criteria listed in Tables 7.II-2 or 7.II-3, respectively.

Table 7.II-2: Priority Projects Categories for North County Permit Area

1. New development projects that create 10,000 square feet or more of impervious surface. This category includes commercial, industrial, residential housing subdivisions, mixed-use, and public projects on private or public property that falls under the planning and building authority or the Permittees.
2. Automotive repair shops. This applies to facilities that are categorized in any one of the following Standard Industrial Classification (SIC) codes 5013, 5014, 5541, 7532-7534, and 7536-7539.
3. Restaurants where the land area of development is 5,000 square feet or more including parking area. This category is defined as facilities that sell prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption (SIC code 5812).
4. Hillside development greater than 5,000 square feet. Hillside development is defined as any development which is located in an area with known erosive soil conditions or where the
5. Impervious surface of 2,500 square feet or more located within, directly adjacent to (within 200 feet), or discharging directly into receiving waters within Environmentally Sensitive Areas (ESAs).
6. Parking lots 5,000 square feet or more including associated drive aisle, and potentially exposed to urban stormwater runoff. A 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.
7. Streets, 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. (See discussion under (Section 7.II-1.5 relative to public projects).

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8. All significant redevelopment projects, where significant redevelopment is defined as the addition or replacement of 5,000 or more square feet of impervious surface on an already developed site. Redevelopment does not include routine maintenance activities that are conducted to maintain original line and grade, hydraulic capacity, original purpose of the facility, or emergency redevelopment activity required to protect public health and safety.

If the redevelopment results in the addition or replacement of less than 50 percent of the impervious area on-site and the existing development was not subject to WQMP requirement, the numeric sizing criteria discussed in Section 7.II-2.0 only applies to the addition or replacement area. If the addition or replacement accounts for 50 percent or more of the impervious area, the Project WQMP requirements apply to the entire development.

9. 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.

Table 7.II-3: Priority Projects Categories for South County Permit Area

1. New development projects that create 10,000 square feet or more of impervious surface. This category includes commercial, industrial, residential housing subdivisions, mixed-use, and public projects on private or public property that falls under the planning and building authority or the Permittees.

All pollutant generating development or redevelopment projects that result in the disturbance of one acre or more of land will be considered Priority Project starting December 16, 2012.

2. Automotive repair shops. This applies to facilities that are categorized in any one of the following Standard Industrial Classification (SIC) codes 5013, 5014, 5541, 7532-7534, and 7536-7539.

3. Restaurants where the land area of development is 5,000 square feet or more including parking area. This category is defined as facilities that sell 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 WQMP requirements except for LID BMP, treatment control BMP, and hydro-modification/HCOG requirements.

4. Hillside development greater than 5,000 square feet. Hillside development is defined as any development which is located in an area with known erosive soil conditions or where the

5. 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 percent 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.

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6. Parking lots 5,000 square feet or more, or parking lots with 15 parking spaces or more, including associated drive aisle, and potentially exposed to urban stormwater runoff. A 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.
7. Streets, 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. (See discussion under (Section 7.II-1.5 relative to public projects).
8. All significant redevelopment projects, where significant redevelopment is defined as the addition of 5,000 or more square feet of impervious surface on an already developed site, and the existing development or redevelopment project falls under another Priority Project Category. If the redevelopment results in the addition or replacement of less than 50 percent of the impervious area on-site and the existing development was not subject to WQMP requirement, the numeric sizing criteria discuss below only applies to the addition or replacement area. If the addition or replacement accounts for 50 percent or more of the impervious area, the Project WQMP requirements apply to the entire development.
9. 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.

7.II-1.3 Non-Priority Projects

A Non-Priority Project Water Quality Plan is required to be completed for private new development and significant redevelopment projects within Permittees' jurisdictions, and equivalent public agency capital projects undertaken by the Permittees that qualify as Non-Priority Projects. These are projects that do not fall under one of the Priority Project Categories defined within the Model WQMP but meet one of the following conditions:

- Require discretionary action that will include a precise plan of development, except for those projects exempted by the Permittee Water Quality Ordinance (as applicable); or
- Require issuance of a non-residential plumbing permit for pipelines conveying hazardous materials (e.g. gasoline) as defined in the Permittee Water Quality / Stormwater Ordinance.

Requirements for Non-Priority Projects are contained in a separate Non-Priority Project Water Quality Plan that serves as basis for completing a project-specific plan that is described in the DAMP and is available from the applicable Permittee. The Non-Priority Project Water Quality Plan requires that a Project Proponent document the selection of site design, source control and any other BMPs included in a project. Information contained in this Model WQMP and the TGD can be used as a reference for completing the Non-Priority Water Quality Project Plan.

7.II-1.4 Use of the Model WQMP, TGD, and WQMP Templates

Three documents have been developed to support new development requirements: a Model WQMP, a TGD, and a Project WQMP Template. The Model WQMP describes the requirements for preparing a Project WQMP. The TGD contains supporting technical guidance for how to complete these requirements and how to perform the technical analyses necessary to prepare a Project WQMP. The Project WQMP Template can be used to prepare a specific Project WQMP.

A TGD has been prepared as a companion to this Model WQMP as **DAMP Section 7.II-3**. The TGD contains more detailed information and explains how to complete the requirements and the technical analysis necessary for preparing a Conceptual or Preliminary WQMP, or Project WQMP. Throughout this document, references to the TGD will be made, including the section of the TGD where the corresponding information is located.

Project WQMP Templates are to be used by project proponents as a tool for the preparation and submittal of Project WQMPs. The Project WQMP Templates contain the overall structure for developing a Conceptual or Preliminary WQMP or final Project WQMP, including fields for entering general information and space for sizing calculations and other analyses necessary for Project WQMP completion. One template can be used for private development projects. The second one can be used for public agency projects.

The Model WQMP has been prepared to explain the requirements and types of analyses that go into producing a Conceptual or Preliminary WQMP or Project WQMP and includes the following sections:

- **Section 7.II-1.0** provides an introduction to the overall regulatory basis and purpose of the Model WQMP, an overview on the use of the Model WQMP, the TGD and the Project WQMP Template, an overview of applicable priority development projects, and the general process steps for developing a Conceptual or Preliminary WQMP, or Project WQMP.
- **Section 7.II-2.0** describes the Project WQMP requirements, and guides the reader through the parts of the Project WQMP.
- **Section 7.II-3.0** describes alternative compliance approaches.
- **Section 7.II-4.0** contains BMP funding and maintenance requirements.
- **Section 7.II-5.0** describes the process for Project WQMP preparation, submittal, and approval.
- **Section 7.II-6.0** provides additional Project WQMP related resources and the references used for producing this Model WQMP.

The intended users of the Model WQMP are summarized in the following table.

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Document	Intended users	Role of Document
Model Water Quality Management Plan	<ul style="list-style-type: none"> • Permittee planning, permitting and NPDES program staff 	<ul style="list-style-type: none"> • Provides regulatory requirements and direction for preparing and submitting a Conceptual or Preliminary WQMP and/or Final Project WQMP
Technical Guidance Document	<ul style="list-style-type: none"> • Permitting and NPDES program staff • Project applicants and planning and design consultants 	<ul style="list-style-type: none"> • Provides Technical Guidance and details for site planning and selection and of BMPs to meet the performance criteria • Provides technical basis for documenting feasibility of LID BMPs
Project WQMP Template	<ul style="list-style-type: none"> • Project applicants and planning and design consultants. • City and county planning and permitting staff 	<ul style="list-style-type: none"> • Provides a template and instructions for preparing a site-specific Preliminary/Conceptual and Final Project WQMP
DAMP Section 7	<ul style="list-style-type: none"> • Permittee NPDES program staff and planning staff 	<ul style="list-style-type: none"> • Provides program direction to Permittee staff for all aspects of New Development/Significant Redevelopment Program

Both the TGD and Project WQMP Template are located at the Permittee websites or www.ocwatersheds.com.

7.II-1.5 Public Agency Projects

Under both permits, New Development/Significant Redevelopment requirements apply to public agency projects that meet the definitions in the Priority Project Categories described above. In general, the same Project WQMP overall development steps described herein apply to public agency projects as well as private development projects. However, there are unique issues associated with certain Public Agency Projects that are either specifically recognized in the Permits, or for which particular approaches can be considered.

Streets, roads, highways and freeways of 5,000 square feet or more of paved surface shall incorporate United States Environmental Protection Agency (USEPA) guidance, "Managing Wet Weather with Green Infrastructure: Green Streets" in a manner consistent with the maximum extent practicable (MEP) standard. A copy of the guidance is included in Appendix B.

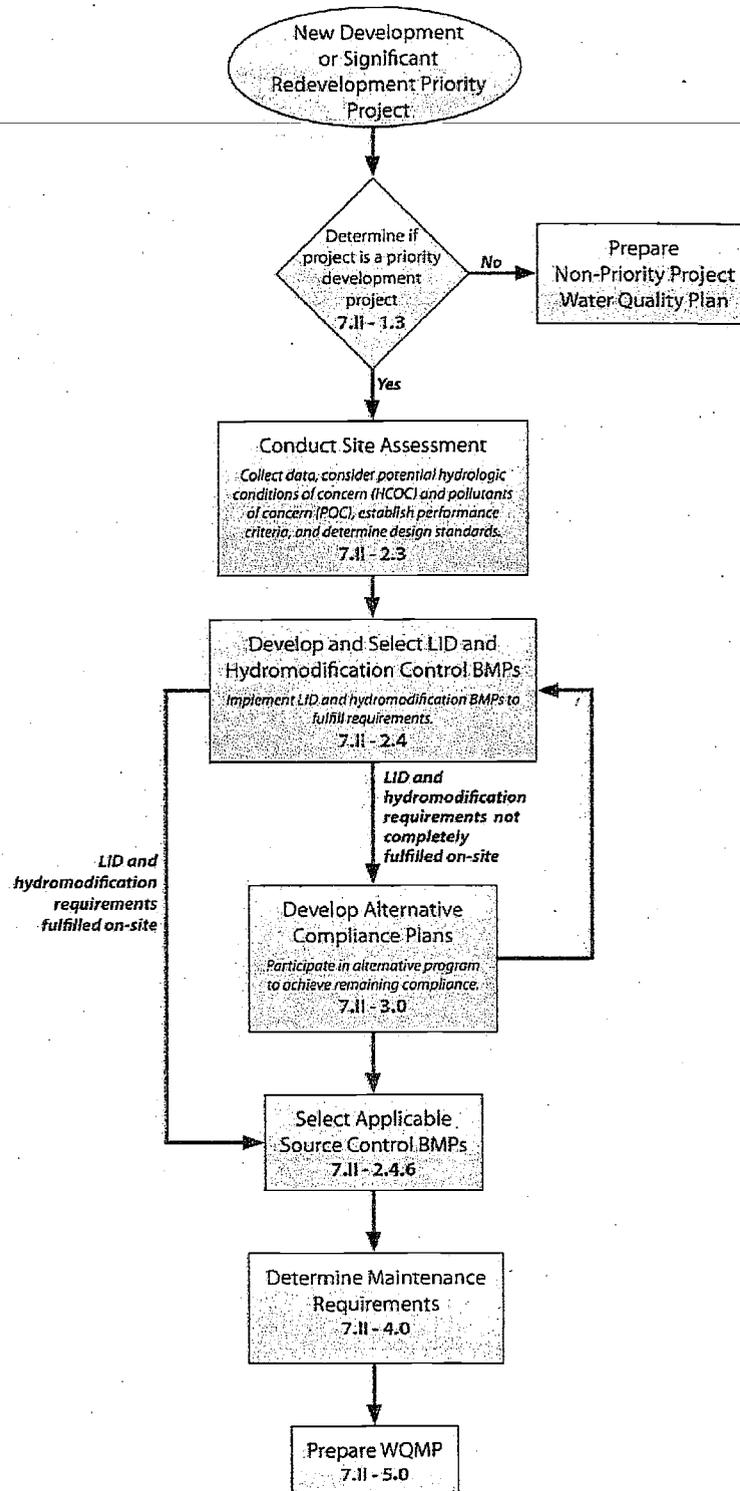
Above ground linear lined drainage projects typically consist of lined vertical or trapezoidal channels. These projects may result in the creation of more than 10,000 square feet of impervious surface have BMP implementation constraints similar to streets, roads, highways and freeways and must implement similar practices, as described in **Appendix B**. Individual Permittees may elect to develop a separate "Master Project WQMP" for all anticipated future projects with similar characteristics based upon the requirements outlined in this document. A Master Project WQMP document would need to list all of the qualifying streets, roads, and highways projects anticipated to occur within the Permittee's jurisdiction over a given time period and the proposed methods of compliance with this Model WQMP.

Below ground linear drainage and utility construction projects may result in the replacement of more than 5,000 square feet of impervious surface within a developed public street, road or highway such as storm drains, sewers and water lines. Such projects would not qualify as a Priority Project since they are in a similar category as projects which maintain original line and grade at the surface and would not require the preparation of a Project WQMP. These projects involve trenching within existing developed rights-of-way, replacement, refurbishment or extension of storm drains, sewers, water lines and dry utilities and replacing the existing pavement, and the implementation of LID or structural treatment controls would mean a significant expansion of the project.

7.II-1.6 WQMP Development Process

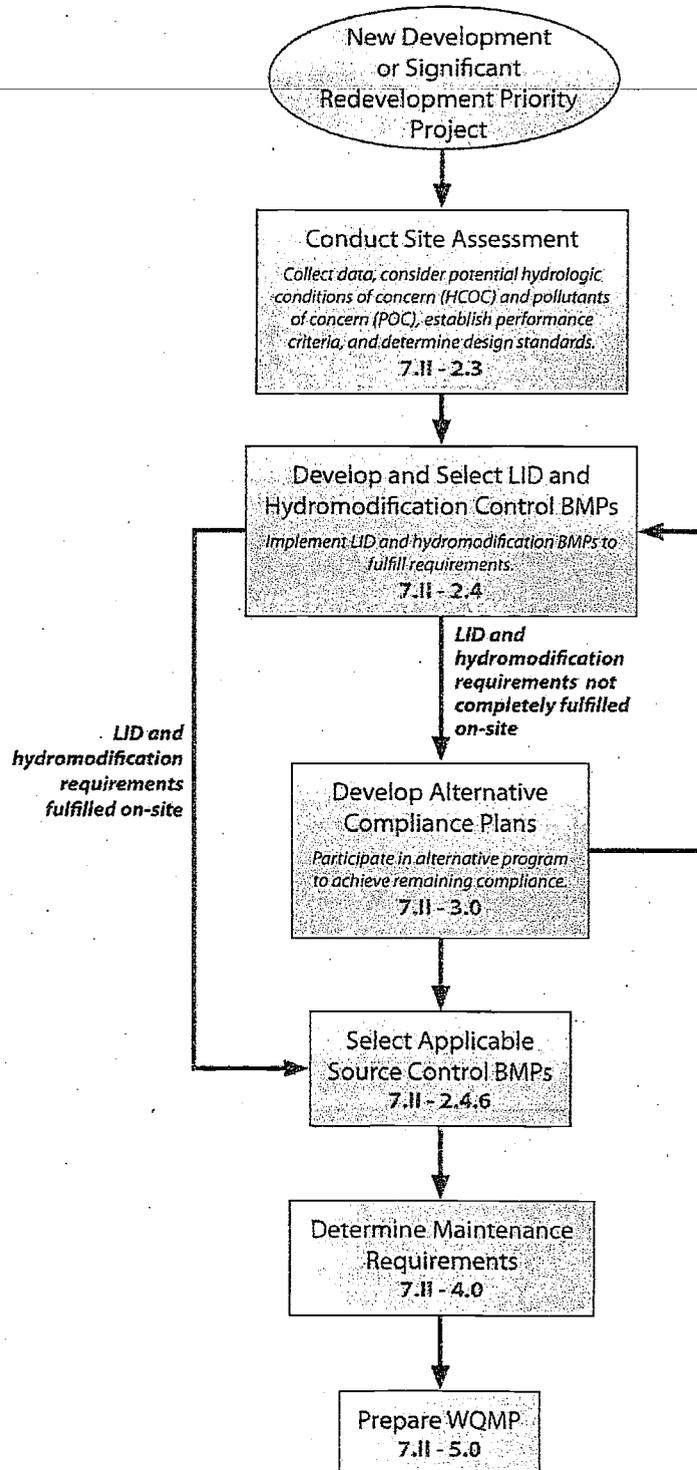
Several steps are involved in completing an approvable Conceptual or Preliminary WQMP, or final Project WQMP for new development or significant redevelopment projects. **Figures 7.II-2** and **7.II-3** display an overview WQMP flowchart and the major implementation and decision steps that must be followed to successfully complete a Project WQMP for NOC and SOC Permit Areas, respectively. Each of the steps identified in the flow chart are described in later sections of the Model WQMP. The relevant sections which detail each step are referenced in the overall WQMP flow chart. **Figure 7.II-4** for the North County permit area and **Figure 7.II-5** for the South County permit area provide a more detailed overview of the steps in the process. Each of these steps is described in more detail in **Section 7.II-2.0**.

Figure 7.II-2: Overall WQMP Development Process Flow Chart – North Orange County Permit Area



Note: Model WQMP sections shown in red.

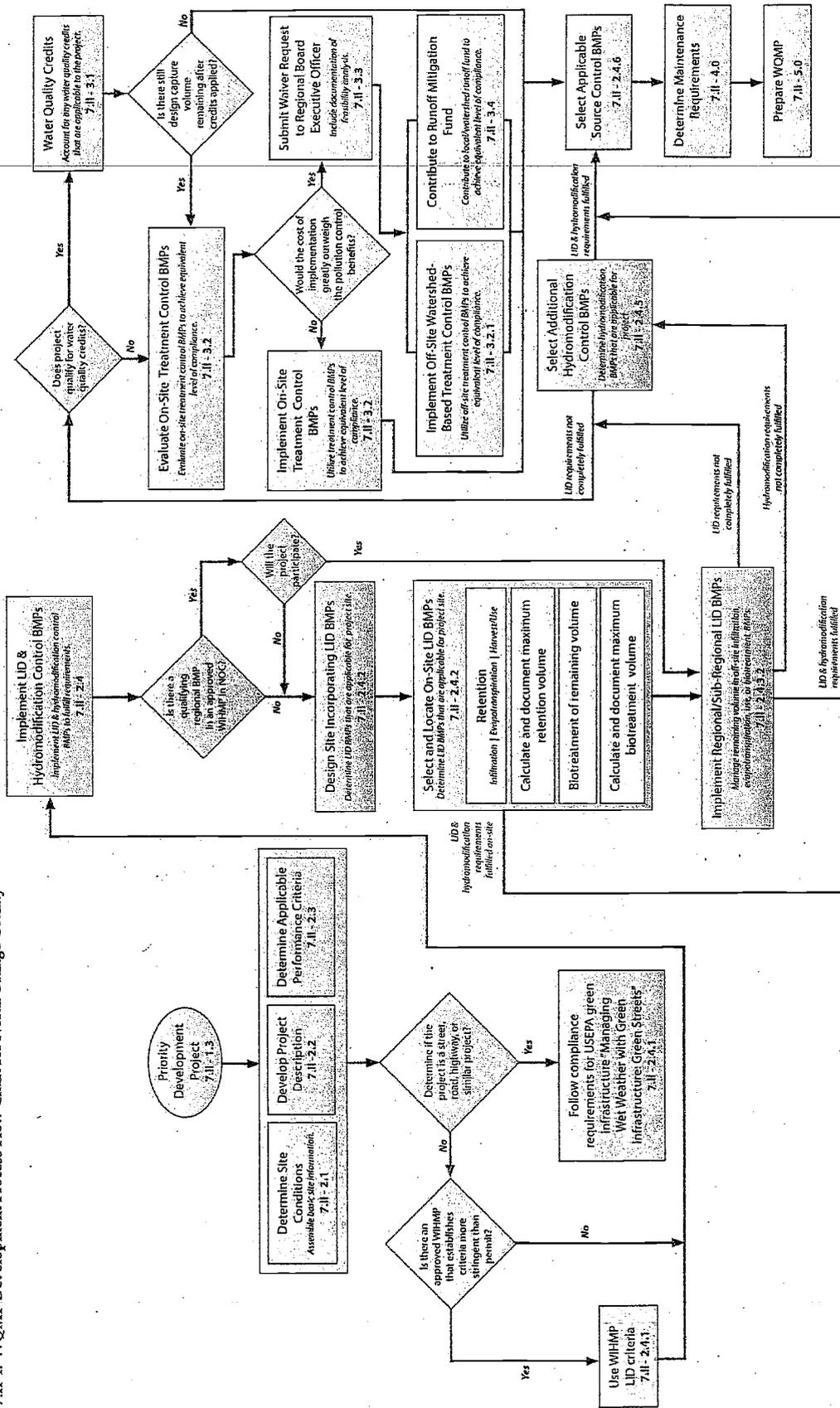
Figure 7.II-3: Overall WQMP Development Process Flow Chart – South Orange County Permit Area



Note: Model WQMP sections shown in red.

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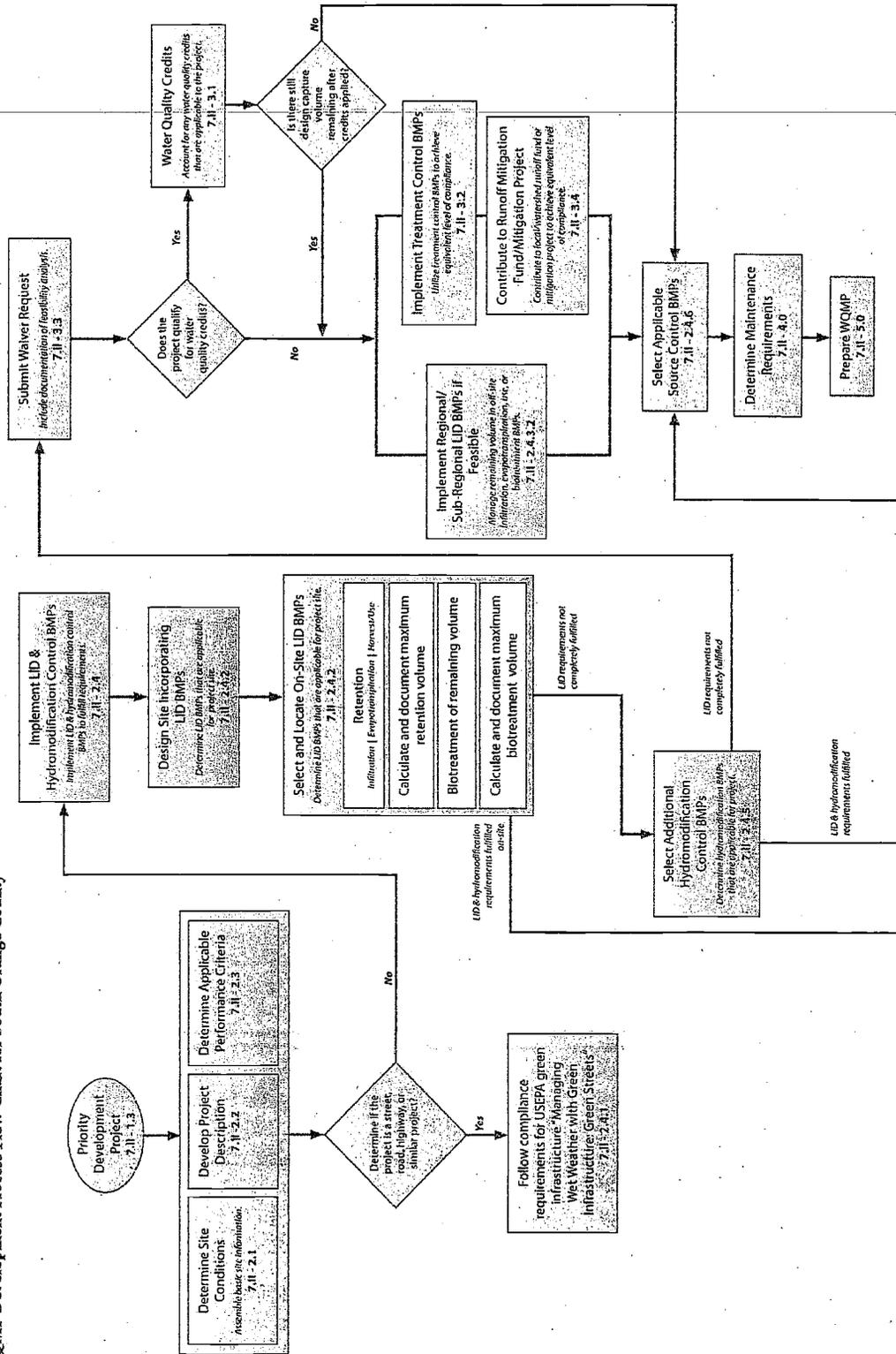
Figure 7.II-4: WQMP Development Process Flow Chart for North Orange County



Note: Model WQMP sections shown in red

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Figure 7.II-5: WQMP Development Process Flow Chart for South Orange County



Note: Model WQMP sections shown in red.

7.II-2.0 PROJECT WQMP REQUIREMENTS

The purpose of the Project WQMP is to define project features and BMPs that will mitigate the project's impact on water quality and the environment. In order to complete a Project WQMP, the following steps will need to be performed:

1. Determine discretionary permits and water quality conditions that may apply - **Section 7.II-2.1**
2. Describe the project - **Section 7.II-2.2**
3. Assess the site - **Section 7.II-2.3**
4. Develop and select BMPs, including LID BMPs, site design BMPs, hydromodification control BMPs, and source control BMPs - **Section 7.II-2.4**
5. Determine any applicable alternative compliance approaches - **Section 7.II-3.0**
6. Identify parties responsible for BMP maintenance and funding sources - **Section 7.II-4.0**

The first four steps are discussed in the following subsections. Additional information with technical guidance and supporting information can be found in the TGD.

7.II-2.1 Discretionary Permit(s) and Water Quality Conditions

This Model WQMP provides a framework for addressing General Plan, discretionary permit conditions, water quality conditions, and complying with CEQA. Compliance with the requirements set forth in this document can provide the basis for evaluating the surface water quality impacts and any mitigation measures and can be sufficiently specific to satisfy the requirements of CEQA with regards to projects. See TGD Section 2.1 for additional details regarding discretionary permits and water quality conditions.

7.II-2.2 Project Description

The Project WQMP shall contain an overall description of the project including permit applicability, whether the project is in NOC and SOC Permit Areas, if it is in an environmentally sensitive area, whether it may be eligible for water credits (as discussed in Section 7.II-3.1), and whether the project contains specific features such as streets that would require specific BMP approaches (as discussed in Section 7.II-2.4.2). If the project is within an area with a completed Watershed Infiltration and Hydromodification Master Plan (WIHMP), the applicable WIHMP shall be referenced and used as a guide in completing the Project WQMP. See TGD Section 2.2 for additional details regarding project descriptions.

7.II-2.3 Site Assessment

7.II-2.3.1 Introduction

Site assessment involves the following steps:

1. Gather site information
2. Determine if hydrologic conditions of concern are applicable

3. Determine pollutants of concern (POCs)

Using this information, the applicable performance criteria that apply to the remaining steps in the overall process can be determined.

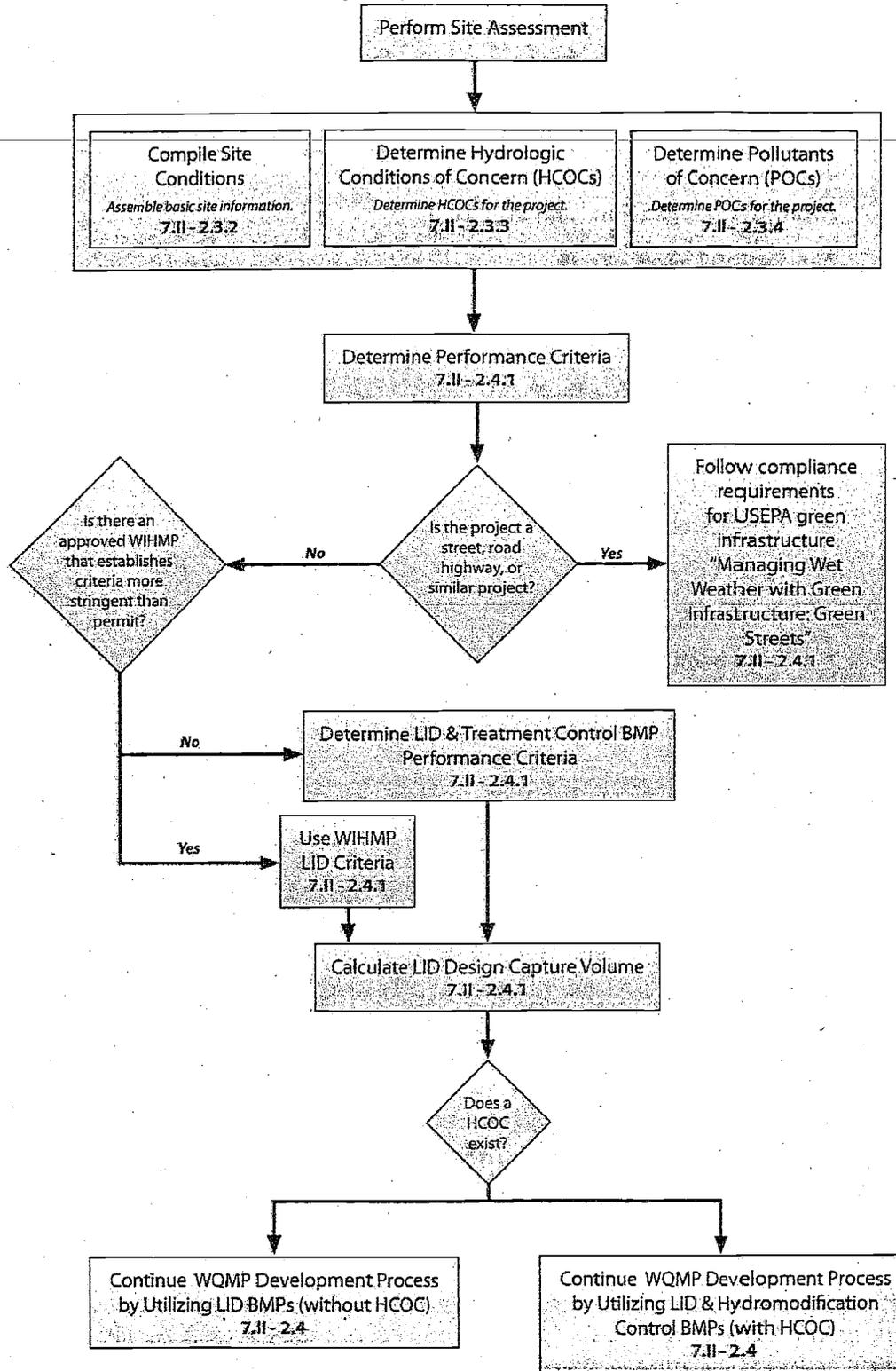
Each of these steps is described in more detail in the following subsections. A flow chart of the key steps and decisions required for site assessment is shown in Figure 7.II-6. See TGD Section 2.3 for the technical basis for developing site descriptions.

7.II-2.3.2 Gather Site Information

Basic information for the site must be compiled. Specific details for compiling this information can be found in the TGD Section 2.3. The information that must be compiled is listed below:

- Community Name or Planning Area (if located in planned community): Provide exhibit of the boundary of the project site and surroundings in sufficient detail to allow project location to be shown on a base map.
- Site specifics such as general and specific location, site address, parcel number, and size (acreage to the nearest 1/10 acre).
- Watershed name: Provide the name of the receiving water for the proposed project discharge and information on how runoff may enter the receiving water (i.e. through an un-named tributary or discharging directly into the water).
- Site characteristics, including description of site drainage (including ownership) and how it ties with drainage of surrounding property. Reference to the Project WQMP's Plot Plan showing drainage flow arrows and how drainage ties to drainage of surrounding property.

Figure 7.II-6: Assessment for Priority Projects



Note: Model WQMP sections shown in red

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- Additional information described in the TGD Section 2.3, as necessary to support evaluation of LID feasibility, selection and design, potentially regarding the following subject areas:
 - Topography
 - Soil Type and Geology
 - Groundwater and Soil Contamination
 - Groundwater Levels
 - Groundwater/Soil Contamination
 - Protection of Groundwater Quality
 - Groundwater Recharge
 - Groundwater/Surface Water Interactions
 - Geotechnical Considerations
 - Collapsible Soils
 - Expansive Soils
 - Slopes
 - Liquefaction
 - Managing Off-Site Drainage
 - Existing Utilities
 - ESAs

Site assessment must involve collecting relevant information to address two primary issues:

- Determine Hydrologic Conditions of Concern (HCOCs)
- Determine POCs

Technical details regarding how to determine if there is a HCOC in downstream receiving waters from the project site and how to select and size BMPs to provide for hydromodification control (hydromodification control BMPs) if HCOCs exist is provided in TGD Section 2.2.3. Additional information regarding how to identify POCs, and related priority POCs, and how to select a combination of source control, LID, and treatment control BMPs that are effective at removing those pollutants from stormwater runoff from the project site is provided in TGD Section 2.2.2.

7.II-2.3.3 Determine Hydrologic Conditions of Concern

Priority Project proponents shall use the following approach to identify if Hydrologic Conditions of Concern (HCOCs) are associated with the proposed project. An HCOC exists when a site's hydrologic regime is altered and there are significant impacts on downstream channels and aquatic habitats, alone or in conjunction with impacts of other projects.

Hydromodification is the alteration of natural flow characteristics and sediment supply in streams and channels due to urbanization, which can result from new development and significant redevelopment projects without appropriate preventative controls.

Hydromodification controls are implemented in order to prevent hydromodification from happening. Urbanization commonly results in increased runoff volume and velocity; reduced infiltration; increased flow frequency, duration, and peaks; and faster time to reach peak flow. Under certain circumstances, urbanization could also result in the reduction in the amount of sediment supplied to the channel for transport. If the sediment supplied to the channel is reduced such that in-stream flows are transporting sediment faster than it can be replenished, then erosion of the channel's bed and bank may occur. These changes have the potential to permanently impact downstream channels and habitat integrity. A change to a Priority Project site's hydrologic characteristics would be considered a condition of concern if the change would have a significant impact on downstream natural channels and habitat integrity.

The first step to determine whether or not HCOCs must be evaluated is based on the Proposed Project's location and point of discharge. Both permits contain conditions under which it is presumed that the project does not have the potential to have an HCOC, based on the characteristics of downstream receiving waters, as noted below:

- North Orange County Permit area:
 - All downstream conveyance channels that will receive runoff from the project are engineered, hardened and regularly maintained to ensure design flow capacity, and no sensitive stream habitat areas will be affected.
- South Orange County Permit area:
 - Discharges of stormwater from the project are to underground storm drains discharging directly to bays or the ocean.
 - Discharges of stormwater runoff from the project are to conveyance channels whose bed and bank are concrete-lined all the way from the point of discharge to ocean waters, enclosed bays, estuaries, or water storage reservoirs and lakes.

If HCOCs are associated with the proposed project then they shall be addressed in accordance the technical approach described in TGD Section 2.2.3.

7.II-2.3.4 Determine Pollutants of Concern

Stormwater runoff from new development and significant redevelopment project sites has the potential to contribute pollutants, including suspended solids/sediment, nutrients, metals, microbial pathogens, oil and grease, toxic organic compounds, and trash and debris from the municipal storm drain system to tributary receiving waters. Knowing the POCs is necessary to select the most effective BMPs, since some BMPs are more effective for some pollutants than others. POCs are identified based on the type of development project that is proposed. POCs are considered Primary POCs if a waterbody located downstream of a project (receiving water) has an approved Total Maximum Daily Load (TMDL) or is listed as impaired, according to CWA Section 303(d), for that pollutant.

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Primary POCs are any pollutants anticipated to be generated by the project that also have approved TMDLs or which are causing an impairment for which a TMDL has not yet been approved. . Other POCs are those pollutants anticipated to be generated by the project that have not been identified as causing impairment or have an adopted TMDL for the project's receiving waters. TGD Section 2.3.3 provides technical details regarding identifying POCs.

Further information on POCs may also be available from the environmental impact assessment for the project (e.g., project-specific pollutant evaluations in CEQA Environmental Impact Reports). This site-specific information should be used to supplement, or in some cases supersede, the POCs identified through the methods described in this section. Watershed planning documents previously developed by Orange County, or WIHMPs to be adopted should also be reviewed for identification of specific implementation requirements that address POCs.

7.II-2.4 Select Low Impact Development Best Management Practices

7.II-2.4.1 Introduction

BMPs are programs and policies, including structural controls that are implemented to control the discharge of pollutants. This Model WQMP describes LID BMPs, site design BMPs, hydromodification control BMPs, source control BMPs and treatment control BMPs.

Using the information compiled above, the following steps must be taken to determine what performance criteria apply to the project: 1) LID, 2) treatment control, and 3) hydromodification control. These performance criteria are evaluated individually although they can be interrelated. It is possible to meet one and not meet the others. This is synonymous with "performance standard" as used by other guidance documents, but only "performance criteria" is used in this document.

Several steps must be followed in order to determine what performance criteria will apply to a project. These steps include:

- Determining if the project is a street, road, highway, or above ground lined drainage facility with similar characteristics. If the project is determined to be a street, road, highway, or above ground lined drainage facility, then follow alternative compliance requirements, by incorporating US EPA guidance "Managing Wet Weather with Green Infrastructure: Green Streets." Refer to **Appendix B** of this document for the EPA guidance and TGD Section 2.4.1 for additional technical information.
- Determining if there is an approved WIHMP or equivalent that includes more stringent LID feasibility criteria or if there are opportunities identified for implementing LID on regional or sub-regional basis (NOC Permit Area only). If the project has an approved WIHMP or equivalent, then any watershed specific criteria must be used and the project can evaluate participation in the approved regional or sub-regional opportunities. The local Permittee planning or NPDES staff should be consulted regarding the existence of an approved WIHMP or equivalent.
- Determining site design and LID performance criteria.

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- Determining treatment control BMP performance criteria.
- Calculating the LID design storm capture volume.
- Determining hydromodification control performance criteria.
- Completing the LID BMP selection process.

Once the performance criteria have been established, the next step is to develop and select site design practices and on-site LID BMPs and hydromodification control BMPs based on these project-specific criteria.

7.II-2.4.2 Determine Performance Criteria

7.II-2.4.2.1 Determine if the Project is a Street, Road, Highway, or Above Ground Linear Lined Drainage Facility with Similar Characteristics

If the proposed project is a street, road, highway, or freeway with 5,000 square feet or more of paved surface, the project shall incorporate USEPA guidance, "Managing Wet Weather with Green Infrastructure: Green Streets" (see **Appendix B**) in a manner consistent with the MEP standard. This category includes the impervious area within the right-of-way associated with any paved surface used for the transportation of automobiles, trucks, motorcycles and other vehicles. Routine road maintenance activities where the footprint is not changed are excluded. Separate compliance requirements for these projects are discussed in **TGD Section 2.7**.

The alternative compliance approach described in **TGD Section 2.7** applies only to stand-alone public agency projects. Streets, roads or highway projects that are planned and constructed as part of a private new development or significant redevelopment project, even if they will become dedicated public right-of-way upon project completion, must be included as part of the overall Project WQMP for the private project.

Access roadways of 5,000 square feet or more of paved surface associated with flood control, drainage, and wet utilities projects shall also incorporate Green Street infrastructure.

7.II-2.4.2.2 Determine Hydromodification Performance Criteria

For projects that may have an impact on the site's hydrologic regime, an assessment of potential hydromodification impacts and appropriate controls is required. The requirements are significantly different between the North County and South County permit areas as further described below:

North County Requirements

For proposed projects within the North County permit area that may have an HCOC, each Priority Project proponent must determine the impact of the proposed development on the downstream hydrologic characteristics. The evaluation of potential impacts is based on the following for a two-year frequency storm event:

- Increases in runoff volume;

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- Decreases in infiltration;
- Changes in time of concentration;
- Potential for increases in post development downstream erosion; and,
- Potential for adverse downstream impacts on physical structure, aquatic and riparian habitat.

A project does not have an HCOC if either of the following conditions is met:

- The volumes and time of concentration of stormwater runoff for the post-development condition do not significantly exceed those of the predevelopment condition for a two-year frequency storm event (a difference of five percent or less is considered insignificant).
- The site infiltrates at least the runoff from a two-year storm event.

If a hydrologic condition of concern (HCOC) exists, priority projects shall implement on-site or regional hydromodification controls such that:

- Post-development runoff volume for the two-year frequency storm does not exceed that of the predevelopment condition by more than five percent, and
- Time of concentration of post-development runoff for the two-year storm event is not less than that for the predevelopment condition by more than five percent.¹

Where the Project WQMP documents that excess runoff volume from the two-year runoff event cannot feasibly be retained and where in-stream controls cannot be used to otherwise mitigate HCOCs, the project shall implement on-site or regional hydromodification controls to:

- Retain the excess volume from the two-year runoff event to the MEP, and
- Implement on-site or regional hydromodification controls such that the post-development runoff two-year peak flow rate is no greater than 110 percent of the predevelopment runoff two-year peak flow rate.

At any point in this process, a project-specific engineering analysis conducted by a licensed geomorphic professional may find that the level of hydrologic control provided through on-site, regional, and/or in-stream hydromodification controls is adequate to address hydrologic conditions of concern.

¹ The North County Permit (Order R8-2009-0030), as adopted, provides the option of reducing Tc to less than the existing condition Tc (within 5 percent) as part of the primary and preferred option for mitigating HCOCs. However, a longer Tc is generally associated with natural conditions than urban conditions, and a longer Tc nearly universally results in lower concern for hydromodification impacts. In addition, it is not physically possible for a project to implement BMPs consistent with LID provisions of the permit without substantially increasing the Tc of the site. The use of retention BMPs results in water not discharged under design conditions, while the use of biotreatment BMPs generally results in water not immediately discharged. Therefore, it would not generally be possible to mitigate HCOCs using the primary option for compliance described above while complying with LID requirements. This TGD therefore interprets this provision such that increases in Tc would be acceptable and reduction in Tc of more than 5 percent would not be acceptable. This interpretation is consistent with the overall goal of the permit to protect receiving waters from stormwater impacts to the maximum extent practicable.

Orange County will be developing WIHMPs for the North County permit area that integrates water quality, hydromodification, water supply, and habitat conditions for the following watersheds:

- Coyote Creek-San Gabriel River
- Anaheim Bay-Huntington Harbour
- Santa Ana River
- Newport Bay-Newport Coast

The WIHMP will include: (1) maps to identify areas susceptible to hydromodification including downstream erosion, impacts on physical structure, impacts on riparian and aquatic habitats and areas where stormwater and urban runoff infiltration is possible and appropriate; (2) a hydromodification model to make available as a tool to enable project proponents to readily select stormwater preventive and mitigative site BMP measures; and (3) identification of regional facilities and their tributary areas in which different site performance standards may apply.

Once a WIHMP is available for the watershed in which a the proposed project is located, the plans may specify hydromodification management standards for each sub-watershed and will provide assessment tools to readily select stormwater preventive and mitigative site BMP measures. Watersheds that do not have developed WIHMPs should use the HCOC criteria detailed in this section and in the TGD.

WIHMPs will also identify integrated water quality, hydromodification, water supply, and habitat strategies. These strategies may include identification of regional facilities and their tributary areas or identification of watershed-based considerations related to retention of stormwater on-site which could be used to improve the application of feasibility criteria described in TGD Section 2.4.2.

South County Requirements

For new development or redevelopment projects within the SOC Permit Area, interim hydromodification criteria apply until a Hydromodification Management Plan (HMP) is adopted. Priority Projects must implement the following criteria by comparing the predevelopment (naturally occurring) and post-project flow rates and durations using a continuous simulation hydrologic model:

- For flow rates from ten percent of the two-year storm event to the five-year storm event, the post-project peak flows shall not exceed predevelopment (naturally occurring) peak flows.

For flow rates from the five-year storm event to the ten-year storm event, the post-project peak flows may exceed predevelopment (naturally occurring) flows by up to ten percent for a one-year frequency interval.

7.II-2.4.3 Determine LID and Treatment Control BMP Performance Criteria

The following performance criteria for LID implementation are stated in both permits:

- Priority Projects must infiltrate, harvest and use, evapotranspire, or biotreat/biofilter, the 85th percentile, 24-hour storm event (Design Capture Volume).
- A properly designed biotreatment system may only be considered if infiltration, harvest and use, and evapotranspiration (ET) cannot be feasibly implemented for the full design capture volume. In this case, infiltration, harvest and use, and ET practices must be implemented to the greatest extent feasible and biotreatment may be provided for the remaining design capture volume.

A diversity of controls will be provided, if feasible, to achieve the greatest feasible retention of the Design Capture Volume, then if necessary, biotreatment of the remaining design capture volume.

The Design Capture Storm Depth is the 85th percentile, 24-hr storm depth that, when applied to the project site results in the design capture volume. The design capture storm depth varies across the county and is shown in TGD Appendices III. The TGD provides information for determining the applicable "design capture storm depth" to apply to a project to calculate design capture volume as well as guidance for recommended hydrologic methods.

Equivalent performance criteria have been synthesized from permit requirements with consideration of the MEP standard and analysis of local precipitation and ET patterns. The following performance criteria result in capture and retention and/or biotreatment of 80 percent of average annual stormwater runoff volume. The performance criteria for LID are stated as follows:

- LID BMPs must be designed to retain, on-site, (infiltrate, harvest and use, or evapotranspire) stormwater runoff up to 80 percent average annual capture efficiency
- LID BMPs must be designed to:
 - Retain, on-site, (infiltrate, harvest and use, or evapotranspire) stormwater runoff as feasible up to the Design Capture Volume, and
 - Recover (i.e., draw down) the storage volume as soon as possible after a storm event (see criteria for maximizing drawdown rate in the TGD Appendix XI), and, if necessary
 - Biotreat, on-site, additional runoff, as feasible, up to 80 percent average annual capture efficiency (cumulative, retention plus biotreatment), and, if necessary
 - NOC Permit Area only - retain or biotreat, in a regional facility, the remaining runoff up to 80 percent average annual capture efficiency (cumulative, retention plus biotreatment, on-site plus off-site), and, if necessary
 - Fulfill alternative compliance obligations for runoff volume not retained or biotreated up to 80 percent average annual capture efficiency using treatment controls or other alternative approaches as described in Section 7.II-3.

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Within the South County Permit area, the volume provided in the pre-filter detention volume (surface storage) and pores of biotreatment BMPs may not be less than 75 percent of the design capture volume, regardless of the average annual capture efficiency achieved. Further discussion on determining the pre-filter detention volume is provided in the **TGD Appendix II**.

Instructions for calculating BMP sizing to meet these criteria are provided in the TGD and the **TGD Appendices**.

7.II-2.4.3.1 Selecting LID BMPs

The North and South County Permit Area Permits both stress the importance of project planning and design utilizing the principles of LID. The use of LID BMPs is intended to reduce the discharge of pollutants and the effects of changes to runoff patterns caused by land use modifications. Permit requirements for Priority Projects must be met through the use of structural and non-structural BMPs, with foremost consideration given to LID BMPs.

The primary goal of using LID BMPs is to preserve a site's predevelopment hydrology in order to preserve the integrity of receiving water bodies. The adverse effects of changes to runoff patterns and pollutant loading on receiving water bodies caused by land use modifications can be reduced through the use of structural and non-structural techniques that store, infiltrate, evaporate, and detain runoff.

Pre-development conditions in the NOC Permit Area are defined as the conditions of the project immediately prior to project submittal (i.e., the existing conditions). In the SOC Permit Area, pre-development is defined as the naturally occurring (pre-human disturbance) conditions.

Both the North and South County Permits contain requirements to implement LID practices in order to address the impacts of hydromodification and pollution of stormwater runoff from a Priority Project on the physical, chemical, and biological integrity of receiving waters.

A list of LID BMPs is shown in **Table 7.II-4**. Specific details and fact sheets for each BMP are provided in **TGD Sections 3-6**.

Table 7.II-4: LID BMPS by Category

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Infiltration	Evapo-transpiration and Evaporation	Harvest and Use	Biotreatment
<ul style="list-style-type: none"> ➤ Infiltration Trenches ➤ Infiltration Basins ➤ Bioretention Without Underdrains ➤ Drywells ➤ Permeable Pavement ➤ Proprietary Infiltration 	<ul style="list-style-type: none"> ➤ Green Roofs ➤ Brown Roofs ➤ Blue Roofs 	<ul style="list-style-type: none"> ➤ Cisterns ➤ Underground Detention ➤ Irrigation Use ➤ Domestic Use 	<ul style="list-style-type: none"> ➤ Bioretention With Underdrains ➤ Stormwater Planter Boxes With Underdrains ➤ Constructed Wetlands ➤ Vegetated Swales ➤ Vegetated Filter Strips ➤ Dry Extended Detention Basins ➤ Wet Extended Detention Basins ➤ Proprietary Detention

While requirements for LID BMPs, treatment control BMPs, and hydromodification control are stated independently in the North and South Orange County Permits, and Priority Projects must demonstrate compliance with each requirement individually, the requirements overlap significantly and some management practices may fulfill or partially fulfill one or more requirements. The LID and treatment control requirements are especially interrelated because full compliance with LID requirements onsite inherently results in compliance with treatment control requirements. LID and hydromodification control requirements are also interrelated as both are based on reduction of runoff volume as their first priority. However, meeting the performance criteria for either LID BMPs or hydromodification control BMPs does not imply that the performance criteria for the other has category been met. As a result, a project that has HCOCs will need to document that it has met the performance criteria for both categories of BMPs.

The steps involved in selecting LID practices are described in more detail in the following subsections. A flow chart of the key steps and decisions required for selecting LID BMPs is shown in Figure 7.II-7 for projects where there is no potential for HCOCs and Figure 7.II-8 for Projects which must consider HCOCs. The TGD expands on these steps and provides specific instructions for selecting, designing, and documenting the use of LID practices. Where BMP fact sheets in the TGD specify selection and/or design criteria, the applicable selection and/or design criteria must be used.

The TGD Section 2.4.2 discusses and the process of selecting, locating, and sizing LID BMPs also provides specific LID design criteria and a process that must be followed to determine if it is feasible to incorporate LID BMPs. The feasibility analysis will provide the basis for documenting project and site conditions under which it is not feasible to fully meet the LID

BMP performance criteria leading to use of an alternative strategy as discussed further in Section 7.II-3.0.

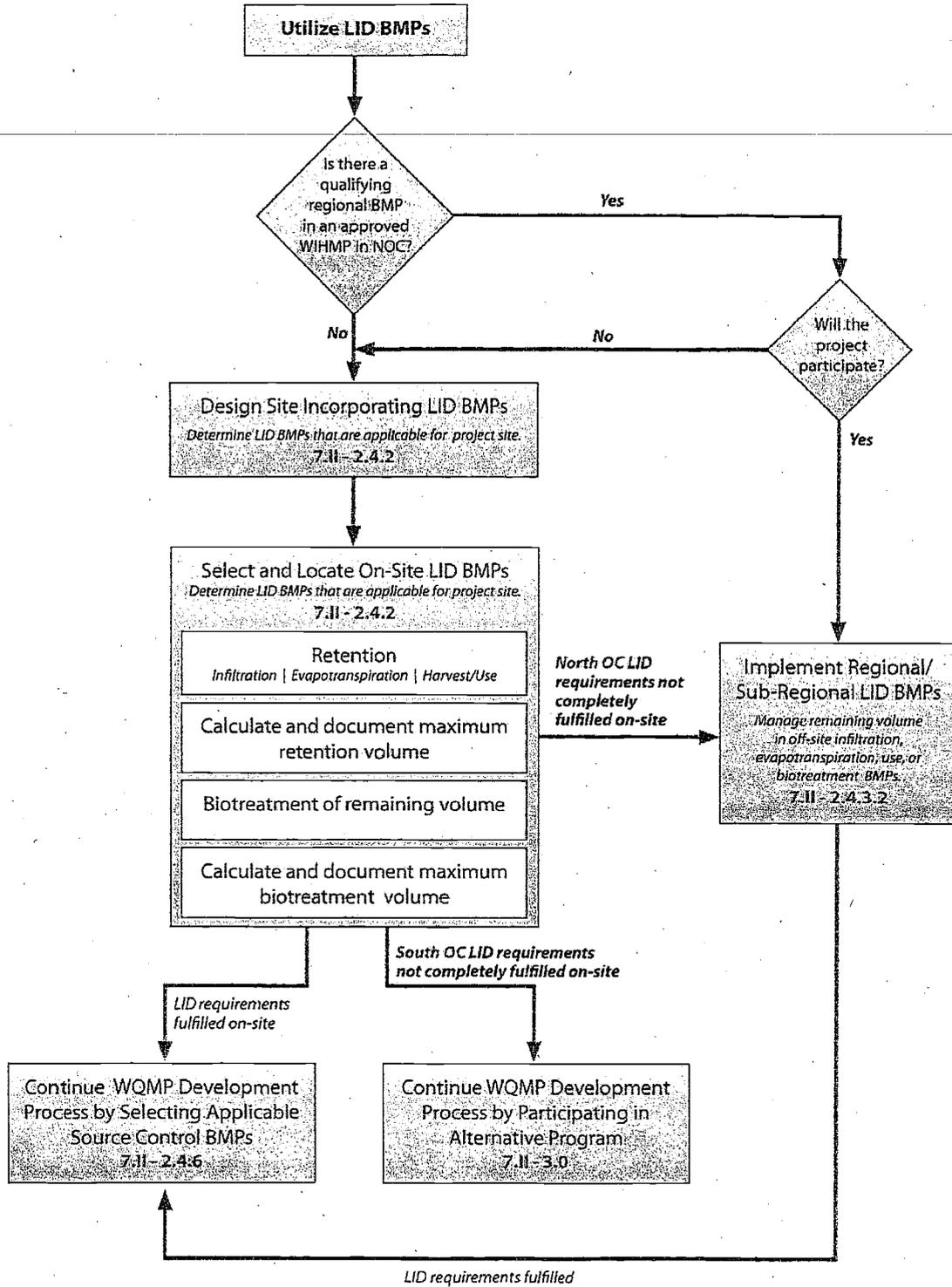
South County Condition for Specific Projects

In the SOC Permit Area, development projects greater than 100 acres in total project size, or smaller than 100 acres in size yet part of a larger common plan of development that is over 100 acres, that have been prepared using watershed and/or sub-watershed-based water quality, hydrologic, and fluvial geomorphologic planning principles that implement regional LID BMPs in accordance with the sizing and location criteria of the South Orange County Permit and acceptable to the Regional Board, such standards shall govern review of projects and shall be deemed to satisfy the Permit's requirements for LID site design, buffer zone, infiltration and groundwater protection standards, source control, treatment control, and hydromodification control standards. These projects may implement regional LID BMPs in accordance with the sizing and location criteria of the South Orange County Permit without first conducting an on-site LID feasibility analysis.

7.II-2.4.3.2 LID Practices Implemented on a Regional or Sub-Regional Basis

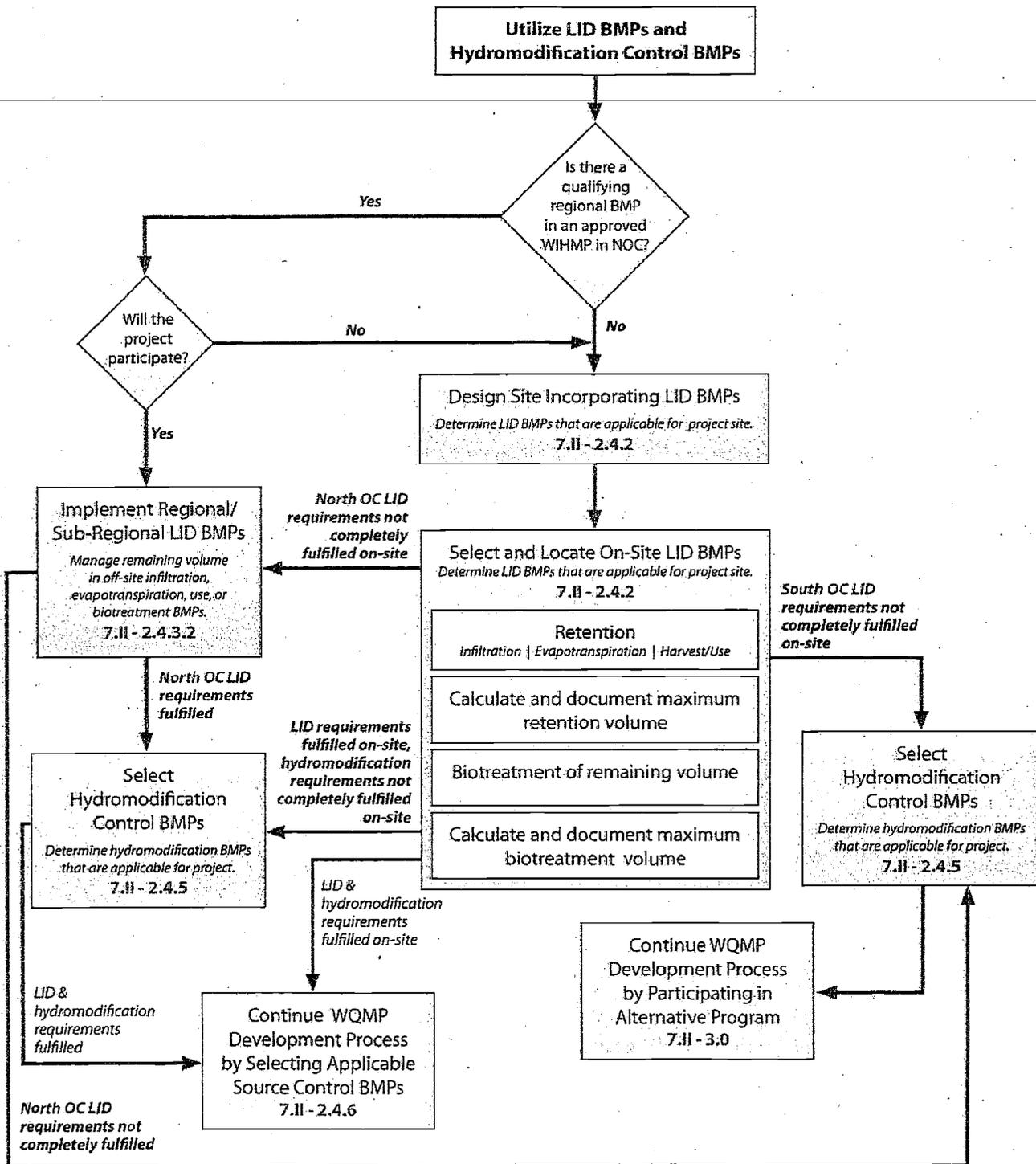
While most of the LID practices and LID BMPs described in this Model WQMP are focused at an individual project level, it may be most appropriate to implement LID BMPs beyond the boundaries of the specific development being proposed on a broader scale: (1) regional (several developments within the same watershed); or (2) sub-regional (multiple adjacent developments within the same watershed) for certain development conditions. There could be multiple benefits and/or constraining factors, including, but not limited to smart growth goals, water conservation and groundwater recharge benefits soil conditions, groundwater levels, soil and/or groundwater contaminants, space restrictions or redevelopment opportunities and economic considerations. Such conditions could result in circumstances under which it would be consistent with the MEP standard to integrate LID principles into regional or sub-regional plans without requiring upstream projects to first maximize the use of on-site LID BMPs through a project-specific infeasibility analysis. For this approach to be considered, an approved WIHMP Plan or Master Plan must include a watershed-wide feasibility analysis, based on permit requirements, that demonstrates that the use of regional BMPs is preferred and consistent with the MEP standard as further described below. The potential availability of regional or sub-regional BMP opportunities could be identified as part of

Figure 7.II-7: Design the Site Incorporating LID BMPs - Without HCOCs



Note: Model WQMP sections shown in red

Figure 7.II-8: Design the Site Incorporating LID BMPs - With Potential HCOCs



Note: Model WQMP sections shown in red

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a planning process undertaken by the appropriate jurisdictions and project proponents. For this approach to be considered, a plan would have to be submitted to the Executive Officer for approval that must include a subwatershed- or watershed-wide feasibility analysis, based on permit requirements, that demonstrates that the use of regional BMPs is preferred and consistent with the MEP standard and that meets the following criteria:

- The sub-regional/regional BMP is located such that runoff from the project would be conveyed to the BMP prior to discharge to receiving water. However, stormwater runoff from an individual project may be conveyed to a regional treatment system via a receiving water if the pollutants in the runoff have been controlled on-site using LID techniques to the MEP and beneficial uses of the receiving water have not been impacted, and
- The sub-regional/regional BMP is sufficiently sized to receive runoff from the project, and
- The sub-regional/regional BMP is sited and designed such that it will provide greater overall benefit than would be achieved by biotreatment BMPs on-site, including combined considerations of pollutant loading, hydrologic loading, groundwater recharge, potable water demand, and Smart Growth goals.

Also, if there is a WIHMP that has been approved by the Executive Officer that identifies opportunities that would provide equal or greater overall water quality benefits, discharge to Waters of the US from a new development without on-site LID or treatment control BMPs could be allowed if it is in accordance with the approved plan. For this approach to be considered, the approved Master Plan must include a watershed-wide feasibility analysis, based on permit requirements, that demonstrates that the use of regional BMPs is preferred and consistent with the MEP standard.

In the NOC Permit Area, LID BMPs are not required to be considered on-site if a watershed-based plan (WIHMP), approved by the RWQCB Executive Officer, has identified a sub-regional or regional BMP opportunity that will serve the project and demonstrates that this opportunity meets the following criteria:

- The sub-regional/regional BMP is located such that the project would drain to the BMP prior to discharge to a Waters of the US, the net pollutant removal load within the watershed is equivalent to what would be accomplished on-site, or would not impair the beneficial uses of Waters of the US.
- The sub-regional/regional BMP is sufficiently sized to treat stormwater runoff from its tributary area.
- The sub-regional/regional BMP is sited and designed such that it will provide equal or greater overall benefit than would be achieved by LID BMPs on-site as described in TGD Section 2.4.3, including combined considerations of pollutant loading, hydrologic loading, groundwater recharge, potable water demand, and Smart Growth goals.
- The sub-regional/regional BMP will be adequately maintained for the life of the project and the sub-regional/regional BMP will be constructed and operational to serve the project once the project is complete.

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- The sub-regional or regional facility is constructed to remove pollutants from those new development projects within the watershed in a timely manner.

A sub-regional or regional BMP opportunity that meets all of the above criteria but that is not part of an approved watershed-based plan may also be considered.

The use of regional or sub-regional BMPs could require multiple jurisdictions and project proponents within a watershed to develop a watershed-based management strategy to be implemented on a jurisdictional basis. The WIHMPs that will be prepared for the watersheds in the NOC Permit Area will identify regional opportunities and a framework for implementation. There may be multiple implementation scenarios among various jurisdictions that will need to be worked out on a case by case basis. As an example of implementing LID on a regional basis, several individual developments potentially in conjunction with other agencies could propose a project that incorporates LID BMPs to address stormwater runoff from all the developments collectively. Examples of a regional BMP would be the use of a regional infiltration basin, regional wetland, or groundwater injection and/or recharge facility as a total project or in conjunction with distributed swales and bioretention areas within the developments or at the regional site. The LID BMPs selected and designed in a regional LID approach must have the capacity to infiltrate, harvest and use, evapotranspire and/or biotreat at least the design capture volume (see TGD Section 2.4.3) from the entire tributary area. To the extent that the regional facility provides for additional treatment of runoff from existing developed areas, this could be considered for use as a mitigation project for other areas.

On a sub-regional basis, common areas could be used to locate LID BMPs to treat stormwater from for several projects that have conditions which make on-site implementation impractical. For example, these projects could use a neighborhood wet pond BMP for harvest and use, along to achieve LID requirements. A high density housing unit development with a small strip mall and a school could connect all roof drains to vegetated areas, and construct a stormwater infiltration gallery below the school playground as another example of sub-regional implementation.

Specific North and South County Requirements for LID BMPs are summarized below:

North County

In the North County permit area, Priority Projects shall prioritize LID practices in the following manner:

- LID practices shall be implemented on-site, which is the preferred approach.
- LID practices shall be implemented on a sub-regional basis.
- LID practices shall be implemented on a regional basis.

South County

In the South County permit area, where a development project greater than 100 acres in total project size, or smaller than 100 acres in size yet part of a larger common plan of development that is over 100 acres, has been prepared using watershed and/or sub-watershed based water quality, hydrologic, and fluvial geomorphologic planning principles that implement regional

LID BMPs in accordance with the sizing and location criteria of the South County Permit and acceptable to the Regional Board, such standards shall govern review of projects and shall be deemed to satisfy the South County Permit's requirements for LID site design, buffer zone, infiltration and groundwater protection standards, source control, treatment control, and hydromodification control standards. Regional BMPs must clearly exhibit that they will not result in a net impact from pollutant loadings over and above the impact caused by capture and retention of the design storm with on-site LID BMPs.

For the SOC Permit Area, Priority Projects that do not meet the above criteria, participation in a regional program is considered Alternative Compliance and requires that an on-site LID BMP waiver request first be prepared before participating in a sub-regional/regional LID solution. Additional Alternative Compliance information can be found in Section 7.II-3.0, and details concerning on-site LID BMP waivers can be found in Section 7.II-3.3.

7.II-2.4.4 Site Design BMPs

LID site design practices include a wide range of potential practices that can be implemented to reduce the volume of stormwater runoff generated on a project site as well as improve the quality of runoff that leaves the site. LID site design is predominantly "preventative" in nature as it consists of practices that reduce the amount of runoff and other impacts before, or immediately after, they occur. Examples of "preventative" aspects of LID site design include reduction of impervious area, preservation of drainage courses, and restoration of impacted soils. Descriptions of the most common site design practices are provided in TGD Section 2.4.2.

There are no numeric performance criteria for site design practices, however, LID site design should be considered as the first priority in the hierarchy of LID implementation, beginning with the earliest phases of a project. The use of effective site design practices can result in a reduction in the volume of stormwater runoff that must be retained, a reduction of the design capture volume, and the related reduction in the size of structural treatment BMPs than if site design practices are not used. Including space for BMPs in the site design at the earliest phases of the project planning process can allow projects to more easily satisfy numeric performance criteria.

On-site LID practices that should be considered include, but are not limited to, the following:

- Maximize Natural Infiltration Capacity and Groundwater Recharge (where appropriate)
- Preserve Existing Drainage Patterns and Time of Concentration
- Protect Existing Vegetation and Sensitive Areas
- Minimize Impervious Area
- Disconnect Impervious Areas
- Minimize Construction Footprint
- Re-vegetate Disturbed Areas

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Each of these techniques is described further in the TGD Section 3. Where BMP fact sheets in the TGD specify selection and/or design criteria, the applicable selection and/or design criteria must be used.

7.II-2.4.5 Hydromodification Control BMPs

Within the NOC Permit Area, Priority Projects must employ BMPs that address hydromodification only if there is a HCOC in any downstream receiving waters (see Section 7.II-2.3.3). Within the SOC Permit Area, all projects must address hydromodification unless they discharge to channels which are concrete lined all the way to the ocean, or discharge directly to the ocean through concrete pipes. Projects must meet the performance criteria described in TGD Section 2.4.2 using hydromodification control BMPs. LID BMPs may satisfy the requirements to capture the design capture volume and to address hydromodification, as described in Section 7.II-2.4.2. Hydromodification controls may also be regional or in-stream, although on-site hydromodification control BMPs are the first priority. Potential hydromodification control BMPs include non-structural and structural control measures that are described in the following sections.

In the NOC Permit Area, the Permit allows for Water Quality Credits to be utilized in certain cases to reduce volume of runoff from a project in order to meet hydromodification performance criteria. A Water Quality Credit is a volume of stormwater runoff that may be subtracted from the design capture volume. A detailed explanation about Water Quality Credits can be found in Section 7.II-3.1. Although the water quality credit program is considered part of the alternative compliance program with respect to meeting water quality obligations, in the NOC Permit Area, credits can also be applied to reduce the volume of runoff that must be retained on a project site in order to meet hydromodification as part of the LID compliance evaluation.

See TGD Section 6 for information regarding non-structural hydromodification source control BMPs including minimization of impervious areas and preservation of open spaces, prioritizing soils for development and infiltration, riparian buffer zones, pass through sediments from open spaces. TGD Section 5 discusses volume and flow management structural BMPs including detention and retention basins, options for in-stream controls, drop structures, grade control structures, and bed and bank reinforcement. Where design guidance in the TGD specify selection and/or design criteria, the applicable selection and/or design criteria must be used.

7.II-2.4.6 Source Control BMPs

Source Control BMPs reduce the potential for stormwater runoff and pollutants from coming into contact with one another. Source Control BMPs are defined as any administrative action, design of a structural facility, usage of alternative materials, and operation, maintenance, inspection, and compliance of an area that aims to eliminate or reduce stormwater pollution. Each new development and significant redevelopment project is required to implement appropriate Source Control BMP(s). This Model WQMP categorizes Source Control BMPs as either Structural or Non-Structural Source Control BMPs.

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Source Control BMPs are required within all new development and significant redevelopment projects regardless of whether the project is a Priority Project or a Non-Priority Project, including those identified in an applicable regional or watershed program, unless they do not apply due to the project characteristics.

The following list of Structural and Non-Structural Source Control BMPs are numbered for purposes of the Orange County Stormwater Program and Model WQMP, followed by a cross-reference for the CASQA BMP Handbook reference number in parenthesis, where applicable, for general guidance for implementing the BMPs that apply to the project as identified above. Additional information for each BMP is contained within the TGD Section 6. Where BMP fact sheets in the TGD specify selection and/or design criteria, the applicable selection and/or design criteria must be used.

7.II-2.4.6.1 Structural Source Control BMPs

- S1 Provide Storm Drain System Stenciling and Signage (CASQA BMP Handbook SD-13)
- S2 Design Outdoor Hazardous Material Storage Areas to Reduce Pollutant Introduction (CASQA BMP Handbook SD-34)
- S3 Design Trash Enclosures to Reduce Pollutant Introduction (CASQA BMP Handbook SD-32)
- S4 Use Efficient Irrigation Systems and Landscape Design (CASQA BMP Handbook SD-12)
- S5 Protect Slopes and Channels
- S6 Loading Dock Areas (CASQA BMP Handbook SD-31)
- S7 Maintenance Bays and Docks (CASQA BMP Handbook SD-31)
- S8 Vehicle Wash Areas (CASQA BMP Handbook SD-33)
- S9 Outdoor Processing Areas (CASQA BMP Handbook SD-36)
- S10 Equipment Wash Areas
- S11 Fueling Areas (CASQA BMP Handbook SD-30)
- S12 Site Design and Landscape Planning (Hillside Landscaping) (CASQA BMP Handbook SD-10)
- S13 Wash Water Controls for Food Preparation Areas
- S14 Community Car Wash Racks

7.II-2.4.6.2 Non-Structural Source Control BMPs

- N1 Education for Property Owners, Tenants and Occupants
- N2 Activity Restrictions

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- N3 Common Area Landscape Management (CASQA BMP Handbook SC-73)
- N4 BMP Maintenance
- N5 Title 22 CCR Compliance
- N6 Local Water Quality Permit Compliance
- N7 Spill Contingency Plan (CASQA BMP Handbook SC-11)
- N8 Underground Storage Tank Compliance
- N9 Hazardous Materials Disclosure Compliance
- N10 Uniform Fire Code Implementation
- N11 Common Area Litter Control (CASQA BMP Handbook SC-60)
- N12 Employee Training
- N13 Housekeeping of Loading Docks (CASQA BMP Handbook SD-31)
- N14 Common Area Catch Basin Inspection (CASQA BMP Handbook SC-74)
- N15 Street Sweeping Private Streets and Parking Lots (CASQA BMP Handbook SC-43, SC-70)

7.II-2.4.6.3 Non-Structural Source Control Measures for Public Agency Projects

In addition to the above list of non-structural source control measures that apply to all projects, when New Development or Significant Redevelopment Public Agency Projects are completed, the source control measures and maintenance measures described in **DAMP Section 5, Municipal Activities**, will be implemented to maintain the projects.

7.II-3.0 ALTERNATIVE COMPLIANCE APPROACHES

This section describes alternative compliance approaches for proposed projects that are not able to fully capture and infiltrate, harvest and use, or biotreat the design capture volume in one of the following ways:

- Using a combination of site design and on-site LID BMPs.
- Using approved regional or sub-regional LID projects in the NOC Permit Area as defined in Section 7.II-2.4.3.2.
- Development projects in the SOC Permit Area greater than 100 acres in total project size or smaller than 100 acres in size yet part of a larger common plan of development that is over 100 acres, that have been prepared using watershed and/or sub-watershed based water quality, hydrologic, and fluvial geomorphologic planning principles that implement regional LID BMPs as described in Section 7.II-2.4 of the Model WQMP.

If a project is unable to fully meet the LID requirements summarized above, a project proponent must develop and implement an alternative compliance plan to address the remainder of the design capture volume that is not treated using LID BMPs either on or off site. Some projects may qualify for Water Quality Credits that can be applied to reduce or fully satisfy the remaining design capture volume that must be treated before evaluating alternative approaches. Water Quality Credits are discussed in Section 7.II-3.1.

Alternative compliance plans may include one or more of the following elements:

NOC Permit Area project proponents must:

- Implement on-site structural treatment control BMPs (see Section 7.II -2.4.6.1)
- Implement watershed-based structural treatment control BMPs
- Contribute to an urban runoff fund
- A combination of the above that addresses the remaining Design Storm Capture Volume.

SOC Permit Area project proponents must:

- Implement regional/sub-regional LID solutions if feasible
- Implement on-site structural treatment controls (treatment control BMPs)
 - Implement an off-site mitigation project
 - Contribute to a stormwater mitigation fund
 - A combination of these to address all remaining performance criteria

If treatment control BMPs are used as a complete alternative compliance option, the performance of these BMPs must be compared to LID Design Storm Capture Volume. The performance assessment must demonstrate that the volume treated by treatment control BMPs must be equal to the LID Design Storm Capture Volume for the project, minus any volume

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captured or treated by LID BMPs incorporated in the project and that the treatment control BMP is effective or highly effective at removing the POCs for the downstream water body. For Projects in the NOC Permit Area, if a treatment control BMP or combination of BMPs can achieve this objective, the project is considered to meet the permit requirements and the Project WQMP can be completed which must include the documented feasibility analysis that demonstrates why the Design Storm Capture Volume could not be fully met with LID BMPs. However, if the cost of BMP implementation greatly outweighs the pollution control benefits, a waiver of BMPs may be granted as described under Section 7.II-3.3 and other alternative approaches taken as described under Section 7.II-3.4.

Also in the NOC Permit Area, the use of structural treatment control BMPs are required before discharge to waters of the US unless there is a WIHMP which has been submitted to and approved by the Executive Officer that identifies alternative compliance approaches that achieve equivalent or better water quality benefits, and beneficial uses of receiving waters are not impaired. In the NOC Permit Area, the use of structural treatment control BMPs are required before discharge to waters of the US unless there is a WIHMP which has been submitted to and approved by the Executive Officer that identifies alternative compliance approaches that achieve equivalent or better water quality benefits, and beneficial uses of receiving waters are not impaired.

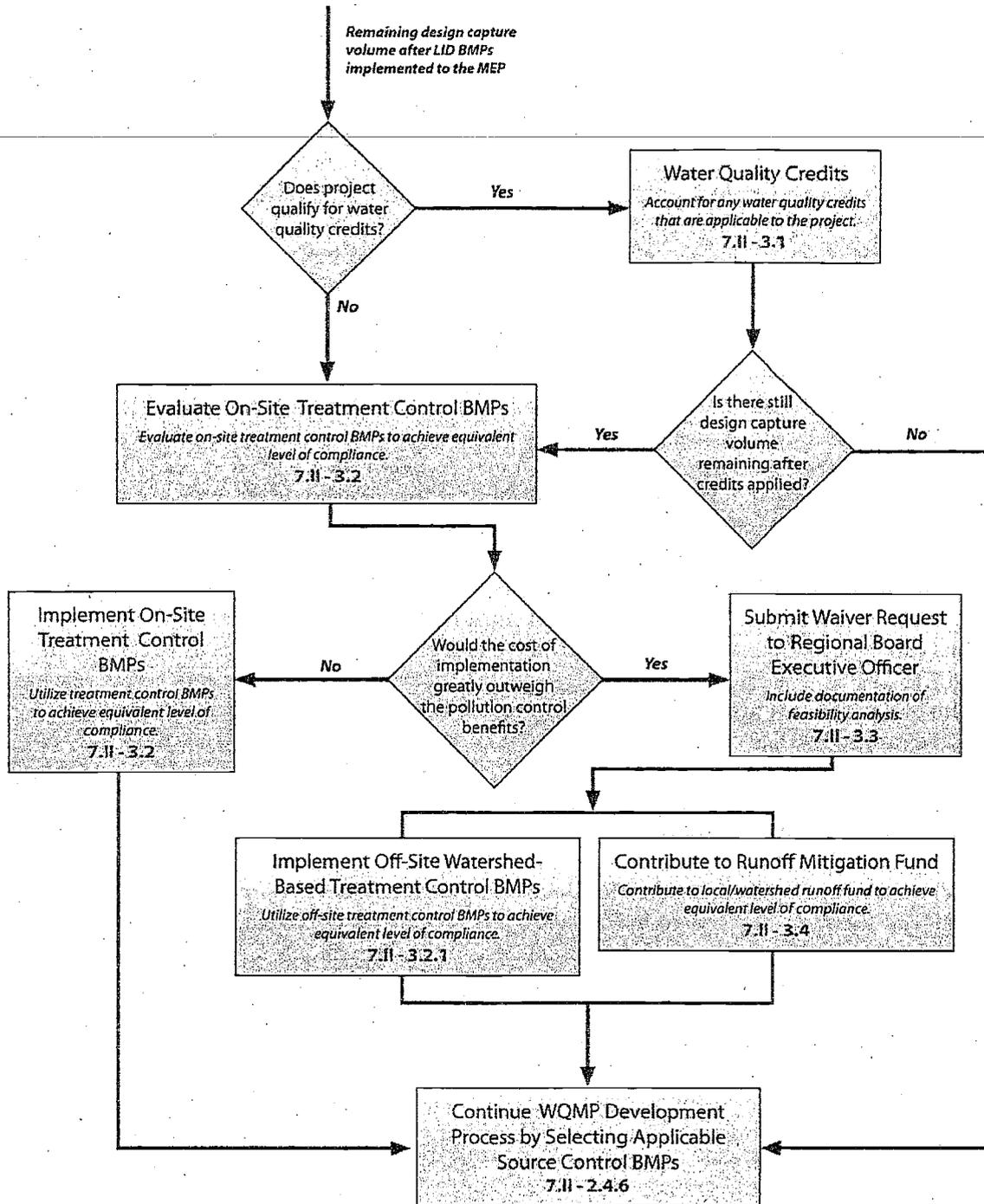
In the SOC Permit Area, if it is demonstrated to be technically infeasible to implement LID BMPs on-site to meet the full WQDV, a waiver must be submitted. Regional/sub-regional LID solutions can be implemented to fulfill alternative compliance requirements as described in Section 7.II-2.4.3.2. Treatment control BMPs must be incorporated into projects before discharge to waters of the US, and the project must meet remaining LID obligations through another alternative program. The performance of treatment control BMPs could be compared to the performance that would be achieved by on-site LID to determine the amount of obligations met. The performance provided by treatment control BMPs may be demonstrated to fully or partially meet the remaining obligations.

A flow chart illustrating the key steps for developing an alternative compliance plan approach for the NOC Permit Area is shown in Figure 7.II-9 and for the SOC Permit Area in Figure 7.II-10. The following sections describe Water Quality Credits, Treatment Control BMPs, Waivers, Urban Runoff Funds / Mitigation Programs, and Off-Site Mitigation.

7.II-3.1 Water Quality Credits

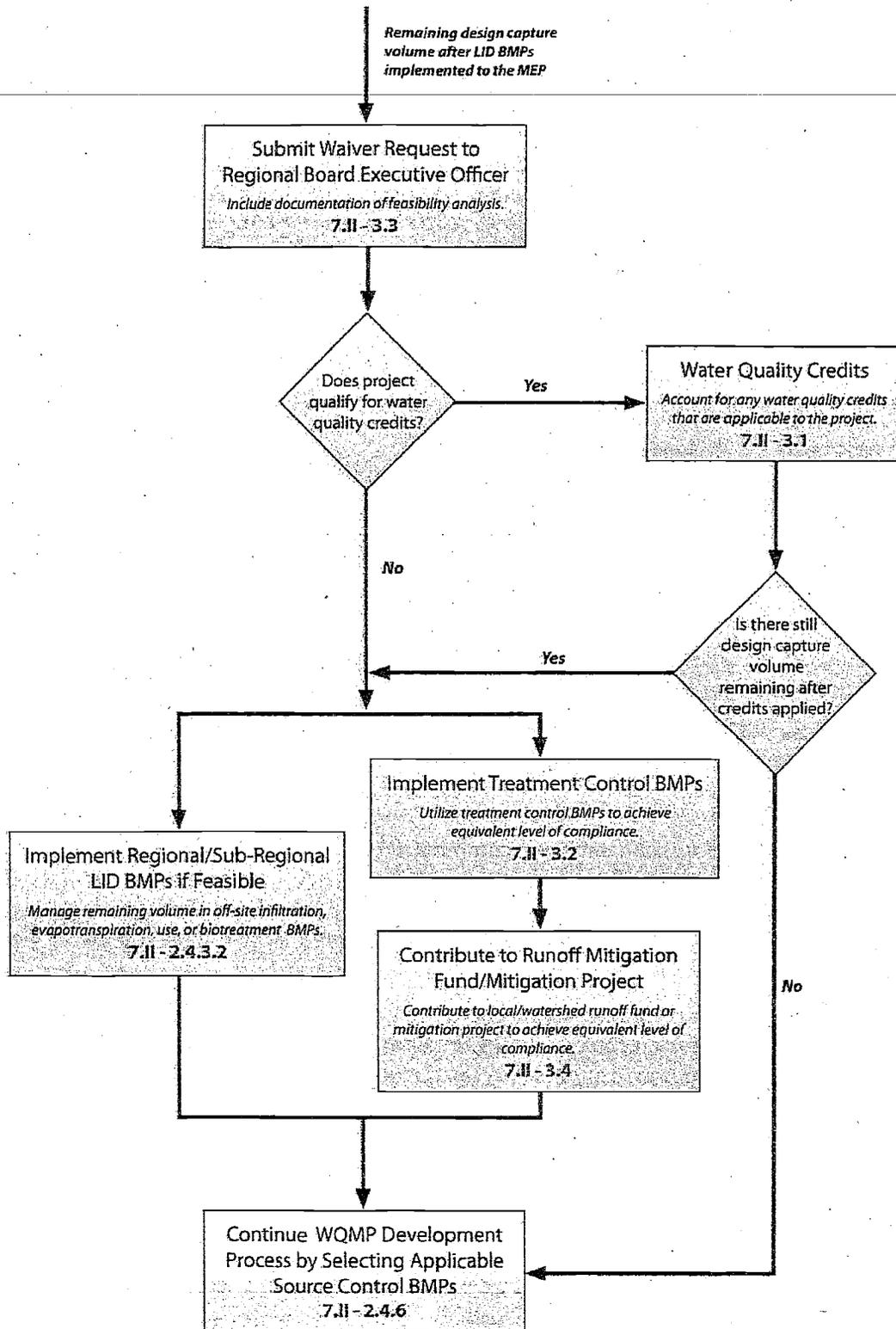
For certain types of development projects, LID BMPs may be more difficult to incorporate due to the nature of the development, but the development practices may provide other environmental benefits to communities. For example, infiltration BMPs may not be desirable for a Brownfield redevelopment site where infiltrated stormwater could cause an adverse impact to groundwater supply, but redevelopment of the site

Figure 7.II-9: Alternative Program Flow Chart for North Orange County



Note: Model WQMP sections shown in red

Figure 7.II-10: Alternative Program Flow Chart for South Orange County



Note: Model WQMP sections shown in red

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would be expected to have other environmental benefits such as accelerated site clean-up. Alternatively, a redevelopment project could be implemented in a way that reduces the overall impervious footprint of the project site rather than increasing it.

Local jurisdictions may develop a water quality credit program that applies to certain types of development projects after they first evaluate the feasibility of meeting LID requirements on-site. If it is not feasible to meet the requirements for on-site LID, project proponents for specific project types can apply credits that would reduce project obligations for selecting and sizing other treatment BMPs or participating in other alternative programs. For Projects in the NOC Permit Area, credits can be applied before other alternative programs are evaluated and/or a Waiver request submitted. Also in the NOC Permit Area, the Permit allows for credits to be applied for hydromodification requirements. Permittee may develop a credit system for hydromodification at a future date and submit this to the Executive Officer for approval. For projects in the SOC Permit Area, credits can be applied as part of the LID Waiver Program.

Projects potentially eligible for consideration for credits include:

- Redevelopment projects that reduce the overall impervious footprint of the project site;
- Brownfield redevelopment, meaning redevelopment, expansion, or reuse of real property which may be complicated by the presence or potential presence of hazardous substances, pollutants or contaminants, and which have the potential to contribute to adverse ground or surface water quality if not redeveloped;
- Higher density development projects which include two distinct categories (credits can only be taken for one category):
 - Those with more than seven units per acre of development (lower credit allowance);
 - Vertical density developments, for example, those with a Floor to Area Ratio (FAR) of 2, or those having more than 18 units per acre (greater credit allowance);
- Mixed use development, such as a combination of residential, commercial, industrial, office, institutional, or other land uses which incorporate design principles that can demonstrate environmental benefits that would not be realized through single use projects (e.g. reduced vehicle trip traffic with the potential to reduce sources of water or air pollution);
- Transit-oriented developments, such as a mixed use residential or commercial area designed to maximize access to public transportation; similar to above criterion, but where the development center is within one half mile of a mass transit center. Such projects would not be able to take credit for both categories, but may have greater credit assigned;
- Redevelopment projects in an established historic district, historic preservation area, or similar significant city area including core City Center areas (to be defined through mapping);
- Developments with dedication of undeveloped portions to parks, preservation areas and other pervious uses;

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- Developments in a city center area;
- Developments in historic districts or historic preservation areas;
- Live-work developments, a variety of developments designed to support residential and vocational needs together – similar to criteria to mixed use development; would not be able to take credit for both categories; and
- In-fill projects, the conversion of empty lots and other underused spaces into more beneficially used spaces, such as residential or commercial areas.

Other categories of projects listed in the Santa Ana Permit include:

- Developments where a regional treatment system has a capacity to treat flows
- Developments that contribute to an urban runoff fund
- Developments with offsite mitigation or dedications within the same watershed are accounted for under other provisions of this Model WQMP.

These categories address other types of alternative opportunities or compliance approaches that are described in other sections of this MWQMP. This provision does not exempt the project proponent from first conducting the investigations to determine if is feasible to fulfill the full LID, treatment control, and hydromodification requirements through a combination of site design practices and LID BMPs consistent with the permit hierarchy.

7.II-3.1.1 Applying Water Quality Credits to LID and Treatment Control Performance Criteria

To determine the amount of credit a project would qualify for, the first step is to calculate the volume that would need to be satisfied in the absence of any credits as described in **Section 7.II-3.1**. Any credits would then be taken as a reduction to this remaining volume. The credits would be calculated in one of two ways:

- For redevelopment projects that reduce the overall impervious footprint of the project site compared to current use, the credits would be calculated as follows:
 - Calculate an equivalent "existing" Design Capture Volume for the site (DCV_E) using the LID BMP Performance Criteria defined in **Section 7.II-2.4.3** and current site conditions
 - Calculate the full Design Capture Volume for the site under the proposed development plan (DCV_p)
 - Subtract to obtain a "credit" volume: $(DCV_E) - (DCV_p) = \text{Credit Volume}$
- For all other categories of projects noted above, the remaining volume to be treated or mitigated would be reduced in accordance with the following portions of the design capture volume :
 - Historic district, historic preservation area, or similar areas - 10 percent
 - Brownfield redevelopment - 25 percent
 - Higher density development

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- 7 units/acre – 5 percent
- Vertical density as defined – 20 percent
- Mixed use development, transit oriented development or live-work development – 20 percent
- In-fill development – 10 percent

If more than one category applies to a particular project, the credit percentages would be additive. Applicable performance criteria depend on the number of LID water quality credits claimed by the proposed project. Water quality credits can be additive up to a 50 percent reduction (50 percent reduction maximum) from a proposed project's obligation for sizing Treatment Control BMPs, contributing to an urban runoff / mitigation fund, or off-site mitigation projects. The volume credit would be calculated as the design capture volume of the proposed condition multiplied by the sum of the percentages claimed above.

7.II-3.1.2 Applying Water Quality Credits to Hydromodification Performance Criteria in North Orange County

To calculate the credit to be applied to the hydromodification control performance criteria in the NOC Permit Area, the sum of percentages determined above would be applied as a reduction to the 2-year, 24-hour storm depth which is used to calculate performance criteria. Water Quality Credits are not available for hydromodification control performance criteria in the SOC Permit Area.

7.II-3.2 Treatment Control BMPs

This section contains performance criteria for treatment control BMPs. Note that satisfaction of LID performance criteria also fully satisfies treatment control performance criteria.

7.II-3.2.1 Watershed-based Structural Treatment Control BMPs

In the NOC Permit Area, watershed-based Treatment Control BMPs may be implemented off-site. These should be implemented in combination with site-specific BMPs, should be located as close as possible to the project site and pollutant sources, and cannot be located within waters of the US. Pollutant removal should be accomplished prior to discharge to waters of the US.

7.II-3.3.2 Determine Treatment Control BMP Water Quality Performance Criteria

This section contains performance criteria for treatment control BMPs. Note that satisfaction of LID performance criteria also fully satisfies treatment control performance criteria.

North County Requirements

If it is not feasible to meet LID performance criteria through retention and/or biotreatment provided on-site or at a sub-regional/regional scale, then treatment control BMPs shall be provided on-site or offsite prior to discharge to waters of the US. Sizing of treatment control BMP(s) shall be based on either the unmet volume after claiming applicable water quality

credits, if appropriate (See Section 7.II-3.1 Water Quality Credits) and as calculated in TGD Appendix VI. If treatment control BMPs can treat all of the remaining unmet volume and have a medium to high effectiveness for reducing the primary POCs, the project is considered to be in compliance; a waiver application and participation in an alternative program is not required.

If the cost of providing treatment control BMPs greatly outweighs the pollution control benefits they would provide, a waiver of treatment control and LID requirements can be requested and alternative compliance approaches must be used to fulfill the remaining unmet volume (See Section 7.II-3.4).

South County Requirements

If LID performance criteria have not been met through retention and biotreatment, the Project shall participate in the LID Waiver Program (see Section 7.II- 3.3) and treatment control BMPs shall be provided prior to discharge to Waters of the US. Sizing of treatment control BMP(s) shall be based on either:

- The unmet volume as calculated in TGD Appendix VI . Treatment control sizing, or
- If no controls have been provided upstream of treatment control BMPs, permit-based sizing criteria may be used:
 - Capture and infiltrate, filter, or treat 80 percent of average annual runoff volume,
OR
 - Capture and infiltrate, filter, or treat the runoff from the 24-hour, 85th percentile storm event, as determined from the County of Orange's 85th Percentile Precipitation Isopluvial Map and draw down the stored volume in no more than 48 hours following the end of precipitation,
OR
 - Treat the maximum flow rate of runoff produced by the 85th percentile hourly rainfall intensity, as determined from the local historical rainfall record, multiplied by a factor of two,
OR
 - 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.

The alternative compliance obligations that must be provided through the LID Waiver Program (see Section 7.II- 3.3) shall be based on the difference between the pollutant load reduction achieved by the provided LID BMPs compared to the pollutant load reduction that would result from full implementation of LID BMPs. Pollutant load reduction achieved in treatment control BMPs that are provided per the criteria above may constitute all or part of this alternative compliance obligation. Equivalent loading calculations shall be based on the priority pollutant(s) of concern, if present. If no priority POCs exist, equivalent loading calculations shall be based on all POCs and the most stringent POC shall be used.

7.II-3.3 Waivers

Project proponents can apply for a waiver if it is determined to be infeasible to fulfill the LID performance requirements using either on-site LID practices, through regional LID approaches, through on-site treatment control BMPs in the NOC Permit Area, or through watershed approaches contained in an approved watershed management plans. Only those proposed projects that have completed a rigorous feasibility analysis as per the criteria described in TGD Section 2.4.3 shall be considered for a BMP waiver. For projects in the NOC Permit Area, a Waiver Request is required if LID BMPs are infeasible and if the cost of BMP implementation greatly outweighs the pollution control benefits. For the SOC Permit Area, a Waiver Request is required if implementation of LID BMPs is technically infeasible.

Before a Permittee in North Orange County can approve an alternative compliance plan, a waiver request must be submitted to the Permittee for approval and to the Executive Officer of the Regional Water Quality Control Board by in writing 30 days prior to approval by the Permittee. If the Executive Officer of the Regional Water Quality Control Board does not respond to a waiver request within 30 days, the waiver is deemed to be granted.

Permittees in South Orange County must develop, collectively or individually, a LID Waiver Program for incorporation into local SSMPs meeting the requirements of Section d(7) of the permit. A waiver application for an alternative compliance plan in accordance with the adopted program for a Project must be submitted for Permittee approval, which will be reported to the San Diego Regional Water Quality Control Board within the Permittee's annual stormwater program report.

Each local jurisdiction is to use the feasibility criteria described in TGD Section 2.4.2 to evaluate if Waiver Requests have adequately documented infeasibility. Each jurisdiction will identify in its Local Implementation Plan (LIP) or Jurisdictional Urban Runoff Management Plan the individual(s) or position(s) that is (are) authorized to review and approve Waivers.

Project proponents that have been granted a waiver must comply with requirements for the alternative compliance plan proposed by the Project Proponent and approved by the Permittee for the proposed project to mitigate potential negative impacts on the watershed due to the infeasibility of fully implementing LID BMPs.

Criteria for determining if it is technically infeasible to comply with LID BMP criteria through on-site or regional/sub-regional based approaches will need to be developed through a Watershed Plan.

7.II-3.4 Urban Runoff Funds / Mitigation Programs and Off-Site Mitigation Projects

7.II-3.4.1 Urban Runoff Funds / Mitigation Programs

For projects granted a LID BMP Waiver, participation in an urban runoff fund or mitigation program will be required. Payment into an urban runoff fund or mitigation program can be used to address the runoff volume or pollutant load that is not addressed through LID BMPs or

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other alternative compliance options including treatment control BMPs described above. When an approved urban runoff fund or mitigation program is available, participation in the program is allowable as long as the net effectiveness of the alternative program is the same or better than the project LID BMP design capture and/or water quality volume that would be achieved with on-site compliance. The following section describes a general basis and criteria for developing such programs. However, a specific program with established quantitative criteria and cost basis has not been established. It is expected that the Permittees will develop a specific program and submit this to the Executive Officer for future review and approval to allow specific projects to use this approach.

- In the NOC Permit Area, payment into a runoff fund or mitigation program can be an alternative to on-site treatment control if a waiver has been granted, or off-site mitigation.
- In the SOC Permit Area, payment into a runoff fund or mitigation program is an alternative to off-site mitigation, but must include implementing on-site treatment controls.

The amount of the contribution will be based on the unmet difference between the combination of the project LID BMP design capture and/or water quality volume that would be achieved through full compliance with on-site LID BMPs and the actual LID design capture volume that can be achieved through the combination of LID practices and treatment control BMPs that can be incorporated in the project. The basis for determining the "value" of the contribution will be determined by additional or future studies by the Permittees.

Certain types of projects may qualify for water quality credits that reduce the LID Design Storm Capture Volume for the project. The details of the credit program and a description of eligible projects can be found in **Section 7.II-3.1**. Projects proponents should determine if a project qualifies for credits as discussed in **Section 7.II-3.1** and subtract the credited volume from the unmet design capture volume. If the project can meet the reduced target volume through a combination of LID BMPs or Treatment Control BMPs, no contribution to an Urban Runoff Funds / or Mitigation Program is required. If there is still an unmet obligation even after applying credits, then a contribution that needs to be made to an urban runoff fund or mitigation program as described above.

The urban runoff fund or mitigation fund must be expended for water quality improvement or other related projects. Examples of projects eligible for funding through an urban runoff/mitigation fund include, but are not limited to:

- Green street projects
- Projects which retrofit of existing development areas with LID and other BMPs to reduce existing pollutant loads
- Retrofit incentive programs
- Regional BMPs/Sub-Regional BMPs
- Stream restoration

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- Projects which promote groundwater recharge to increase water supplies
- Other mitigation projects proposed by Permittees

7.II-3.4.2 Off-Site Mitigation Projects

For projects granted a LID BMP Waiver, an off-site mitigation project or alternative pollutant-reducing project may be considered when full compliance with LID options are determined infeasible. The project is not required to be upstream from the off-site mitigation, but the off-site mitigation must be implemented within the same hydrologic subarea as the proposed project. Off-site mitigation projects outside of the hydrologic subarea but within the same hydrologic unit may be developed for Permittee approval provided that the project proponent demonstrates that mitigation projects within the same hydrologic subarea are infeasible and that the mitigation project will address similar beneficial use impacts as expected from the proposed project's pollutant load types and amount. Off-site project BMPs should be located as close as possible to the project site and should address a similar mix of land uses to that proposed by the project. The off-site project shall not be located within waters of the US and it shall be demonstrated that equivalent pollutant removal is accomplished prior to discharge to waters of the US. Off-site mitigation projects may include:

- Green streets projects
- Existing development retrofit projects
- Retrofit incentive programs
- Regional BMPs
- Groundwater recharge programs
- Stream restoration

Other off-site mitigation techniques may be proposed to the Permittee for review and approval.

7.II-4.0 BMP MAINTENANCE REQUIREMENTS

A BMP Operation and Maintenance (O&M) Plan must be prepared as part of the Project WQMP (see DAMP Section 7.6.6) and a mechanism must be in place that will ensure ongoing long-term maintenance of all structural BMPs. This mechanism may be provided either through the local jurisdiction under a maintenance agreement or other mechanism, or by the project proponent as further described herein. As part of project review, if a project proponent is required to include interim or permanent structural BMPs in project plans, and if the local jurisdiction does not provide a mechanism for BMP maintenance, the local jurisdiction shall require that the applicant describe an approach to implement and maintain all BMPs included in approved Project WQMP through such means as may be appropriate, at the discretion of the local jurisdiction, including, but not limited to covenants, legal agreements, maintenance agreements, conditional use permits and/or funding arrangements.

7.II-4.1 Maintenance Mechanisms

The following are alternative mechanisms that may be used to provide on-going maintenance for the BMPs included in the approved Project WQMP.

Public entity maintenance: The local jurisdiction with the responsibility for Project WQMP approval may approve a Project WQMP that identifies a public or acceptable quasi-public entity (e.g., the City, the County, or County Flood Control District, an existing assessment district, an existing utility district, or a conservation conservancy) as assuming responsibility for operation, maintenance, repair and replacement of the BMP. Unless otherwise acceptable to individual local agencies, public entity maintenance agreements shall ensure estimated costs are front-funded or reliably guaranteed, (e.g., through a trust fund, assessment district fees, bond, letter of credit or similar means). In addition, the local jurisdictions may seek protection from liability by appropriate releases and indemnities.

- The project proponent must demonstrate that it has proposed transfer of the BMP maintenance to another public entity. The project proponent will negotiate maintenance requirements with the entity that it is proposing to accept maintenance responsibilities within its jurisdiction; and negotiate with the resource agencies responsible for issuing permits for the construction and/or maintenance of the facilities. If necessary, the public entity will also demonstrate through the CEQA review or the public entity's public review process that it can accept the maintenance responsibility. The local jurisdiction must be identified as a third party beneficiary empowered to enforce any such maintenance agreement within their respective jurisdictions.

Project proponent agreement to maintain stormwater BMPs: The local jurisdiction may enter into a contract with the project proponent obliging the project proponent to maintain, repair and replace the stormwater BMP as necessary into perpetuity. Security or a funding mechanism with a "no sunset" clause may be required.

Assessment districts: The local jurisdiction may approve an Assessment District or other funding mechanism created by the project proponent to provide funds for stormwater BMP

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maintenance, repair and replacement on an ongoing basis. Any agreement with such a District shall be subject to the Public Entity Maintenance Provisions above.

Lease provisions: In those cases where the local jurisdiction holds title to the land in question, and the land is being leased to another party for private or public use, the local jurisdiction may assure stormwater BMP maintenance, repair and replacement through conditions in the lease.

Conditional use permits: For discretionary projects only, the local jurisdiction may assure maintenance of stormwater BMPs through the inclusion of maintenance conditions in the conditional use permit. Security may be required. Some jurisdictions include requirements to implement approved Project WQMPs in their municipal code.

Alternative mechanisms: The local jurisdiction may accept alternative maintenance mechanisms if such mechanisms are as protective as those listed above.

7.II-4.2 Maintenance Requirements

7.II-4.2.1 O&M Plan

An O&M Plan for the BMPs will be prepared and included as Section 5 of the final Project WQMP. The local jurisdiction shall ensure that the O&M plan, prepared by the project proponent satisfactory to the agency, is received prior to permit closeout and the issuance of certificates of use and occupancy. The O&M Plan describes the designated responsible party to manage the stormwater BMP(s), employee's training program and duties, operating schedule, maintenance frequency, routine service schedule, specific maintenance activities, copies of resource agency permits, and any other necessary activities.

The final Project WQMP shall require the project proponent or approved maintenance entity to complete and maintain O&M forms to document all maintenance requirements. Parties responsible for the O&M plan shall retain records for at least 5 years. These documents shall be made available to the local jurisdiction for inspection upon request at any time.

7.II-4.2.2 O&M Commitments

At a minimum, the final Project WQMP shall require the inspection and servicing of all structural BMPs on an annual basis.

As part of the maintenance mechanism selected above, the local jurisdiction shall require the inclusion of a copy of an executed access easement within the final Project WQMP that shall be binding on the land throughout the life of the project, until such time that the stormwater BMP requiring access is replaced, satisfactory to the local agency.

7.II-4.3 Permit Closeout Requirements

For discretionary projects, the method approved by local jurisdiction for stormwater BMP maintenance shall be incorporated into the project's permit, and shall be consistent with permits issued by resource agencies, if any. Just as with all other aspects of a project's approved plans

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and designs, the local authority will make a determination that all requirements of the Project WQMP have been satisfactorily completed prior to close-out of permits and issuance of certificates of use and occupancy (see **DAMP Section 7.6.6**).

For projects requiring only ministerial permits, the method approved by local jurisdiction for stormwater BMP maintenance shall be shown on the project plans before the issuance of any ministerial permits. Verification will occur similar to discretionary projects.

In all instances, the project proponent shall provide proof of execution of a method approved by local jurisdiction for maintenance, repair, and replacement (O&M Plan - See **DAMP Section 5.3**) before the issuance of construction approvals, permit closeout and issuance of certificates of use and occupancy. For all properties, the verification mechanism includes the project proponent's signed statement, as part of the Project WQMP, accepting responsibility for all structural BMP maintenance, repair and replacement or agreeing to an alternative mechanism that is approved by the local authority regarding maintenance, repair and replacement of the structural BMP. Local authorities implementing public projects that are not required to obtain permits shall be responsible for ensuring that stormwater BMP maintenance, repair and replacement requirements are identified prior to the completion of construction and incorporated into the agency's Municipal Activities Program under the DAMP.

7.II-5.0 WQMP PREPARATION AND APPROVAL

The preceding sections describe the requirements and process for developing site design, selecting the appropriate LID BMPs or other BMPs, and/or identifying other compliance approaches, and identifying the BMP maintenance requirements for Priority Projects. This section describes the process for documenting this information in a Conceptual or Preliminary WQMP, and/or Project WQMP, and for submitting and obtaining approval for the Project WQMP.

Project proponents are strongly encouraged to incorporate LID and hydromodification control BMPs at the earliest conceptual planning stages of a project for early review, to potentially avoid necessary project changes and delays during the review and approval process. For all projects requiring discretionary or land use entitlement actions, a Conceptual or Preliminary WQMP should be submitted as part of the application for project approval during the environmental review phase (CEQA) and prior to approval of entitlements and Planning Commission approval of a project or other public hearing.

Each local jurisdiction may establish specific requirements for when a Conceptual or Preliminary WQMP should be submitted during the planning process for different planning actions which may vary depending upon the phase of planning for the Project. However, as described in Section 2, it is strongly recommended that the Conceptual or Preliminary WQMP be prepared and submitted during the preparation of environmental documentation for compliance with CEQA. The local jurisdiction will assure that a final Project WQMP is submitted for review and approval prior to issuance of grading or building permits. The final Project WQMP must be prepared by or under the direction of a California Registered Civil Engineer and affixed with their stamp unless specifically exempted from this requirement by the Permittee.

7.II-5.1 Conceptual or Preliminary WQMP Preparation

To facilitate early water quality planning and ensure that water quality protection and LID principles are considered in the earliest phases of a project, the local jurisdiction will suggest that the project proponent prepare a Conceptual or Preliminary WQMP prior to a complete or final Project WQMP for full review and approval. A Conceptual or Preliminary WQMP may be used by the local jurisdiction during the land use entitlement process or as part of a project application for discretionary project approval.

A Conceptual or Preliminary WQMP supports the CEQA process by serving as the basis for the Lead Agency and Responsible Agency to conclude that the MEP standard is being met, by serving as the basis that selected BMPs will not have the potential to cause significant effects and/or that the effects have been mitigated; and by providing supporting rationale for determining that water quality impacts are not significant or are not significant with mitigation. The Conceptual or Preliminary WQMP should be circulated with the CEQA document or summarized within the circulated CEQA document.

A WQMP Template has been produced to assist project proponents with developing a Conceptual or Preliminary WQMP (available at www.ocwatersheds.com). The level of detail in

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a Conceptual or Preliminary WQMP can vary somewhat upon the level of detail known at the time discretionary project approval is sought, but must contain at a minimum the following information:

- Local project identifier and description (application number, tentative tract number, review number, etc.)
- Site plan (tentative map, major project features, use exhibit, etc.) showing the following
 - Property or project boundaries
 - Locations of buildings, landscaping, streets, curb and gutter, storm drainage system, and other major project features
 - Direction of surface drainage
 - Existing easements
 - Surface waters
 - Areas of known or potential hazards such as landfills, soil and groundwater contamination, Alquist-Priolo fault zones, etc.
 - Other project features or activities that may generate pollutants such as wash racks, trash enclosures, fuelling areas, loading docks, etc.
- Preliminary site assessment information
 - Most proximate and downstream receiving waters and any impairments
 - POCs and primary POCs, and the related conclusions that are to be made from this information
 - Identification of any hydrologic conditions of concern and the supporting rationale
- LID feasibility analysis
- Proposed LID BMP selection rationale and supporting details and calculations (or sub-regional/regional LID BMPs if applicable)
- Proposed hydromodification control BMPs and calculations
- Proposed treatment control BMPs and calculations
- Any proposed project specific credits or alternative compliance methods planned
- Preliminary Source Control BMP information
- Proposed parties responsible for the long-term operation and maintenance of proposed BMPs
- Proposed funding mechanisms for the long-term operation and maintenance of the proposed BMPs
- The list of standard WQMP requirements as indicated earlier, including access easement, records to be kept, records retention, inspection frequencies, etc.

Local jurisdiction staff will review and evaluate the Conceptual / Preliminary Project WQMP for general acceptance and conceptual or preliminary approval, and will offer guidance toward

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plan elements necessary for approval of the full Project WQMP. Additional information and submittals may be necessary for conceptual or preliminary approval. It is the responsibility of the project proponent to provide the additional information for consideration by the local jurisdiction.

7.II-5.2 Final Project WQMP Preparation and Submittal

A completed Final Project WQMP should fully address site design measures, LID BMPs, hydromodification controls, source control BMPs, and treatment control BMPs (where applicable to the project) to address pollutants or hydrologic conditions of concern. If the project is participating in an alternative program such as a contribution to a Runoff Mitigation Fund or Participation in a Mitigation Program, the Project WQMP must describe and document the Project's participation. The Final Project WQMP, when prepared for submittal for approval, must be certified by the owner, and must include elements agreed upon at Conceptual or Preliminary WQMP acceptance and any revisions proposed. A WQMP Template has been produced to assist project proponents with developing a Project WQMP (available at www.ocwatersheds.com).

The Final Project WQMP must be consistent with the Conceptual or Preliminary WQMP. If there are any substantial differences, the local jurisdiction must make a determination that the differences do not diminish the effectiveness of the BMPs to mitigate or address the project's potential impacts to water quality. Furthermore, any changes must not result in any new environmental impacts not previously disclosed in the local jurisdiction's circulated environmental document(s). If the changes diminish the project's ability to mitigate or address its water quality impacts, or result in previously undisclosed environmental impacts, the local jurisdiction should require that the project be subject to further environmental review.

For review and approval, the completed Project WQMP must provide the information described within this Model WQMP, including but not limited to:

- Local project identifier and description (application number, tentative tract number, review number, etc.)
- Site plan (tentative map, major project features, use exhibit, etc.) showing the following
 - Property or project boundaries
 - Locations of buildings, landscaping, streets, curb and gutter, storm drainage system, and other major project features
 - Direction of surface drainage
 - Existing easements
 - Surface waters
 - Areas of known or potential hazards such as landfills, soil and groundwater contamination, Alquist-Priolo fault zones, etc.
 - Other project features or activities that may generate pollutants such as wash racks, trash enclosures, fuelling areas, loading docks, etc.

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- Site assessment information
 - Most proximate and downstream receiving waters and any impairments
 - POCs and primary POCs and the related conclusions that are to be made from this information
 - Identification of any hydrologic conditions of concern and the supporting rationale
- Completed LID feasibility analysis
- LID BMP selection rationale and supporting details and calculations (or sub-regional/regional LID BMPs if applicable)
- Hydromodification control BMPs and calculations
- Treatment control BMPs and calculations
- Project specific credits taken to reduce the Design Storm Volume
- Source Control BMP information
- Identified parties responsible for the long-term operation and maintenance of proposed BMPs
- Identified funding mechanisms for the long-term operation and maintenance of the proposed BMPs
- The list of standard WQMP requirements as indicated earlier, including access easement, records to be kept, records retention, inspection frequencies, etc.
- A waiver request, if applicable
- If the project is participating in a regional or sub-regional LID project, contributing to a Runoff Mitigation Fund, or participating in a Mitigation Project, documentation and description of the program, and the Project's contribution to the program.

The completed Project WQMP is to be submitted to the local jurisdiction for review and approval. Any changes to WQMP elements agreed upon at the Conceptual or Preliminary WQMP phase should be noted within the Project WQMP submitted for final approval.

Local jurisdiction staff will review the submittal for acceptance and approval. Reviews will be documented by the local jurisdiction. Additional information and submittals may be necessary for final approval. It is the responsibility of the project proponent to provide the additional information for consideration by the local jurisdiction.

Once a project reaches the plan check phase, the project proponent must submit a completed Project WQMP for Priority Projects (or a Non-Priority Project Water Quality Plan for qualifying Non-Priority Projects) since the construction plans submitted by the project proponent for plan check must incorporate all of the structural BMPs identified in the Project WQMP (or Non-Priority Project Water Quality Plan). Local jurisdictions may encourage (but not necessarily require) project proponents to obtain approval of the project's final Project WQMP or Non-Priority Project Water Quality Plan prior to submitting construction plans for plan check. Building or grading permits for qualifying Priority or Non-Priority Projects will not be issued

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until the Project WQMP or Non-Priority Project Water Quality Plan has been submitted and approved.

The Project WQMP will be stored within local jurisdiction files, and will continue with the property after the completion of the construction phase, and a local jurisdiction may require that the terms, conditions and requirements be recorded with the County Recorder's office by the property owner or any successive owner as authorized by the Water Quality Ordinance. In lieu of recordation, a local jurisdiction may require the Project WQMP to include a Notice of Transfer Responsibility Form, which serves to notify the local jurisdiction that a change in ownership has occurred and notify the new owner of its responsibility to continue implementing the Project WQMP.

7.II-5.3 Location Map, Plot Plan, and BMP Details

The Project WQMP should contain a location map showing the project site and surroundings in sufficient detail to allow the project location to be plotted on a base map. Project proponents should submit the plot plan with BMP details in electronic drawing or GIS format. The Project WQMP should also contain a plot plan showing proposed improvements to the property. The plot plan shall include the following project features:

- Each facility and its intended function (if multiple facilities and uses are present onsite)
- Areas of outdoor activities (if applicable)
- Applicable Structural Source Control BMPs and any Treatment Control BMPs
- Drainage flow information
- Storm drain facilities
- Relationship between onsite drainage and offsite drainage

The plot plan must contain the following labels:

- Title Block
 - Drainage Plot Plan
 - Project Name
 - Address
 - Owner
- Legend
- North Arrow
- Scale

The Project WQMP should contain plans and details related to the BMPs that will be included.

7.II-5.4 Educational Materials

EXHIBIT 7.II, MODEL WATER QUALITY MANAGEMENT PLAN (WQMP)

The Project WQMP should reference standard educational materials that are applicable to the nature of the project relating to the type of development and practices that may occur on the site. Standard educational materials can be found on the Orange County Watersheds website at www.ocwatersheds.com and referenced in the Project WQMP. Any materials that are specific to the project and not included in the standard materials must be included in the Project WQMP.

7.II-6.0 RESOURCES AND REFERENCES

Additional information can be obtained within the following references.

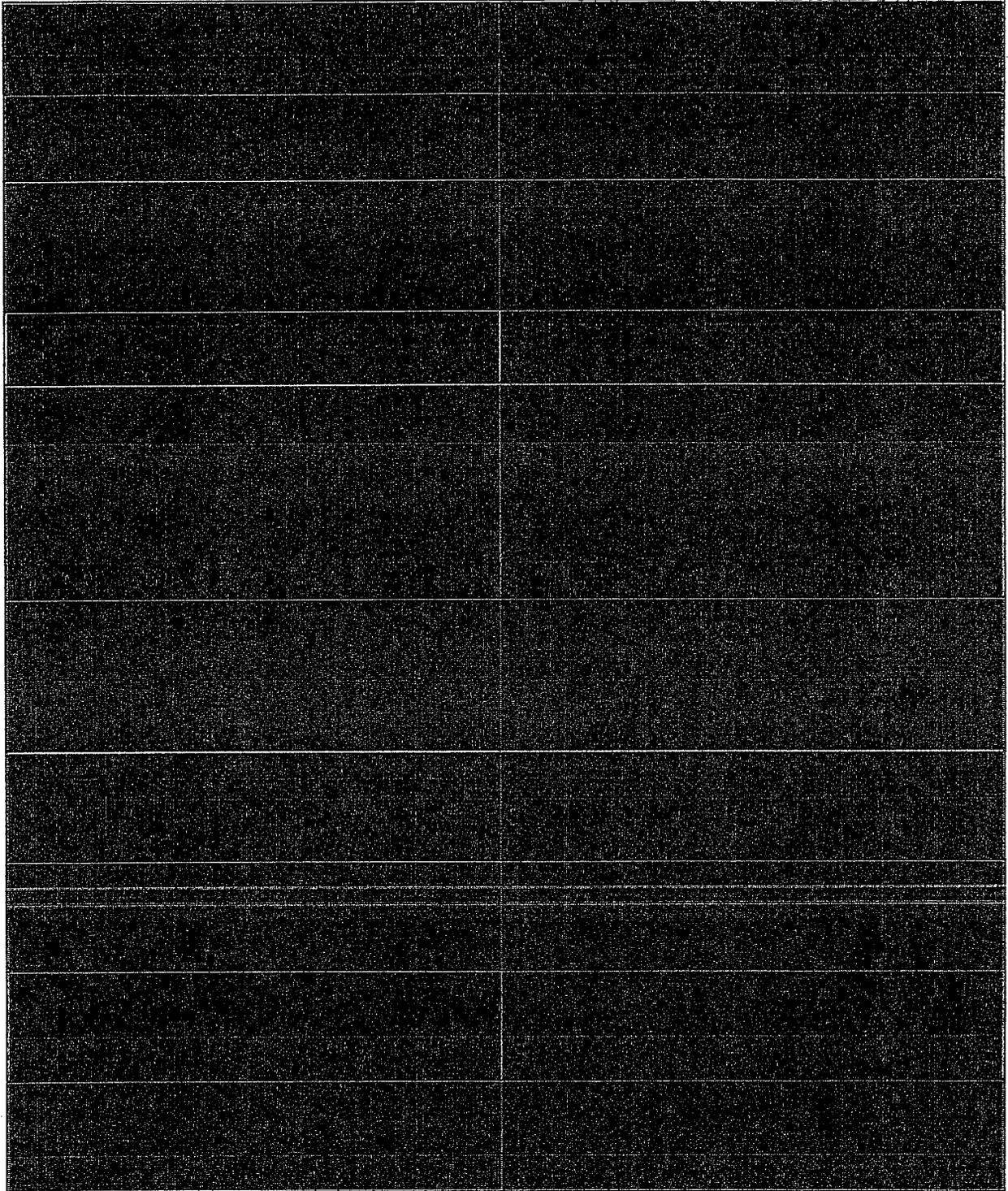


EXHIBIT 7.II, MODEL WATER QUALITY MANAGEMENT PLAN (WQMP)

EXHIBIT 7.II, MODEL WATER QUALITY MANAGEMENT PLAN (WQMP)



APPENDIX A Acronyms and Glossary

A.1 Acronyms

BMP – Best Management Practice

CEQA - California Environmental Quality Act

CWA - Federal Clean Water Act

DAMP - Drainage Area Management Plan

ESA - Environmentally Sensitive Area

ET - Evapotranspiration

HCOC - Hydrologic Condition of Concern

HMP - Hydromodification Management Plan

HSC - Hydrologic Source Control

LID - Low Impact Development

LIP - Local Implementation Plan

MEP - Maximum Extent Practicable

NOC - North Orange County (Region 8- SARWQCB Jurisdictional Area)

NPDES - National Pollutant Discharge Elimination System

POC - Pollutant of Concern

RWQCB - Regional Water Quality Control Board

SARWQCB - Santa Ana Regional Water Quality Control Board

SDRWQCB - San Diego Regional Water Quality Control Board

SOC - South Orange County (Region 9 -SDRWQCB Jurisdictional Area)

SSMP - Standard Stormwater Mitigation Plan

TGD - Technical Guidance Document

WIHMP - Watershed Infiltration and Hydromodification Master Plan

WQ - Water Quality

WQDV - Water Quality Design Volume

WQMP - Water Quality Management Plan

A.2 Glossary of Key Terms

Alternative compliance program – encompasses the elements used to satisfied remaining performance criteria after on-site LID BMPs have been implemented to the maximum feasible level (and in North Orange County, after both on-site and sub-regional/regional LID BMPs have been implemented to the maximum feasible level).

Average annual capture efficiency (a.k.a. capture efficiency) – the estimated percent of long term average annual runoff volume that is managed/controlled by a BMP. Target capture efficiency serves as one element of the performance criteria for LID and treatment control BMPs.

Biotreatment BMP – a class of LID BMPs, biotreatment BMPs are vegetated treat-and-release BMPs that also promote infiltration and/or evapotranspiration.

Biotreatment volume – the volume of storage in biotreatment BMPs, measured from the overflow elevation of the BMP outlet, which would be treated and discharged as the BMP drains; this volume includes surface storage and pore storage but does not include the volume that would be retained in the BMP and discharged to infiltration, ET, or uses.

Conceptual Project WQMP - a Project WQMP prepared at the planning phase of projects subject to discretionary approval; intended to describe, at the earliest possibly phase in the development process, the BMPs that will be implemented and maintained throughout the project (functionally equivalent to a Preliminary Project WQMP; nomenclature varies by local jurisdiction).

Design capture storm depth – the 85th percentile, 24-hr storm depth.

Design Capture Volume – the volume of storm water runoff resulting from the design capture storm depth.

Design criteria – requirements that serve as the basis for designing a BMP to meet performance criteria. Design criteria may encompass BMP sizing and other characteristics of BMP design.

Drainage Area Management Plan (DAMP) – The specific water pollutant control elements of the Orange County Stormwater Program are documented in the Drainage Area Management Plan (DAMP), which is the Permittees' primary policy, planning and implementation document for municipal NPDES Stormwater Permit compliance.

Drawdown – the act of discharging water from a BMP. Drawdown provides storage volume for subsequent storm events.

Drawdown rate – the rate at which water discharges from a BMP, making storage volume available for subsequent storm events.

Environmentally Sensitive Areas - areas such as those designated in the Ocean Plan as Areas of Special Biological Significance or waterbodies listed on the CWA Section 303(d) list of impaired waters.

Evapotranspiration (ET) - the loss of water to the atmosphere by the combined processes of evaporation (from water, soil and plant surfaces) and transpiration (from plant tissues). As used in this TGD, evapotranspiration refers to one or both of these processes.

Evapotranspiration BMP (aka ET BMP) - a class of retention BMPs that discharges stored volume predominantly to evapotranspiration; some infiltration may occur. Evapotranspiration includes both evaporation and transpiration, and ET BMPs may incorporate one or more of these processes.

Final Project WQMP - a Project WQMP submitted at the ministerial approval phase prior to final approval of a grading or building permit; expected to reflect the detail available at the time of project ministerial-level approval.

Harvest and Use - The process of capturing rainwater or stormwater runoff, storing it, and making it available for subsequent use. This process is performed by Harvest and Use BMPs.

Harvest and Use BMP (aka Rainwater Harvesting BMP) - a class of retention BMPs that captures rainwater or stormwater runoff and stores it for subsequent use.

Hydrologic condition of concern - a combination of upland hydrologic conditions and stream biological and physical conditions that presents a condition of concern for physical and/or biological degradation of a stream.

Hydromodification - Changes in runoff and sediment yield caused by land use modifications.

Hydromodification control - Management techniques which reduce the potential for hydromodification impact.

Hydromodification impact - The physical response of stream channels to changes in runoff and sediment yield caused by land use modifications

Infiltration BMP - a class of retention BMPs that discharges stored volume predominantly to deeper percolation/infiltration; some evapotranspiration may also occur.

LID BMP - a BMP that provides retention or biotreatment as part of an LID strategy - these may include hydrologic source controls, retention, and biotreatment BMPs.

LID site design - The component of LID that relates to the way in which a site is laid out to achieve strategic stormwater management and resource management objectives. Site design practices work synergistically with LID BMPs, treatment control, and hydromodification control strategies. Example practices include minimizing impervious areas and locating pervious areas such that impervious areas can drain to pervious areas.

Liquefaction - a seismically-induced geological hazard that can result in damage to structures as a result in reduction in bulk volume of saturated granular soils.

Local Implementation Plan (LIP) - The Local Implementation Plan (LIP) describes how the DAMP is being implemented by individual permittees under the MS4 Permit. The DAMP provides a foundation for the description and detail of how the Orange County Stormwater Permittees commonly implement model programs designed to prevent pollutants from entering receiving waters to the maximum extent practicable (MEP). The LIP is designed to supplement the DAMP and each city and the County have developed a comprehensive LIP that is specific to their jurisdiction.

Non-Priority Project - New development or significant redevelopment projects that are not Priority Projects are considered Non-Priority Projects. Non-Priority Projects are projects that do not fall under one of the priority Project categories and also require discretionary action or issue of non-residential plumbing permit. Requirements for Non-Priority Projects are contained in a separate Non-Priority Project Water Quality Plan that serves as basis for completing a project-specific plan that is described in the DAMP and is available from the applicable Permittee.

On-site LID practices - LID practices that are implemented within the project boundary.

Performance criteria - specific measurable or verifiable requirements against which the performance of a system is compared to assess compliance with a Project WQMP, the Model WQMP, and the Permit. There are three separate types of performance criteria: 1) LID, 2) treatment control, and 3) hydromodification control. These performance criteria are evaluated individually although they can be interrelated. It is possible to meet one and not meet the others. This is synonymous with "performance standard" as used by other guidance documents, but only "performance criteria" is used in this document.

Preliminary Project WQMP - a Project WQMP prepared at the planning phase of projects subject to discretionary approval; intended to describe, at the earliest possible phase in the development process, the BMPs that will be implemented and maintained throughout the project (functionally equivalent to a Conceptual Project WQMP; nomenclature varies by local jurisdiction).

Priority Project - a new development or redevelopment project meeting the thresholds described in Section 7.II-1.2.

Retention BMP - a class of LID BMPs including infiltration BMPs, evapotranspiration BMPs, and harvest and use BMPs whose design does not allow the discharge of stormwater runoff to the storm drainage system or surface water up to the DCV; these BMPs either infiltrate, evapotranspire, or allow for use of the retention volume.

Retention volume - the volume of storage in retention and biotreatment BMPs, measured from the overflow elevation of the BMP, which would be retained and discharged to infiltration, ET, or uses as the BMP drains. All storage volume is retention volume in retention BMPs.

Sizing criteria - specific design criteria related to BMP size that serve as a basis for meeting performance criteria.

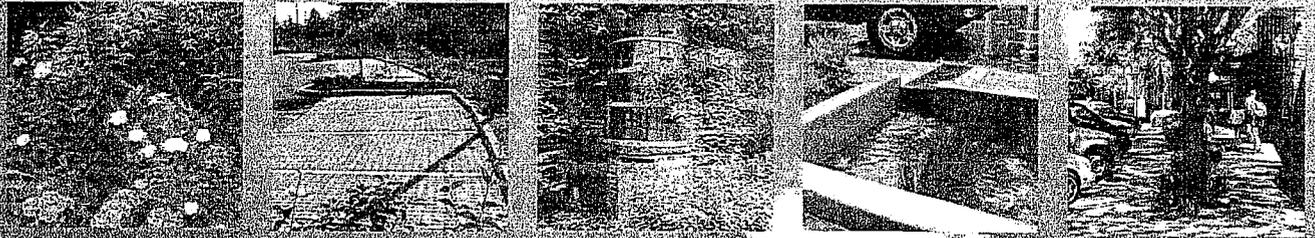
Standard Stormwater Mitigation Plan (SSMP) - See Project WQMP

Treatment control BMP - a structure designed to treat pollutants in stormwater runoff and release the treated runoff to surface waters or a storm drain system, but is not a biotreatment BMP. Examples include sand filters and cartridge media filters.

Waiver - Process by which project proponents **must** document and submit a request to implement alternative requirements if it is determined to be infeasible to fulfill the on-site LID performance requirements.

Water quality credit system - the system by which certain project types are granted reduction in the criteria for determining treatment control and/or offsite mitigation requirements for alternative program requirements.

APPENDIX B
EPA Green Streets Manual



MANAGING WET WEATHER WITH
GREEN INFRASTRUCTURE

MUNICIPAL HANDBOOK

GREEN STREETS

Managing Wet Weather with Green Infrastructure

Municipal Handbook

Green Streets

prepared by

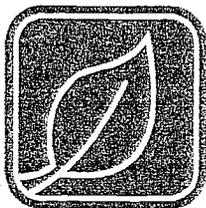
**Robb Lukes
Christopher Kloss
Low Impact Development Center**

The Municipal Handbook is a series of documents
to help local officials implement green infrastructure in their communities.

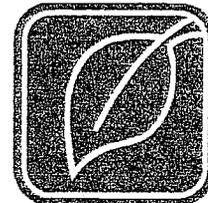
December 2008



EPA-833-F-08-009



Front Cover Photos
Top: rain garden; permeable pavers; rain barrel;
planter; tree boxes.
Large photo: green alley in Chicago



Green Streets

Introduction

By design and function, urban areas are covered with impervious surfaces: roofs, roads, sidewalks, and parking lots. Although all contribute to stormwater runoff, the effects and necessary mitigation of the various types of surfaces can vary significantly. Of these, roads and travel surfaces present perhaps the largest urban pollution sources and also one of the greatest opportunities for green infrastructure use.

The Federal Highway Administration (FHA) estimates that more than 20% of U.S. roads are in urban areas.¹ Urban roads, along with sidewalks and parking lots, are estimated to constitute almost two-thirds of the total impervious cover and contribute a similar ratio of runoff.² While a significant source of runoff, roads are also a part of the infrastructure system, conveying stormwater along gutters to inlets and the buried pipe network. Effective road drainage, translated as moving stormwater into the conveyance system quickly, has been a design priority while opportunities for enhanced environmental management have been overlooked especially in the urban environment.

Table 1. Examples of Stormwater Pollutants Typical of Roads.^{3,4}

Pollutant	Source	Effects
Trash	---	Physical damage to aquatic animals and fish, release of poisonous substances
Sediment/solids	Construction, unpaved areas	Increased turbidity, increased transport of soil bound pollutants, negative effects on aquatic organisms reproduction and function
Metals • Copper • Zinc • Lead • Arsenic	<ul style="list-style-type: none"> • Vehicle brake pads • Vehicle tires, motor oil • Vehicle emissions and engines • Vehicle emissions, brake linings, automotive fluids 	Toxic to aquatic organisms and can accumulate in sediments and fish tissues
Organics associated with petroleum (e.g., PAHs)	Vehicle emissions, automotive fluids, gas stations	Toxic to aquatic organisms
Nutrients	Vehicle emissions, atmospheric deposition	Promotes eutrophication and depleted dissolved oxygen concentrations

The altered flow regime from traditional roadways, increased runoff volume, more frequent runoff events, and high runoff peak flows, are damaging to the environment and a risk to property downstream. These erosive flows in receiving streams will cause down cutting and channel shifting in some places and excessive sedimentation in others. The unnatural flow regime destroys stream habitat and disrupts aquatic systems.

Compounding the deliberate rapid conveyance of stormwater, roads also are prime collection sites for pollutants. Because roads are a component of the stormwater conveyance system, are impacted by atmospheric deposition, and exposed to vehicles, they collect a wide suite of pollutants and deliver them into the conveyance system and ultimately receiving streams (See Table 1). The metals, combustion by-products, and automotive fluids from vehicles can present a toxic mix that combines with the ubiquitous nutrients, trash, and suspended solids.