

A DECADE OF PROACTIVE PROGRESS IN RESOLVING HIGHWAY-WILDLIFE CONFLICTS



10 YEARS
OF
PROGRESS

Norris Dodd, ADOT Environmental Services
Wildlife Connectivity Program Coordinator

EVOLUTION OF AZ WILDLIFE-HIGHWAY PROGRAM

“MISSING IN ACTION” ca. 2000

- Landmark assessment of states' road ecology activities and strategies
- Arizona did not participate, giving the impression that little was going on, while.....

NCHRP
SYNTHESIS 305

NATIONAL
COOPERATIVE
HIGHWAY
RESEARCH
PROGRAM

*Interaction Between Roadways
and Wildlife Ecology*

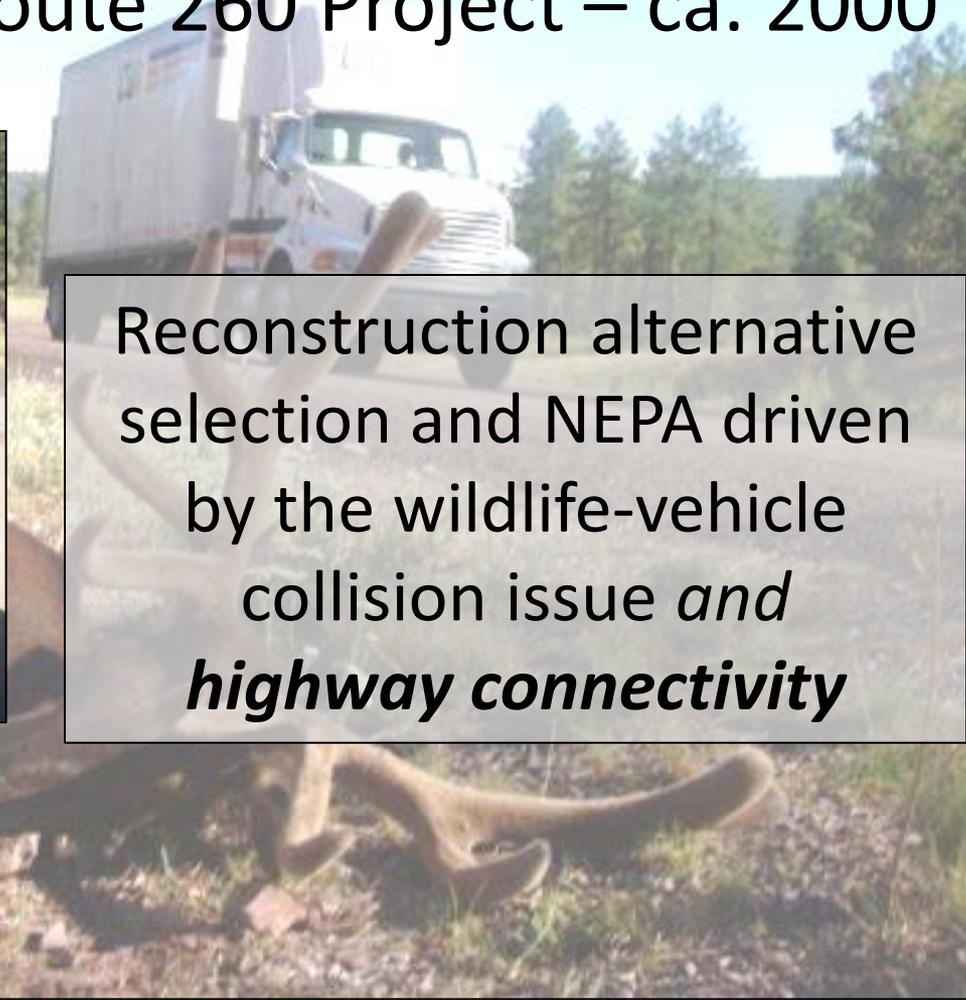
A Synthesis of Highway Practice

TRANSPORTATION RESEARCH BOARD
OF THE NATIONAL ACADEMIES

EVOLUTION OF AZ WILDLIFE-HIGHWAY PROGRAM

TRANSITIONING INTO THE “ROAD ECOLOGY ERA”

Planning the State Route 260 Project – ca. 2000

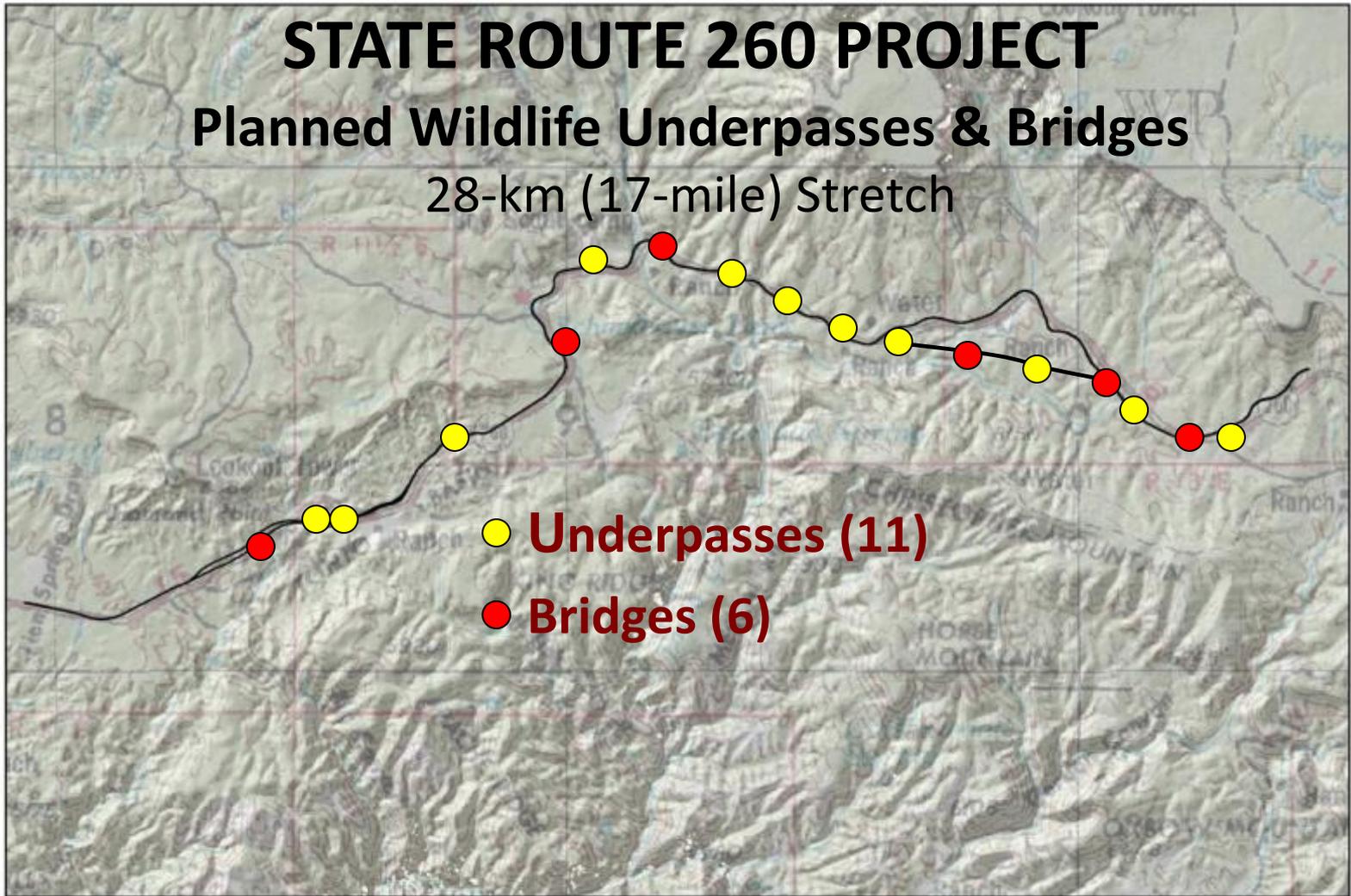


Reconstruction alternative selection and NEPA driven by the wildlife-vehicle collision issue *and highway connectivity*

STATE ROUTE 260 PROJECT

Planned Wildlife Underpasses & Bridges

28-km (17-mile) Stretch



Legend
— HWY260

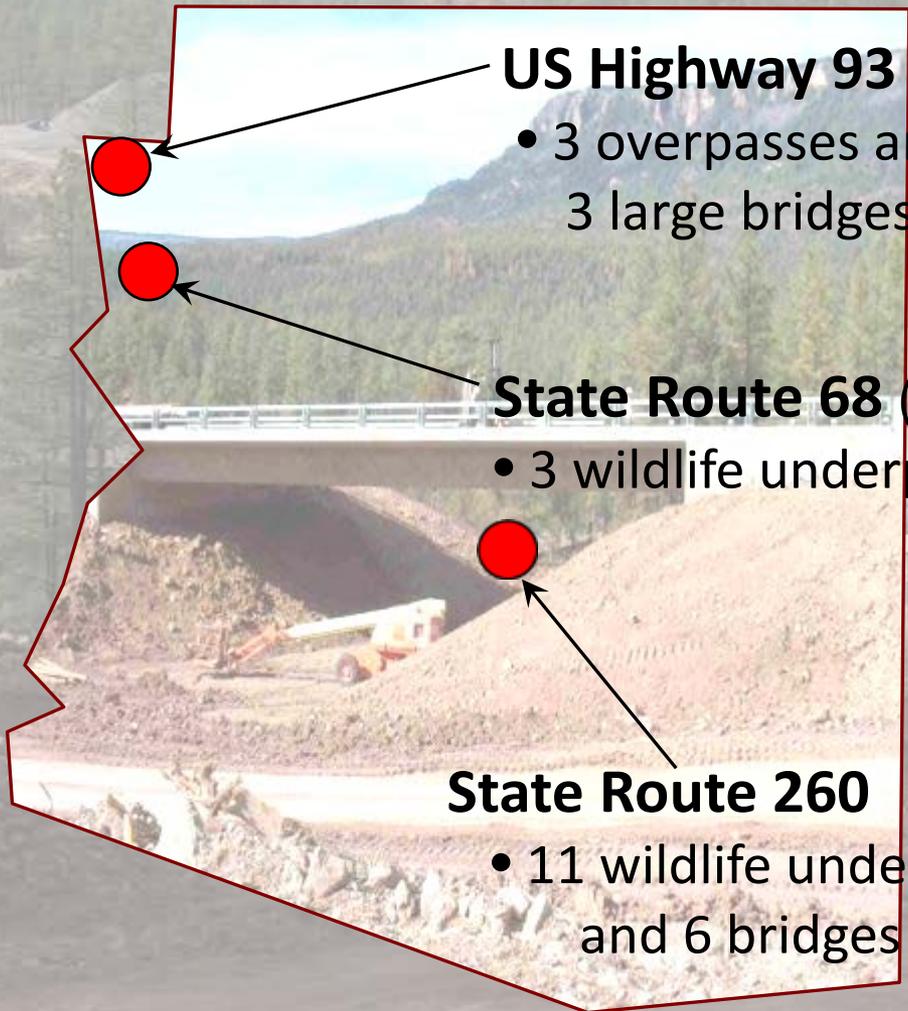
Highway 260 Elk
Study Area

Miles
0 1 2



EVOLUTION OF AZ WILDLIFE-HIGHWAY PROGRAM

HEYDAY OF THE “BIG PROJECT” ERA (2000-2013)



US Highway 93 (2002–2010)

- 3 overpasses and 3 large bridges

State Route 68 (2000–2002)

- 3 wildlife underpasses

State Route 260 (2000–2013)

- 11 wildlife underpasses and 6 bridges



CEMENTING A COMMITMENT TO WILDLIFE-HIGHWAY CONFLICT RESOLUTION

LEGAL CHALLENGES

Booth v. State of Arizona Case - 2003

- 1998 collision with dead elk on I-40
- Trial in Pima County
- Jury awarded \$4 million judgment for “negligence” – state should have better alerted motorists to risk (e.g., more signage)
- Upheld on appeal in 2004



IN THE COURT OF APPEALS
STATE OF ARIZONA
DIVISION TWO

JERRY BOOTH, a married man, and
CELINA BOOTH and MELINA BOOTH,
minor children, by and through their parent
JERRY BOOTH,
Plaintiffs/Appellees,

v.

STATE OF ARIZONA, a political entity,
Defendants/Appellants.

2 CA-CV 2003-0097
DEPARTMENT B

OPINION

APPEAL FROM THE SUPERIOR COURT OF PIMA COUNTY

Cause No. C336464

Honorable John F. Kelly, Judge

AFFIRMED



CEMENTING A COMMITMENT TO WILDLIFE- HIGHWAY CONFLICT RESOLUTION

LEGAL CHALLENGES

Sayer v. State of Arizona Case – 2012

- 2008 collision with dead elk on SR 260 (by a motorcycle)
- Trial in Gila County
- Jury rejected plaintiff's claims of negligence by the State
- Successful defense relied heavily on 10 years of progress in addressing wildlife collisions & connectivity

IN THE COURT OF APPEALS
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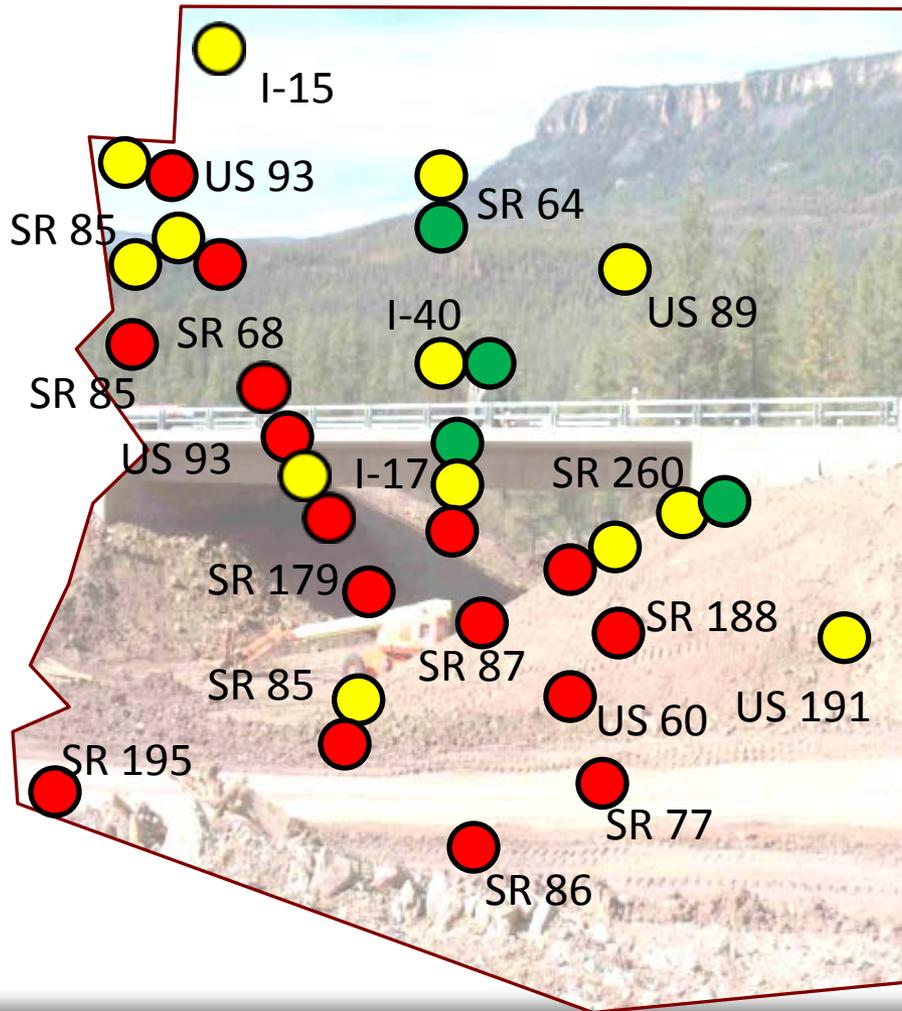
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EVOLUTION OF AZ WILDLIFE-HIGHWAY PROGRAM

EXPLOSION OF PROJECTS AND RESEARCH

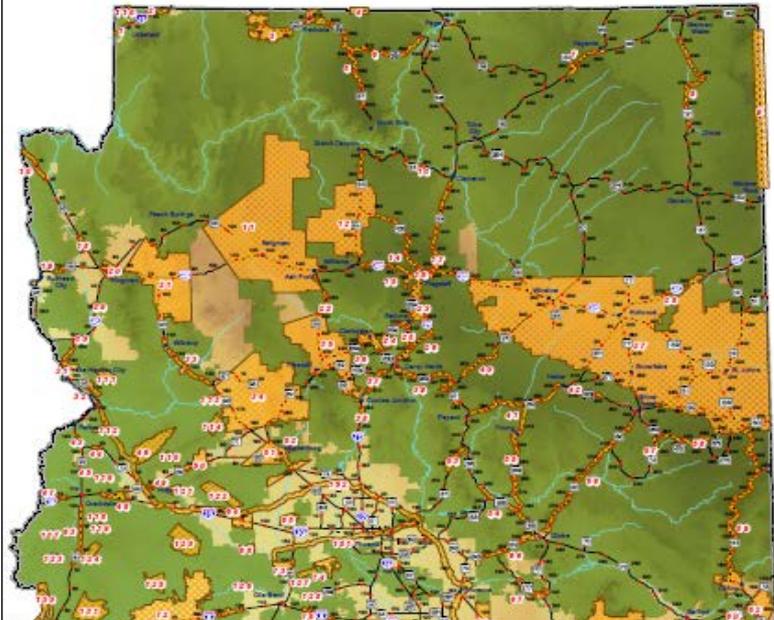


2013

-  Wildlife Highway Connectivity Construction
-  ADOT-funded AZ Game & Fish Research Projects
-  ADOT Wildlife-Vehicle Collision Reduction Studies

PLANNING FOR STATEWIDE CONNECTIVITY

ARIZONA'S WILDLIFE LINKAGES



Arizona's Wildlife Linkage Assessment – 2004

- Landmark effort with ADOT/FHWA leadership
- Identified 152 linkages
- For inclusion in ADOT short- and long-range STIPs



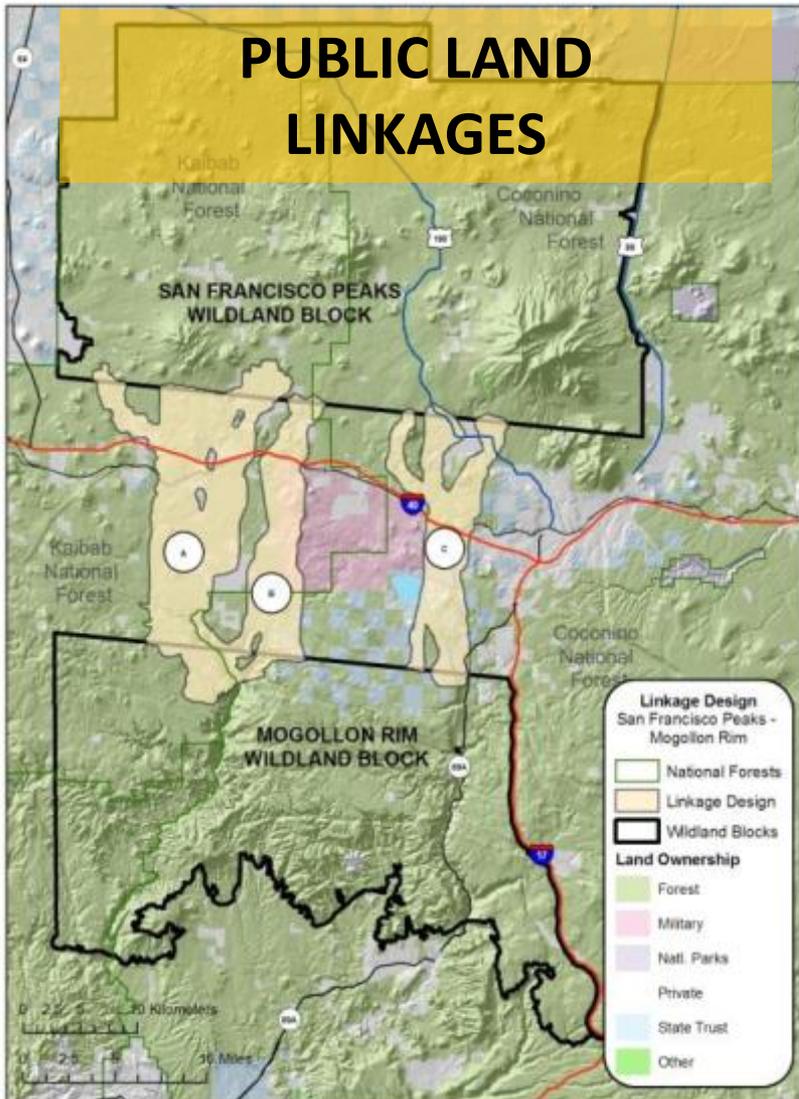
Legend

- Potential Linkage Zone
- Habitat Block
- Fracture Zone

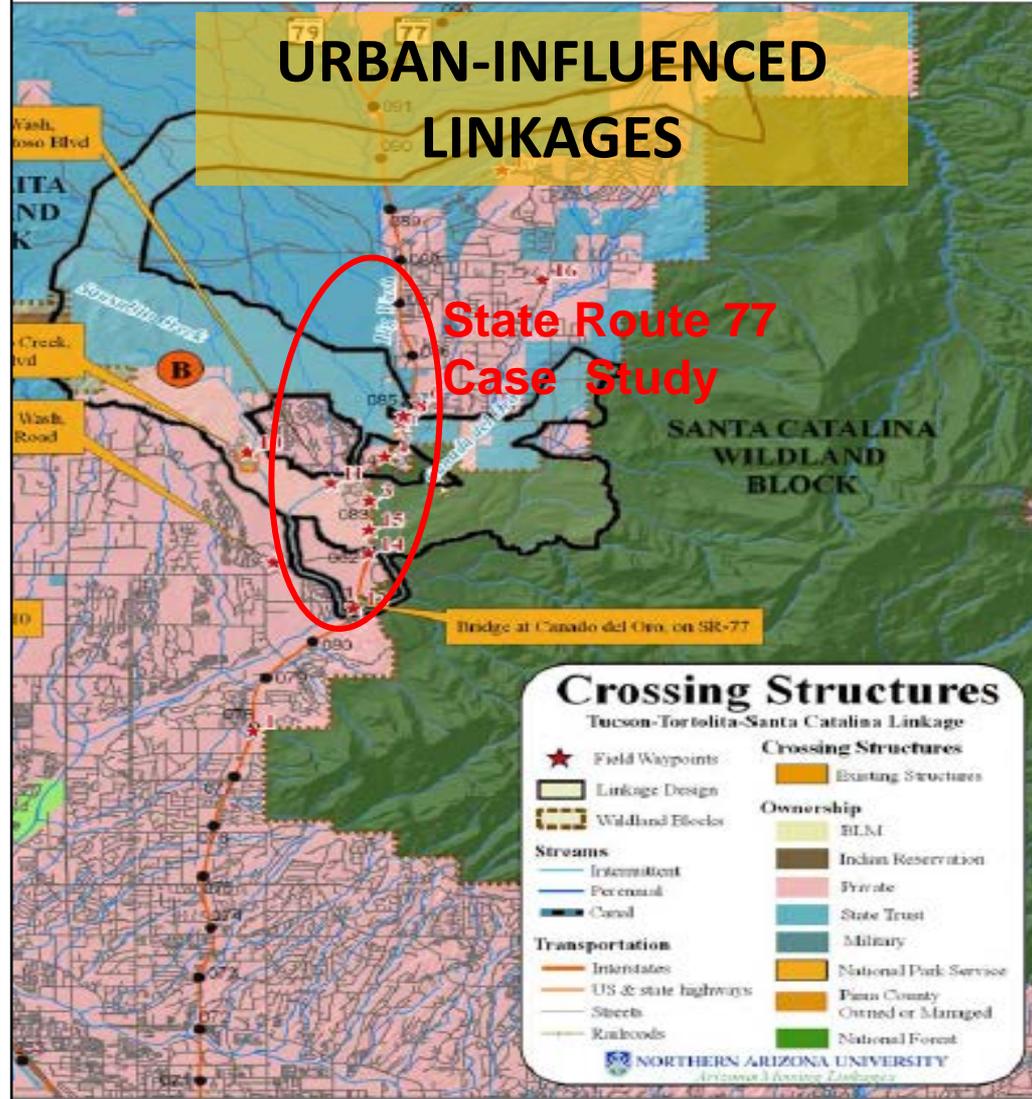


PLANNING FOR STATEWIDE CONNECTIVITY

PUBLIC LAND LINKAGES



URBAN-INFLUENCED LINKAGES



COMMITMENT TO HIGHWAY-WILDLIFE RESEARCH

ADOT has funded cooperative Arizona Game & Fish Department research since 2001:

- ADOT Arizona Research Center
 - ✓ 20 separate research projects - 11 highways
 - ✓ Research on 2 highways *long term* (>10 years), under scientific experimental design (SR 260 and US 93)
- ADOT Multimodal Planning
 - ✓ Installed Automatic Traffic Counters on 8 highways

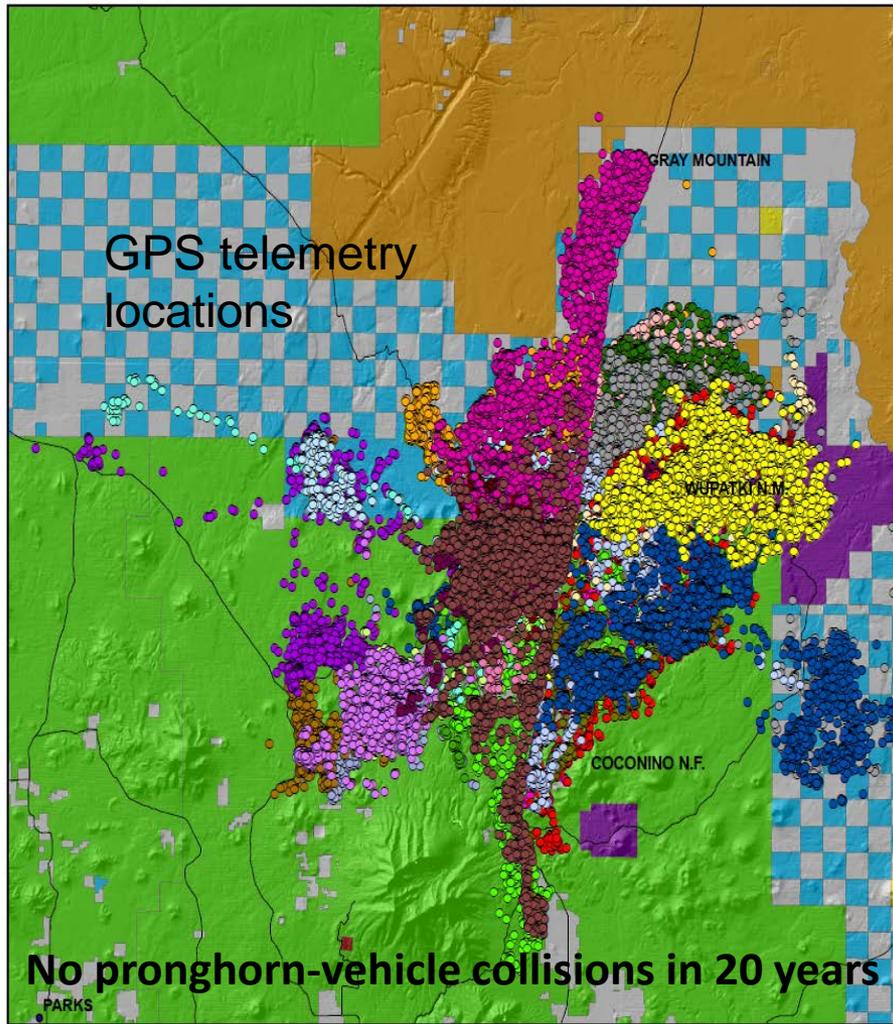


COMMITMENT TO HIGHWAY-WILDLIFE RESEARCH

Research focused on 3 areas:

- Effectiveness monitoring of wildlife measures
 - ✓ Support for adaptive management for continuous improvement
 - ✓ 4 highways
- Data-driven recommendations for passage structures and fencing on future projects
 - ✓ 7 highways
 - ✓ 38 underpasses, 15 overpasses, 237 km (146 mi) ungulate fence
- Understanding of complex ecological relationships

ADOT's ENVIRONMENTAL STEWARDSHIP ROLE



US 89

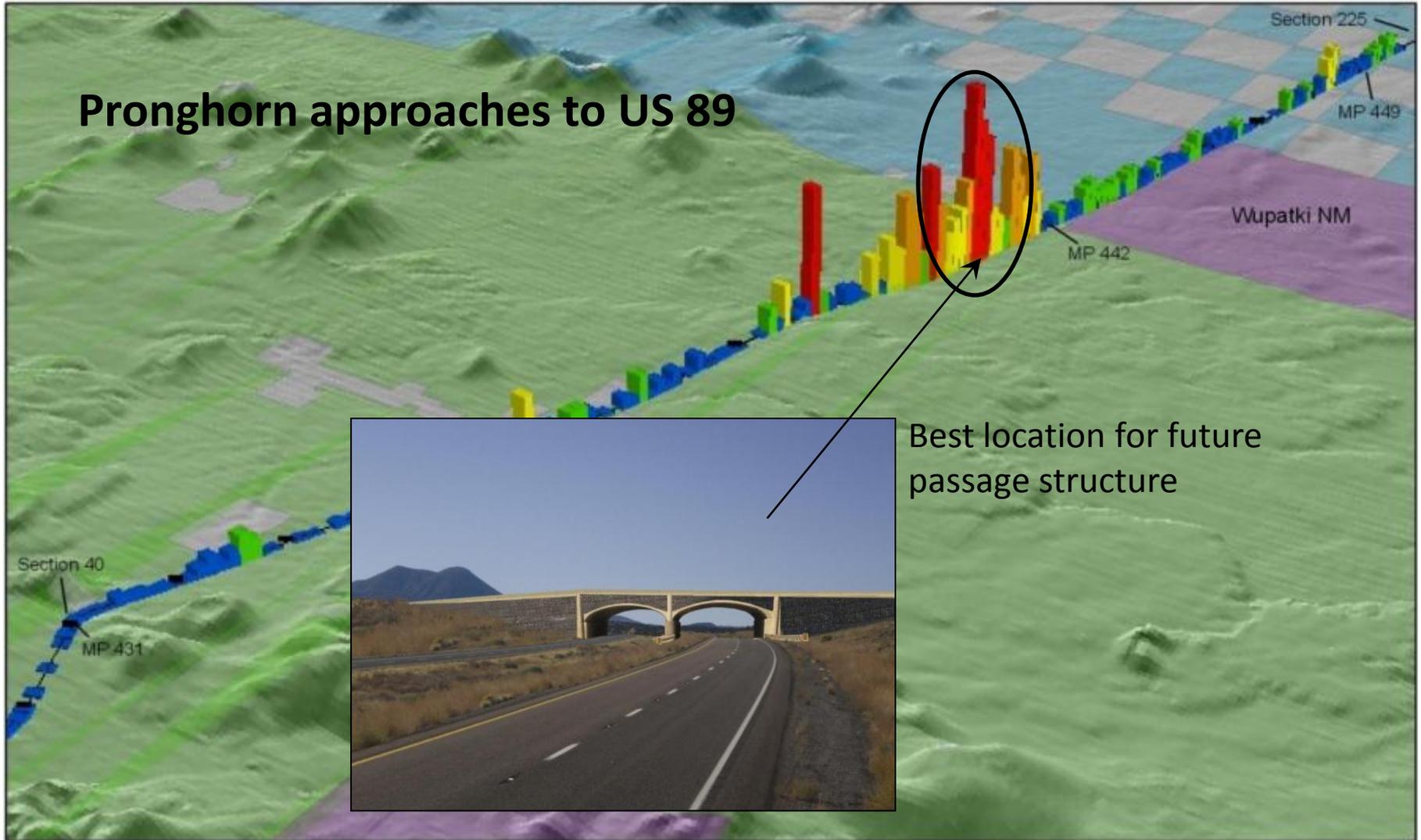
Pronghorn Study (2005)

- First commitment by ADOT to a connectivity project *without* a wildlife-vehicle collision issue
- US 89 a near-total barrier to pronghorn passage (only 2 of 37 crossed)

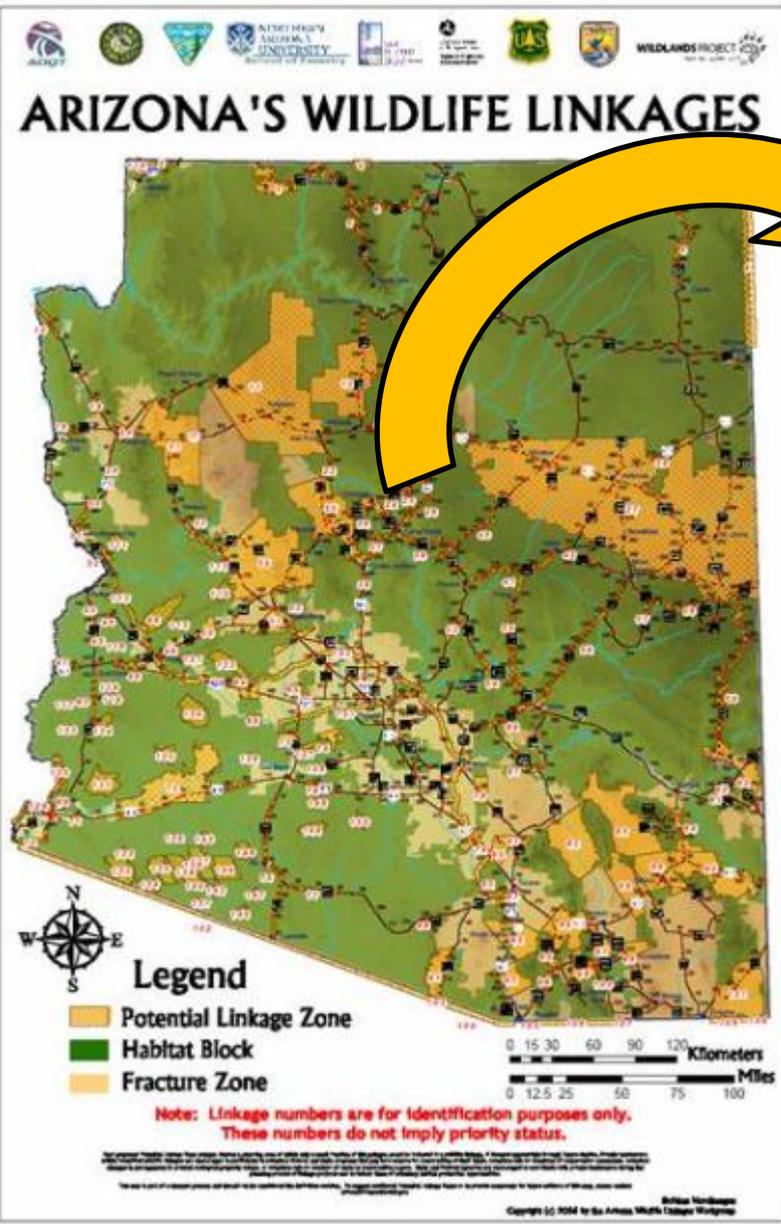


ADOT's ENVIRONMENTAL STEWARDSHIP ROLE

Pronghorn approaches to US 89



Best location for future passage structure



PRIORITIES FOR ADDRESSING WILDLIFE-HIGHWAY CONFLICTS

- Highway with combined significant safety & connectivity issues **1,240 km**
- Highway reconstruction completed since 2000 **75 km (6%)**
- Highway planned for future reconstruction (10-25 years) **400 km (32%)**

***Retrofitting* constitutes a viable alternative to limited highway reconstruction**

SHIFTING FOCUS TO “RETROFIT”



Pima County RTA
Wildlife Connectivity Proposal
KITT PEAK LINKAGE
WILDLIFE CROSSINGS RETROFIT
A Staged Approach
SR 86 – Mileposts 130–136

Underscore the importance of comprehensive regional conservation planning in Pima County and funding through its *Regional Transportation Authority* which is partnering with ADOT in the wildlife elements of the SR 77 and SR 86 widening projects



In partnership with
Arizona Department of Transportation's
Environmental Planning Group
Tucson District



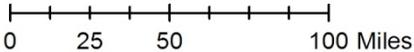
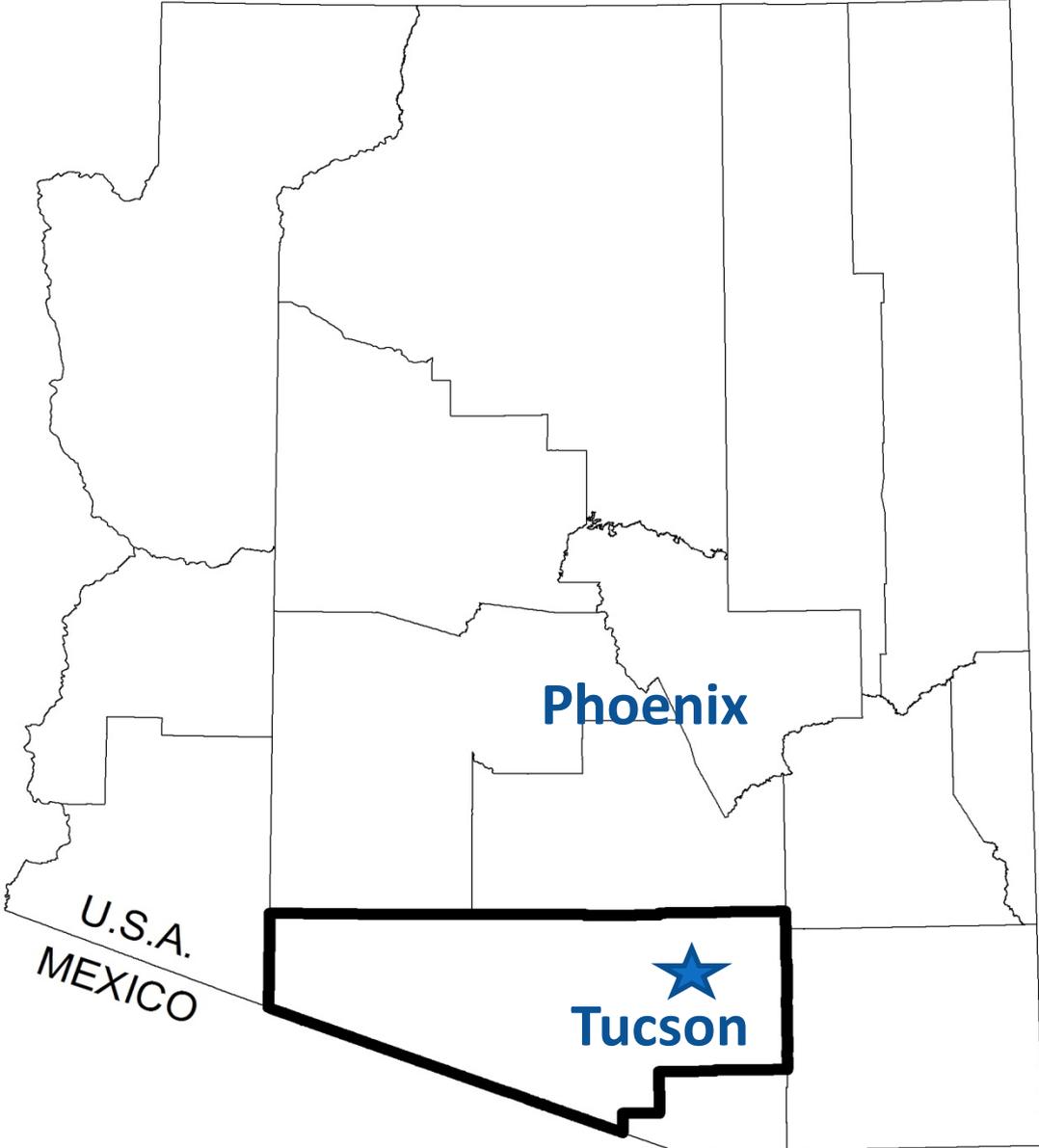
July 28, 2011

**Visionary Conservation Planning and Community
Support Bring \$45 Million in Assured Funding to
Wildlife Linkage Infrastructure in Pima County, Arizona**

Carolyn Campbell, Executive Director



PIMA COUNTY ARIZONA



Sonoran Desert Conservation Plan

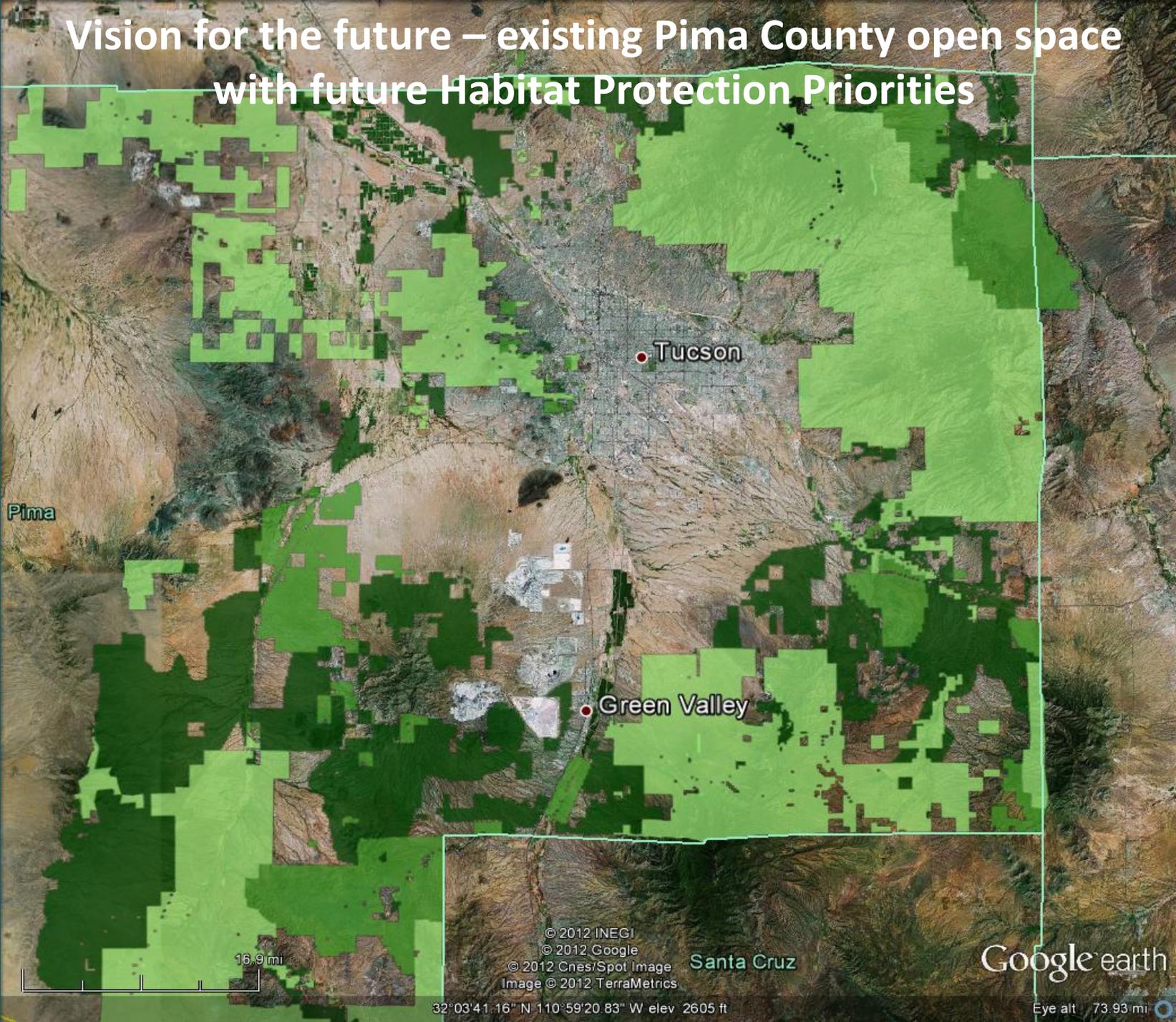
- Originated with ESA listing of cactus ferruginous pygmy owl in 1997
- Vision and goals adopted by Pima County in 1998
- Base future land-use planning on science
- Six Main Elements
 - ***Habitat, Biological, and Ecological Corridors***
 - ***Critical and Sensitive Habitat***
 - ***Riparian Restoration***
 - Cultural and Historical Preservation
 - Mountain Parks
 - Ranch Conservation

Open Space and Habitat Preservation

Pima County voters approved a \$174.3 million bond package for open space in 2004

A new open space bond, totaling at least \$120 million, is under development for 2014

Vision for the future – existing Pima County open space with future Habitat Protection Priorities



Pima

Tucson

Green Valley

Santa Cruz

Google earth

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16.9 mi

32°03'41.16" N 110°59'20.83" W elev 2605 ft

Eye alt 73.93 mi

Regional Transportation Authority Plan

- State law passed in 2003 allowing the Pima County RTA to develop a plan and levy a sales tax
- Requires all 9 local jurisdictions to work cooperatively on transportation projects throughout region
- 35-member Citizens' Advisory Committee helped develop plan over 10 months, starting in 2004
- Public outreach and education to voters
- Final plan-\$45 million for wildlife linkage projects
- Approved by voters in 2006 with 66% of vote
- Funded by ½-cent sales tax over 20 years
- Working Groups formed to oversee various elements

RTA Wildlife Linkages

- \$45 million over 20 years
- Wildlife Linkages Working Group created to review funding proposals and guide fund disbursement
- Only local jurisdictions and state agencies (ADOT and AZGFD) can receive funding
- Series of higher-level committees, including RTA Board, must also approve proposals

Wildlife Linkages Research

- Sonoran Desert culvert and fencing design
- Roadkill surveys to guide crossing placement on multiple roadways
- Pre- and post-construction monitoring
 - Ongoing challenge to convince higher level RTA committees to approve
- Pima County Wildlife Linkages Assessment

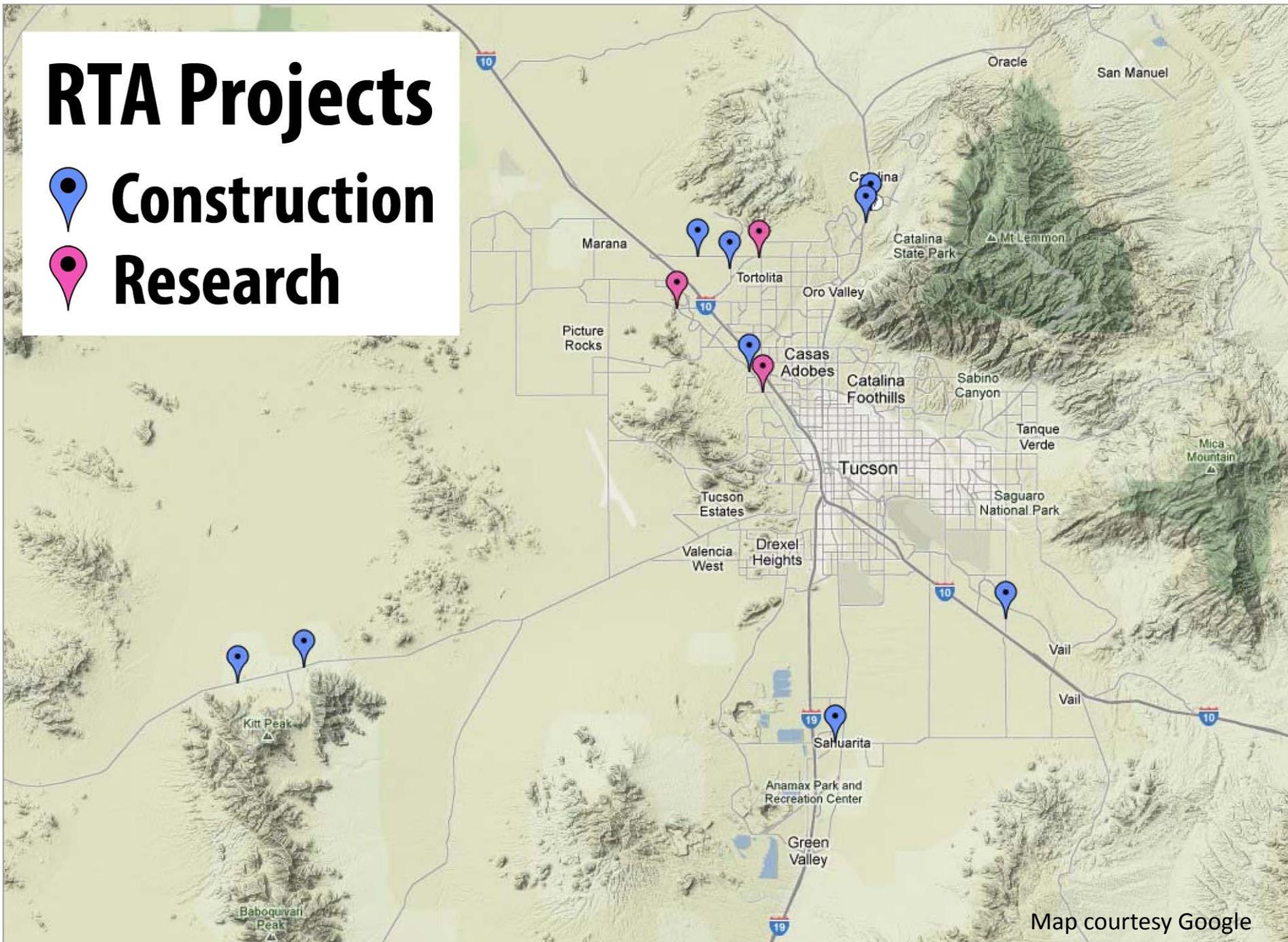
Wildlife Crossings

- State Route 77 – one large underpass and one large overpass, with fencing
- State Route 86 – two large underpasses and one large overpass (needs future approval), with fencing
- Underpasses along smaller regional roadways
 - Typically built during road widening projects
- Bridges and bat habitat

RTA Projects

 **Construction**

 **Research**

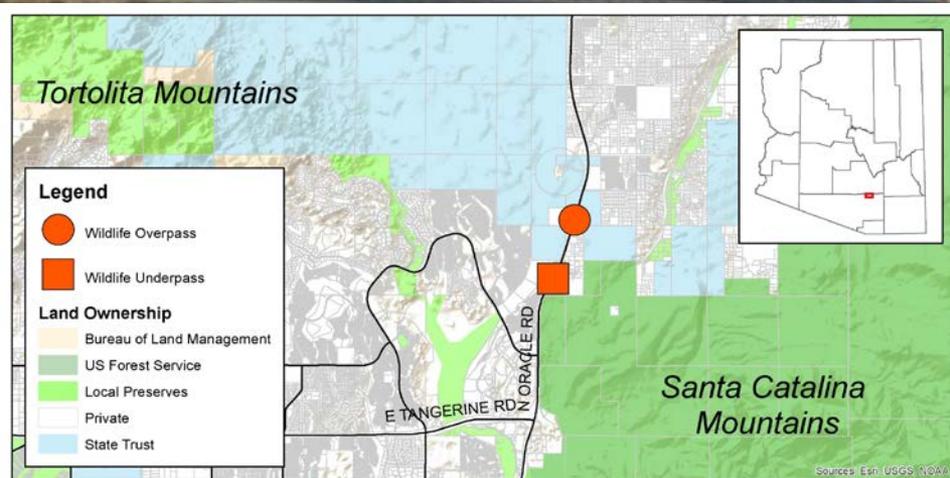


State Route 77 Overview

- Major barrier to wildlife movement between the Santa Catalina and Tortolita Mountains
- Original proposal was for two underpasses and one overpass
 - Southernmost underpass dropped from project in 2012 to utilize 2 already-constructed large underpasses with added fencing
- \$8.2 million approved in 2009
- Additional \$3.1 million approved in 2012
- Technical Advisory Committee has advised ADOT on crossing & fencing design and adjacent land use issues

Aerial view of SR77 wildlife overpass looking west at Tortolita Mountains

State Route 77



State Route 77 Challenges

- Complex adjacent land ownership
- Permanent protection of nearby State Trust Land, a critical piece of the wildlife linkage
- Funding of pre- and post-construction monitoring
- Establishing responsibility for future maintenance of crossings and fencing
- Managing stakeholders, partnerships, and public input

State Route 77 – Looking Forward

- Integrated into State Route 77 road widening project – 4 lanes widened to 6 divided lanes
- Construction beginning in late 2013
- Constructed by ADOT
- Still seeking funding for more robust post-construction monitoring