Low Impact Development (LID) and Sustainability Projects

CALIFORNIA
Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

Sustainable Infrastructure Resource Forum
Presented by: Erin Ragazzi

PRESENTATION OUTLINE

- Conceptual Definitions
  - Sustainability
  - Low Impact Development (LID)
- Background
- Example Projects
  - Limited Focus Today
  - Who, what, where, how, why?
- Concluding Thoughts

DEFINITIONS (conceptual)

- Sustainability:
  - Resolutions No. 2005-0006 and No. 2008-0030
  - One of eight principles and values identified in *2010 Strategic Plan Update Report*
  - *"Supporting Sustainable Systems"* identified as one of four focus areas through 2011

DEFINITIONS (conceptual)

- Sustainability:
  - Practice of preserving the long-term vitality of local communities by balancing environmental, economic, and social resources

  (Source: State Water Resources Control Board, Item #6, January 20, 2005)
- Sustainable:
  - Resources must only be used at a rate at which they can be replenished naturally

  (Source: Proposition 84 Storm Water Grant Program Guidelines)

DEFINITIONS (conceptual)

mimic pre-development

- Low Impact Development:
  - storm water management strategy aimed at **maintaining or restoring <u>natural</u> hydrologic functions** of a site or project to achieve natural resource protection objectives and fulfill environmental regulatory requirements
  - employs variety of natural and built features that reduce runoff rate, filter out pollutants, facilitate infiltration water into ground and/or on-site storage for reuse

Source: Proposition 84 Storm Water Grant Program Guidelines

BACKGROUND

- Projects funded through Clean Water State Revolving Fund (CWSRF) Program, Expanded Use
  - Funded using stimulus funds (American Recovery and Reinvestment Act of 2009)
  - Focus on four of more than 100 projects funded with stimulus funds under CWSRF Program

BACKGROUND

Projects:

1. Mobile Filtration System (Town of Hillsborough)
2. Stormwater Management in Yuba Watershed (American Rivers)
3. Public Utilities Pilot Infiltration Project (City of Anaheim)
4. Upper Las Positas Creek Restoration & Storm Water Management Project (City of Santa Barbara)

Mobile Filtration Unit
(Town of Hillsborough)

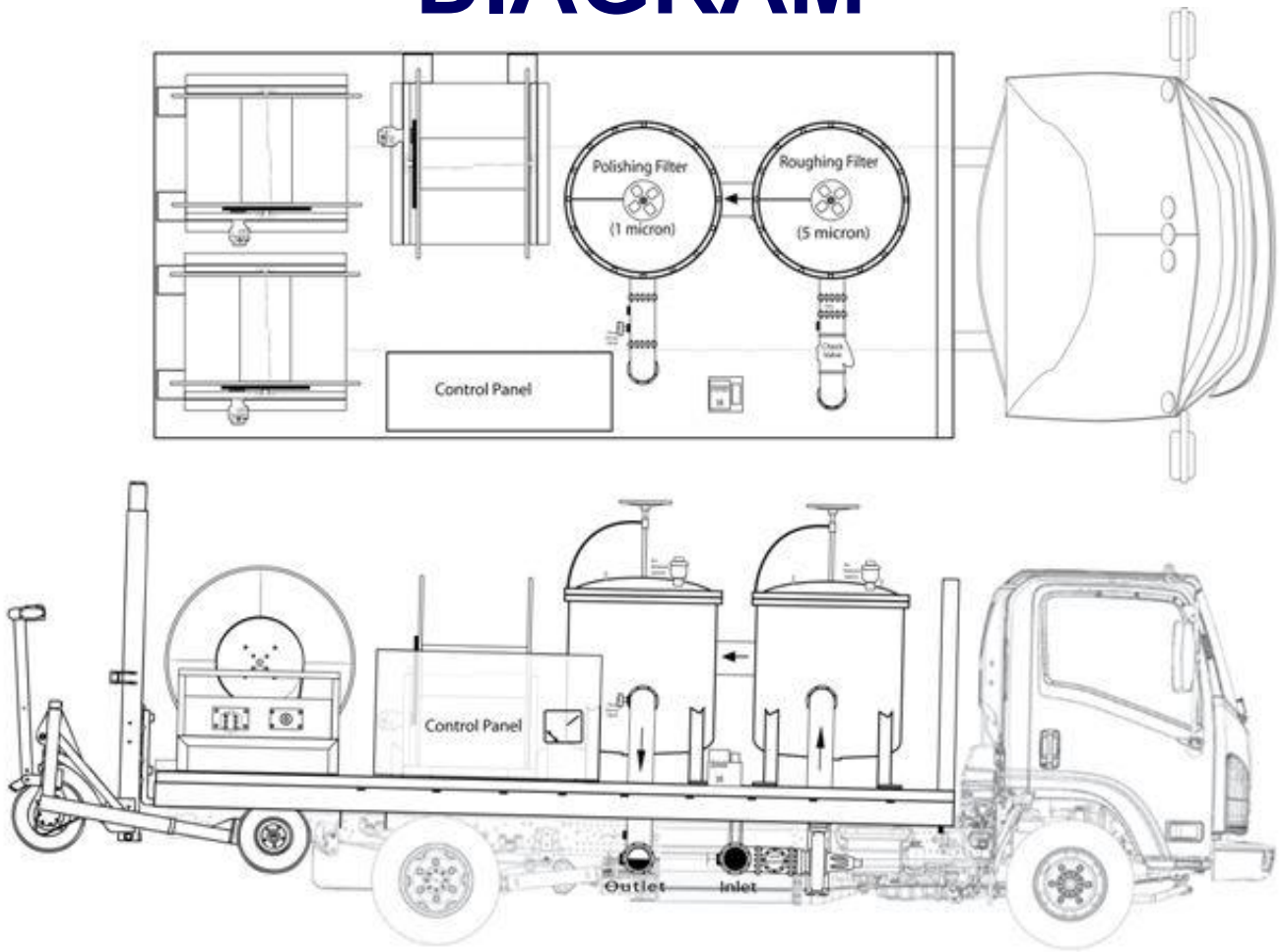
- Purchase and use of manufactured, towable water filtration system to:
  - Reduce risk of storm drain and creek overflows; and
  - Conserve water supply during water line flushing

$300,000

Mobile Filtration Unit (Town of Hillsborough)

- Existing Operation (before unit):
  - Open fire hydrants throughout Town, allowing water to go into storm drain system that discharges to San Francisco Bay
- Future Operation (with unit):
  - Hookup unit's hose to upstream fire hydrant and filter water, then put back into downstream fire hydrant

MOBILE FILTRATION UNIT DIAGRAM



NO-DES, Inc. 60 Hermanos Loop, Los Lunas, New Mexico	Neutral Output Discharge Elimination System Drawn: JW | REV: 03 | Date: 09-13-2009	UNAUTHORIZED USE, MANUFACTURE OR REPRODUCTION OF THIS PROCESS DESIGN IS PROHIBITED. DRAWING DESIGN AND OTHER DISCLOSURES PROPERTY OF NO-DES, Inc.	Scale: = 1 Foot	

STORMWATER MANAGEMENT PROJECT IN YUBA WATERSHED (AMERICAN RIVERS)

- Green stormwater management elements installed at Nevada County Administration Facility to reduce sediment, pollutants, and erosion to Yuba River
- Project installed two rain gardens, vegetated bioswales, and curb cuts

$375,000

CURB CUTOUTS & BIOSWALES

(STORMWATER MANAGEMENT IN YUBA WATERSHED – AMERICAN RIVERS)

RAIN GARDEN

EDUCATION

1. Capture

2. Filter

3. Release

4. Resources

EDUCATION

STORMWATER MANAGEMENT IN YUBA WATERSHED (AMERICAN RIVERS)

"For every inch of rain, the rain gardens and bioswales together capture 50,000 gallons of stormwater.

That's 1,000 full bathtubs.

Each year more than 3 million gallons of water will be put back into the ground by these landscape features."

PUBLIC UTILITIES PILOT INFILTRATION PROJECT (CITY OF ANAHEIM)

- Replace existing stormwater collection sump and pump at City's Utility Service Center with stormwater pre-treatment system that discharges to infiltration well

$230,000

PUBLIC UTILITIES INFILTRATION PROJECT (CITY OF ANAHEIM)

UPPER LAS POSITAS CREEK RESTORATION & STORMWATER MANAGEMENT PROJECT
(CITY OF SANTA BARBARA)

- Construction of multiple large and small basins for retention/detention and to treat and manage rain and irrigation water in upper Las Positas creek watershed area
- Protect creek by keeping oil, grease, and bacteria out of storm drain

$1,652,197

UPPER LAS POSITAS CREEK RESTORATION & STORMWATER MANAGEMENT PROJECT
(CITY OF SANTA BARBARA)

Sediment retention capacity increased in medium-sized stormwater and habitat pond

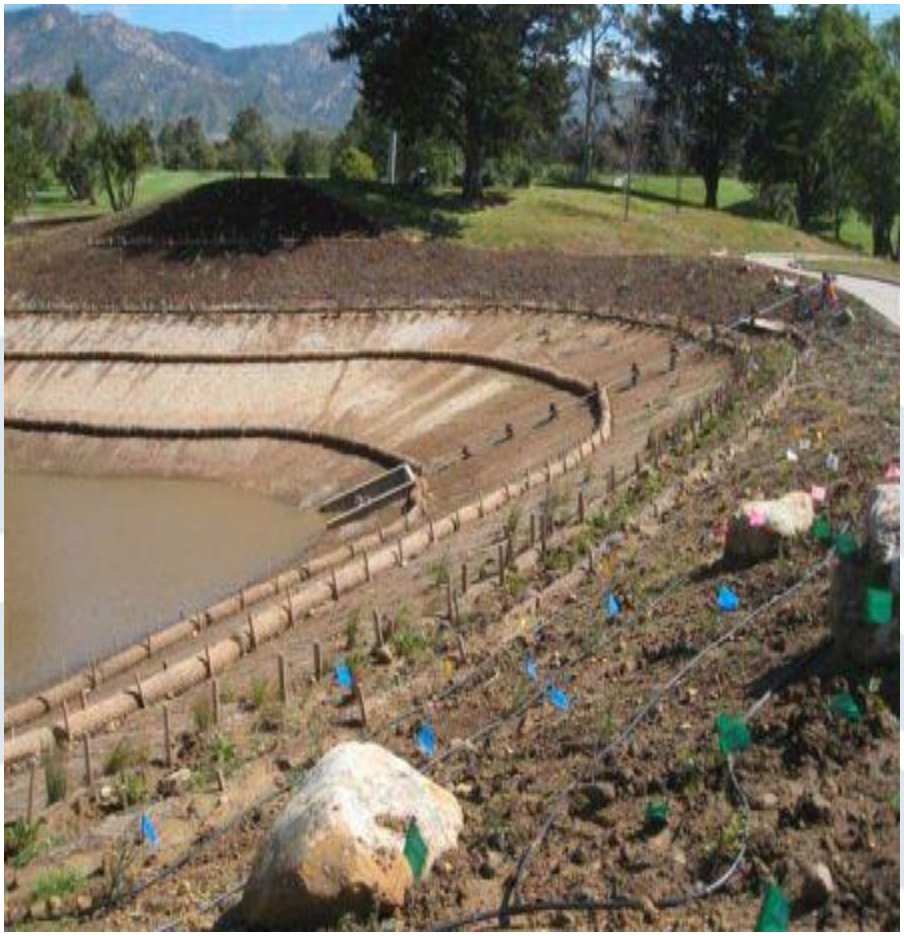
UPPER LAS POSITAS CREEK RESTORATION & STORMWATER MANAGEMENT PROJECT
(CITY OF SANTA BARBARA)

Native sandstone boulders placed in restored creak channel

Newly graded stormwater detention basins in background

UPPER LAS POSITAS CREEK RESTORATION & STORMWATER MANAGEMENT PROJECT
(CITY OF SANTA BARBARA)

UPPER LAS POSITAS CREEK RESTORATION & STORMWATER MANAGEMENT PROJECT
(CITY OF SANTA BARBARA)



Planting with locally grown native species

UPPER LAS POSITAS CREEK RESTORATION & STORMWATER MANAGEMENT PROJECT
(CITY OF SANTA BARBARA)

Constructed Wetlands

UPPER LAS POSITAS CREEK RESTORATION & STORMWATER MANAGEMENT PROJECT
(CITY OF SANTA BARBARA)

Urban runoff from adjacent neighborhood and school filtered through series of constructed wetlands and restored creek areas

UPPER LAS POSITAS CREEK RESTORATION & STORMWATER MANAGEMENT PROJECT
(CITY OF SANTA BARBARA)

Project improves water quality, creates wildlife habitat, and reduces downstream flooding potential

CONCLUDING THOUGHTS

- Build off other successes
- Multiple benefits
- Funding available
- Incorporate education, when possible
- Project size & cost vary dramatically
- Think “green” for your traditional infrastructure

CONTACT INFORMATION

Erin Ragazzi

Senior Environmental Scientist

State Water Resources Control Board

Division of Financial Assistance

Webpage: http://www.waterboards.ca.gov/water_issues/programs/grants_loans/

Email: enragazzi@waterboards.ca.gov

Phone: 916.341.5733