Bay-Friendly Green Stormwater Infrastructure & Compost Usage

Santa Clara County

Master Composter Training

San Jose

April 28, 2016

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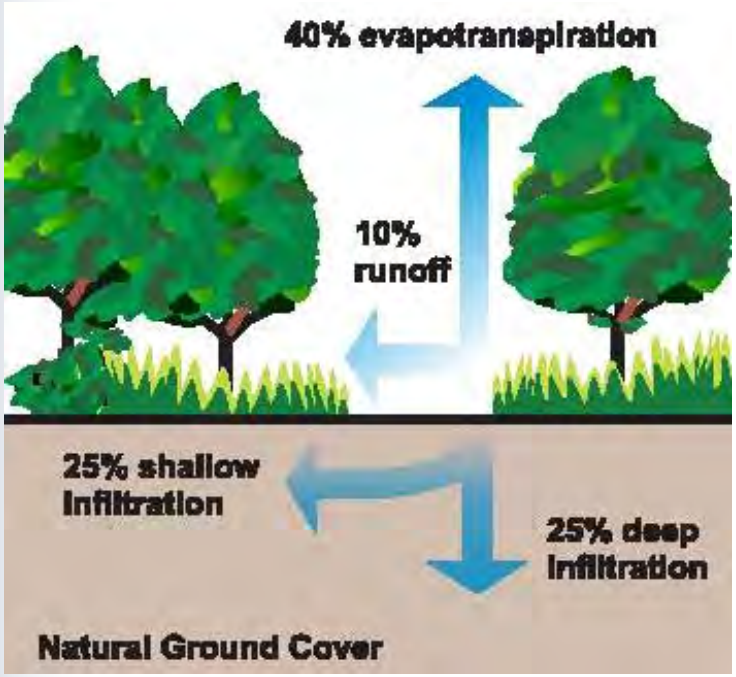
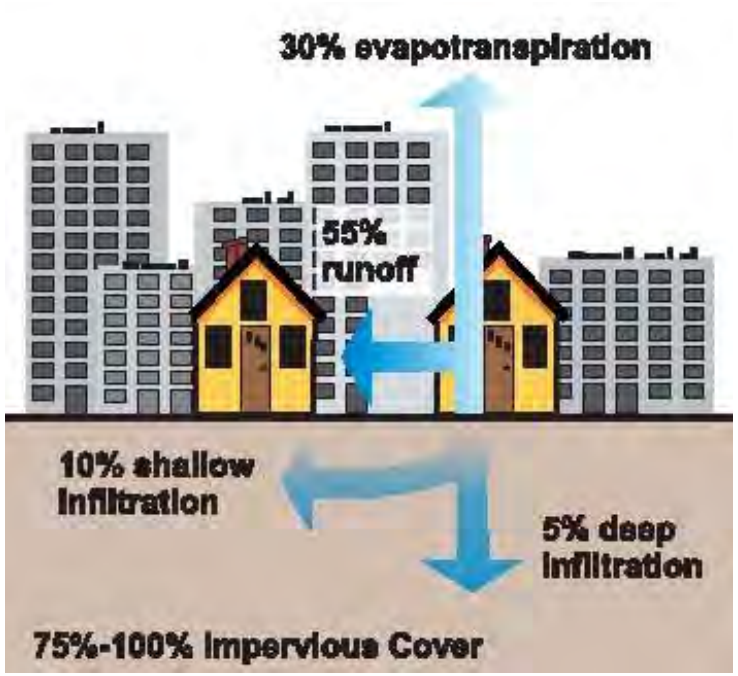
Presentation Overview:

- Problems with stormwater
- Regulations in the Bay Area
- Part 1: Residential Green Infrastructure (GI)
- Part 2: Non-Residential Green Streets and GI
- Compost Utilization

How does land development affect the hydrologic cycle?





Little runoff before development

Lots of runoff after development

Why Regulate Pollutants in Stormwater?

- The storm drain system is **completely separate** from the sanitary sewer system
- Water entering storm drains generally **receives no treatment** before discharging to creeks and the Bay
- San Francisco is the only city in the Bay Area that has a combined storm/sewer system (in most of the City.)

How do increases in flow affect creeks?

Creek in decent shape – upstream reach

Channel incision and erosion on same creek in lower area

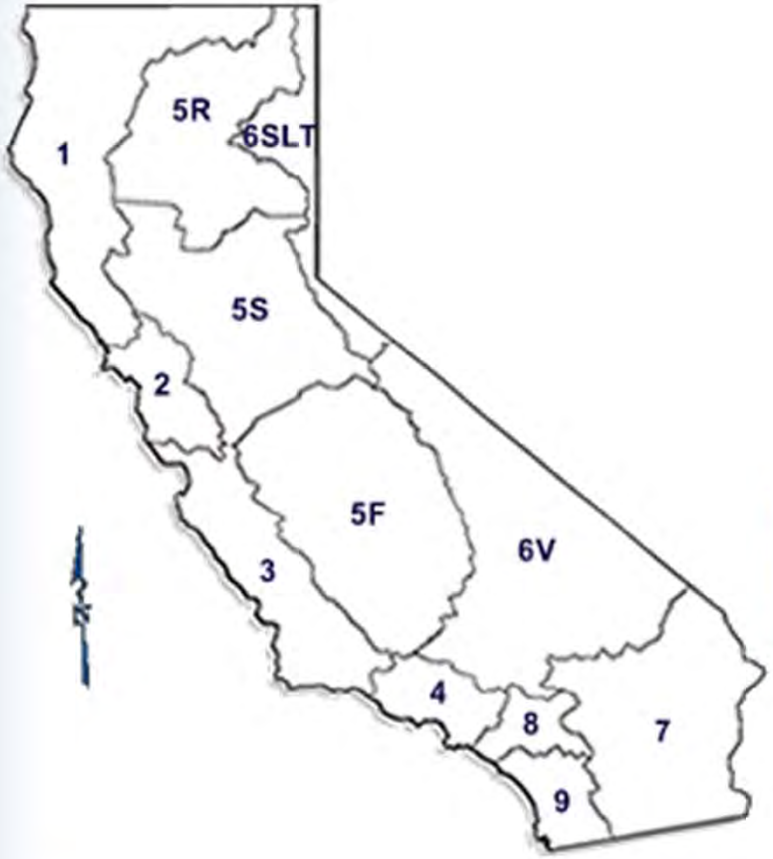
Lower Silver Creek
(Erosion undermining outfall protection structure on left bank)

Concrete Lining with Floodwall – Matadero Creek

Regulatory Background: Municipal Stormwater Permits

- Since 1987 the federal Clean Water Act has required municipalities to obtain **permits to discharge stormwater** from municipal storm drain systems
- These are National Pollutant Discharge Elimination System (NPDES) **Municipal Stormwater** Permits
- EPA has also established construction and industrial discharge standards

NPDES Permitting Authority



U.S. EPA

State Water Resources Control Board

Regional Water Quality Control Board (9 regions)

MS4s

MS4 = Municipal separate storm sewer system

Bay Area Municipal Regional Permit (MRP)

- MRP 1.0 Consolidated six Phase 1 countywide permits into one regional permit (76 permittees):
  - San Mateo, Santa Clara, Alameda, and Contra Costa Counties, Fairfield-Suisun, and Vallejo
- MRP 1.0: 2010-2015
- MRP 2.0: 2016-2020
  - Green Infrastructure Planning
  - Control pollutants of concern: Trash, Mercury, PCBs, Pesticides

Part 1:
Small Scale
Residential Green
Infrastructure Design

Types of GI Measures

- Biotreatment Measures:
  - Rain garden
  - Flow-through planter
  - Green roof
- Other Measures:
  - Pervious Paving
  - Rain Barrels and Cisterns

Biotreatment: Rain Garden

Emeryville

Berkeley

Biotreatment: Flow-Thru Planter

Emeryville

Biotreatment: Green Roofs

Emeryville

Pervious Paving

Rain Barrels/Cisterns

Part 2:
Larger Scale
Public and Private
Green Streets and
Green Infrastructure Design

Types of GI Measures

- Biotreatment Measures:

  Green Streets:

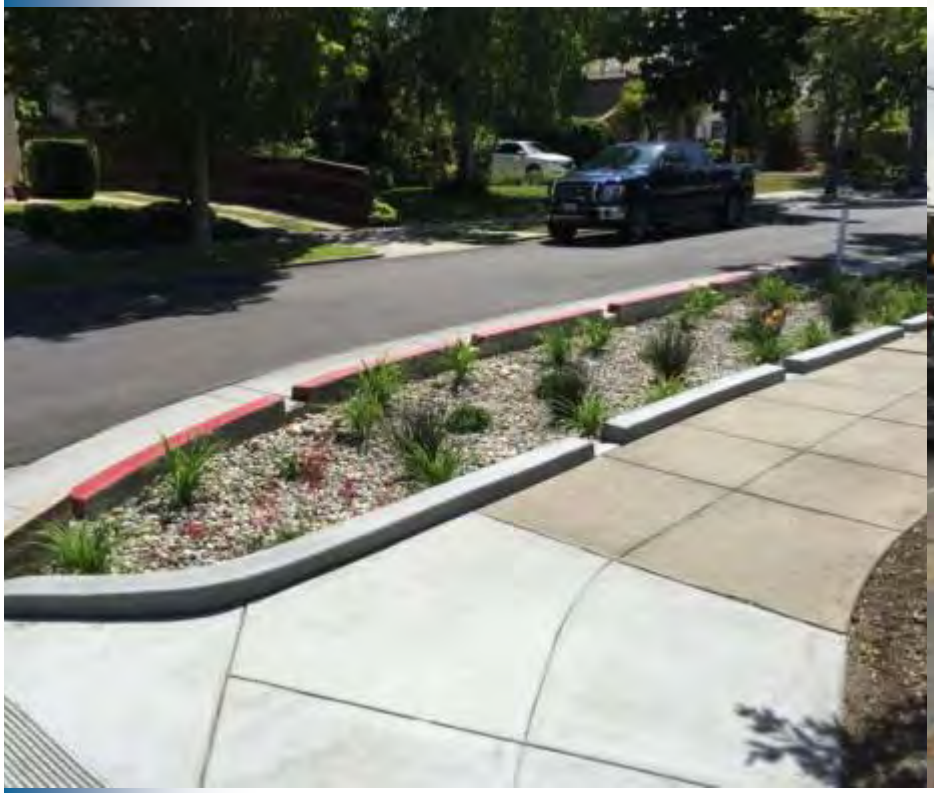
  - Green Bulb-out
  - Sidewalk planter
  - Traffic Circle
  - Tree Trench
  - Rain garden

  Buildings and Parking lots:

  - Flow-through planter
  - Green roof
  - Tree Trench
  - Rain garden

- Other Measures
  - Pervious Paving
  - Infiltration trenches
  - Cisterns

Biotreatment: Green Bulb-out



Palo Alto

Campbell

Biotreatment: Sidewalk Planter

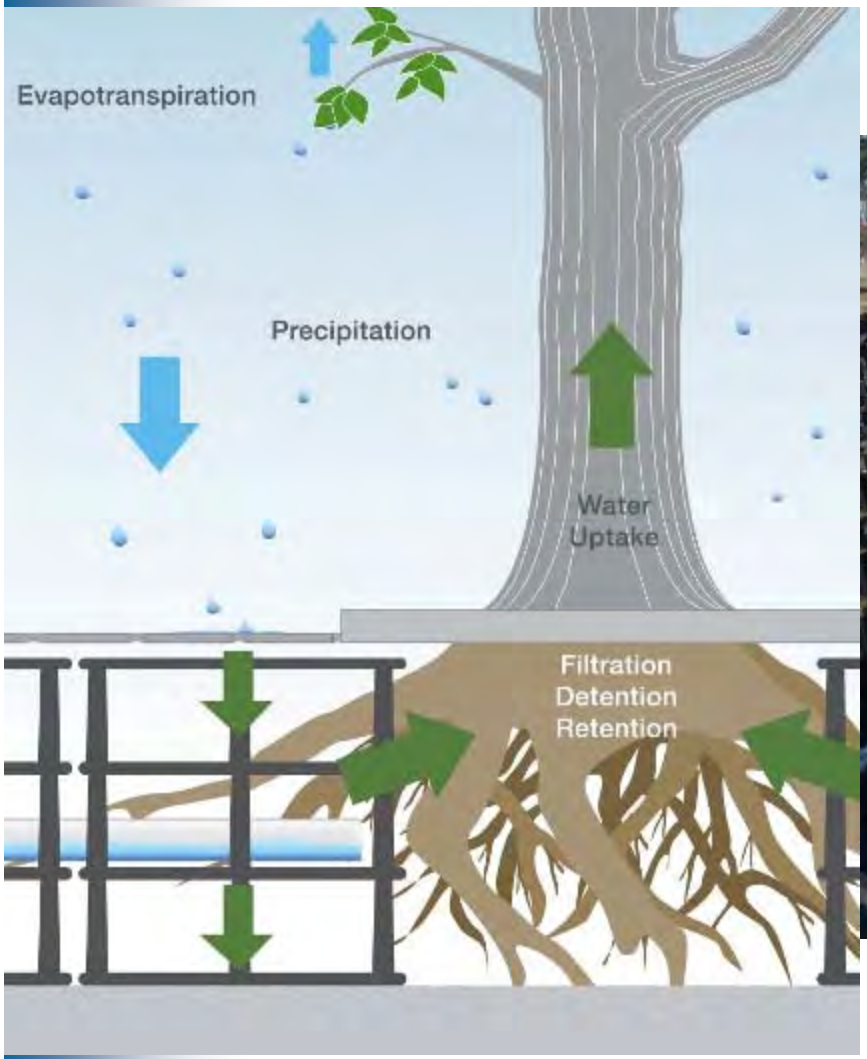
San Mateo

Alameda

Biotreatment: Traffic Circle

Berkeley

Biotreatment: Tree Trench



Sunnyvale

Biotreatment: Rain Garden

San Jose

El Cerrito

Biotreatment: Flow-Thru Planter

Emeryville

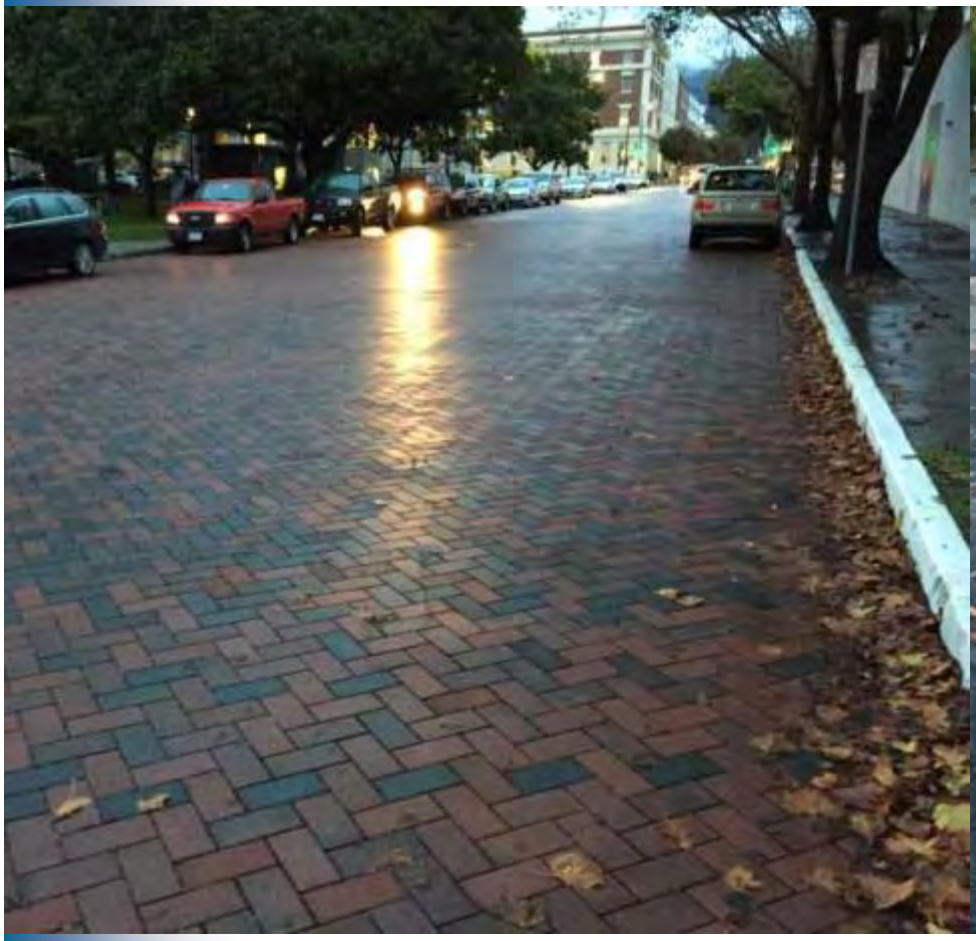
Alameda

Biotreatment: Green Roofs

San Jose

San Bruno

Pervious Paving



Berkeley

Berkeley

Infiltration Trenches

San Jose

Cisterns

Oakland

Berkeley

Road Diet Example: Colma

Before: two travel lanes in each direction, sidewalk only one side, no on-street parking and no cross-walks.

After: new bike & parking lanes & green bulb-outs w/ crosswalk.

Roadside Landscaping Retrofit Example: Berkeley

Before: City park area - low use with high maintenance

After: re-graded area w/ new rain garden treating street run-off.

Uses of Compost in Urban Areas:

1. Biotreatment Soil Mix
2. Erosion and Sediment Control
3. New Landscapes
4. Mulch
5. Retrofit Existing Landscapes
6. Landscape Maintenance

1. Biotreatment Soil Mix*

*BSM is a special mix of 30-40% compost and 60-70% sand. It is designed to be permeable over the long term to prevent standing water. Do not use regular planting soil if replacement soil is needed.

a) Don’t compact during construction.
b) Don’t allow fine sediments to enter system during construction.

SAN MATEO COUNTYWIDE
Water Pollution Prevention Program
Clean Water. Healthy Community.

BIOTREATMENT SOIL MIX SUPPLIER LIST

Company	Contact Name	Phone	Address	City	Zip	E-mail	Website
American Soil & Stone Products Inc.	Ryan Hoffman	510-292-3018	Richmond Annex, 2121 San Joaquin St., Bldg. A	Richmond	94804	ryan@americansoil.com	www.americansoil.com
L.H. Voss Materials, Inc	Nyoka Corley	925-676-7910	5965 Dougherty Road	Dublin	94568	nyoka.corley@gmail.com	www.lhvoss.com
Lehigh Hanson Aggregates	Chris Stromberg	510-246-0393	4501 Tidewater Ave.	Oakland	94601	chris.stromberg@lehighhanson.com	www.lehighhanson.com
Lyngso Garden Materials, Inc.	Paul Truyts	650-333-1044 650-364-1730 x131	19 Seaport Blvd.	Redwood City	94063	ptruyts@lyngsogarden.com	www.lyngsogarden.com
Marshall Brothers Enterprises, Inc.	Phillip Marshall	925-449-4020	P.O. Box 2188	Livermore	94551	phillip@mbenterprises.com	www.mbenterprises.com
Pleasanton Trucking Inc.	Tom Bonnell	925-449-5400	P.O. Box 11462	Pleasanton	94588	pleasanton_trucking@yahoo.com	www.pleasantontrucking.com
Redi-Gro Corporation	Sharon Yon	916-381-6063 800-654-4358	8909 Elder Creek Road	Sacramento	95828	redigropro@redi-gro.com	www.redi-gro.com
TMT Enterprises, Inc.	Matt Moore	408-432-9040	1996 Oakland Road	San Jose	95131	info@tmtenterprises.net	www.tmtenterprises.net

As of: 8/1/2015

Disclaimer: SMCWPPP provides this list of biotreatment soil mix suppliers for the use of its member agencies, contractors, designers and others in finding suppliers for their projects. Suppliers are listed based on a general review of their soil mix product including test results, adherence to the Attachment L specification in the MRP and knowledge of the specification. Therefore users of this SMCWPPP list must make the final determination as to the products and adherence to Attachment L of the MRP. Users of the list assume all liability directly or indirectly arising from use of this list. The listing of any soil supplier is not be construed as an actual or implied endorsement, recommendation, or warranty of such soil provider or their products, nor is criticism implied of similar soil suppliers that are not listed. This disclaimer is applicable whether the information is obtained in hard copy or downloaded from the Internet. Check the SMCWPPP website for the "Biotreatment Soil Mix Verification Checklist" and "Biotreatment Soil Mix Supplier Verification Statement" for assistance in reviewing and approving soil mix submittals. www.flowatobay.org/newdevelopment


THE CANNERY

2. Sediment and Erosion Control

a) Erosion Control
   - Compost Blankets and Berms

b) Sediment Control
   - Compost-filled Socks

3. New Landscapes

a) In city municipal codes
b) In city development project conditions of approval
c) The City of Emeryville requires 6 cubic yards of compost per thousand square feet of landscape.

4. Mulch

a) The State of California's Water Efficient Landscape Ordinance requires 3" of mulch covering all bare soil in new landscapes
b) The Stormwater Regional Permit (from the Regional Water Board) requires 3" of mulch on all bare soils in new treatment landscapes.
c) Composted Arbor Mulch is best (tree trimmings.)


4401
NO
TRUCK
PARKING
ANY TIME

5. Soil Amendment

a) Existing landscapes with deficient organic matter and or clayey soils can be retrofitted (amended) with compost
b) Common amount – 6 cubic yards of compost per thousand square feet of landscape area.

6. Landscape Maintenance

a) Municipal requirements to maintain public landscapes with Bay-Friendly practices such as using compost instead of synthetic fertilizers for maintenance.
b) Stormwater treatment landscapes have maintenance requirements. Compost and other Bay-Friendly practices can be required to minimize use of pesticides.

Contact Information

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