

Mountain Town News

News in brief & deep in resort valleys of the West

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Wildlife design contest scores in innovation

Could idea to reduce wildlife mortality be adapted to help bridge human communities?

by Allen Best

Among those recruited to solve a puzzle in Colorado last year was Ted Zoli, a structural engineer and past recipient of a MacArthur Foundation “genius” grant. Mr. Zoli, 45, is the vice president and technical director for bridges for a New York City-based HNTB, an architecture, engineering, planning and construction services firm.

Mr. Zoli had already received broad attention for his creative ideas when his firm joined with Michael VanVelkanburg & Associates to figure out how to build a cheaper and perhaps more adaptable wildlife overpass, using a site on Vail Pass.

His thinking has been noticed in nearby Vail, but with human communities in mind, not just wildlife. It’s too soon to know whether his idea will get deployed at Vail Pass. For that matter, it’s too soon to know whether highway engineers will warm up to this idea or perhaps final fatal flaws that an international panel of experts failed to notice.

The competition had been created to address the core problem identified in recent years at Canada’s Banff National Park. There, a string of wildlife overpasses allows bears, wolves and other animals to cross the TransCanada Highway. But the most recent overpasses, located near Lake Louise, had come in at \$12 million. Anthony “Tony” Clevenger, a senior research scientist with the Western Transportation Institute, who is stationed at Banff, had decided that

very few more overpasses would get built at deserving locations if that was the cost. There just had to be better answers, he thought, than the one-size-fits-all engineering of highway bridges for wildlife.

And he and others believe there are many deserving locations, both for wildlife and for humans. In some cases, highways break up habitat of broad-ranging animals, such as wolves. Consider Interstate 70 between Vail and Denver. In July 1999, just months after being released in southern Colorado as part of a reintroduction program, a Canada lynx was killed while trying to cross Interstate 70 at Vail Pass.



Depending upon species and location, less expensive highway underpasses suffice. But other locations, such as in Banff National Park, species and locations require overpasses, and costs on more recent ones have soared to \$12 million. Photo/Monique DiGiorgio

Five years later, the first wolf in more than a half-century was also killed on the same highway, about 35 miles west of Denver.

Other species are in no danger of vanishing from the local landscape, but elk, deer and other species are slaughtered—and in accidents that also have a high human toll. More than 200 people die each year as a result of injuries suffered after collisions with wildlife. The cost of collisions, after calculating medical costs and repairs of vehicles, runs into the billions of dollars.

With all this in mind, Mr. Clevenger approached colleagues and associates with the idea of sponsoring a design competition, to ferret out new approaches. “New Methods, New Materials, New Thinking” was the tagline.

For their design problem, they chose the location where the Canada lynx had been smashed in 1999. The site in Colorado is at 10,000 feet, has heavy snow loads, a bike path and four lanes of existing traffic, with potential for two more, plus a train. The use by wildlife has been confirmed by studies, and it has been identified by the Colorado Department of Transportation as a site in need of remediation. The name “Vail” doesn’t hurt for getting attention.

Five finalists were culled from several dozen entrants last September: three teams from the United States, one from Canada, and one from the Netherlands. On a sunny day in September, they were shown the site, then they returned



Building elements called hyper vault modules are at the core of the winning entry, shown here as how it might cover the lanes of I-70, the potential for a train of some sort, plus the existing bicycle path.

to their offices in the big cities along the Atlantic Ocean to plot ideas. The winning team—including Mr. Zoli—was announced in January at a ceremony in Washington D.C. The event got much attention, including a spot in the New York Times.

Mr. Zoli swung at only one of the trio of tagline phrases. He took an old material and an old method, but applied it in a way.

The key is that a bridge for wildlife need not have the same strength as one built to accommodate cars and trucks. As such, the principle he used already exists, and it can be found even in Denver, at the old Coliseum building north of Downtown, plus the Broadmoor Hotel in Colorado Springs and a few other sites around the world. It uses ordinary concrete forms, such

as are manufactured at many locations across the country. A long building season with endless traffic slowdowns would be unnecessary.

Most fundamentally, the idea is like a teepee, such as used by Native Americans, in which the tension is met and then pinned at the middle. This eliminates need for piers. There are limits to how much weight such a structure can support. Bears and elk will be crossing, not 18-wheel trucks.

The critical element, as Mr. Clevenger had identified in Banff National Park, is the cost. Will new designs substantially save money? Rob Ament, program manager for road ecology at the Western Transportation Institute in Bozeman, Mont., says that one review by a federal highway engineer, Roger Surdahl, had estimated the cost per square foot is approximately half that of those at Lake Louise. Mr. Ament says that the length of trucks carrying the modular units to be assembled on site is the only real limitation.

The Colorado Department of Transportation, asked if it had reviewed the feasibility of the design, did not respond in time for publication.

Nina-Marie Lister, a professor of landscape design at Ryerson University in Toronto and a competition advisor, said the idea “combines complex ecology and engineering with practical intelligence by taking ordinary technology and recasting it in a new way.”

Other interesting ideas came out of the competition, but jurors were unanimous in picking the Zoli entry for the \$10,000 prize money and words of admiration. Led by Charles Waldheim, who heads the landscape design department at Harvard’s School of Architecture and Planning, jurors said the bold idea “gives us confidence that it could be credibly imagined as a regional infrastructure across the inter-mountain West.”

But could the same idea created for wildlife also help people in nearby Vail?

That was the spark in the mind of James Lamont when he attended an exhibit of the winning idea and the four other finalists held in Vail recently. Mr. Lamont, a figure in Vail since the late 1960s, directs a watchdog and advocacy group called the Vail Homeowners Association, which is concerned about the economy and environment of Vail. I-70 for Vail is a mixed

blessing: vital to the economy, but an impairment to the environment. Particularly irksome is the constant noise, an annoyance assuredly not unique to Vail, but perhaps increased because of the way that sound rises.

Too, it divides the town, with just one pedestrian overpass and four road underpasses. For about 20 years, Vail has talked about a new underpass, in the Simba Run area, but at an estimated cost of \$15 to \$20 million.

“The wildlife bridges are not designed for vehicular traffic and are half the price,” he noted. “This puts these types of landscaped open space bridges well within the capability of the Town of Vail to fund.



I-70 through the core of Vail.

Photo by Connor Walberg

At those prices, multiple crossings are possible if built over several decades,” Mr. Lamont writes in his April 30 newsletter: <http://www.vailhomeowners.com/VHAAprilNewsletter042511.pdf>

In a later interview, he also noted that several fatalities had occurred over the years as pedestrians have tried to cross the highway in that area.

Vail has occasionally talked about even broader ambitions. Since at least the early 1980s, there has been talk of putting I-70 underground. The idea always stumbled over the enormous cost. Staggering costs have also stifled any serious discussion of Mr. Lamont’s more recent idea of tunneling under Vail Mountain to divert I-70 through traffic.



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But with this cost reduction, Mr. Lamont argues that the idea of undergrounding the highway through Vail should be revisited, even if no buildings could be erected on top.

ould ideas kicked up by the design competition at Vail be used in other locations? Certainly, there’s precedent. Vail in 1994 threw the dice on roundabouts, then a controversial traffic management technique. Vail’s approach differs only slightly but in one critical way from the old traffic circles that many had grown to hate. Instead of traffic coming to the circle at a right angle, the roundabouts have traffic arriving at an angle, allowing easier convergences.

Still, many predicted mayhem when the first snowstorm and tourists descended on the town. Instead, it was as close to a home run in public policy as you’re likely to see. Because of Vail’s prominence, the idea began spreading in concentric circles

Cthrough the West. Seeing is believing.

Now, how about the new idea for wildlife passes? It likely has to be vetted more thoroughly by the state and federal engineering establishments. Most telling will be whether the idea gets serious consideration at two wildlife overpasses being planned for Interstate 90 in the Cascade Range, east of Seattle.

Beyond that, mitigation for wildlife impacts is seen as a crucial challenge in

Jackson Hole, where the two-lane highway south of Jackson is being planned for an expansion of up to five lanes.

Crested Butte to pay more for fewer flights next year

CRESTED BUTTE, Colo. – Crested Butte expects to pay more for fewer flights next year. An agreement with American Airlines for flights from Dallas would yield 5,300 fewer seats, but still cost \$200,000 more in minimum revenue guarantees. Altogether, the community would have to pay American Airlines \$750,000 if insufficient seats are filled, as is usually the case.

According to the Crested Butte News, local representatives also expect to see fewer seats offered by United Airlines. Altogether, that represents a reduction of 7,000 seats, if flights from Houston also are scaled back by Continental. Consultant Kent Myers suggests may be the case.

The extent of the discomfort about the direction of Crested Butte’s flight program was indicated in a subsequent report. “We need a fundamental shift in what we’re doing, and I am willing to say to the board nothing is sacred here, including my contract,” Mr. Meyers told the News. Something is needed to “get off this merry-go-round that we’re on. It is not leading anywhere in a positive direction.”