Restoring Valuable Resources

PASEO DE LAS IGLESIAS ENVIRONMENTAL RESTORATION FEASIBILITY STUDY

Thomas Helfrich

Pima County Flood Control District

Water Resources Division

STUDY SPONSORS

Pima County Flood Control District

&

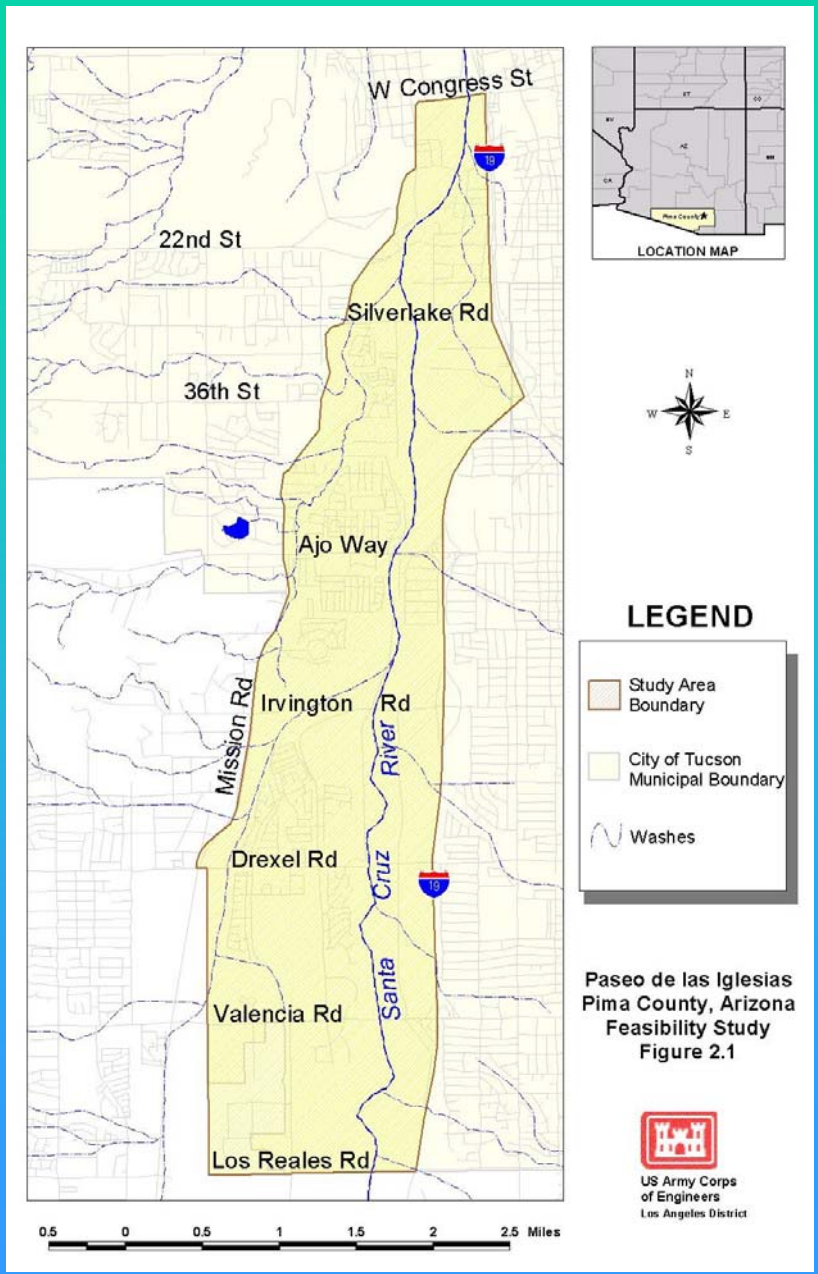
U.S. Army Corps of Engineers

SOME OTHER STAKEHOLDERS AND PARTICIPANTS

- Pima County
  - Department of Transportation
  - Cultural Resources
  - Natural Resources, Parks and Recreation
  - Real Property
- City of Tucson
  - Rio Nuevo
  - Tucson Origins Cultural Park
  - Economic Development
  - Parks and Recreation
  - Transportation Engineering
  - Comprehensive Plan Task Force
- Pima Association of Governments
- San Xavier Nation, Tohono O'odham Nation
- Local and National Environmental Organizations
- Local and National Consulting Companies
- University of Arizona
- Pima Community College
- Local Neighborhood Groups
- Individual Citizens

OPEN HOUSE MEETING PURPOSE

- Explain what the study is about
- Explain the study process
- Report progress to date
- Solicit your ideas and comments
- Answer your questions



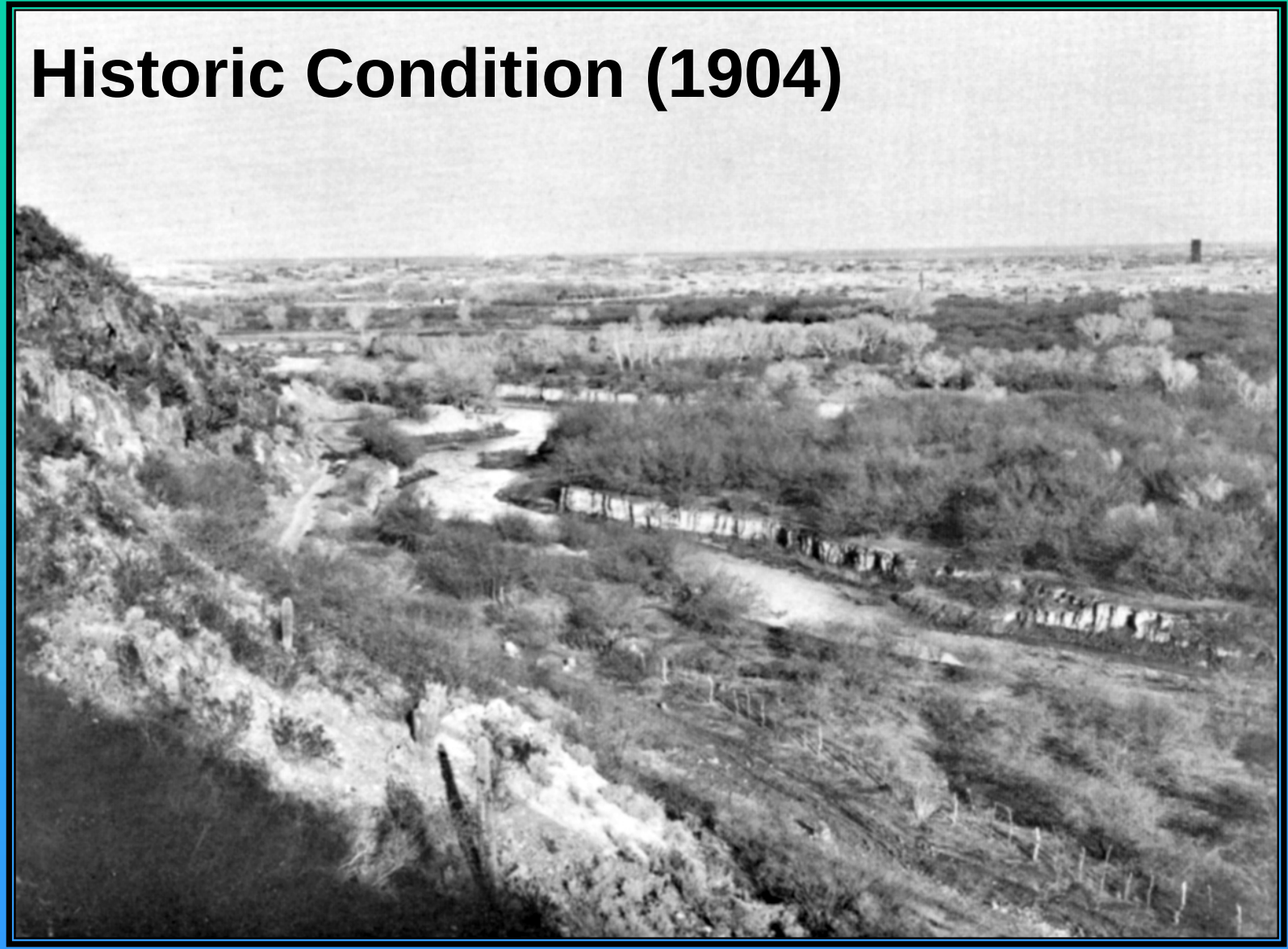
Study Area:

- **5005 Acres**
- **7.5 River Miles**
- **Urbanized Area**

HISTORIC CONDITIONS ALONG THE RIVER

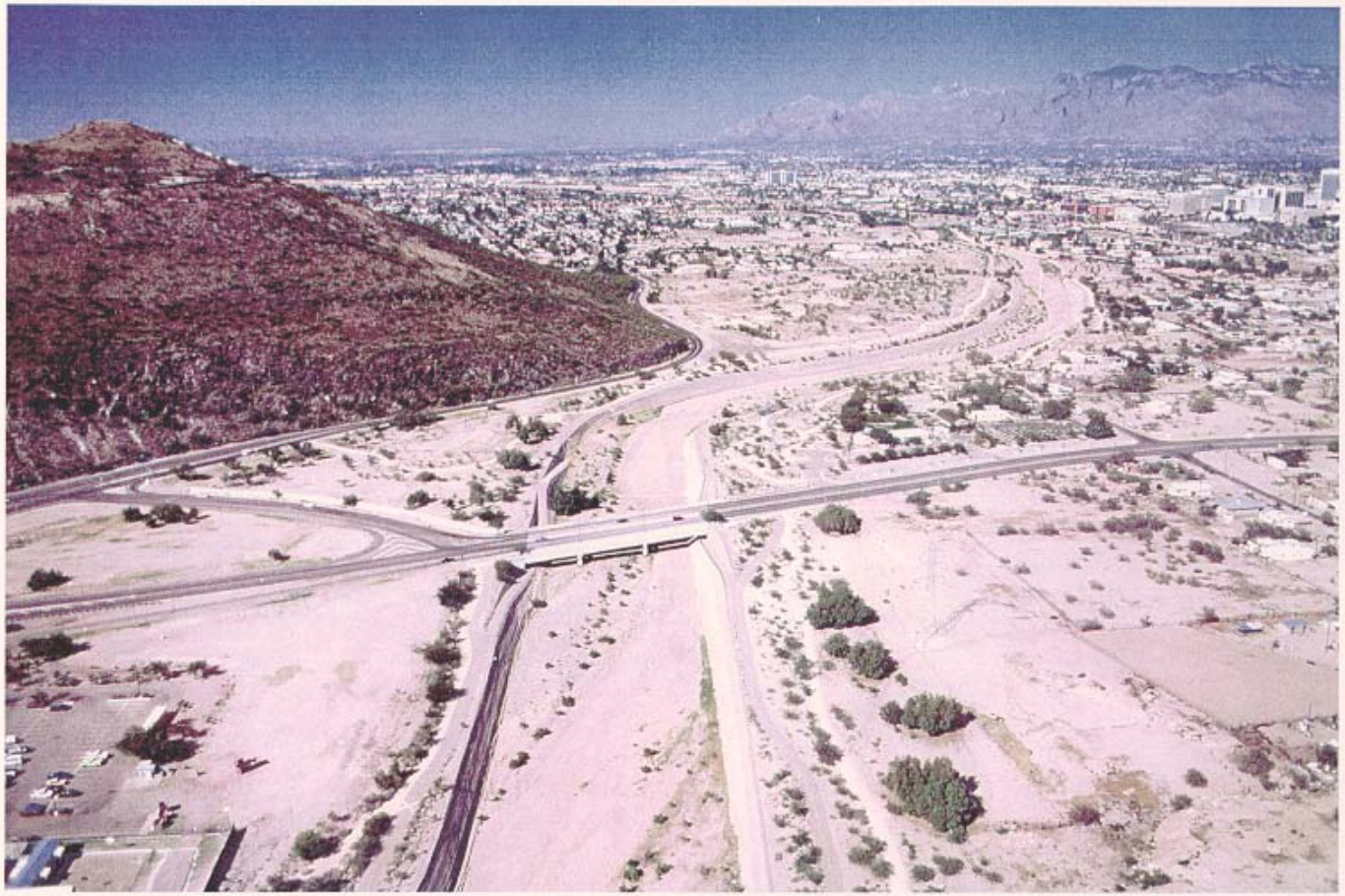
- Water once flowed perennially in this reach of the river
- Water supported a dense mesquite bosques, cottonwood-willow galleries, and marsh communities
- Water nurtured habitat for local and migratory wildlife species

Historic Condition (1904)



CURRENT CONDITIONS ALONG THE RIVER

- Severe ecosystem degradation
- Urban encroachment
- Use of surface and groundwater caused extreme lowering of water table
- Loss of riparian habitat
- Unstable river banks
- Influx of several non-native species
- Reductions in wildlife species diversity and number



Santa Cruz River looking North (downstream) across 22nd St. bridge. Sentinel Peak on left, downtown Tucson on right.
(U.S. Army Corps of Engineers)

Current Condition

PRIMARY STUDY OBJECTIVE

Increase size, health, and diversity of native riparian habitat within the river corridor and historic floodplain by restoring and protecting habitat.

ADDITIONAL OPPORTUNITIES

- Provide passive recreation
- Establish ‘River Park’ connectivity
- Reduce bank erosion and sedimentation
- Provide incidental flood reduction
- Establish wildlife corridors
- Improve surface water quality
- Monitor and control invasive species
- Protect cultural resources
- Other community interests

PRIMARY CONSTRAINTS

- Land use and ownership
- Landfills
- Water availability and cost
- Maintain flood conveyance
- Insect and invasive species control
- Construction and maintenance costs

YOUR OTHER CONCERNS

- Degradation and loss of existing riparian habitat
- Decrease in wildlife species
- Continued groundwater overdraft
- Limited irrigation water availability
- Safety of unstable banks
- Trash dumping
- Vagrant camps
- Invasive plants & animals
- Landfills
- Trail connectivity
- Limited recreation opportunities
- Destructive off-road vehicle use

WHY HAVE AN ENVIRONMENTAL RESTORATION PROJECT HERE?

- Restore this valuable riparian habitat corridor
- Increase biological diversity
- Control invasive species
- Stabilize hazardous channel slopes
- Increase neighborhood value and pride

Stressed mesquites, stream bed erosion, head-cutting, and in West Branch. 6/02

Barren retired agricultural land. 6/02

Lack of vegetation leads to extensive storm-water flow erosion. 7/02

CORPS OF ENGINEERS PROCESS

- Identify problems and opportunities
- Analyze existing and without-project conditions
- Formulate alternatives that address study objectives
- Evaluate alternatives for effectiveness, efficiency, completeness, and acceptability
- Propose and justify one plan for selection
- Solicit public input on proposed plan

Feasibility Study Progress

FEASIBILITY STUDY PROGRESS

IDENTIFY ~1000 ACRES POTENTIALLY SUITABLE FOR ENVIRONMENTAL RESTORATION

- Includes vacant property
- Excludes area over landfills
- Excludes archeological sites
- Excludes areas with known development plans

FEASIBILITY STUDY PROGRESS

- Community and stakeholder input used to compile possible restoration measures
- Combinations of possibilities produced a large array of alternative plans
- 14 of the alternatives replicated natural systems and allowed flood conveyance
- These 14 alternatives were analyzed for biologic, hydrologic, and economic conditions

FEASIBILITY STUDY PROGRESS

- The biological analysis (HGM-Hydrogeomorphic Method) produced a relative habitat score used for the ranking of biological outputs
- Using Cost-Benefit Analyses, Corps determined that 9 of the 14 restoration alternatives were ‘Cost Effective’
- Using Incremental Cost Analysis, Corps determined that 3 of the 9 were ‘Best Buys’

The 3 Best Buys Plans, Plus the No Action Option

- "HHM"→ Hydro-mesoriparian restoration approach
- "MMM"→ Mesoriparian restoration approach
- "XXX"⟶ Xeroriparian restoration approach
- No Action → End Feasibility Study

IMPORTANT POINTS

- Nothing has been approved or finalized
- Alternatives represent only a “broad-brush” approach
- All restoration alternatives will include passive recreation opportunities

"HHM"
Hydro-Meso Riparian Alternative

- Flowing water and emergent marsh communities in stream channel
- Cottonwood-willow & mesquite communities on terraces
- Mesquite bosque and shrub communities on overbank
- Uses 4000-9000 acre-feet/year of water
- Expected increase in abundance of ~95 native wildlife species
- Trees and shrubs would provide improved habitat for wildlife and a pleasant setting for passive recreation

HHM - Assets

- Best habitat diversity
- Provides irrigation to project area

HHM - Drawbacks

- Extreme water consumption and cost
- High construction costs
- High maintenance costs
- Density of in-channel trees limited by flood conveyance issues

"MMM"
Mesoriparian Alternative

- Mesquite communities on terraces, with some cottonwoods where conditions permit
- Mesquite bosques and shrub communities on overbank
- Uses 2000 acre-feet/year of water
- Expected increase in abundance of ~80 native wildlife species
- Trees and shrubs would provide improved habitat for wildlife and a pleasant setting for passive recreation

MMM - Assets

- Provides good habitat diversity
- Similar to historic habitat condition
- Adds irrigation to project area

MMM - Drawbacks

- Requires irrigation for sustainability
- Moderate construction costs
- Moderate maintenance costs

"XXX"
Xeroriparian Alternative

- Small mesquites and native shrubs on terraces
- Shrub communities and limited mesquite bosque on overbank
- Relies strictly on water harvesting techniques, irrigation not necessary after establishment
- Expected increase in abundance of ~65 native wildlife species
- Shrub-sized vegetation would provide improved habitat for wildlife and a pleasant setting for passive recreation

XXX - Assets

- Relies on surface water only
- Low construction cost
- Low maintenance costs

XXX - Drawbacks

- No irrigation system
- Limited species diversity
- Short/undersized vegetation that is subject to drought

No Action Option

- Continued loss of remaining riparian habitat
- Continued channel instability and bank erosion
- New structural bank protection
- Development of overbank areas
- Continued degradation

No Action - Assets

- No financial investment

No Action - Drawbacks

- Continued loss of habitat and restoration opportunities

RESTORATION PLAN WILL INCLUDE PASSIVE RECREATION

- **Recreation elements could include:**
  - Connect trails and paths for pedestrian, bicycle, and equestrian uses
  - Complement culturally significant DeAnza trail
  - Complement City of Tucson recreation plans
  - Preservation of archeological sites
  - Installation of wildlife viewing areas
  - Installation of educational kiosks

WHAT NEXT?

- Review community desires, water availability, and financial constraints
- County will endorse a plan supported by the community
- Corps publishes ‘Draft Feasibility Report’ and ‘Environmental Impact Statement’ in the Federal Register for public review
- Corps and Pima County would hold a public meeting to present chosen alternative
- Corps prepares final Feasibility Study Report
- Final report is presented to Congress for funding appropriation
- If funding is approved, project moves to design phase

IMPORTANT POINTS

- Nothing has been approved or finalized
- Alternatives represent only a “broad-brush” approach
- All restoration alternatives will include passive recreation opportunities

PLUS

- If a project continues, community will be involved in future design process – features can be added to or removed from whichever “broad-brush” restoration approach is approved

PLEASE

FILL OUT A COMMENT FORM!

- What type of habitat restoration approach do you think is best?
- What recreation elements are most important to you?
- Some forms of erosion control are necessary; where and what type of solution might you prefer (e.g. vegetation only, gabions, soil cement, other)?