



# WILDLIFE CONSIDERATIONS IN TRANSPORTATION PLANNING

A Summit on Communications and Planning  
For Private and Public Developments



## SUMMARY DOCUMENT

October 15, 2019 | Governor's Mansion | Carson City, Nevada

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## I. OVERVIEW

The inaugural Nevada Wildlife Considerations in Transportation Planning Summit (Summit), held on October 15, 2019 at the Governor’s Mansion in Carson City, convened wildlife, transportation, planning, and policy experts to discuss current science and needs related to wildlife movements and conflicts around the State. The 2019 Summit was hosted by the Nevada Department of Transportation (NDOT), the Nevada Department of Wildlife (NDOW), and Pew Charitable Trusts, and endorsed by The Center for Large Landscape Connectivity and the Nevada Chapter of the Wildlife Society.

More than 90 stakeholders representing 47 different agencies, organizations and interest groups joined together to share information and develop strategies to communicate, plan, and accommodate wildlife needs; reduce animal-vehicle collisions; and protect wildlife and their movement corridors across Nevada and along the State’s highways.

## II. OPENING REMARKS

Nova Simpson, NDOT, expressed her gratitude for the impressive participation in the Summit, acknowledging the room was filled with a variety of professionals ranging from land use planners, managers, to researchers and executives. She shared the primary goals of NDOT in convening this Summit were to initiate communications and collaboration with potential new partners, strengthen existing relationships, and encourage early engagement in planning and community collaboration.

Kristina Swallow, Director, NDOT, acknowledged the desire to prioritize the creation of mutually beneficial wildlife and driver intersections. She cited each year, 1-2 million animals are hit by vehicles, 100-200 people lose their lives in these collisions, and the collisions cost the economy \$8 billion annually. These collisions are preventable through partnerships, innovation and collaboration, with many effective models to draw upon. There is consistently an 80-90% decrease in animal-vehicle collisions in areas where infrastructure is retrofitted for wildlife passage. Examples include freeway underpasses and overpasses, fencing, and public education and awareness campaigns. She emphasized the need to be proactive in land use planning that considers wildlife needs as a matter of human and wildlife safety, and as a means to reduce costs to taxpayers.

Tony Wasley, Director, NDOW, referred to the data points shared by Ms. Swallow as justification for construction efforts and projects that support habitat connectivity and migration corridors. He shared his experience from 15 years prior, working as a field biologist in Elko, looking for methods to more accurately capture and report animal-vehicle collision data, and subsequently use this data in planning efforts. Initial efforts included moving fencing some distance away from road boundaries so that frightened deer and animals would not inadvertently run into fencing

and bounce back in to oncoming traffic. After this measure was demonstrably successful, conversations turned to building crossing structures in the auspices of public safety. NDOT incurred the expenses and initial public criticism for building the first underpasses and overpasses, until several years passed and there were over 1 million pictures collected documenting more than 37,000 successful crossings by animals using these structures in just the first four years. Public opinion for wildlife corridors has dramatically shifted since that time to one of support and enthusiasm. This has led to development of many partnerships and jointly-funded projects Statewide. He encouraged participants to continue to be creative, collaborative, and mutually supportive in continued efforts to address this problem.

All opening speakers thanked Pew Charitable Trusts for their generosity in providing the fiscal sponsorship for this Summit.

### **III. 2019 FHWA ENVIRONMENTAL EXCELLENCE AWARD**

Greg Novak, FHWA Nevada Division, presented the 2019 FHWA Environmental Excellence Award to FHWA Nevada Division, NDOT, and NDOW for their project, “Wildlife and Safety Improvements along US 93 and I-80; A Landscape Scale Approach to Habitat Connectivity and Traffic Safety in Elko County, Nevada.” This landscape scale approach has made an environmentally sensitive and outstanding contribution to both transportation and the environment of northern Nevada as it addresses the four major risk areas identified for deer-vehicle conflicts where the migration crosses over US-93 and I-80, increases human and wildlife safety, reduces habitat fragmentation by providing safe crossing locations for various wildlife, and increases connectivity for migratory mule deer by providing safe access to more than 1.5 million acres of summer and winter habitat. This project was completed in cooperation with ARC Solutions, Contech Engineered Solutions, Nevada State Legislature, USFWS, UNR Department of Engineering, and UNR Department of Natural Resources and Environmental Science.

### **IV. THE POWER OF FILM IN EDUCATING PARTNERS AND PUBLICS**

A short-film documentary entitled *(Re)Connecting Wild* was presented by Jake Willers, NineCaribou Productions, LLC. This documentary focused on wildlife crossings in northeastern Nevada, the loss of habitat and habitat fragmentation due to human development, and the importance of restoring safe passages for wildlife. Following the viewing, he provided insight in to the making of this film. Notably, the opening collision scene took very little time to capture on film, indicating that collisions happen in at this particular area of road frequently. Furthermore, his discussion on the making of his film underscored how film can be a powerful tool for information sharing, most especially when the imagery elicits an emotional impact from the viewer.

The film was created in partnership between ARC Solutions, NDOT, and NDOW. It is viewable online via Vimeo (<https://vimeo.com/357164380>) and YouTube (<https://youtu.be/NK-mvhPMokY>).

## **V. SECRETARIAL ORDER 3362: IMPROVING HABITAT QUALITY**

John Tull, Nevada Science Coordinator, US Fish and Wildlife Service, provided an overview of the Department of Interior Secretarial Order 3362: Improving Habitat Quality in Western Big Game Winter Range and Migration Corridors. The Order, issued in February 2018, instructs 11 western states to identify three to five highest priority wildlife migration corridors for elk, mule deer, and/or pronghorn, and/or develop science to support identification and refinement of corridors, and outline said priority corridors in to State Action Plans. Following the completion of these Plans in October 2018, approximately \$2.65 million in federal dollars were distributed nationally for the development of wildlife migration corridors, other habitat mitigation projects, or data collection efforts on these three key species. Nevada's Action Plan identified three mule deer migration corridors and two pronghorn migration areas to conduct mitigation and research efforts. The Order supports State-led efforts, and will keep the focus on 3-5 corridors per state moving forward. The Order itself has served to promote the conversation on wildlife considerations in land use planning across and within states.

## **VI. WILDLIFE MIGRATION CORRIDORS IN NEVADA**

Cody Schroeder, Mule Deer Specialist, Nevada Department of Wildlife, presented an overview of Nevada's implementation of the Secretarial Order 3362 including a brief history of past tagging projects of mule deer and other ungulates, and research NDOW has conducted on migration corridors in Nevada.

Tagging animals using bells and uniquely marked ear discs dates back to the 1950s in efforts to document summer and winter ranges and migration distances of multiple big game species. Similar studies from 2006-2011, using collar tracking devices, found deer use natural terrain features to move variable migration distances of 20-100 miles. Digitized migration maps were generated starting in 2010, and when 2011 maps were overlaid with 1963 data, it was found that many migration paths remained consistent. Additional collaring efforts to collect migration data have been implemented since 2012. This data is compared with mortality data to assist with wildlife corridor considerations around roadways. For one study location on US 93, a 50% reduction in mortality was found with each migration period the years following construction of an overpass, two underpasses, and about four miles of fencing. It was noted that undercrossing construction is currently ongoing for mule deer, big horn sheep, and elk on State Route 160 (SR160).

Mr. Schroeder discussed how the Brownian Bridge Movement model is the preferred statistical model for sub-setting out summer and winter migration movement patterns of deer. Sub-setting the data allows planners to identify low, medium, and high use migration corridors, and subsequently identify challenges in transportation planning and mitigating collisions. These scientific modelling efforts generate implications for policy and planning. As there are currently no federal protections for wildlife corridors, Nevada may seek to establish formal protections for migration corridors akin to those in Wyoming. Nevada does follow NEPA and other various permitting processes for new developments that offers opportunities to include some protection and mitigation criteria when feasible.

Audience questions and comments were taken following the presentation. Topics discussed included:

- Funding: Funds from the Wildlife Heritage Program are primarily generated via sale of tags for big game species, auction tags, and lottery tags. These funds are used as matching funds for federal distributions. Additional funds for projects and research efforts are sought via private donations, via the Secretarial Order, and other creating mechanisms such as imposition of Housing Owners Association fees.
- Wildlife Working Group: States are in the process of forming this group, following the model of the Mule Deer Working Group. The Group will likely undertake activities such as developing white papers for policy makers and educational materials for general public.
- Preference of animal use of an overpass or underpass: This is dependent on species and location of the passage itself.
- Collaboration with tribes: This is strongly encouraged, especially in light of the recent passage of AB 264 and the migration patterns of animals on reservation land. Tribes can also apply for funding for projects under the Secretarial Order.
- Impacts of development on non-game species: Other efforts are underway across the state, such as reviewing mortality issues, culvert use, and improving fencing for desert tortoise. Additional research and collaboration would be beneficial.

## VII. ANIMALS & ROADWAYS: SCIENCE, INFRASTRUCTURE, AND EDUCATION

Nova Simpson, Biological Supervisor for Northern Nevada, NDOT, provided a summary of the last decade of NDOT's efforts to increase the safety and permeability of Nevada's highway system.

Nevada has quickly become one of the leaders in road ecology, which is the interaction of the natural environmental and roadways. The State recently completed a study that reviewed over ten years of animal-vehicle collision data and conflict areas, with a focus on large mammal interactions. The study organized collision data by district, identified the top 25 crash "hot spots," reviewed annual collision costs (over \$19 million), and compared this data to the number of crashes reported with each species to develop crash prioritization maps. The maps are a critical tool in enabling NDOT and NDOW to undergo wildlife and safety improvements to the major highways traversing the State.

Over the last decade NDOT has built more than 20 structures specifically to remove animals from the roadway and increase habitat connectivity, including 6 large overpasses designated to accommodate animal movement above the roadway. NDOT has also modified existing structures to accommodate wildlife movements and continues to look for opportunities to improve. Additionally, NDOT has been involved in numerous research efforts and educational outreach programs. All of these efforts aim to reduce animal-vehicle collisions, increase safety for both motorists and animals, and inform the public of the value and benefit of these projects.

### **VIII. PUBLIC-PRIVATE PARTNERSHIPS: PAVING THE WAY TO IMPLEMENTATION**

Renee Callahan, Center for Large Landscape Conservation, and ARC Solutions, discussed the potential role of public-private partnerships, or “PPPs,” in developing innovative ways to fund highway mitigation projects aimed at making roads safer for both motorists and wildlife.

A 2012 survey of more than 500 federal and state transportation officials overwhelmingly identified funding as the number one obstacle to deploying wildlife crossings and related mitigation infrastructure in the United States. PPPs offer an effective solution to overcoming this perceived barrier. In 2018, Americans donated more than \$425 billion to charities including private foundations who are increasingly interested in supporting highway mitigation for wildlife. Ms. Callahan provided an overview of successful initiatives, with a focus on projects completed in the American West.

### **IX. STATE-LEVEL STRUCTURE & PROCESS FOR WILDLIFE AND TRANSPORTATION PLANNING**

The level of interest and interagency collaboration on wildlife and transportation has grown rapidly in recent years, with several signals emerging for how states can successfully address wildlife corridors and driver safety, alike. Matthew Skroch, Pew Charitable Trusts, summarized several states’ initiatives and shared ideas about what works best for insuring durable and publicly supported projects that include local, state, and federal stakeholders. Suggestions include: utilize templates and ideas from nearby states or other countries; institutionalize efforts within agencies; create process and structure inclusive of stakeholders outside of government; and, leverage partnerships to build support, collect data and raise money.

Mr. Skroch shared highlights and key outcomes of the Montana Wildlife and Transportation Summit (December 2018), the Colorado Wildlife and transportation Summit (June 2017), Wyoming Wildlife and Roadways Summit (April 2017), and reviewed recent pieces of relevant legislation from various states as examples to consider for Nevada’s continued work in this area.

## X. WORKSHOP: OPPORTUNITIES, CHALLENGES, AND NEXT STEPS FOR COORDINATION

In small groups of six to eight, Summit participants were asked to discuss and record opportunities and challenges for early coordination for wildlife corridors, land use, and transportation planning. Key highlights were:

- All partners are not currently aware of all data sets and information. There are issues around “data silos” and proprietary approach to data, demonstrating a strong need for sharing of information and data sets across, and sometimes within, agencies and organizations. Nearly all small groups suggested developing a central repository with data/information, or a shared platform (potentially hosted by NDOT/NODW) containing key resources and mapping tools.
- There are both opportunities and challenges around early communication and coordination for wildlife transportation planning. At the local level, basic guidance is needed for land use planners and policy makers to draw from for proactive planning.
- Most groups suggested the creation of a wildlife transportation coordinating body (e.g. task force or similar) to collaboratively address key issues such as education and outreach, data collection, fundraising, and legislation.

## XI. CLOSING REMARKS

Nova Simpson again expressed her gratitude to all participants for engaging in this day-long Summit as the initial convening on this important topic. She is hopeful that this group, plus others, may reconvene in an annual or bi-annual Summit.

## APPENDIX: Results from Workshop Small Group Work

In small groups of six to eight, Summit participants were asked to discuss and record opportunities and challenges for early coordination for wildlife corridors, land use, and transportation planning. Responses captured by each small group for three prompting questions are transcribed in collated form below. Some raw results were minorly edited for the sake of clarity.

### 1) Data information and sharing:

#### a. Are all relevant partners aware of and utilizing available datasets and information sources? If not, what can be done about this?

- No, all partners are not aware of all data sets and information.
- Communicate key issues across agencies, NGOs, and partners.
- Develop a central repository with data/information, or a shared platform (potentially hosted by NDOT/NDOW) with key resources.
- NDOW to share species corridor and migration maps. Better outreach and information dissemination from NDOW is needed.
- Some data layers are protected.
- Coordination with tribes can provide Traditional Ecological Knowledge (TEK).
- More communication needed about how different agencies process information, and why that information is needed.
- Information gathered from public sources are too indefinite.
- Need to share data with local jurisdictions for land use planning.
- Issues with “data silos” and proprietary approach to data.
- Establish a Task Force of experts for data and information sharing.

#### b. Are there any apparent data gaps which should be the focus of future research and data collection?

- Data gaps for migratory non-game species, and non-migratory species.
- More GIS overlays needed at the local level.
- Develop an App to show carcass and sighting data, using citizen observation and social media to expand data sets.
- Knowledge and data gaps due to political pressures. E.g. pushback from domestic farmers on including more species in wildlife-transportation interaction research efforts, etc.
- Study of areas with low to no known crashes, but still reported as high collision zones.
- Studies to determine if signage has any effect at reducing collisions.
- More information is needed on how to apply science.
- Fine-scale data for more species and habitats.
- Data-sharing agreements needed for sensitive data.
- Need digitization of historical data.
- Non-emergency wildlife migration needs versus safety improvements.
- Urban versus rural wildlife collisions.

## 2) What are some opportunities and challenges to early coordination around wildlife considerations, transportation and land use planning?

### Opportunities

- NGOs help increase outreach and public awareness
- NGOs can advocate for legislative updates
- Getting all parties to the table (also a challenge)
- Many stakeholders interested in this issue
- Early coordination on research, planning, and recommendations
- State agencies have the capacity to support projects when aware of the issue
- Current political climate
- Increased awareness of the value of wildlife
- Willing external partners (mining, tourism, private)
- Identification of corridors and wildlife areas
- Nevada can make formal migration policies
- Developing processes from regional level up
- Local groups could work with NDOT to create master plans
- Research studies
- Increased knowledge about safety improvements
- Leverage expertise w/ long-term professional expertise of people on-the-ground
- Smaller projects traffic engineers can complete on their own authority
- Information dissemination to communities via social media platforms
- Encroachment permits could require improvements for wildlife
- Desktop guide for users: “if you are building here, animals are here, here are potential solutions”
- Innovation in design for corridors and migration pathways
- Public-private partnerships
- Education
- Compilation of best practices
- Promotability of green infrastructure to younger generations
- Local taxes/ HOA fees to fund conservation
- Establishment of Working Groups to disseminate information
- Systematic consideration of wildlife from conception of project
- Implementing planning and linkages framework
- Prioritize route-level planning
- Intra-agency education
- Engagement of the NGO community
- Nevada has strong record of success
- Transportation bills
- Data and experience
- Front-load costs (roads and development)

- Compelling stores
- Access to technology
- RTC: Long range transportation plan update
- NDOT: STIP can use this for wildlife programs

### Challenges

- NGOs need to understand what messages to disseminate
- NGOs need to know what legislative updates are necessary
- Much of the political power is in Las Vegas. Need to transition this to statewide
- Private developments – local governments only have limited amount of time to review development proposals, so early coordination is often difficult
- Educating private developers about how to mitigate impacts on wildlife and incorporate needs into mitigation plans
- Timeline for creation of a master plan
- Costs; both initial funding and long-term maintenance
- Urban collisions
- Balance between including stakeholder and stalling processes
- Getting decisionmakers and locals to buy-in to the importance of reducing collisions
- Developers do not always know what to do with data
- Lack of tracking neighborhood expansions
- Pressures for growth and development
- “Us vs. Them” mindset decreases support for taxation to build fencing
- Agency scope and jurisdiction; working across boundaries
- Fear of putting private property listings on maps
- Misinformed management techniques
- Lack of policy and enforcement to benefit the many
- Piecemeal approach- lack of holistic planning
- Not knowing who to reach out to on these issues
- “Tyranny of the urgent” and reactive planning
- Mission mismatch
- Biennial budgets and legislative sessions require long-range planning and coordination
- Climate change
- Conflicting land-uses
- Mining
- Difference decision-makers (local, county)
- Staff turnover
- Unrealistic expectations
- Current political climate

**3) As a group, please identify 1 – 3 recommendations for next steps for improved coordination on wildlife migration, transportation and land use planning. Please identify actions which can be initiated within 1 year.**

- Develop a statewide action committee with sub-groups focused on different topics, such as education and outreach, data collection, fundraising, and legislation.
- Create a central repository to share data, GIS layers, and resources.
- Work regionally to gather stakeholders to make master plan that contains wildlife migration corridor plan (NDOT leads effort)
- Build partnerships before you can build a plan. NDOT gauges public interest in this type of wildlife conservation and then sees who to involve.
- Creation of a comprehensive website/maps all publicly available data from as many sources as possible. “Central Repository”
- More deliberate and regular dissemination of information among agencies and stakeholders:
  - Maps: what kind of animals, frequency of movement, wildlife issues by district
  - List of contacts: Point of contact by county, districts, regions
- Toolbox of low cost, smaller projects that could be implemented by small departments or private developers
- More communications between agencies and stakeholder
- Enlist DMV to educate new drivers
- Ensuring that NDOT and NDOW data is available to counties, planners, developers and other stakeholders (ONYX)
- Policy: requirement for early consultation and planning; a checklist that must be addressed; binding regional transportation plans
- Funding sources: bipartisan transportation bills from congress; bond program; per acre development fees, Research funding sources
- Collaborate inter-agency: develop MOUs; implement self-mitigating strategies
- Prioritize who and how will deal with the biggest issues (e.g. data sharing)
- Develop wildlife transportation & planning task force and create working groups to address more defined topics such as education, policy, or funding.
- Action Plan with clear ownership/leadership (Devoting FTE/liaison to develop) Continue to meet regularly to share data and make plans focused on planning for mitigation based on public safety with the goal of creating a prioritized list
- Review current projects to see if adjustments can be made
- MOU/ Formal agreement(s), Agencies draft MOUs to share data and formalize coordination
- Institutional Decision-Making Body/ Partnership/ Task Force
- Coordination mechanism with planning efforts (early)
- Engage County/ municipal level planners
- Outreach

- Local governments should be able to have a say when developments impacts wildlife

## APPENDIX: Summit Attendees

First	Last	Affiliation
Abdelmoez (Del)	Abdalla	FHWA-NV Division
Andrew	Amacher	CA Dept of Fish and Wildlife
Jennifer	Ammerman	Clark County
John	Angel	NDOT
Amy	Bailey	Caltrans
Joe	Barnes	Nevada Department of Wildlife
Michael	Barnes	Heinz Ranch Land Company, LLC
Craig	Benjamin	National Wildlife Federation
Christi	Cabrera	Nevada Conservation League
Renee	Callahan	ARC Solutions/Center for Large Landscape Conservation
Nic	Callero	The Pew Charitable Trusts
Therese	Cline	Wildhorse Preservation League
Kyle	Davis	Davis Strategies
Florence	Deffner	US Fish and Wildlife Service
Leslie	Duncan	The Pew Charitable Trusts
Maureen	Easton	U.S. Forest Service
Lara	Enders	U.S. Fish and Wildlife Service
Carl	Erquiaga	Theodore Roosevelt Conservation Partnership
Liz	Fairbank	Center for Large Landscape Conservation
Scott	Gilles	Office of Governor Steve Sisolak
Noah	Glick	University of Nevada Public Radio
Melanie	Gogol-Prokurat	California Department of Fish and Wildlife
Vinson	Guthreau	NACO
Greg	Hendricks	American Wild Horse Campaign
Sara	Holm	CA Department of Fish and Wildlife
Jordan	Hosmer-Henner	Office of Governor Sisolak
Alan	Jenne	Nevada Department of Wildlife
Sophia	Kirschenman	Washoe County
Nancy	Kilian	Virginia Range Wildlife Protection Association
Ashli	Lewis	CA State Parks
Sena	Loyd	Blockchains, LLC
Ken	Mayer	Pew
Caelan	McGee	Zephyr Collaboration
Cody	McKee	Dept of Wildlife
Jerrod	Merrell	University of Nevada, Reno

Eric	Miskow	Division of Natural Heritage
Jaina	Moan	The Nature Conservancy Nevada
Curtis	Moore	Elko County Planning and Zoning
Cole	Mortensen	Nevada Department of Transportation
Jen	Newmark	NV Dept of Wildlife
Sarena	Nichols	Nevada Indian Commission
Greg	Novak	FHWA Nevada Division
Dorothy	Nylen	Wildhorse Preservation League
Julee	Olander	Washoe County Planning Division
Liam	Pollom	Tahoe Regional Planning Agency
Colby	Prout	Nevada Association of Counties
Robert	Pyzel	Lyon County Government
Sami	Real	Clark County
Kari	Rhodes	Nevada Dept of Transportation
Melanie	Scheible	Nevada Legislature
Cody	Schroeder	Nevada Dept of Wildlife
Nova	Simpson	Nevada Dept of Transportation
Matthew	Skroch	The Pew Charitable Trusts
Tara	Smaltz	NDOT- District II
Elena	Sullivan	Virginia Range Wildlife Protection Association
Kristina	Swallow	Nevada DOT
Chairman Laurie	Thom	Yerington Paiute Tribe
Jimmy-John	Thompson	Timbisha Shoshone Tribe
Robert	Thran	NDOT
John	Tull	U.S. Fish & Wildlife Service/DOI
Tyler	Turnipseed	NV Bighorns Unlimited
J.A.	Vacca	BLM-Nevada State Office
Patsy	Waits	Lander County
Brian	Wakeling	Nevada Department of Wildlife
Xuan	Wang	RTC Washoe
Tony	Wasley	Nevada Dept of Wildlife
Karin	West	NDOT
Jake	Willers	NineCaribou Productions, LLC
Andie	Wilson	NAIOP of Northern Nevada
Meghan	Wolf	Patagonia
Meagan	Wylie	Zephyr Collaboration
Chris	Young	Nevada DOT