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# Banff bridges leading to new ideas

Increasing numbers of animal-vehicle collisions on highways in canada and the united states sparked an international competition to design the next generation of wildlife crossings.

BY MICHELE JARVIEWITH FILES FROM KELLY CRYDERMAN, CALGARY HERALD, CALGARY HERALD FEBRUARY 6, 2011

For the past 15 years, a series of tunnels and overpasses built for wildlife in Banff National Park have reduced the number of animals killed by vehicles on the Trans-Canada Highway by more than 80 per cent.

Now, using Banff as a model, an international design competition has spurred the next generation of wildlife crossings. The success of the wining designs was intended for use in a Colorado wildlife area, but officials in Banff are taking note.

The competition, called ARC, called on architects and engineers to design innovative and attractive wildlife crossings. The competition was initiated by the Western Transportation Institute at Montana State University and New York City's Woodcock Foundation, and eventually brought in both U.S. and Canadian government agencies, universities, professional associations and non-profit organizations.

Five finalists were chosen from 36 submissions from nine countries. The winning team, announced last week, was New York-based HNTB and Michael Van Valkenburgh Associates Inc.

Compared to the simple crossings familiar to Calgarians driving through Banff, the new designs manage to look both space-aged and natural. The winning design is four times wider than the Banff structures, giving wildlife more room to cross and allowing for the structure to blend more seamlessly with the surrounding forest. It also is made using common materials and is easier and cheaper to build, running about half the cost of Banff's structures.

One of the judges of the competition was Alberta ecologist Tony Clevenger, who has studied road effects on wildlife in Banff National Park for 15 years and evaluated crossings in Banff, Jasper, Yoho and Kootenay parks.

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Clevenger said the purpose of the competition was to push the evolution of wildlife crossing design farther.

"What is the second generation going to look like? Can we build with recycled materials, can we build with lighter materials, less soil? How can we integrate them into the landscape better?" Clevenger said.

Research shows the importance of wildlife crossings in preventing the deaths of grizzly bears, wolves, mountain lions, lynx and ungulates. In Banff, Clevenger said there's been a 80 to 90 per cent reduction in collisions thanks its series of underpasses and overpasses.

Besides the physical toll on animals, it's hoped better crossings will stem the economic costs. According to ARC, wildlife-vehicle collisions have doubled in the past 15 years, costing Americans \$8 billion and Canadians \$251 million annually.

Even though the designs for the competition were tailored to cross an interstate near Vail, Colo., Terry McGuire -- the man currently overseeing the twinning of the Trans-Canada in Banff, which includes several new wildlife crossings -- wants to speak with the finalists.

"Certainly we're interested in the next generation of thinking and whether there's a better, cheaper way to facilitate these crossing opportunities," said McGuire, Parks Canada's special projects director for Western and Northern Canada.

Traditional crossing designs have a double arch and a supporting beam in the centre of the road, he said. As highway twinning moves west into Yoho National Park, roadways will become more narrow and the wildlife crossings will have to span the entire four lanes without supports -- as seen in some of the competition designs.

"There's those opportunities that may arise in the next little while. But not every site lends itself to, nor is it feasible to put in, an overpass structure," McGuire said.

"The winning design combines complex ecology and engineering with practical intelligence by taking ordinary technology and recasting it in a new way," said Nina-Marie Lister, ARC competition adviser and professor at Ryerson University, in a statement.

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