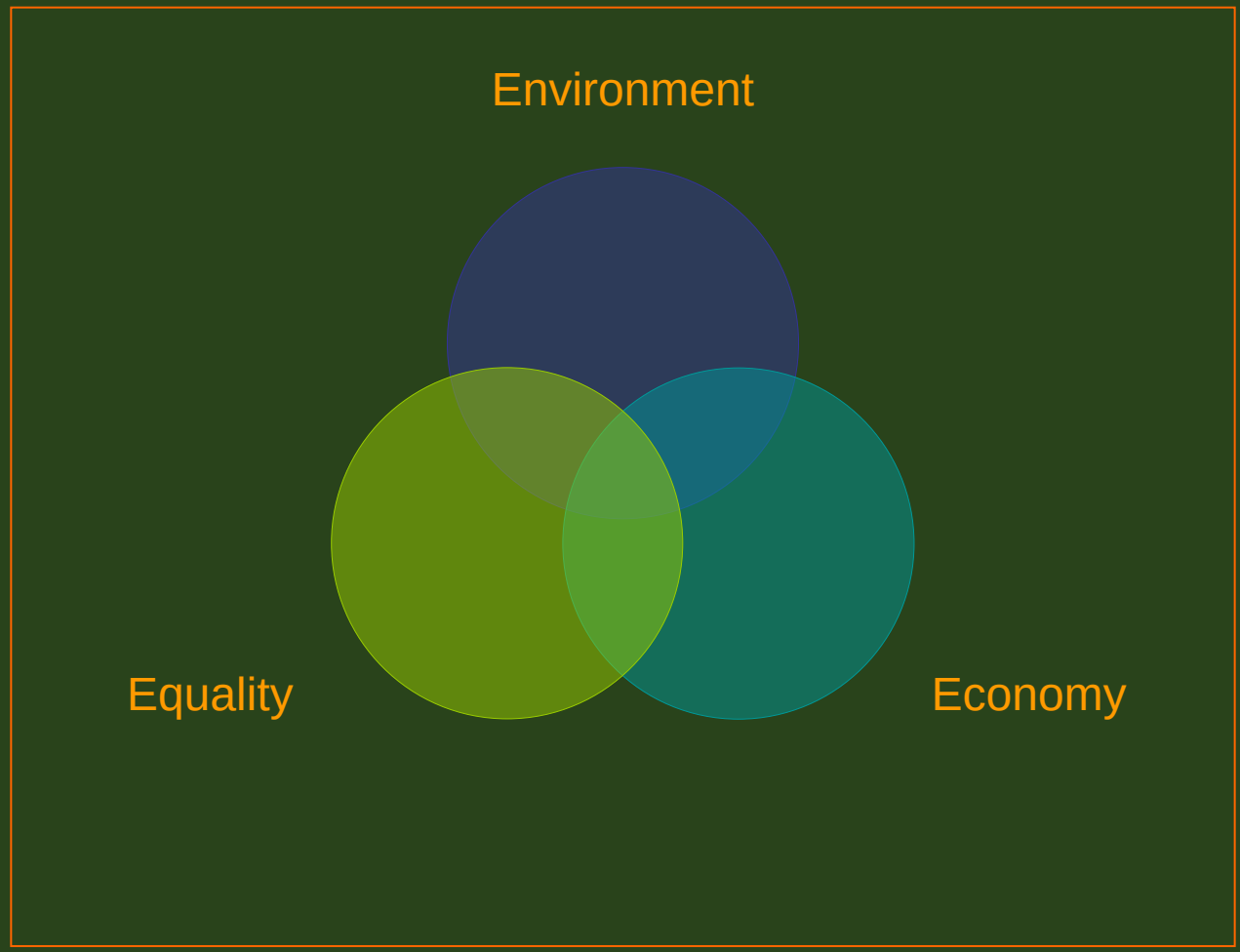
SUSTAINABLE SYSTEMS

INTERDEPENDENT VALUES

José M. Almiñana, Andropogon Associates Ltd.

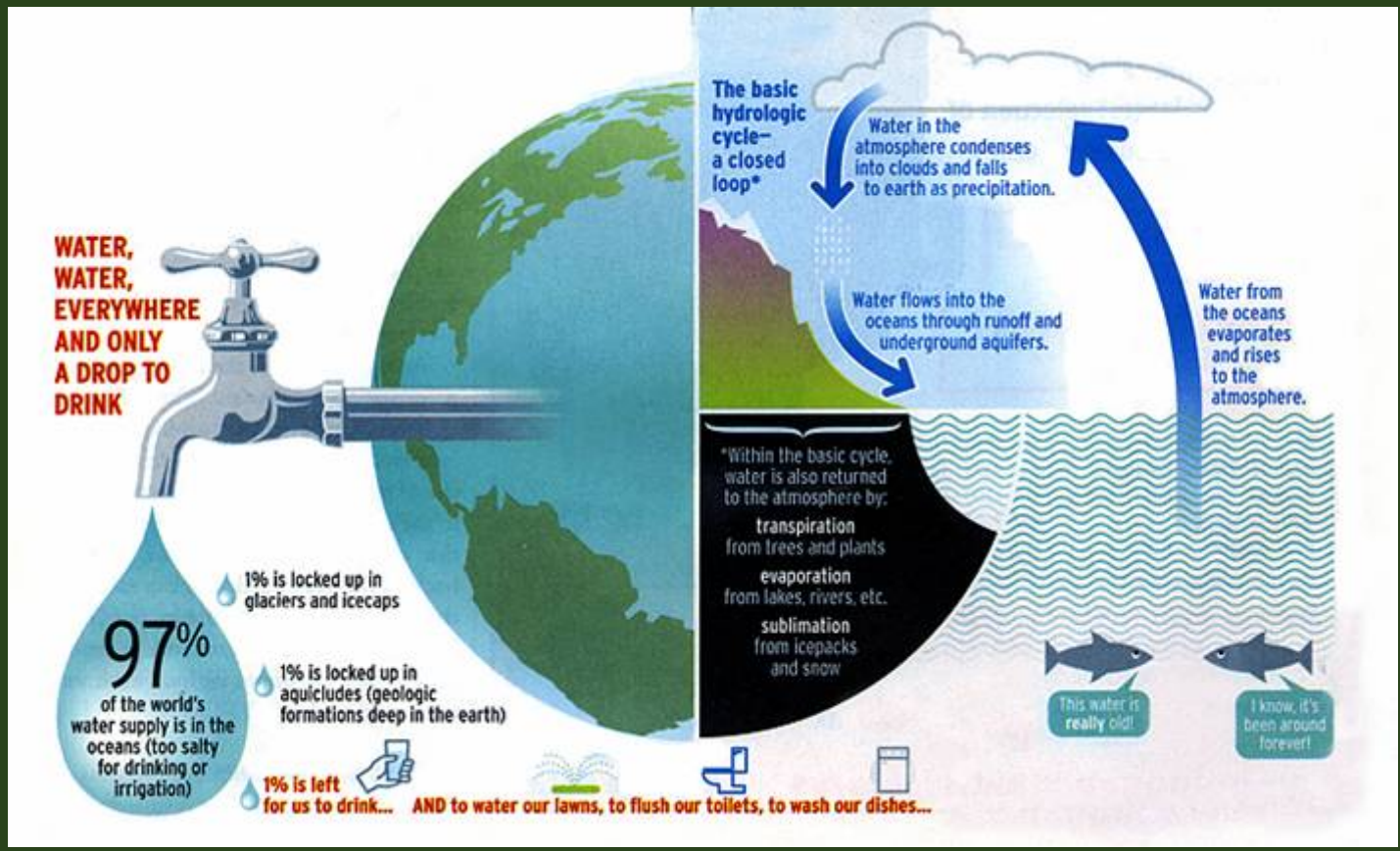
SUSTAINABLE SYSTEMS | INTERDEPENDENT VALUES



CONNECTIVITY – THE BASIS FOR PLANNING AND DESIGNING THE DELAWARE WATERFRONT

CONNECTIVITY?

IT'S THE WATER, STUPID!



WHAT ARE YOU GOING TO DO WITH THE LAST 1% AVAILABLE?

SUSTAINABLE SYSTEMS | INTERDEPENDENT VALUES

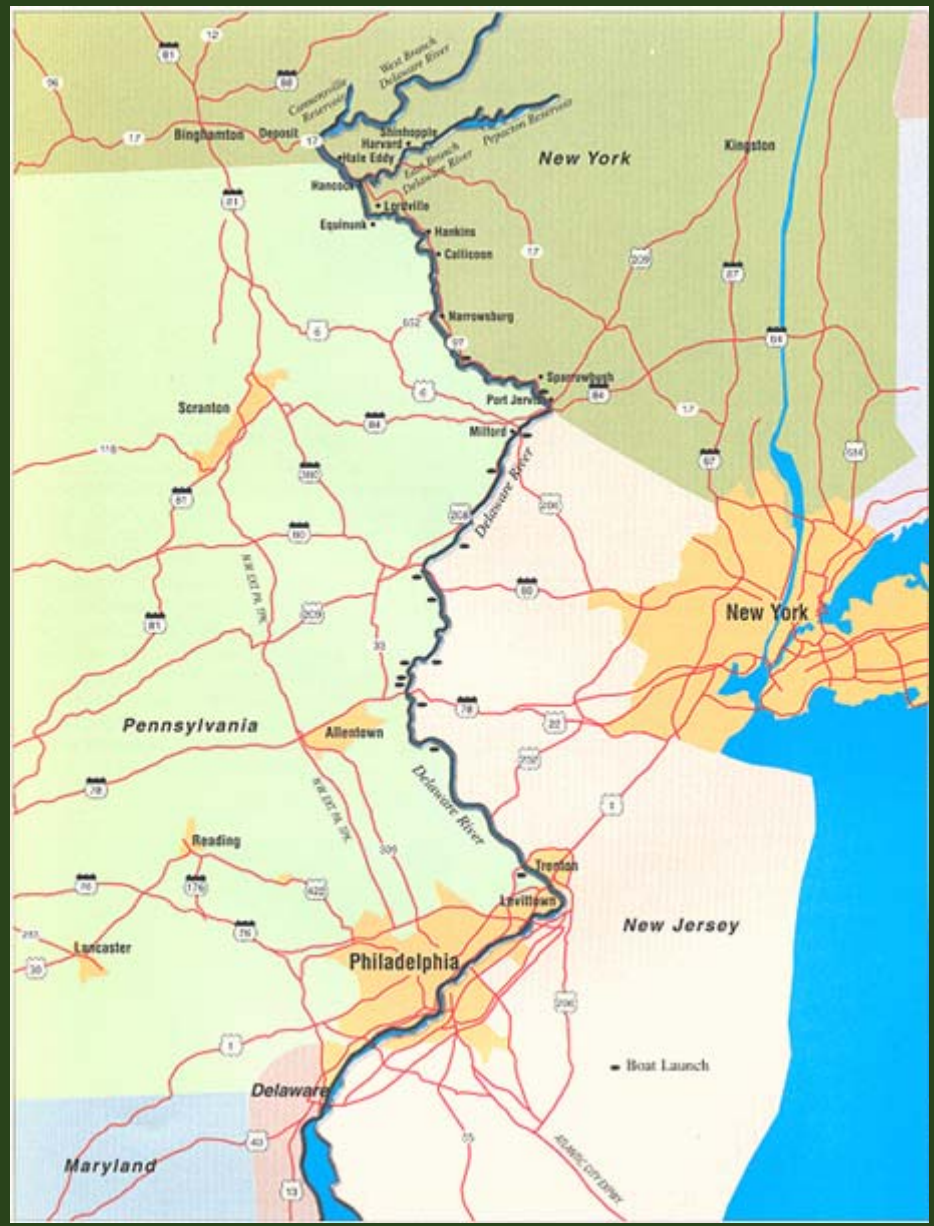
DELAWARE RIVER IS THE LAST FREE FLOWING MAINSTEM RIVER IN LOWER 48

PHILADELPHIANS WHALE WATCH
RIGHT FROM HOME

DAM PROHIBITION IS PARTLY DUE TO A FISH – THE ATLANTIC SHAD

Delaware River shad spawn above the Delaware Water Gap – over 200 miles upriver

Some go as far as the Catskills – 400 miles away



Ecological Riverfront Design

GENERAL PLANNING PRINCIPLES

Principle 1: Demonstrate characteristics of the city's unique relationship to the river in the riverfront design

Principle 2: Know the river ecosystem and plan for a scale larger than the riverfront

Principle 3: Because rivers are dynamic, minimize new floodplain development

Principle 4: Provide for public access, connections, and recreational uses

Principle 5: Celebrate the river's environmental and cultural history through public education programs, riverfront signage, and events

Ecological Riverfront Design: Restoring Rivers, Connecting Communities (2004)
Betsy Otto, Kathleen McCormick, and Michael Leccese

American Planning Association Planning Advisory Service ww.apa.org
American Rivers www.americanrivers.org

Ecological Riverfront Design

GENERAL PLANNING PRINCIPLES

WILLAMETTE RIVER | OREGON

The Five Goals of River Renaissance

1. **Make the river clean and healthy for fish, wildlife, and people by emphasizing riverbank restoration, elimination of combined sewer overflows, and better stormwater management.**

2. **Maintain and enhance the working harbor and its infrastructure.**

3. **Embrace the river as Portland's front yard.**

4. **Create vibrant waterfront districts and neighborhoods.**

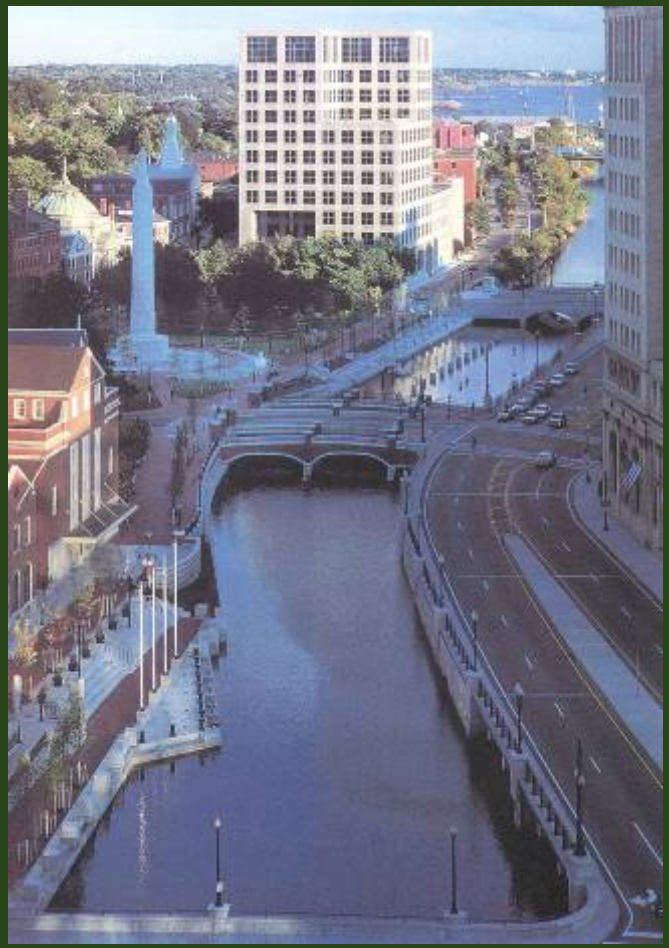
5. **Promote partnerships, leadership, and education.**

City of Portland Bureau of Planning

Mega Moves

Daylighting City Rivers

WILLIAM WARNER ARCHITECTS
Providence River Relocation | Waterplace
Providence | Rhode Island



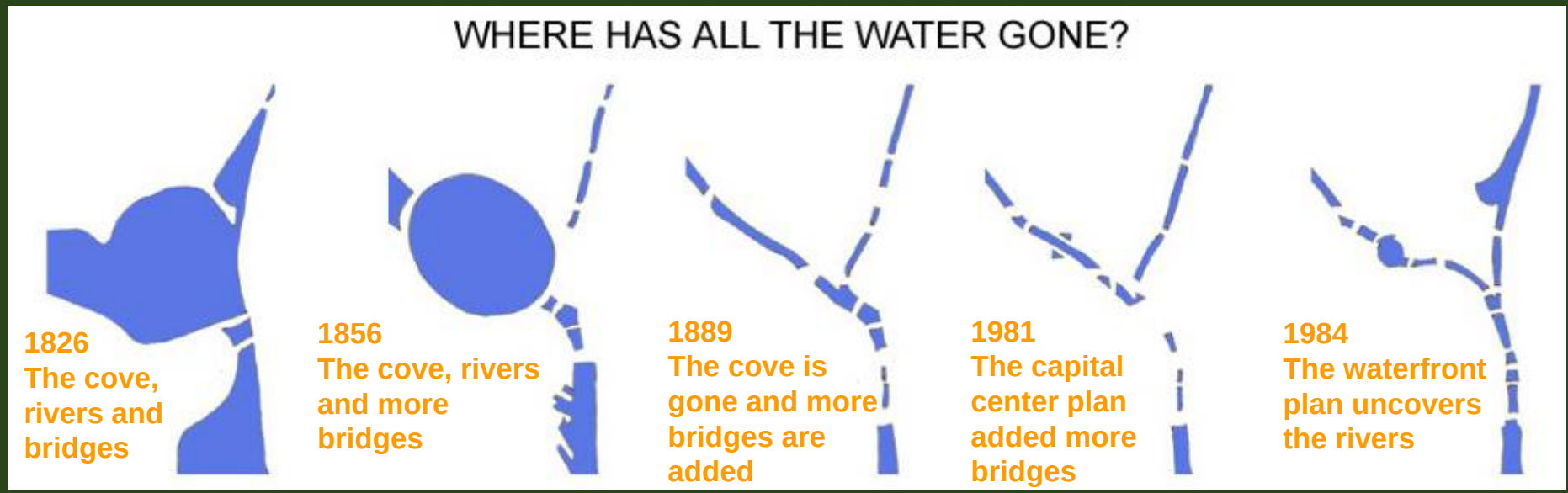
1994 – Decking removed and project completed

1990 — Crawford Street. The world's widest bridge

Mega Moves

Daylighting City Rivers

WILLIAM WARNER ARCHITECTS
Providence River Relocation |Waterplace
Providence | Rhode Island



Designing for Sustainability

Cleaning Water

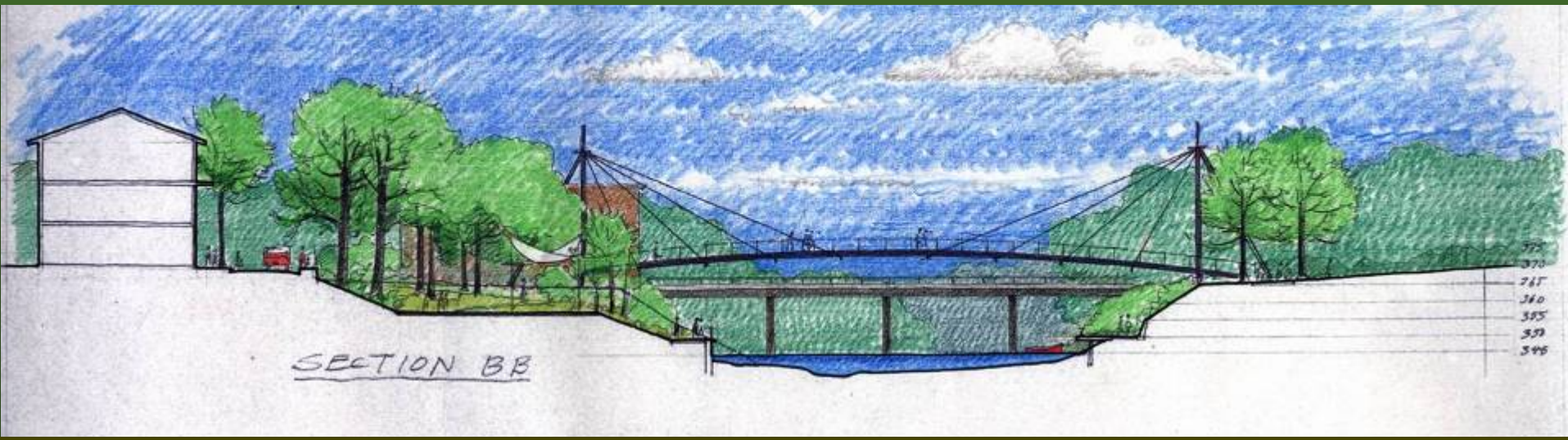
BETSY DAMON | ENVIRONMENTAL ARTIST
MARGIE RUDDICK |LANDSCAPE ARCHITECT
Living Water Garden | Chengdu | CHINA

Source: Keepers of the Water

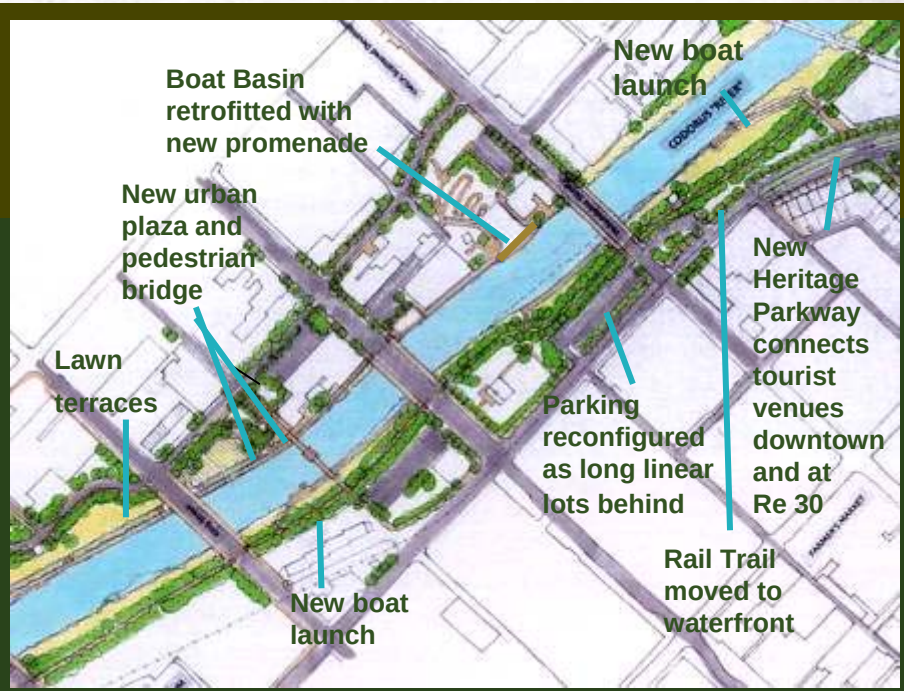
The Living Water Garden is an inner city ecological park using water treatment as its theme.

Adaptive Strategies

Nature in the City



CODORUS CREEK | YORK, PA



Designing for Sustainability

SUBMERGED PARKING

Testing the roof garden during construction

Designing for Sustainability

SUBMERGED PARKING BECOMES NEW OPEN SPACE

José M. Almiñana ANDROPOGON ASSOCIATES Ltd

Designing for Sustainability

THOMAS JEFFERSON UNIVERSITY, NEW URBAN PLAZA

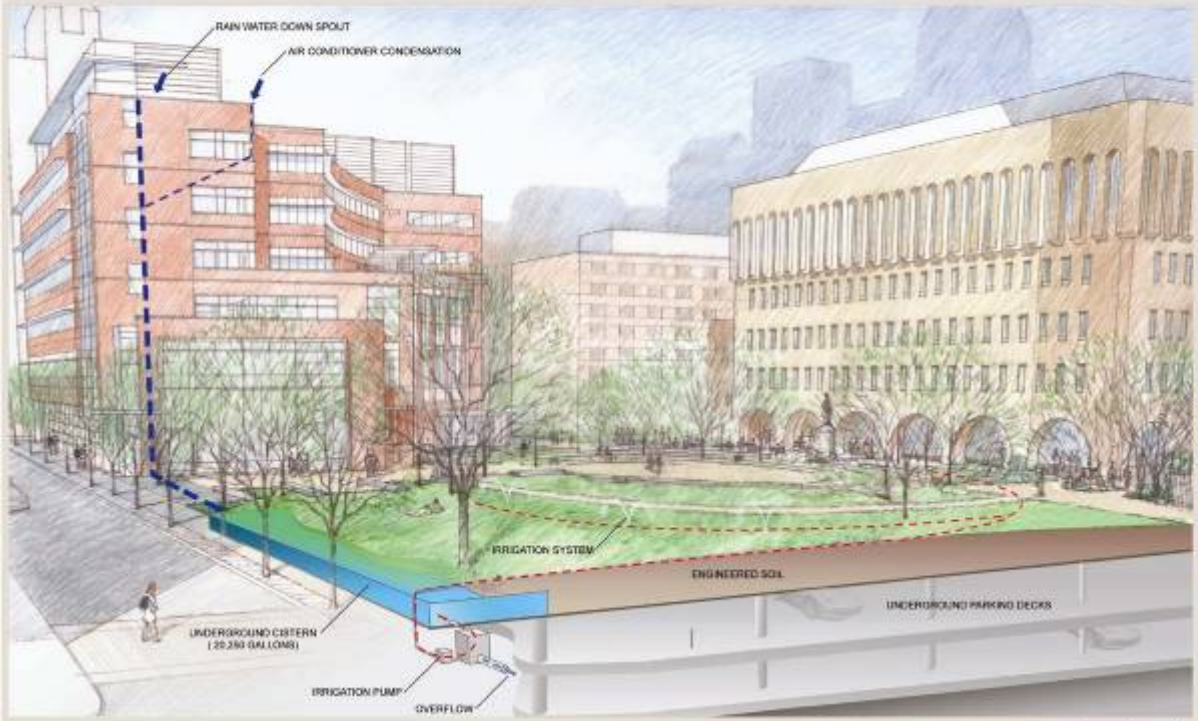
Designing for Sustainability

THOMAS JEFFERSON UNIVERSITY, NEW URBAN PLAZA

Designing for Sustainability

THOMAS JEFFERSON UNIVERSITY, NEW URBAN PLAZA

simple, sustainable, urban : a project for the 21st century



PROJECT CONTRIBUTIONS:

The plaza & green will add 1.3 acres of open space to the city fabric while promoting water conservation

Greening Philadelphia: A 1.8 acre project site, formerly 7% pervious, becomes 40% pervious

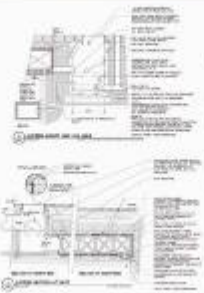
Landscape integrated stormwater management system reduces stormwater volume & delays peak flow discharge through storage & re-use for irrigation

Enhances Water Quality: "First Flush" is captured and filtered by plants and soils

Contributes to the elimination of combined sewer overflow discharge to the Delaware River.

PROJECT WATERSHED:

This urban watershed produces 95 million gallons of stormwater per year with an average of 29 overflow events



PROJECT TECHNICAL FEATURES:

Capacity to store & re-use over 20,000 gallons of storm water and air conditioner condensate for irrigation

Gravity-fed cistern, easy to drain and maintain

Engineered soils to hold up to 11,500 gallons of water per each % organic matter at 12" depth

Evapotranspiration further reduces stormwater volume with over 55 canopy trees & nearly 1 acre of lawn

Designing for Sustainability

Rethink the highest and best use for each space and resource

Designing for Sustainability

SYSTEMS – FUNCTION, SYNERGY & INTEGRITY

DRAWING BY ANDROPOGON ASSOCIATES LTD AND KIERAN TIMBERLAKE ASSOCIATES

1. EXISTING MIDDLE SCHOOL
2. MIDDLE SCHOOL ADDITION
3. TRICKLE FILTER WITH INTERPRETIVE DISPLAY
4. WETLANDS FOR WASTEWATER TREATMENT
5. RAIN GARDEN
6. POND

Designing for Sustainability

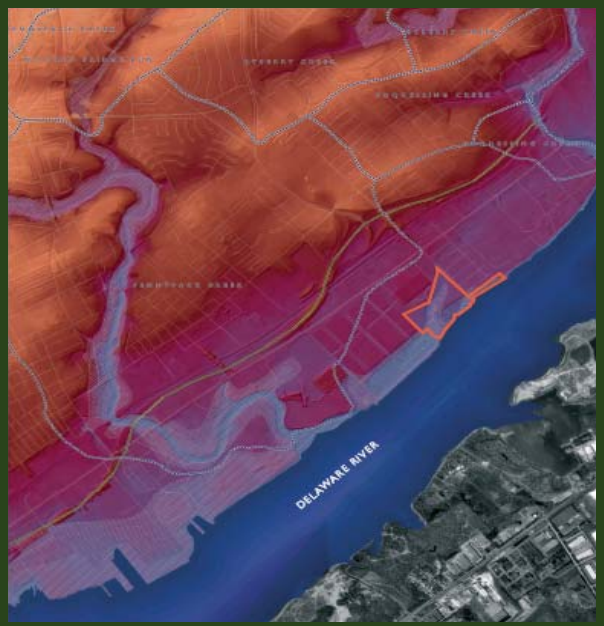
The last chance to manage and clean our water

Designing for Sustainability

The last chance to manage and clean our water

Designing for Sustainability

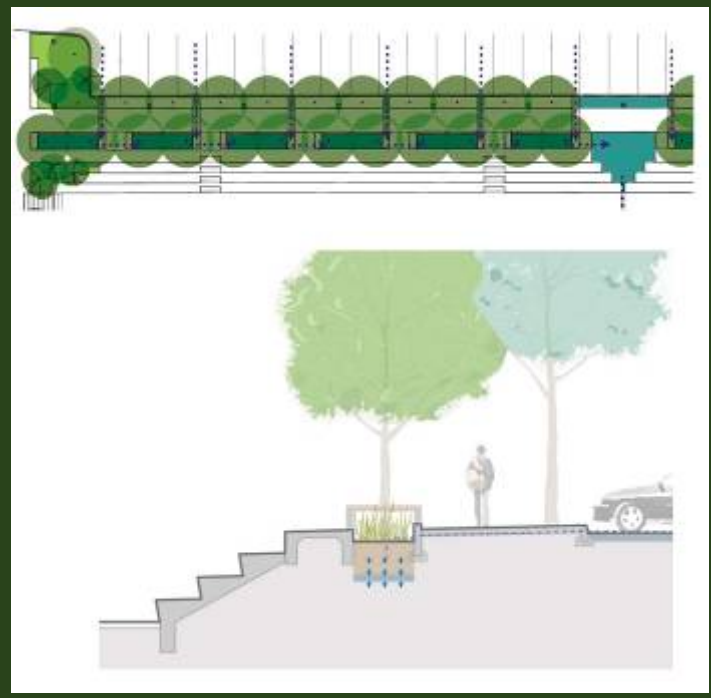
The last chance to manage and clean our water



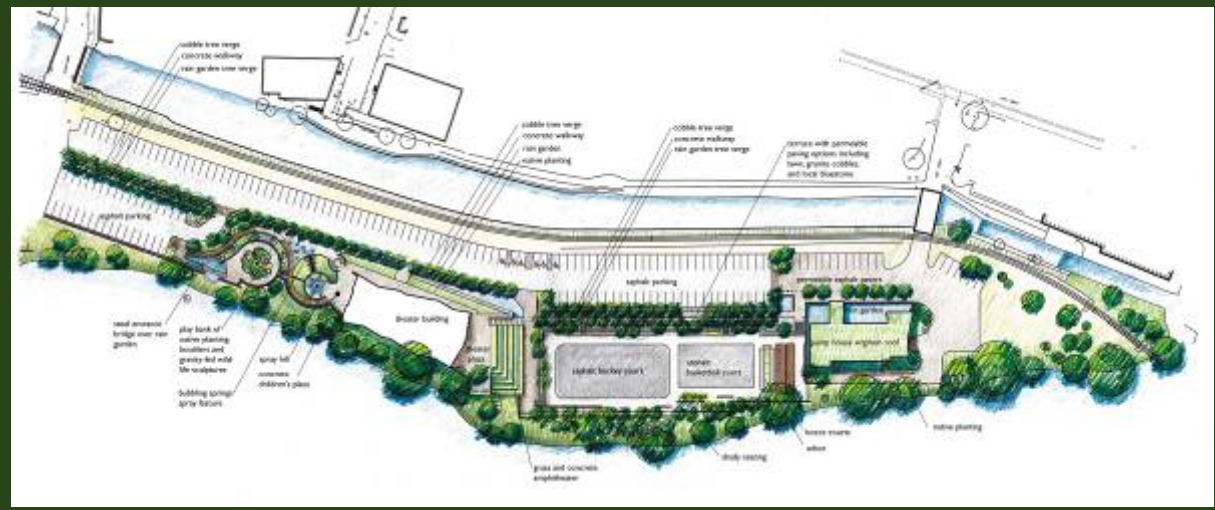
PLEASANT HILL PARK | TORRESDALE, PHILADLEPHIA

Designing for Sustainability

The last chance to manage and clean our water



GREEN STREETS

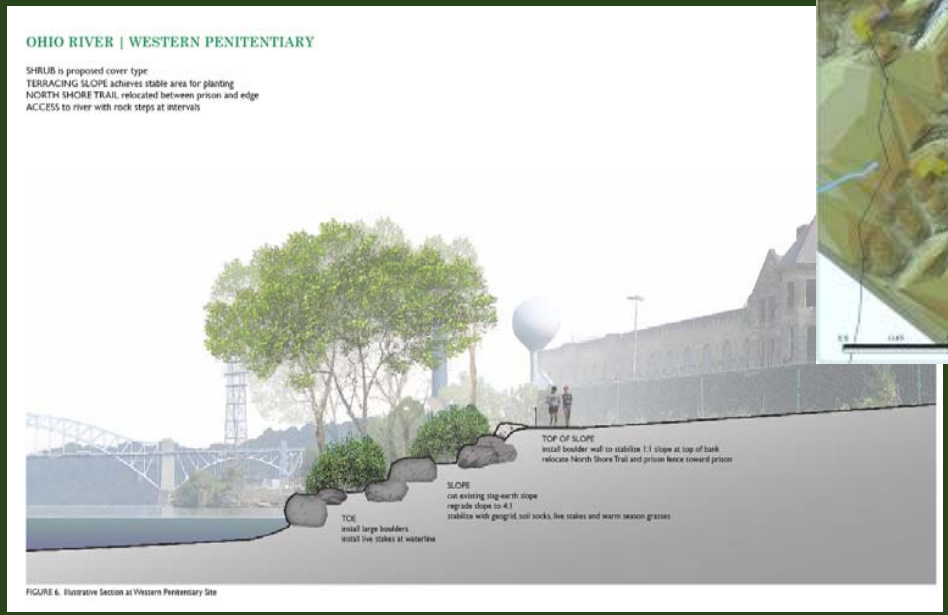


COMBINED SEWER OUTFLOW REMOVAL

VENICE ISLAND, MANAYUNK

Designing for Sustainability

The last chance to manage and clean our water



Restoring 32 miles of urban river edge

Designing for Sustainability

The last chance to manage and clean our water

ALLEGHENY RIVER | HEINZ LOFTS

WOODLAND is proposed cover type
VIEWS to downtown and river maintained by using meadow areasa within desired view corridors
NORTH SHORE TRAIL planted with an open canopy woodland to reinforce safety and visibility
FISHING accommodated with stabilized rock at toe of bank or platforms at top of bank

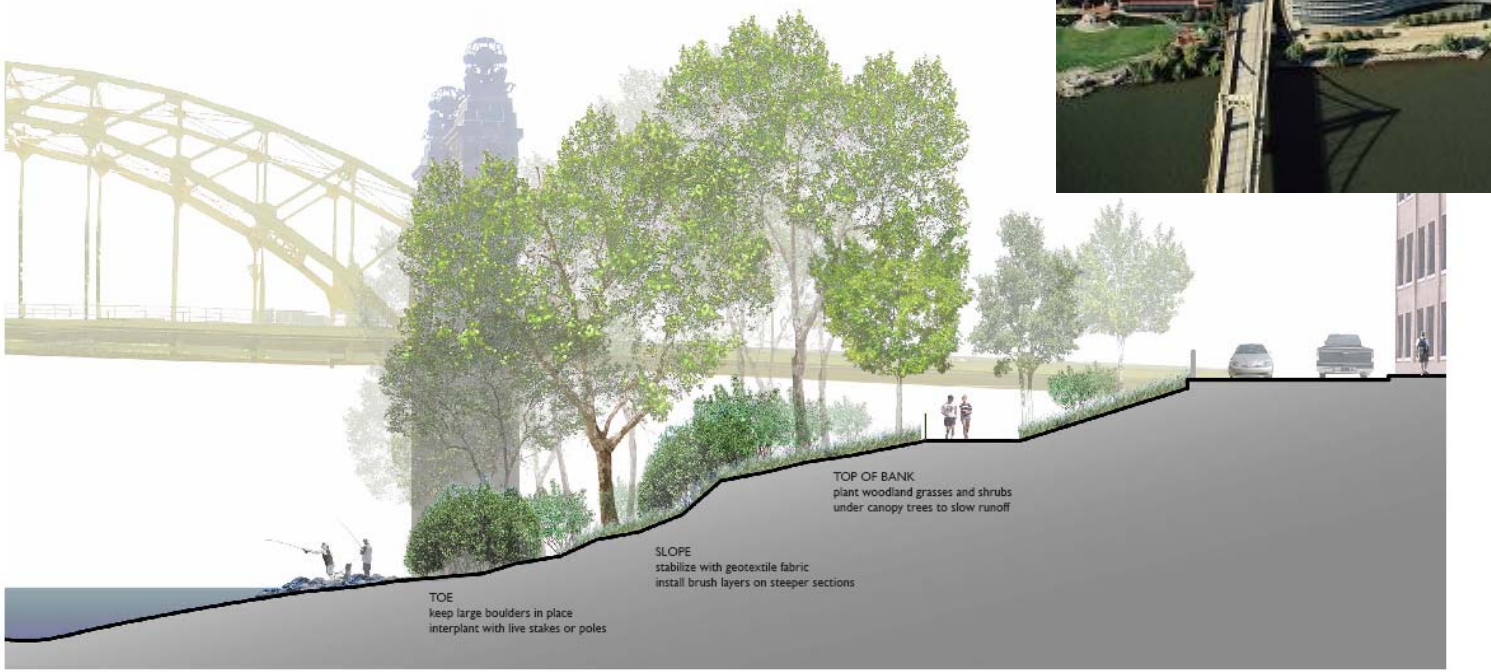


FIGURE 8. Illustrative Section at Heinz Lofts site

TARGET SITES | THREE RIVERS LANDSCAPE MANAGEMENT 2006 | page 11

River edge connectivity - integrating ecological restoration and water management with urban life

Fishing net off Cartagena, Spain
Source: EARTH FROM ABOVE 366 DAYS by Yann Arthus-Bertrand