



Review of Upcoming Changes to Municipal Regional Permit Provision C.3 Requirements



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Presentation Overview

- **What is already required?**
- **New requirements for “Special Land Use Types” and other regulated projects**
- **New requirements for Low Impact Development (LID) treatment**
- **Allowances for “Special Projects”**
- **Requirements for hydromodification management**

Bay Area Municipal Regional Permit

- Consolidates 6 Phase 1 municipal permits into 1 regional permit (76 permittees):
 - San Mateo, Santa Clara, Alameda, and Contra Costa Counties, Fairfield-Suisun, and Vallejo
- Effective date: Dec. 1, 2009
- Provision C.3 includes new, more prescriptive Low Impact Development (LID) requirements for new and redevelopment projects which will take effect Dec. 1, 2011



What is already required...

For **ALL** (Discretionary) Development Projects?

- Encourage site design measures
 - Pervious paving
 - Disconnected downspouts
- Encourage source control measures
 - Indoor wash areas drain to sanitary
 - Covered dumpsters



What is already required...

- For projects that create and/or replace 10,000 sq.ft. of impervious surface?
 - Require source controls
 - Require site design measures
 - Require stormwater treatment measures
 - For redevelopment projects, if replace more than 50% of existing impervious surface, entire project is subject to C.3 (“50% rule”)





What is already required... for stormwater treatment?

- Per Provision C.3.d, treatment systems must be designed with the capacity to treat:
 - **80% of the average annual runoff** (for volume-based treatment measures), OR
 - **Flow of runoff from a rain event of 0.2 inches per hour intensity** (for flow-based treatment measures)
- This is called the “water quality design flow/volume” or the “C.3.d amount of runoff.”

What is already required...

- For projects that create and/or replace 1 acre of impervious surface?
 - Determine if the project:
 - Is located in an area where creeks are susceptible to development-induced erosion (see SCVURPPP map)
 - Increases the area of impervious surface over the pre-project condition.
 - If both conditions exist, **hydromodification management** is required.



New Requirements Effective December 1, 2011

- New requirements for “Special Land Use Categories” and road projects
- New Low Impact Development treatment requirements
- Requirements to use new specifications:
 - Biotreatment Soil Specifications
 - Green Roof Specifications
- LID treatment reductions for “Special Projects”

December 2011						
Mon	Tue	Wed	Thu	Fri	Sat	Sun
28	29	30	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	1
2	3	4	5	6	7	8

New Requirements for Special Land Uses

■ “Special land use categories”:

- Retail gasoline outlets
- Auto service facilities
- Restaurants
- Uncovered parking lots - stand alone or part of another use (includes top level of parking structure unless plumbed to sanitary sewer)



- Projects that create and/or replace **5,000 sq. ft.** or more of impervious surface must implement site design, source control, and treatment measures
- Redevelopment: “50% rule” applies



Other Regulated Projects

- **Road and Trail Projects** – 10,000 sq. ft. threshold (contiguous impervious surface) applies to:
 - New roads, and sidewalks and bike lanes built as part of new roads
 - Widening of existing roads with traffic lane(s)
 - Trails >10 ft wide or < 50 ft from creek bank
 - Requirements for road widening with traffic lanes and trails take effect **12/1/11 for private projects** and **12/1/12 for public projects**

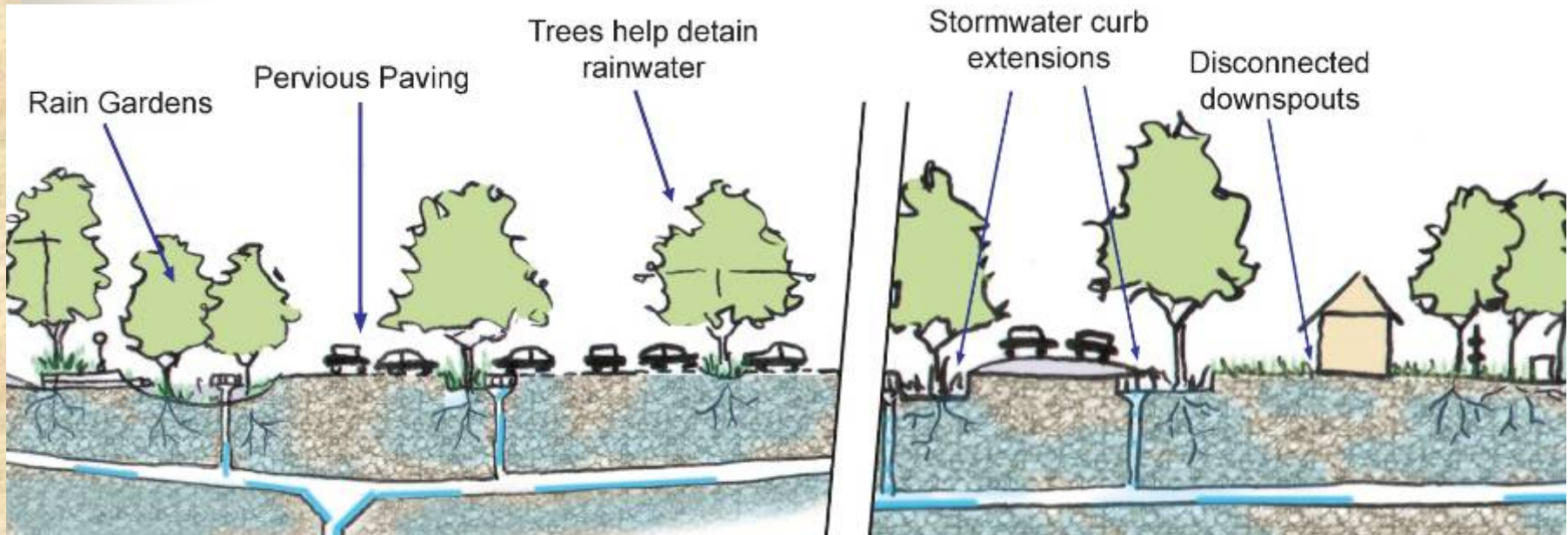


NOT Regulated Projects:

- Detached single family home;
- Roadway reconstruction;
- Road widening that does not add a travel lane;
- Sidewalks and bike lanes along existing roads;
- Impervious trails <10' wide and >50' from creek;
- Sidewalks, bike lanes and trails that drain to vegetated areas or made of permeable paving;
- Interior remodels;
- Routine maintenance and repair;
- Pavement resurfacing within existing footprint.

New LID Treatment Requirement

- Stormwater treatment must consist of **Low Impact Development (LID) treatment** (with limited exceptions for high density and transit oriented “Special Projects”)



New LID Treatment Requirement

- **Beginning 12/1/11, “LID treatment” is**
 - **Rainwater harvesting/reuse,**
 - **Infiltration,**
 - **Evapotranspiration,**
 - **Or, if these are infeasible, biotreatment.**



Harvesting for rainwater for indoor toilet flushing

LID Treatment Options

LID Technique	Category
Rainwater cisterns	Harvest and use
Landscaped detention, street trees	Evapotranspiration, infiltration
Pervious paving	Infiltration
Infiltration basin	Infiltration
Infiltration trenches	Infiltration
Bioretention areas (unlined, no underdrain)	Evapotranspiration, infiltration
Bioretention areas (lined, with underdrain)	Biotreatment
Planter boxes	Biotreatment

Use Site Designs to Reduce the Amount of Runoff that Must be Treated

- Self-Treating Areas
- Self-Retaining Areas
- Tree Credits



Pervious walkway



"Disconnected" downspout



Tree planting or preservation

Feasibility of Rainwater Harvesting and Use



- For many projects, it will be infeasible to harvest and use the full C.3.d amount of runoff
- This is due to insufficient demand for non-potable uses, such as:
 - Irrigation
 - Toilet flushing
- Details in next presentation

Feasibility of Infiltration

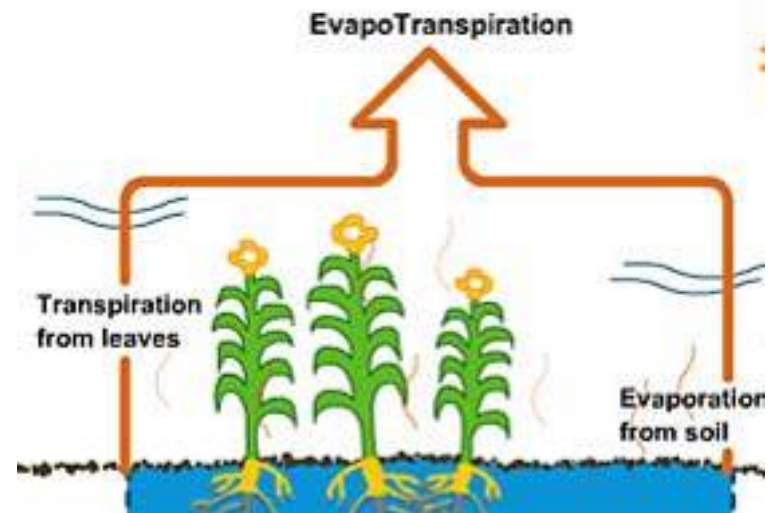


Bioretention areas can be designed to infiltrate the C.3.d amount of runoff.

- For many projects, it will be infeasible to infiltrate the full C.3.d amount of runoff into the soil
 - Native soils lack sufficiently high infiltration rates.
 - Modeling studies discussed in next presentation.

Feasibility of Evapotranspiration

- Evapotranspiration (ET) is the combined effect of evaporation and the transpiration of water from plant leaves
- The feasibility of ET is not evaluated because it is assumed to occur in all landscape-based treatment measures
- There is no separate ET treatment measure



Green Roof Specifications

- Green roofs are considered site design measures (self-treating or self-retaining) and remove runoff largely through ET processes
- Planting media shall be sufficiently deep to:
 - Provide capacity within the pore space of the media for the water quality design volume (typically > 3")
 - Support the long term health of the vegetation selected for the green roof, as specified by a landscape architect or other professional



Casa Feliz Green Roof, San Jose

What Are Biotreatment Measures?

- Must filter stormwater through “biotreatment soil”
 - Long-term infiltration rate of 5 to 10 inches per hour
 - Soil must be suitable to support plant health
- Must be large enough in surface area to
 - Have a surface loading rate of at least 5 inches per hour.



Bioretention/Rain Garden

Biotreatment Soil Specifications

- Designed for long term infiltration rate of 5 in/hr
- Designed to sustain healthy, vigorous plant growth and maximize stormwater runoff retention and pollutant removal
- Consist of the following mixture:
 - 60%-70% Sand
 - 30%-40% Compost
- Specifications provided for each component (available online and in C.3 Handbook)



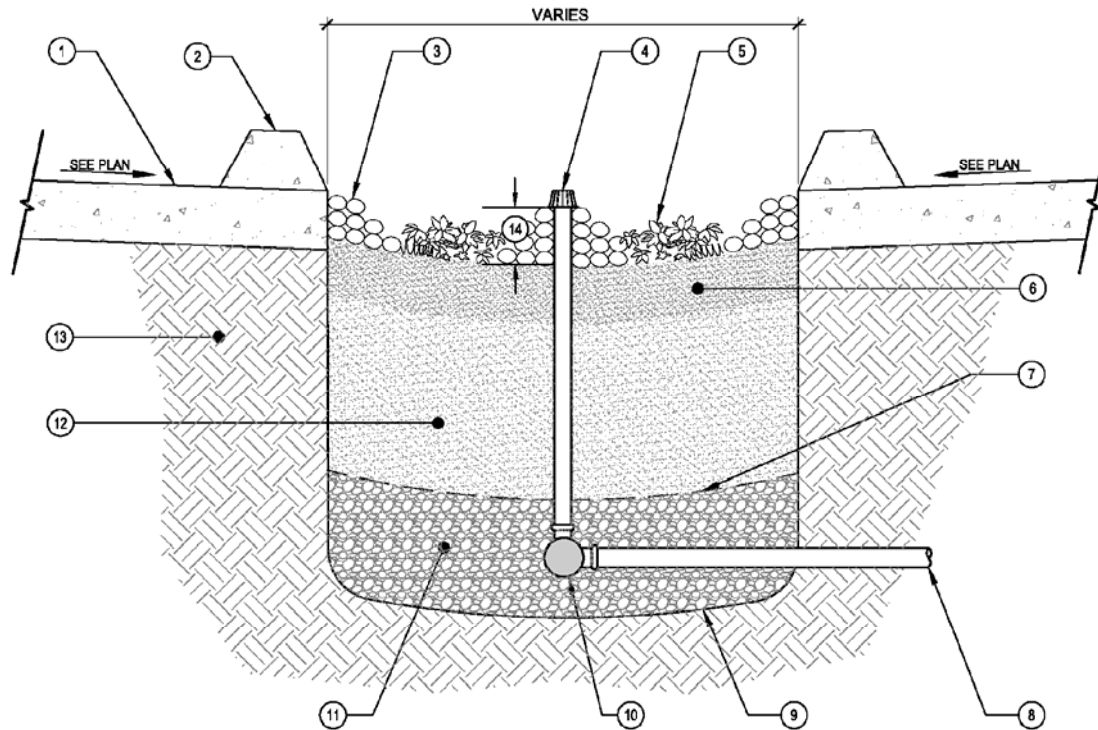
Bioretention Area,
Serramonte Library,
Daly City



When Is a Bioretention Area Considered “Biotreatment”?

- It is BIOTREATMENT when
 - It is infeasible to infiltrate C.3.d amount of runoff, and
 - An underdrain is provided that conveys treated runoff to the storm drain system.
- It is BIOINFILTRATION when
 - There is no underdrain and the C.3.d amount of runoff can be infiltrated, or
 - An underdrain is placed above a storage area (drain rock) that can contain the C.3.d amount of runoff and conveys excess treated runoff to the storm drain.
- Unless hazards exist, biotreatment should maximize infiltration

Typical Bioretention Cross Section



NOTES:

SEE CALCULATIONS ON STORMWATER PLANS FOR DIMENSIONS.

- ① PARKING LOT SURFACE (TYPICAL)
- ② WHEEL STOP (TYPICAL)
- ③ COBBLE STONE DISSIPATOR ALONG EDGE OF BIORETENTION CELL (TYPICAL)
- ④ OVERFLOW PIPE WITH ATRIUM GRATE WITH COBBLE STONE AROUND PIPE
- ⑤ VEGETATION (SEE LANDSCAPE PLANS)
- ⑥ PLANTING SOIL MIX (MIN. 6" DEPTH)
- ⑦ FILTER FABRIC (TYPICAL)
- ⑧ TO STORM DRAIN SYSTEM
- ⑨ IMPERMEABLE LINER (TYPICAL)
- ⑩ PERFORATED PVC SUBDRAIN PIPE
- ⑪ DRAIN ROCK (MIN. 12" DEPTH)
- ⑫ SANDY LOAM WITH PERCOLATION RATE OF 5" TO 10" PER HOUR (MIN. 18" DEPTH)
- ⑬ NATIVE GRADE OR CERTIFIED COMPACTED SUBGRADE
- ⑭ PONDING DEPTH FROM INLET OPENING TO GRADE (MIN. 6" DEPTH)

BIORETENTION CELL- WHEEL STOPS
SCALE: 1"=1'-0"

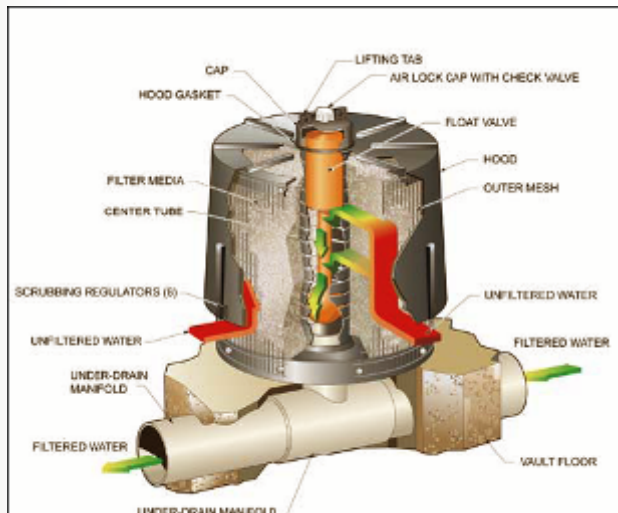


What about other types of treatment measures?

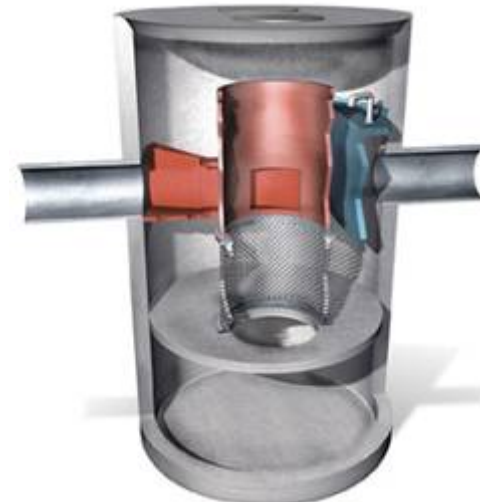
- Vegetative swales (treat via flow through surface vegetation) – not considered LID treatment
- Vegetative swales that infiltrate runoff through bioretention soils – are LID (linear bioretention)
- Vegetated filter strips – not LID treatment but can be combined with other measures
- Dry detention basins – not LID treatment but can be combined with other measures

Use of Vault Systems Will Be Restricted

- Mechanical, vault-based stormwater treatment systems do not meet LID treatment requirements.
- Media filters may be used for special projects.
- Hydrodynamic separators are only allowed as part of a treatment train.



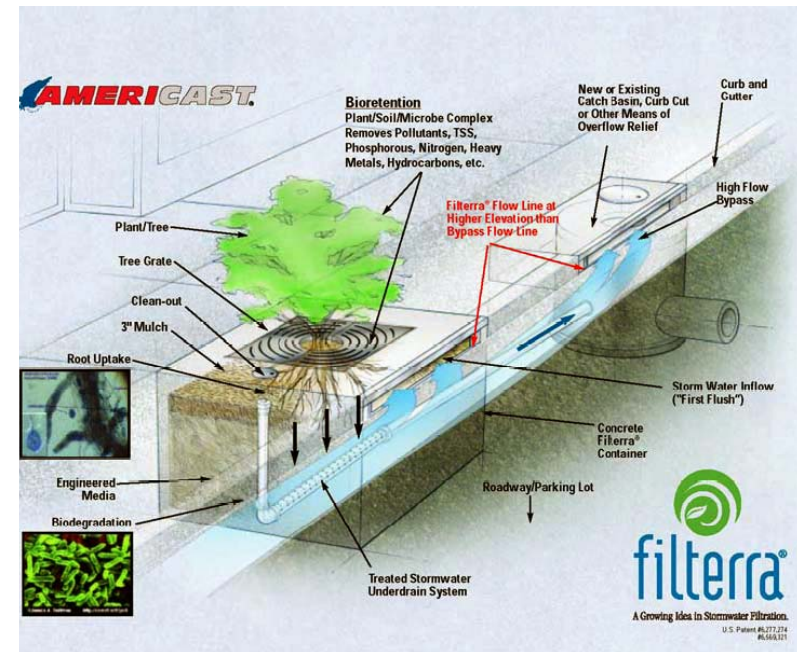
Media Filter Cartridge



Hydrodynamic Separator

Use of Manufactured Tree Box Filters Will Be Restricted

- Infiltration rate of media exceeds biotreatment requirement
- Use may be allowed for special projects
- Tree box filters with bioretention soil media are considered LID



Alternative Compliance Options

- Can apply to any Regulated Project
 - **Option 1**: A portion of LID Treatment onsite and the rest at offsite location in same watershed
 - **Option 2**: A portion of LID Treatment onsite and payment of in-lieu fees to treat equivalent amount of runoff at Regional Project in same watershed





New Requirements Effective December 1, 2012

- LID treatment requirements take effect for all regulated public projects
- Threshold drops to 5,000 sq.ft. for public special land use projects (auto facilities, gas stations, restaurants, uncovered parking lots)
- Public road widening with traffic lane and creek-side paved trails >10' wide become regulated projects
- Small projects >2,500 sq.ft. and <10,000 sq.ft. and detached single family homes > 2,500 sq.ft. must include one of six site design measures (guidance being developed)



Effective Dates

- **What if my project is already “in the pipeline”?**
 - Projects in the review process are exempt from requirements for LID treatment, 5,000 sq.ft. threshold, and road/trail project applicability if:
 - **Private Projects** –
 - Deemed complete before 12/1/09 and project applicant is “diligently pursuing the project” (i.e., some action between 12/1/09 and 12/1/11)
 - Deemed complete after 12/1/09 and project applicant receives final discretionary approval before 12/1/11
 - **Public Projects** –
 - If funding committed and construction scheduled to begin by December 1, 2012

“Special Projects”

- Special Projects are high density and transit oriented development projects that may receive LID treatment reduction credit
- Water Board December is scheduled to adopt Special Projects criteria on November 28, 2011
- Some projects will qualify for limited use of media filters and tree box filters



“Special Projects” Category A

- Located in central business district or comparable pedestrian oriented district.
- Built as part of objective to preserve or enhance pedestrian-oriented environment.
- Creates or replaces ½ acre or less of impervious surface.
- No surface parking except for emergency access, ADA or loading requirements.
- 85% of lot is covered by buildings; remaining 15% is for safety access, trash/recycling, public uses, etc.
- 100% LID treatment reduction credit.



“Special Projects” Category B

- Located in central business district or comparable pedestrian oriented district.
- Built as part of objective to preserve or enhance pedestrian-oriented environment.
- Creates or replaces $> \frac{1}{2}$ acre, but no more than 2 acres, of impervious surface.
- No surface parking except for emergency access, ADA or loading requirements.
- 85% of lot is covered by buildings; remaining 15% is for safety access, trash/recycling, public uses, etc.
- Graduated system of LID treatment reduction credit.



“Special Projects” Category B

LID Treatment Reduction	Land Use	Density
50%	Commercial or Mixed Use	Floor Area Ratio 2:1
50%	Residential	50 dwelling units/acre
75%	Commercial or Mixed Use	Floor Area Ratio 3:1
75%	Residential	75 dwelling units/acre
100%	Commercial or Mixed Use	Floor Area Ratio 4:1
100%	Residential	100 dwelling units/acre

“Special Projects” Category C Transit Oriented Development Projects

- Prerequisite - Must be a non-auto oriented project
- If it is a commercial or mixed use project, a minimum floor area ratio of 2:1 is required.
- If it is a residential project, a minimum density of 25 dwelling units/acre is required.
- Graduated system of LID treatment reduction credit:
 - Location credit
 - Density credit
 - Minimize surface parking credit



“Special Projects” Category C Location Credit System

LID Treatment Reduction	Location
50%	Within ¼ mile radius of existing or planned transit hub
25%	Within ½ mile of radius of existing or planned transit hub
25%	Within a planned Priority Development Area (designated by ABAG/MTC)

“Special Projects” Category C Density Credit System

LID Treatment Reduction	Land Use	Density
10%	Commercial or Mixed Use	Floor Area Ratio 2:1
10%	Residential	30 dwelling units/acre
20%	Commercial or Mixed Use	Floor Area Ratio 4:1
20%	Residential	60 dwelling units/acre
30%	Commercial or Mixed Use	Floor Area Ratio 6:1
30%	Residential	100 dwelling units/acre



“Special Projects” Category C Minimum Surface Parking Credit System

LID Treatment Reduction	Location
10%	10% or less of the total post-project impervious surface is dedicated to at-grade surface parking
20%	No surface parking except for emergency vehicle access, ADA accessibility, and loading zones

Hydromodification Management Requirements

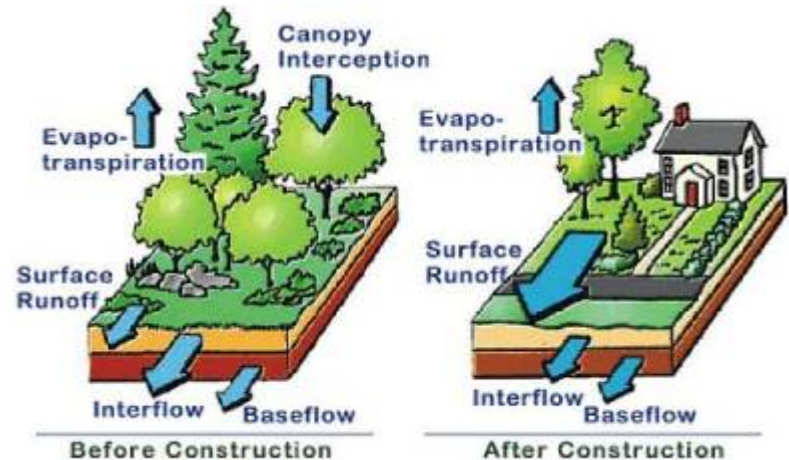


Hydromodification:

- The change in the runoff hydrograph from an area due to development
- Can cause increased creek/channel erosion downstream

Hydromodification

- **Effects of land development on the site runoff hydrograph:**
 - Less infiltration / evapotranspiration
 - More surface runoff (increased volume)
 - Runoff leaves the site faster (increased peak flows)
 - Runoff occurs more often (increased duration)
 - More runoff conveyed directly to creek





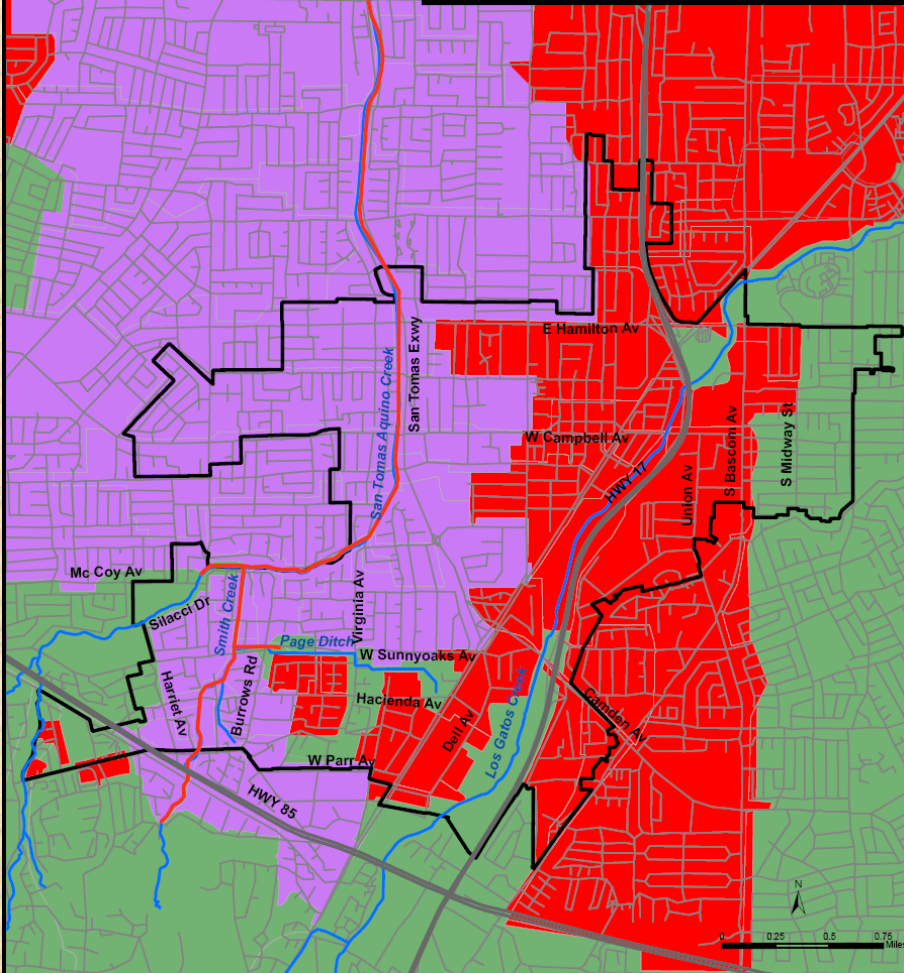
C.3 Hydromodification Management (HM) Requirements

- Increases in runoff peak flow, volume, and duration must be managed for projects that create or replace 1 acre or more of impervious area, where increased flows may cause increased erosion in streams
- Flow controls are required to limit post-project peak flows, volumes and durations to pre-project condition, for a specified range of flows
- Does not apply to projects that will not cause erosion downstream (e.g., if project drains to hardened channel or tidal zone, or does not increase impervious surface above pre-project condition)

HMP APPLICABILITY MAP CITY OF CAMPBELL

- Legend**
- Continuously Hardened Channel
 - Major Creeks
 - Roads and Highways
 - Jurisdictional Boundary
 - Catchments Draining to Hardened Channel and/or Tidal Areas
 - Catchments and Subwatersheds \geq 65% Imperviousness
 - Subwatersheds less than 65%
 - Reservoirs in Santa Clara Basin

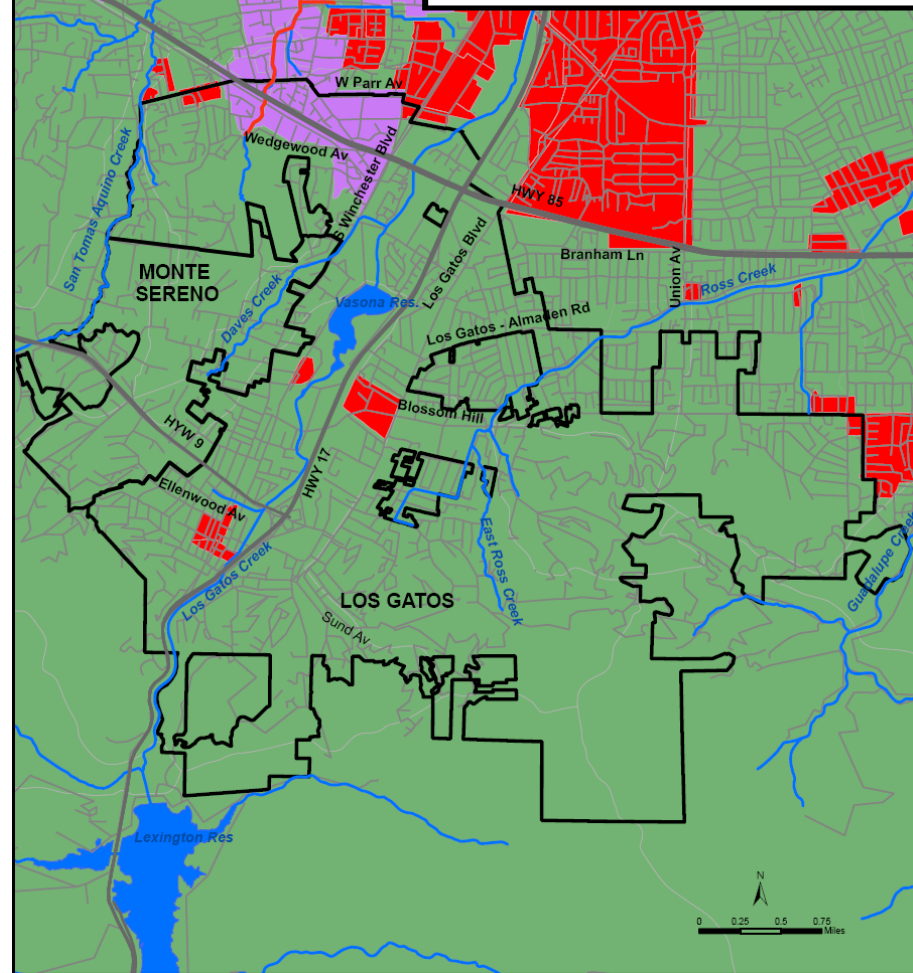
Date: November 2010



HMP APPLICABILITY MAP CITY OF MONTE SERENO, TOWN OF LOS GATOS

- Legend**
- Continuously Hardened Channel
 - Major Creeks
 - Roads and Highways
 - Jurisdictional Boundary
 - Catchments Draining to Hardened Channel and/or Tidal Areas
 - Catchments and Subwatersheds \geq 65% Imperviousness
 - Subwatersheds less than 65%
 - Reservoirs in Santa Clara Basin

Date: November 2010





HM Requirements Apply if All of the Following are True:

- Project creates and/or replaces ≥ 1 acre of impervious surface
- Project is located in a green area of the HM applicability map
- Project increases the area of impervious surface above the pre-project condition

For More Information:

Go to www.scvurppp.org

- **Municipal Regional Permit and all submittals to date**
(Google “SF Bay Municipal Regional Permit”)
- **SCVURPPP Site Design Guidebook**
- **Updates to C.3 Handbook**

(Click on Program Components/New Development and Redevelopment/Reports and Work Products)



**Roosevelt Community
Center, San Jose**