

# Wildlife Crossings: The New Norm for Transportation Planning



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**T**ransportation engineering has the distinct and demanding tradition of meeting human mobility and safety needs. These days, however, more and more transportation professionals are expanding their focus to consider the needs of wildlife and their habitats. Perhaps not coincidentally, the most recent U.S. Transportation Act, known as “Moving Ahead for Progress in the 21st Century Act,” or MAP-21 for short, included—for the first time ever—explicit language authorizing federal, state, municipal, and tribal highway officials to reduce vehicle-caused wildlife mortality and to maintain habitat connectivity across roadways (23 USC §§ 101 et seq.). The convergence of mobility, safety, wildlife connectivity, policy, and funding puts transportation professionals in a strong position to establish the new norm when it comes to surface transportation.

This article explores the creative, economic, cultural, and operational dimensions of wildlife-highway mitigation and highlights several efforts by the Animal Road Crossings partnership to identify barriers, potential solutions, and collaborative opportunities.

### New Thinking on Proven Solutions

Wildlife crossing structures in the form of overpasses and underpasses in combination with wildlife fencing (hereafter “wildlife crossings”) are proven to reduce wildlife-vehicle collisions by an average of 87 percent for animals deer-sized or larger, while allowing for their safe movement across roads.<sup>1</sup> Installing such mitigation on road sections with as few as 3.2 deer-vehicle collisions/kilometer/year (7 deer-vehicle collisions/mile/year) would likely generate economic benefits to society.<sup>2</sup> Cost-benefit analyses suggest there are many road sections in the U.S. and Canada where the benefits of installing wildlife crossings with fencing would exceed the costs associated with collisions between motorists and animals such as deer, elk, and moose.<sup>2</sup> That’s why in 2010, in part to counteract rising construction costs, Animal Road Crossings (ARC) hosted the International Wildlife Crossing Infrastructure Design Competition, which sparked new thinking that has the potential to transform the way wildlife crossings are deployed (<http://competition.arc-solutions.org/finalists.php>).

### Exploring the Influence of Culture on Wildlife Crossing Implementation

Given that it may make economic sense to deploy wildlife crossings as a standard practice for problematic road segments, compared to the “do nothing” alternative, why has implementation occurred inconsistently, with some states having constructed many tens of wildlife crossings, while others have zero?<sup>3</sup> To answer this question, the Technology Transfer Initiative of the ARC partnership set out to better understand how agency culture might be influencing implementation.

### Survey Says: Most States Consider Wildlife Crossings

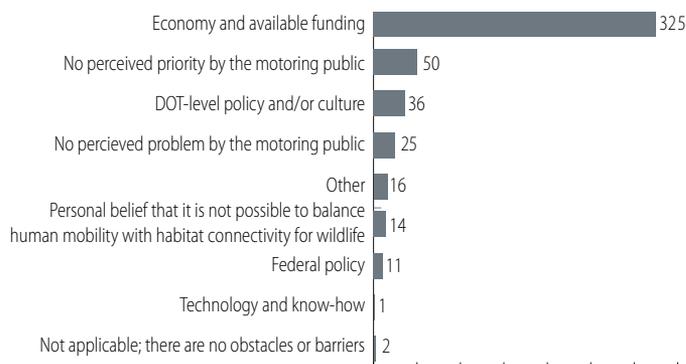
In a 2012 ARC survey of state department of transportation (DOT) professionals representing all 50 U.S. states, most respondents selected a “Yes” response to the following question: “Does your agency consider building wildlife crossings to improve safety and habitat connectivity for wildlife?” (84 percent; n = 589).<sup>4</sup> While the specific circumstances may vary, these numbers clearly show that agencies that do not consider building wildlife crossings are in the minority (<16 percent). Similarly, almost four out of five respondents (79 percent) affirmed the agency trend toward ensuring that terrestrial wildlife can traverse the landscape and safely move across roadways (n = 589).

The sheer number of respondents to this survey (n = 659; completion rate 68.4 percent)—representing road designers, road planners, bridge/structural engineers, road operations experts, road safety engineers, environmental scientists, National Environmental

Policy Act experts, environmental permitting experts, and road construction experts—indicates not only a great interest in the topic of wildlife crossing infrastructure but also potential strength in numbers for cultivating its implementation as a standard practice. Moreover, most survey respondents reported holding managerial roles, and most responses indicated a preponderance of agreement that wildlife crossings are needed.

When asked to identify a single reason “there were obstacles or barriers to nationwide systemic deployment of terrestrial wildlife crossing structures,” the majority of respondents selected “economy and available funding” (67 percent; n=480) (Figure 1). Fortunately, as discussed above, when it comes to wildlife stewardship in the transportation context, investing in infrastructure can often make more economic sense than not. Although state DOTs nominally bear the expense of constructing wildlife crossings—which can be substantial—they act as stewards of public monies that can be justly used to build crossings where doing so benefits society through reduced collisions and improved connectivity.

Figure 1. Relative Perception of the Main Obstacle or Barrier to Nationwide Systemic Deployment of Terrestrial Wildlife Crossing Structures



Source: Kociolek, A. Implementing Wildlife Crossing Infrastructure: Understanding DOT Culture Interview/Survey Report Montana, USA, 2014. Available: <http://arc-solutions.org/wp-content/uploads/2014/03/FINAL-ARC-DOT-Survey-Results-and-Tool-Jan-2014.pdf>.

### Forum Identifies Operational Barriers

To deepen the dialogue about barriers to wildlife crossings as a standard practice, ARC held a forum at the 2013 International Conference on Ecology and Transportation. Titled “Culture and Crossings,” the event brought together 21 invited transportation-related professionals from state and federal agencies across the United States and Canada. Tens of barriers were identified as halting or slowing the deployment of wildlife crossings, but it was agreed that about half of them could be solved simply by changing the highway project planning process as currently practiced.<sup>5</sup>

### The New Norm

Notable wildlife mitigation efforts by local and state agencies are growing, and hopefully the same will hold true for federal land

management agencies that are also in charge of roads within their jurisdictions.<sup>6-9</sup> It is important that all state, federal, and tribal transportation and land management agencies consider wildlife crossings as a standard practice, because the systematic implementation of crossings is needed to assure habitat connectivity at larger scales, notwithstanding the recognition that more research is needed.<sup>10</sup> The “Moving Ahead for Progress in the 21st Century Act” has begun to set the stage for promoting wildlife mitigation projects across our road network, and it is critical that adequate funding continue into the future. Established entities such as the American Association of State Highway and Transportation Officials and the Western Governors’ Association offer excellent examples of how a coordinated effort to align and streamline the implementation of a wildlife crossing infrastructure could work. Legislative support for wildlife-highway mitigation, in conjunction with strong federal and state leadership, builds on what many transportation engineers are already doing in their jurisdictions and provides a green light for the new norm of systematically deploying a network of wildlife crossings wherever they are needed across North America. **itej**

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