

Sustainable Infrastructure and South Mountain Village: Water

COURSE PROJECT
PRESENTATION

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SPRING 2018 COURSE

Urban Infrastructure Anatomy and Sustainable Development

CEE 507 • SOS 547 • PUP 553

Spring 2018 Urban Infrastructure Anatomy

Rio Salado 2.0

Water Group

CEE 507/PUP 553/SOS 547

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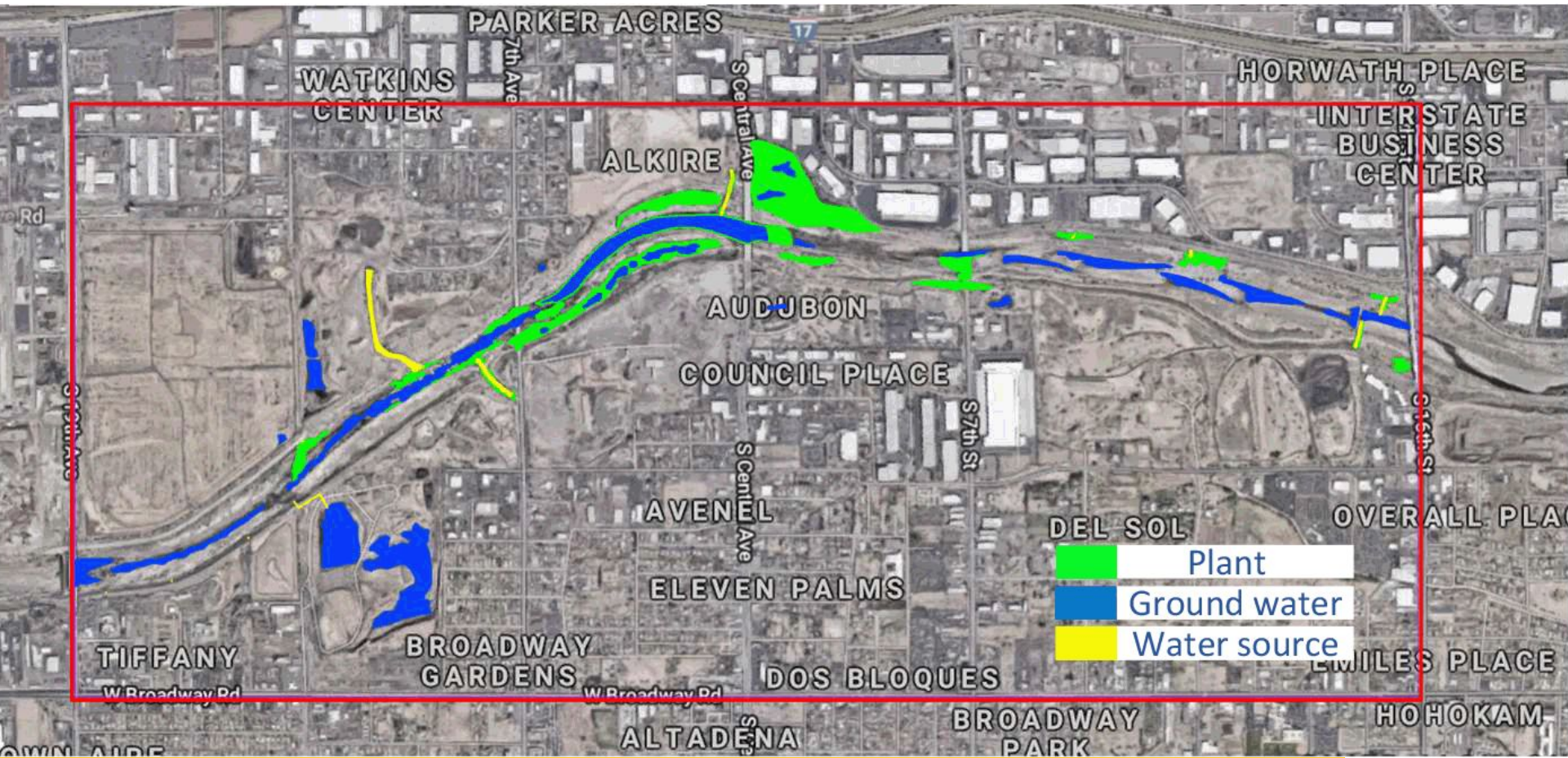
Outline

- Restoration
- Social Connectivity
- Physical Connectivity
- Maintenance and Management
- Development and Future Planning

“When you talk about water in the desert, there's something historical and spiritual in the mix. Something that speaks of the soul of this community – a soul that folks with a shallow understanding of our history mistakenly say doesn't exist.”



Section 1: **Restoration**



Plant, Groundwater, and Water Source along the Riparian Restoration

Case Study: San Antonio Riverwalk



PHASE 4 MISSION REACH 2011

PHASE 3 MUSEUM REACH 2009

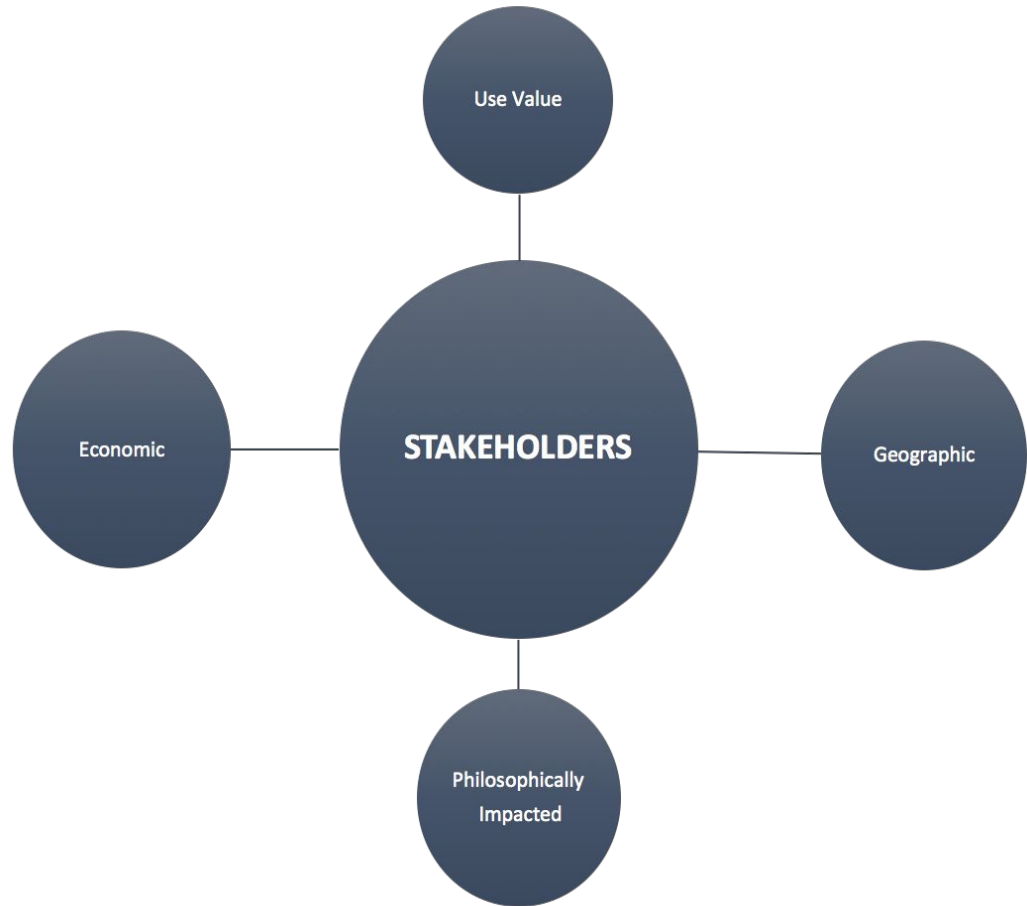
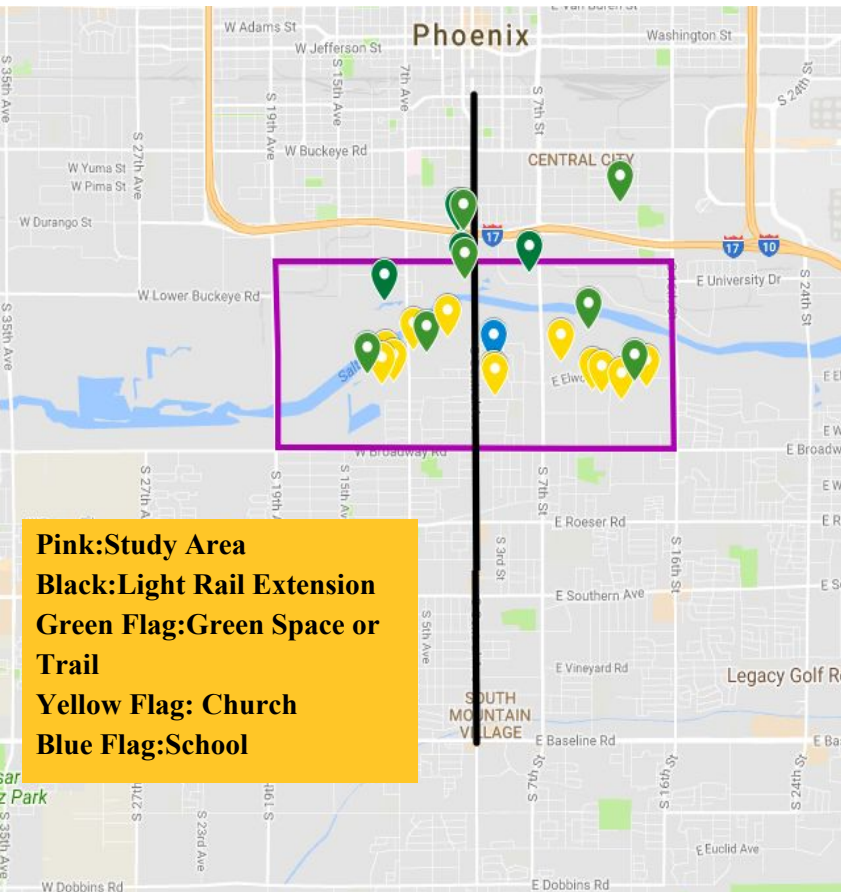
PHASE 2 DOWNTOWN REACH 1968

Image Landsat / Copernicus

PHASE 1 EAGLELAND 1946

Section 2:

Social Connectivity



Stakeholder Analysis

Q 1: How is the area changing? Why?

Q 2: What do you expect the area will be like in 20 years? 50 years?

Q 3: How will the addition of the light rail affect the area?

Q 4: Who are the main stakeholders in the area? How do they participate in Rio Salado Restoration?

Q 5: What are the social benefits of enhancing the Rio Salado?

Results

DATE: 4/10/18	Time: 9AM-10AM	Location: Audubon Center	
	# of Participants	South Mountain Resident?	
Age Range*		Y	N
>18	8	0	7
18-50	24	0	15
50 +	13	2	5

DATE: 4/21/18	Time: 8AM-9AM	Location: Restoration Area	
	# of Participants	South Mountain Resident?	
Age Range*		Y	N
>18	4	0	5
18-50	6	0	8
50 +	2	0	0

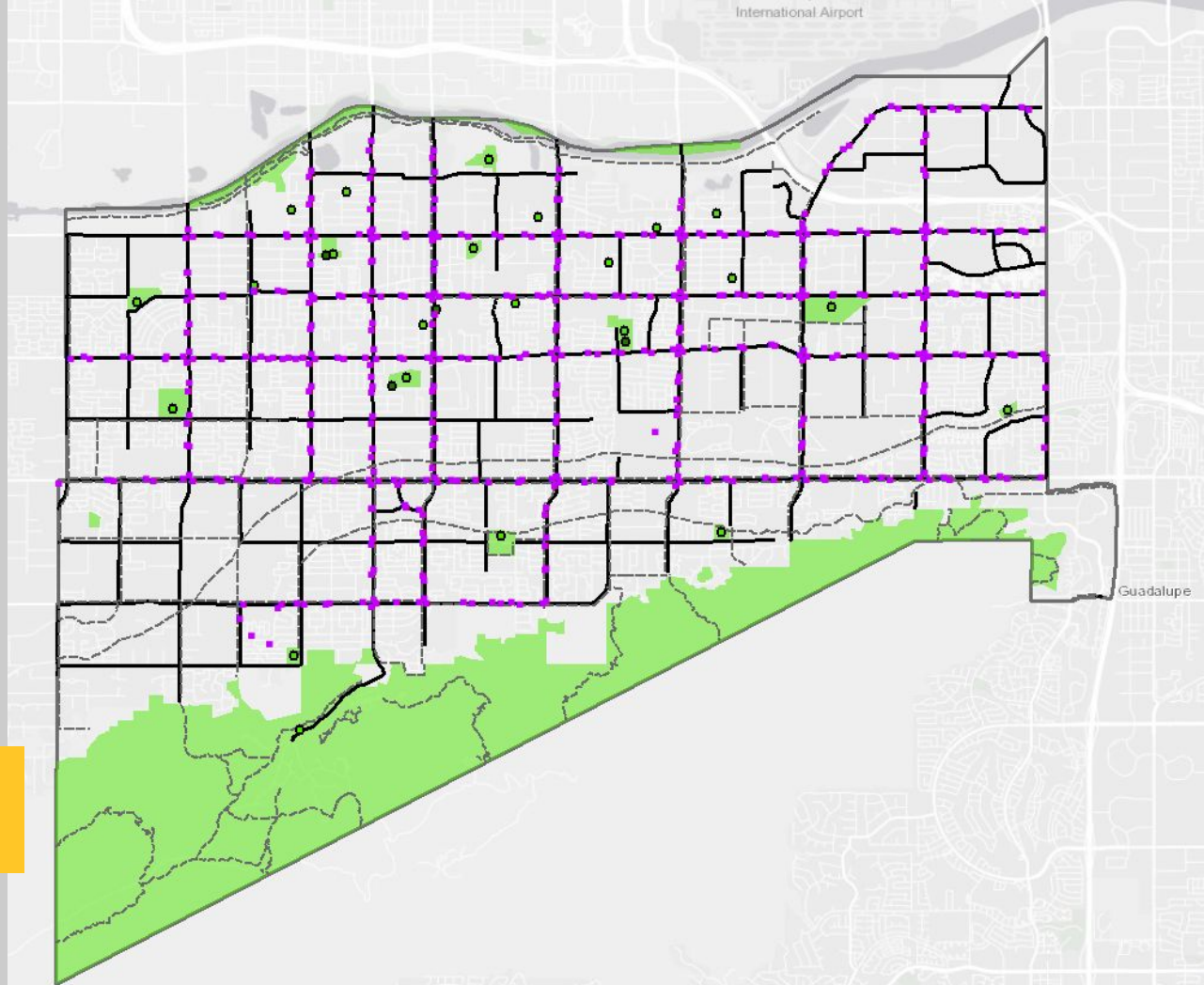
Section 3:

Physical Connectivity

Access to recreation opportunities improves the livelihood and health of residents.

Legend

- Bus Stops
- Light Rail Stops
- Park Trails
- Street Centerline
- ◆ Recreation Centers
- ◇ Parks
- Park Boundary
- ▭ South Mountain Village



Connectivity to Recreation in South Mountain Village

A heatmap showing overall walkability across a city area. The map uses a color scale from red (low walkability) to green (high walkability). A grid of black lines represents street boundaries. The highest walkability is concentrated in the central and northern parts of the city, particularly along major thoroughfares.

Overall Walkability


A heatmap showing overall transit access across the same city area. The map uses a color scale from red (low access) to purple (high access). A grid of purple lines represents transit routes. The highest transit access is concentrated in the central and northern parts of the city, following the main transit corridors.

Overall Transit Access

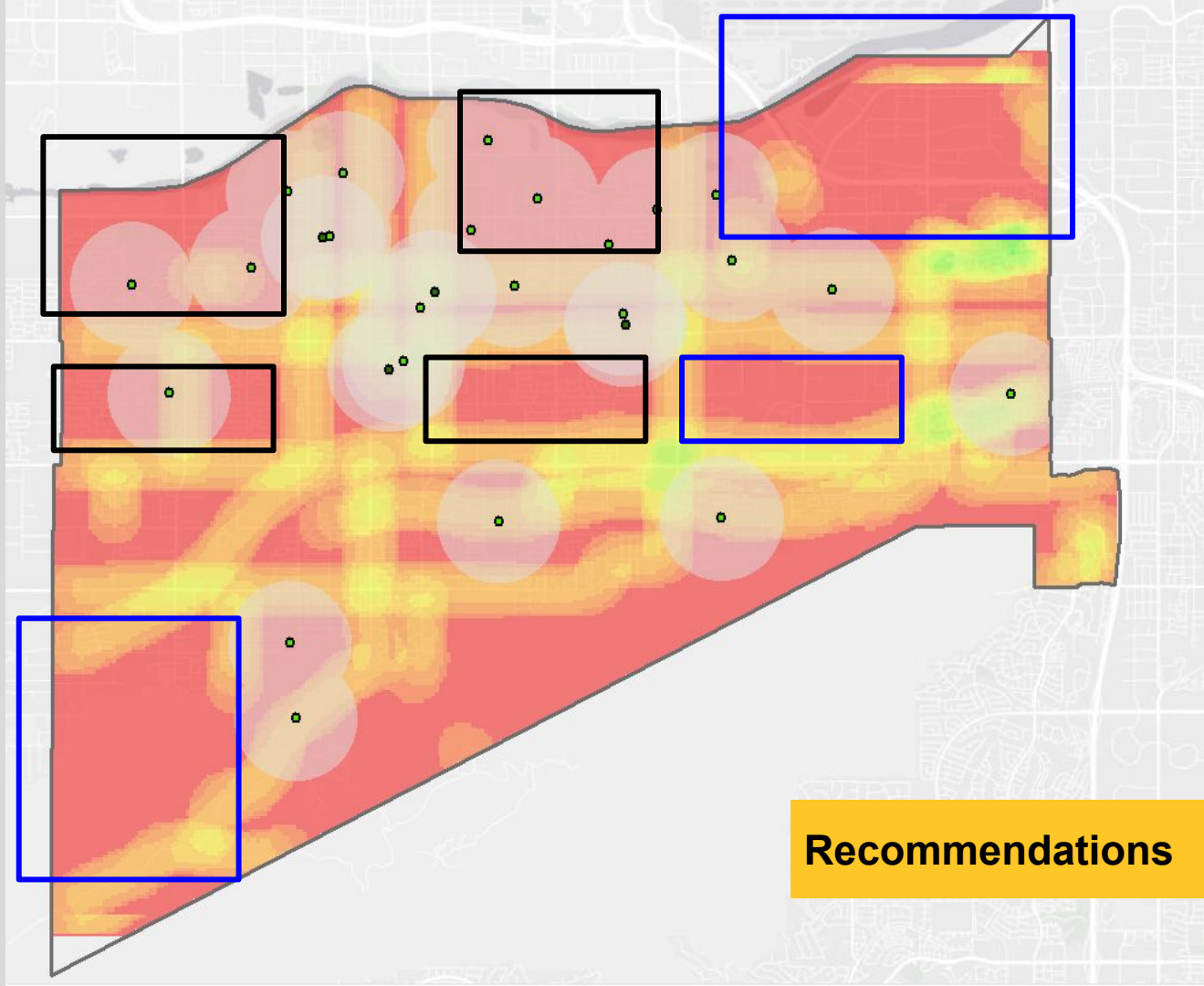
A large heatmap showing a 0.5-mile walkable buffer overlay. The map uses a color scale from red (low buffer density) to yellow (high buffer density). Numerous semi-transparent purple circles are overlaid on the map, each representing a 0.5-mile buffer around a specific point. The highest density of buffers is in the central and northern parts of the city, with some buffers overlapping significantly.

0.5 Mile Walkable Buffer (Overlay)

 Increase connectivity

 Add parks & increase connectivity

Blue areas are higher priority



Recommendations

Section 4:
Maintenance,
Management and
Institutions



Grey Infrastructure and Development: Central Avenue Bridge

Rio Salado's Social-Ecological System

Resource System (RS):

Rio Salado Habitat Restoration and
Central Avenue Bridge

Resource Units (RU)

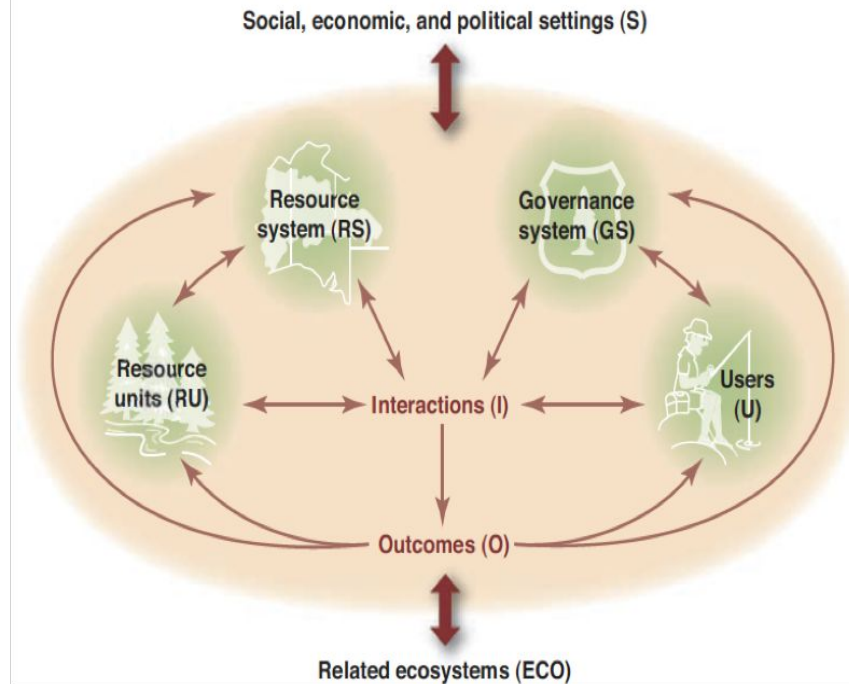
- 1) Water (Streamflow)
- 2) Habitat (Trees, wildlife)
- 3) Physical Infrastructure:
 - a) Trails, recreational amenities
 - b) Central Avenue Bridge
 - c) Storm water outflows

Governance System (GS)

- 1) Federal Government
 - a) Army Corps of Engineers
 - b) U.S. Fish and Wildlife
- 2) State and County
 - a) Maricopa Flood Control District
 - b) Arizona Department of Transportation
- 3) Local
 - a) City of Phoenix
 - b) Valley Metro
 - c) Audubon Center (local branch)

Users (U)

- 1) Phoenix Residents: Environmental Amenity
- 2) Phoenix Residents-homeless
- 3) Wildlife



Themes Detected from Interviews

Services			Disservices		
Provisioning	Regulating	Cultural	Provisioning	Regulating	Cultural
–	Shade, cooling	Relaxation, beauty of place	–	–	Personal safety concerns, restrictive law enforcement
Bathing	Shade, cooling	Peace of mind, beauty of place	Water safety concerns	Health hazards (mosquitoes)	–
Bathing, willingness to drink	–	–	–	–	–
Bathing, drinking, clothes washing	–	Connection to environment	Bitter taste to water	–	Personal safety concerns
–	Shade	Connection to environment	Water safety concerns	–	–
–	–	Relaxation	Water safety concerns	–	–
Bathing	–	–	Water safety concerns	–	–

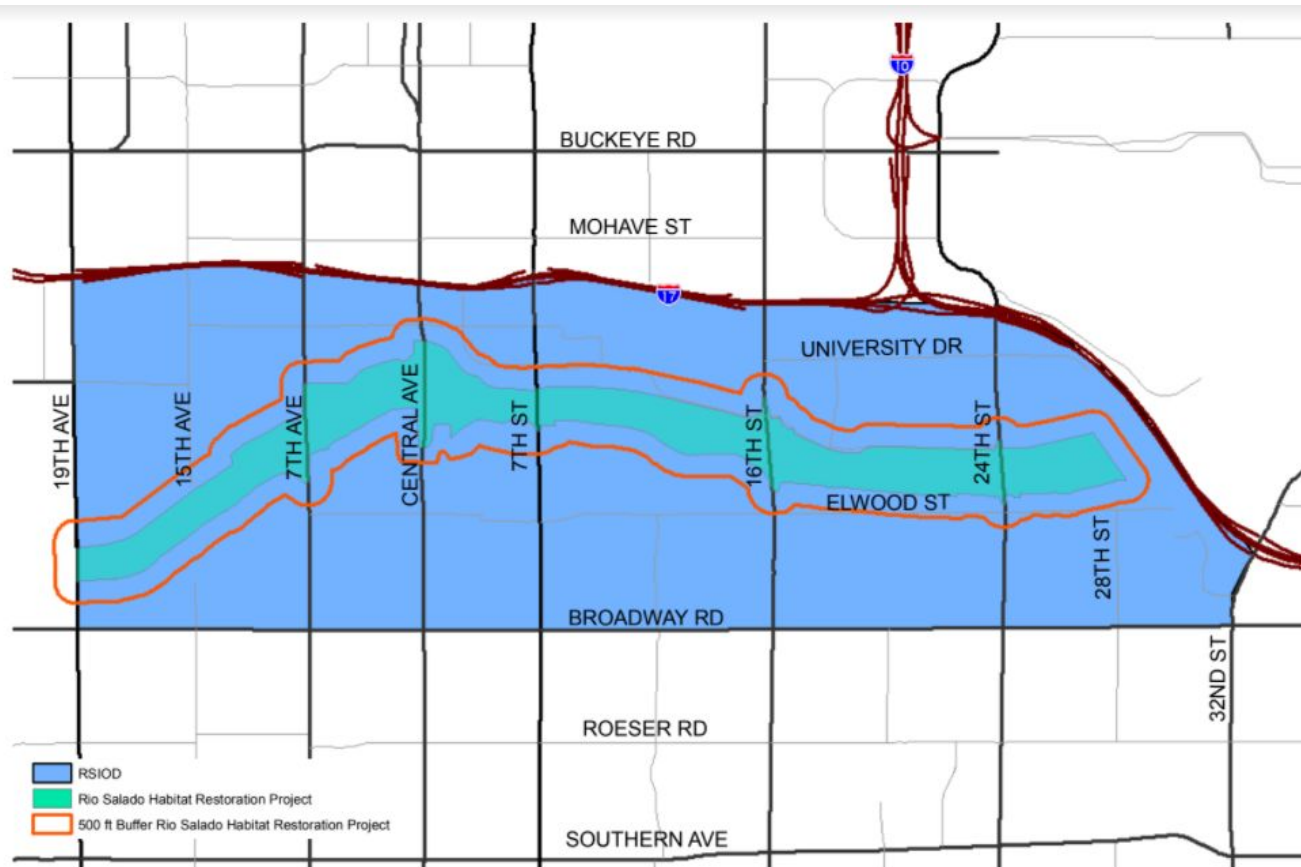


Social Welfare and Sustainability

Palta, M., Du Bray, M. V., Stotts, R., Wolf, A., & Wutich, A. (2016). Ecosystem services and disservices for a vulnerable population: findings from urban waterways and wetlands in an American Desert City. *Human ecology*, 44(4), 463-478.

Section 5:

**Development and
Future Planning**



Rio Salado Interim Overlay District

District
nt (602) 262-7131

Regulatory Provisions Include: Permitted use restrictions, special permit uses, use permit uses, industrial development standards and residential design guidelines. See Section 655 of the Zoning Ordinance.

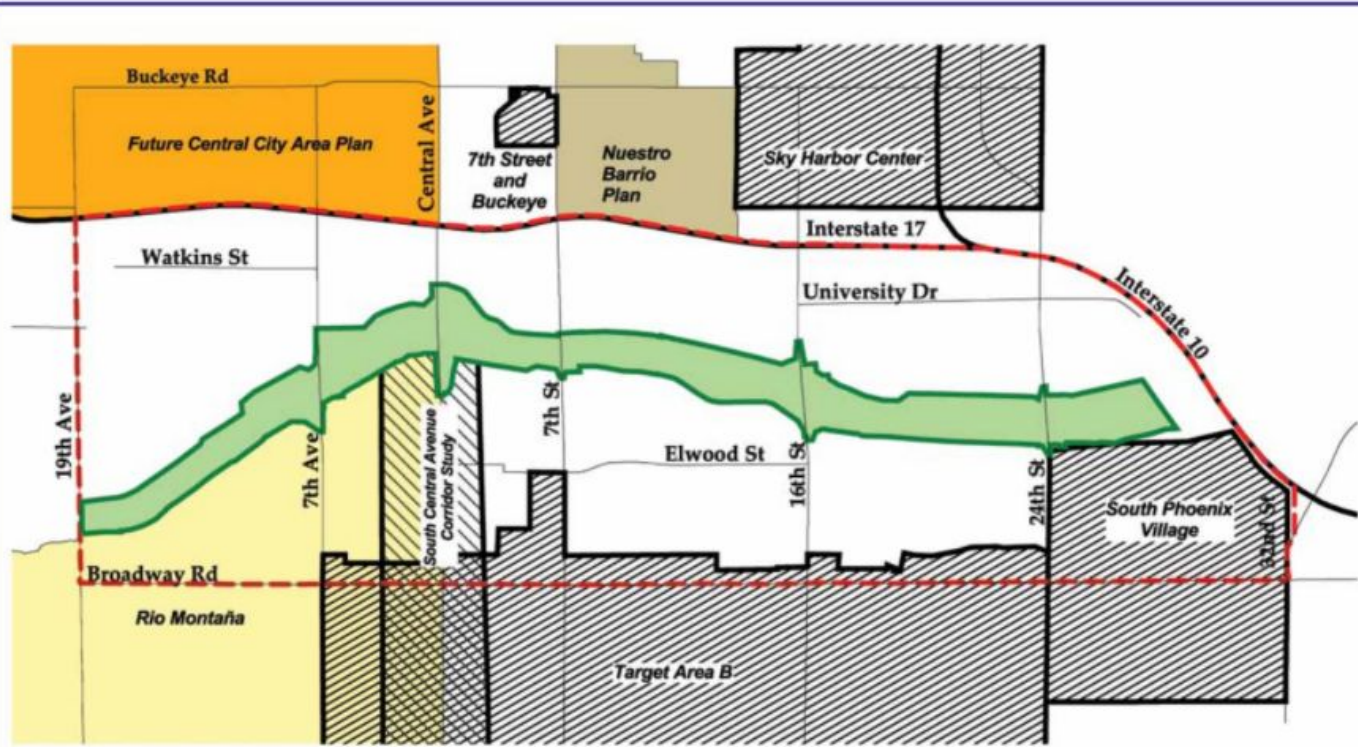


Figure 2

Redevelopment and Planning Area

- Rio Salado Beyond the Banks Study Area Boundary
- Redevelopment Area
- Planning Areas**
- South Central Avenue Corridor Study
- Nuestro Barrio Plan
- Rio Montaña
- Future Central City Area Plan
- Rio Salado Habitat Restoration Project

City of Phoenix
Planning Department

May, 2002



Beyond the Banks Area Plan

RIO SALADO PARK/DEL RIO LANDFILL

Conceptual Master Plan



Del Rio Master Plan 2012

Recommendations

- Restoration, Maintenance and Management
- Strengthen Community Capital
- Establish and Maintain Physical Connectivity
- Sustainable and Resilient Infrastructure
- Impactful and Thoughtful Redevelopment



Thank you!

Questions?

