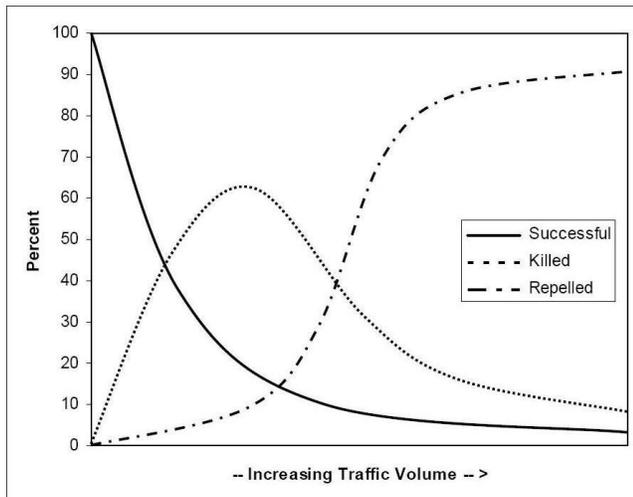


WSDOT's work to improve wildlife habitat connectivity

Habitat Connectivity – What is it?

Habitat connectivity is the degree to which the landscape facilitates animal movement and other ecological flows.

Wildlife need to move – Mobility is the key to survival for many wildlife species. Animals need to move from place to place for food, protective security cover, and in response to seasonal conditions. Sometimes long distance movements are critical for finding mates or establishing a territory in vacant habitat. Urban areas, busy roads, and other alterations to the landscape can create barriers to animal movements.



Traffic volume affects an animal's ability to cross a road – This figure shows what happens when animals approach a road with the intent to cross it and how the outcomes vary with increasing traffic volumes. At low traffic volumes, most animals cross the road without a problem. As traffic volume increases, more are killed trying to cross. The proportion of animals which are simply repelled, and abandon their attempt to cross the road, increases and eventually becomes the predominant response to a very busy road.

Roads in more rural areas often bisect areas with robust wildlife populations. These roads, because they are distant from large human population centers, usually have low traffic volumes. Animals are frequently successful at crossing these low traffic volume roads but, due to the sheer volume of wildlife crossings on these roads, collisions between vehicles and wildlife are higher than on roads with higher traffic volumes.

From the standpoint of motorist safety, these rural low volume roads should receive the greatest consideration for prevention of wildlife-vehicle collisions. However, from the standpoint of wildlife population health and welfare (which is derived, in part, from well-connected habitats and unimpeded movements), mid to high volume roads, in quality habitat, deserve the most attention.

Fences - Fencing is the most effective means to keep large animals off of roads. A variety of studies indicate that proper barrier fencing can reduce collisions between vehicles and large animals (mainly elk, deer, and moose) by 80 to 99 percent.



Elk fence along Interstate 90 between Cle Elum and Ellensburg



Artist's conception of Wildlife overpass planned for construction on [Interstate 90 east of Snoqualmie Pass](#)

Crossing Structures – Fences are barriers to animal movements and can prevent wildlife from accessing important resources for survival and successful procreation. Crossing structures provide opportunities for animals to move past highways safely by either passing over or under the highway surface.

Intersecting side roads/On-ramps & Off-ramps – Fencing doesn't work well when there are openings that animals can pass through. Vehicles connect to highways via intersecting side roads and On/Off ramps. These are places where animals can also gain access to the highway. The most common treatment to prevent wildlife from entering roads at these locations is a "wildlife guard," often a standard cattle guard that has been doubled in width due to the ability of deer and elk to jump over a single-width guard.



Wildlife guard in road adjacent to the LT Murray Wildlife Area in Kittitas County



Rock rip-rap under U.S. 12 on an overflow channel in the Cowlitz River floodplain

Enhancing existing safe passage structures – Improving permeability of the highway does not necessarily require new infrastructures but may just require modifications to existing structures. Many existing bridges could be made more attractive for wildlife to use in passing safely under a highway. This may involve making a suitable travel path through rip rap that has been placed under bridges to prevent erosion and undermining of bridge support piers.



Cutouts in the base of median barriers were intended to pass water but they also work well for small animals trying to get across a road

More passable median barriers – Median barriers are vital to motorist safety, effectively preventing the most serious type of vehicle to vehicle collisions, the head on collision. However, on highways with relatively low traffic volumes, wildlife benefit from highway designs that allow easy crossings. Median barriers can be designed with “scuppers,” a cut-out in the base, to allow small animals to easily get past them.



Cable barriers can function well for their intended purpose controlling errant vehicles while, at the same time, providing animals with easy passage across roads

More passable median barriers - The cable barrier is another good option where the goal is to allow animals to cross the highway safely at grade. Animals can easily see past this type of barrier which facilitates a willingness to go under or over the cables.



Bridge at Casey Ponds on U.S. 12 where safe wildlife passage was considered as part of bridge design

WSDOT's habitat connectivity accomplishments – A new bridge on U.S. 12, on the east side of the Columbia River, took advantage of opportunities provided by the abutments of the old bridge. An attractive path for small animals was designed to provide safe passage under the busy highway.



Bridge at Casey Ponds after grading and planting produced a more natural looking setting

WSDOT's habitat connectivity accomplishments – The safe passage opportunity at Casey Ponds will improve as vegetative cover develops on the approaches to the bridge.



A fence that will reduce collisions between vehicles and deer and bighorn sheep on U.S. 97A north of Wenatchee is being built

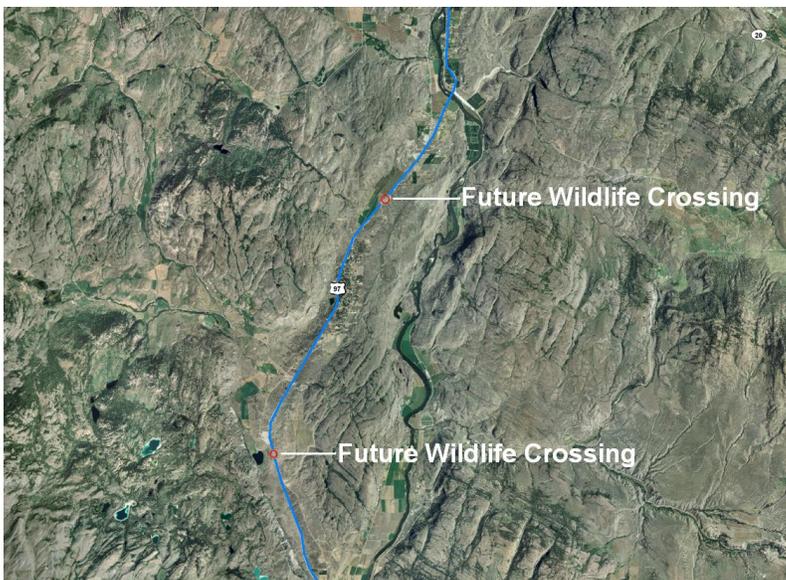
WSDOT's habitat connectivity accomplishments – A barrier fence is being built along U.S. 97 Alternate, north of Wenatchee, in an area where Mule Deer and Bighorn Sheep are hit by vehicles with some regularity. The first four miles of fence are being built in 2009 with additional fencing likely to be built in 2010. WSDOT expects to reduce losses of deer and sheep as well as creating safer conditions for drivers on this stretch of road.



Correcting fish passage barriers, like this one, provides an opportunity to also provide better conditions for terrestrial wildlife to pass safely

Future projects – This fish passage barrier on U.S. 97, north of Goldendale, will be replaced with a structure large enough to accommodate both the stream and a variety of animals, including deer, which are generally shy of entering enclosed spaces.

This project, part of the Environmental Retrofit (“I-4”) Program, will be a first step toward significantly reducing the number of deer-vehicle collisions in one of the state’s worst problem spots.



Future projects – This aerial photograph shows a segment of U.S. 97, in Okanogan County, where two wildlife crossing structures have been proposed in an area with high deer-vehicle collisions and significant potential habitat linkage value for rare forest carnivores like Northern Lynx, Wolverine, and Grizzly Bear.

Habitat connectivity between the Cascade and Rocky Mountains depends upon movement of animals through the Okanogan River Valley where U.S. 97 is located.

Future projects will consider not only correcting problems with wildlife-vehicle collisions but, also, the needs of wide-ranging species that must cross busy road corridors