

WILDLIFE CROSSINGS

Prioritizing Safe Wildlife Passage Across Oregon



Oregon Action Team

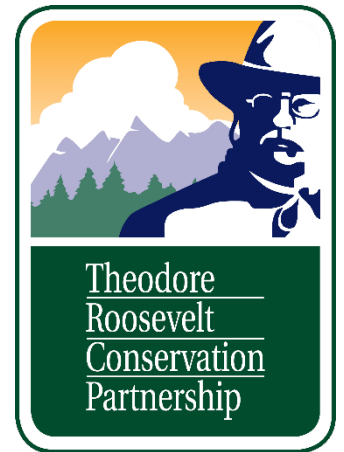
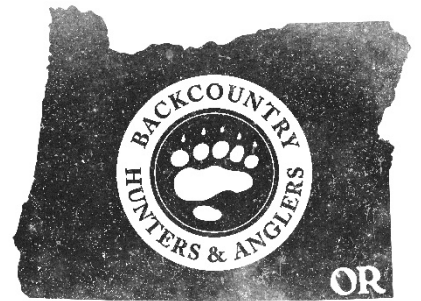
02/02/2022

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**ROCKY MOUNTAIN
ELK FOUNDATION**



**OREGON WILDLIFE
FOUNDATION**

INTRODUCTION

This flexible framework is designed to help decision-makers prioritize the current roadway-wildlife passage projects within Oregon. The projects listed below include implementation of specific methods proposed for use at identified locations with the goal of reducing wildlife-vehicle collisions (WVCs) and improving habitat connectivity for Oregon's big game (primarily deer, pronghorn, and elk). Bighorn Sheep are an additional species of concern, although relatively few WVCs have been observed compared to deer, elk, and pronghorn on Oregon Department of Transportation (ODOT) managed highways. Wildlife crossing projects designed for ungulates benefit other species too. Priority project listings will change over time as existing projects are completed, new data is gathered, and new priority locations conduct planning, feasibility studies, design, funding, and implementation processes.

The information provided in this document is a combination of ODOT created maps of WVCs, and collections of known sites currently being constructed, near completion or with next steps in implementation being considered. This list is not exhaustive; many more sites with frequent WVCs are yet to be prioritized. Where ungulate telemetry data exist, those data are incorporated in the priority setting. Data includes wildlife telemetry from ODFW and others, ungulate counts and data of carcass counts by ODOT personnel. Similarly, photo evidence of ungulate use at existing under crossings, bridges, or large culverts is informative and can help prioritize solutions.

This document was prepared by members of the Oregon Action Team for Ungulate Migration (OAT) and shared to the broader conservation community in Oregon for endorsement.

OAT is a coalition focused on improving ungulate migration, habitat connectivity, ecosystem structure and function, human/wildlife safety (including addressing barriers to migration), and restoration of degraded and fragmented habitats. The Team engages in education, outreach, advocacy for policy and plan development, identification, and coordination for project implementation, and leveraging funding sources. OAT combines broad support among hunting and conservation groups, Tribal representatives, and wildlife professionals for the benefit of migrating wildlife via advocacy for wildlife crossings and improved habitat connectivity. OAT recognized early on that addressing barriers to wildlife migration (i.e., roads and highways) is critical to improving migration habitat.

BACKGROUND

Oregon has a vital need for safe ungulate passage on our highways, with over 6,100 wildlife-vehicle collisions (WVC) recorded in 2019, and at least twice that number unreported (ODOT, unpublished data). Oregon, with only 5 wildlife crossings, significantly trails other western states in addressing this problem. Colorado has 69 wildlife passage structures, Utah and California each have 50, and Nevada has 23 crossings for large mammals. However, many opportunities for safe wildlife passage structures exist in Oregon, and these areas are supported by WVC data collected by state agencies. Road design elements, such as wildlife underpasses or overpasses, are proven to significantly reduce WVCs. A prime Oregon example is the 2012 Lava Butte wildlife underpass on Hwy 97 in Central Oregon which has

reduced [WVCs by 85%](#) and has documented use by 29 different species. A new 2020 underpass just north of Gilchrist is producing similar results.

The annual cost associated with wildlife collisions is [estimated to exceed \\$8 billion nationally](#). Case studies from Colorado and Wyoming show that wildlife crossing structures can pay for themselves over a relatively short time period, making wildlife crossings a wise investment. The average cost of a deer collision is [\\$9,086 and an elk collision is \\$24,006](#), while the cumulative cost of collisions with these two species in Oregon totaled \$56.9 million in 2020. WVCs are costly beyond vehicle damage and medical expenses; hunters, wildlife viewers, and all Oregonians that benefit from wildlife on our landscapes are being impacted by this deadly byproduct of highway infrastructure.

[Oregon House Bill 2834](#) (HB 2834; effective January 1, 2020) directs the Oregon Department of Fish and Wildlife (ODFW) to cooperate with the Oregon Department of Transportation (ODOT) and develop a statewide Wildlife Corridor Action Plan (Plan). The Plan is to provide guidance to all state agencies for the designation and protection of wildlife corridors that connect wildlife habitat and allow for movement, migration, and dispersal of wildlife in Oregon. ODFW is to report findings and recommendations to the legislature by September 15, 2022.

HB 2834 also requires ODOT to establish a program by December 31, 2023, to reduce WVCs in areas where wildlife corridors identified in the Wildlife Corridor Action Plan intersect with public roads. After implementation of the Plan, ODOT is required to report to the legislature every two years on the number and types of wildlife passage projects and their impact on WVCs. The first report is due September 15, 2024. ODOT is required to coordinate with ODFW during plan development and provide updates during engagement with stakeholders and when reporting to the legislature.

Until the finalized plan is available, HB 2834 directs ODOT and ODFW to coordinate efforts to reduce WVCs based on available data. HB 2834 states that ODOT shall consider the benefit of including a wildlife crossing as part of a project if the data suggest that such a crossing could significantly reduce WVCs.

ODFW is leading the Oregon Connectivity Assessment and Mapping Project (OCAMP) and currently conducting an extensive statewide project to produce connectivity maps for a wide range of species. OCAMP was informed by a diverse stakeholder group focused on connecting landscapes and mitigating wildlife movement barriers. Utilizing analytical tools, OCAMP began in 2020 as a multi-year connectivity mapping project to help prioritize and plan functional habitat connectivity. OAT and OCAMP are working to achieve similar goals, while OAT efforts focus on large ungulates with recognition that wildlife passage for ungulates benefits many other species as shown by the Lava Butte underpass.

ODOT has constructed ungulate-sized wildlife crossings most often when combined with planned highway expansion and reconstruction. Examples include the two completed underpasses and two additional underpasses currently under construction on Highway 97 between Bend and Gilchrist. A second example is a large culvert-style underpass near Eddyville on highway 20 that was added when a bridge was replaced with fill material.

There are no highway overpasses to date in Oregon. Overpasses in other western states have been effective in reducing WVCs. Funding for the Oregon wildlife passage structures has been included in the highway improvement projects except for the 2020 underpass constructed just north of Gilchrist. ODOT

decided in that instance to duplicate the success of the Lava Butte structures based on ODFW telemetry data and the clear success reducing WVCs at Lava Butte. ODOT was unable to fund the required directional fencing at Gilchrist, and without the fencing, underpasses are less effective.

Despite their importance for human and wildlife safety, and being a sound investment, wildlife crossings are expensive endeavors, and it is difficult to find available funds for feasibility design construction, maintenance, and monitoring. The projects listed in this document have estimates tied to the project descriptions. Considerable funding has been generated by partnership coalitions in cases like Gilchrist, I-5 near Ashland, and Highway 20 between Juntura and Harper. The partnerships have raised funds through non-profit donations, extensive grant writing and existing state or federal funding sources already dedicated to wildlife support, including the Oregon Conservation and Recreation Fund and National Fish and Wildlife Foundation. While these collaborative funding efforts have shown some success, they are not a sustainable or adequate fund source to support the cost of wildlife safe passage infrastructure. Oregon examples are the Gilchrist fence funding collation raising \$850,000 toward the \$1,200,000 fencing cost and the Southern Oregon Wildlife Crossing Coalition raising \$125,000 toward their feasibility study on a project potentially costing \$15,000,000. Other western states like California and Colorado have prioritized and dedicated state funds toward wildlife crossings, but Oregon not followed suit to date.

The good news is that there are potential federal funding sources in sight. The recently enacted Infrastructure Investment and Jobs Act (IIJA), which became law in November 2021, allocated \$350,000,000 over a five-year period to provide new federal funding for projects and research to reduce WVCs and improve habitat connectivity. These funds will be allocated on a grant basis, meaning Oregon must be both prepared and competitive to receive any funding. As is customary with grant funding, there are match funding requirements and a grant process yet to be determined on this new fund source. Another recent development is HB 4130, the Wildlife Crossing Investment Act, that has been introduced in the state legislature in 2022 and would appropriate at least \$5,000,000 toward wildlife passage infrastructure. The funds in the bill will be available for federal grant match requirements.

Priority Framework Process

Phase 1. Data Collection and Criteria: existing wildlife-vehicle collision data and carcass data, as well as wildlife collar data were compiled and reviewed. Consulted with ODOT and gathered criteria recommended by the agency.

Key Wildlife Passage Prioritization Criteria:

1. Both a) migration corridor and b) high Wildlife-Vehicle Collision crash data or high WVC carcass data occur in the area
2. Adjacent land ownership (public vs private), degree of long-term land use protection
3. Upcoming project (STIP)
4. Existing structures for retrofit (Example: An existing culvert or bridge to fence to)
5. High potential to reduce Wildlife-Vehicle collisions
6. Potential for landowner partnerships or conservation easements*

Other criteria for consideration:

Target Species = Deer, Elk, Both Deer and Elk, Pronghorn, Bighorn Sheep*

Project potential impact = Additional travel lanes, adding of jersey barrier, etc.

Topography = obvious passage corridor and/or ease of constructability for over/under crossing

AADT = Average Annual Daily Traffic

Zoning = future development plans

Habitat = how disturbed and how protected is the adjacent property

Site distance = obvious fence ending points; or ideal location for animal detection systems

Access = how many access points will fencing have to cross

Environmental issues = archaeology or other resource issues

Existing infrastructure = gas lines, railroad, etc.

Ability to address climate change factors

Cost/benefit

Low-cost wildlife passage feature options

Possible funding options, IIJA or other Federal/State funds like HB 2548, Grants, etc.

Public and NGO support

Phase 2. Set top priorities initially at a statewide level: We identified areas on stretches of ODOT managed highway in Oregon where WVCs are most abundant as displayed on ODOT's January 2016-December 2020 Wildlife-Vehicle Collision Density map for Oregon Highways (Appendix 2). This map displays numbers of WVCs per mile across Oregon's ODOT managed highways only. There are many additional WVCs on roads under Oregon's county and federal public road system jurisdictions across Oregon, though this data is rarely collected and is difficult or impossible to retrieve. WVCs are prevalent at locations where large ungulates need to cross roads along their migration routes or in some cases within winter or summer ranges. These areas can be many miles long. Priorities are ranked at the statewide level, for implementation by ODOT, ODFW and locally by ODOT regions.

Phase 3. Refine priorities: We reviewed proposed mitigation solutions, and whether they are effective and feasible based on existing proven solutions in wildlife crossings in Oregon and other western states. For example, the 2012 Lava Butte underpass post-construction data collection documented numerous wildlife species using the underpass and reduced WVCs by 85 percent. The Lava Butte design was then replicated by ODOT at a new underpass constructed near Gilchrist in 2020. Very similar designs are also being used at the Sunriver underpasses currently under construction. This step may involve considering some local factors that affect the feasibility of candidate solutions, such as topography and geology. Examples could include projects for which there are existing engineering plans for a wildlife-focused project, availability of existing funding, or a plan for a major road rebuild that might become a higher priority. This prioritization process should use the best-available data, and priorities can be updated in the future using the same process.

The phases above are iterative as we evaluate other considerations and new information that further refines priorities. We hope ODOT and ODFW will consider this prioritization list as they implement the requirements of Oregon HB 2834 and create a Wildlife Corridor Action Plan

Additional project opportunities may arise as some locations develop strong partnerships and support such as additional funding via contributions, grant awards and local support. Localized interests may include new developments that incorporate wildlife passage corridors through housing or land development projects necessary per local or regional zoning requirements. This prioritization process will use the best-available data, and priorities can be updated in the future using this or similar process.

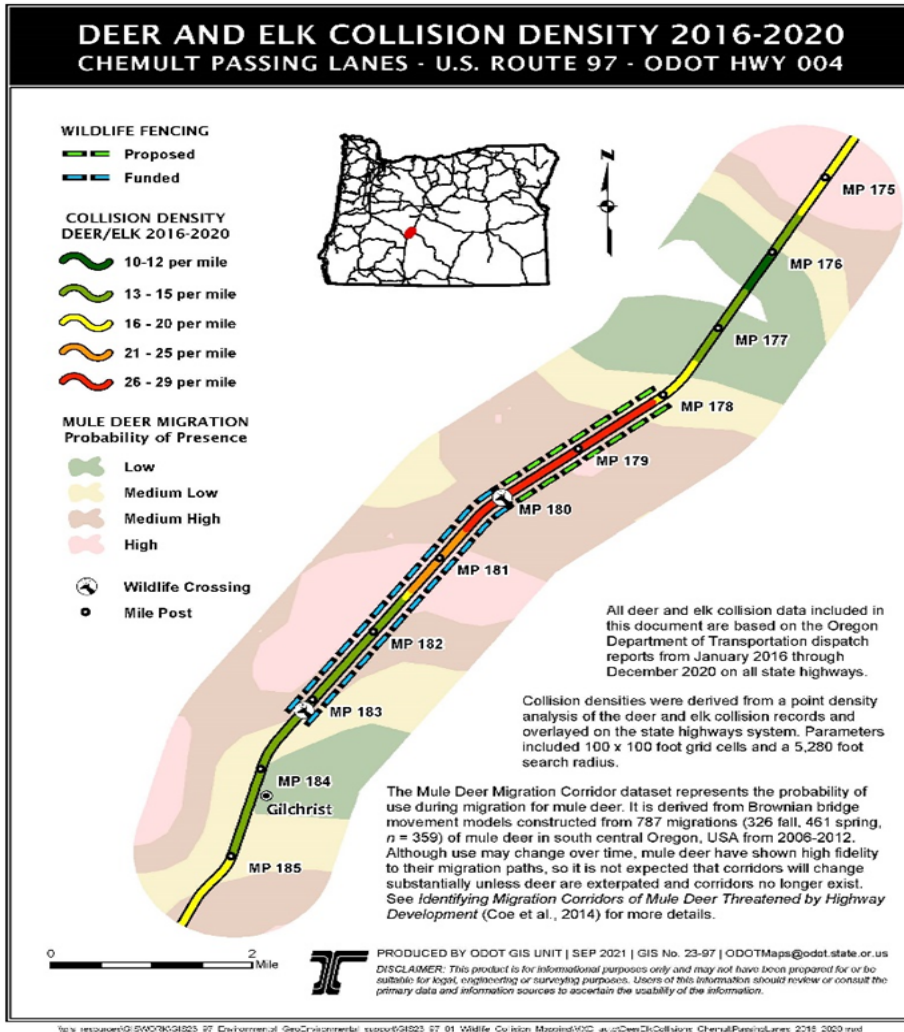
WILDLIFE CROSSING PROJECTS

Oregon Action Team wildlife crossing project priority list

The priority list that follows is fluid as more information is developed or key steps in the implementation needs are completed. Costs are estimates based on best available information.



Gilchrist Wildlife Fencing Project, Phase II



Project Description:

Install wildlife fencing on US 97, MP 178.5-180 north of the new wildlife undercrossing. The Gilchrist underpass was constructed by ODOT to replicate the success of Lava Butte with the use of Mule Deer collaring data collected by ODFW. ODOT did not fund fencing. A collation of over 20 partners contributed over \$850,000, current estimate. \$1,200,000

Species: Mule Deer, Elk

Cost Estimate:
\$400,000

Identified need:

Complete fencing project to design standard of 4 miles. ODOT has invested \$850,000 in underpass

construction, and the partnership coalition has invested a similar amount in construction of 60% of the designed fencing. See a video of the [Gilchrist funnel fencing](#) needs here.

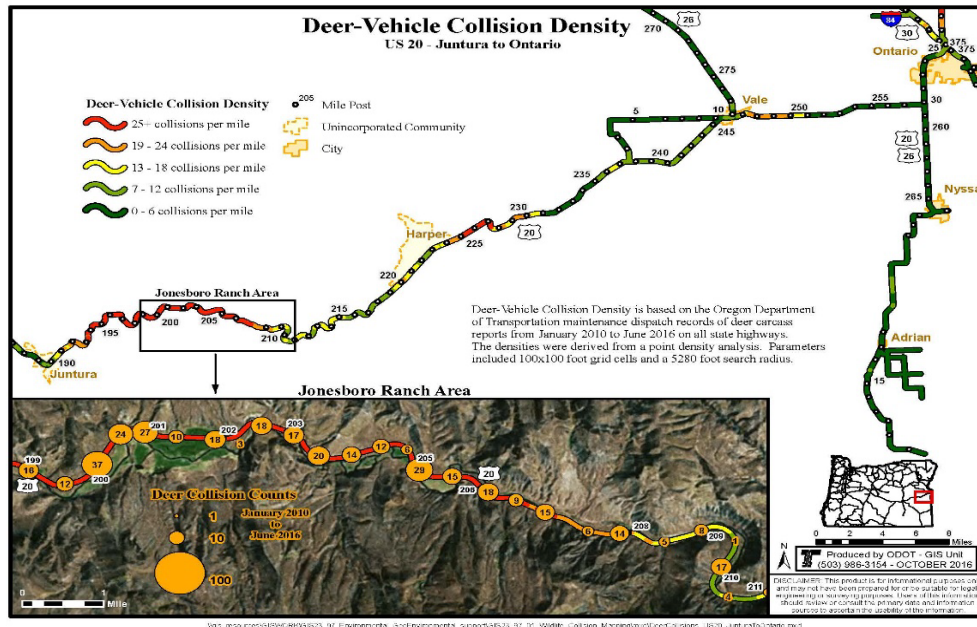
Suggested Actions: Phase I fencing from MP 180-183.1 completed in November 2021. Phase II will add 2 additional miles continuing north from Phase 1, installation of four deer guards and construction of jump outs. Actual miles of fence are double the mileposts as fencing is on both sides of the highway. Complete the fencing project, design, and construct a project kiosk explaining overall work on highway 97 completed and planned crossings. Oregon Wildlife Foundation is coordinating the kiosk work with a planned location at the Oregon Department of Forestry Gilchrist State Forest access point in Gilchrist.

Benefits: Reduced WVCs, improved driver safety, reduced wildlife movement barriers.

Project Specific Needs: Funding and completion of the fencing to design standard.

Primary Supporters: ODFW, ODOT (underpass construction), Oregon Hunters Association, Oregon Wildlife Foundation, US Forest Service, Pew Charitable Trusts, Rocky Mountain Elk Foundation, Oregon Watershed Enhancement Board, Boyer Family Foundation, and the Olseth Foundation among others.

Highway 20 Juntura to Harper Valley



Project description: Mile points 190 to 217 Highway 20 between Juntura and Harper Valley. An informative video of the project needs can be seen [here](#).

Species: Mule Deer, Elk.

Cost Estimate: Feasibility study cost of \$90,000 paid for with

tribal grant. Feasibility report released January 2022. Cost estimates vary depending on design and choice of options for construction. The estimated cost for simple retrofits on the five bridges are \$1,215,000; complex retrofits are estimated at \$2,290,000 per bridge at \$11,450,000 for the five bridges. An estimated overpass estimate ranges from \$3,962,000 to \$7,092,000.

Identified need: The project is entirely within Mule Deer winter range with resident deer herds overwintering in the Malheur River/Highway 20 corridor over several months annually. These deer cross and recross the highway numerous times, exposing both animals and drivers to numerous WVCs within the winter range. High numbers of WVCs in this region have resulted in roadkill hotspots and mule deer collar data indicated some deer crossing Highway 20 as many as 370 times during the fall and winter months. Average annual costs to drivers on Highway 20 in Malheur County from large animal collisions \$1,341,207, plus \$164,166 annual costs to the state from loss of animals. These estimates do not represent the full impact to the social, economic, and ecological ties for people who are reliant on these animals to feed families, their communities and even their cultural values.

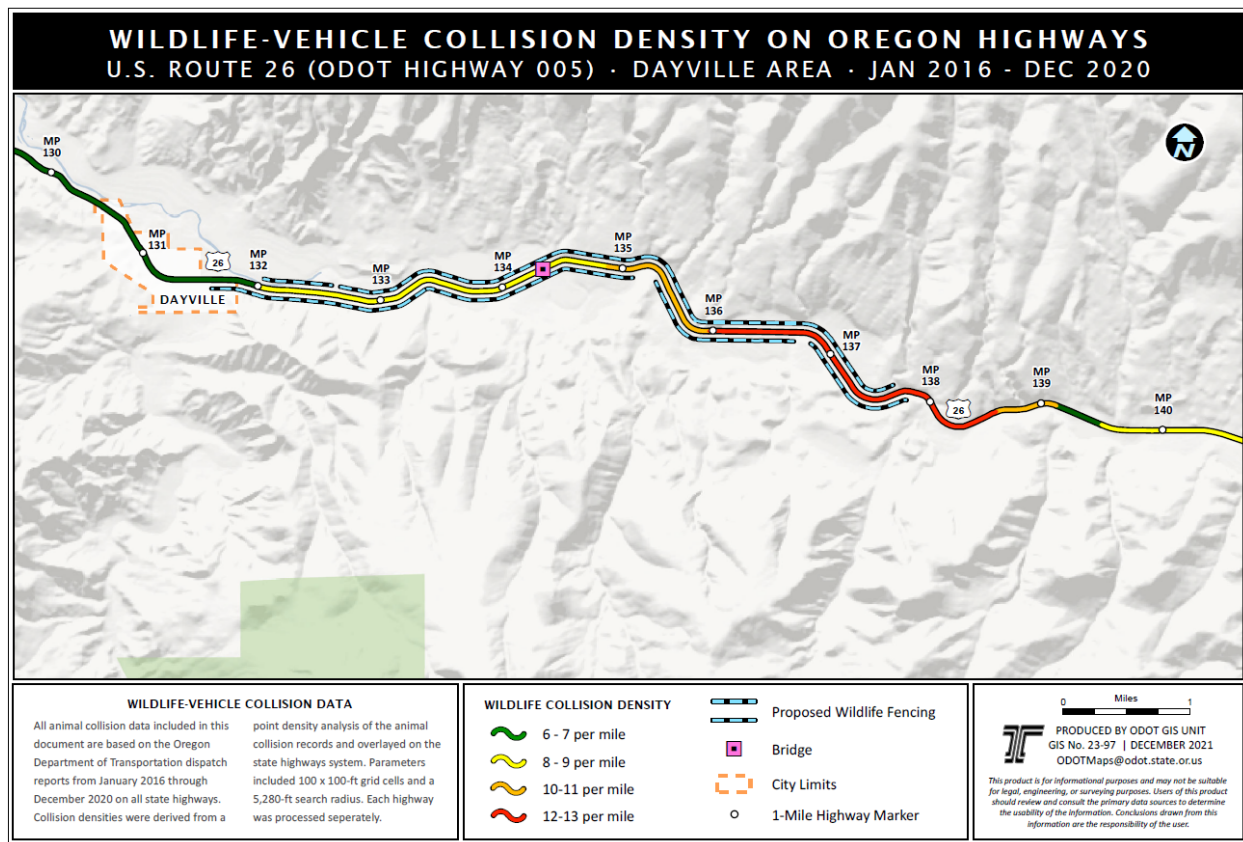
Suggested Actions: Simple and complex retrofits including creation of unobstructed pathways under the existing bridges, removal of derelict fencing and debris, conduct surface grading to increase height, improve openness and increase line of sight. Install directional fencing and jump outs. Design plan and obtain permitting for a wildlife overpass implementation when funds are available.

Benefits: Reduced WVCs, improved driver safety, reduced wildlife movement barriers.

Project Specific Needs: Design and permitting for simple and complex retrofits, fencing and a wildlife overpass.

Primary Supporters: Burns Paiute Tribe, Oregon Wildlife Foundation, Pew Charitable Trusts, ODFW, ODOT, local elected officials.

Dayville Wildlife Fencing Hwy 26



Project description: ODOT/ODFW meetings in progress, needs dedicated funding source, design and landowner buy-in. This project will serve as a pilot project for the John Day area. If successful, ODOT would continue east to John Day to address higher WVC areas.

Species: Mule Deer, Pronghorn

Cost Estimate: Design \$15,000, Construction \$800,000-\$1.2 million

Identified need: Fencing, Design

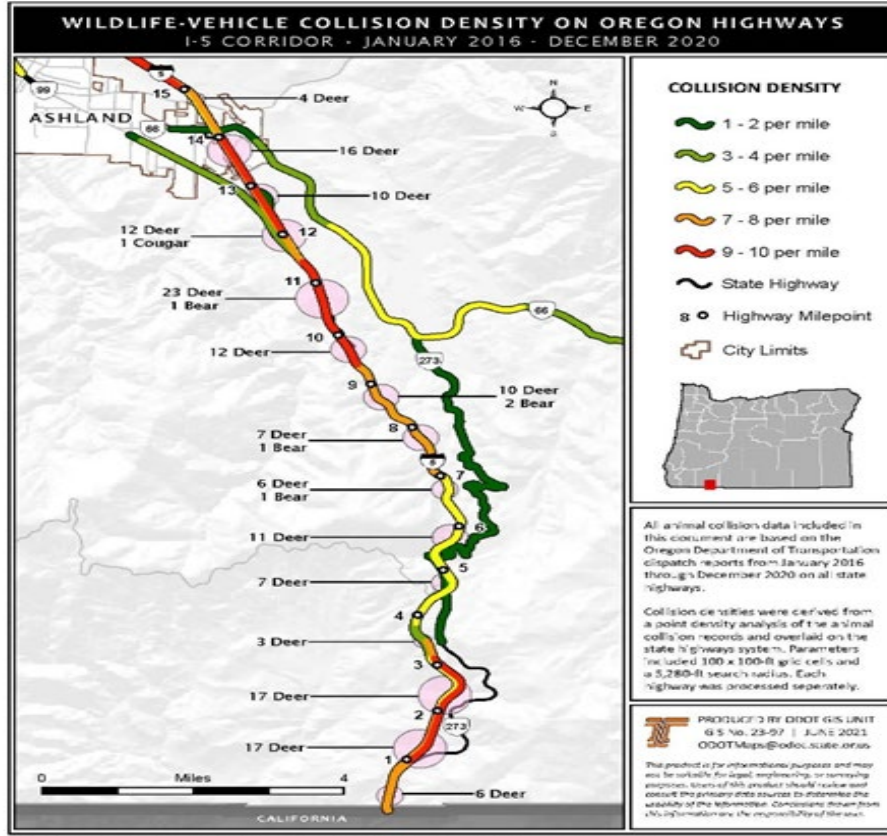
Suggested Actions: Continue discussions with local partners, landowners, and staff

Phillip W. Schneider Wildlife Area. This location is on the ODFW priority action plan for wildlife passage. **Benefits:** Reduced WVCs, improved driver safety, reduced wildlife movement barriers.

Project Specific Needs: Feasibility, Design fencing construction, bridge retrofits for wildlife passage

Primary Supporters: ODFW, ODOT

Southwest Oregon I-5 Wildlife Passage and WVC Reduction Project



Project description: Six existing culvers within 14 miles of I-5 from Ashland to the California border are being examined for wildlife undercrossing crossing feasibility. The coalition spearheading this project may assess the feasibility of an overpass as well within this stretch. A crossing in this location would improve habitat connectivity for wildlife moving throughout the Cascade Siskiyou Nation Monument.

Species: Black-tailed Deer, Mule Deer, Elk

Cost Estimate: Feasibility Study \$125,000, Design:

\$1.5 million, Construction: \$15 million

Identified need: The feasibility study has been funded by OCRF, SOWCC member contributions, and OWEB (pending). Over/underpass is being considered and will need design, partnership support and funding. There is a strong support coalition as shown in primary supporters below.

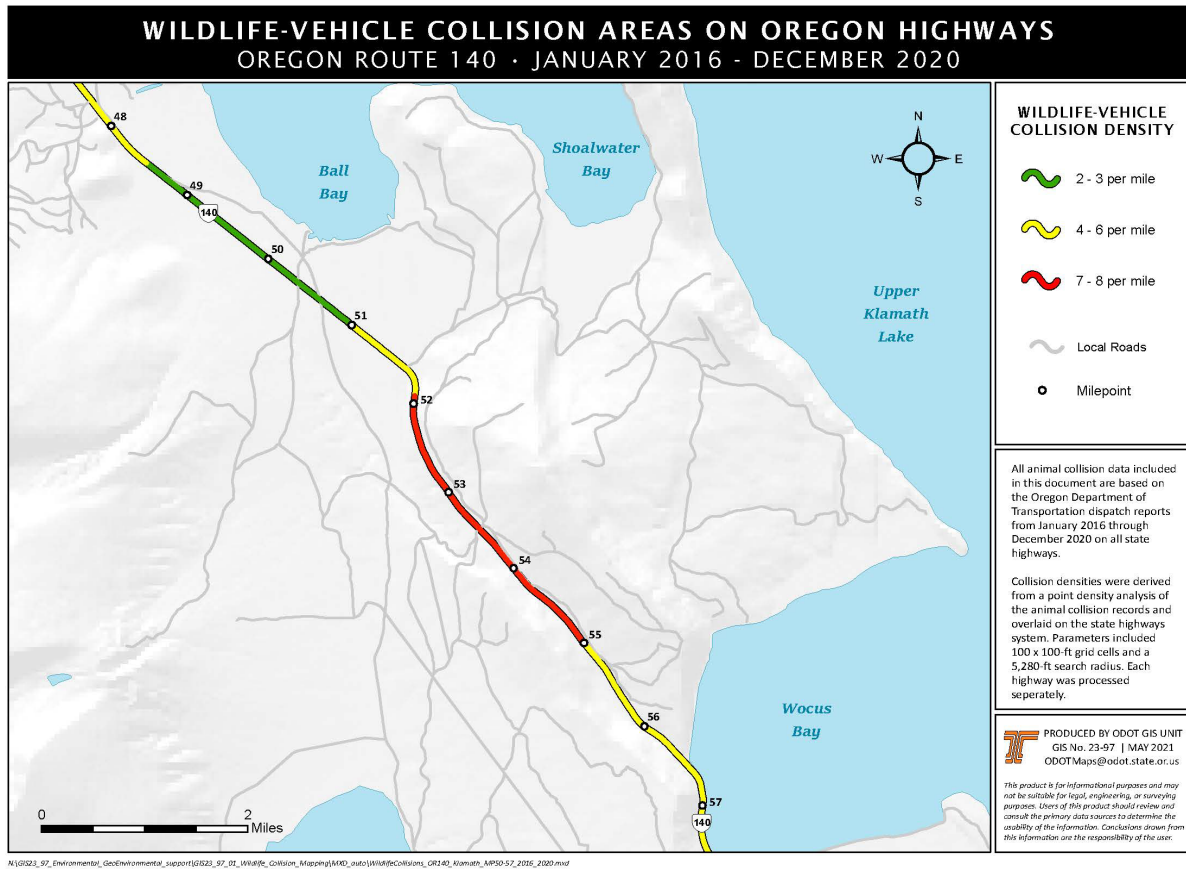
Suggested Actions: Conduct recently funded feasibility study and continue to fund-raise.

Benefits: Reduced WVCs, improved driver safety, reduced wildlife movement barriers.

Project Specific Needs: As of January 2022, partner donations and grants for a feasibility study are in process with current positive rankings by potential grantors expected to approve grants in January and April.

Primary Supporters: Southern Oregon Wildlife Crossing Coalition – members include Oregon Wildlife Foundation, ODFW, BLM, Southern Oregon University, OHA, Soda Mountain Wilderness Council, Southern Oregon Land Conservancy, Pacific Forest Trust, Trout Unlimited, Rogue Valley Audubon Society, KS Wild, US Fish and Wildlife Service.

OR 140 Wildlife Fencing to Existing Underpass



Project description: Existing arch culvert currently being used by rancher to move livestock under HWY 140. Fencing to be installed to funnel wildlife to the existing underpass. Adjacent landowners are Green Diamond Resource Co, JWTR LLC. Culvert location is approximately MP 52, fencing estimated need from MP 50 to 54.

Species: Mule Deer, Elk

Cost Estimate: Design \$100,000, Construction \$800,000

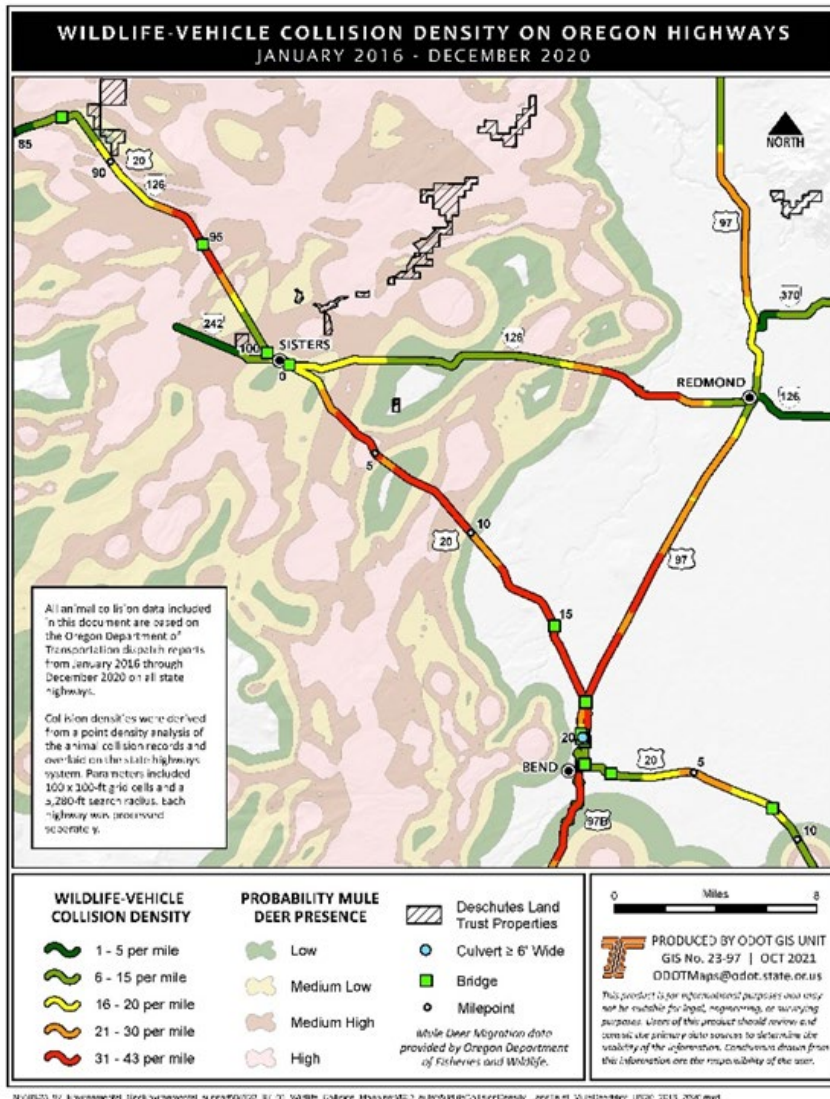
Identified need: Fencing retrofit needed in addition to relatively inexpensive feasibility/design and landowner buy-in. Existing corals need to be modified to reasonably accommodate wildlife passage.

Suggested Actions: Approach landowner and discuss next steps (existing corals, landowner needs, etc.), work with Klamath County to ensure movement corridor is maintained.

Benefits: Reduced WVCs, improved driver safety, reduced wildlife movement barriers

Project Specific Needs: Landowner agreements, design specifics, possible easements.

Hwy 20 Suttle Lake to Bend Wildlife Passage Planning Project



Primary Supporters: Oregon Wildlife Foundation, ODFW, Mule Deer Foundation, Oregon Hunters Association.

Project description: Initiate full planning process to determine project design, Underpass, overpass, other measures. USFS lands. Former projects include roadside R/W tree thinning for visibility, large tree removal, key deer passage to ODFW designated Metolius Deer Winter range.

Species: Mule Deer

Cost Estimate: Project Planning \$66,330. Design, feasibility, and construction currently not estimated.

Identified need: Fencing, crossing structure, deer guards, potential easements.

Suggested Actions: Raise awareness of this project need, Migration corridor for

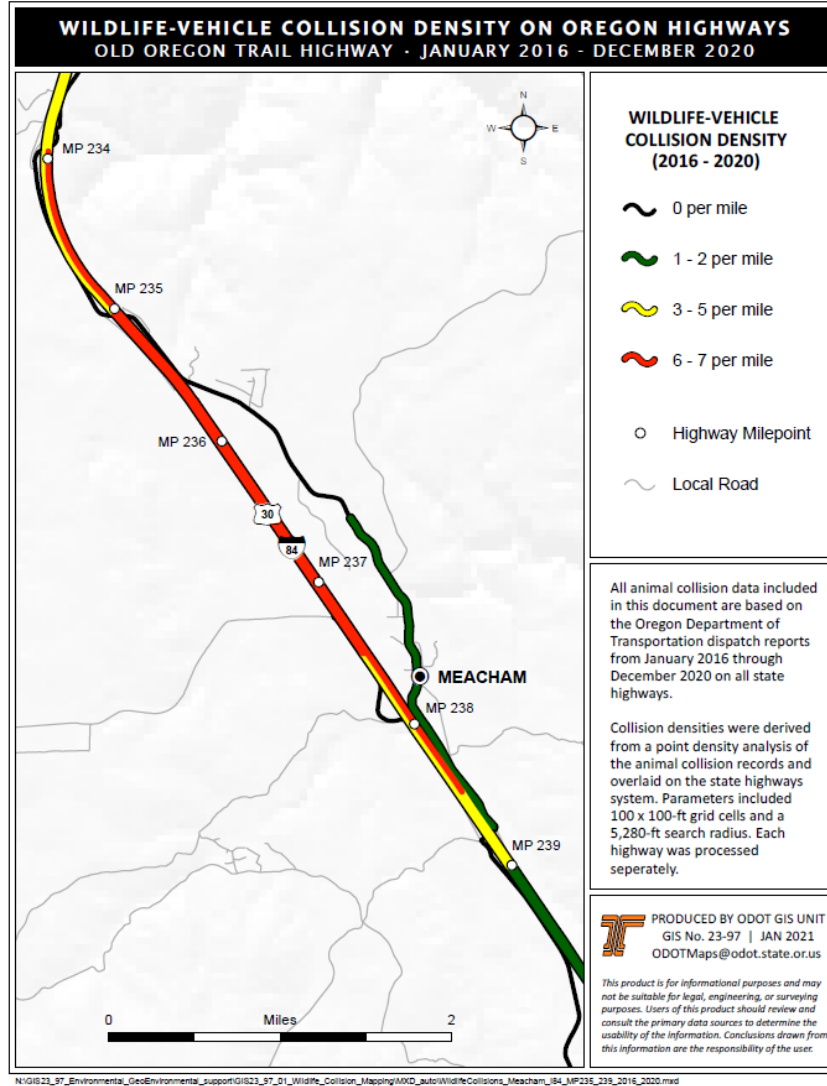
Mule Deer winter/summer range.

Benefits: Reduced WVCs, improved driver safety, reduced wildlife movement barriers.

Project Specific Needs: OWEB stakeholder engagement grant for this project applied for, funding will be announced in April.

Primary Supporters: Deschutes County, ODFW, US Forest Service, Deschutes Basin Land Trust, Oregon Wildlife Foundation, Wildlands Network.

Meacham I-84 Wildlife Passage



Project description:

ODOT/ODFW and conservation groups have met on ground. Primarily Elk crossing. ODOT has photo series of elk, mule deer and whitetail deer using the bridge structure at ~MP 138 as an underpass (Fig. 1, 2). Existing small under crossing structures in this highway segment are occasionally used by deer but apparently too small to accommodate elk. Tribal records include collared elk attempting to cross I-84, and ODOT WVC's indicate failure of safe crossing attempts. Existing railroad under northern end of bridge is of concern to ODOT R5.

Species: Elk, Mule Deer, White-tailed Deer

Cost Estimate: Unknown until further study on feasibility and design.

Identified need: Fencing, additional features unknown.

Additional Research.

Suggested Actions: Retrofit I-84 bridge over Meacham access road with directional fencing. There are several smaller underpass structures in this stretch of I-84 that appear too small for elk.

Benefits: Reduced WVCs, improved driver safety, reduced wildlife movement barriers.

Project Specific Needs: Additional camera and collaring data, site specific visits by agencies and partners.

Primary Supporters: ODFW, Confederated Tribes of the Umatilla Indian Reservation, ODOT, OHA

Meacham I-84 Wildlife Passage (continued)

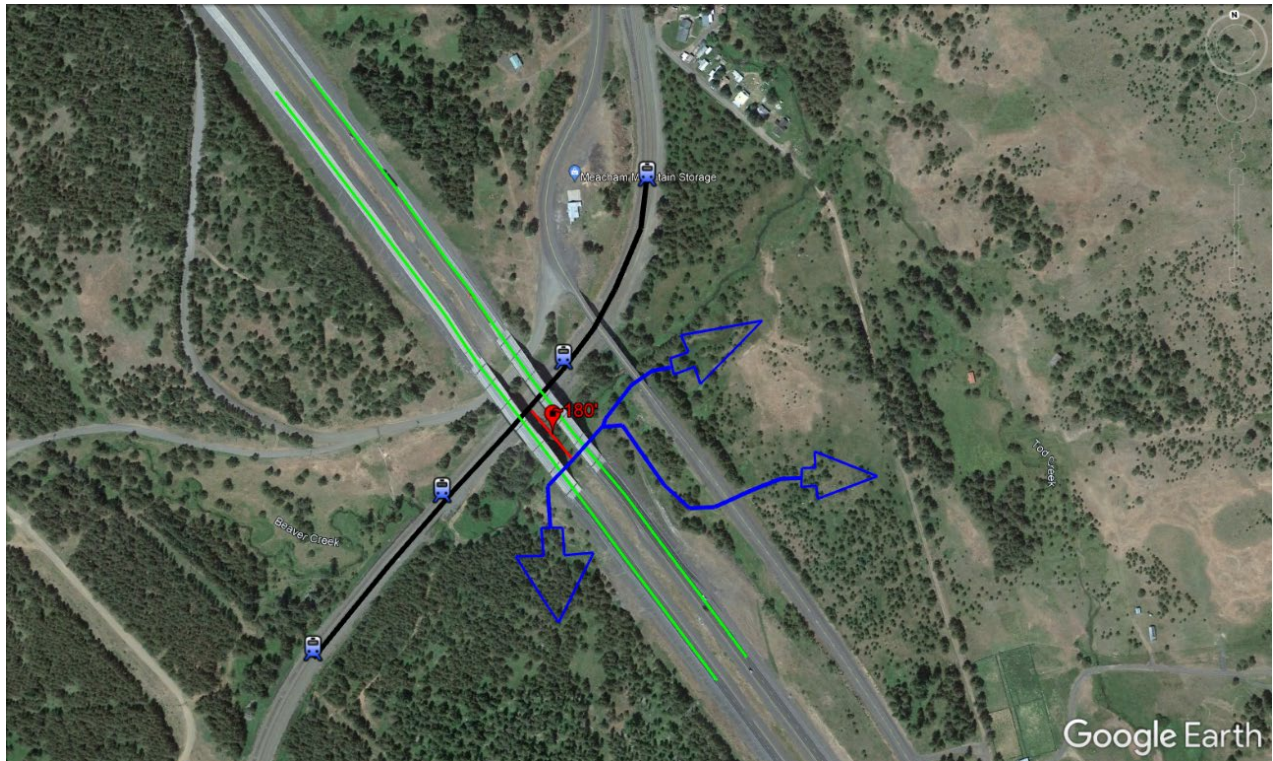
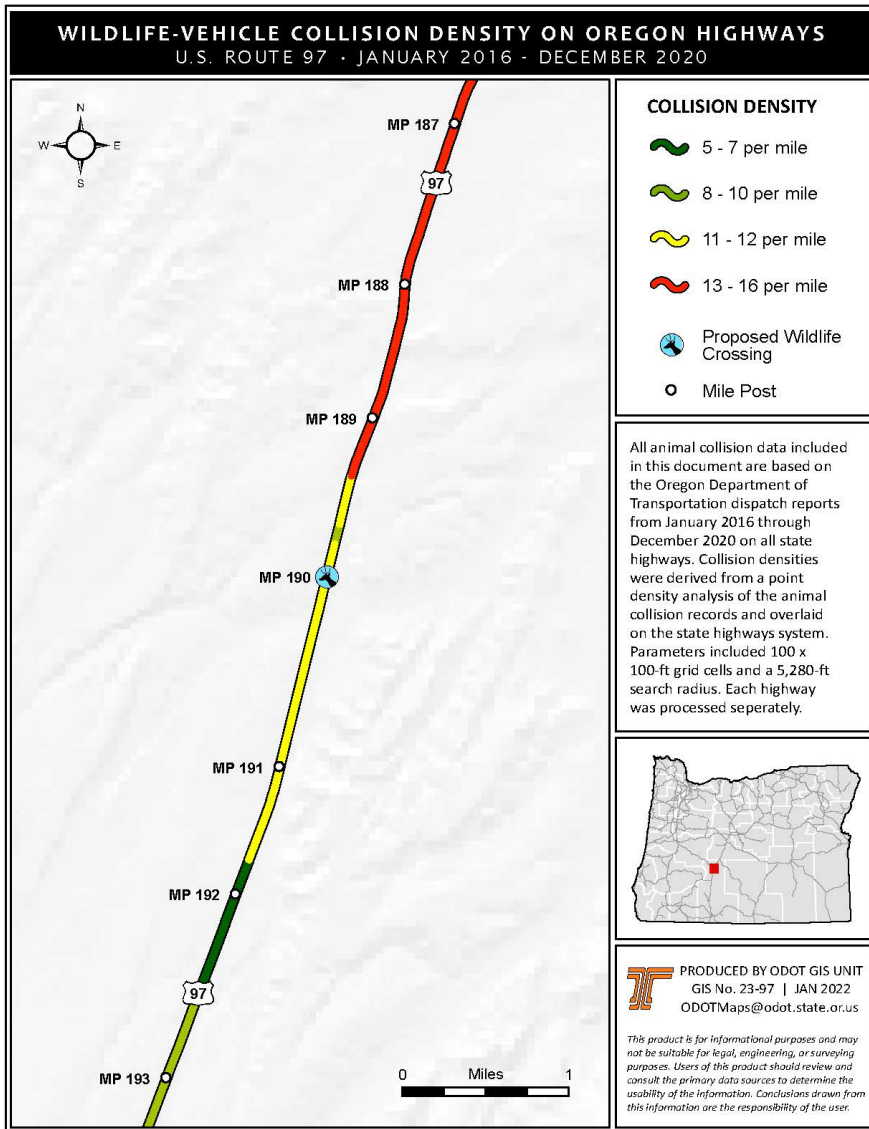


Figure 1. Image showing I-84 mile post 238 bridge at the Meacham exit. Elk, white-tailed deer and mule deer move east/west under the bridge. Fencing to this location will greatly increase ungulate use and safe passage. Blue lines are known (i.e., photographed) passage routes. Red waypoint shows 180-foot-wide buffer between known passage location and Railroad. The elk/deer are not having to cross the eastbound exit ramp road.



Figure 2. Ungulates passing under I-84 from west to east (camera pointed NE). The animals also must cross the I-84 Meacham exit road on east (northbound) side of freeway.

US 97, MP 190 Wildlife Overcrossing



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Project description:

Highway 97 undercrossing or overcrossing at MP 190 with directional fencing to funnel wildlife. Fencing distance dependent on feasibility and design.

Species: Mule Deer

Cost Estimate: Design and construction: \$5 million

Identified need: WVC hotspot.

Suggested Actions:

Continue research and site visits to refine project plan.

Benefits: Reduced WVCs, improved driver safety, reduced wildlife movement barriers.

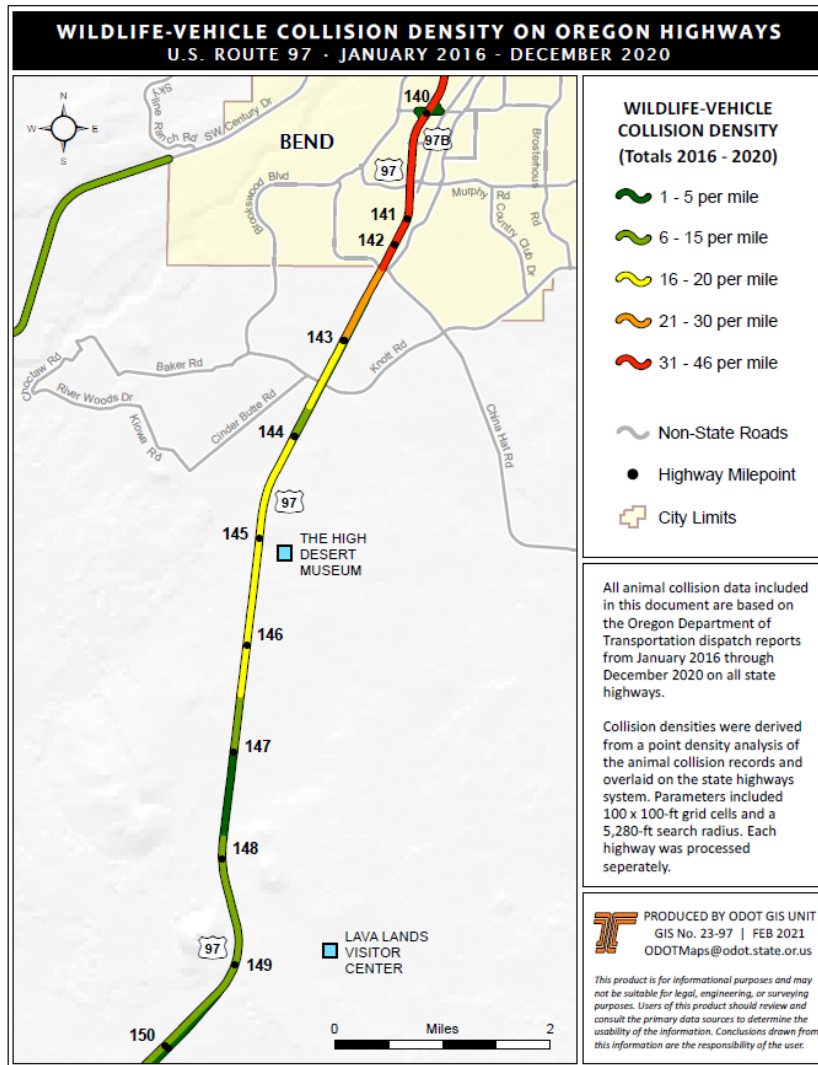
Project Specific Needs:

Data collection, site visits.

Primary Supporters:

ODOT, Oregon Action Team, ODFW, USFS

High Desert Museum Pedestrian Underpass, MP 145 Highway 97



Project description: Pedestrian undercrossing as currently visualized, tied to a trails project. Potential expansion to wildlife friendly undercrossing, no fencing in current trail proposal.

Species: Mule Deer

Cost Estimate: Unknown

Identified need: Opportunity to expand the proposed pedestrian underpass to accommodate ungulate and other wildlife passage.

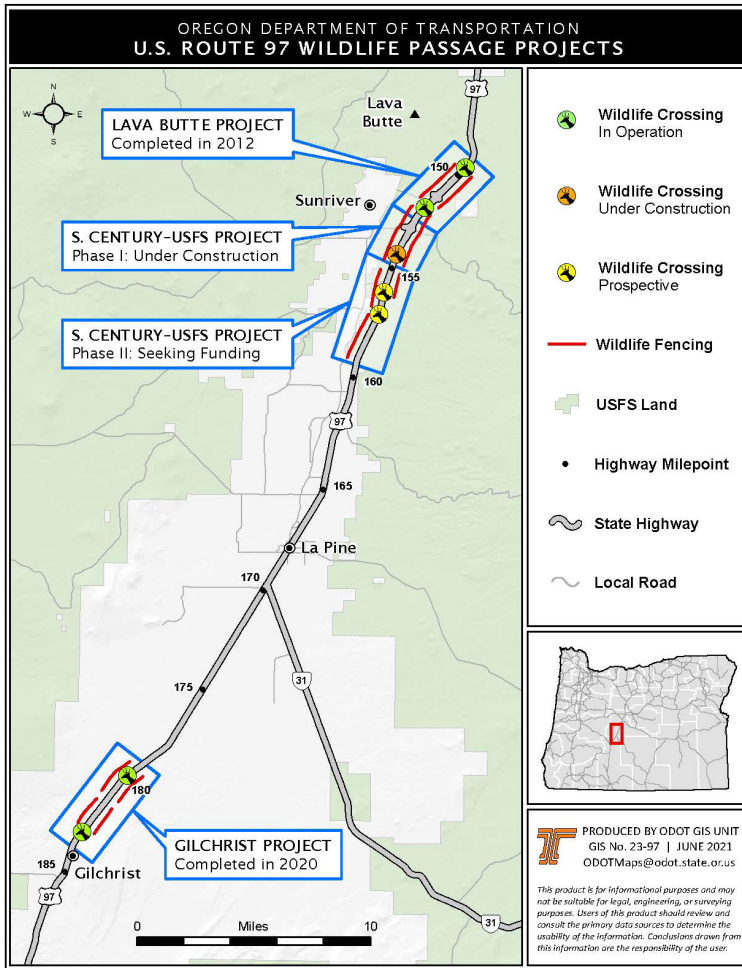
Suggested Actions: Feasibility study on undercrossing size expansion.

Benefits: Reduced WVCs, improved driver safety, reduced wildlife movement barriers.

Project Specific Needs:
Determine feasibility of expanding trail undercrossing for ungulates.

Primary Supporters: ODOT, Central Oregon Trails Alliance, High Desert Museum, others?

Highway 97 at Sunriver and South Century Drive



Project description: Phase 1: Two linear east/west underpass structure sets under new four lane highway construction, approximately MP 154.5, MP 156.5, MP 157 north to south. USFS lands with NEPA required installs. For reference the Lava Butte parallel passage structures are at about MP 150 and MP 152.

Species: Mule Deer, Elk.

Cost Estimate: Phase 1 included in highway widening project. ODOT applied for underpass funding of a third undercrossing in phase II.

Identified need: ODOT WVC data coupled with deer collaring data informed USFS NEPA process requirements for wildlife safe passage, highway underpasses are design features chosen for implementation.

Suggested Actions: Monitor construction to completion, consider

informational signing or kiosk for public information.

Benefits: Reduced WVCs, improved driver safety, reduced wildlife movement barriers.

Project Specific Needs: Projects are in various phases of completion as highway widening proceeds.

Primary Supporters: ODOT, USFS

1/26/2021		Appendix 1. Wildlife Passage Projects Summary Matrix								
Road #	Sp.	Mile Posts	Data	Rough Est. Costs	Feas. Study	Design	Land-owners	Existing Infrastructure	Description	ODOT Region
Hwy 97 Gilchrist	Deer , Elk	MP 176-178	WVC, Collar	\$400k	Y	Y	Pvt, ODF	Existing Bridge New Underpass built 2020	Gilchrist Wildlife Fencing Project, 3 Miles completed 2021, need 2 additional miles of fence needed to meet design standard.	4
Hwy 20 Juntura to Harper Valley	Deer	MP 190-217	WVC, Collar	minimum Est \$3.1mm, maximum \$11.4mm	Y	N	Tribal, Pvt, BLM, Oregon DSL	Existing Bridges over Malheur River	Stakeholder engagement workshops held, diverse support. Feasibility completed. Cost estimates vary for retrofit of five bridges \$1,215,000 to \$11,450,000. Overpass \$4,000,000 to \$7,000,000.	5
Hwy 126 Dayville	Deer	MP 132-137	WVC	EST \$800k - \$1.2mm Const, \$15k Feasibility	N	N	Pvt	JD River Bridges for retrofit	Fencing project, active ODOT/ODFW meetings in progress, needs dedicated funding source, design and landowner buy-in. Cost Estimate: Design \$15,000, Construction \$800,000-\$1.2 million	5
I-5 Ashland	Deer	MP 0-15	Some Collar, WVC	\$16.6mm Design, Feasibility ,Const	Pending	N	City, Pvt, BLM, NM	Several long culverts and exit ramps complicate multi species crossings	Potential Overpass, needs feasibility, design, support and funding. Strong support coalition. OCRF Grant for feasibility. Feasibility Study \$125,000, Design: \$1.5 million, Construction: \$15 million	3
Hwy 140 K.Falls West	Deer	MP 49-56	WVC	\$900k, Design, Const	N	N	Pvt County	Adequate large culvert in place	Fencing retrofit needed in addition to feasibility/design and landowner buy in. Cost estimate: Design \$100,000, Construction \$800,000	4
Hwy 20 Suttle Lake - Sisters	Deer , Elk	MP 86-97	WVC, Collar	\$67k Planning only	N	N	Pvt, USFS	No	USFS lands, former projects include roadside R/W tree thinning for visibility, large tree removal, key deer passage to ODFW designated Metolius Deer Winter range.	4

I-84 Meacham	Elk, Deer	MP 238	Collar	Rough est fence only \$350k	N	N	Pvt	I-84 Bridge at Meacham	Needs more field research, ODOT/ODFW and conservation groups have met on ground, primarily Elk crossing, some existing small under crossings. Minimum \$100,000 per mile for 3.5 miles.	5
Hwy 97 High Desert Museum	Deer	MP 145	Collar, WVC	Do not have current info	N	N	Pvt, USFS?	No	Pedestrian undercrossing visualized, tied to a trails project. Potential expansion to wildlife friendly under crossing, no fencing in current trail proposal.	4
Hwy 97 MP 190	Deer, Elk	MP 186-193	WVC, Collar	Design and Const Est \$5mm	N	N	Pvt, Gilchrist State Forest	No	Highway 97 undercrossing or overcrossing at MP 190 with directional fencing to funnel wildlife. Fencing distance dependent on feasibility and design.	4
Hwy 97 Sunriver	Deer	MP 154.5 to 157	WVC, Collar	ODOT Funding	Y	Y	USFS	Highway widening to four lanes	Three linear east/west underpass structure sets under new four lane construction, USFS lands with NEPA required installs. For reference the Lava Butte parallel passage structures are at about MP 150 and MP 152.	4
Additional wildlife passage project proposals not related to ungulates.										
US Hwy 30 near milepost 12.2. Near Burlington, OR. Palensky Project	Northern Red-legged Frog		\$1,000,000		Funds requested for construction, monitoring and maintenance. Primary Target Species: Northern Red-legged Frog, Other Species: Pacific Treefrog, Long-toed Salamander, Northwestern Salamander, Western Painted Turtle, Northwestern Pond Turtle, small and medium sized mammals.			Wildlife Connectivity - Construct a wildlife underpass structure to facilitate movement of wildlife under US Hwy 30, reducing mortality of wildlife which currently must cross over Hwy 30 to access habitat on either side of the highway.		1
Hwy 101 Coos Bay North Spit	Coastal Marten		\$100,000		Wildlife crossing safety (marten), connectivity, infrastructure improvement			Identify feasible wildlife crossing design plans aimed at reducing coastal marten (mortalities caused by vehicle collisions. Project work will take place on the Trans-Pacific Parkway North Spit, located in Coos Bay, Oregon. Indirect positive effects for multiple conservation priority fish species.		3

Harborton US Hwy 30 Wildlife Underpass MP 9.7	Northern Red-legged frog	\$2,500,000	Funds requested for Feasibility Study, engineering design construction/installation, monitoring and maintenance. Primary Target Species: Northern Red-legged Frog. Other Species: Amphibians, Turtles, small and medium sized mammals.	This is the largest known population of Northern Red-legged Frog in the City of Portland. Significant frog road mortality occurs along this section of Hwy 30.	1
Total Estimated Costs:		\$22,500,000-36,600,000			

Appendix 2. Oregon 2016-2020 Mule Deer Collision Density Statewide

Not all mule deer migrations shown on map

