

Extensive Community Partnerships Lead to a Successful Wildlife Overpass and Underpass on the Edge of the Highly Urbanized Tucson, Arizona Region

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PROJECT HISTORY

The wildlife linkage between the Santa Catalina and Tortolita Mountains on the northwest side of the Tucson, Arizona region is highly threatened by a growing network of roads and new development. As part of a broad portfolio of wildlife linkage protection projects around the region, a wildlife overpass and underpass were completed across State Route 77 in this wildlife linkage in March 2016.

These wildlife crossings have been supported by an extensive web of community partnerships from the outset. This wildlife linkage first gained broad attention during the development of the 2006 Arizona Wildlife Linkages Assessment, a statewide collaboration between the Arizona Department of Transportation (ADOT), Arizona Game and Fish Department (AGFD), Northern Arizona University (NAU), federal agencies, and various non-governmental organizations. Following this effort, a series of corridor models were developed by scientists at NAU, including a detailed model for this linkage. In 2009, these crossings were approved by the Regional Transportation Authority, a 20-year transportation plan funded by a ½-cent sales tax approved by voters in 2006, which includes \$45 million for wildlife linkages protection projects. ADOT led the design and construction of the crossings. AGFD consulted throughout the design and construction process and is now in charge of post-construction monitoring. The Coalition for Sonoran Desert Protection, a local NGO, provides essential leadership in advocacy, public outreach, and education about the project and initiated a citizen science-driven wildlife camera project in the vicinity of the crossings in 2012. Pima County negotiated a land swap next to the wildlife bridge to provide an important vegetative buffer between the bridge and an adjacent church. Lastly, the Town of Oro Valley, Catalina State Park, Sky Island Alliance, Tucson Audubon Society, and Vistoso Community Association have all been invaluable partners throughout the implementation of this project.



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WILDLIFE OVERPASS, FROM START TO FINISH

1 The SR77 wildlife overpass under construction as part of a larger road-widening project. 2 With the wildlife overpass almost finished, ADOT installed miles of wildlife funnel fencing, including a smaller mesh on the bottom portion. 3 An aerial view of the wildlife overpass, looking north. Photos courtesy CSDP and Thomas Wiewandt

WILDLIFE UNDERPASS, FROM START TO FINISH

4 The SR77 wildlife underpass under construction. 5 The finished underpass with a person for scale. 6 An aerial view of the underpass, which re-connects the wildlife linkage between the Santa Catalina and Tortolita Mountains. Photos courtesy CSDP, Thomas Wiewandt, and Elizabeth Deupree



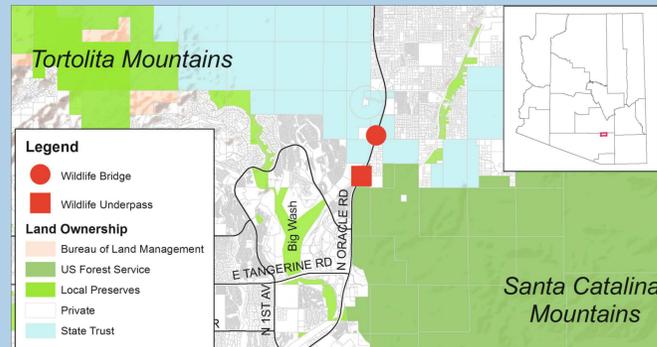
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March 2016–March 2017 Total Crossings

Including additional species
 All data courtesy of the Arizona Game and Fish Department

Overpass Crossings	Underpass Crossings	Total Crossings
# Animals # Events	# Animals # Events	# Animals # Events
832 492	571 319	1403 811

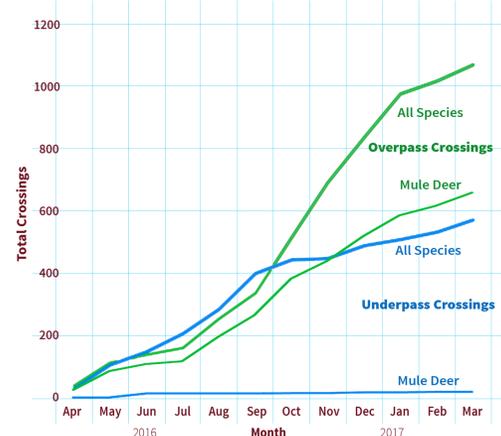


POST-CONSTRUCTION MONITORING—INITIAL RESULTS

Arizona Game and Fish Department began post-construction monitoring of the SR77 Wildlife Crossings in March 2016. Their four primary research objectives are to:

1. Assess wildlife use and passage rates of the wildlife crossings using integrated video and still camera surveillance.
2. Investigate wildlife-vehicle collision patterns along SR 77.
3. Monitor movements of Sonoran Desert tortoise and activity centers in relation to SR 77.
4. Provide recommendations for the adaptive-management/ maintenance of the structures and fencing as well as recommendations to guide future projects in southern Arizona.

In the first year of monitoring, they documented 1,403 crossings and 13 wildlife species at the overpass and



underpass. Overall use of the overpass is relatively similar to the underpass. However, mule deer use of the overpass (545 crossings) is significantly higher than the underpass (20 crossings).

Roadkill surveys will start later in 2017 after final wildlife funnel fencing gaps are addressed. Sonoran Desert tortoises are a species of particular concern in this project. Tortoises rarely cross roads due to their lack of mobility and they suffer high rates of mortality when they do attempt to cross. During the early stages of construction, project personnel removed several tortoises from the construction site, including one that attempted crossing through the underpass in October 2015. In order to study the impact of the SR77 crossings on desert tortoises, 9 tortoises were outfitted with GPS transmitters in 2016 (one subsequently died). AGFD expects to outfit 12 more tortoises with transmitters in 2017.

FUTURE MONITORING AND MANAGEMENT

Arizona Game and Fish Department will continue their post-construction monitoring program into 2019 for a total of four years of monitoring. The Coalition for Sonoran Desert Protection is now coordinating project partners in post-construction management tasks, such as the maintenance of wildlife fencing, wildlife camera monitoring of crossing approaches, the design and production of educational signage to discourage human use of the crossings, and ongoing public education and outreach. There are also a few remaining gaps in the wildlife funnel fencing on private land. The Coalition and Pima County are actively working with these private property owners to develop a plan to fill these gaps in the near future.

COMMUNITY PARTNERS

The location of these wildlife crossings on the edge of a highly urbanized city has presented unique challenges to all of the community partners. These challenges include issues with private landowners, adjacent land uses, protecting open space on either side of the crossings, and discouraging human use of the crossings. The willingness of all community partners to work together to tackle these challenges is ultimately what led to the success of these wildlife crossings, and we are optimistic that this collaboration will continue into the future. Thank you to all the following partners that have contributed to this project:



In addition, we'd like to acknowledge the support of USFWS Wildlife Restoration Program, Catalina State Park, Vistoso Homeowners Association, Santa Catalina Catholic Church, Sun City Vistoso Community Foundation, and Sun City Vistoso Community Assistance Committee.