

# This presentation premiered at WaterSmart Innovations

[watersmartinnovations.com](http://watersmartinnovations.com)



# RECLAMATION

*Managing Water in the West*

## Elmer Avenue Neighborhood Retrofit Project

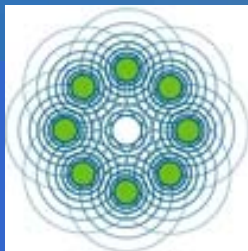
WaterSmart, October 7, 2010

**Edward Belden**

The Los Angeles and San Gabriel  
Rivers Watershed Council

**Amy Witherall**

Southern California Area Office  
Bureau of Reclamation



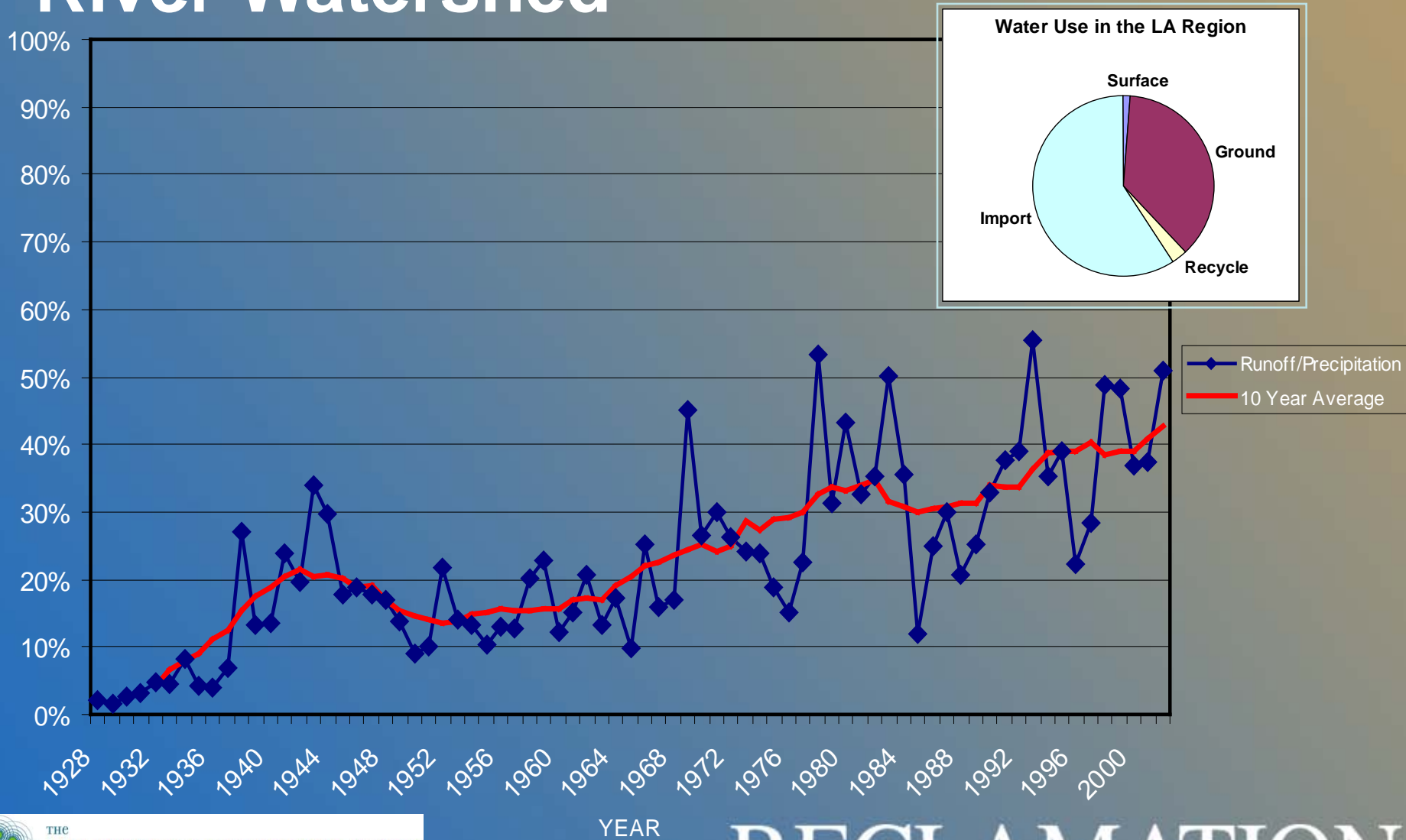
THE  
LOS ANGELES & SAN GABRIEL RIVERS  
WATERSHED COUNCIL

# Water Augmentation Study (WAS)

## Project Partners

Bureau of Reclamation , U.S. Department of the Interior  
California State grants: Prop 13 SWRCB, CalFed, Prop 50 DWR  
City of Los Angeles Department of Water & Power  
City of Los Angeles Watershed Protection Division  
City of Los Angeles Bureau of Street Services  
City of Santa Monica Environmental Programs  
County of Los Angeles Department of Public Works  
Metropolitan Water District of Southern California  
Regional Water Quality Control Board, LA Region  
The Los Angeles and San Gabriel Rivers Watershed Council  
TreePeople  
University of California, Riverside  
Water Replenishment District of Southern California

# Hydromodification in Los Angeles River Watershed



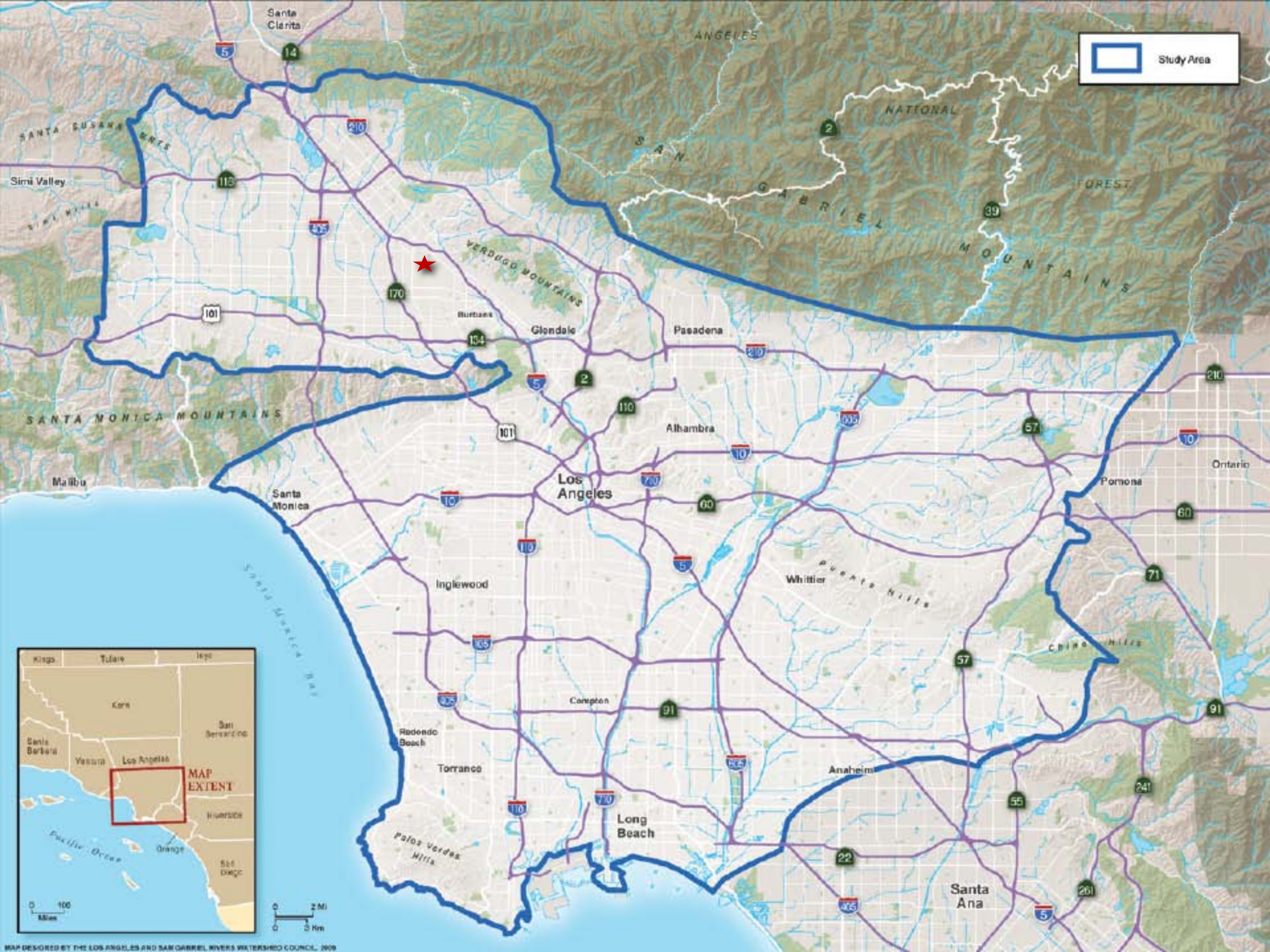
# Los Angeles Basin Water Augmentation Study 2000 - 2010

- **Managing stormwater as an asset**
- **Purpose:**  
To explore the practical potential for increasing local water supplies and protecting receiving waters by capturing stormwater runoff for infiltration and groundwater recharge



**Elmer Avenue Runoff**





Study Area



# Phase III: Elmer Avenue Neighborhood Retrofit Project

- **Implement BMPs in public right of way (ROW) and private property that will:**
  - Capture stormwater and dry weather runoff to reduce runoff volume
  - Recharge groundwater
  - Increase conservation to reduce outdoor water use
  - Reduce impermeable surfaces to promote infiltration
  - Increase community awareness of watershed issues
  - Enhance neighborhood aesthetics
  - Provide proof of concept
- **Monitor storm flow and water quality pre- and post-construction**



# How To Replicate this Project...

- **Site Selection**
- Identifying Multiple Benefits/Funding Mechanisms
- Community Participation/Neighborhood Outreach
- Project Team
- Planning, Design, and Construction Processes
- Monitoring
- Lessons Learned

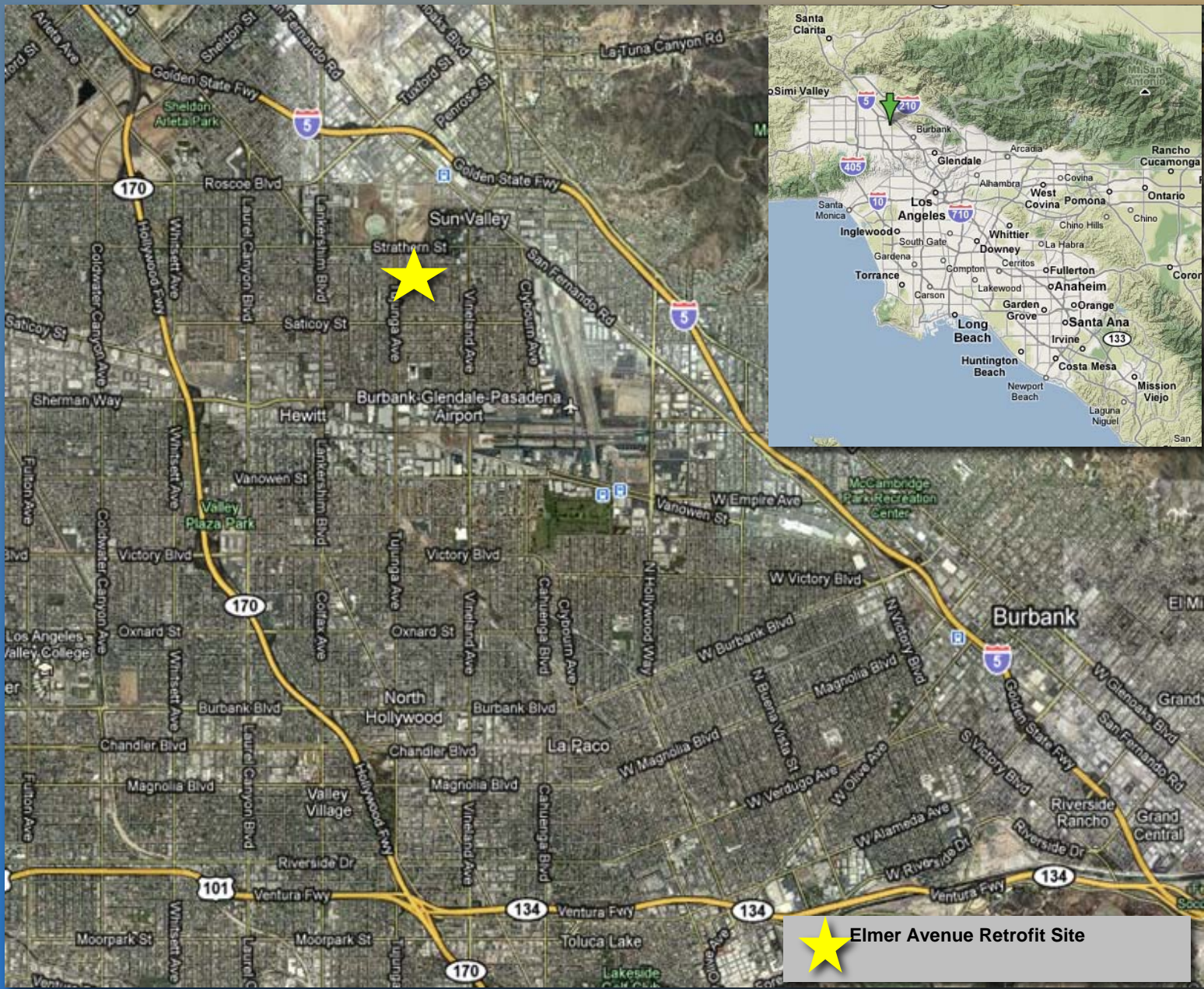



# Street Selection Criteria

- **Required Criteria (Pass/Fail):**
  - Predominantly single-family residential land use
  - Appropriate soils for infiltration
  - Street width and use adequate for BMP installation
- **Preliminary Site Evaluation**
  - Size and land use
  - Physical characteristics
  - Neighborhood demographics
  - Project readiness
- **Site Selection Criteria**
  - Willing community
  - Ability to attract funding
  - Political support



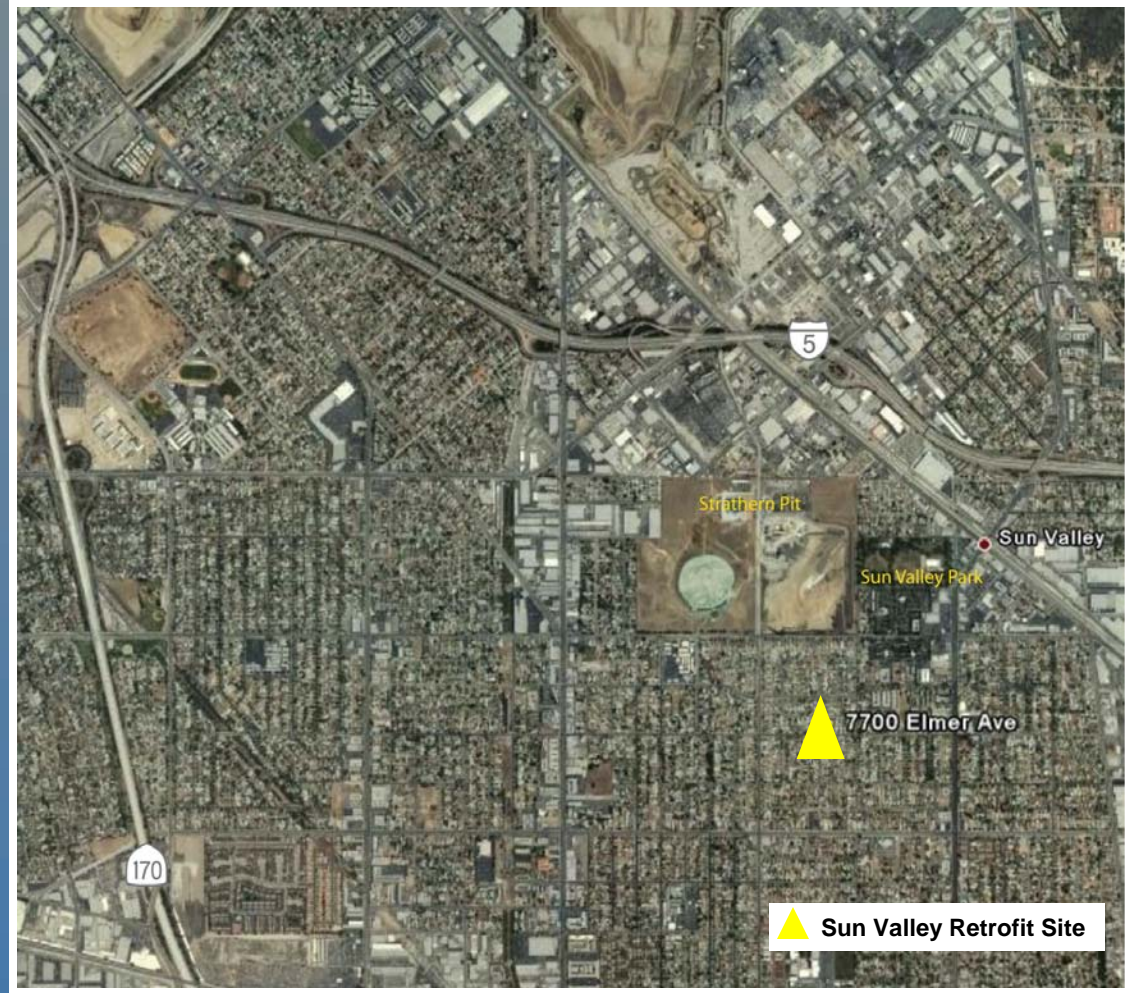




 Elmer Avenue Retrofit Site



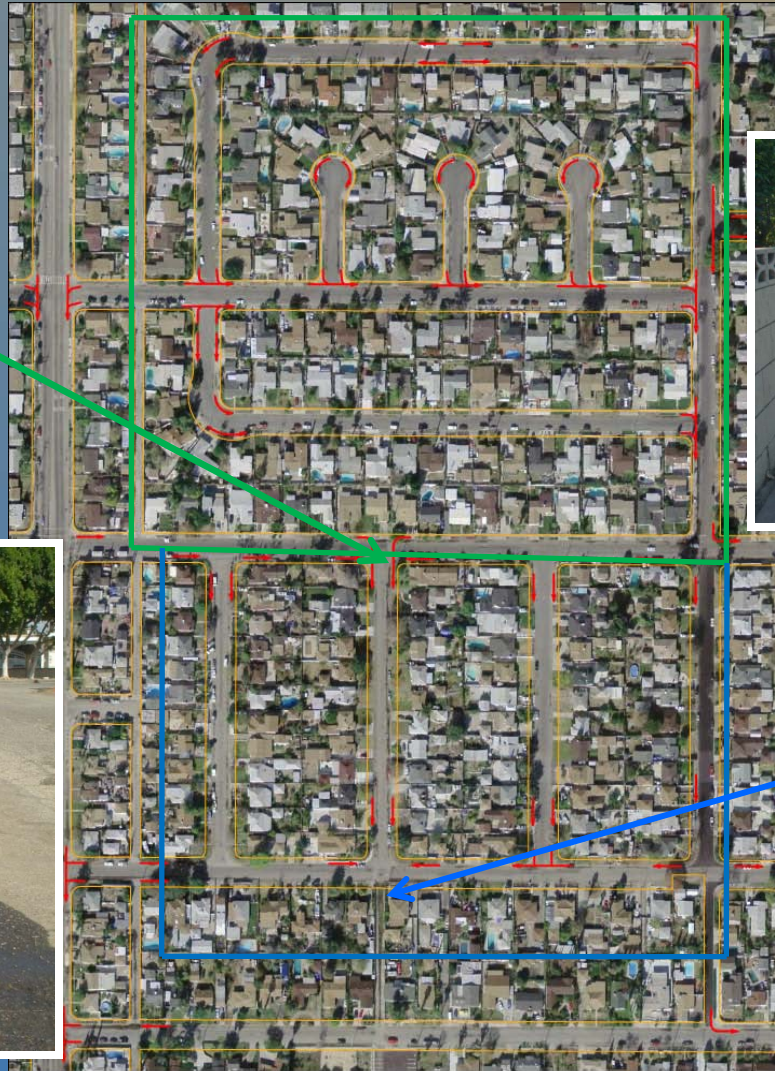
# Elmer Avenue Neighborhood Retrofit Sun Valley





# Elmer Avenue Neighborhood Retrofit

40 acres drain to Elmer Avenue



20 acres drain to Paseo



0 135 270 540 Feet



# How To Replicate this Project...

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# Multiple Benefits and Funding

- **Multiple Benefits**

- Ideally, those who benefit pay for the project
- Identifying who benefits

- **Funding for Elmer Avenue Demonstration**

- Bureau of Reclamation programs
- California Department of Water Resources
- WAS TAC Local Partners:
  - Metropolitan Water District of Southern California, Los Angeles City Department of Water and Power, Los Angeles City Bureau of Sanitation, Los Angeles City Bureau of Street Services, Water Replenishment District of Southern California, Los Angeles County Department of Public Works, City of Santa Monica

# How To Replicate this Project...

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# Community Participation and Neighborhood Outreach

**Calendario y Jalones**  
 Proyecto Vecinal de Demostración  
 Sun Valley, CA 91352



**23 de octubre 2006**  
 Primera junta comunitaria de la Avenida Elmer.  
 Nos dijo que quiere para el proyecto de su calle.

**17 de enero de 2007**  
 Segunda junta comunitaria de la Avenida Elmer.  
 Nos dijo cómo quiere que su calle se vea.

**2 y 12 de junio de 2007**  
 Talleres de diseño de la Avenida Elmer. Primera ronda de diseños creada y propuesta por los residentes.

**Agosto 2007**  
 El Departamento Estatal de Recursos de Agua selecciona el proyecto para proporcionar fondos! Muchas gracias por sus cartas de apoyo.

**6 de octubre 2007**  
 Junta comunitaria de la Avenida Elmer.

**23 de abril 2008**  
 Junta hoy



**Diciembre 2008**  
 El proyecto se termina!  
**December 2008**  
 Project completed!

**October 23, 2006**  
 First Elmer Ave. community meeting.  
 You told us you wanted the project on your street.

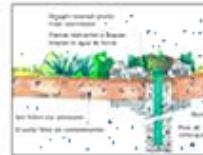
**January 17, 2007**  
 Second Elmer Avenue community meeting.  
 You told us what you wanted your street to look like.

**June 2 and June 12, 2007**  
 Elmer Avenue design workshops. First round of designs created and discussed with residents.

**August 2007**  
 Department of Water Resources selects Elmer project for funding. Thanks to you and your letters of support!

**October 6, 2007**  
 Elmer Avenue community meeting (in alleyway)

**April 23, 2008**  
 Today's meeting



**Timeline & Milestones**  
 Elmer Avenue Demonstration Project  
 Sun Valley, CA 91352



# Involving the Community: Taking it to the Street





# Involving the Community



- Education
- Participation
- Listening
- Flexibility
- Variety
- Regular contact
- Adaptability

### Elementos de la Calle Street Elements

¿Borde de la acera prominente que termine en Elmer para los que vienen del Norte y Sur?  
Curb bump-outs for traffic calming at the north and south ends of Elmer?

Si Yes No Ninguna preferencia No preference

¿Borde de la acera prominente a mitad de la calle Elmer?  
Curb bump-outs for traffic calming mid-street on Elmer?

Si Yes No Ninguna preferencia No preference

¿Distintivos o señales de ingreso para los que vienen del Norte y Sur que terminen en Elmer?  
Distinctive entryways on the north and south ends of Elmer?

Si Yes No Ninguna preferencia No preference

¿Adoquines en las intersecciones Stagg y Keswick como parte de la señalización e identificación de la entrada?  
Pavers in the intersections with Stagg and Keswick as part of a signature entryway?

Si Yes No Ninguna preferencia No preference

¿Considera usted tener pozos de infiltración en las intersecciones de las aceras/andenes?  
Would you consider having drywells at the driveway/sidewalk intersection?

Si Yes No No estoy seguro Not sure

Si tiene alguna idea o comentario adicional, por favor indíquelo abajo.  
Do you have additional comments or ideas? Please list them below.



# Elmer Retrofit Street Tree Planting





# Elmer Resident Maintenance Training



ELMER AVENUE

Maintenance Manual for  
7752  
Spring 2010





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# Project Team

## Project Management

Los Angeles and San Gabriel Rivers Watershed Council

## Community Engagement and Project Management Support

TreePeople and Urban Semillas

## Engineering Design

Amec Geomatrix, Inc

City of Los Angeles, Bureau of Sanitation

City of Los Angeles, Bureau of Street Services

## Landscape Design

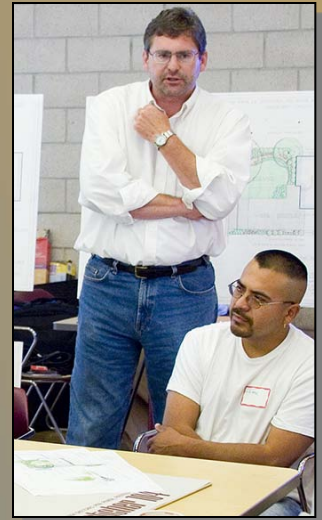
Dudek and Wilson Environmental Design

## Landscape Construction and Final Design Private Property

Guy Stivers and Pierre Landscaping

## Project Construction and Final ROW Design

City of Los Angeles, Bureau of Street Services



# How To Replicate this Project...

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# Elmer Retrofit Conceptual Design



ESCALA/SCALE: 1" = 10'  
0' 10' 20' 30' 40' 50'

PRIMERA POSIBILIDAD PARA LA JARDINERIA  
CONCEPTUAL LANDSCAPE PLAN

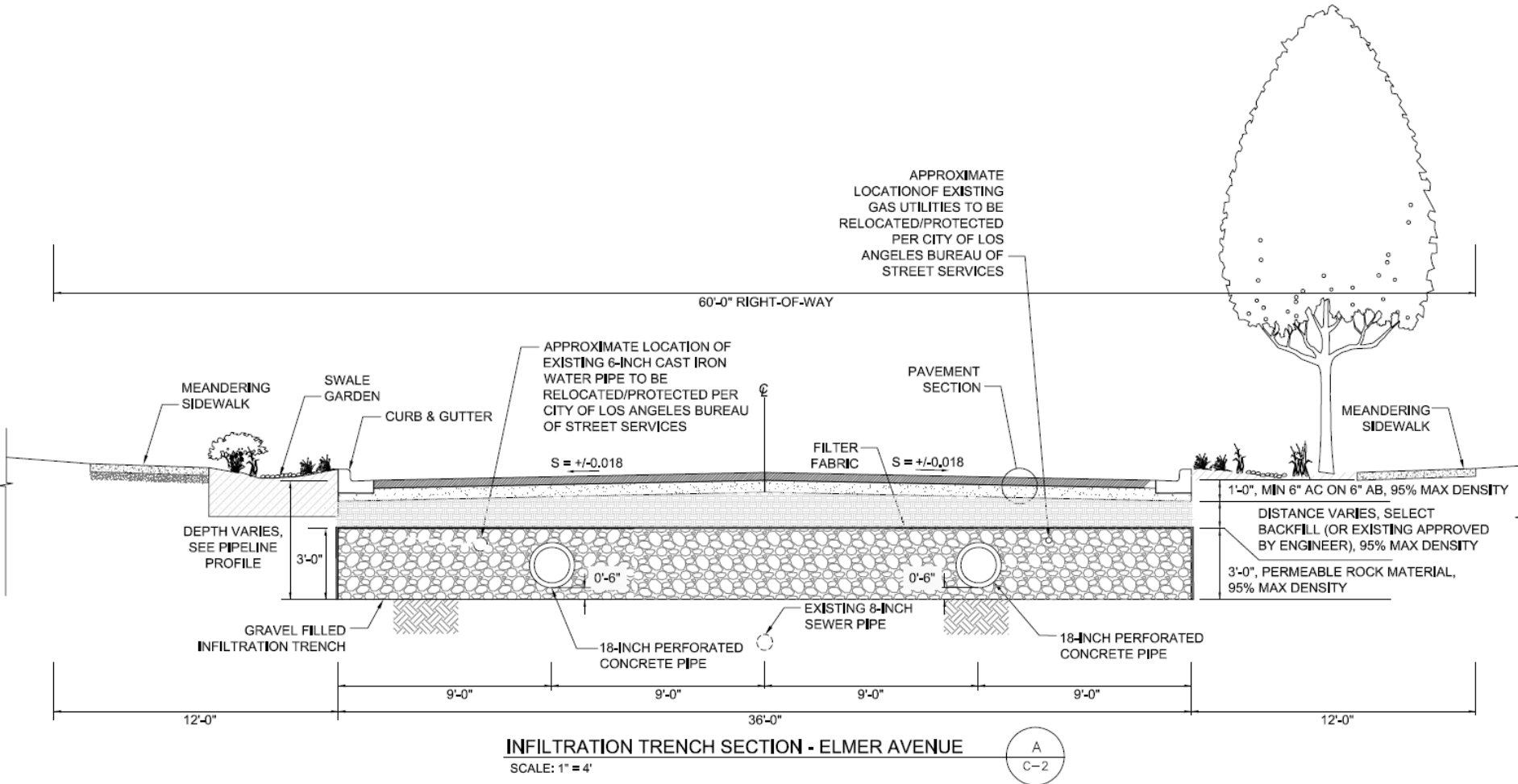
ESTUDIO DEL AUMENTO DE AGUA  
AVENIDA ELMER  
WATER AUGMENTATION STUDY  
ELMER AVENUE  
OCTOBER, 2007

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# Elmer Retrofit Conceptual Design



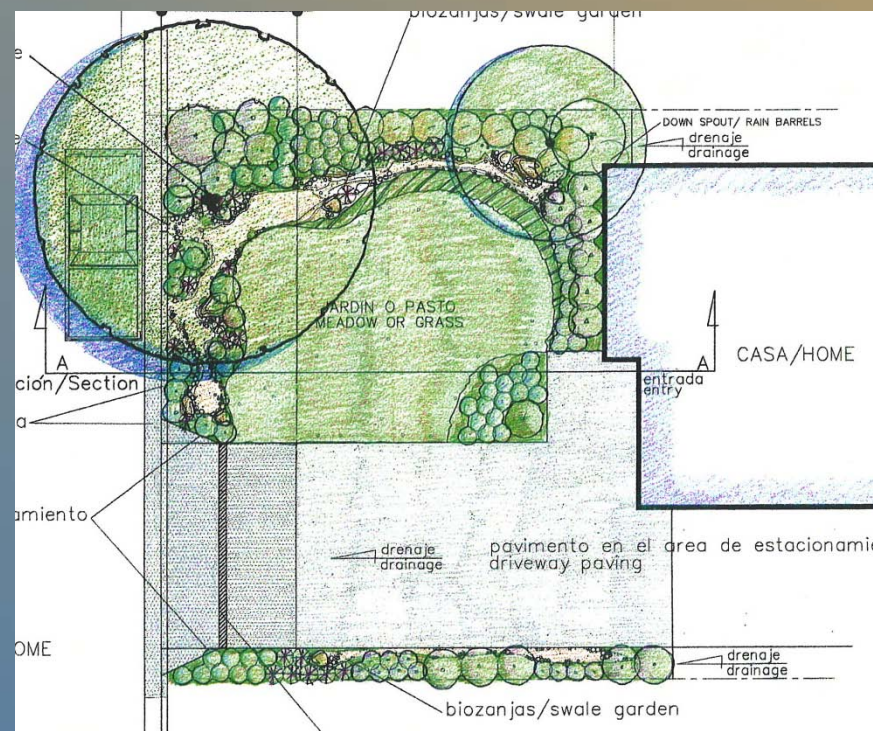
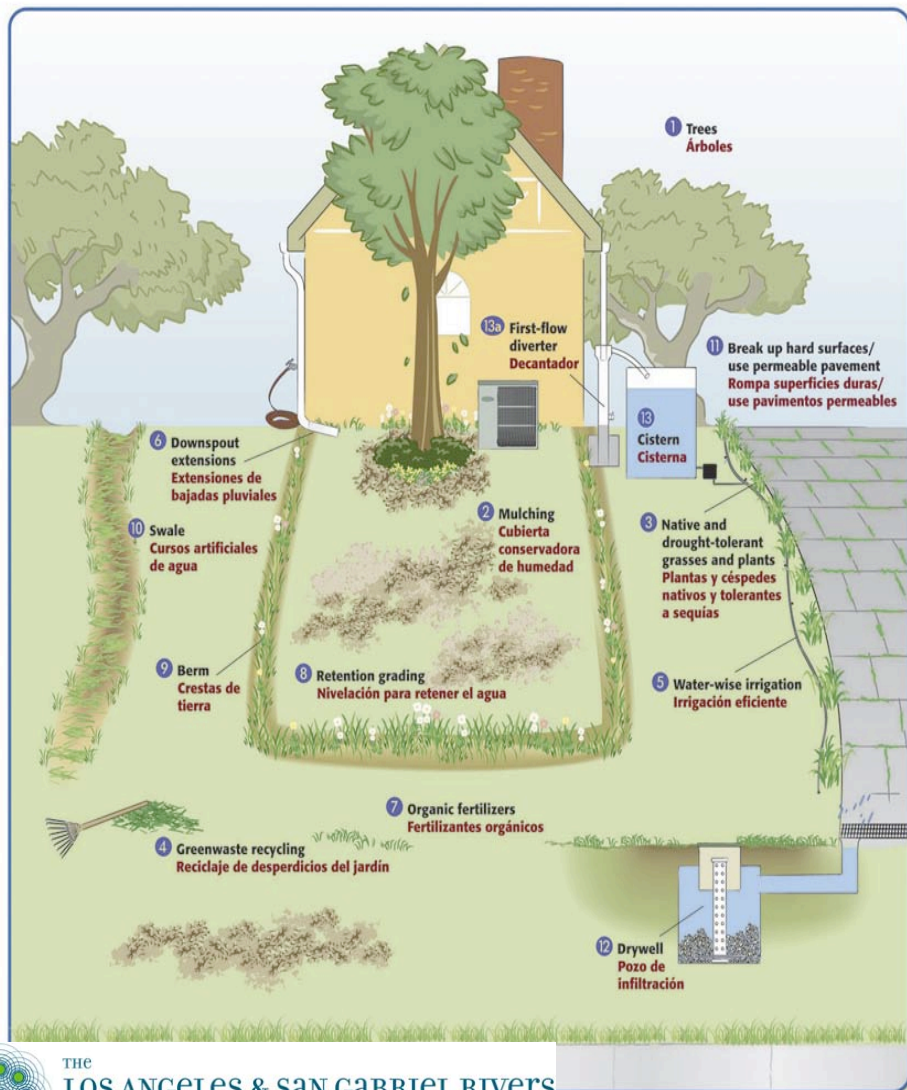


# Elmer Retrofit Infiltration Trench Design



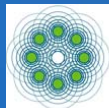


# Elmer Avenue Neighborhood Retrofit Private Property Components



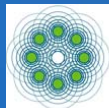


# Elmer Retrofit Prior to Full Construction



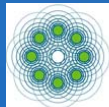


# Elmer Infiltration Trench Under Construction



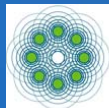


# Elmer Retrofit Infiltration Trench



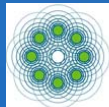


# Elmer Retrofit Infiltration Trench





# Elmer Avenue After Construction



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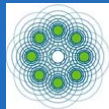
# Elmer Retrofit Parkway Bio-Swale







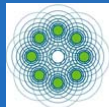




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# Solar Street Lights and Permeable Pavers





# Elmer Avenue Neighborhood Retrofit Private Property Components



- Rain barrels
- Rain barrel overflow directed to swale/rain garden
- Turf replaced with native and drought-tolerant species
- Permeable pavers
- Drip irrigation with smart controllers
- Additional trees

RECLAMATION

# How To Replicate this Project...

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- Lessons Learned



# Water Quality Monitoring Approach

1. What are the Water Quality Improvements from the Projects BMPs?
2. What is the Quantity of Water going to Groundwater from the BMPs?
3. Is the maintenance of the BMPs effective?
4. How has the project improved the resident's Watershed?
5. What are the sustainable improvements from the project?

# Water Quality and Supply Monitoring

- Conduit to Sampler Housing on Resident

- Flow Gauge in Gutter
- Sample Port in Catch Basin

- Flow Gauge at Catch Basin Outlet
- Sample Port Catch Basin Outlet

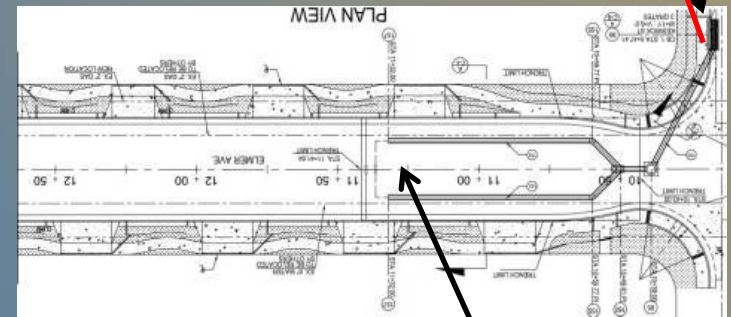
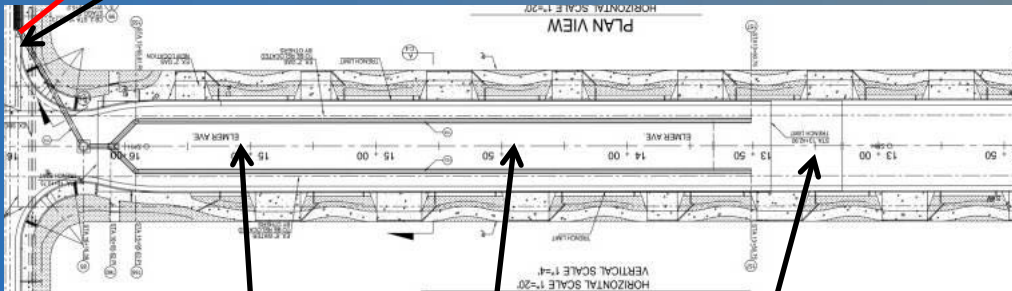
- Observation Wells

- Lysimeter for North Infiltration Gallery

- Conduit to Sampler Housing on Resident

- Flow Gauge at Inflow
- Sample Port in Catch Basin

- Swale Inlet and Outlet Flow Monitoring





# How To Replicate this Project...

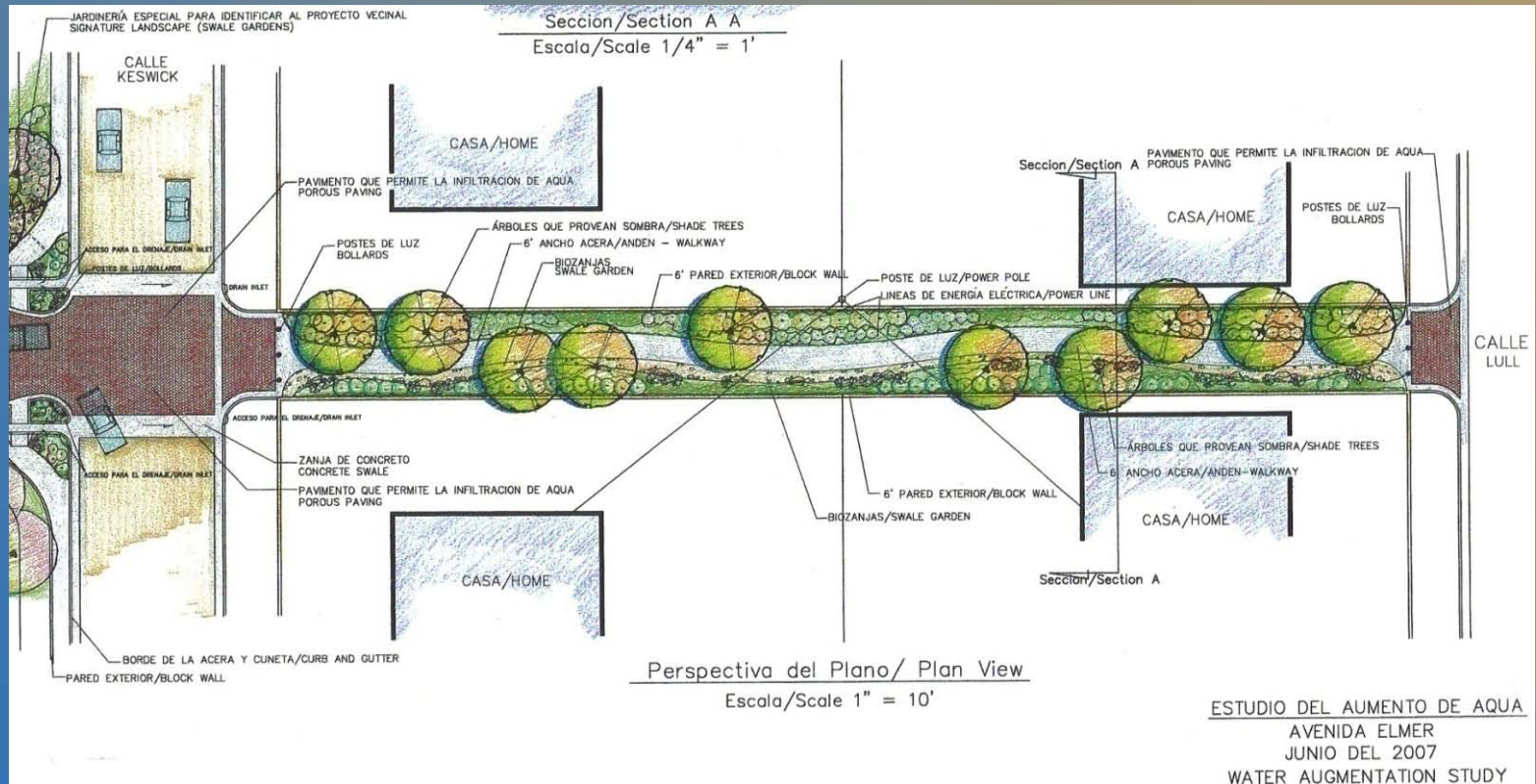
- Site Selection
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- Monitoring
- **Lessons Learned**

# Lessons Learned

- Design Challenges
- Agreement Challenges
- Funding Challenges
  - Local, Regional, State and Federal Sources
- The team you need



# Elmer Avenue Paseo Options



- Additional Stormwater
- Capture and Infiltration
- Improved Walkway
- Benches and Lights
- Increased Open Space
- Improved Aesthetic

# For more information:

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awitherall@usbr.gov

951-695-5310



**Reports and information available at:**

<http://www.usbr.gov/lc/socal/planning.html>

<http://www.lasgrwc.org/WAS.htm>