

R9-2009-0002: New Development/Significant Redevelopment Regulations



Jennifer Shook
Stormwater BMP Workshop
May 4, 2011

Overview

1. Fourth Term MS4 Permit – San Diego Region
 - a) Timeline
 - b) Development Planning
2. Low Impact Development Overview
3. Hydromodification Overview
4. New Development/Significant Redevelopment Requirements and program updates
 - a) SSMP/WQMP
 - b) Hydromodification Management Plan
5. What does it all mean?
6. Questions

Fourth Term MS4 Permit – Timeline

December 16, 2009

R9-2009-0002

Adopted

December 16, 2011

Submit Model SSMP and Draft
Hydromodification Management Plan
(HMP) to Regional Board.

Identify and remove barriers to LID
implementation

October 22, 2009

Planning Advisory
Group Kick-off

December 16, 2010

Implement Interim
Hydromod Criteria

January 12, 2010

Technical Advisory
Group Kick-off

**Within 180 Days of RB
acceptance of Model
SSMP/Comments on Draft HMP**

Submit Local SSMPs and amended
ordinances.

Submit Final HMP

Development Planning

Each Copermittee must implement a Development Planning Program that:

1. Reduces Development Project discharges of storm water pollutants from the MS4 to the MEP;
2. Prevents Development Project discharges from the MS4 from causing or contributing to a violation of water quality standards;
3. Prevents illicit discharges into the MS4; and
4. Manages increases in runoff discharge rates and durations from Development Projects that are likely to cause increased erosion of stream beds and banks, silt pollutant generation, or other impacts to beneficial uses and stream habitat due to increased erosive force.

Development Planning

Each Copermitttee must implement a Development Planning Program that:

- 1.
- 2.
- 3.
- 4.

LOW IMPACT DEVELOPMENT
HYDROMODIFICATION

What is Low Impact Development?

Low Impact Development (LID)

The low-impact development “functional landscape” emulates the predevelopment temporary storage (detention) and infiltration (retention) functions of the site. This functional landscape is designed to mimic the predevelopment hydrologic conditions through runoff volume control, peak runoff rate control, flow frequency/duration control, and water quality control.

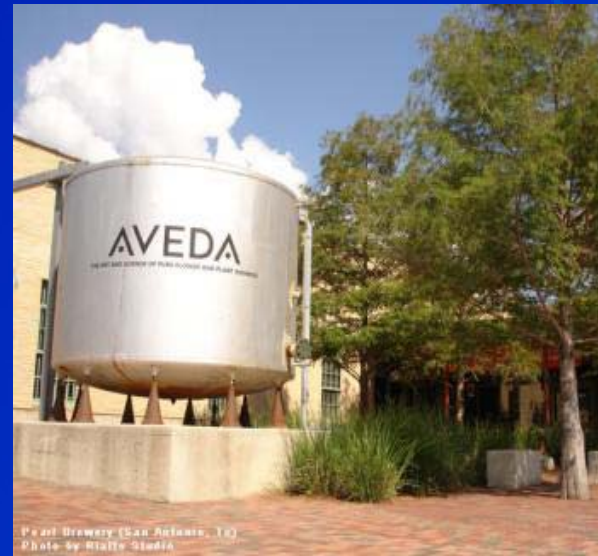
**Low Impact Development Hydrologic Analysis,
The Prince George’s County DER, 1999. p.11**

Low Impact Development (LID)

Infiltration	Rainwater Harvesting	Evapotranspiration	Biotreatment
<p>Bioretention without Underdrains</p> <p>Retention Swales</p> <p>Retention Grading</p> <p>Infiltration Trenches</p> <p>Infiltration Basins</p> <p>Drywells</p> <p>Subsurface Infiltration Galleries</p> <p>French Drains</p> <p>Permeable Asphalt</p> <p>Permeable Concrete</p> <p>Permeable Concrete Pavers</p>	<p><i>Storage options:</i></p> <p>Above-ground Rain Barrels</p> <p>Above-ground Cisterns</p> <p>Underground Tanks</p> <p><i>Potential demand:</i></p> <p>Irrigation</p> <p>Toilet flushing</p> <p>Vehicle washing</p> <p>Evaporative cooling</p> <p>Industrial processes</p> <p>Dilution water for recycled water systems</p> <p>Other non-potable uses</p>	<p><i>BMPs providing primary benefit through ET:</i></p> <p>Green roofs</p> <p>Brown roofs</p> <p>Blue roofs</p> <p>Downspout dispersion in tight soils</p> <p>Amended soils over tight underlying soils</p> <p>Street trees, canopy interception</p>	<p>Bioretention with underdrains</p> <p>Planter Boxes with underdrains</p> <p>Constructed Wetlands</p> <p>Vegetated Swales</p> <p>Vegetated Filter Strips</p> <p>Proprietary (ready-to-install) Vegetated Biotreatment Systems</p>

Low Impact Development (LID)

Examples of LID BMPs



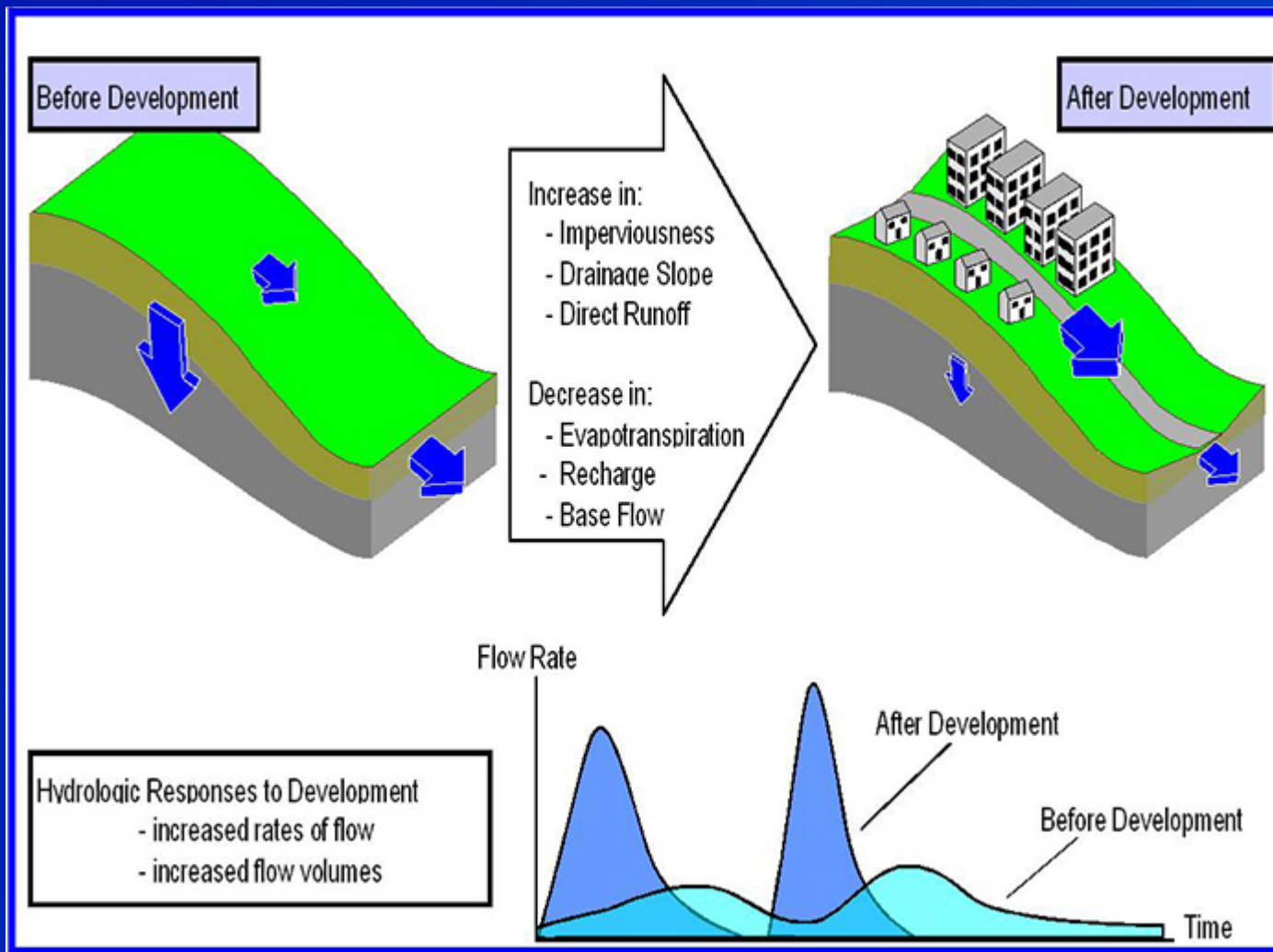
Pedal Brewery (San Antonio, TX)
Photo by Hattie Studio



What is Hydromodification?

Hydromodification

Causes of Hydromodification



Hydromodification

Examples of Hydromodification



How do I know if I need a SSMP/WQMP?

Priority Projects

Priority Project Categories

Third Term Permit Requirements	Fourth Term Permit Requirements
<p>Home subdivisions of 10 or more housing units. This category includes single family homes, multi-family homes, condominiums, and apartments.</p>	<p>New development projects that create 10,000 square feet or more of impervious surfaces (collectively over the entire project site) including commercial, industrial, residential, mixed-use, and public projects. This category includes development projects on public or private land which fall under the planning and building authority of the Copermittees.</p>
<p>Commercial developments greater than 100,000 square feet. This category is defined as any development on private land that is not for heavy industrial or residential uses where the land area for development is greater than 100,000 square feet.</p>	

Priority Projects

Priority Project Categories

Third Term Permit Requirements	Fourth Term Permit Requirements
<p>Automotive repair shops. This category is defined as a facility that is categorized in any one of the following Standard Industrial Classification (SIC) codes: 5013, 5014, 5541, 7532-7534, or 7536-7539.</p>	<p>Same as Third Term Permit Requirements</p>
<p>Restaurants. This category is defined as a facility that sells prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption (SIC code 5812), where the land area for development is greater than 5,000 square feet.</p>	<p>Same as Third Term Permit Requirements</p>

Priority Projects

Priority Project Categories

Third Term Permit Requirements	Fourth Term Permit Requirements
<p>All hillside development greater than 5,000 square feet. This category is defined as any development which creates 5,000 square feet of impervious surface which is located in an area with known erosive soil conditions, where the development will grade on any natural slope that is twenty-five percent or greater.</p>	<p>Same as Third Term Permit Requirements</p>

Priority Projects

Priority Project Categories

Third Term Permit Requirements	Fourth Term Permit Requirements
<p>Environmentally Sensitive Areas: All development and redevelopment located within or directly adjacent to or discharging directly to an environmentally sensitive area (where discharges from the development or redevelopment will enter receiving waters within the environmentally sensitive area), which either creates 2,500 square feet of impervious surface on a proposed project site or increases the area of imperviousness of a proposed project site to 10% or more of its naturally occurring condition.</p>	<p>Same as Third Term Permit Requirement</p>

Priority Projects

Priority Project Categories

Third Term Permit Requirements	Fourth Term Permit Requirements
<p>Parking lots 5,000 square feet or more or with 15 or more parking spaces and potentially exposed to urban runoff. Parking lot is defined as a land area or facility for the temporary parking or storage of motor vehicles used personally, for business, or for commerce.</p>	<p>Same as Third Term Permit Requirement</p>
<p>Street, roads, highways, and freeways. This category includes any paved surface that is 5,000 square feet or greater used for the transportation of automobiles, trucks, motorcycles, and other vehicles.</p>	<p>Same as Third Term Permit Requirement</p>

Priority Projects

Priority Project Categories

Third Term Permit Requirements	Fourth Term Permit Requirements
	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.

Priority Projects

Priority Project Categories

Third Term Permit Requirements	Fourth Term Permit Requirements
<p>Significant redevelopment is defined as the creation or addition of at least 5,000 square feet of impervious surfaces on an already developed site. Significant redevelopment includes, but is not limited to: the expansion of a building footprint or addition or replacement of a structure; structural development including an increase in gross floor area and/or exterior construction or remodeling; replacement of impervious surface that is not part of a routine maintenance activity; and land disturbing activities related with structural or impervious surfaces.</p>	<p>Same as Third Term Permit Requirement</p>

Priority Projects

Priority Project Categories

Third Term Permit Requirements	Fourth Term Permit Requirements
	<p data-bbox="1079 529 1902 1032">One acre threshold: In addition to the Priority Development Project Categories identified in section F.1.d.(2), Priority Development Projects must also include all other pollutant-generating Development Projects* that result in the disturbance of one acre or more of land within three years of adoption of this Order.</p> <p data-bbox="1079 1127 1852 1341"><i>*Pollutant generating Development Projects are those projects that generate pollutants at levels greater than natural background levels.</i></p>

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.

What goes into the WQMP?

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.
2. Describe the project.
3. Assess the site.
4. Develop and select BMPs; including LID BMPs, site design BMPs, hydromodification control BMPs, and source control BMPs.
5. Determine any applicable alternative compliance approaches (e.g. participation in a regional/sub-regional LID solution).
6. Identify parties responsible for BMP maintenance and funding sources.

WQMP Requirements

BMP Selection – Site Design BMPs

LID site design should be considered as the first priority in the hierarchy of LID implementation, beginning with the earliest phases of a project. On-site LID practices can include:

- ◆ 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
- ◆ Revegetate Disturbed Areas

WQMP Requirements

BMP Selection – Source Control BMPs

Each new development and significant redevelopment project is required to implement appropriate Source Control BMP(s). Source Control BMPs can include:

- ◆ Storm Drain System Stenciling and Signage
- ◆ Design Outdoor Hazardous Material Storage Areas to Reduce Pollutant Introduction
- ◆ Design Trash Enclosures to Reduce Pollutant Introduction
- ◆ Use Efficient Irrigation Systems and Landscape Design
- ◆ Education for Property Owners, Tenants and Occupants
- ◆ Employee Training
- ◆ Housekeeping of Loading Docks

WQMP Requirements

BMP Selection – Hydromodification Control BMPs

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. Hydromodification Control BMPs can include:

- ◆ Volume/flow management structural BMPs:
 - bioretention areas, permeable pavement, green roofs, cisterns, vegetated swales, and filter strips
- ◆ Detention/Retention Basins
- ◆ In-stream controls:
 - drop structures, bed and bank reinforcement, and grade control structures

WQMP Requirements

Hydromodification Management Plan

Each Copermittee shall collaborate with the other Copermittees to develop and implement a Hydromodification Management Plan (HMP) to manage increases in runoff discharge rates and durations from all Priority Development Projects. The HMP shall be incorporated into the local SSMP and implemented by each Copermittee so that **estimated post-project runoff discharge rates and durations shall not exceed pre-development discharge rates and durations**. Where the proposed project is located on an already developed site, the pre-project discharge rate and duration shall be that of the pre-developed, naturally occurring condition.

WQMP Requirements

Hydromodification Management Plan

Exception = downstream channels are considered not susceptible to hydromodification, and therefore projects do not have a potential HCOC, if

- (1) The project discharges stormwater runoff into underground storm drains discharging directly to bays or the ocean, or
- (2) Storm water runoff 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.

WQMP Requirements

Hydromodification Management Plan

If a Hydrologic Condition of Concern (HCOC) exists, projects in the South Orange County permit area shall use an approved continuous simulation model such as EPA Stormwater Management Model (SWMM) or EPA Hydrologic Simulation Program – FORTRAN (HSPF), to evaluate compliance with the flow-duration-based performance criteria of the interim hydromodification standard. **Technical Guidance Document Appendix V** describes design references that have been prepared to streamline and guide these calculations.

WQMP Requirements

Hydromodification Management Plan

The HMP requires Priority Development Projects to implement **hydrologic control measures** so that Priority Development Projects' post-project runoff flow rates and durations:

- (1) Do not exceed pre-project (naturally occurring) runoff flow rates and durations by more than 10 percent for the range of runoff flows identified under section F.1.h.(1)(b), where the increased flow rates and durations will result in increased potential for erosion or other significant adverse impacts to beneficial uses;
- (2) Do not result in channel conditions which do not meet the channel standard developed under section F.1.h.(1)(a) [continuous simulation of rainfall] for channel segments downstream of Priority Development Project discharge points; and
- (3) Compensate for the loss of sediment supply due to development.

WQMP Requirements

Hydromodification Management Plan

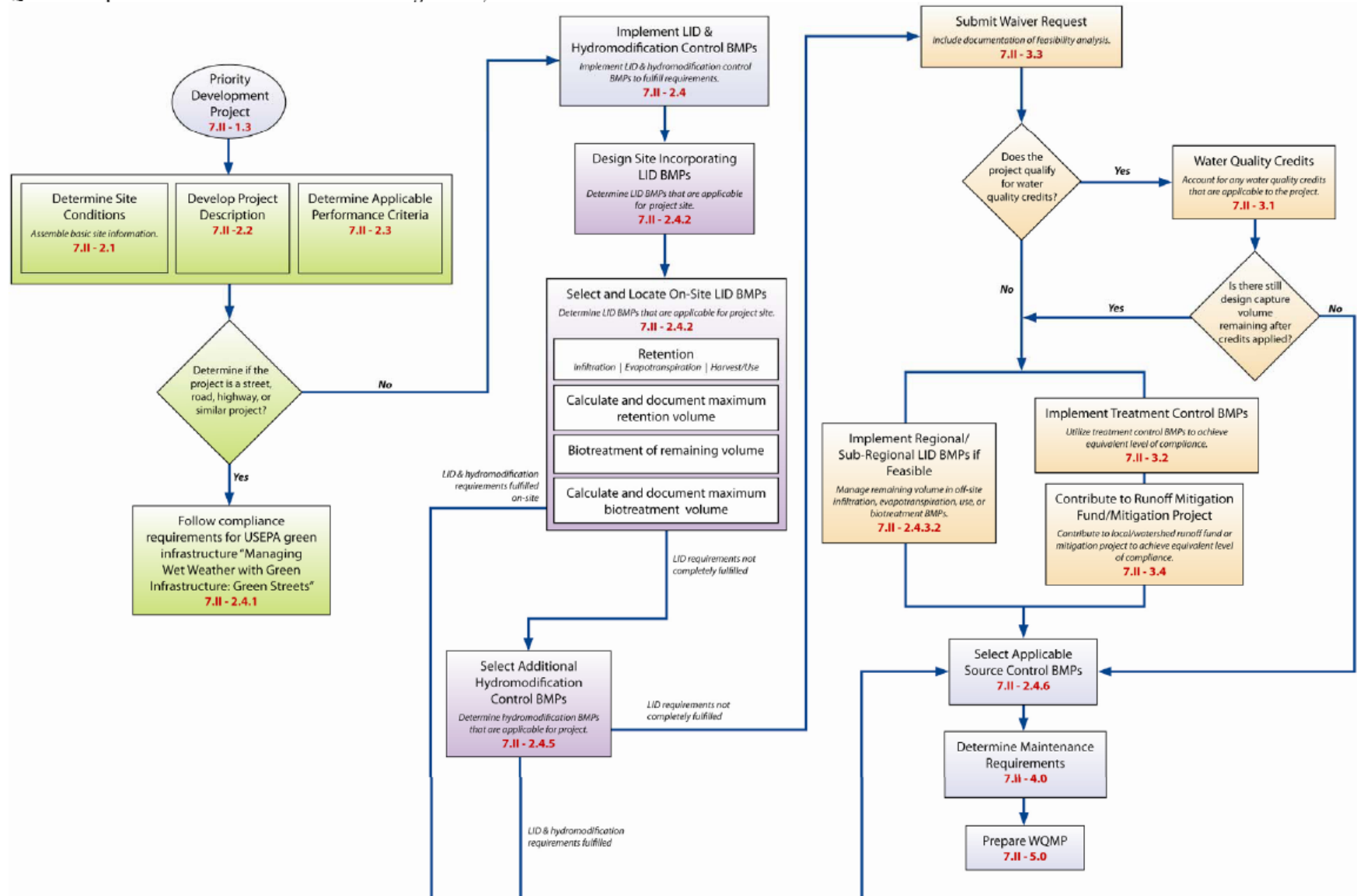
In addition to the hydrologic control measures that must be implemented per section F.1.h.(1)(c), **the HMP must include a suite of management measures** to be used on Priority Development Projects to protect and restore downstream beneficial uses and prevent or further prevent adverse physical changes to downstream channels. The measures must be **based on a prioritized consideration** of the following elements in this order:

- (a) Hydrologic control measures;
- (b) On-site management controls;
- (c) Regional controls located upstream of receiving waters;
and
- (d) In-stream controls.

WQMP Requirements

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

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



Note: Model WQMP sections shown in red

Model WQMP Revision

Two Committees

- Permittee (Internal) Advisory Group
- Technical (External) Advisory Group

Chairs

Travis Hopkins, City of Huntington Beach

Charles View, City of Brea

Model WQMP Revision

Document	Intended users	Role of Document
Model Water Quality Management Plan	<ul style="list-style-type: none"> • Permittee planning, permitting and NPDES program staff • Project applicants and planning and design consultants 	<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

What does it all Mean?

- Post Development = Pre Development
- LID, LID, LID
- Hydromodification
- Increased compliance measures
- BMP Inspections

Requirements-Awareness

- ◆ Owners
- ◆ Developers
- ◆ Engineers/Planners
- ◆ Management/Leasing Companies
- ◆ Residential

References

OC Watersheds – Water Quality Management Plan

<http://www.ocwatersheds.com/WQMP.aspx>

USEPA Managing Wet Weather with Green Infrastructure:
Green Streets

http://cfpub.epa.gov/npdes/home.cfm?program_id=298

CASQA BMP Handbooks

www.casqa.org

Stormwater Monitoring Coalition (SMC)

<http://www.socalsmc.org/>

Low Impact Development Center

<http://www.lowimpactdevelopment.org/>

Questions (?)

www.ocwatersheds.com

office: 714 955 0600

24-hour hotline: 877 89 SPILL