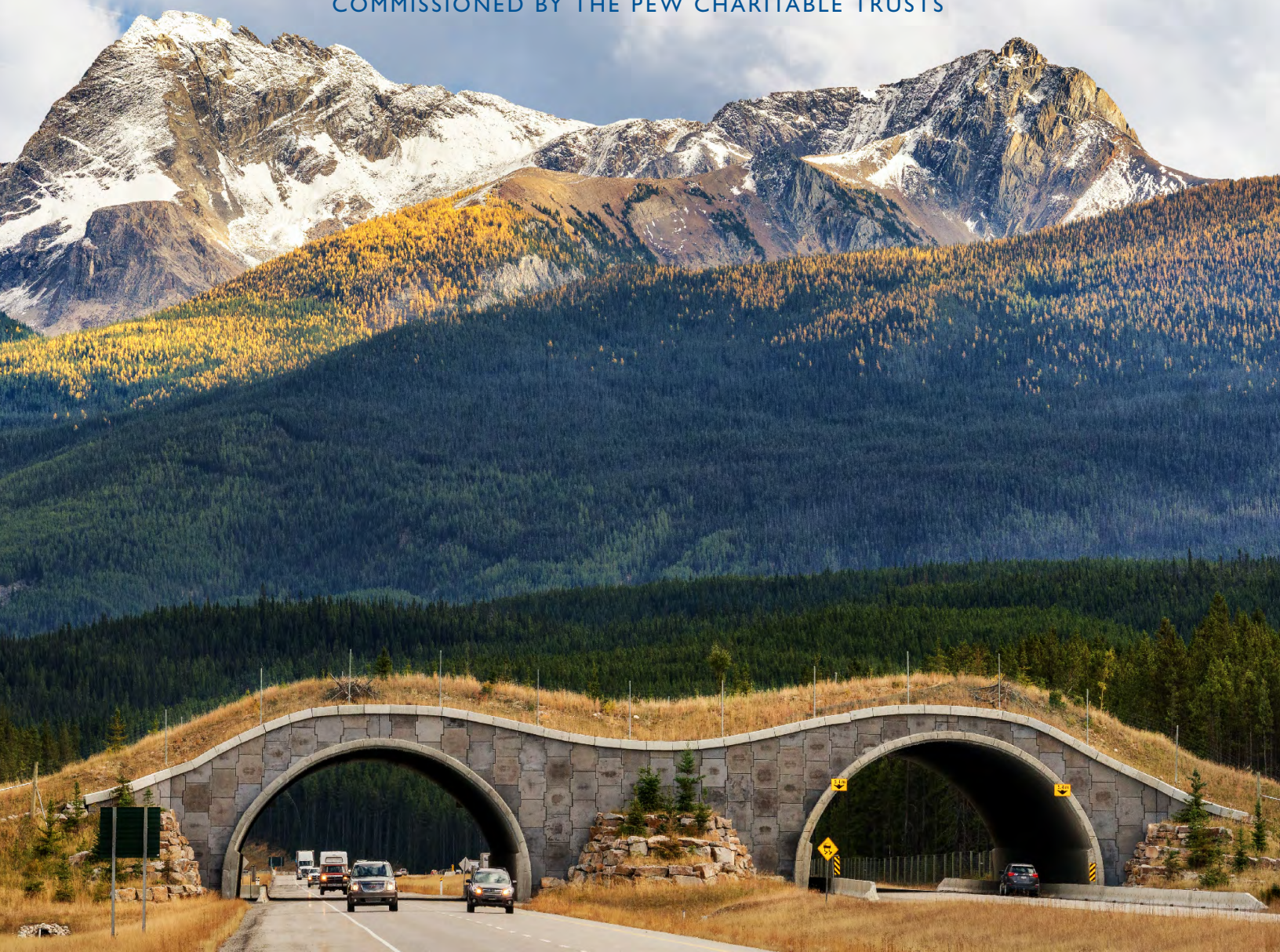


FUNDING FOR WILDLIFE CROSSING INFRASTRUCTURE

An Evaluation of Revenue and Funding Mechanisms

FINAL REPORT

COMMISSIONED BY THE PEW CHARITABLE TRUSTS



PREPARED BY

ECONorthwest

ECONOMICS • FINANCE • PLANNING

APRIL 2023

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Special thanks to Dr. Patricia Cramer for her guidance on wildlife crossing infrastructure. Dr. Cramer works with state Departments of Transportation and wildlife agencies across the nation to ensure wildlife crossings are effective for both people and wildlife.¹ Special thanks to Alan van der Hilst and Anna Wearn for providing feedback and review to strengthen the content and flow of this report.

¹ See more of Dr. Cramer's work here: <https://www.wildlifeconnectivity.org/home>

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1. Introduction

Wildlife crossing infrastructure both facilitates habitat connectivity and improves roadway safety. Despite the important functions they play, investment in wildlife crossings has been limited by a lack of sustained public funding. However, the availability of \$350 million in federal matching grants provides new incentives for states to seek sustained sources of funding for wildlife crossings.²

Where state funding is derived should be based on an economic “nexus” argument; those who benefit from the effectiveness of wildlife crossings should, theoretically, contribute most toward the cost of constructing the structures. This report reviews and evaluates state funding options for wildlife crossings based on this and several other considerations:



NEXUS

Does the revenue option have strong connection to parties who benefit from the crossing or who impose costs in the form of wildlife vehicle collisions?



ADEQUACY

Is the revenue option able to generate a large amount of revenue with a relatively low rate or small fee? Does the revenue option already provide funding for other projects or programs, which might lead to issues related to competition for funds?



STABILITY

Does the revenue source provide stable funding year-over-year, or does it fluctuate?



IMPLEMENTATION

Do states have the institutional ability and/or administrative capacity to impose and collect taxes or fees? Is the option politically feasible?

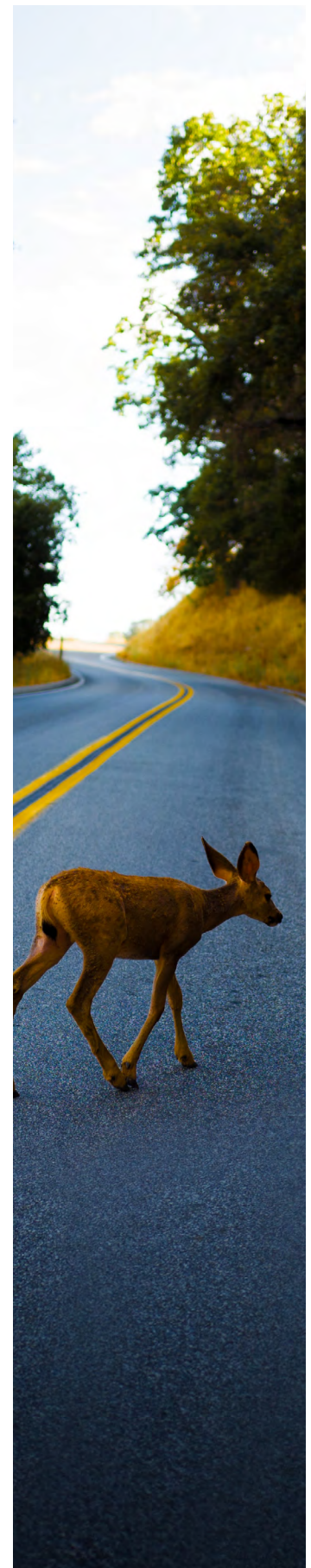


EQUITY

Is the option vertically equitable (i.e., is it progressive or regressive)? Does it place a disproportionate burden on certain populations?

The report is organized in five sections. Section 1 establishes the importance of wildlife crossings by quantifying the various costs of wildlife collisions. Section 2 provides four case studies which highlight the benefits of wildlife crossings and the challenges in funding them. Sections 3, 4, and 5 evaluate potential revenue options in states' current funding sources related to transportation, conservation, and other funding sources, respectively.

Where possible, we focus on wildlife crossings in the Western United States. The states in the study area include Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.



² Library of Congress. (2021). "Text - H.R.3684 - 117th Congress (2021-2022): Infrastructure Investment and Jobs Act." *Congress.gov*. Accessed at: <http://www.congress.gov/>.

2. Cost and Benefits of Crossings

From an economic framework perspective, those who benefit from the effectiveness of wildlife crossings should be willing or required to pay for the cost of construction and maintenance. The benefits of effective crossings are reduced vehicle damage improved safety from wildlife-vehicle collisions (WVCs) and ecological conservation. When WVCs occur, costs are imposed on three parties:

- Private cost to drivers,
- Loss of existence value from animal death, and
- Cost to state government in the form of public resources used for collision clean-up and emergency response.

With the presence of a wildlife crossing, WVCs can be reduced; saving private and public costs. These cost-savings are recognized as benefits of wildlife crossings.

Private Costs to Drivers

Vehicle damage. A high percentage (90 to 100 percent) of WVCs result in vehicle damage.³ (See Exhibit 1 for cost estimates of vehicle damage).

Human injury. Approximately 5 percent of deer-vehicle collisions result in human injuries, 10 percent for elk, and 20 percent for moose.⁴ Costs from injuries include lost earnings, healthcare-related costs (including those to the employer), and reduced quality of life. (See Exhibit 1 for cost estimates of human injury and fatalities)

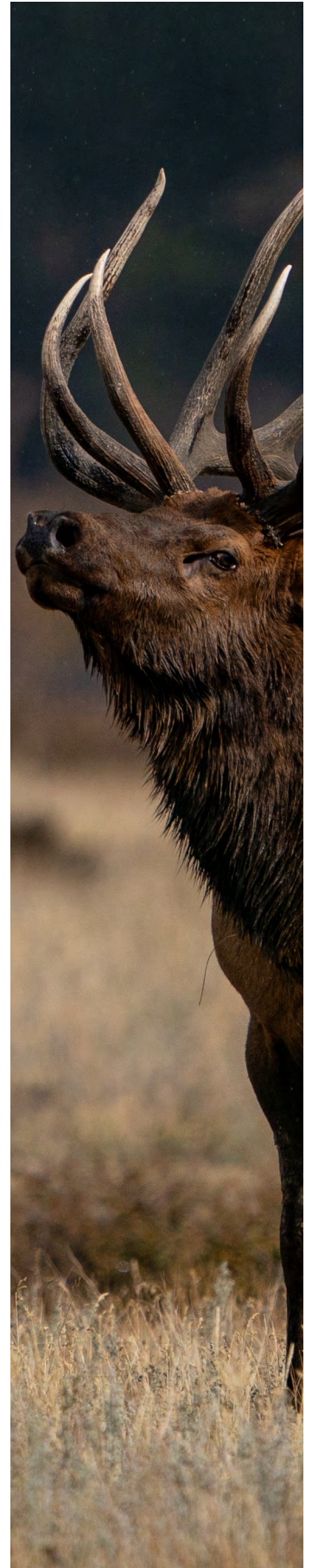
Human fatality. Human fatalities occur in a smaller percentage of WVCs, though the odds increase with the size of the animal. Fewer than 0.05 percent of deer-vehicle collisions result in human fatality, 0.2 percent of elk-vehicle collisions, and 0.4 percent of moose-vehicle collisions.⁵

Hunting value. The estimated foregone hunting value is \$152 for deer, \$519 for elk, and \$506 for moose.⁶ The FHWA report estimates wildlife recreational value as well as hunting value foregone as \$2,614 for deer and moose, and \$3,921 for elk.

Environmental and Ecological Costs

Foregone ecological value. The value of wildlife is determined through individuals' valuation of the existence of the animal and the environmental benefits of wildlife. This can be measured via the purchase of hunting licenses and recreational passes or the cost of traveling to a natural area.⁷ Additionally, there are consumers who value the existence of wildlife but do not purchase anything that directly relates to wildlife. Some economists have argued that this "existence value" composes 82 percent of the value that people attribute to wildlife.⁸

Loss of habitat connectivity. Habitat connectivity is essential for maintaining a stable population, resource access, and biodiversity.⁹ It is estimated that 19 percent of contiguous land area is



³ Federal Highway Administration. (2008) *Wildlife-Vehicle Collision Reduction Study*. Accessed at: www.fhwa.dot.gov/publications/research/safety/08034/08034.pdf

⁴ Huijser et al. (2009). *Appendix 2 of Cost-Benefit Analyses of Mitigation Measures Aimed at Reducing Collisions with Large Ungulates in the United States and Canada: a Decision Support Tool*. Accessed at: *Ecology & Society*, Vol. 14, No.2, Art. 15.

⁵ Ibid.

⁶ Ibid.

⁷ This is an imperfect measure, in part because governments do not generally price hunting licenses or recreational passes based on economic theory of willingness to pay or market rates, but rather on administrative considerations.

⁸ Stevens et al. (1991). *Measuring the Existence Value of Wildlife: What do CVM Estimates Really Show?* University of Wisconsin Press, *Land Economics* Vol. 67, No. 4, pp. 390-400. Accessed at: <https://doi.org/10.2307/3146546>

⁹ Dennis et al. (2013). *Corridors and Barriers in Biodiversity Conservation*. Accessed at: <https://link.springer.com/journal/10531/volumes-and-issues/22-12>

intercepted by transportation infrastructure.¹⁰ A Dutch study utilized multi-criteria benefit-cost analysis to examine 153 wildlife crossings across five different structural types. The results indicated that the program was able to increase the amount of high-quality ecological land accessible to animals by 1,734 hectares at a cost of €238 million or \$265 million (2020 U.S. dollars).¹¹

Public Costs

Accident attendance, investigation, and towing. Accident attendance and investigation can include medical services, fire department and police response. These costs are estimated at \$653 per accident, with a 25 percent probability of these services are needed in deer-vehicle collisions, 75 percent probability in elk-vehicle collisions, and 100 percent of moose-vehicle collisions. Thus, the average costs of these services are \$163 in deer-vehicle collisions, \$490 in elk-vehicle collisions, and \$653 in moose-vehicle collisions.

Carcass removal and disposal. The cost of the disposal of carcasses is relatively low, but total costs accumulate quickly for transportation departments given that most accidents resulted in the death of wildlife. Deer are killed in 91.5 percent of WVCs and moose are killed in 88.5 percent.¹² For those animals that do survive and are rehabilitated, costs vary widely by state depending on the number of animals picked up, but some estimates total approximately \$150,000 annually, nationwide.¹³ (See Exhibit 1 for cost estimates of carcass removal).

Estimated Benefits of Wildlife Crossings and Costs of Wildlife-Vehicle Collisions

With one to two million WVCs annually in the U.S., wildlife crossings potentially allow for major cost savings to the public.¹⁴ Academic studies of the cost-effectiveness of wildlife crossings generally quantify benefits as the reduction in costs of WVCs. Two studies commissioned by the Federal Highway Administration (FHWA) categorize the types of costs that WVCs generally cause.¹⁵ Both studies use similar methodologies by weighting cost category (vehicle repair, injury, fatalities, foregone hunting value/monetary value of wildlife, and carcass removal and disposal) by the probability of that event occurring in a WVC. Exhibit 1 lists the cost estimates for each study.

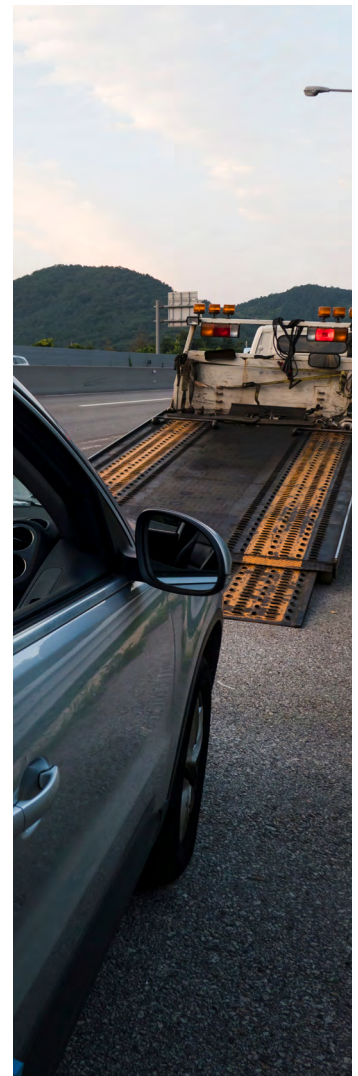








EXHIBIT 1. SUMMARY OF WILDLIFE VEHICLE COLLISION COST ESTIMATES (2021 \$US)

Source: FHWA Wildlife-Vehicle Reduction Study (2008), and Huijser, Duffield, and Clevenger (2009)

DESCRIPTION	FHWA (2021 \$US)			HUIJSER ET AL. (2021 \$US)		
	DEER	ELK	MOOSE	DEER	ELK	MOOSE
 Vehicle Repair Costs per Collision	\$2,405	\$3,921	\$5,227	\$3,427	\$5,946	\$7,318
 Human Injuries per Collision	\$3,531	\$7,061	\$14,123	\$3,531	\$7,061	\$14,123
 Human Fatalities per Collision	\$2,184	\$8,734	\$17,468	\$1,309	\$8,734	\$17,468
 Towing, Accident Attendance and Investigation	\$163	\$490	\$653	\$163	\$490	\$653
 Monetary Value Animal per Collision	\$2,614	\$3,921	\$2,614	\$152	\$519	\$506
 Carcass Removal and Disposal per Collision	\$65	\$131	\$131	\$65	\$98	\$131
Total	\$10,962	\$24,257	\$40,216	\$8,648	\$22,848	\$40,199

¹⁰ Roedendeck et al. (2007). *The Rauschholzhausen Agenda for Road Ecology*. Ecology & Society, Vol. 12, No.1. Accessed at: www.ecologyandsociety.org/vol12/iss1/art11; Taylor and Goldingay. (2010) Roads and Wildlife: Impacts, Mitigation and Implications for Wildlife Management. Accessed at: https://www.researchgate.net/publication/49250893_Roads_and_wildlife_impacts_mitigation_and_implications_for_wildlife_management_in_Australia

¹¹ Sijtsma et al. (2020). *Ecological Impact and Cost-effectiveness of Wildlife Crossings in a Highly Fragmented Landscape: a Multi-Method Approach*. Landscape Ecology, Vol. 35, pp. 1701-1720.

¹² Allen and McCullough. (1976). *Deer-Car Accidents in Southern Michigan*. The Journal of Wildlife Management, Vol. 40, No. 2, pp. 317-325. Accessed at: <https://doi.org/10.2307/3800431> and Federal Highway Administration. (2008). *Wildlife-Vehicle Collision Reduction Study*. Accessed at: www.fhwa.dot.gov/publications/research/safety/08034/08034.pdf

¹³ Federal Highway Administration. (2008). *Wildlife-Vehicle Collision Reduction Study*. Accessed at: www.fhwa.dot.gov/publications/research/safety/08034/08034.pdf

¹⁴ Ibid.

¹⁵ Huijser et al. (2009). *Cost-Benefit Analyses of Mitigation Measures Aimed at Reducing Collisions with Large Ungulates in the United States and Canada: a Decision Support Tool*. Accessed at: Ecology & Society, Vol. 14, No.2, Art. 15; Federal Highway Administration. (2008). *Wildlife-Vehicle Collision Reduction Study*. Accessed at: www.fhwa.dot.gov/publications/research/safety/08034/08034.pdf

3. Case Studies

Wildlife crossings often garner extraordinary funding at the local and state levels. On-the-ground partnerships with DOTs, state wildlife agencies, local governments, and conservation agencies offer far-reaching opportunities for leveraging funding sources.¹⁶ Opportunities for unique funding sources to arise are more likely when strong local and state partnerships exist. Wildlife crossings are an exemplary use for these funding sources as they have not received dedicated funding — until very recently — and gain the attention of private organizations. Wildlife crossings could attract private funding to be leveraged with public funding through various mechanisms, such as establishing a privatized toll at the crossing or capitalizing on ecological conservancy groups' interest in preserving wildlife.

The case studies below provide insight into the challenges in funding wildlife crossings, and the creative ways that they have been financed.

State Highway 9 Crossing System — COLORADO

Description

Colorado Department of Transportation (CDOT) partnered with Colorado Parks and Wildlife (CPW) to address the 11-mile stretch of State Highway 9 (SH 9) between Green Mountain Reservoir and the town of Kremmling that bisects a mule deer migration path. Prior to the installation of the wildlife crossings, an average of 63 wildlife carcasses were reported each winter and WVCs accounted for 60 percent of all reported accidents along this section of SH 9.¹⁷ The project was completed in 2016 and includes two wildlife overpasses, five wildlife underpasses, pedestrian walk-throughs, wildlife escape ramps and guards, and 10.3 miles of wildlife fencing for the safe passage of mule deer.¹⁸

Funding

In 2013, CDOT was selected by the State Transportation Commission to receive RAMP funding for the acceleration of the Highway 9 Wildlife Crossing project to leverage an opportunity with Blue River Valley Ranch, which owns the land on the western side of the corridor. RAMP funding requires that 20 percent of the project budget — approximately \$9 million of the \$40 million total project cost — is contributed by P3s. Blue River Valley Ranch gave over \$4 million to fund the construction of the project, as well as a \$805,000 grant to CDOT to kick-start the design phase.¹⁹ Citizens for a Safe Highway 9 Committee, a nonprofit organization created by individuals and businesses, and Grand and Summit counties contributed the remainder of the \$9 million.²⁰

Outcomes

CDOT, CPW, and EcoResolution conducted research on effectiveness of the crossings over a 5-year period (2015-2020). The research examined usage of the structures by wildlife and performed a before-after-control-impact (BACI) analysis of WVC crashes and carcasses. The study found that the crossing system allowed for increased habitat connectivity for mule deer, with a successful mule deer passage rate close to 96 percent across all structures, in addition to providing habitat access to 16 other species. The crossing system reduced total WVC crashes



¹⁶ Dr. Patricia Cramer. Interview. September 30th, 2022.

¹⁷ Colorado Parks and Wildlife. (2021). *State Highway 9 Wildlife Crossings Mitigation Monitoring*. Accessed at: <https://cpw.state.co.us/Documents/Conservation-Resources/SH9-Wildlife-Monitoring-Report.pdf>

¹⁸ Colorado Department of Transportation. (n.d.). *CO 9 Colorado River South Wildlife & Safety Improvements*. Accessed at: www.codot.gov/projects/archived-project-sites/sh9wildlife

¹⁹ Blue River Valley Ranch. (2013). *Citizens for a Safe Highway 9 and a Matching Grant*. Accessed at: <https://bluevalleyranch.com/citizens-for-a-safe-highway-9-and-a-matching-grant/>

²⁰ Steamboat Magazine (2017). "Under the Bridge." Accessed at: <https://www.steamboatmagazine.com/2017/11/07/159619/under-the-bridge>; Grand Gazette. (2020). "Highway 9 Wildlife Monitoring Ends." Accessed at: <https://grandgazette.net/highway-9-wildlife-monitoring-ends/>

by 92 percent relative to the pre-construction level, which translates to the prevention of 13 crashes, or a cost-savings of \$142,500, and 56 WVC mule deer mortalities each year.²¹

US Highway 97 Underpasses — OREGON

Description

An average of 25,000 vehicles drive on Highway 97 near Lava Butte, Oregon each day, making this corridor dangerous for mule deer and other wildlife needing to cross from the Cascade Mountains.²² Two wildlife underpasses at Lava Butte were completed in June 2012 and monitoring systems were installed in 2013. Oregon Department of Transportation (ODOT) identified another high WVC corridor along a 10-mile stretch of Highway 97 near Gilchrist, Oregon and completed another underpass in 2020. The underpass aimed to address the 267 WVC reported involving just mule deer and elk between 2010-2017.²³

Funding

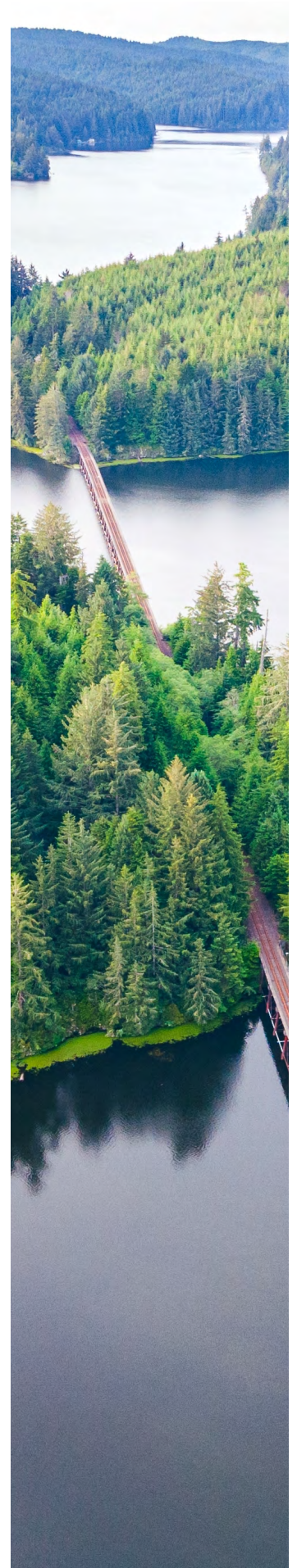
The ODOT partnered with the U.S. Forest Service to construct two wildlife underpasses near Lava Butte as a part of \$18.9 million lane expansion project paid for by ODOT. The Gilchrist underpass was funded by ODOT at a total cost of \$1 million. The budget was unable to accommodate the cost of wildlife fencing, estimated at \$930,000. In response, the community attracted hundreds of thousands of dollars in funding for the fencing that stretches 5-miles in both directions around the Gilchrist underpass. The Oregon Wildlife Foundation utilized their platform to solicit donations and public support through informational videos and project updates. Both private and public entities contributed the funding for the Gilchrist fencing:

- Oregon Watershed Enhancement Board
- Project Animal Migration
- Private Donors
- Oregon Hunters Association — \$110,000
- Oregon Wildlife Foundation — \$75,000
- Mule Deer Foundation — \$20,000
- Oregon Department of Fish and Wildlife — \$240,000

In total, \$730,000 was raised toward the \$930,000 goal and construction will begin as more funding comes in.²⁴

Outcomes

The monitoring system installed at the Lava Butte passage was able to capture video of the safe passage for mule deer as well as 28 other species. WVC have been reduced by 90 percent along this stretch of Highway 97.²⁵ Gaining community support through targeted communication of the need for wildlife crossing structures can raise sufficient funding.



²¹ Cost-savings calculated using FHWA estimated cost of deer vehicle-collision in 2021 dollars.

²² Oregon Department of Transportation: Bend. (2016). *ODOT Vehicle Data*. Accessed at: www.bendoregon.gov/home/showpublisheddocument/30421/636282003654330000; Oregon Conservation Strategy. (n.d.). *Strategy Spotlight: U.S. Highway 97 Wildlife Crossing*. Accessed at: <https://oregonconservationstrategy.org/success-story/us-97-wildlife-crossing/>

²³ Bend Bulletin. (2019). "Another Wildlife Crossing Planned for U.S. Highway 97" Accessed at: www.bendbulletin.com/localstate/another-wildlife-crossing-planned-for-u-s-highway-97/article_94522bb1-e6e1-583f-a767-d5f4392405cb.html

²⁴ Bend Bulletin. (2020). "ODOT Completes Wildlife Passage Under Highway 97" Accessed at: www.bendbulletin.com/localstate/environment/odot-completes-wildlife-passage-under-highway-97/article_bd7f93b4-d2b1-11ea-88dd-e7ca471ab6ea.html

²⁵ Oregon Conservation Strategy. (n.d.). "Strategy Spotlight: U.S. Highway 97 Wildlife Crossing." Accessed at: www.oregonconservationstrategy.org/success-story/us-97-wildlife-crossing/

Trapper's Point and Dry Piney — WYOMING

Trapper's Point — Highway 191

Description

The Trapper's Point crossing system provides safe passage along the 6,000-year-old migration path of pronghorn antelope. The crossing system covers a 12-mile stretch of Highway 191 in western Wyoming and is composed of 2 overpasses, 6 underpasses, and approximately 14 miles of fencing. Wyoming Department of Transportation (WYDOT) identified that WVCs along this corridor incurred approximately \$4.1 million in damages to vehicles between 2004 and 2009.²⁶ WYDOT partnered with Wildlife Conservation Society to identify key migration points along this route and construct crossings that would be effective in preventing WVCs. The project was completed in 2012 and was recognized by the Federal Highway Administration and the Wyoming Engineering Society for its effectiveness at improving safety and preserving wildlife.

Funding

The project was completed at a total cost of \$9.7 million and was paid for by WYDOT.²⁷

Outcome

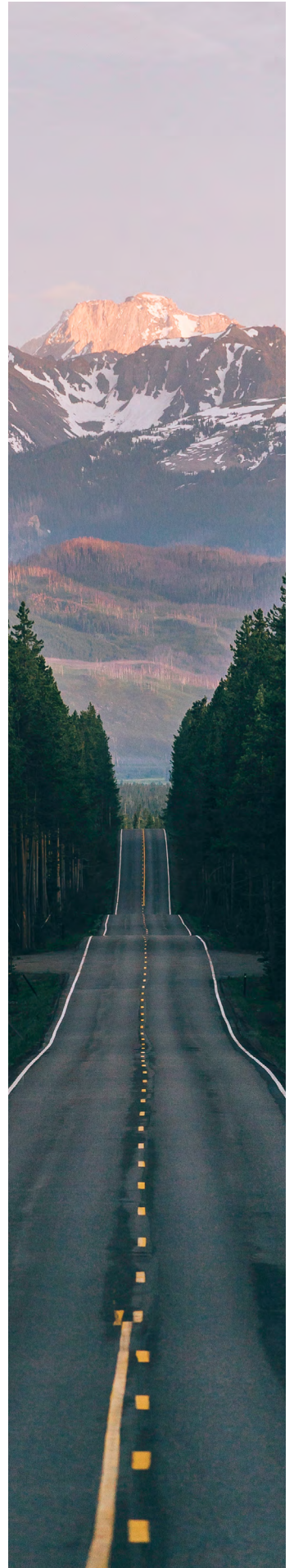
The wildlife crossing system reduced WVCs with mule deer by 79 percent while WVCs with pronghorn were eliminated three years post-construction.²⁸ The success of Trapper's Point promoted WYDOT and Wyoming Game and Fish Department to co-host the Wyoming Wildlife and Roadways Summit in April of 2017. This event allowed collaboration of biologists, conservation advocates, and transportation officials to identify 240 corridors of special concern for wildlife mortality and transportation safety.

The summit spurred a statewide effort to increase awareness and construction of wildlife crossings. In 2020, the governor launched the Wildlife Conservation License Plate challenge in which all revenue from the license plate program goes to the creation and maintenance of wildlife crossings. Residents can purchase a plate for \$180 and renew it each year for a \$50 fee. Conservation license plate owners receives discounts at a wide range of businesses from local outdoor gear shops to large corporations such as Midas and Orvis.²⁹ As of 2021, this initiative has raised \$495,400 for wildlife crossings with thousands of license plate owners now on the road.³⁰

Dry Piney — Highway 189

Description

In May 2022, WYDOT began construction on the Dry Piney wildlife crossing system located in southwest Wyoming along a 19-mile stretch of Highway 189. The corridor has been a hot spot for WVCs with deer, moose, elk, and pronghorn.³¹ Between 2018-2020, 68 animal carcasses were picked up by WYDOT. The project will include 9 wildlife underpasses and 16.7 miles of fencing along this corridor.³²



²⁶ Wyoming Department of Transportation. (2013) "Trappers Point project wins engineering award". Accessed at: <https://www.dot.state.wy.us/news/trappers-point-project-wins-engineering-award>

²⁷ Wildlife Conservation Society. (n.d.). "About the Trapper's Point Webcam." Accessed at: www.trapperspoint.com/about.htm

²⁸ Wyoming Game and Fish Department. (2022). "Dry Piney Wildlife-Crossing Project Construction Well Underway." Accessed at: <https://wgfd.wyo.gov/News/Dry-Piney-wildlife-crossing-project-construction-w>

²⁹ Wyoming Game and Fish Department. (2020). "Join the Club." Accessed at: <https://wgfd.wyo.gov/wildlife-in-wyoming/migration/license-plate>

³⁰ Wildlife Crossing Work. (2021). "Latest News." Accessed at: <https://wombat-seal-yahr.squarespace.com/>

³¹ Wyoming Department of Transportation. (2019). "Wildlife & Roadways." Accessed at: www.wyoleg.gov/InterimCommittee/2019/08-2019051417-01PresentationWildlifeRoadways.pdf

³² Wyoming Game and Fish Department. (2022). "Dry Piney Wildlife-Crossing Project Construction Well Underway." Accessed at: <https://wgfd.wyo.gov/News/Dry-Piney-wildlife-crossing-project-construction-w>

Funding

WYDOT received a \$14.5 million Federal Transit Administration Better Utilizing Investments to Leverage Development (BUILD) grant in 2019 in combination with state funds from the Wyoming Transportation Commission and the Wyoming Game and Fish Commission which both contributed \$1.25 million, with WYDOT contributing funds derived from the license plate program.³³ In addition to public funds, the Dry Piney project has caught the attention of foundations and individuals with vested interest in transportation safety and wildlife conservation.

WYDOT received grants from the Knobloch Family Foundation, Volgenau Foundation, and National Fish and Wildlife Foundation, totaling \$400,000 as well as a local area family donating \$25,000.³⁴ Notably, the Wyoming Wildlife Natural Resource Trust (WWNRT) was able to raise \$349,000 through a matching program created by the Wyoming Legislature.³⁵ WWNRT matched \$200,000 donated by the Greater Yellowstone Coalition. The total project cost is estimated at \$15.1 million and will be completed in 2023.

Outcomes

The success of the Trapper's Point and Dry Piney crossing systems proves the potential of garnering revenue from voluntary user fees in the form of the conservation license plate program. Voluntary user fees create a mechanism to capture the willingness to pay of those that gain value from conservation efforts, such as wildlife crossings. By creating the license plate program, WYDOT was able to garner contributions from Wyoming residents who value the benefits that wildlife crossings provide.



State Highway 9 Crossing System (COLORADO)

Prevention of 13 crashes and 56 WVC mule deer mortalities each year.

US Highway 97 (OREGON)

WVC have been reduced by 90 percent along this stretch of Highway 97

Trapper's Point Highway 191 (WYOMING)

Reduced WVCs with mule deer by 79 percent while WVCs with pronghorn were eliminated three years post-construction

Dry Piney Highway 189 (WYOMING)

WYDOT was able to garner contributions from Wyoming residents

³³ Wyoming Department of Transportation. (2019). "WYDOT Receives \$14.5 Million Federal Grant for Wildlife Crossing Project." Accessed at: www.dot.state.wy.us/news/wydot-receives-145-million-federal-grant-for-wildlife-crossing-project-2

³⁴ Greater Yellowstone Coalition. (2022). "Breaking Ground at Wyoming's Newest Wildlife Crossing." Accessed at: <https://greatoryellowstone.org/blog/2022/drypiney>

³⁵ Wyoming Wildlife and Natural Resources Fund. (2020). "WWNRT Receives \$200,000 for Wildlife Crossings." Accessed at: <https://wwnrt.wyo.gov/news>

4. Transportation Funding Options

Current Transportation Funding Landscape

Transportation infrastructure is critical to human connectivity and economic competitiveness, and as such represents a major financial responsibility at all levels of government.³⁶ State and local governments spent over \$200 billion on roads and highways in 2019, only about 5 percent of their total direct spending, but highway capital outlays represent a quarter of all capital spending nationally.³⁷

Roads and highways are funded through a blend of federal, state, and local sources. In 2019, transfers from the federal government comprised 24 percent of all state and local spending on highways and roads, with state and local government funding contributing the remaining three quarters. (This ratio will likely shift with the implementation of the Infrastructure Investment and Jobs Act which more than doubled the amount of federal funding for highways, roads, and bridges).³⁸

Transportation-related revenues, such as state motor fuel taxes and user fees such as vehicle licensing, driver licensing fees, and highway user fees (tolls), connect the costs of maintaining and constructing infrastructure to road users. In 2019, state and local governments collected \$105 billion through these sources, or about 50 percent of highway and road spending.

State Funding for Roads and Highways

Certain western states — particularly those with higher motor fuel taxes — tend to fund more of their total transportation infrastructure budgets through motor fuel taxes and user fees (vehicle licensing fees and highway use taxes), compared to the U.S. In 2019, California and Washington generated the highest portion of their highway spending through motor fuel taxes compared to other western states. Colorado and Idaho are the states with the next highest portion (50 percent and 53 percent respectively), approximately 20 percentage points below California and Washington. Still, all the western states are above the national average of 23 percent.³⁹

Across the U.S., vehicle registration fees contributed 23 percent to state's highway spending.⁴⁰ Within western states, Oregon and California stand out as generating a large portion of their highway spending from these fees.⁴¹

Highway user fees comprise 21 percent of highway spending.⁴² States vary in terms of their division of highway-user fee collection responsibilities with local governments. For example, the state of California received \$3.3 million (less than 1 percent of highway spending) from highway user fees, but local governments generated \$785.4 million in 2019.⁴³ This trend is similar for highway specific spending, as well. Exhibit 2 presents motor fuel taxes, vehicle license fees, and highway fees as shares of total state highway spending.



³⁶In this paper we will primarily be focusing on road and highway infrastructure as fundamental to the need for wildlife crossing. There are very few large-scale transit- or rail-oriented crossings.

³⁷US Census Bureau. (2019). *Annual Survey of State and Local Government Finances*. Accessed at: www.census.gov/programs-surveys/gov-finances.html

³⁸Urban Institute. (2019). "Highway and Road Expenditures." Accessed at: www.urban.org/policy-centers/cross-center-initiatives/state-and-local-finance-initiative/state-and-local-backgrounders/highway-and-road-expenditures

³⁹US Census Bureau. (2019). *Annual Survey of State and Local Government Finances*. Accessed at: www.census.gov/programs-surveys/gov-finances.html

⁴⁰Ibid.

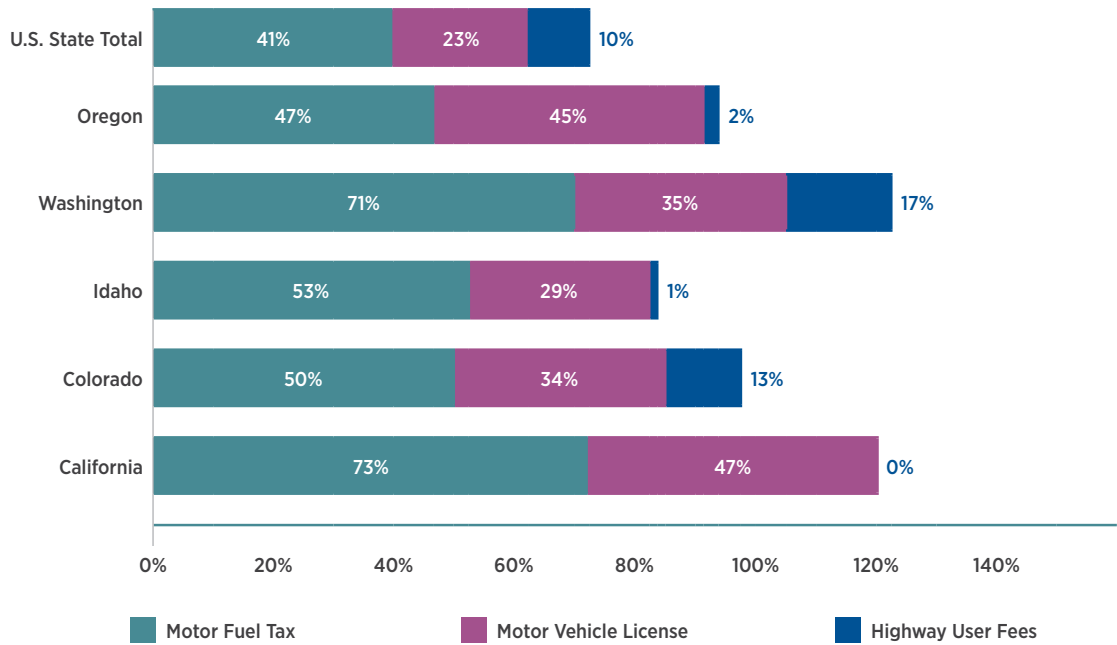
⁴¹Ibid.

⁴²Ibid.

⁴³Ibid.

EXHIBIT 2. MOTOR FUEL TAXES, VEHICLE LICENSE FEES, AND HIGHWAY FEES AS SHARES OF STATE HIGHWAY SPENDING, SELECT WESTERN STATES AND THE US, 2019

Source: U.S. Census Bureau Annual Survey of State and Government Finances



Other Funding Mechanisms and Revenue Sources

Transportation departments across the US leverage funding strategies to supplement the traditional funding sources listed above and to create new infrastructure developments outside of regular capital improvements.

The FHWA highlights several innovative funding sources for transportation projects, including P3s, special assessment districts, joint developments, and value capture techniques.⁴⁴ These sources have been leveraged at the state and local levels with varying outcomes. Public highway authorities have entered P3s with private entities; these are typically structured as long-term leases in exchange for the rights to operate toll roads. State Infrastructure Banks (SIBs) leverage federal resources to attract private and public investments. Operating like a private bank, SIBs offer varying types of loan and lines of credit. Additionally, states establish unconventional funding opportunities through many channels. For example, Oregon’s pilot vehicle-per-mile-traveled (VMT) tax or Colorado’s Responsible Acceleration of Maintenance and Partnerships (RAMP) funding program (that helped fund a wildlife crossing).⁴⁵

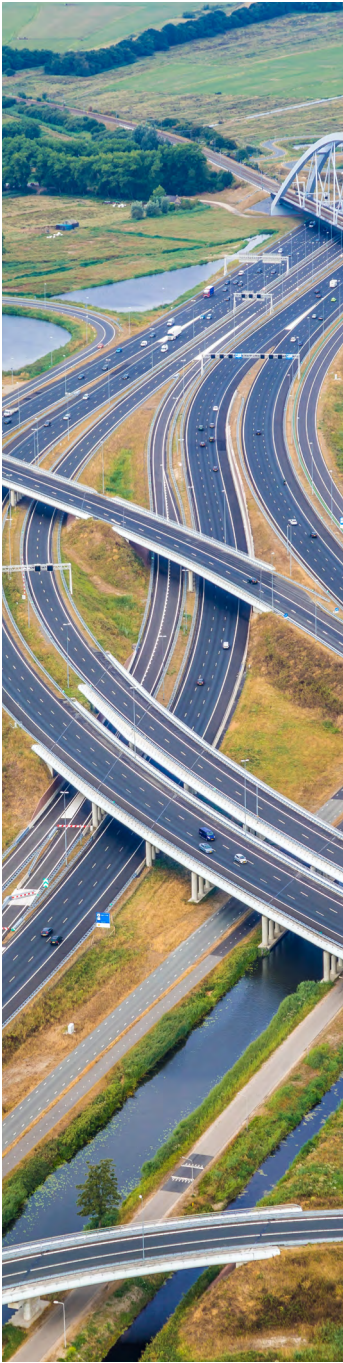


EXHIBIT 3. SUMMARY OF TRANSPORTATION REVENUE OPTIONS

Source: ECONorthwest, 2023

REVENUE OPTION	ADEQUACY	NEXUS
Motor Fuel Tax	High	Medium
Wildlife Crossing User Fee	Medium	High
Auto Insurance Surcharge	Low	Medium
Vehicle Title Registration Fee	Medium	Low
Speeding Ticket	Low	High
Heavy-Vehicle Use Tax	High	Low

⁴⁴Federal Highway Administration. (2022). "Center for Innovative Finance Support." Accessed at: www.fhwa.dot.gov/ipd/
⁴⁵Colorado Department of Transportation. (2012). "RAMP Policy Brief." Accessed at: www.codot.gov/programs/planning/assets/stac-archives/2013-stac/jan-2013/ramp-policy-brief-1

Analysis of Transportation Revenue Options

Motor Fuel Tax

Description

This option simulates an increase in motor fuel excise taxes of a one cent to fund wildlife crossings. Motor fuel excise taxes are imposed at the federal and state level on a per-gallon basis or on a wholesale basis.⁴⁶ At the federal level, the majority (85 to 90 percent) of the Highway Trust Fund derives from motor fuel taxes which support the maintenance and construction of highways and public transit.⁴⁷ Every state imposes a statewide motor fuel tax in addition to the federal motor fuel tax, and some states levy local motor fuel taxes.

The current rate structure for western states ranges between 23 cents per gallon (Colorado) to 65 cents per gallon (California) in total state motor fuel tax, including fees (August, 2022).⁴⁸ The average total state motor fuel tax across western states is 30 cents per gallon.⁴⁹

Nexus

As an individual drives more, the risk of a wildlife vehicle collision increases, leading to a positive relationship between the amount of gasoline used and the risk of a WVC occurring. Motor fuel taxes are correlated with the miles driven on the road and therefore also with the likelihood that a vehicle would strike an animal. Nexus of this option depends on the geographic variation in WVCs, however a statewide motor fuel tax increase will impact drivers in both urban and rural areas. A resident of a large metropolitan area is unlikely to be driving on roads where the most WVCs occur whereas a resident in a rural area likely uses these roads frequently. When considering a local motor fuel tax increase, the local community benefits from increased safety on the roads they travel frequently thereby creating a direct nexus.

Adequacy

A one cent increase in motor fuel taxes across western states has the potential to produce adequate revenue for wildlife crossings. States vary widely in the amount potentially garnered from a one cent increase. Alaska could increase their annual revenue by \$2.5 million while Washington and California could access \$22.9 and \$125 million, respectively.



⁴⁶Tax Administration. (2023) State Excise Tax Rates on Highway Motor Fuels. Accessed at: <https://www.taxadmin.org/assets/docs/Research/Rates/mf.pdf>

⁴⁷Congressional Research Service. (2020). "Funding and Financing Highways and Public Transportation." Accessed at: <https://sgp.fas.org/crs/misc/R45350.pdf>

⁴⁸Energy Information Administration. (2022) Federal and State Motor Fuel Taxes. Accessed at: <https://www.eia.gov/todayinenergy/detail.php?id=53979>

⁴⁹Ibid.

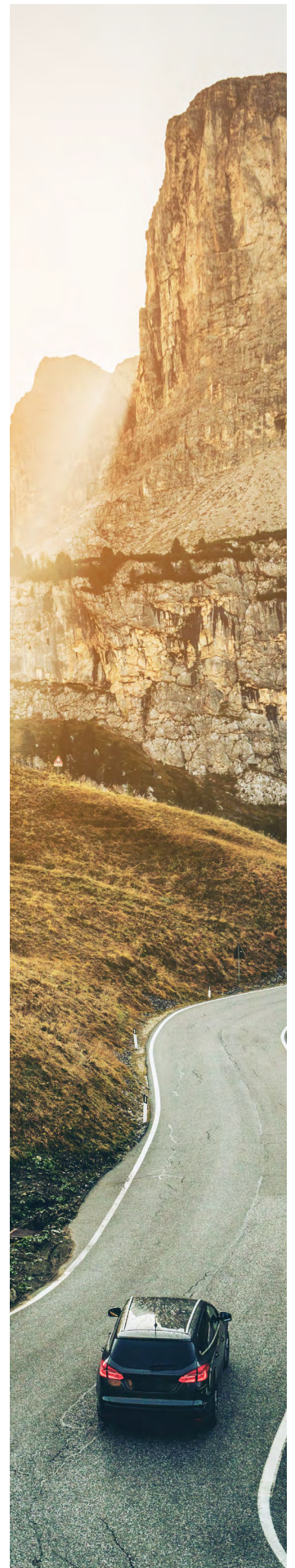
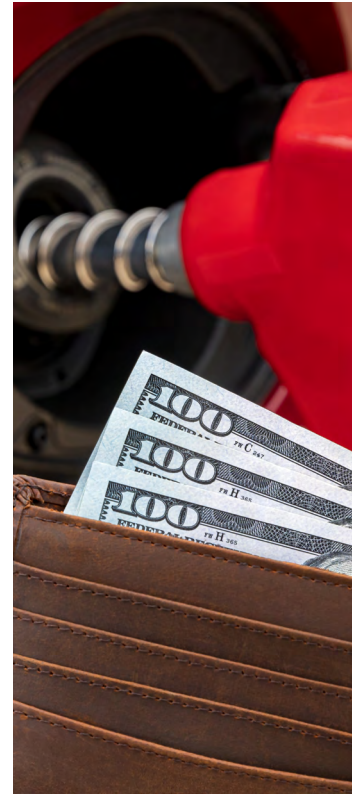


EXHIBIT 4. POTENTIAL REVENUE FROM A ONE-CENT INCREASE IN GASOLINE TAX

Source: Federal Highway Administration (2020), U.S. Energy Information Administration (2022)⁵⁰

STATE	GALLONS OF FUEL ASSESSED FOR TAXATION (1000s OF GALLONS)	ANNUAL REVENUE FROM A ONE-CENT TAX INCREASE
Alaska	246,543	\$2,465,430
Arizona	2,698,445	\$26,984,450
California	12,497,553	\$124,975,530
Colorado	2,037,453	\$20,374,530
Hawaii	366,693	\$3,666,930
Idaho	776,177	\$7,761,770
Nevada	1,081,546	\$10,815,460
New Mexico	858,591	\$8,585,910
Montana	518,736	\$5,187,360
Oregon	1,417,016	\$14,170,160
Utah	1,157,756	\$11,577,560
Washington	2,286,187	\$22,861,870
Wyoming	314,455	\$3,144,550



Stability

While the federal motor fuel tax rate has not increased, states have raised rates several times since 2010. Alaska, California, Wyoming, Idaho, and Nevada experienced over a 100 percent growth rate in the real value of motor fuel tax revenue. New Mexico, Arizona, Colorado, and Hawaii have realized smaller real growth in motor fuel tax revenue over the period.

Across all western states, motor fuel tax revenues were stable between 2010 and 2014 in real terms.⁵¹ Revenues began increasing rapidly between 2014 and 2016, eventually reaching a trough in 2018. Since 2018, motor fuel tax revenues have increased relatively slowly, apart from California and Alaska which realized over a 60 percent growth rate between 2018 and 2020. Policymakers voice concern about the overreliance on motor fuel taxes for funding due to the advancements in fuel efficient technology for vehicles. This has led to discussions of taxation on vehicle-per-mile-traveled or sales of gasoline rather than a flat tax on gallons sold.⁵² Exhibit 5 and Exhibit 6 present the trend in the real value of motor fuel tax revenue in each western state.



⁵⁰Federal Highway Administration. (2020) Highway Statistics Series, Table MF-2. Accessed at: <https://www.fhwa.dot.gov/policyinformation/statistics/2020/mf2.cfm>; Energy Information Administration. (2022) Federal and State Motor Fuel Tax Table. Accessed at: <https://www.eia.gov/todayinenergy/detail.php?id=53979>

⁵¹U.S. Census Bureau. (2010-2020). Annual Survey of State and Local Governments. Accessed at: www.census.gov/programs-surveys/gov-finances.html

⁵²Congressional Research Service. (2020). Funding and Financing Highways and Public Transportation. Accessed at: <https://sgp.fas.org/crs/misc/R45350.pdf>

EXHIBIT 5. MOTOR FUEL TAX REVENUE BY STATE, LOW RANGE (\$1,000s, 2022 DOLLARS)

Source: U.S. Census Bureau (2010-2020), Bureau of Labor Statistics⁵³

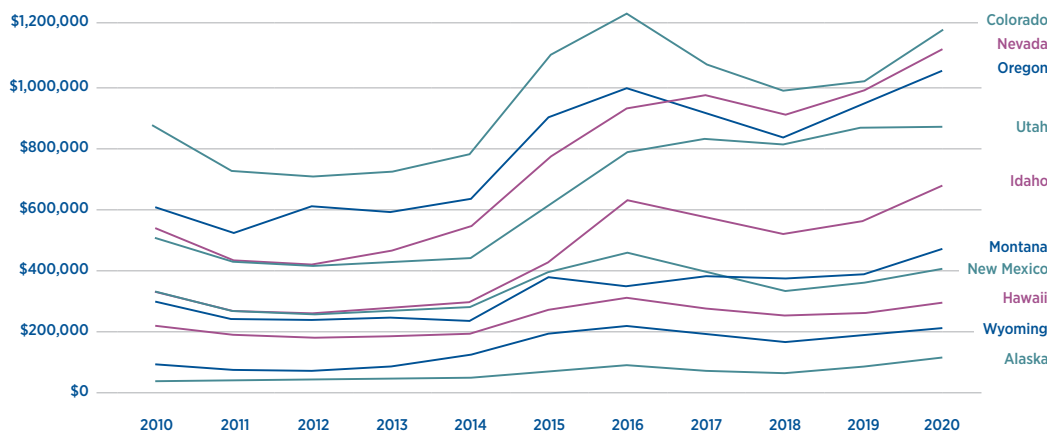
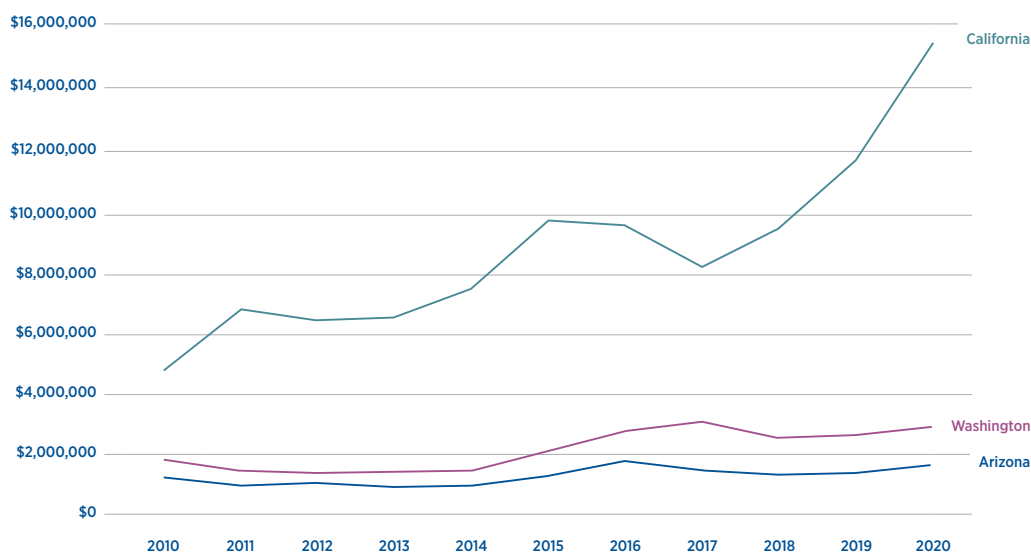


EXHIBIT 6. MOTOR FUEL TAX REVENUE BY STATE, HIGH RANGE (1,000s, 2022 DOLLARS)

Source: U.S. Census Bureau (2010-2020), Bureau of Labor Statistics⁵⁴



Implementation

Raising the motor fuel tax would require considerable political support with state representatives. There is a long-term policy and political debate about relying on motor fuel taxes to pay for infrastructure, which may make this politically challenging to implement. However, some states and many localities have increased motor fuel taxes in recent years. For example, Nevada and Oregon local governments raise substantial revenue from local taxes on motor fuels.⁵⁵

Equity

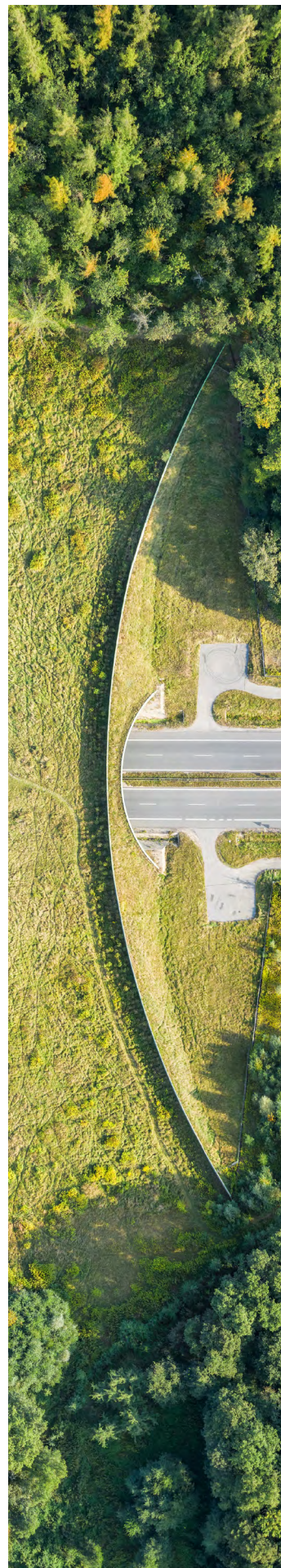
As with any flat-rate taxation on a consumable, the impact of rate increases may not affect all households equally. When weighed against concern for low income and rural households, fuel taxes are considered regressive because lower-income groups spend a larger portion of their income on gasoline compared with middle- and high-income groups.⁵⁶

⁵³U.S. Bureau of Labor Statistics. (2022) CPI, Gasoline (all types) Seasonally Adjusted. Series ID CUSR0000SETB01.

⁵⁴Ibid.

⁵⁵U.S. Census Bureau. (2020). *Annual Survey of State and Local Government Finances*. Accessed at: www.census.gov/programs-surveys/gov-finances.html

⁵⁶However, some economists argue that lower-income groups adjust their proportional spending on gasoline relative to total household expenditures in the same manner as middle- and high-income groups. See Poterba. (1991). *Is the Gasoline Tax Regressive?* National Bureau of Economic Research and Massachusetts Institute of Technology. Accessed at: www.nber.org/system/files/chapters/c11271/c11271.pdf



When considering disparities in land-use regulations across race and income, gasoline costs compose a large cost-burden for low-income households. The gasoline cost-burden for low-income households is roughly three times the burden for high-income households and Black, Hispanic, and American Indian low-income households bear the largest burden compared to White and Asian low-income households.⁵⁷ A motor fuel income tax credit for individuals that meet certain income criteria could be implemented to accommodate those who are gasoline cost-burdened.⁵⁸

Wildlife Crossing User Fee

Description

This option would charge a fee at the time of passing the wildlife crossing, like a toll fee. It is assumed that a \$1 fee is charged at the time of passing the wildlife crossing.

Nexus

A user fee at the time of passing a wildlife crossing has a strong nexus component. The drivers who are most frequently on the road where the wildlife crossing exists are the ones most likely to be involved with a WVC. By imposing a fee at the spot where a WVC is most likely, the benefits of the wildlife crossing are in direct alignment with the costs.

Adequacy

The projected revenue depends on the amount of users of the road and how they respond to the imposition of a cost. It is possible that road users would choose a different path to avoid the imposition of the fee, leading to heavier traffic on other roads and the possibility of increasing the likelihood of a WVC on roads in the surrounding areas. When considering imposing a user fee at the wildlife crossing, stakeholders should explore possible effects of alternative roads and the potential for another WVC hot spot to arise from the diversion of traffic.

Rural roads with high-volume traffic are generally tied to tourism destinations which offers an opportunity for a more effective imposition of a user fee at the time individuals pass the wildlife crossing. As shown in Exhibit 7, the case study wildlife crossing with the most potential revenue is sited near Lava Butte in Central Oregon, a high-volume tourist destination. The wildlife crossings in Colorado and Wyoming exhibit less revenue potential simply because the crossings are not positioned near a tourist destination.



EXHIBIT 7. POTENTIAL REVENUE FROM A \$1 USER FEE

Source: CDOT (2021), WYDOT (2021), ODOT (2021)

CROSSING SYSTEM	LOCATION	AVERAGE DAILY TRAFFIC	POTENTIAL ANNUAL REVENUE	SOURCE
State Highway 9 Crossing System	Kremmling, CO	8,400	\$3,066,000	CDOT, Online Transportation Information System, Station ID 100525, Annual Average 2021
Trapper’s Point Crossing	Pinedale, WY	2,710	\$989,150	WYDOT, Traffic Data, Daniel Junction, Annual Average 2021
US 97 Crossing at Lava Butte	Bend, OR	28,037	\$10,233,505	ODOT, Traffic Data, Lava Butte Traffic Recorder, Annual Average 2021

⁵⁷American Council for an Energy-Efficient Economy. (2021). "Understanding Transportation Energy Burdens." Accessed at: www.aceee.org/sites/default/files/pdfs/transportation_energy_burdens_final_5-13-21.pdf

⁵⁸South Carolina currently implements such a program. (refers to any SC resident with a gas-run vehicle, no income based requirements, should reword) South Carolina Department of Revenue. (2021). "Motor Fuel Tax Income Tax Credit." Accessed at: https://dor.sc.gov/forms-site/Forms/1385_2021.pdf

Despite lower traffic volume near some wildlife crossings, the annual revenue potential remains high enough to cover significant costs of constructing wildlife crossings, even with a relatively low user fee of \$1.

Additionally, imposing a user fee would allow for a dedicated funding source for the construction and maintenance of wildlife crossing and therefore would have no competition with other uses.

Stability

For the three case studies above, annual average daily traffic (AADT) has increased substantially since 2010. AADT for the monitoring point closest to Trapper's Point increased 21 percent between 2010 and 2021 while AADT near Lava Butte and the SH 9 crossing increased by over 30 percent during the period.⁵⁹

Revenue raised from a wildlife crossing user fee might however fluctuate with economic conditions. When recessions hit, families generally spend less on travel potentially reducing traffic passing by a wildlife crossing, particularly at location with high tourism, such as the Lava Butte crossing.⁶⁰

Implementation

Implementation of this mechanism would involve a toll-like system wherein the user pays at a booth or has an electronic tag that scans at the time of passing the wildlife crossing. The rates could vary across payment type. Toll facility construction costs can be high, even excluding costs of building additional lanes necessary for operation.⁶¹ Implementing an electronic toll collection (ETC) system in conjunction with the construction of the wildlife crossing could reduce costs to some extent.⁶²

Equity

The imposition of a user fee would have the greatest impact on residents nearby the wildlife crossing. A residential exemption or discount could be implemented to alleviate the uneven burden. Low-income groups who are either commuters or users of the recreation sites near the wildlife crossings will be the first to avoid roads with the user fees imposed.⁶³ However, the rate at which commuters use the roads with WVC hot spots is likely low given that the roads are rural. Any exemptions or discounts given for the user fee should target residents and those with lower incomes.

Auto Insurance Surcharge

Description

This option entails enacting a surcharge to monthly auto insurance that would be used to fund wildlife crossings. All but two states (Virginia and New Hampshire) require drivers to have car insurance.⁶⁴ Taxes on insurance premiums are widely used by states to generate revenue. In 2021 in western states, revenue from insurance premium taxes ranged from \$3.1 billion in California to just \$36.2 million in Wyoming.⁶⁵

⁵⁹WYDOT. (2010-2021) Traffic Volume and Vehicle Miles Book. Accessed at: https://www.dot.state.wy.us/home/planning_projects/Traffic_Data.html; ODOT. (2010-2021) Permanent Automatic Traffic Recorders: Station Trends. Accessed at: <https://www.oregon.gov/odot/data/pages/traffic-counting.aspx>

⁶⁰Bureau of Labor Statistics. (2012). Travel Expenditures, 2005-2011: spending slows during recent recession. Accessed at: www.bls.gov/opub/btn/volume-1/travel-expenditures-2005-2011-spending-slows-during-recent-recession.htm

⁶¹United States Department of Transportation | Office of the Assistant Secretary for Research and Technology. (2020). "Equipment Costs for Toll Plaza." Accessed at: www.itskrs.its.dot.gov/costs/adjusted/tp; Federal Highway Administration. (2020). "Equipment Costs for Toll Administration." Accessed at: www.itskrs.its.dot.gov/costs/adjusted/ta; United States Department of Transportation | Office of the Assistant Secretary for Research and Technology. (2004). "Highway Construction Costs." Accessed at: www.vtpi.org/WSDOT_HighwayCosts_2004.pdf

⁶²Texas A&M, Transportation Institute. (n.d.). "Electronic Toll Collection Systems." Accessed at: <https://policy.tti.tamu.edu/strategy/electronic-toll-collection-systems/>

⁶³Urban Land Institute. (2013). *When the Road Price is Right: Land Use, Tolls, and Congestion Pricing*. Accessed at: https://uli.org/wp-content/uploads/2013/03/When-the-Road-Price-is-Right_web_F.pdf

⁶⁴Progressive. (n.d.). "Car Insurance Requirements by State." Accessed at: <https://www.progressive.com/answers/state-car-insurance-information/#:~:text=New%20Hampshire%20is%20the%20only,event%20they%20cause%20an%20accident>. Virginia does not mandate insurance coverage, however motorists who opt-out of insurance must pay an annual uninsured driver's fee.

⁶⁵Metz. (2022). "How Much Do Car Insurance Rates Go Up After an Accident?" *Forbes*. Accessed at: www.forbes.com/advisor/car-insurance/rate-increase-after-accident/

⁶⁶These values include taxes on all premiums, including home and health insurance; Insurance Information Institute. (2021). *A Firm Foundation: How Insurance Supports the Economy*. Accessed at: <https://www.iii.org/publications/a-firm-foundation-how-insurance-supports-the-economy/a-50-state-commitment/state-taxes>



The use of surcharges following a car accident is a common technique because individuals are more likely to have a future collision if they have had one previously.⁶⁵ An alternative approach would see the surcharge apply to those who have filed a wildlife collision claim with revenue funding wildlife crossings.

Wildlife-vehicle collisions are not usually covered by the standard liability insurance that is required by most states which could make the addition of a WVC surcharge a dedicated revenue source. Comprehensive insurance, which covers damage from wildlife-vehicle collisions as well as from weather or fire, is necessary. While comprehensive insurance is not required by law, 78 percent of drivers in the United States purchase it.⁶⁷

The insurance company State Farm estimates that between 2020 and 2021, there were over 1.9 million insurance claims related to wildlife-vehicle collisions filed in the United States.⁶⁸ The NW Insurance Council estimates that the average insurance claim for a wildlife collision is \$4,135.⁶⁹

The projected annual estimates for 2022-23 likelihood of filing a wildlife-vehicle collision related claim varies widely in the western states. Drivers in Montana had a 2.27 percent chance of filing a wildlife-vehicle collision related claim (2nd highest in the United States) while drivers in Nevada had a just 0.14 percent chance (lowest in the 50 states).⁷⁰

Nexus

Insurance is a risk-pooling mechanism that allows drivers to reduce potential financial cost and liability with a relatively small purchase. This revenue option functions the same way, with a tax on insurance premiums that funds infrastructure designed in part to reduce likelihood of a collision.⁷¹ Nexus is strengthened by the wide tax base and targeting of drivers. This option would generate more revenue in urban areas with lower probabilities of WVCs, which weakens nexus, though urban populations benefit from healthy ecosystems.

Adequacy

There are an estimated 199 million insured drivers nationally.⁷² A \$1 per month surcharge for each insured driver would nationally generate \$2.4 billion in revenue annually.⁷³ Funding will vary based on the number of insured drivers within a state. Montana and

EXHIBIT 8. WESTERN STATES REVENUE FROM AUTO INSURANCE SURCHARGE (\$1,000s)

Source: Insurance Information Institute (2022), Federal Highway Administration (2022), Rocky Mountain Insurance Information Association

STATE	INSURED DRIVERS	ANNUAL REVENUE FROM \$1 MONTHLY SURCHARGE
Alaska	444,067	\$5,329
Arizona	4,735,643	\$56,828
California	22,696,184	\$272,354
Colorado	3,545,016	\$42,540
Hawaii	855,458	\$10,265
Idaho	1,087,200	\$13,046
Montana	742,844	\$8,914
Nevada	1,840,761	\$22,089
New Mexico	1,133,674	\$13,604
Oregon	2,680,799	\$32,170
Utah	1,983,228	\$23,799
Washington	4,471,819	\$53,662
Wyoming	399,516	\$4,794
Western Total	46,616,209	\$755,516
US Total	199,343,451	\$2,392,121



⁶⁷Forbes. (2022). "Comprehensive Vs. Collision Auto Insurance: Here's What You Need to Know." Accessed at: www.forbes.com/advisor/car-insurance/comprehensive-vs-collision-auto-insurance/#:~:text=Here's%20how%20the%20coverage%20types%20compare.&text=Nationwide%2C%2074%25%20of%20drivers%20with,to%20the%20Insurance%20Information%20Institute

⁶⁸State Farm. (2022). "How Likely Are You to Have an Animal Collision?" Accessed at: www.statefarm.com/simple-insights/auto-and-vehicles/how-likely-are-you-to-have-an-animal-collision#:~:text=The%20company%20estimates%20there%20were,12%2Dmonth%20period%20observed

⁶⁹NW Insurance Council. (n.d.). Specify no specific date. "What You Should Know About: Avoiding Collisions with Wildlife." Accessed at: www.nwinsurance.org/wildlife-collisions

⁷⁰State Farm. (2022). "How Likely Are You to Have an Animal Collision?" Accessed at: www.statefarm.com/simple-insights/auto-and-vehicles/how-likely-are-you-to-have-an-animal-collision#:~:text=The%20company%20estimates%20there%20were,12%2Dmonth%20period%20observed

⁷¹More research is needed to understand if derived benefits are proportionate to the cost of the premium.

⁷²Insurance Information Institute. (2019). *Facts + Statistics: Uninsured Motorists*. Accessed at: <https://www.iii.org/fact-statistic/facts-statistics-uninsured-motorists>; Federal Highway Administration. (2022). *Highway Statistics 2019: Licensed Drivers by Sex and Ratio to Population*. Accessed at: <https://www.fhwa.dot.gov/policyinformation/statistics/2019/dltc.cfm>

⁷³Ibid.

Wyoming, the two western states with the highest probability of wildlife-vehicle collisions would annually receive just \$8.9 and \$4.8 million respectively.

Stability

Due to the legal responsibility to purchase car insurance, the \$1 flat surcharge would be mostly stable over time with changes due to shifts in the number of drivers. This funding mechanism is vulnerable to macroeconomic trends. Recessions lead to less driving which in turn lowers the number of people purchasing car insurance.⁷⁴

Implementation

As infrastructure is in place for insurance companies to pay yearly taxes and for companies to collect insurance premiums taxes in most states, much of the groundwork is already established to delegate this collection of revenue to insurance companies. There may be administrative costs placed on insurance companies and on states, but these are likely easily overcome.

Equity

This funding mechanism would generate the most revenue in areas with high population density where individuals are less likely to be involved in a wildlife-vehicle collision. It would also be regressive. A \$1 per month charge is a larger percentage of income for an individual who earns relatively less.

Vehicle Title Registration Fee

Description

This option imposes a mandatory one percent increase on motor vehicle title registration and license fees. All states require motor vehicles to be registered and titled with the state transportation agency or department of motor vehicles, and collect title fees, registration fees, and vehicle license fees for the privilege of owning and operating a vehicle.⁷⁵ Title fees are charged after purchasing a new or used car. A vehicle registration fee occurs when license plates expire.

The methodology for calculating and imposing vehicle fees varies from state to state. Western states have different methods for pricing vehicle title registration fees, some are flat fees, some are weight-base, value-based, or age-based.⁷⁶ Driver license renewal fees vary, for example, \$80 every 5 years in Washington to \$35 every 10 years in Wyoming.⁷⁷ In California vehicle registration is required annually; in Oregon, every two to four years.⁷⁸ Driver license renewal differ by state: every eight years in Oregon, every five years in California, every five years on Wyoming.⁷⁹

In the U.S., states collected \$29.9 billion in motor vehicle license revenues in 2020.⁸⁰ In Western States, Alaska receives the least from motor vehicle license fees, \$33.6 million in 2019; California receives the most, with \$4.9 billion in 2019.⁸¹ Revenue from vehicle registration fees



IN 2020
STATES
COLLECTED
\$29.9 B
IN MOTOR VEHICLE
LICENSE REVENUES

IN 2019
ALASKA
COLLECTED
\$33.6 M
AND
CALIFORNIA
COLLECTED
\$4.9 B
IN MOTOR VEHICLE
LICENSE FEES

⁷⁴NBC News. (2013). "Americans Drive Less Even as Economy Rebounds." Accessed at: <https://www.nbcnews.com/businessmain/americans-drive-less-even-economy-rebounds-8c11037698>

⁷⁵National Conference of State Legislatures. (2020). "Vehicle Registration Fees by State." Accessed at: <https://www.ncsl.org/research/transportation/registration-and-title-fees-by-state.aspx>

⁷⁶Ibid.

⁷⁷Washington State Department of Licensing. (2023). Driver Licensing Fees. Accessed at: <https://www.dol.wa.gov/driverslicense/fees.html>; Wyoming Department of Transportation. (2023). Driver License and Records, Frequently Asked Questions. Accessed at: https://www.dot.state.wy.us/home/driver_license_records/frequently-asked-questions.html; Wyoming Department of Transportation. (2023). Driver License and Records, Lost/Renewal. Accessed at: https://www.dot.state.wy.us/home/driver_license_records/driver-license/lost-renewal.html;

⁷⁸State of California Department of Motor Vehicles. (2023). California License Plates, Ensuring Your Plates are Valid. Accessed at: <https://www.dmv.ca.gov/portal/vehicle-registration/license-plates-decals-and-placards/california-license-plates>; Oregon Department of Transportation. (2023). Fees. Accessed at: https://www.oregon.gov/odot/dmv/docs/chapter_m.pdf.

⁷⁹Insurance Information Institute. (2022). "State Driver License Renewal Laws Including Requirements for Older Drivers." Accessed at: www.iii.org/state-drivers-license-renewal-laws-including-requirements-for-older-drivers

⁸⁰U.S. Census Bureau. (2020). Annual Survey of State and Local Government Finances. Accessed at: www.census.gov/programs-surveys/gov-finances.html

⁸¹Ibid.

and general license fees are used for transportation projects, including highway maintenance and construction.

Nexus

An additional mandatory fee will impose costs on all registered drivers and/or owners of registered motor vehicles. Since drivers are the ones who cause wildlife vehicle collisions, the nexus to wildlife crossings may be strong. However, most drivers are concentrated in urban areas where WVCs are less common.

Adequacy

If the fee is mandatory and set at one percent of the average vehicle registration fee per year, the fee would generate revenue proportional to the number of drivers and cost of license. Exhibit 9 details the potential revenue from this option for each state.

EXHIBIT 9. REVENUE GENERATION FROM A ONE PERCENT INCREASE ON MOTOR VEHICLE LICENSE AND OPERATOR’S LICENSE TAX IN WESTERN STATES

Source: U.S. Census Bureau (2022) Stability

STATE	2020 REVENUE (\$1,000S)		ADDITIONAL REVENUE FROM 1% INCREASE
	MOTOR VEHICLES LICENSE	MOTOR VEHICLE OPERATORS LICENSE	
Alaska	\$33,600	\$0	\$336
Arizona	\$255,034	\$40,734	\$2,958
California	\$4,920,460	\$285,557	\$52,060
Colorado	\$428,841	\$39,744	\$4,686
Hawaii	\$199,182	\$356	\$1,995
Idaho	\$203,051	\$11,325	\$2,144
Montana	\$171,159	\$7,547	\$1,787
Nevada	\$194,095	\$19,725	\$2,138
New Mexico	\$209,574	\$5,004	\$2,146
Oregon	\$577,990	\$41,345	\$6,193
Utah	\$228,294	\$24,475	\$2,528
Washington	\$648,425	\$104,615	\$7,530
Wyoming	\$99,034	\$4,223	\$1,033
United States	\$27,722,442	\$2,748,495	\$304,709

Note: Includes cars and trucks.

If the fee is optional, those that are willing to pay for a wildlife fee will likely have a higher willingness to pay for the fee. If the fee is optional states could likely charge more for a wildlife crossing surcharge, then if the surcharge was mandatory. A higher fee would be required if the state wants to obtain the same amount of revenue from an optional fee as they could conceivably obtain from a mandatory fee. For example, if we assume that 5 percent of the population registering their vehicle or renewing their operating license will opt-in to pay the surcharge, then the surcharge will must be at least 20 percent of the original price for the state to receive the same amount as the one-percent mandatory fee.

Stability

From 2012 to 2020, most Western states revenue received from motor vehicle registration and operator’s license increased on average. In Oregon, motor vehicle license revenue remained constant, neither increasing nor decreasing. In Wyoming, on average between 2012 to 2020



motor vehicle license revenue increased 12 percent.⁸² From 2012 to 2020, motor vehicle operator's license fee revenues averaged a growth rate of 3 percent across western states.⁸³

Projecting forward, in 2020, Oregon Department of Transportation (ODOT) estimated that vehicle registration would, on average, remain steady over eight years (excluding bi-annual fluctuations).⁸⁴ ODOT projects that title transfers will remain steady through 2028. This is generally consistent with historical trends reported by the U.S. Census Bureau Annual Survey of State and Local Government Finances.

Implementation

Because all states have motor vehicle registration fees in place, adding a mandatory or optional charge would be straightforward from a user-interface standpoint. The in-person infrastructure is in place, so it will not likely require a large investment. However, fee increases generally require legislative approval. If the fee is optional, it will not require a major cultural adjustment. However, if the fee is mandatory and an individualized line item, there will likely be push back and questions from the public. Recently, in the State of Oregon reported that the DMV has difficulty charging citizens the appropriate vehicle registration fee.⁸⁵ Because of this difficulty, the State has lost revenue.⁸⁶ Adding another charge may decrease compliance adequacy levels.

Equity

If the fee is a mandatory fee, it will disproportionately affect low-income households that own vehicles. To lessen the impact on low-income communities, the government could offer vouchers or exemptions for additional registration or licensing fees.

Alternatively, if the increase in price of vehicle registration is optional it will not likely adversely affect low-income communities.

Other Vehicle Fees

States could add a new plate for wildlife crossing with revenue exclusively allocated to wildlife crossing. In addition to registration and operator license fees, all Western U.S. states provide specialty license plate options for purchase. Multiple states currently have specialty license plates whose proceeds go towards wildlife conservation. Oregon's "Watch for Wildlife" plate has a \$40 fee which goes towards wildlife passage projects in the state. Idaho's Bluebird, Elk, or Cutthroat Trout plates cost an additional \$35 for new plates and \$25 for renewal. Funds from these specialty plates go towards wildlife diversity programs in Idaho that help fund habitat conservation and monitoring, conservation research publication, conservation educations, as well as other initiatives. Wyoming Wildlife Conservation plates cost a one-time fee of \$180 and renew it each year for a \$50 fee. As of 2021, this initiative has raised \$495,400 for wildlife crossings.⁸⁷ Some plates have a recurring annual fee, and some have a one-time purchase fee.

Speeding Ticket

Description

This option either dedicate a portion of speeding ticket revenue to wildlife crossings or establish wildlife crossing zones in high collision areas with penalties dedicated toward funding crossings. Law enforcement officers fine individuals for speeding in all states.

⁸² US Census Bureau Annual Survey of State and Local Government Finances, 2012-2020 (compiled by the Urban Institute via State and Local Finance Data: Exploring the Census of Governments). Accessed at: <https://state-local-finance-data.taxpolicycenter.org>.

⁸³ Ibid.

⁸⁴ Oregon Department of Transportation. (2020). *ODOT State Highway Fund Transportation Revenue Forecast*. Accessed at: <https://www.oregon.gov/odot/Data/Documents/April-2020-Forecast-Report.pdf>

⁸⁵ Oregon Department of Transportation. (2022). *Persistent Fee Errors Occurring in DMV's Title and Registration Transactions*. Accessed at: www.oregon.gov/odot/Programs/Internal%20Audit%20Reports/22-01%20DMV%20MPG%20Ratings.pdf

⁸⁶ Ibid.

⁸⁷ Wildlife Crossing Work. (2021). "Latest News." Accessed at: <https://wombat-seal-yahr.squarespace.com/>



If a driver is speeding in a designated special traffic or special speeding zone, such as near a school or in a construction zone, the driver’s fine increases. A 2011, Department of Transportation report, “Summary of State Speed Laws” reports that many states double the amount of the fine if the speeding violation occurs within a construction zone or a school zone.⁸⁸

Colorado Department of Transportation (CDOT) passed HB 10-1238 which created Wildlife Zones.⁸⁹ After inconclusive evidence on the success in reducing wildlife collisions, the CDOT removed Wildlife Zones and related fines. The bill was not intended to raise funding for wildlife crossings.

Revenue from speeding tickets and surcharges are generally split between state, county, and local jurisdictions. Exhibit 10 below, details where revenue from speeding tickets is allocated for each western state.

EXHIBIT 10. SPEEDING TICKET FINES AND SURCHARGE ALLOCATIONS

Source: Urban Institute (2022)⁹⁰

STATE	ALLOCATION
Alaska	Any court or law enforcement funds
Arizona	Any court or law enforcement funds
California	Any court or law enforcement funds
Colorado	Any court or law enforcement funds
Hawaii	General funds plus non-law enforcement or non-court funds
Idaho	Local general funds (e.g., city/county), No additional costs
Montana	Local general funds (e.g., city/county)
Nevada	General funds plus non-law enforcement or non-court funds
New Mexico	State general fund only
Oregon	General funds plus non-law enforcement or non-court funds
Utah	Local general funds (e.g., city/county)
Washington	Any court or law enforcement funds
Wyoming	Any court or law enforcement funds

Nexus

An additional wildlife zone surcharge will impose costs on all speeding drivers within a wildlife crossing specially designated zone. Since drivers within wildlife crossing areas are the ones who cause wildlife vehicle collisions, the nexus is very strong. Those speeding through a wildlife zone are most likely to impose the private, ecological, and public costs of a WVC. Although, a driver ticketed for speeding does not necessarily mean the driver would have caused a wildlife collision.



⁸⁸ODOT. (2021). Schedule of Fines on Violations. Accessed at: https://www.oregon.gov/osmb/boater-info/Documents/Schedule_of_Fines_on_Violations_2021.pdf. In Oregon, depending on an individual’s speed, the increase in speeding ticket in a special traffic zone is approximately 40 percent to 80 percent. For example, if a resident is speeding 11-20 miles per hour over the speed limit in a special traffic zone in Oregon, they are fined \$325 instead \$165.

⁸⁹Colorado Department of Transportation. (2014). “CDOT Removing Wildlife Zones Signs, Lowered Nighttime Speed Limits.” Accessed at: www.codot.gov/news/2014-news-releases/12-2014/cdot-removing-wildlife-zones-signs-lowered-nighttime-speed-limits

⁹⁰Urban Institute. (2022). “Following the Money on Fines and Fees, The Misaligned Fiscal Incentives in Speeding Tickets.” Accessed at: www.urban.org/sites/default/files/publication/105331/following-the-money-on-fines-and-fees_final-pdf

Adequacy

The Urban Institute reports that two-thirds of all fines, fee, and forfeitures are collected by local jurisdictions and one-third is collected by the state government.⁹¹ Although, data regarding revenue from speeding tickets at the city, county, and state levels is not readily available. It is possible that states or local jurisdictions may designate a special speeding zone in wildlife crossing areas to collect surcharges on speeding or reckless drivers.⁹² However, revenue from a surcharge is dependent on the presence and availability of law enforcement at the wildlife crossing area. Lack of law enforcement presence at wildlife crossing areas would prevent adequate revenue from speeding tickets, and the cost of stationing law enforcement at the location may be greater than revenue generated at the area. An automated speed zone camera may reduce project costs. Additionally, revenue from speeding tickets do not always result in revenue to a jurisdiction.⁹³

Stability

Revenue from fines, fee, and forfeitures are collected by local jurisdictions and one-third is collected by the state government. Revenue from fines, fees, and forfeitures at the local level is also volatile. The Urban Institute also reports that rural, high-poverty areas may rely on speeding tickets for a larger share of jurisdiction revenue than the average.⁹⁴

Implementation

Jurisdiction over the road near a wildlife crossing may change the process for designating it as a special speed zone. Determining a special speed zone at minimum requires communication and approval from a state's department of transportation.⁹⁵ In the case of Colorado, the House Bill required legislative approval.⁹⁶ Politics may interfere with obtaining a special speed zone for wildlife. If a special speed zone is approved, law enforcement will be able to add the surcharge onto a speeding ticket, as evidenced in Colorado.⁹⁷

Additionally, revenue from special speeding zones may not be allocated to a special project, such as wildlife crossing. Speeding ticket revenue is most often allocated to court or law enforcement funds. To allocate wildlife crossing surcharges to fund wildlife corridors may require developing a new allocation process. Colorado HB 10-1238 was structured so that one-half of the penalty fee was committed to wildlife crossings.⁹⁸

Equity

Speeding tickets already disproportionately affect low-income individuals and households, and additional wildlife zone surcharge may worsen this impact. To lessen the impact on low-income communities, the government could allow an exemption process for paying the entire fee. Additionally, some states allow for individuals to perform community services instead of paying a fine that is outside of their financial means.⁹⁹

⁹¹ Ibid.

⁹² Oregon Department of Transportation. (2022). *Speed Zone Manual*. Accessed at: https://www.oregon.gov/odot/Engineering/Docs_TrafficEng/Speed-Zone-Manual.pdf

⁹³ Ibid.

⁹⁴ Ibid.

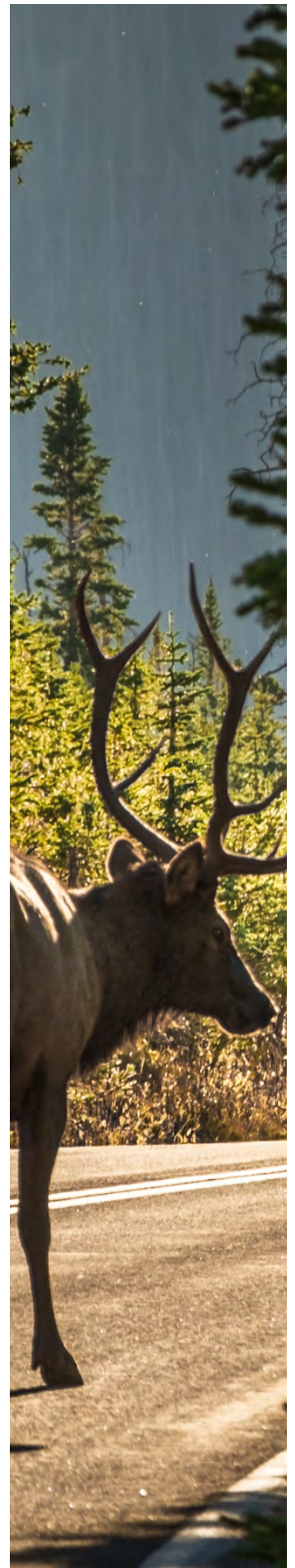
⁹⁵ Oregon Department of Transportation. (2022). *Speed Zone Manual*. Accessed at: https://www.oregon.gov/odot/Engineering/Docs_TrafficEng/Speed-Zone-Manual.pdf

⁹⁶ Digest. (2010). *State Senate and House Bills Enacted by the Sixty-Seventh General Assembly of the State of Colorado*. Accessed at: <https://leg.colorado.gov/sites/default/files/digest2010.pdf>

⁹⁷ Colorado Department of Transportation. (2014). "CDOT Removing Wildlife Zones Signs, Lowered Nighttime Speed Limits." Accessed at: www.codot.gov/news/2014-news-releases/12-2014/cdot-removing-wildlife-zones-signs-lowered-nighttime-speed-limits

⁹⁸ Digest. (2010). *State Senate and House Bills Enacted by the Sixty-Seventh General Assembly of the State of Colorado*. Accessed at: <https://leg.colorado.gov/sites/default/files/digest2010.pdf>

⁹⁹ U.S. Department of Transportation. (2011). *Summary of State Speed Laws*.



Heavy-Vehicle Use Tax

Description

This option simulates an increase of one cent in state taxes imposed by weight and miles driven. Currently, at the federal level, trucks are subject to the Heavy-Vehicle Use Tax (HVUT). Trucks that weigh 55,000 pounds or more are subject to a \$100 plus \$22 for every pound over 55,000, and trucks that weigh over 75,000 pounds are subject to a tax of \$550.¹⁰⁰ The HVUT generated over \$1.2 billion in 2019 for the highway trust fund and has remained on an increasing trend since the 2000s.¹⁰¹

At the state level, New Mexico and Oregon currently impose a weight-mile tax on heavy-vehicles. Any vehicle above 26,000 pounds is subject to the weight-mile tax which increases with every additional 2,000 pounds. Oregon has a higher tax rate than New Mexico, ranging from 7.2 cents per mile for the lowest weight class to 23.7 cents per mile for the highest weight class.¹⁰² New Mexico imposes a tax of 1.1 cents per mile to 4.4 cents per mile.¹⁰³

Nexus

A weight-mile tax has nexus with the reduction of WVC because those who drive the most are more likely to be involved in a WVC. However, when a statewide weight-mile tax is imposed to fund wildlife crossings, there is a potential misalignment between payors of the tax and those who benefit from the crossing because most WVC occur in rural areas. If a WVC hot spot occurs on a high-volume freight path, then imposing a statewide weight-mile tax might have a stronger nexus with funding for wildlife crossings. The percentage of WVCs involving large trucks is unknown, which makes a nexus argument unclear.

Adequacy

The average number of miles driven annually by combination trucks was 59,929 miles and 12,278 for single-unit trucks in 2019.¹⁰⁴ With 2.9 million combination trucks and 10.2 million single-unit trucks registered across the U.S., the national revenue potential of levying a one cent tax per mile would be \$3.0 billion.¹⁰⁵ Although the exact distribution of trucks by weight for each state is unknown, if the average tax rate across weight groups is one cent, this mechanism could generate a substantial amount of revenue to cover the cost of wildlife crossings. Exhibit 11 showcases the potential national revenue allocated by state based on state-level truck registrations as a portion of national truck registrations.

EXHIBIT 11. REVENUE FROM HEAVY VEHICLE USE TAX OF ONE CENT PER MILE TRAVELED

Source: FHWA (2019)¹⁰⁶

STATE	TOTAL REGISTERED TRUCKS	PERCENT OF TOTAL U.S. TRUCK REGISTRATIONS	PERCENT OF REVENUE FROM 1 CENT TAX PER MILE
Alaska	579,985	0.37%	\$10,989,725
Arizona	3,407,708	2.15%	\$64,570,287
California	15,443,454	9.75%	\$292,627,272
Colorado	3,471,825	2.19%	\$65,785,199
Hawaii	730,631	0.46%	\$13,844,215

¹⁰⁰Federal Highway Administration. (n.d.). "Heavy-Vehicle Use Tax Overview." Accessed at: www.fhwa.dot.gov/policy/091116/pdfs/fhwatri-fold.pdf

¹⁰¹Ibid.

¹⁰²Oregon Department of Transportation. (2022). "Weight-Mile Tax Rates." Accessed at: www.oregon.gov/odot/Forms/Motcarr/9928-2022.pdf

¹⁰³New Mexico Department of Transportation. (2021). "Weight Distance Tax Act." Accessed at: <https://api.realfile.rtsclients.com/PublicFiles/34821a9573ca43e7b06dfad20f5183fd/2acc3eb3-8008-4bed-a4e8-e0f80392c76b/Weight%20Distance%20%20%20Tax%20Act.pdf>

¹⁰⁴Federal Highway Administration. (2019). Highway Statistics Series, Table VM-1. Accessed at: <https://www.fhwa.dot.gov/policyinformation/statistics/2019/vm1.cfm>

¹⁰⁵Federal Highway Administration. (2019). Highway Statistics Series, Table MV9 and Table VM-1. Accessed at: <https://www.fhwa.dot.gov/policyinformation/statistics/2019>

¹⁰⁶Ibid.



55,000< LBS



\$100
+
\$22/LB



75,000< LBS



\$550

STATE	TOTAL REGISTERED TRUCKS	PERCENT OF TOTAL U.S. TRUCK REGISTRATIONS	PERCENT OF REVENUE FROM 1 CENT TAX PER MILE
Idaho	1,281,630	0.81%	\$24,284,717
Montana	1,117,728	0.71%	\$21,179,049
Nevada	1,239,179	0.78%	\$23,480,333
New Mexico	1,117,575	0.71%	\$21,176,143
Oregon	2,341,805	1.48%	\$44,373,229
Utah	1,396,130	0.88%	\$26,454,299
Washington	4,231,772	2.67%	\$80,184,912
Wyoming	614,707	0.39%	\$11,647,658
Western States	36,974,129	23.35%	\$700,597,037

Stability

The HVUT tax offers a robust view of stability of this revenue source because it has been applied nationwide. The HVUT revenue has steadily increased since its inception. Revenues tend to decrease during recessions as consumer spending decreases but rebounds quickly.¹⁰⁷ Revenues from this mechanism are also safe-guarded from fuel-efficiency increases due to its direct tie with road-usage measured in weight and miles.

Implementation

Increasing taxes on trucking is politically charged and opponents have been outspoken in criticizing this option.¹⁰⁸ At the state level, the imposition of a weight-mile tax could cause more companies to register their vehicles outside of those states, decreasing registration revenue as well as weight-mile tax revenue.

Equity

The owner of the vehicle, whether commercial or private, takes responsibility for paying the weight-mile tax in Oregon and New Mexico.¹⁰⁹ The owner of the vehicle is also responsible for the HVUT.¹¹⁰ When a firm pays a tax, they are likely to pass most of the tax onto the consumer through price increases which could raise equity concerns. At the state level, exemptions could be made for certain freighting that involves necessities to keep price increases at bay.

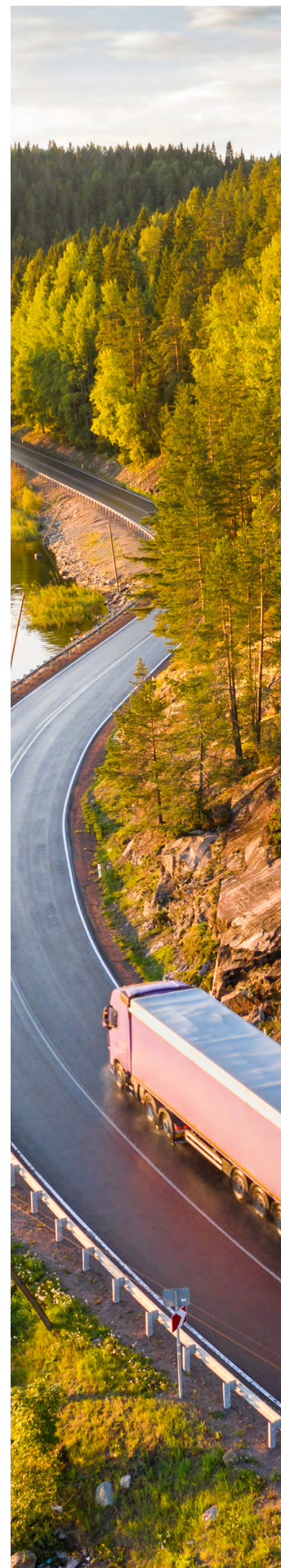


¹⁰⁷ Federal Highway Administration. (2019). "Heavy-Vehicle Use Tax Revenue." Accessed at: www.fhwa.dot.gov/policyinformation/hvut/mod1/revenueraised.cfm

¹⁰⁸ American Trucking Associations. (n.d.). "Tax & Registration." Accessed at: www.trucking.org/tax-registration; Politico. (2021) Tax-writers may revisit truck tax proposal. Accessed at: www.politico.com/newsletters/weekly-transportation/2021/03/15/tax-writers-may-revisit-truck-tax-proposal-793972

¹⁰⁹ Oregon Department of Transportation. (n.d.). *Motor Carrier Educational Manual: Weight-Mile Tax*. Accessed at: www.oregon.gov/odot/MCT/New%20Carrier%20Education%20Manual/Section_3_Weight-MileTax.pdf

¹¹⁰ Federal Highway Administration. (n.d.). "What Is HVUT and Who Must Pay It?" Accessed at: www.fhwa.dot.gov/policyinformation/hvut/mod1/whatishvut.cfm



5. Conservation Funding Options

Current Conservation Funding Landscape

Wildlife crossings provide a direct benefit to wildlife by improving habitat connectivity and sustaining populations (See Costs and Benefits of Crossings). Federal, state, and local governments recognize environmental and ecological wellbeing as a public good. Thus, many funding mechanisms to support conservation exist and can be leveraged as revenue sources for wildlife crossings. As with transportation funding, conservation funding comes from federal, state, and local levels, and is a mix of direct federal spending and federal transfers or grants to state and local governments.

Federal excise taxes and federal grants provide the largest amount of conservation related funding. Since the middle of the 20th century, the federal government has imposed excise taxes on the sale of firearms, ammunitions and fishing related activities to fund wildlife conservation. In fiscal year 2022, the USFWS apportioned \$1.1 billion of firearm and ammunition revenue to the Wildlife Restoration Program¹¹¹ and \$399 million of fishing equipment revenue to the Sport Fish Restoration Program.¹¹² A major federal conservation funding sources is the Department of the Interior’s Land and Water Conservation Fund (LWCF). The LWCF invests offshore oil and gas revenue as well as \$900 million of permanent annual funding towards conservation and recreation.¹¹³ This money is distributed to other federal agencies, states, and tribes. Additionally, federal law requires compliance with the Endangered Species Act and the Clean Water Act. Developers must mitigate any impacts caused to certain protected habitats, often by paying a fee in-lieu of direct mitigation which is used by a third party to improve and preserve habitat. Mitigation may also be required to remediate environmental damages.

At the state level, general fund revenues supplemented with lottery funds, fees on outdoor recreation and goods, and donation support wildlife conservation. In 2019, state governments collected around \$2 billion in parks user fees. These user fees cover about 32 percent of the \$6 billion that states spent on parks.¹¹⁴ Additionally, all state require all hunters and fishers to purchase licenses. Price ranges vary substantially by state. Like the excise tax, revenue from these fees can go towards conservation of impacted species.

EXHIBIT 12. SUMMARY OF CONSERVATION REVENUE OPTIONS

Source: ECONorthwest, 2023

REVENUE OPTION	ADEQUACY	NEXUS
State Park User Fee	Medium	Medium
Hunting License Fee	High	High
Mitigation Fee	Low	Low
Environmental Damages Assessment	Medium	Low
Outdoor Sporting Goods Sales Tax	Low	High

¹¹¹ Wildlife For All. (n.d.). “The Pittman-Robertson Wildlife Restoration Act Explained.” Accessed at: <https://wildlifeforall.us/resources/pittman-robertson-wildlife-restoration-act-explained/>

¹¹² Wildlife For All. (n.d.). “The Dingell-Johnson Sport Fish Restoration Act Explained.” Accessed at: <https://wildlifeforall.us/resources/dingell-johnson-sport-fish-restoration-act-explained/>

¹¹³ Department of the Interior. (n.d.). “Land and Water Conservation Fund.” Accessed at: www.doi.gov/lwcf

¹¹⁴ U.S. Census Bureau. (2019). *Annual Survey of State and Local Government Finances*. Accessed at: www.census.gov/programs-surveys/gov-finances.html



Analysis of Conservation Revenue Options

State Park User Fee

Description

This option increases the state oark visitation user fee to fund wildlife crossings. Visitors to state-owned lands may be required to pay a fee for entry, standard amenities, or a special recreation permit.¹¹⁵ To earn revenue to maintain these lands, states impose a visitation user fee. Permanent fee increases are passed by the state legislature.

User fees are imposed on a daily or annual basis at the vehicle level. The day-use pass varies from state to state but is usually close to \$10 per vehicle. The annual pass varies more and can be \$30 to \$70 per vehicle. Some states also charge higher fees for non-residents. The highest daily fee is in Utah (\$15) and the highest annual fee is in Nevada (\$100).

The revenue earned from user fees varied based on state population, non-resident tourism, and trends in outdoor recreation. States with a higher population (California) and an emphasis on an outdoor lifestyle and tourism (Colorado) will earn more revenue from state parks.¹¹⁶ Over time, if outdoor recreation participation increases, all states will see an increase in user fee revenue.¹¹⁷

Exhibit 13 lists the annual revenue from user fees for selected states in the study area.

EXHIBIT 13. STATE PARK REVENUE FROM USER FEES

Source: Anderson et al. (2017), Nevada DNR,¹¹⁸ California State Parks¹¹⁹

STATE	RESIDENTIAL DAY PASS VEHICLE FEE	ANNUAL PASS FEE	2017 REVENUE
California	\$10 - \$12.50	\$125	\$110,438,190
Washington	\$10	\$30	\$21,898,126
Oregon	\$5	\$30	\$3,900,403
Idaho	-	\$10	\$3,016,700
Colorado	\$9	\$70	\$14,435,536
Montana	-	\$6	\$791,269
Nevada	\$5-10	\$100	\$4,300,000

Note: Washington Discover Pass is interagency and applies to other state resources. 2023 Discover Pass prices are now \$35 for an annual pass and \$11.50 for a one-day pass.¹²⁰ Idaho and Montana only offer annual passes.

Nexus

Park user fees target a section of the population that explicitly appreciates viewing natural resources. This population is more likely to also value the continued existence of at-risk wildlife.¹²¹ While not a direct correlation, focusing a fee increase on a portion of the population that has positive environmental attitudes has a moderate nexus.

¹¹⁵ Watkins, T. (2020). Enhancing the Public Lands Recreation Fee System. PERC. Accessed at: www.perc.org/2020/11/18/enhancing-public-lands-recreation-fee-system/

¹¹⁶ AIX. (2016). Statistical Report of State Park Operations: 2014-15, Table 5E: Financing - Revenue Sources. Accessed at: <https://cnr.ncsu.edu/news/wp-content/uploads/sites/10/2016/05/NASPD-AIX-2014-15-Data-Report-Final-copy.pdf>

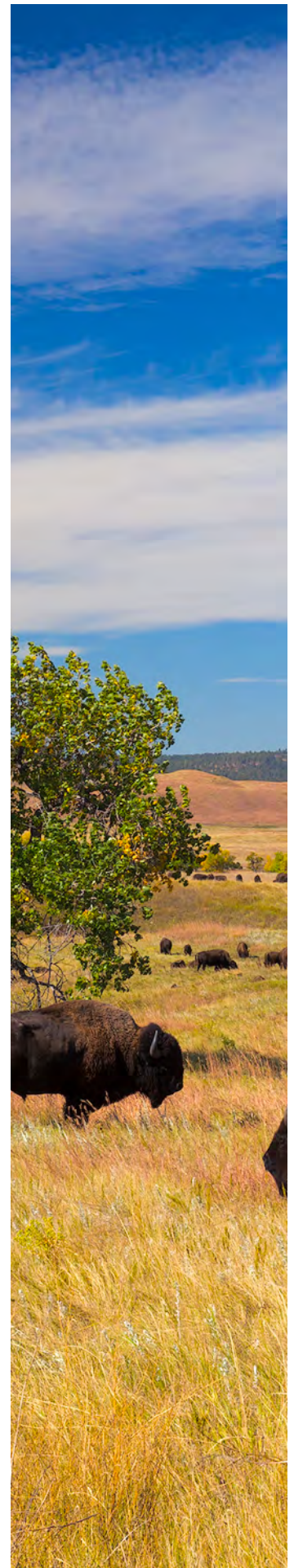
¹¹⁷ White et al. (2016). Federal outdoor recreation trends: effects on economic opportunities. Gen. Tech. Rep. PNW-GTR-945. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Station. 46 p.

¹¹⁸ Anderson et al. (2017). Recreation Fee Systems: State Case Studies. Washington State University. Prepared for Washington State Parks and Recreation Commission. Accessed at: https://s3.wp.wsu.edu/uploads/sites/2180/2017/04/Rec_Fees_Appendix_G_12.15.17_FINAL_.pdf; State of Nevada Legislative Auditor. (2018). Performance Audit of State Department of Conservation and Natural Resources. Accessed at: www.leg.state.nv.us/Division/Audit/Full/BE2018/LA18-22%20Division%20of%20State%20Parks.pdf

¹¹⁹ California State Parks. (2018). Statistical Report 2016/7 Fiscal Year. Accessed at: <https://www.parks.ca.gov/pages/795/files/16-17%20Statistical%20Report%20FINAL%20for%20web.pdf>

¹²⁰ Washington Discover Pass. (2023) Annual and One-Day Passes. Accessed at: <https://store.discoverpass.wa.gov/>

¹²¹ DeVille et al. (2021). Time spent in nature is associated with increased pro-environmental attitudes and behaviors. International journal of environmental research and public health, 18(14), 7498. www.ncbi.nlm.nih.gov/pmc/articles/PMC8305895/



Adequacy

Based on the estimates in Exhibit 13, a one percent increase in state park revenue would generate between \$8,000 and \$1.1 million annually depending on the state. States with a higher user base have the potential to generate a high level of revenue for wildlife crossings with this option.

However, the revenue from user fees is currently used in combination with non-entrance-fee revenue sources such as camping, boating, winter recreation, and reservation fees to fund state parks' operating costs.¹²² State parks' costs often are not covered by fees and must request additional state funding or defer maintenance. Since many state park systems already operate on a tight budget — user fees in most states cover only a portion of operating fees — lawmakers may be unwilling to pass a fee increase that directs funds away from direct state park management.

Stability

A park fee increase is a stable funding option. Visitation to state parks is not likely to decrease due to a small fee increase. In the long term, the fee's viability relies on long term trends towards state park visitation. If state parks become less popular, visitation and thus revenue will decrease.

Implementation

An increase in state park fees would require minimal administration; fee collection stations are already located in state parks and all states in our study currently charge user fees. There would only be costs associated with redirecting funds and administering the wildlife crossing program.

Equity

User fees, like all flat fees, are regressive. Low-income families pay a higher percent of their income than high income families to enter state parks. One could presumably exempt certain users, although the cost of such a system would probably be high.

Hunting License Fee

Description

This option increases hunting license fees to fund wildlife crossings. All U.S. states require hunters and fishers to purchase licenses. For some species, states also auction or raffle hunting permits, which ensures a predetermined amount is taken annually.

Licenses are structured based on age, in-state residency, license duration, and animal type. Licenses are annual, though some states offer a lifetime license or hunting package at a higher price. Non-resident licenses can cost more than three times a resident one to discourage over-hunting. Finally, in most states one can purchase either a license or a tag. A license will allow the hunt of small game animals, but big game such as antelope, bear, or elk can only be hunted on a tag-by-tag basis. A limited number of tags are available each year to prevent over-hunting.

Annual residential hunting licenses range from \$10 in Montana to \$54 in California.¹²³ In 2021, California Department of Fish and Wildlife reported \$30.2 million in revenue from hunting licenses. The revenue funded the Fish and Game Preservation Fund, the Big Game Management Account, and the Upland Game Bird Account, all of which carry out conservation activities.¹²⁴

¹²² Washington State Parks. (2022). Fees. Accessed at: www.parks.wa.gov/164/Fees

¹²³ For an adult annual residential permit. Colorado, New Mexico, Washington, and Wyoming require hunters to purchase a license specifically for the game they pursue, which leads to more variable costs.

¹²⁴ California Department of Fish and Wildlife. (2018). California Spending Plan Appendix J: Revenue Analysis. Accessed at: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=189021&inline>

Other Park User Fees

Like day passes, annual or lifetime membership options exist. Examples include the Northwest Forest Pass, a \$30 annual pass honored at all Forest Service operated recreation sites in Washington and Oregon where a day use fee is required, and the America the Beautiful Pass, an \$80 annual pass honored nationwide at National Park Service, Forest Service, U.S. Fish and Wildlife Service, Bureau of Land Management, Bureau of Reclamation, and U.S. Army Corps of Engineers recreation sites charging day-use or entrance fees. The structure of a fee increase would be similar. Both the Northwest Forest Pass and the America the Beautiful Pass offer discounts to seniors, individuals with disabilities, veterans, and youth classes. Continuing the discount after an increase in the cost of pay will help address any equity concerns.

Nexus

Hunters and fishers are a group with a lot to gain from increased wildlife crossings. As the number of crossings increase, fewer animals will be hit by drivers and experiencing a lack of habitat connectivity, thus increasing the stock for these groups. Charging a fee increase on hunting licenses means that hunters are paying extra for an increase game stock, which is appropriate as they are one of the key beneficiaries of these crossings.

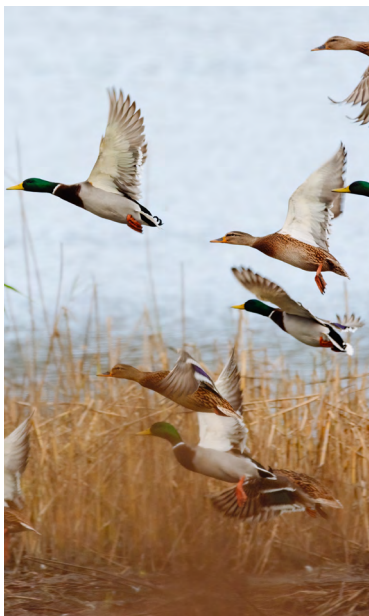
Adequacy

Annual revenue depends on the number of licenses and tags sold by the state, which is in turn dependent on hunting population and available game. Compared to other conservation revenue methods, hunting licenses have a low projected revenue. Collectively, \$3.3 billion comes from hunting and fishing activities (sale of licenses, tags, and stamps, federal excise taxes, and equipment sales).¹²⁵ A one percent increase would generate an average \$660,000 per state. However, since this includes federal funding and equipment sales, it overestimates the impact of license fees alone. A final consideration is that hunting and fishing licenses comprise 35 percent of state conservation agency funding, dedicating a portion of existing revenues could be adequate to fund wildlife crossings. However, such uses for these funds often compete with other conservation objectives.

Stability

From 2010 to 2021, the annual revenue from hunting licenses in California has increased 30 percent. Average annual growth was 2.5 percent, with a small decrease in revenue in 2017 and a sharp increase in revenue in 2020.

Based on California's positive trend, we can expect hunting license revenue to continue to increase. However, that the rate of increase is likely to slow as hunting participation declines due to demographic and societal shifts.¹²⁶ Idaho has seen the number of non-resident hunters decrease, and to combat decreased revenue (non-residents pay a higher fee) has increased out-of-state fees.¹²⁷



Implementation

Hunting licenses are sold at most retail outlets that sell hunting and fishing goods. Because hunting without a license is against state law, there are annual costs associated with checking licenses and issuing citations. Since these costs already exist, an add-on or increase is relatively low cost compared to other funding options. Fee increases are generally approved by the state legislature, though some states allow agencies to set fees through rule-making process.

Equity

Hunting license fees are regressive because hunters pay a flat fee. Fee increases will disproportionately affect lower income hunters who may in turn choose to not purchase a tag or license that year. It can also serve as a barrier to entry for new hunters.

Other Outdoor Recreation Licenses or Fees

Other outdoor recreation licenses or fees such as All-Terrain Vehicles (ATV) or Off-Highway Motor Vehicles permits, snowmobile permits, and boating licenses are additional opportunities to raise funds for wildlife crossings. ATV permits are required when operating an ATV on public lands or trails. Snowmobiles and boating licenses are structure similarly. An increase in cost for permits for non-traditional motor vehicles would be structured the same way as an increase in the cost of hunting licenses.

¹²⁵ Voyles and Chase. (2017). The State Conservation Machine. Produced for the Association of Fish and Wildlife Agencies and the Arizona Game and Fish Department. Accessed at: www.fishwildlife.org/application/files/3615/1853/8699/The_State_Conservation_Machine-FINAL.pdf

¹²⁶ Rott. (2018). "Decline in Hunters Threatens How U.S. Pays For Conservation". NPR All Things Considered. Accessed at: www.npr.org/2018/03/20/593001800/decline-in-hunters-threatens-how-u-s-pays-for-conservation

¹²⁷ Idaho State Legislature. (2020). RS27231/H0330 Statement of Purpose. Accessed at: <https://legislature.idaho.gov/wp-content/uploads/sessioninfo/2020/legislation/H0330SOP.pdf>

Mitigation Fee

Description

This option incorporates wildlife crossings into their existing regulatory compliance projects under the Endangered Species Act and Clean Water Act.¹²⁸ These acts require projects that degrade federally listed species' habitats and wetlands, respectively, to offset ("mitigate") impacts by creating or improving land elsewhere. States must comply with these acts which provides them the opportunity to advocate for wildlife crossings as a viable conservation technique. Where appropriate, biologists involved in the process can advocate for wildlife crossings as part of conservation efforts because they enhance the contiguity of a habitat area. For example, the Santa Clara Valley Habitat Plan outlined the use of wildlife crossings in the conservation of kit fox populations to increase the permeability of Highway 152 in California for species movement.¹²⁹

In 2021, California's SB 790 codified a similar strategy by classifying wildlife connectivity as an applicable action for compensatory mitigation credits for under the conservation and mitigation banking program.¹³⁰ By making this authorization explicit, the California Department of Fish and Wildlife has ensured organizations applying for mitigation credits know these crossings will be approved, thus increasing the probability of their construction.

States can also secure mitigation agreements for large-scale development projects that would measurably impact wildlife (particularly federally listed wildlife). For example, Montana holds a wildlife mitigation trust to lessen the impacts of the Libby and Hungry Horse dams. The construction and subsequent loss of land associated with the dam affected elk, bighorn sheep, bear, and other wildlife habitat. In 1988, the state of Montana and Bonneville Power Administration (BPA) entered a 60-year agreement which transferred \$12.5 million from BPA to a state trust.¹³¹ Montana continues to use those funds on projects improving habitat quality within the Columbia River Basin of Northwest Montana.

Nexus

There is no certainty that mitigation will be required at the locations where wildlife crossings would be most effective. Since this option is limited by the geography where it is required, the relative improvements to driver safety are low on average compared to other options. Thus, there is not a strong nexus between where mitigation efforts occur and where wildlife crossings are needed.

Adequacy

There is no reliable estimate for annual mitigation fee revenue since wildlife crossings relying on this option would be part of a wider conservation strategy that is funded by different state departments such as fish and wildlife, parks and recreation, and forestry. However, as a tool for regulatory compliance, wildlife crossings introduced as a mitigation tool would be a mandatory part of the conservation program, ensuring their construction.

Stability

Mitigation occurs on a case-by-case basis, making it one of the most unstable revenue sources on this list. Mitigation efforts are tied to the number of proposed projects on degraded or protected land and the existence of federally listed species. The number of these projects



¹²⁸ U.S. Fish and Wildlife Service. (2022). Habitat Conservation Plans. Accessed at: www.fws.gov/service/habitat-conservation-plans; U.S. EPA. (2022). Background about Compensatory Mitigation Requirements under CWA Section 404. Accessed at: www.epa.gov/cwa-404/background-about-compensatory-mitigation-requirements-under-cwa-section-404

¹²⁹ Santa Clara Valley Habitat Plan. (2012). Chapter 5: Conservation Strategy. Accessed at: <https://scv-habitatagency.org/DocumentCenter/View/127/Chapter-5-Conservation-Strategy>

¹³⁰ California SB 790. (2021). Regular Session. Accessed at: <https://legiscan.com/CA/bill/SB790/2021>

¹³¹ Montana Department of Fish, Wildlife & Parks. (2022). Wildlife Mitigation Trust. Accessed at: <https://fwp.mt.gov/conservation/habitat/wildlife-mitigation-trust>

would increase based on state actions on their lands such as the expansion of timber harvest in state forests.

Implementation

Agencies that move forward with mitigation already incur costs to improve habitat. The landowner has already committed to invest in a solution and ongoing compliance, so a certain level of investment is expected. Wildlife crossings might incur a higher cost if they are more difficult to implement than alternative conservation options. Additionally, since crossings are not a common mitigation tool, there may be up-front costs for learning about and implementing best practices.

Equity

Mitigation imposes a cost burden on the affected landowner and those they consider beneficiaries, not necessarily the drivers and other direct users of the crossing. In addition, if the state department raises taxes on the general population to cover mitigation costs, the ensuing tax could be progressive rather than regressive.

Environmental Damage Assessment

Description

This option builds wildlife crossings as part of the restoration of injured natural resources under NRDA. The Natural Resource Damage Assessments (NRDA) determine the amount of environmental restoration needed after a release of hazardous substance into the environment. Although wildlife collisions do not currently qualify, the NRDA process is primarily used to determine the total restoration cost of injured environment. After, appointed trustees use restoration cost funds to finance environmental restoration projects.

Relevant state agencies, such as the Department of Environmental Quality, as well as federal and tribal agencies, are part of the board of trustees for NRDA damages. The trustees are responsible for determining restoration priorities and for selecting projects. Therefore, state agencies will have opportunity to consider if a wildlife crossing will help restore the injured environment.

Nexus

NRDA restoration does not likely impose a burden on the users of the crossing or the public. Dissimilar to other funding options, NRDA does not require revenue from those who benefit from the crossing, only the potentially responsible party for the damages.

Adequacy

The federal NRDA program receives two types of funding: 1) appropriated funds from Congress and 2) permanent funds. Appropriated funds from Congress are used primarily for administration and overhead purposes.¹³² Permanent recovery funds can be used for “restoration planning, implementation, and oversight”.¹³³ Exhibit 14 reports annual permanent funds from 2015 to 2022, which experience variation depending on the amount of restoration for that year. Appropriated Funds from Congress remained constant at approximately \$7.8 million from 2015 to 2022.

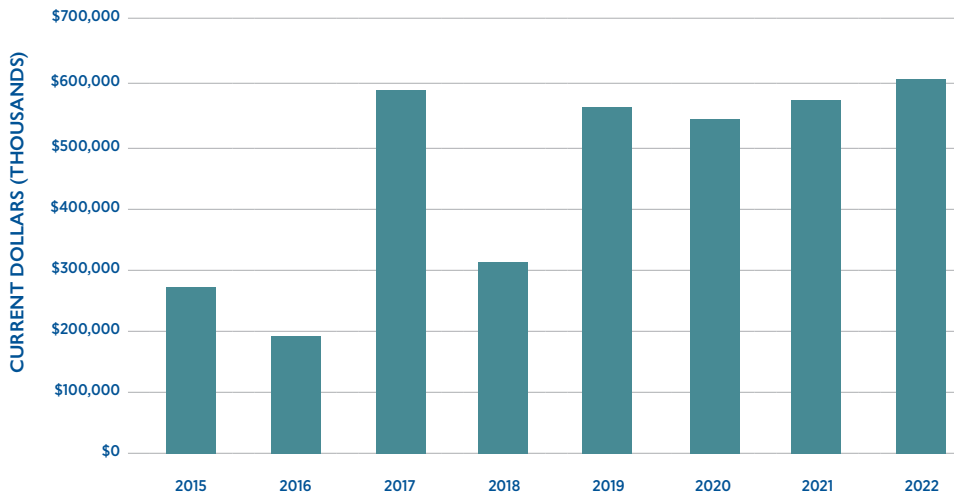
¹³² “Upon the successful conclusion of a natural resource injury assessment and resolving the case with the responsible parties, DOI bureaus working in partnership with other affected State, Federal, Tribal and/or foreign co-trustees, use settlement funds to identify, plan, and implement restoration activities.” United States Department of the Interior. (2018). Natural Resource Damage Assessment and Restoration Program, Budget Justifications and Performance Information, Fiscal year 2018. https://www.doi.gov/sites/doi.gov/files/uploads/nrda_2018_budget_justification_final.pdf

¹³³ Ibid.



EXHIBIT 14. NRDA PERMANENT FUNDING (2015-2022)

Source: United States Department of the Interior (2015-2022)¹³⁴



NRDA funds can increase funds through Congress increasing appropriated fund amounts, and a new settlement amount from potentially responsible parties.

Stability

NRDA's limited ability to generate additional funding reduces its stability as a funding source for wildlife crossings. Hence, a NRDA settlement fund applicable to wildlife crossings is not replenishable. A NRDA fund may be able to provide upfront total capital costs and some maintenance costs for the wildlife crossing, instead of pay-offs over time (as with other funding options).

Additionally, under NRDA there must be a strong link between injury inflicted on the environment and restoration projects for funding to be available.¹³⁵ Therefore, it is likely that for a wildlife crossing to be a restoration project approved by trustees there 1) must have been a hazardous spill or an injured environment in the region, and 2) a wildlife crossing would benefit wildlife or the environment in the injured region. This strong link would have to be established to access NRDA funds.

Implementation

If trustees approve a wildlife crossing for a restoration project, the mechanism for funding will be routine. The project must undergo public review to assess if the project adequately supports and improves habitat restoration.¹³⁶ Each project must receive approval from state and tribal governments.¹³⁷

Equity

It is likely that disproportionalities and inequities will exist during the construction and implementation phases of restoration, but the NRDA process is intended to “restore, replace, or acquire the equivalent of the natural resources that were impaired.”¹³⁸ Thus, determining which groups were most affected by an event is an integral part of the damage calculation process.

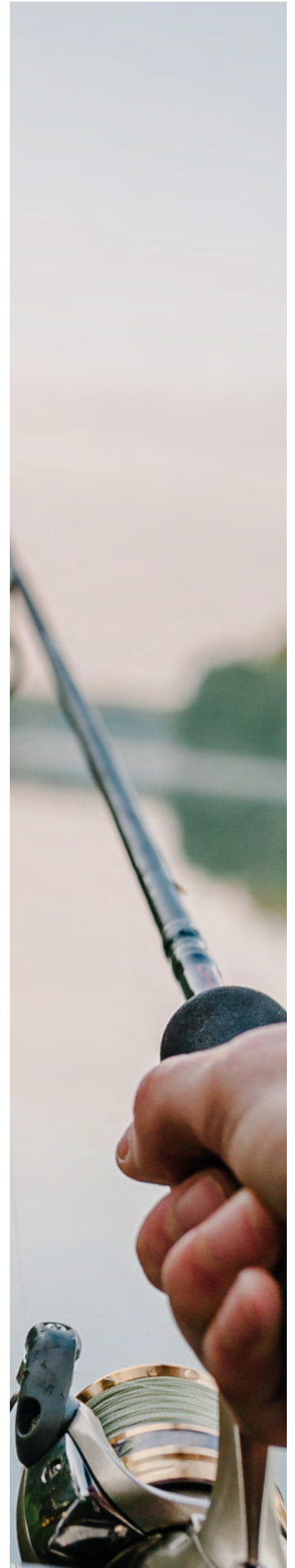
¹³⁴ Department of the Interior. (2015-2023). Budget Justification Greenbooks from 2015-2023. Accessed at: <https://www.doi.gov/restoration/about/budget/budget-justification-greenbooks>

¹³⁵ United States Department of the Interior. (2022). Natural Resource Damage Assessment and Restoration Program, Budget Justifications and Performance Information, Fiscal years 2015-2022. Accessed at: <https://www.doi.gov/restoration/about/budget/budget-justification-greenbooks>

¹³⁶ United States Department of the Interior. (2023). Natural Resource Damage Assessment and Restoration Program, Budget Justifications and Performance Information, Fiscal year 2023. Accessed at: www.doi.gov/sites/doi.gov/files/fy2023-nrdar-greenbook-508-with-links.pdf.

¹³⁷ Ibid.

¹³⁸ Ibid.



Outdoor Sporting Goods Sales Tax

Description

This option increases/imposes a sales tax on outdoor sporting goods. Sales taxes are structured as a percentage of retail spending. Three western states do not have statewide sales tax: Alaska, Montana, and Oregon.¹³⁹ State sales tax rates in western states range from 7.25 percent (California) to 2.90 percent (Colorado).¹⁴⁰

Several states specify that revenues generated from sales taxes on sporting goods be devoted to conservation. Texas, for instance, earmarks a percentage of sales tax on sporting goods to be used for operating and maintaining parks.¹⁴¹ Similarly, Georgia's constitution mandates that \$200 million be spent annually on local parks and conservation, a portion of this funded by sales tax on sporting goods.¹⁴²

This option could be structured either as an allocation of sales taxes on outdoor sporting goods towards the funding of wildlife crossings, or as a dedicated increase in the sales tax applied solely to outdoor sporting goods.

Nexus

Hunters, fishers, and hikers all gain from thriving ecosystems and would experience the benefits of reduced wildlife-vehicle collisions. However, if taxes apply to other outdoor users, such as resort users, taxpayers may not feel as direct a connection to the use of funding. Drivers who benefit from reduced WVCs would not, however, be taxed unless they were also outdoor enthusiasts. The sales tax revenue option is likely not relative to the realized benefit given its regressive nature and limited tax base.

Adequacy

Americans spent \$10.3 billion on hunting, fishing, hiking, and camping equipment in 2017.¹⁴³ Given current state tax rates, sales tax on outdoor sports equipment generates around \$183 million in western states and \$556 million nationally per year for wildlife crossings. This varies by state based on level of expenditure and tax rate. A new sales tax of one percent on the sale of outdoor sports equipment would generate about \$30 million of revenue in western states and \$96 million of revenue nationally every year. This funding could be dedicated toward crossings either as a portion of existing revenue (which would come at the expense of other programs and services) or as an increased rate applied to the sale of sporting goods.

EXHIBIT 15. POTENTIAL SALES TAX REVENUE FROM OUTDOOR SPORTS EQUIPMENT

Source: U.S. Census Bureau (2017); Tax Foundation (2022)¹⁴⁴

STATE	OUTDOOR SPORTS RETAIL SALES (\$1,000s)	CURRENT REVENUE GENERATED (\$1,000s)	REVENUE GENERATED WITH 1% SALES TAX (\$1,000s)
California	\$1,227,243	\$88,975	\$12,272
Colorado	\$484,155	\$14,040	\$4,842
Washington	\$475,560	\$30,911	\$4,756
Oregon	\$351,595	-	-
Arizona	\$339,611	\$19,018	\$3,396

¹³⁹ Alaska allows local but not state sales tax. Tax Foundation. (2022). State and Local Sales Tax Rates, Midyear 2022. Accessed at: <https://taxfoundation.org/publications/state-and-local-sales-tax-rates/>

¹⁴⁰ When considering both state and local sales tax, Alaska has the lowest nonzero rate at 1.76%. (Ibid.)

¹⁴¹ The Trust for Public Land. (2018). 2018 Conservation Ballot Measures. Accessed at: <https://www.tpl.org/2018-conservation-ballot-measures-archived#Georgia>

¹⁴² Ibid.

¹⁴³ U.S. Census Bureau. (2019). Economic Census. Accessed at: www.census.gov/programs-surveys/economic-census.html.

¹⁴⁴ Ibid.; Fritts, J. (2022) "State and Local Sales Tax Rates, Midyear 2022." <https://taxfoundation.org/publications/state-and-local-sales-tax-rates/>

\$10.3B

SPENT ON



HUNTING



FISHING



HIKING



CAMPING EQUIPMENT

IN 2017

STATE	OUTDOOR SPORTS RETAIL SALES (\$1,000s)	CURRENT REVENUE GENERATED (\$1,000s)	REVENUE GENERATED WITH 1% SALES TAX (\$1,000s)
Utah	\$232,115	\$14,159	\$2,321
Montana	\$140,958	-	-
Nevada	\$134,807	\$9,234	\$1,348
Alaska	\$130,287	-	-
New Mexico	\$78,222	\$3,911	\$782
Wyoming	\$65,138	\$2,606	\$651
Hawaii	\$17,964	\$719	\$180
Idaho	ND	ND	ND
West Total	\$3,677,655	\$183,574	\$30,548
US Total	\$10,319,716	\$556,845	\$96,014

Stability

Between 2012 and 2017, American spending on all sporting goods increased by 9.5 percent.¹⁴⁵ Sporting goods expenditure is likely tied with macroeconomic conditions. If economic conditions worsen, consumers will likely prioritize other more pressing needs. Lifestyle changes may also impact sporting goods expenditure and broad shifts in preferences may impact revenue generation.

Implementation

Allocating revenue from outdoor sport specific sales may prove costly if systems are not yet in place to differentiate between outdoor and other sporting goods. States vary in their legal frameworks for this revenue option. In some states, this option may be achieved through legislative action, while in others there may need to be a constitutional amendment to address uniformity provisions. While action by legislatures is relatively easier, some states do not have sales tax, making this revenue option substantially more difficult.

Equity

Retail sales taxes do not differentiate based on income level and any policy implementation raising sales tax would be regressive if lower-income households pay a higher share of income in taxes.¹⁴⁶ However, expenditures on outdoor equipment differs by income level, with higher income individuals three times as likely to visit a national park than lower income individuals.¹⁴⁷ Therefore, the imposition of an additional sales tax on outdoor equipment may burden low-income individuals some, but likely less than those with higher incomes. Any regressive nature of sales tax could be further mitigated by offering low-income individuals tax rebates or grants to purchase outdoor equipment or reduce entrance costs to natural areas.

Retail sales taxes do not differentiate based on income level and any policy implementation raising sales tax would be regressive if lower-income households pay a higher share of income in taxes. However, expenditures on outdoor equipment differs by income level, with higher income individuals three times as likely to visit a national park than lower income individuals.

¹⁴⁵ Ibid.

¹⁴⁶ Tax Policy Center. (n.d.). Briefing Book. Accessed at: www.taxpolicycenter.org/briefing-book/who-bears-burden-national-retail-sales-tax.

¹⁴⁷ Oregon Parks and Recreation Department. (2019). Outdoor Recreation in Oregon: Responding to Demographic and Societal Change. Accessed at: www.oregon.gov/oprd/PRP/Documents/SCORP-2019-2023-Final.pdf

6. Other Revenue Options

Lottery Proceeds

Description

This option allocates greater amounts of state lottery funds to be used for wildlife crossings.

Among western states, four do not have state lotteries: Alaska, Hawaii, Nevada, and Utah.¹⁴⁸

Lottery revenues vary based on population, ticket prices, participation, and structure of the program. In 2020 in western states, lottery revenues ranged from \$8.8 million in Wyoming to \$2.2 billion in California.¹⁴⁹

EXHIBIT 16. WESTERN STATE LOTTERY REVENUE

Source: Tax Policy Center (2020)¹⁴⁷

STATE	LOTTERY REVENUE (\$ THOUSANDS)
California	\$2,218,288
Oregon	\$703,890
Washington	\$206,575
Colorado	\$184,311
Idaho	\$69,810
New Mexico	\$50,496
Montana	\$23,088
Wyoming	\$8,766
Utah	-
Nevada	-
Alaska	-
Hawaii	-
West Total	\$3,465,224
US Total	\$26,692,393

There is precedent for using state lottery funds for conservation. In Arizona, up to \$10 million of lottery revenue are used to fund the Game and Fish Commission Heritage Fund.¹⁵¹ Oregon allocates 15 percent of lottery funds to the Parks and Natural Resources Fund.¹⁵² Lottery funds are used for a variety of programs. In Oregon, for example, lottery funds are also used for education, economic development, veterans' services, general discretionary spending, and other programs.¹⁵³

Nexus

Most lottery funds are drawn from urban areas which experience limited benefits from wildlife crossings. The lottery fund revenue option does not exactly align benefits and costs of wildlife crossings.

Adequacy

Western states' revenue from lottery funds totaled around \$3.5 billion in 2020 and about \$26.7 billion nationally.¹⁵⁴ A one percent allocation of lottery funds towards wildlife crossings in 2020 would be \$34.6 million across western states. However, other programs that rely on lottery funds would have fewer

resources as a result of diverting funds to wildlife crossings. Given the fact that lottery revenue is currently used for a variety of programs, consistent funding for wildlife crossings from this source may prove difficult to secure.

Stability

While lottery revenue has, on average, grown since 2009, macroeconomic conditions affect lottery revenue, although the relationship is complicated. Between 2009 and 2019, nominal lottery revenue in the west increase by six percent on average every year. Some national lotteries

¹⁴⁸Gittins. (2022). Which States Participate in Powerball? Where Can't You Play the Lottery? Accessed at: https://en.as.com/en/2021/11/14/latest_news/1636848982_897346.html#:~:text=The%20six%20states%20without%20state,%2C%20Mississippi%2C%20Nevada%20and%20Utah

¹⁴⁹Tax Policy Center. (2022). Lottery Revenue. Accessed at: www.taxpolicycenter.org/statistics/lottery-revenue

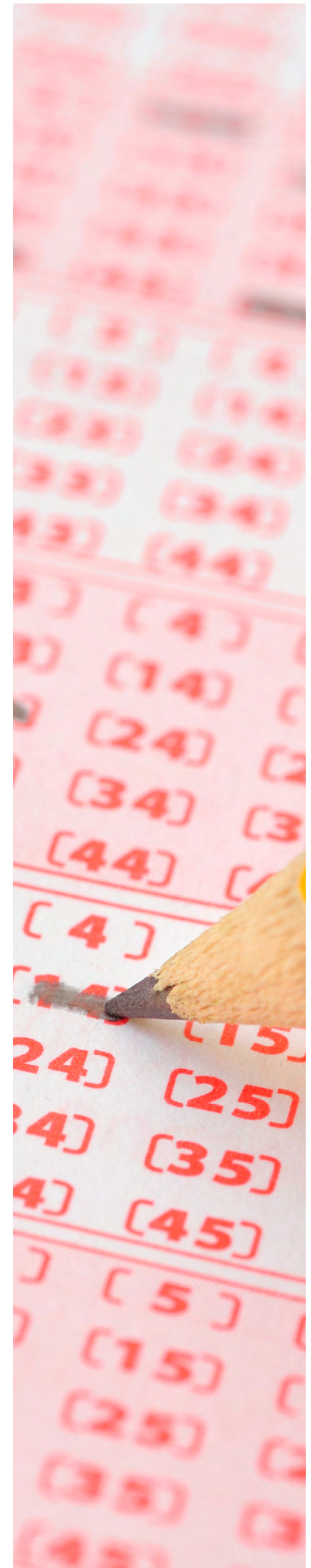
¹⁵⁰Ibid.

¹⁵¹Congressional Sportsmen's Foundation. (n.d.). Dedicated Lottery Funds for Conservation. Accessed at: <https://congressionalsportsmen.org/policies/state/dedicated-lottery-funds-for-conservation>

¹⁵²Ibid.

¹⁵³Oregon Legislative Fiscal Office. (2021). Oregon State Lottery: Administrative Costs and Public Purpose Transfer Rate. Accessed at: www.oregonlegislature.gov/lfo/Documents/2021%20Report%20-%20Lottery%20Administrative%20Costs%20and%20Transfer%20Rate.pdf

¹⁵⁴Tax Policy Center, (2022). Lottery Revenue. <https://www.taxpolicycenter.org/statistics/lottery-revenue>





saw revenue increase during the great recession as people turned to the lottery for hope when facing dire economic conditions.¹⁵⁵ For example, western states' lottery revenues fell by 16.6 percent between 2019 and 2020, likely due to the COVID-19 pandemic.

Implementation

As lottery revenue is already collected in most states, there are no significant start-up or continued costs for this funding option in many states. Reallocation of revenue could likely be achieved through legislative action. Arizona and Oregon already dedicate a portion of lottery revenue to conservation activities.

Equity

While lotteries are voluntary, there is evidence that the lowest-income individuals spend a higher percentage of their income on lottery than individuals at other income levels. Studies suggest that lotteries often aggressively market through subways, buses, and media ads which could compound the regressive nature of this revenue option.¹⁵⁶

Further, there may be racial and educational gap equity considerations. Lottery participation and per-capita expenditure differ by racial group and educational attainment. Black individuals have the highest per-capita lottery expenditure compared to other racial groups.¹⁵⁷ People who did not complete high school have the highest per-capita lottery expenditure compared to other educational attainment groups.

General Fund

Description

This option allocates general fund dollars to wildlife crossings. For this revenue option, all states would allocate a portion of the existing annual general fund revenue to wildlife crossings.

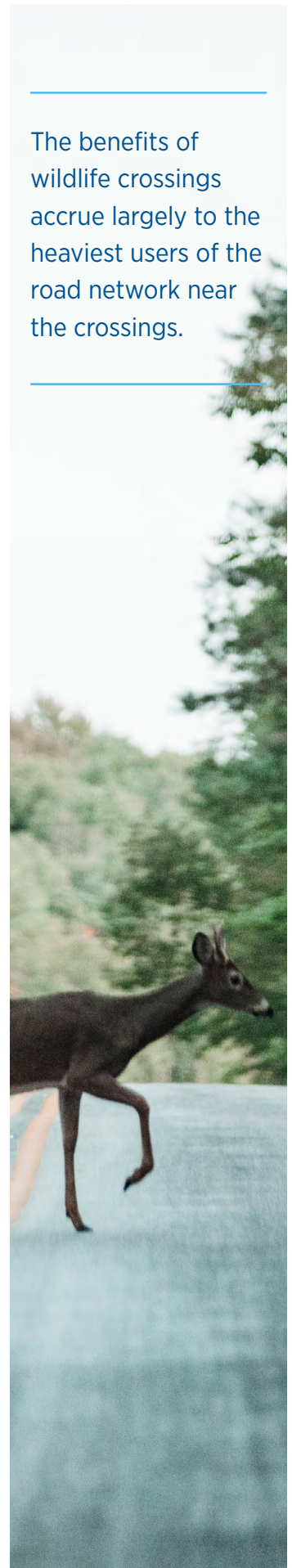
Nexus

The benefits of wildlife crossings accrue largely to the heaviest users of the road network near the crossings. Utilizing property, income, sales, and corporate tax dollars collected from all state residents and businesses may not have a direct nexus with the use of wildlife crossings.

Adequacy

State governments can adjust general fund spending to accommodate the construction and maintenance of wildlife crossings. The adjustment can take the form of a property, sales, income, or corporate tax rate increase or a re-allocation of existing funding away from a different expenditure. The many competing uses of general fund dollars hinders the adequacy of this funding option. Exhibit 17 details general fund spending by state.

The benefits of wildlife crossings accrue largely to the heaviest users of the road network near the crossings.



¹⁵⁵ Global Betting and Gaming Consultants. (2010). Lotteries' Luck Holds During Recession. Accessed at: www.gbgc.com/lotteries-luck-holds-during-recession/

¹⁵⁶ Kramer. (2010). The New York State Lottery: A Regressive Tax. Accessed at: www.fiscalpolicy.org/wp-content/uploads/2012/04/StateTaxNotes_LotteryRegressive.pdf; and Tax Foundation. (2006). Are Lottery Taxes Regressive? (And What Does 'Regressive' Mean Anyway?). Accessed at: <https://taxfoundation.org/are-lottery-taxes-regressive-and-what-does-regressive-mean-anyway/>

¹⁵⁷ Clotfelter et al. (1999). State Lotteries at the Turn of the Century: Report to the National Gambling Impact Study Commission. Accessed at: <https://govinfo.library.unt.edu/ngisc/reports/lotfinal.pdf>

EXHIBIT 17. RECENT GENERAL FUND SPENDING (IN MILLIONS OF DOLLARS)

Source: NASBO (2022)¹⁵⁸

STATE	2021 (ACTUAL)			2022 (ESTIMATED)			2023 (RECOMMENDED)		
	REVENUES	EXPENDITURES	ENDING BALANCE	REVENUE	EXPENDITURES	ENDING BALANCE	REVENUE	EXPENDITURES	ENDING BALANCE
Alaska	\$1,662	\$4,638	-\$565	\$6,405	\$4,756	\$114	\$6,313	\$4,625	\$8
Arizona	\$14,117	\$13,595	\$895	\$15,109	\$13,127	\$1,982	\$15,692	\$14,254	\$1,013
California	\$185,433	\$163,453	\$37,011	\$233,680	\$210,030	\$23,650	\$219,369	\$213,127	\$6,242
Colorado	\$14,240	\$13,250	\$3,168	\$19,192	\$15,682	\$3,511	\$19,848	\$17,664	\$2,184
Hawaii	\$8,253	\$8,506	\$1,250	\$9,660	\$7,809	\$851	\$9,514	\$8,900	\$614
Idaho	\$5,010	\$4,147	\$890	\$4,691	\$4,224	\$214	\$4,781	\$4,566	\$214
Montana	\$2,964	\$2,699	\$701	\$3,344	\$2,685	\$659	\$3,396	\$2,679	\$717
Nevada	\$4,474	\$4,570	\$1,041	\$5,623	\$4,649	\$623	\$5,401	\$4,687	\$655
New Mexico	\$8,801	\$8,904	\$2,505	\$13,847	\$9,264	\$2,833	\$11,692	\$8,693	\$2,347
Oregon	\$15,388	\$11,455	\$4,082	\$16,517	\$12,554	\$3,963	\$16,328	\$13,066	\$3,020
Utah	\$10,067	\$8,507	\$1,728	\$11,446	\$10,327	\$1,120	\$10,735	\$10,513	\$223
Washington	\$26,986	\$24,584	\$3,674	\$32,816	\$26,800	\$6,016	\$33,027	\$32,046	\$981
Wyoming	\$1,284	\$1,543	\$0	\$1,543	\$1,543	\$0	\$1,391	\$1,391	\$0

Notes: NASBO creates estimated and recommended budgets. Projections in governors' recommended budgets show slow growth of 1.4 percent after incorporating forecasted impacts of proposed tax policies. Ending balance is determined from beginning balance, federal transfers, and adjustments.

Stability

General fund spending on capital and non-capital expenditures remained relatively stable from 2011 to 2021, with the average standard deviation of the growth rate across western states lies at 11 percent for the period.¹⁵⁹ The spending of general fund revenue across western states varied more compared with the spending in all states. Alaska, Oregon, and Wyoming general fund spending fluctuated more compared to other western states during the period. Alaska and Wyoming have decreased general fund spending during the period while Oregon has increased spending.

Implementation

All states manage a general fund. The governor and legislatures must approve the state budget each fiscal year, meaning that guaranteeing an allocation for wildlife crossings depends on the political environment of the state. If additional tax levies are proposed for increasing general fund revenues to pay for wildlife crossings, voter-approval may be required.

Equity

The equity of utilizing general fund dollars will depend on the existing revenue instruments in the state. Additionally, general fund revenue supports a broad range of social services. Policymakers should consider the opportunity cost of the foregone use of these funds for other public services when deciding to divert funding to wildlife crossings.



¹⁵⁸ National Association of State Budget Offices. (2022). Fiscal Survey of States. Accessed at: www.nasbo.org/reports-data/fiscal-survey-of-states

¹⁵⁹ Ibid.

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