



Building the Case for Climate Resilience Investments

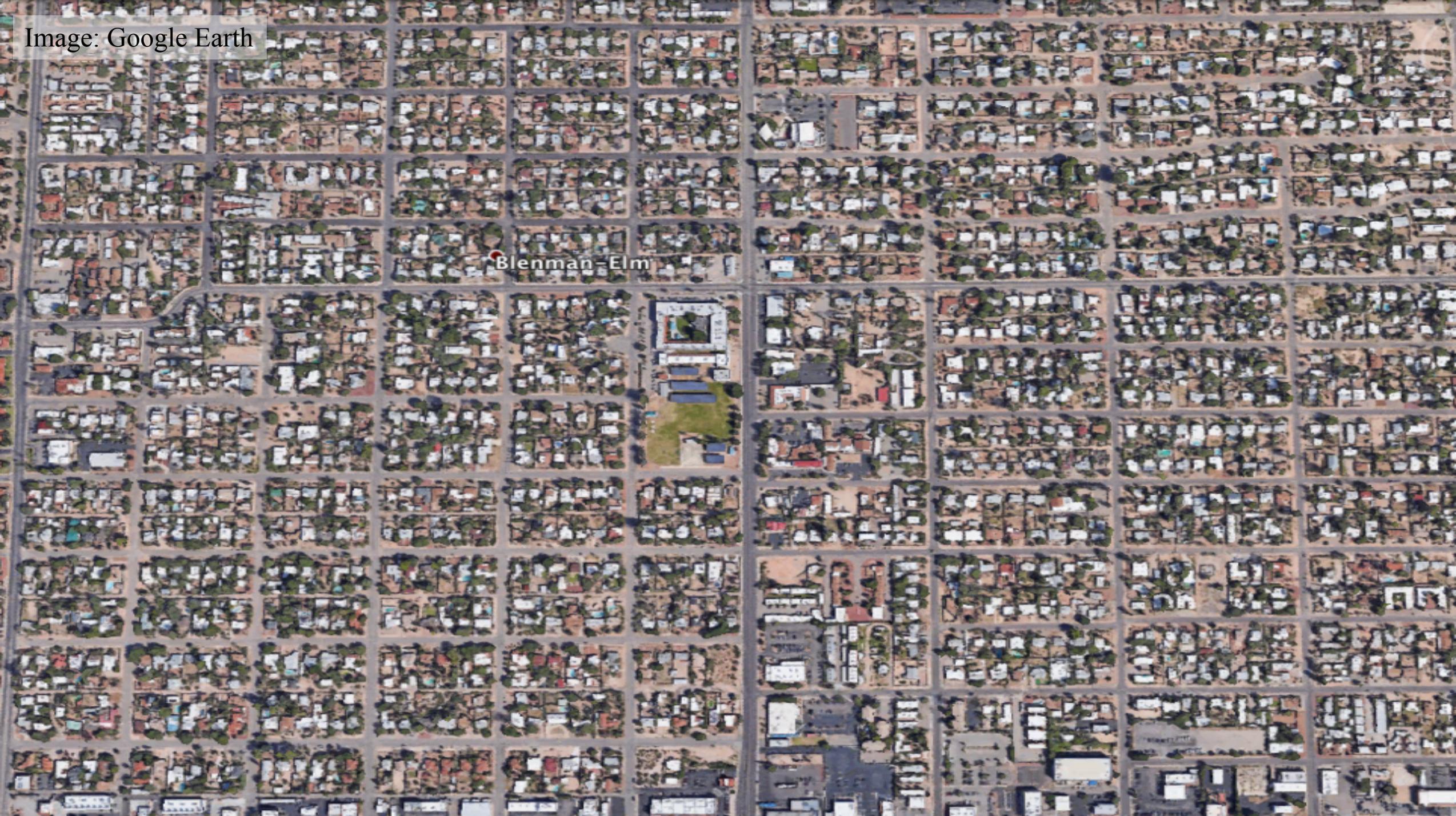
Matt Chadsey

(mchadsey@eartheconomics.org)

EARTH
ECONOMICS 

Image: Reddit Media.Com

Image: Google Earth



Earth Economics' Work in a Nutshell

We use economics to tell stories
about the relationship between
nature and healthy communities

Image: Downtowngal



**Traditional Flood Control:
Los Angeles River**

Green Infrastructure Flood Control Thornton Creek, Seattle



Image: Friends of Thornton Ck

Our Approach

Awareness Building

...Make sure nature has a seat at the table for decisions



Place-based Analysis

... support better project, policy, and investment decisions

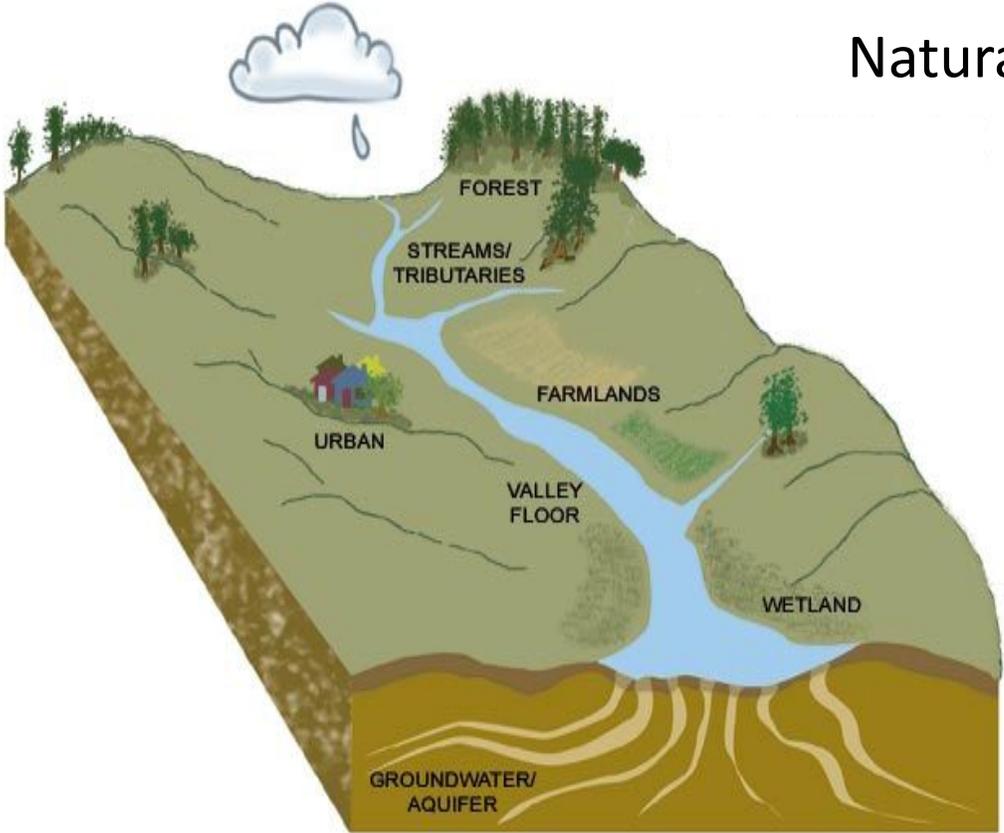


Strategy and Finance Recommendations

... build financing mechanisms and policy to accelerate progress at scale



Ecosystem Services: The benefits people derive from nature



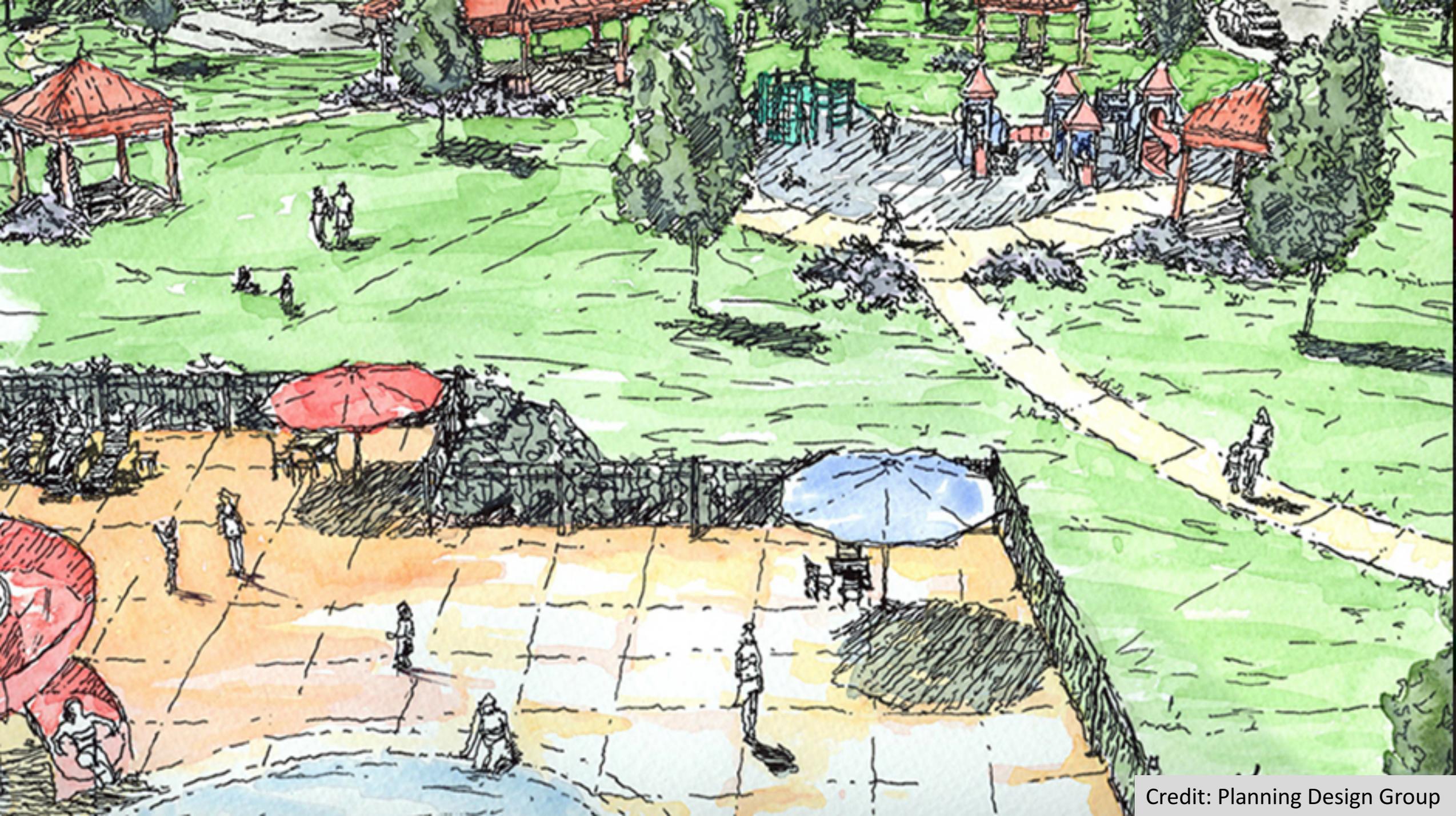
Natural Capital Asset: **Watershed**



Function: **Collection & Filtration**



Service: **Water Supply**



21 Ecosystem Services

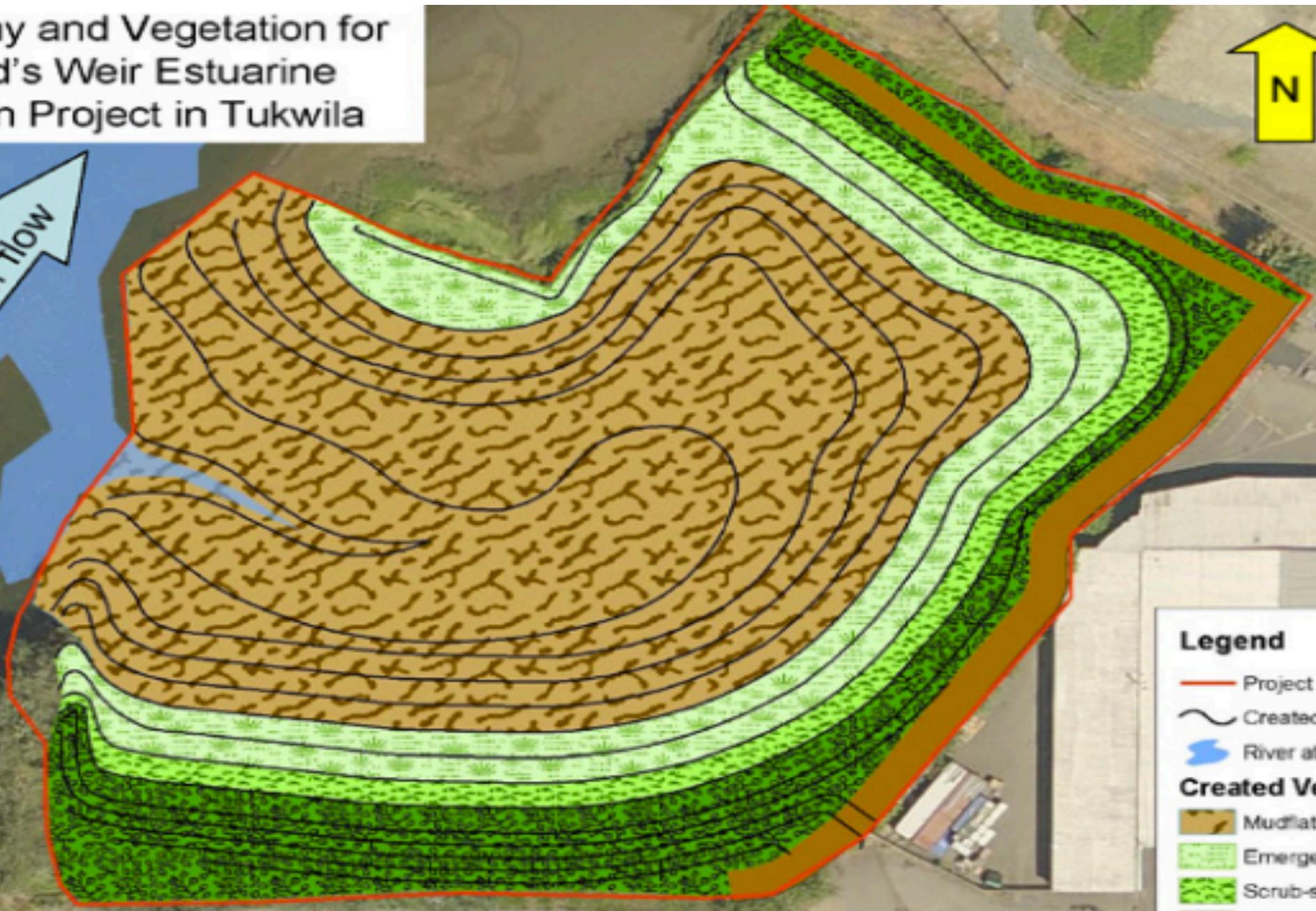
- Aesthetic Information
- Air Quality
- Biological Control
- Climate Stability
- Cultural and Artistic Information
- Energy and Raw Materials
- Food
- Genetic Resources
- Habitat and Nursery
- Medicinal Resources
- Moderation of Extreme Events
- Ornamental Resources
- Pollination
- Recreation and Tourism
- Soil Formation
- Soil Retention
- Science and Education
- Spiritual and Historical
- Waste Treatment
- Water Regulation
- Water Supply



Holistic Benefit Cost Analysis

Topography and Vegetation for North Wind's Weir Estuarine Restoration Project in Tukwila

Duwamish River flow



Legend

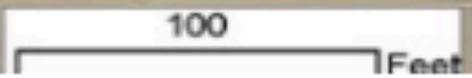
- Project Boundary
- ~ Created Contours
- River at MLLW (-2.35')

Created Veg. Zones

- Mudflats
- Emergent
- Scrub-shrub
- Forested
- Trail

April 2009

S. 112th St.



Sample Benefit Categories

Project Costs

Property Acquisition
Soil Remediation
Plant Installation and Care
Site Improvements (paths, etc.)

Avoided Damages

Commercial Property
Residential Property
Infrastructure – Bridges and Roads
Casualties

Economic

Neighboring Property Values
Construction Investment Jobs
'Trickle Down' to Local Businesses
Long-Term Worker Retention

Social

Volunteer Engagement
Physical Health
Mental Health
Social Equity
Recreation (Fishing, Birding)
Cultural Value

Environmental

Salmon Habitat
Reduced Soil Erosion
Carbon Sequestration
Bird Habitat
Air Quality
Tree Cover
Invasives Control

Project Life: 100+ Years

Photo: MTA New York City Transit / Leonard Wiggins

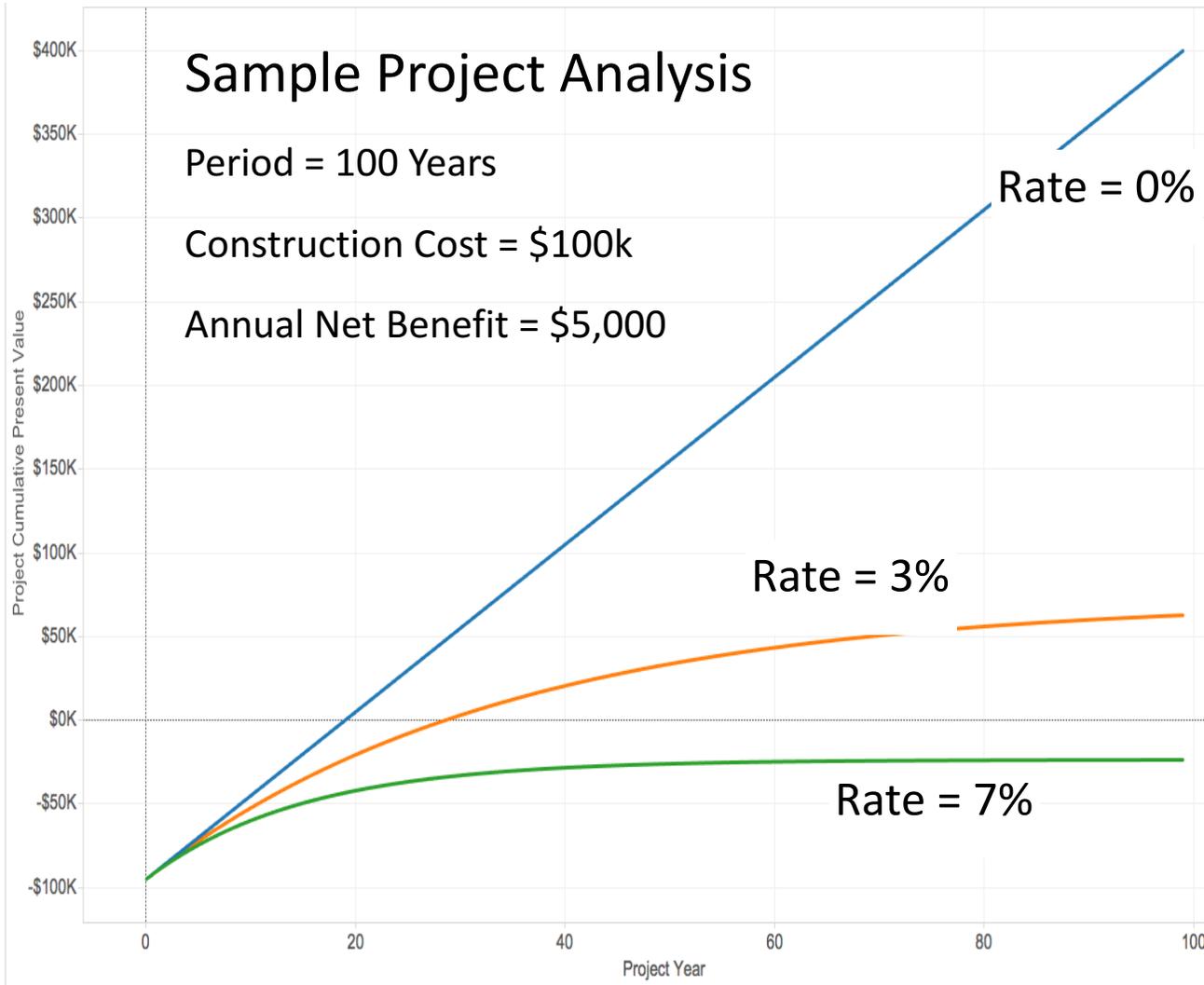


Gray Infrastructure tends to need increasing maintenance, repair and, ultimately, replacement



Green Infrastructure may provide benefits for many decades, with limited maintenance needed

Discount Rates Are Important



This chart shows how the sample project will produce a favorable or unfavorable benefit-cost ratio depending on the rate used for analysis.

- Discount rates are used when calculating a 'present value' of project benefits and costs accrued over time.
- Higher rates (e.g. 7% used by FEMA) tend to disadvantage green projects by minimizing future benefits while also minimizing future costs of gray projects.
- Many economists believe that rates of 3% or less should be used for green projects.



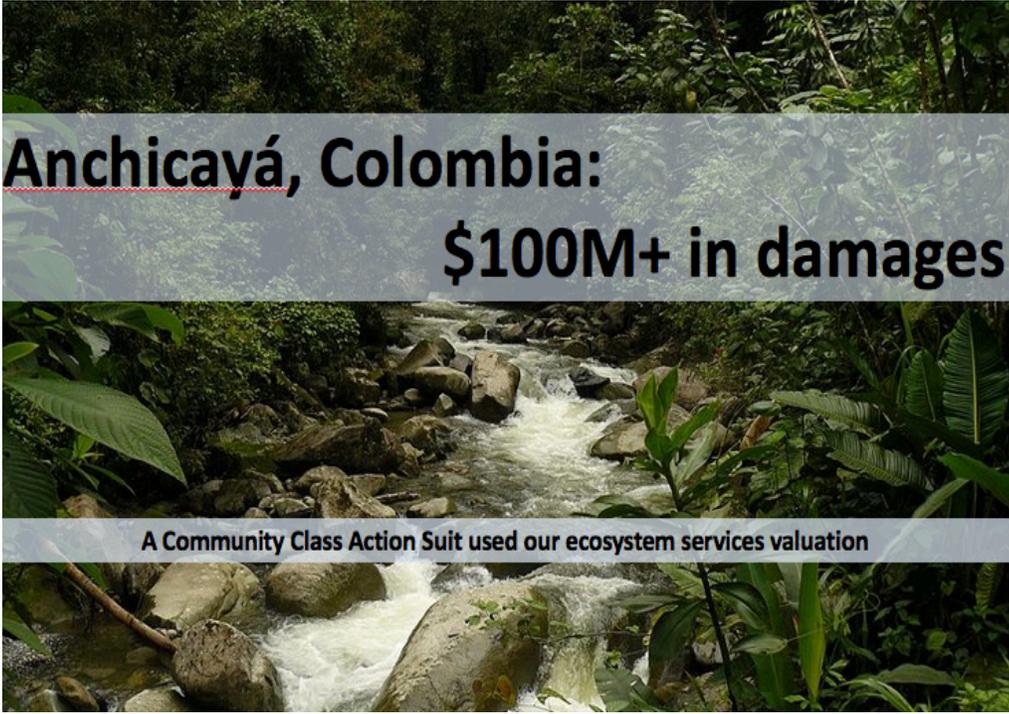
CREDIT: ZAC CHRISTIN

Image: Zac Christin

Change on the ground



Change on the ground



Anchicayá, Colombia:
\$100M+ in damages

A Community Class Action Suit used our ecosystem services valuation



GASB:
Governmental Accounting Standards Board

Accurate accounting is essential for sound decision-making and finance for use by public agencies, private firms, and investors

Communication Challenges

Mainstream application of ecosystem services is relatively new

Values are not precise – often presented as ranges

Still gaps in the original research

Federal and local guidance and standards may not allow or does not address use of ecosystem services in BCA and project analysis

Stakeholders may not feel that the values are ‘real’

Natural capital projects don't seem to be making a difference

Key Speaking Points

Even though ecosystem values may not be perfect they should always be considered. More information leads to better decisions.

“Better to be approximately right than precisely wrong”

- Warren Buffett

Key Speaking Points

Natural capital solutions often offer lower costs, longer-lived benefits, and recover more quickly from shocks than built capital.

Neighborhood Projects and Challenges

Angela Tovar - Director of Community Development, The Point

Linda Warren- VP of Placemaking, Cleveland Neighborhood Progress



Image: Matt Chadsey

D-Town Farm, Detroit