



Green Infrastructure Workshop – April 25, 2016

# Green Infrastructure: What is It and Why Do We Need to Convert “Gray” to “Green”?

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# Outline of Presentation

- Green Infrastructure Concepts and Benefits
- Examples of Green Infrastructure / Low Impact Development Measures
- Green Infrastructure Requirements in the Stormwater Permit

# What is Green Infrastructure? (or Green Stormwater Infrastructure)

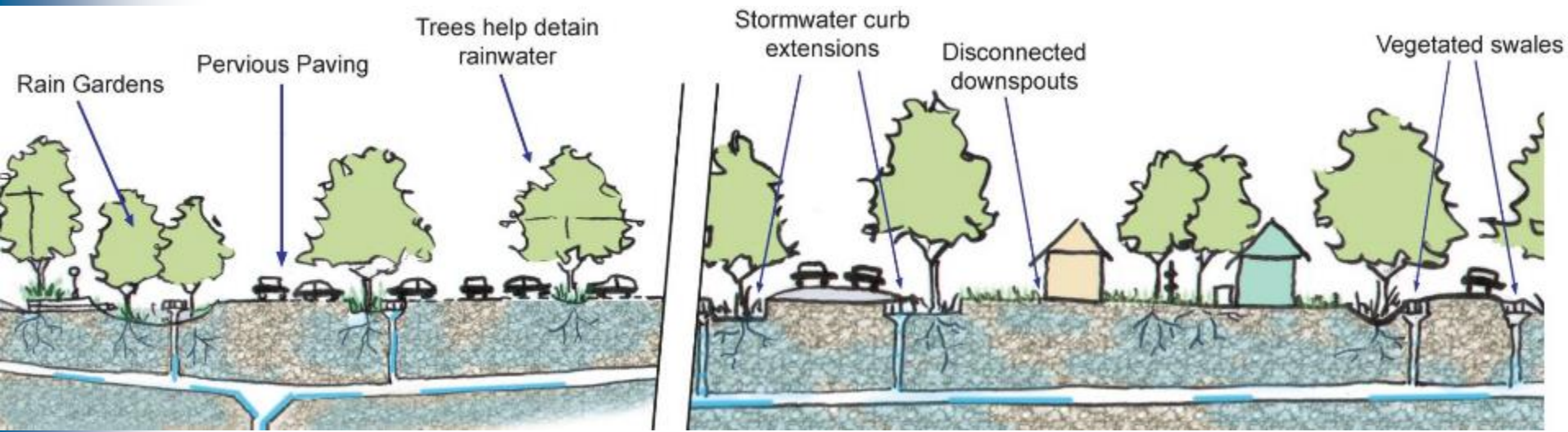
- Systems that use vegetation, soils, and natural processes to manage water and create healthier urban environments
- Broad definition includes:
  - Distributed stormwater management systems that capture, infiltrate, and treat runoff
  - Streetscapes, parking lots and other development that include such systems
  - Regional stormwater management systems (e.g., large scale storage/infiltration systems)
  - Natural areas / parks

# What is Green Infrastructure?

- Most urban green infrastructure will involve retrofitting existing public streets, roofs, and parking lots to divert runoff to:
  - Vegetated areas
  - Pervious pavements
  - Biotreatment and infiltration facilities
- We call these Low Impact Development (LID) site design and treatment measures
- These measures supplement current requirements for LID on regulated projects

# Low Impact Development (LID)

- Reduce runoff and mimic a site's natural (predevelopment) hydrology by:
  - Minimizing disturbed areas and impervious surfaces
  - Retaining and treating stormwater runoff using infiltration, evapotranspiration, rainwater harvesting and use, or biotreatment



# Green Infrastructure Benefits

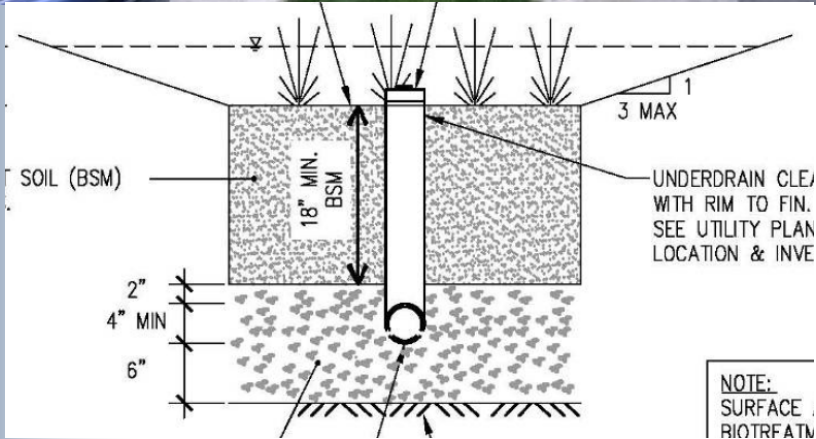
- GI projects can achieve multiple benefits:
  - Flow reduction
  - Pollutant load reduction
  - Urban greening
  - Traffic calming
  - Improved bike/pedestrian environment
  - Improved safety & health
  - Climate benefits
  - Increased property values
- Promoting these benefits helps get public support



# LID Treatment Measures



- Engineered systems that remove pollutants from stormwater
  - Hydraulically sized to treat stormwater runoff from **frequent, small storm events**
  - Required to treat 80% of the annual runoff (sum of runoff from small storms)
  - Can help reduce sizes of traditional storm drain facilities



# Bioretention Areas



# Flow-Through Planters

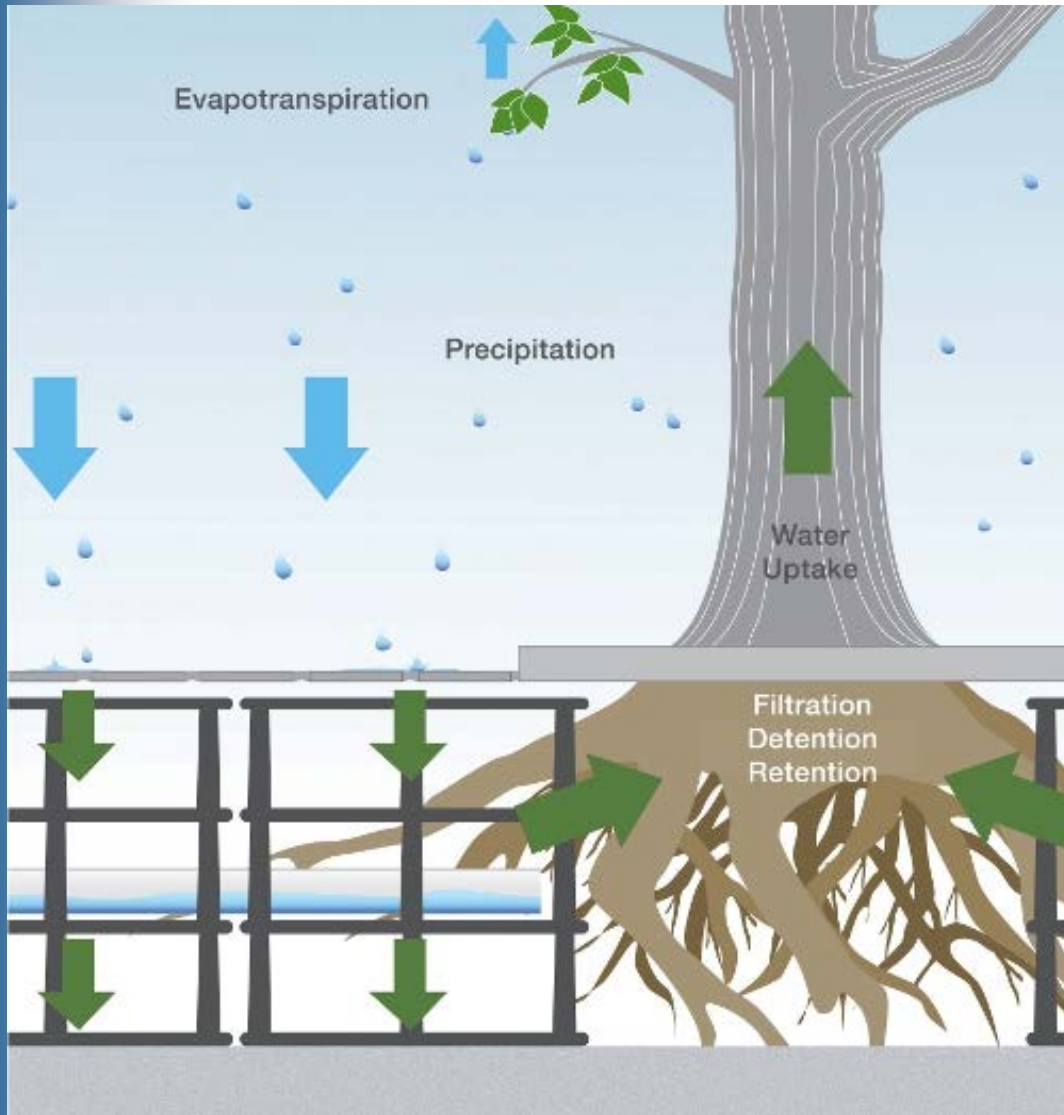


San Jose



Alameda

# Biotreatment in Tree Trench



# Green Roofs

## First Community Housing Projects



Fourth St. Apartments,  
San Jose



Casa Feliz,  
San Jose

# Pervious Pavement



# Pervious Pavement



Allston Way,  
Berkeley



Commodore Park,  
San Jose

# Infiltration Trench



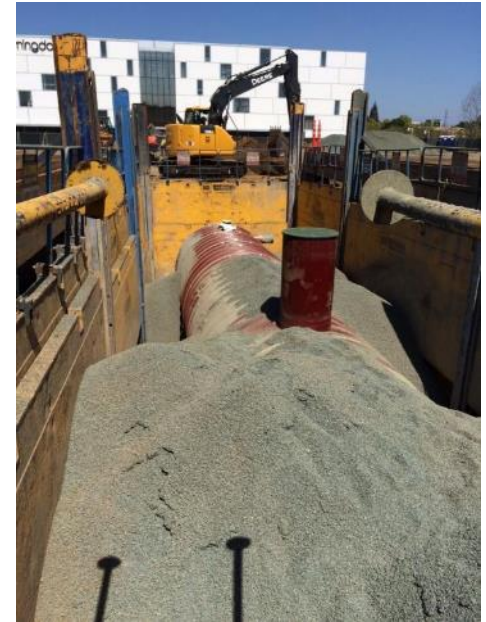
# Rainwater Harvesting in Cisterns



San Jose Environmental  
Innovation Center



Cistern at Private  
Residence in  
Mountain View



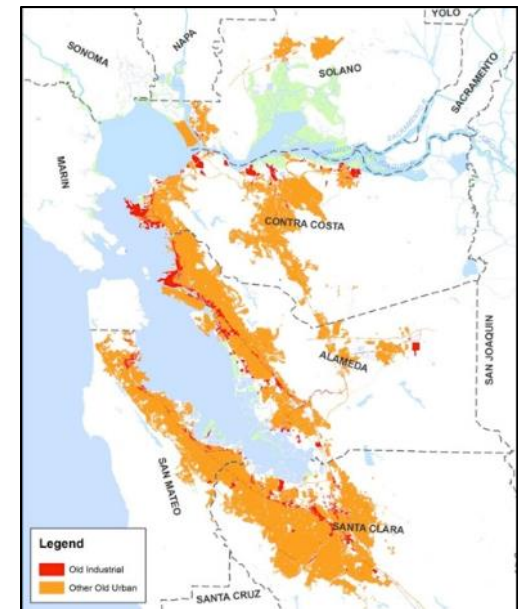
Stanford Shopping  
Center

# Permit Requirements (C.3.j)

- Develop a Green Infrastructure (GI) Plan
  - Prioritize and map planned and potential projects
  - Update related municipal plans
  - Evaluate funding options
  - Track progress
- Conduct education and outreach
- Conduct “early implementation”
  - Construct planned and funded projects
  - Identify potential projects - review public project lists and assess opportunity for incorporating GI elements

# Permit Requirements

- Link between GI planning and implementation and required pollutant controls in C.11 & C.12
  - Control measures for certain pollutants (PCBs and mercury) include green infrastructure
  - Quantities of PCBs and mercury discharged to the Bay must be reduced to specified levels by 2040
  - GI Plans must provide reasonable assurance that specified PCB and mercury load reductions will be met (via public and private projects)



High PCB Concentrations in Sediments

# Key Permit Deadlines

Deliverable	Due Date
List of Current/Potential GI Projects	9/30/16 and annually
Summary of Education/Outreach Efforts	9/30/16 and annually
Approved GI Framework (Work Plan for Developing the GI Plan)	6/30/17
Completed GI Plan	9/30/19
Documentation of Legal Mechanisms	9/30/19

# Permit Requirements

- Public vs. Private Projects
  - C.3 requirements for regulated development projects (public and private) have not changed
  - Most projects in the GI Plan will be retrofit projects in the public right-of-way (ROW)
  - Private development can help fund improvements in public ROW or use as alternative compliance
  - LID treatment on private property will be tracked and counted towards reducing PCB and mercury loads



# Questions / Discussion



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