Strategies and Innovations in Financing Local Stormwater and Dry Weather Runoff Improvements

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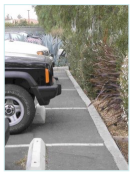
Stormwater Infiltration is Feasible to Augment Groundwater Supplies

- Pollutant concentrations in groundwater did not correspond to stormwater concentrations
- Groundwater quality was stable or improved for most constituents at sites with shallow groundwater
- Bacteria were removed by soil
- VOCs were not detected in groundwater
- Inorganic groundwater constituents showed no or decreasing trends in concentrations in groundwater when compared to polluted stormwater

Los Angeles Basin Water Augmentation Results, 2000-2008



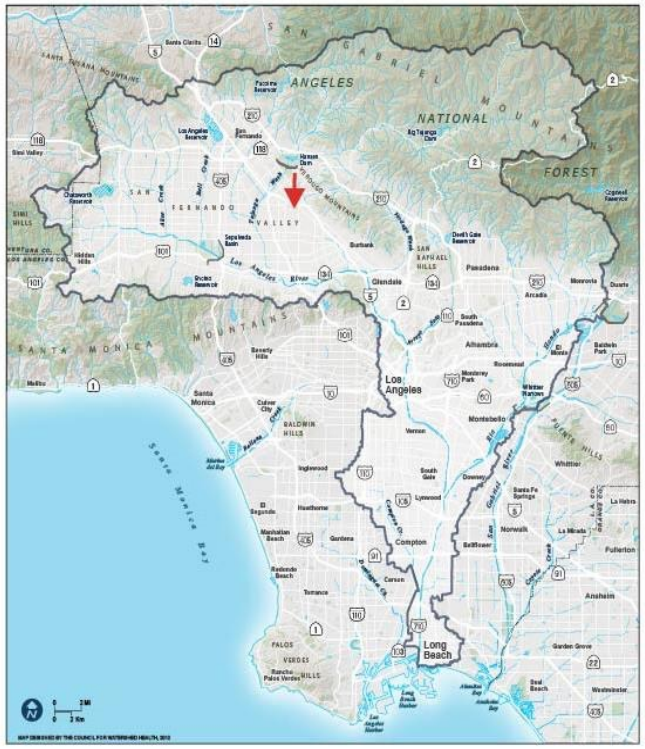




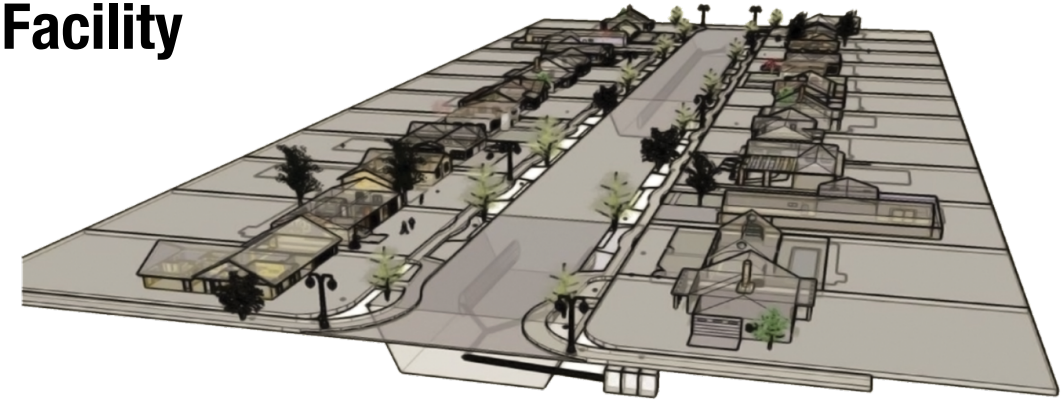
Elmer Avenue Retrofit Catchment Areas, 2010

40 acres drain to Elmer Avenue

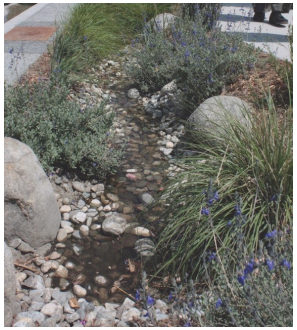
20 acres to Elmer Paseo



Elmer Avenue as a Recharge Facility



1. PARKWAY BIO-SWALES



2. INFILTRATION GALLERIES

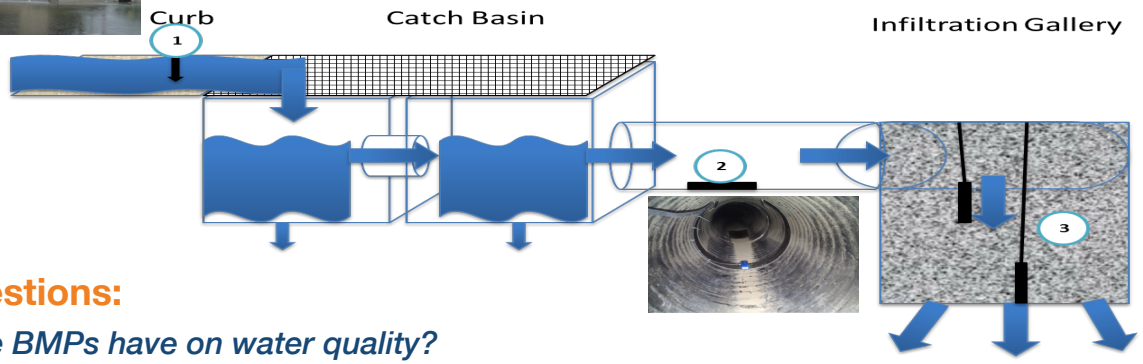
3. CATCH BASINS

Elmer Avenue Before and After

Before (2007)

After (2011)

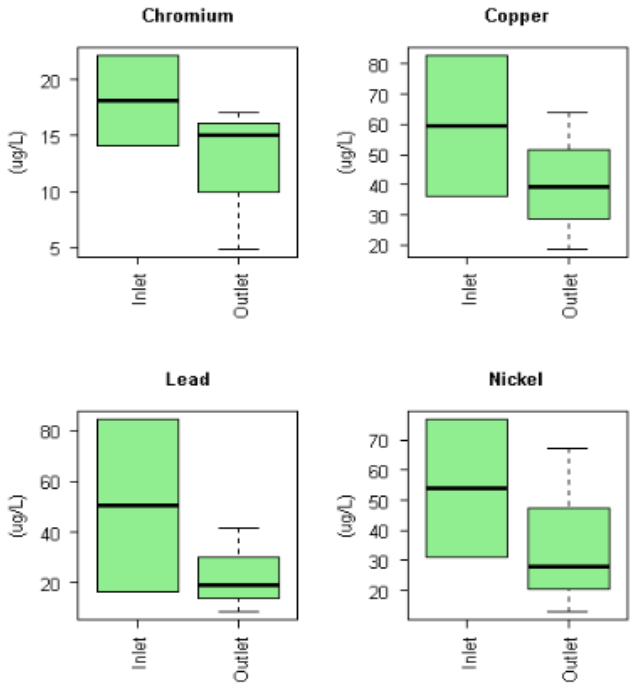
Elmer Avenue Performance Monitoring 2010-2014



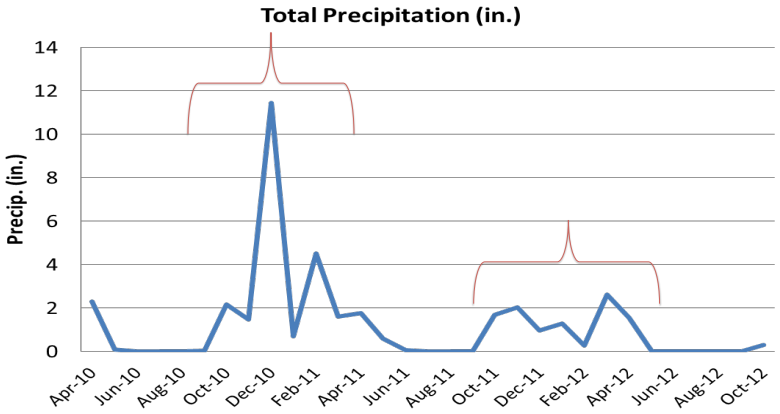
Management Questions:

1. *What effect do the BMPs have on water quality?*
2. *What effect do the BMPs have on water supply?*
3. *What are the O&M needs of the BMPs?*
4. *How has the project affected the resident's relationship to watershed health?*
5. *What are the additional benefits of the project?*

Water Quality: Catch Basins Intercept Particle-bound Pollutants Before They Get to Groundwater



Water Supply: Catch Basins and Bioswales Capture Water



21 Acre-feet infiltrated

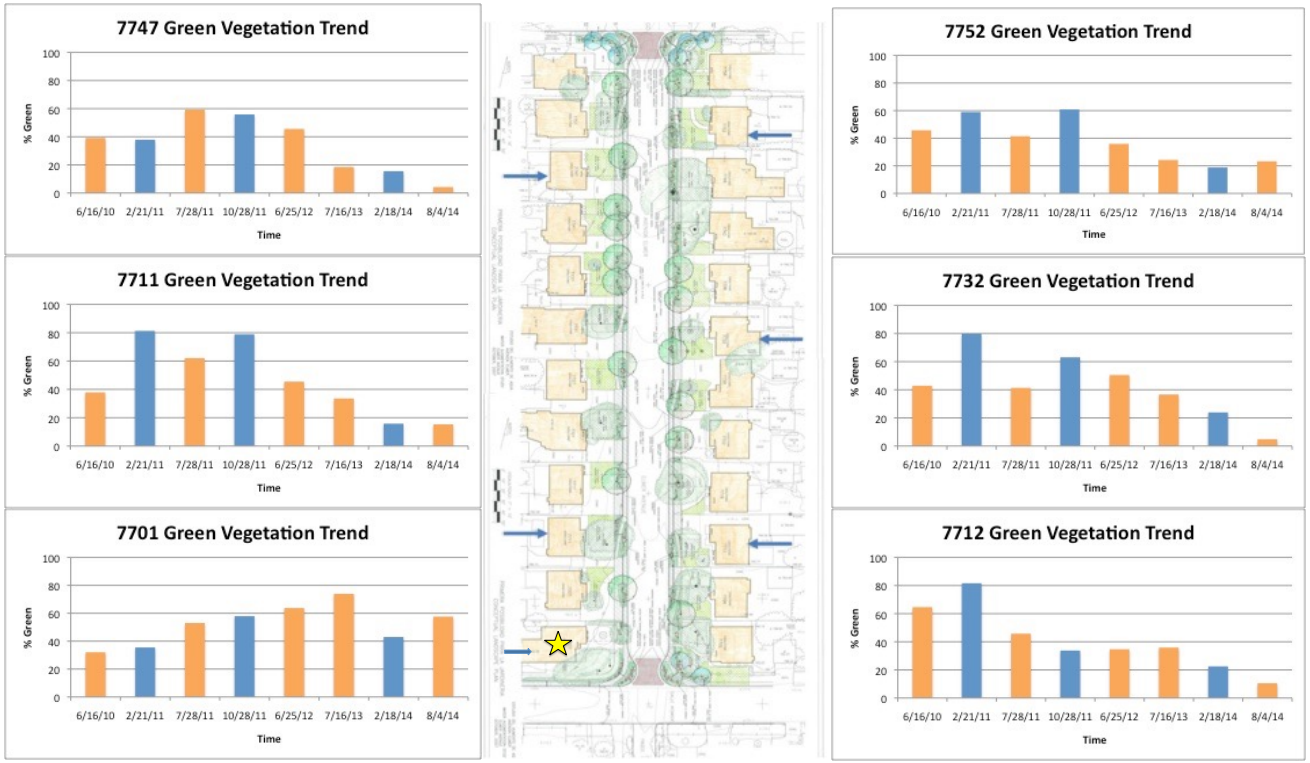
April 2010 – August 2012

Quantification challenges:

- *Development of valid methods for bioswales and urban streets*
- *Maintenance of catch basins needs to occur regularly*

The “Green” in Green Infrastructure: Plants Declined With the Drought

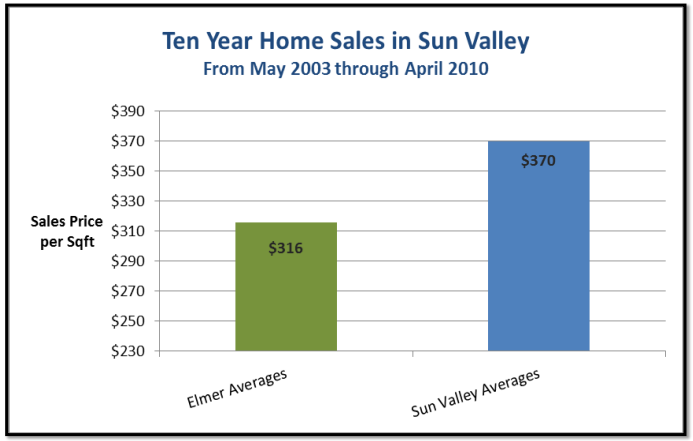
But now we know which plants are the hardy survivors



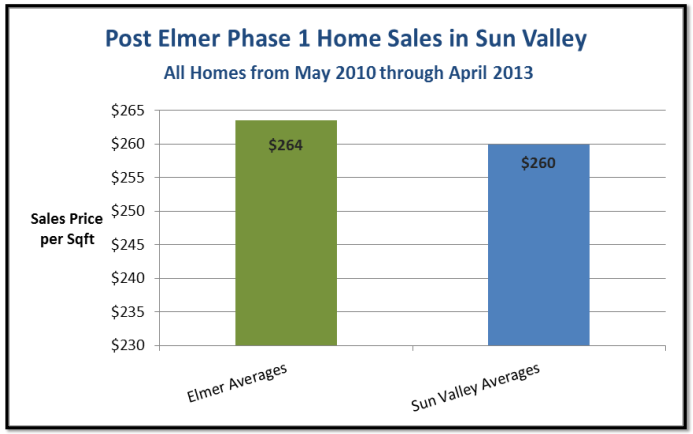
This Homeowner Loves to Garden

Additional Benefits: Retrofit Appears to Have Positively Influenced Home Values on Elmer Avenue

Pre-construction



Post-construction

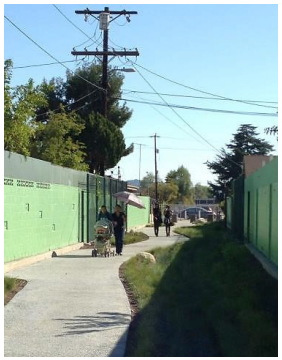


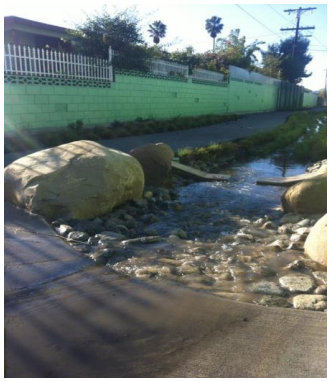
Monitoring: Informed Elmer Paseo Design and Improvements to the System

Elmer Paseo:
- Native Vegetation
- Porous Pavement
- Design for more infiltration

Elmer Avenue:
- Added devices to remove sediment
- Added catch basins
- Regraded street to direct more water to Elmer

Elmer Paseo Before and After

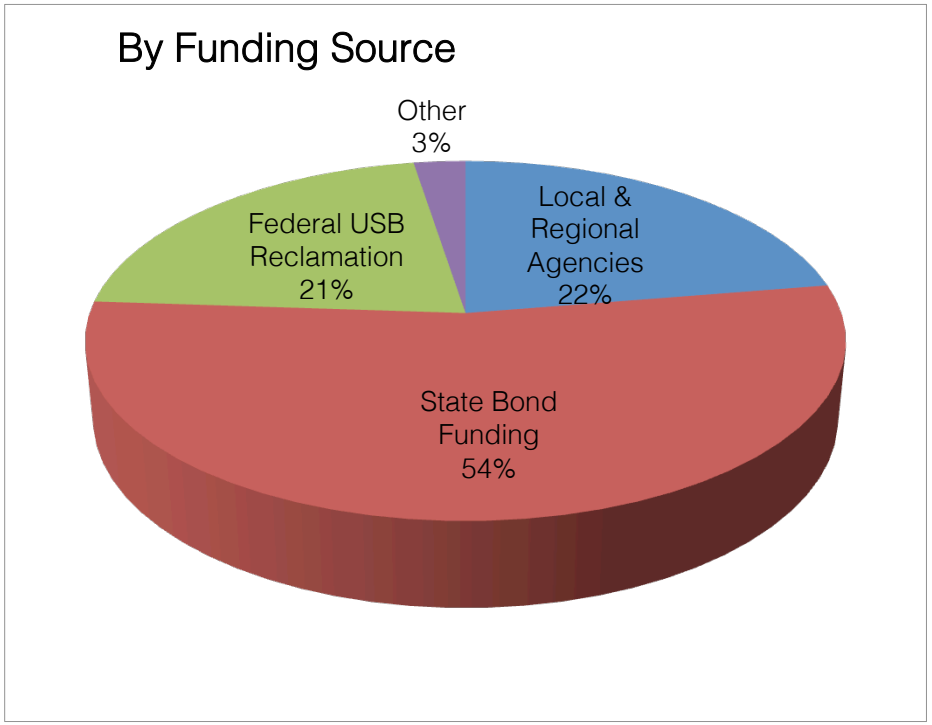


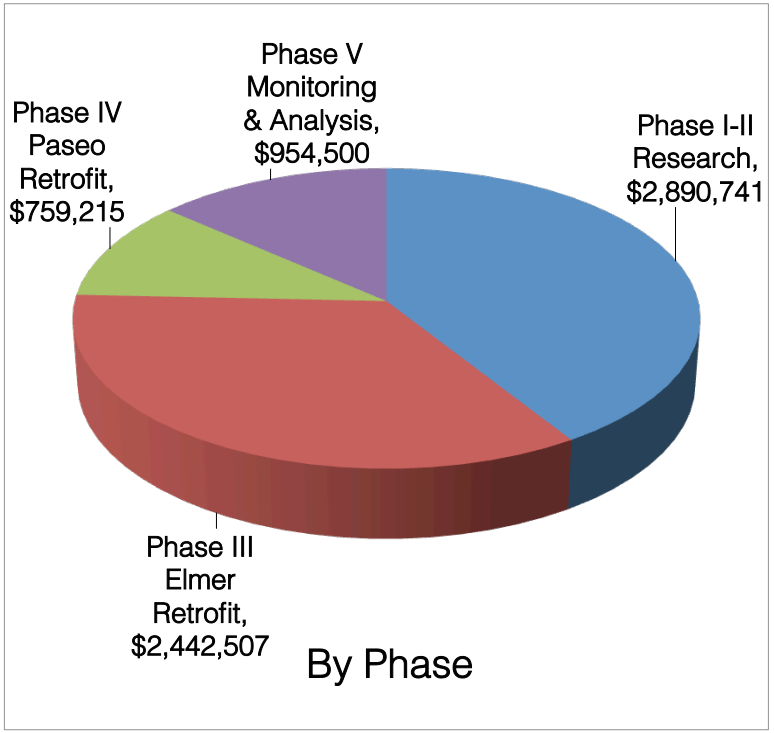


Project Partners

Bureau of Reclamation, Department of Interior
City of Los Angeles Watershed Protection Division
City of Santa Monica Environmental Programs
County of Los Angeles Department of Public Works
Council for Watershed Health
Los Angeles Department of Water & Power
Metropolitan Water District of Southern California
Regional Water Quality Control Board, LA Region
Santa Monica Mountains Conservancy
Strategic Growth Council
TreePeople
University of California, Riverside
Water Replenishment District of Southern California
City of Los Angeles Proposition O
Cal Fed
State Water Resources Control Board, Props 13 & 84
Department of Water Resources, Prop 50

Water Augmentation Study Funding, 1999 - 2015





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