

US 93 Wildlife Overpass Bridges

by David Benton, Arizona Department of Transportation



Elevation view of the US 93 Wildlife Overpass Bridge. Photo: Arizona Department of Transportation.



A wildlife fence channels sheep toward the overpass. Photo: Arizona Department of Transportation.

Just south of the Arizona-Nevada border, in the shadow of the famous Hoover Dam at the Colorado River and the adjacent iconic Mike O'Callaghan-Pat Tillman Memorial Bridge, sit three smaller bridges serving a purpose of a different kind. In 2008, the Arizona Department of Transportation (ADOT) began construction of a 15-mile segment of US 93 to provide improvements to the existing highway to meet future capacity and operational needs. As part of the project, a key issue to be addressed dealt with the desert bighorn sheep habitat, which the existing US 93 alignment had fragmented, resulting in numerous vehicle collisions involving the sheep.

A wildlife study performed by the Arizona Game and Fish Department provided key information regarding the behavior and crossing habits of desert bighorn sheep in the project area. The sheep study yielded information as to the sheep's preference to

cross at the roadway level at ridgeline intersections, rather than through the existing culverts or waterway bridges that intersected the existing alignment. The study also revealed that a significant amount of crossings, approximately 82%, happened at three locations in the 15-mile segment of the project.

From the study, and with recommendations from a technical advisory committee formed as part of the US 93 roadway project, it was decided that wildlife structures over traffic at the three locations of interest would be beneficial to protect both the travelling public and the desert bighorn sheep. Past projects in the state to address wildlife movements involved wildlife underpasses with considerable success. However these wildlife bridges would be the first of their kind in the state of Arizona, serving wildlife movements over a highway.

Three two-span bridges constructed of precast, prestressed American Association of State Highway and Transportation Officials (AASHTO) Type V girders were chosen based on many factors including ease of construction over an existing roadway, the desire to eliminate falsework, and cost. The bridge lengths were set at 202 ft and varied in width from 50 ft at two locations, to 100 ft at the third. The conventional bridge deck was covered with a 6-in.-thick, non-erodible soil system to match the surrounding habitat. To facilitate the use of the bridges by the sheep, a specific wildlife fence was used to channel the sheep towards the bridges. Current data as of February 2015 have documented over 5000 crossings by sheep identified by game cameras mounted on the bridges. An estimated 82% reduction of vehicle/sheep collisions compared to previous data serve as evidence of the project's success. **A**

Desert bighorn sheep use the new crossing. Photo: Arizona Game and Fish Department.



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A pair of animals safely navigating the overpass. Photo: Arizona Game and Fish Department.

