City of San José, California

COUNCIL POLICY

TITLE	PAGE	POLICY NUMBER
POST-CONSTRUCTION HYDROMODIFICATION MANAGEMENT	1 of 5	8-14
EFFECTIVE DATE October 18, 2005	**REVISED DATE**	February 23, 2010
APPROVED BY COUNCIL ACTION	Revised 2/23/2010, Item 2.13, Res No. 75281	

PURPOSE

It is the purpose of this Policy to establish an implementation framework, consistent with the San Francisco Bay Regional Water Quality Control Board (RWQCB) Municipal Regional Stormwater National Pollutant Discharge Elimination System (NPDES) Permit requirements, for incorporating measures to control hydromodification impacts from new development and redevelopment projects where such hydromodification is likely to cause increased erosion, silt pollutant generation, or other adverse impacts to local rivers and creeks.

BACKGROUND

The Federal Clean Water Act requires the City of San José to operate under a Municipal Stormwater NPDES Permit for the discharge of stormwater from urbanized areas to surface waters via the City's stormwater collection system. On October 14, 2009, the RWQCB adopted the Municipal Regional Stormwater NPDES Permit (Permit Number CAS612008) for the San Francisco Bay Region. In an effort to standardize stormwater management requirements throughout the region, this permit replaces the formerly separate countywide municipal stormwater permits with a regional permit for 76 Bay Area municipalities, including the City of San José.

Under the Municipal Regional Stormwater NPDES Permit, the City of San José is required to manage new development- and redevelopment-related increases in peak runoff flow, volume, and duration ("hydromodification"), where such hydromodification is likely to cause increased erosion, silt pollutant generation or other adverse impacts to local rivers and creeks. For purposes of the Municipal Regional Stormwater NPDES Permit, "new development" is considered construction on a vacant, unpaved site. "Redevelopment" is considered the reuse of previously developed or paved sites.

City Council Policy 6-29: Post-Construction Urban Runoff Management that addresses the reduction of storm water runoff pollution is a related companion policy to this Council Policy 8-14.

POLICY

The following types of projects are defined as Hydromodification Management Projects (HM Projects) and are required to be designed and built to control project-related hydromodification.

New development and redevelopment projects that:

a) Create and/or replace one (1) acre or more of impervious surface and

b) Are located in subwatersheds or catchment areas that are less than 65% impervious or are "Under Review" (see green and pink areas on the attached Santa Clara Permittees Hydromodification Management Applicability Map).

The following projects are not HM Projects:

1. Projects that do not create an increase in impervious surface over pre-project (existing) conditions.
2. Projects located within catchment areas that drain to hardened channels that extend continuously to the Bay, or projects located within tidally-influenced creek areas or Bayland areas (see purple and light blue areas on the attached Santa Clara Permittees' HM Applicability Map).
3. Projects located within catchment and subwatershed areas that are greater than or equal to 65% impervious (see red areas on the attached Santa Clara Permittees' HM Applicability Map).
4. Projects draining to an underground storm drain that discharges directly to the San Francisco Bay.

HYDROMODIFICATION MANAGEMENT (HM) STANDARD

Stormwater discharges from HM Projects shall not cause an increase in the erosion potential of the receiving stream over the pre-project (existing) condition. Increases in runoff flow and volume shall be managed so that post-project runoff shall not exceed estimated pre-project rates and durations, where such increased flow and/or volume is likely to cause increased potential for erosion of stream beds and banks, silt pollution generation, or other adverse impacts. All HM Projects are required to install Post-Construction HMCs.

TYPES OF HYDROMODIFICATION MANAGEMENT CONTROLS (HMCs)

Post-Construction HMCs, as described below, may include onsite, regional, or in-stream measures, or a combination thereof. All Post-Construction HMCs must be maintained to operate effectively.

1. Onsite HMCs are flow duration control structures and hydrologic source controls that collectively result in the HM Standard being met at the point(s) where stormwater runoff discharges from the project site.
2. Regional HMCs are flow duration and control structures that collect stormwater runoff discharge from multiple projects within the same drainage area (of which each project shall also incorporate onsite hydrologic source control measures) and are designed such that the HM Standard is met for all projects at the point where the Regional HMC discharges.
3. In-stream HMCs shall be an option only where the stream receiving runoff from the project is already impacted by erosive flows and shows evidence of excessive sediment deposition, erosion, or is a hardened channel. In-stream HMCs involve modifying the receiving stream

channel slope and geometry so that the stream can convey the new flow regime without increasing the potential for erosion and aggradation. In-stream HMCs are intended to improve the long-term channel stability and prevent erosion by reducing the erosive forces imposed on the channel boundary.

In-stream HMCs, or a combination of In-stream and Onsite HMCs, shall be designed to achieve the HM Standard from the point where the project(s) discharge(s) to the stream to the mouth of the stream, or to achieve an equivalent degree of flow control mitigation (based on amount of impervious surface mitigated) as part of an in-stream project located in the same watershed. Designing In-stream HMCs requires a hydrologic and geomorphic evaluation (including a longitudinal profile) of the stream system downstream and upstream of the project. As with all in-stream activities, other regulatory permits must be obtained by the project applicant.

Regional or In-stream HMCs may be implemented to address potential project impacts in combination with Onsite HMCs, where an approved plan (by the City of San José, Water District, or other agency with appropriate jurisdiction) including an appropriate funding mechanism, is in place that accounts for the stream changes expected to result from changes in project runoff conditions. The Regional or In-stream HMCs, or combination of HMCs, shall be designed to achieve the HM Standard of no increase in the erosion potential.

PERFORMANCE CRITERIA FOR HM PROJECTS

HM Projects shall demonstrate that post-construction stormwater runoff of a specific development (post-project) does not exceed estimated pre-project (existing) runoff rates and durations by including the following:

1. Range of Flows to Control: HMCs shall be designed such that post-project stormwater discharge rates and durations match pre-project discharge rates and durations from 10% of the pre-project 2-year peak flow up to the pre-project 10-year peak flow.
2. Goodness of Fit Criteria: The post-project flow duration curve shall not deviate above the pre-project flow duration curve by more than 10% over more than 10% of the length of the curve corresponding to the range of flows to control.
3. Allowable Low Flow Rate: Flow control structures may be designed to discharge stormwater at a very low rate that does not threaten to erode the receiving waterbody. This flow rate shall be no greater than 10% of the pre-project 2-year peak flow unless a modified value is substantiated by analysis of actual channel resistance.
4. Precipitation Data: Precipitation data used in modeling of HMCs shall, at a minimum, be 30-years of hourly rainfall data representative of the area being modeled. Where a longer rainfall record is available, the longer record shall be used.
5. Calculating Post-Project Runoff: Retention and detention basins shall be considered impervious surface for the purpose of calculating post-project runoff. Pre- and post-project runoff shall be calculated and compared for the entire site, without separating or excluding areas that may be considered self-retaining.
6. Standard HM Modeling: Onsite and Regional HMCs designed using the Bay Area Hydrology Model (BAHM) and site-specific input data shall be considered to meet the HM Standard. Such

use must be consistent with directions and options set forth in the most current BAHM User Manual.

7. Alternate HM Modeling and Design: The project applicant may use a continuous simulation hydrologic computer model to simulate pre-project and post-project runoff and to design HMCs. To use this method, the project applicant shall compare the pre-project and post-project model output for a rainfall record of at least 30-years, and shall show that all applicable performance criteria above are met.

IMPRACTICALITY PROVISION

Where conditions (e.g., extreme space limitations) prevent a project from meeting the HM Standard onsite for a reasonable cost, *and* where the project's runoff cannot be directed to a Regional HMC within a reasonable time frame, *and* where an In-stream HMC is not practicable, the project shall use (1) onsite design for hydrologic source control *and* (2) stormwater Treatment Control Measures (TCMs) that collectively minimize, slow, and detain runoff to the maximum extent practicable. In addition, if the cost of providing onsite design for hydrologic source control and TCMs to the maximum extent practicable does not exceed 2% of project costs (excluding land costs, which is defined below), the project shall make a financial contribution to an Alternative HM Project as set forth below:

1. Reasonable Cost: To show that the HM Standard cannot be met onsite at a reasonable cost, the project applicant must demonstrate that the total cost to comply with both the HM Standard and numeric sizing criteria for stormwater treatment system requirements exceeds 2% of the project construction costs, excluding land costs. Costs of HM and TCMs shall not include land costs, soil disposal fees, hauling, contaminated soil testing, mitigation, disposal, or other normal site enhancement costs such as landscaping or grading that are required for other development purposes.
2. Regional HMC: A Regional HMC shall be considered available if there is a planned location for the Regional HMC and if appropriate funding mechanism for a Regional HMC is in place by the time of project construction.
3. In-stream HMC Practicability: In-stream HMCs shall be considered practicable when an In-stream HMC for the project's watershed is planned and an appropriate funding mechanism for an in-stream measure is in place by the time of project construction.
4. Financial Contribution to an Alternative HM Project: If the cost of onsite design for hydrologic source control plus the cost of TCMs is less than 2% of the project construction costs, excluding land costs, a financial contribution shall be made to an alternative HM Project, such as a stormwater treatment retrofit, HM retrofit, Regional HMC, or In-stream HMC. The amount of any required financial contribution to an Alternative HM Project shall not exceed the lesser of the amount necessary to mitigate for the impact of project runoff that is not being mitigated onsite, or 2% of the project construction costs, excluding land costs, minus the amount spent for onsite design for hydrologic source control plus cost of TCMs, exclusive of land costs. Preference shall be given to projects discharging, in this order: to the same tributary; mainstem; watershed; and within the City of San José.

Project applicants shall submit cost documentation to support any claim of impracticability for the City to determine that compliance with the above performance criteria is impracticable based on cost.