CITIZENS' WATER ADVISORY COMMITTEE
(CWAC)
Technical/Planning and Policy Subcommittee

Wednesday, April 27, 2016, 12:00 p.m.
Director's Conference Room
Tucson Water, 3rd Floor
310 W. Alameda Street, Tucson, Arizona

Legal Action Report

1. Roll Call/Call to Order

The meeting was called to order by Subcommittee Chair Mark Murphy, at 12:00 p.m. Those present and absent were:

Present:

Mark Murphy	Chairperson-Representative, Mayor
Mitch Basefsky	Representative, City Manager
Placido dos Santos	Representative, City Manager
Chuck Freitas	Representative, City Manager

Absent:

Brian Wong	Representative, City Manager
Kelly Lee	Representative, Ward 6

Tucson Water Staff Present:

Jeff Biggs	Water Administrator
Melodee Loyer	Water Administrator
Pat Eisenberg	Water Administrator
Wally Wilson	Chief Hydrologist
Fernando Molina	Water Program Superintendent
Candice Rupprecht	Public Information Specialist
Johanna Hernandez	Staff Assistant
Kris LaFleur	Staff Assistant

Others Present:

Chris Avery	City of Tucson, Attorney's Office
Mark Lewis	Representative, Ward 5 (not a member of Subcommittee)

2. Announcements – No action taken.

3. Call to Audience – No action taken.

4. Review & Approval of March 23, 2016 Legal Action Report and Meeting Minutes –Member dos Santos motioned to approve the Legal Action Report and Meeting Minutes of March 23, 2016. Member Freitas seconded. Motion passed unanimously by a voice-vote of 4-0.

5. Rainwater Harvesting Benefits – Kieran Sikdar, from Watershed Management Group, presented a PowerPoint on the Financial and Community Benefits of Green Infrastructure. Green Infrastructure was defined as constructed features that use living, natural systems to provide environmental services. The topic was introduced with the example of the landscaping at Mr. Sikdar's residence, which was completely torn out and replaced with green infrastructure landscaping. This project addressed issues related to overall outdoor water usage, storm water run-off, energy use, and mosquito abatement. In such landscaping, it is typical to expect to use potable water to establish vegetation for three summer seasons. Curb cuts, chicanes, and

street-width reduction were discussed as tools for green infrastructure. In conjunction with Pima County Flood Control, a modeling project on the effects of green infrastructure on flood control was completed. The results showed a measurable positive benefit in flood mitigation in the area studied. A cost-benefit analysis was discussed. Costs included installation and maintenance. Benefits included seven direct benefits and five indirect benefits. The analysis concluded return of investment would typically occur in six to ten years. Figures were provided for the annual benefits of rain gardens in Tucson, in terms of monetary benefits to the community, and groundwater recharge. Future considerations for policy and funding were discussed. The One Water concept was discussed, referring to treating all water, rain/stormwater, groundwater, wastewater, recycled water, and drinking water, as equally valuable sources of water. Graphs depicted the opportunities available for stormwater use. Extensive discussion was held on methodology for the data presented, assumptions made, and the actual water savings seen as a result of green infrastructure development.

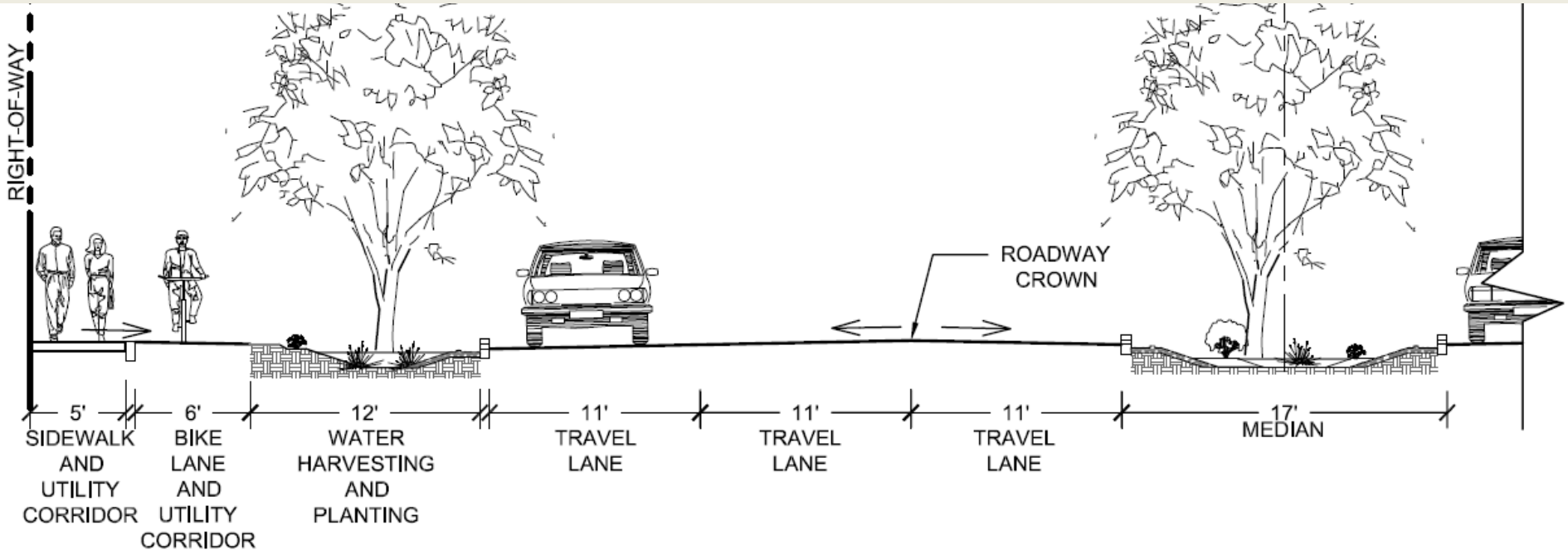
6. Future Meetings/Agenda Items – See projected agenda for further information.

7. Adjournment – Meeting adjourned at 12:55 p.m.

Financial and Community Benefits of Green Infrastructure:
A One Water Approach

Kieran Sikdar
Water Resources Engineer
Certified Floodplain Manager
Green Infrastructure Practice Lead

Watershed Management Group develops and implements community-based solutions to ensure the long-term **prosperity of people** and **health of the environment**. We provide people with the knowledge, skills, and resources for sustainable livelihoods.



240

1240

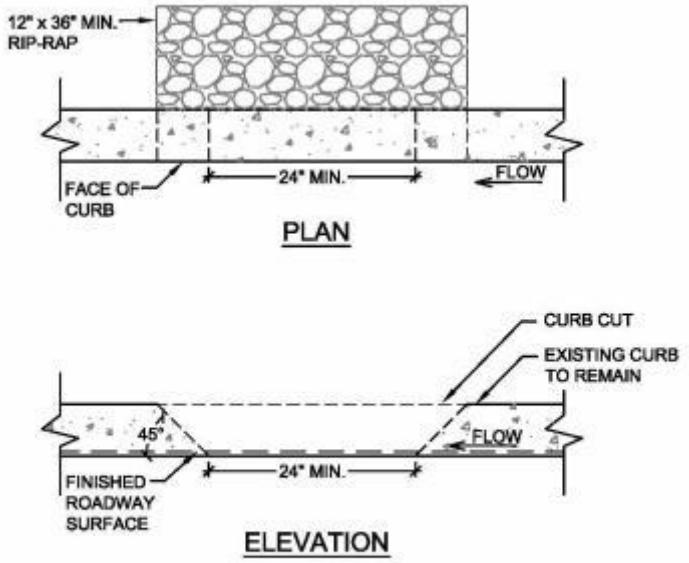
What is Green Infrastructure (GI)/Low Impact Development (LID)?

Our definition:

"constructed features that use living, natural systems to provide environmental services, such as capturing, cleaning and infiltrating stormwater; shading and cooling streets and buildings; and calming traffic."

Tools for Green Infrastructure

Curb Cuts

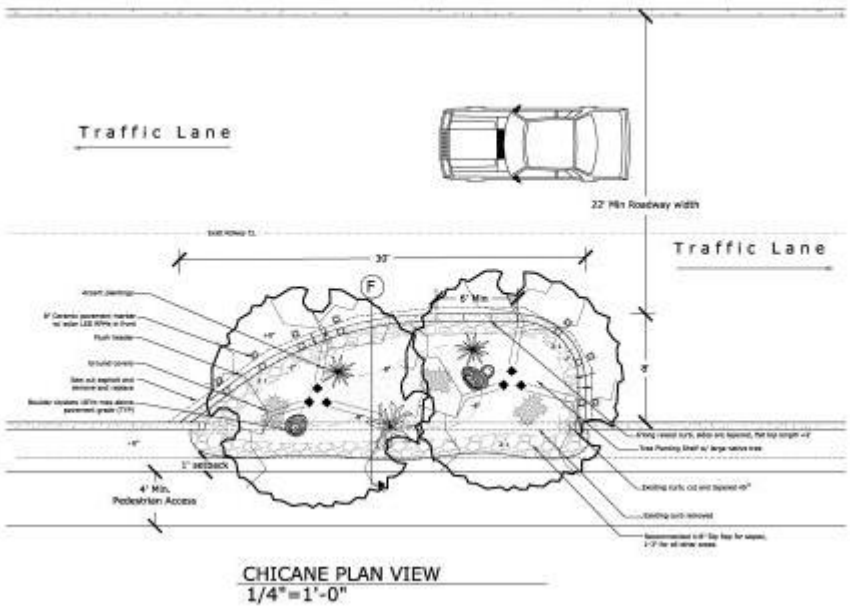


CURB CUT DETAIL

SCALE: N.T.S.

Tools for Green Infrastructure

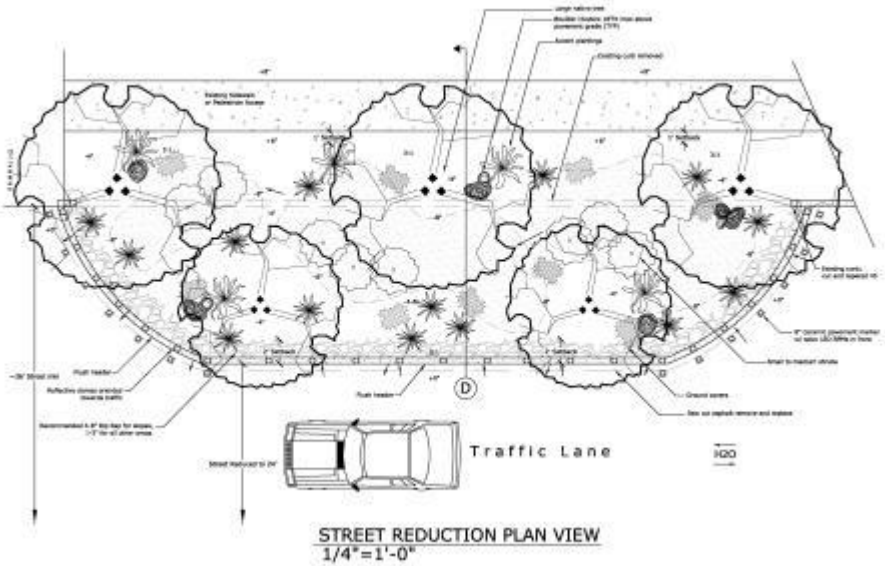
Chicanes



CHICANE PLAN VIEW
1/4"=1'-0"

Tools for Green Infrastructure

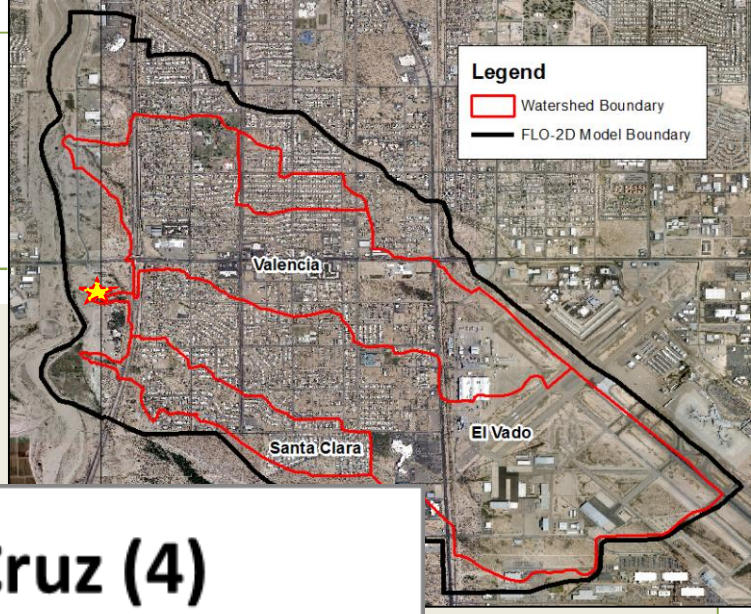
Street-width reduction

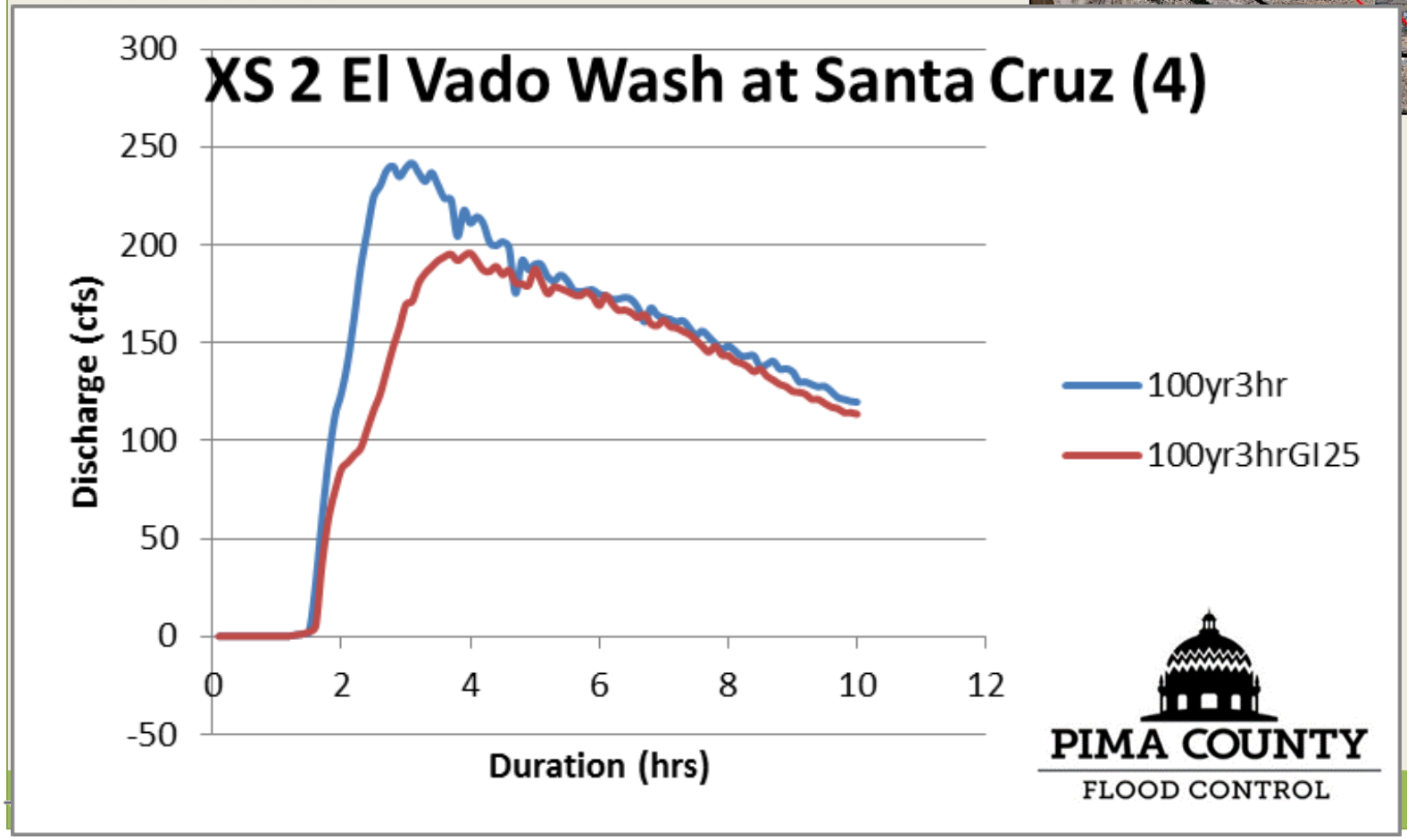


El Vado at Santa Cruz

Drainage Area:

1280 Acres





PIMA COUNTY
FLOOD CONTROL

Cost Benefit Analysis

Costs

Installation & maintenance

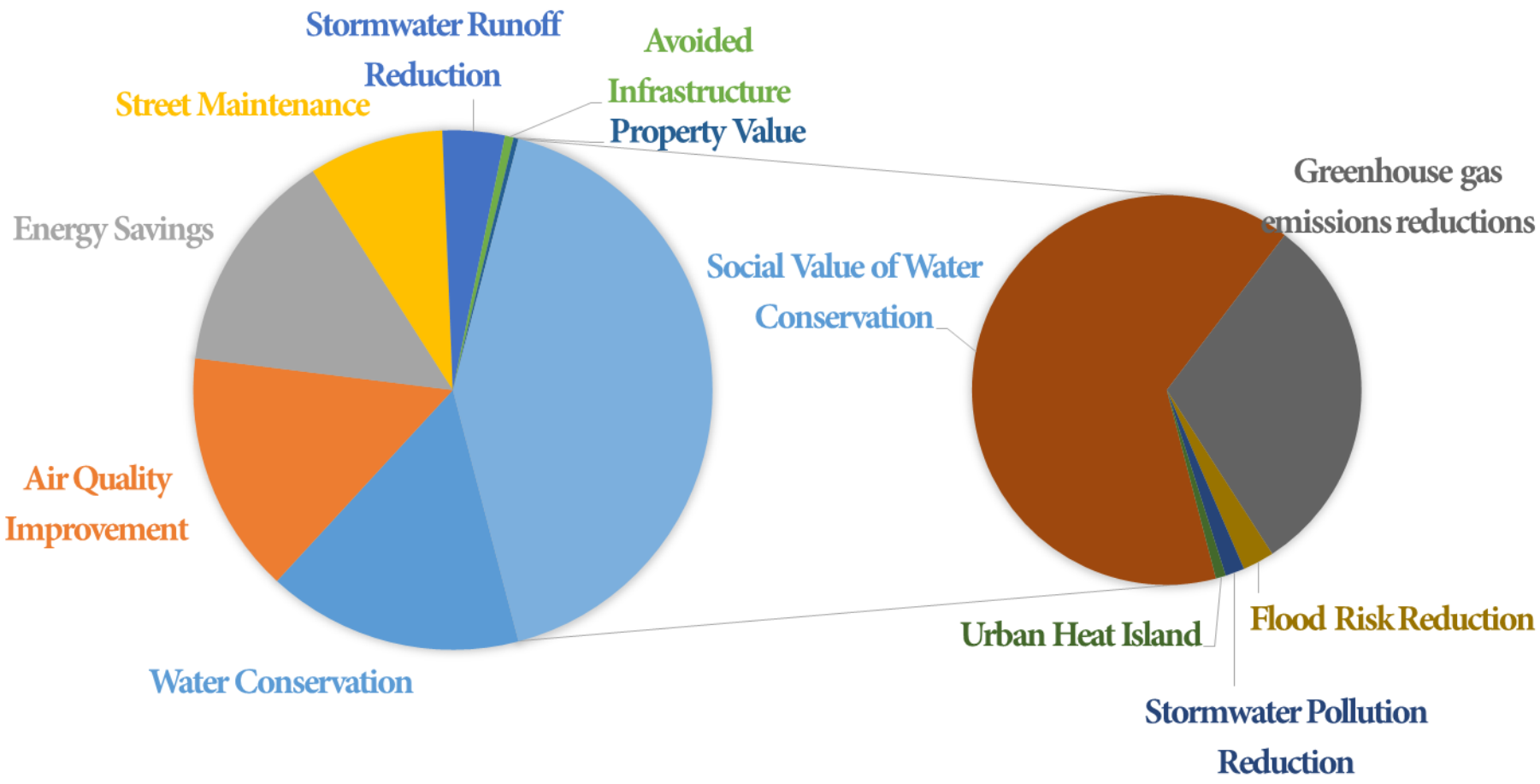
Benefits

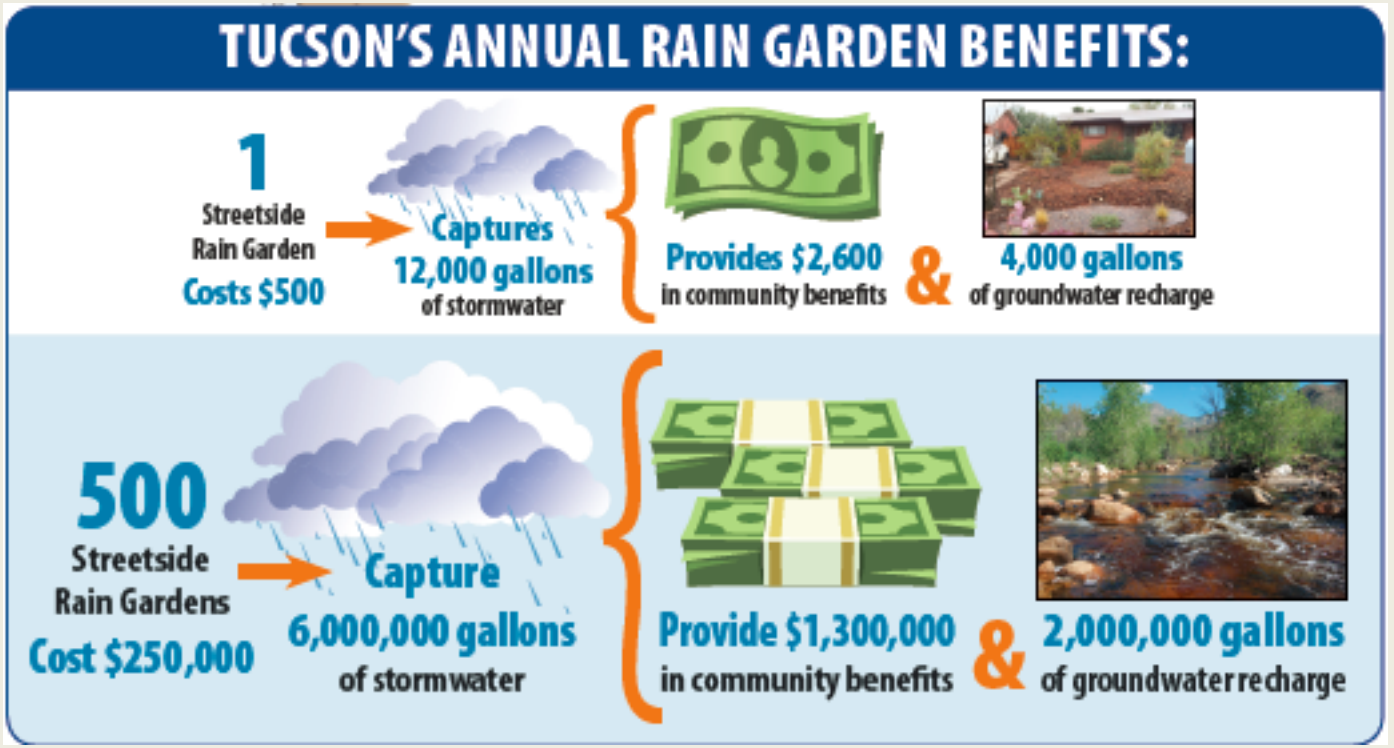
Based on the volume of water harvested and the number of trees planted.

Cost Benefit Analysis Results

- For **every $1** a community **invests** in rain gardens and green streets **over $3-6 of value are created** when accounting for **direct** and **indirect** economic values.
- ROI typically 6-10 years

COST BENEFIT BREAKDOWN




TUCSON'S ANNUAL RAIN GARDEN BENEFITS:
1
Streetside
Rain Garden
Costs $500
Captures
12,000 gallons
of stormwater
Provides $2,600
in community benefits
&
4,000 gallons
of groundwater recharge
500
Streetside
Rain Gardens
Cost $250,000
Capture
6,000,000 gallons
of stormwater
Provide $1,300,000
in community benefits
&
2,000,000 gallons
of groundwater recharge

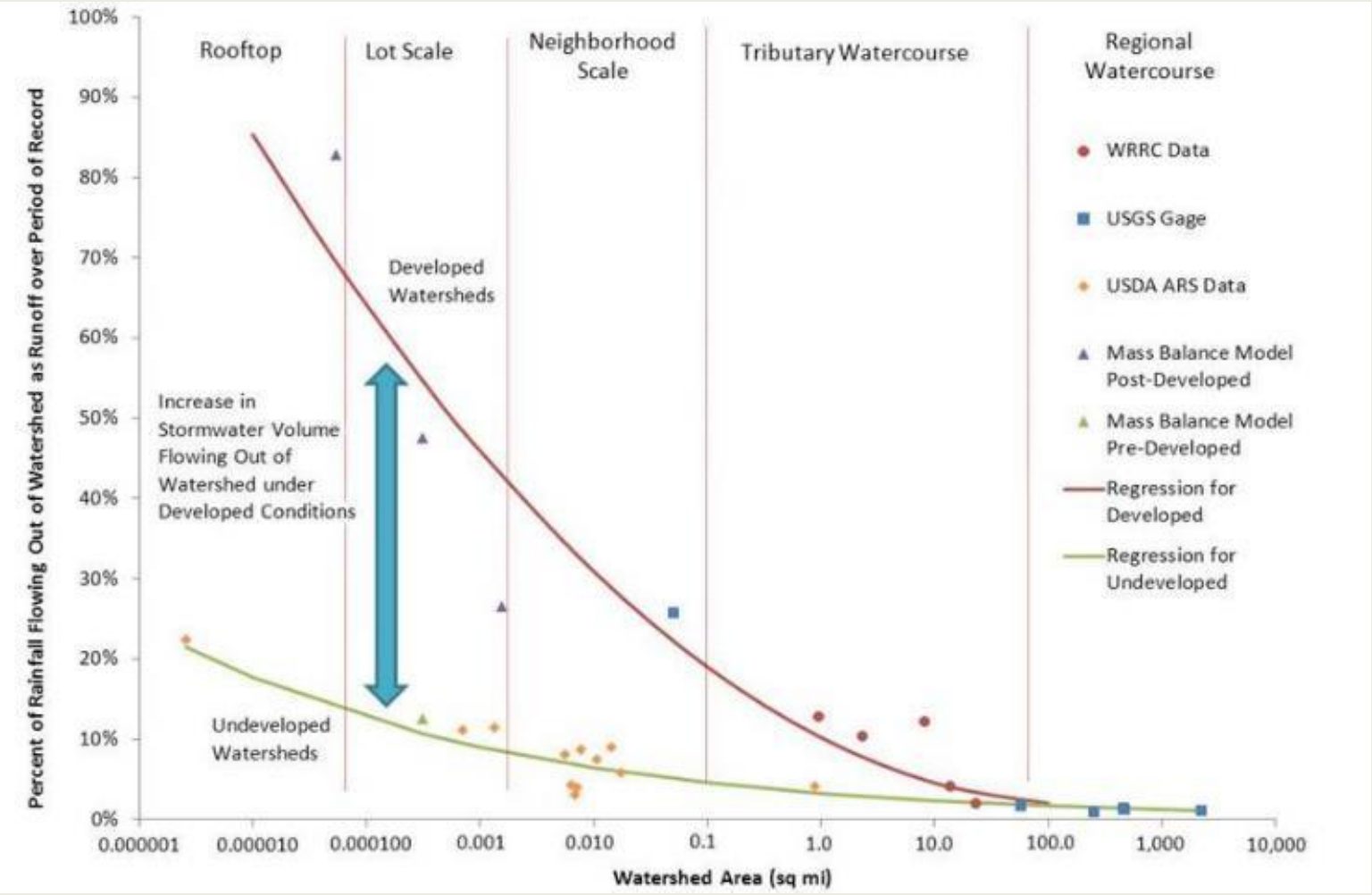
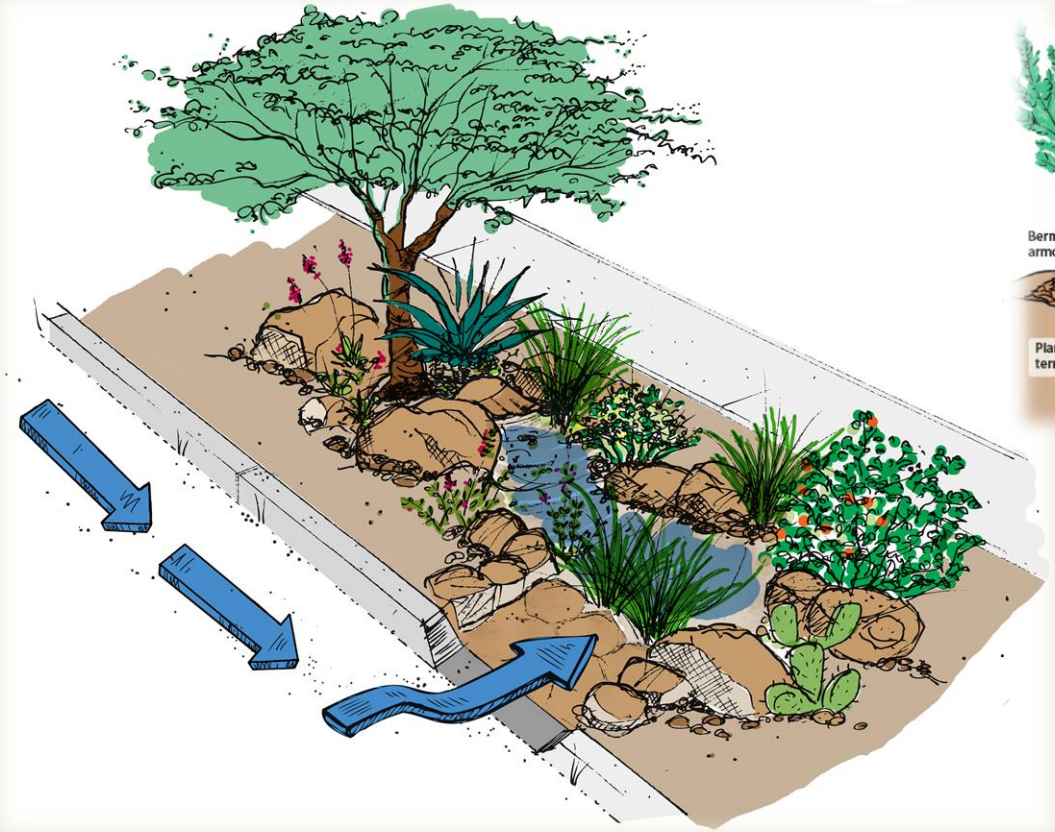
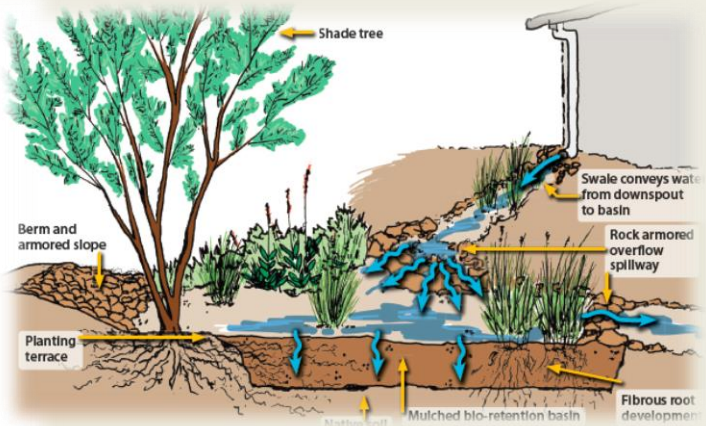
Policy and Funding!

- Expand Green Streets
- Green infrastructure fund – parcel based fee
- Improvement districts
- Waste hauling – a road related fee
- Water offsets – new development-based fee
- other revenue sources…

One Water

Rain/Stormwater
Groundwater
Wastewater
Recycled Water
Drinking Water

Net Zero to Net Positive Development: Opportunities with Stormwater



Net Zero to Net Positive Development