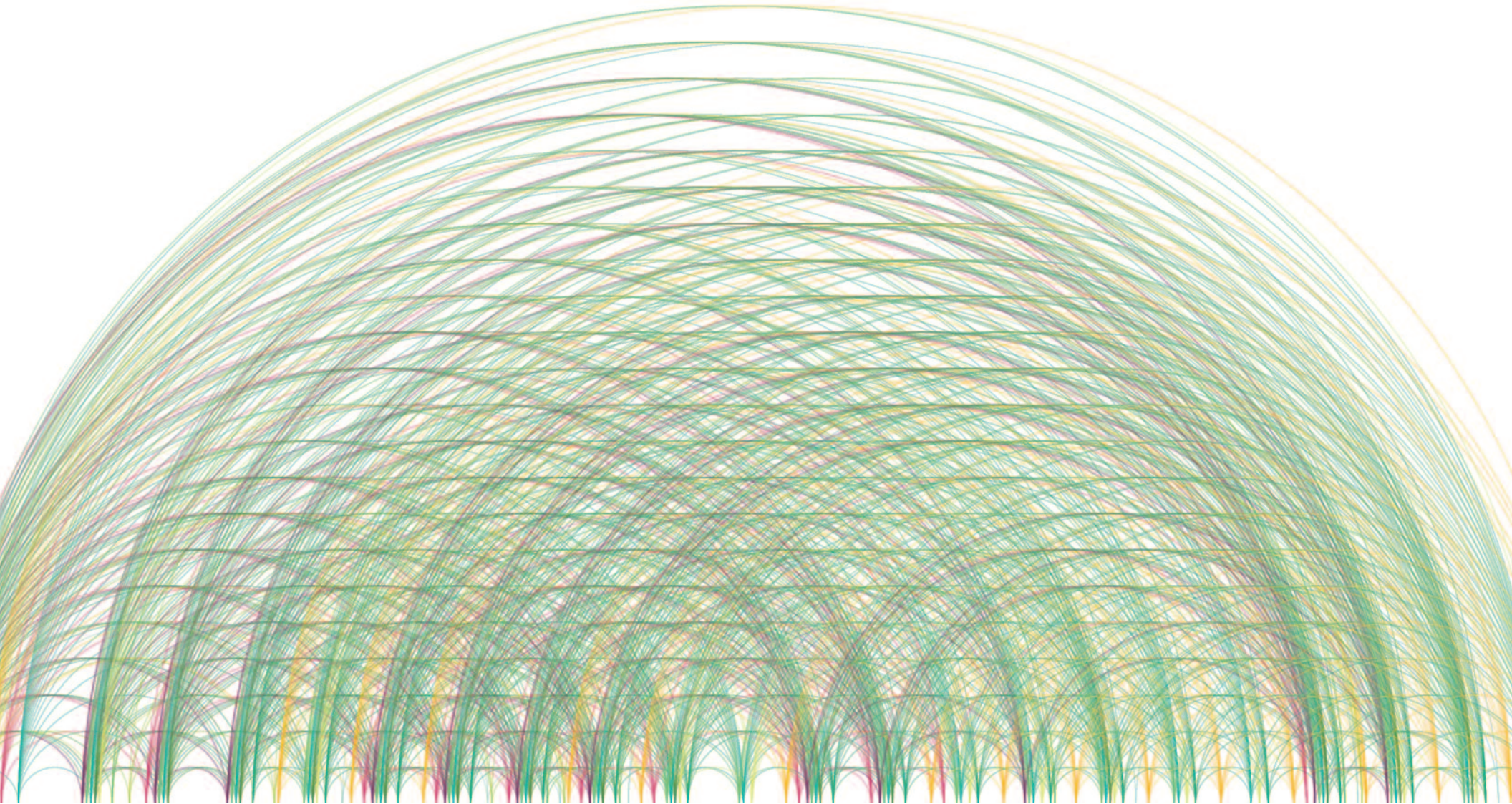
CALL FOR EXPRESSIONS OF INTEREST

COMPETITION TO DEVELOP INNOVATIVE DESIGN SOLUTIONS FOR WILDLIFE CROSSING INFRASTRUCTURE

SUBMISSIONS DUE JULY 30, 2010

ARC



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ARC IS MORE THAN A COMPETITION; IT IS AN IDEOLOGY that spans disciplines, species, geography and aspirations. Our name and visual identity have emerged directly from the science of road ecology. We worked with Studio:Blackwell, Chris Harrison, a PhD candidate at the Human-Computer Interaction Institute at Carnegie Mellon University, and Dr. Tony Clevenger of the Western Transportation Institute to produce the graphic arc diagram (on the cover of this document), which is a visualization of actual wildlife crossing data. These data–and the information on which the arc diagram is based—were collected over the last decade at the 24 wildlife crossing structures in Banff National Park in Alberta, Canada. They track the daily use of the crossing structures by large mammals whose adaptation to this infrastructure successfully reconnects the surrounding landscape and creates safer highways every day.

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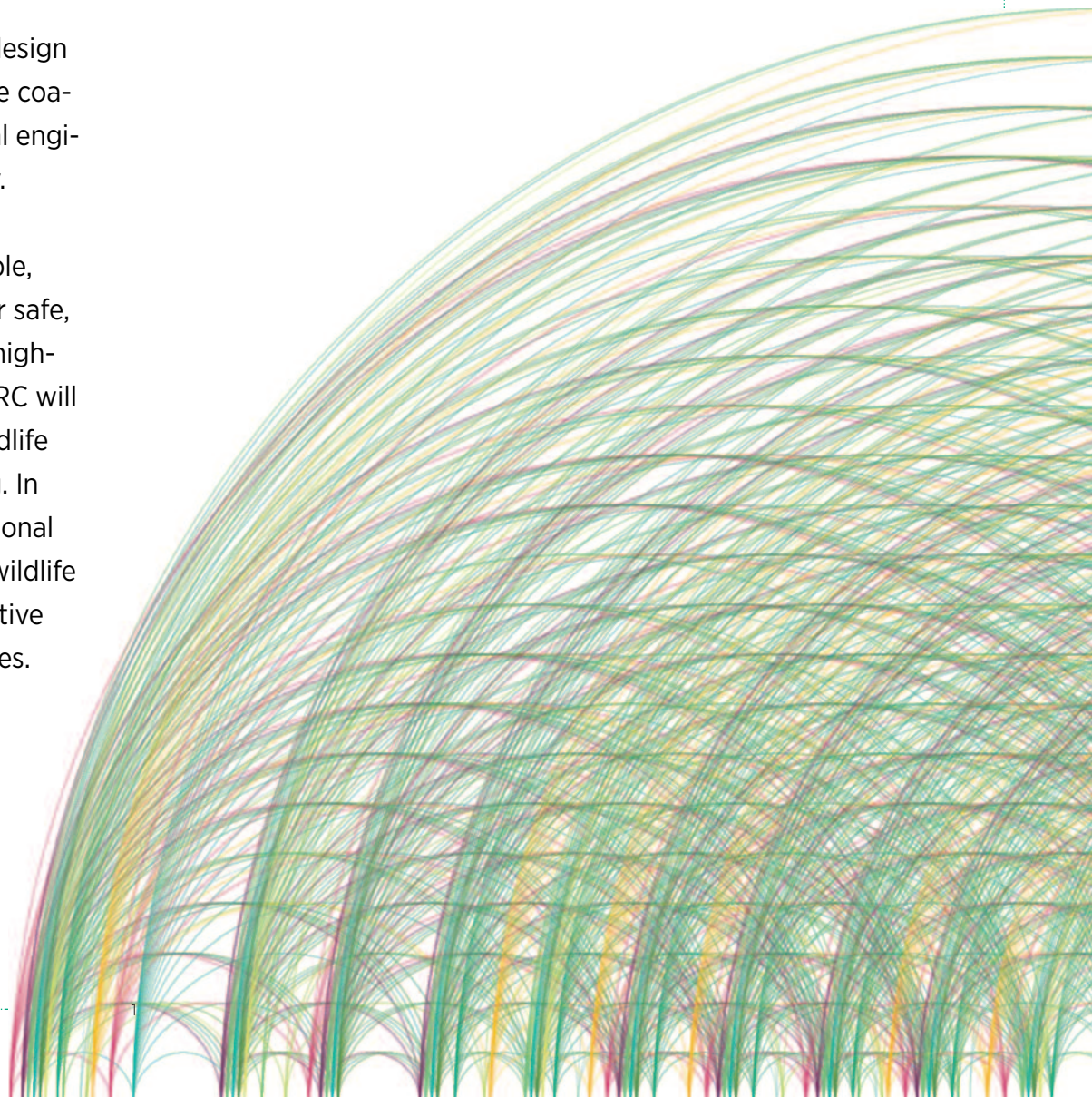
VISION

The ARC competition invites international teams of design professionals to address new design challenges in the coalescent issues of road transportation safety, structural engineering, wildlife conservation and landscape ecology.

Specifically, ARC seeks innovation in feasible, buildable, context-sensitive and compelling design solutions for safe, efficient, cost-effective, and ecologically responsive highway crossings for wildlife. In the broadest context, ARC will challenge competitors to reweave landscapes for wildlife using new methods, new materials, and new thinking. In doing so, the ARC competition aims to raise international awareness of a need to better reconcile human and wildlife mobility through a more creative, flexible and innovative system of road and habitat networks in our landscapes.


















Highways are a significant barrier to wildlife movement. These images were captured by wildlife monitoring cameras and show a diversity of species attempting to cross roadways. These and other data suggest that wildlife will adapt and use crossing structures when provided at habitat linkage locations.

(Photos: Center for Native Ecosytems, except Row 1-1, Row 3-4, and Row 4-2, 3: WTI & T. Clevenger; Row 1-2: Black Bear: Jim Robertson; Row 1-4: Coyote: Roy Rea; and Row 4-4: Jacques Bélanger.)

INTRODUCTION

ARC will engage the best and most innovative international, interdisciplinary design teams—comprised of landscape architects, architects, engineers, ecologists, and other experts—to create the next generation of wildlife crossing infrastructure for North America's roadways.

Today's transportation challenges are exacerbated by three critical factors: 1) an increasing population and expanding suburban and exurban development, 2) an aging, deficient, and outmoded infrastructure and 3) a changing climate. Experts acknowledge that these issues must be addressed comprehensively such that transportation systems are (re)designed to safely meet the transportation needs of contemporary society in a manner that maintains ecosystem integrity and connectivity, reduces the carbon footprint, minimizes consumption of non-renewable materials, recycles resources, extends the life cycle of transportation infrastructure and operates efficiently. The ARC international design competition is a first step in addressing these complex design challenges in the context of road infrastructure for human and wildlife safety and mobility.

North America's landscapes are changing at an accelerating rate. Since World War II, roads and highways have spread across continents as a growing population made a rush for car ownership and intercity trucking expanded rapidly. Connecting nations and linking urban and rural communities, roads have cut through valleys and mountains and across prairies and farmlands to serve human convenience and drive economic growth. In locating and building North America's transportation infrastructure, little attention was given to wildlife and habitat needs or to the ways in which roads may alter ecosystem function.

After some 60 years of continuous road building, two phenomena have been recognized. First, growing numbers of vehicle-wildlife collisions are leading to higher levels

The I-70 Wildlife Watch website (www.i-70wildlifewatch.org) is an interface for the public to report wildlife sightings along the I-70 Mountain Corridor where the competition site is located.

Red fox at roadside. Photo courtesy of WTI.

Dead black bear killed on I-70 near Eagle, CO (Photo: Shane Macomber, Vail Daily)













Vehicle-wildlife collisions occur at all scales, in many places. Collisions with large animals from black bears to bighorn rams to coyotes are damaging to the vehicle and lethal to the animal. Carcass removal costs are substantial, and animals left dead or dying on the road can cause secondary accidents. Smaller animals may seem insignificant or are simply overlooked as roadkill. Yet they too are affected, sometimes in large numbers, which may affect the viability of their populations over time.

Left to right: Row 1, Badger: Sascha Rösner; Panther: Krista Sherwood; Black Bear: Shane Macomber; Coyote: Paula Mackay, WTI. Row 2: Lynx on I-70: Vernon Phinney, USFS; Bighorn ram in Montana: Sandra Jacobson; Lynx on I-70: Vernon Phinney, USFS; Panther: Krista Sherwood. Row 3:Bobcat: Transwild Alliance, Photographer Unknown; White-tailed Deer: Will Beard; Lynx on I-70: Vernon Phinney, USFS; Vehicle damage: WTI. Row 4: Black bear: WTI; Wildlife Watch Public Service Campaign, WTI; Bison in Yellowstone: Tricia White; Long-tailed tit: M. Becker

of personal injury and property damage and to increasing insurance premiums. While human mortality numbers are not large, vehicle-wildlife collisions have doubled in the past fifteen years. A US Federal Highway Administration study reports that there are an estimated one to two million collisions between cars and large mammals every year in the US, representing a significant danger to human safety and wildlife populations (Huijser *et al*, 2008). Vehicle-wildlife collisions are also increasing as a proportion of the total accidents on the continent's roads. In addition to obvious concerns for motorist safety, there are serious implications for wildlife in terms of both population viability and habitat connectivity. The same 2008 study identified 21 Federally listed threatened or endangered species for which road mortality is documented as one of the major threats to these species' survival.

Second, at a much larger scale, the last several decades of road building have resulted in significant habitat losses through the linked processes of habitat fragmentation and (by consequence) habitat restriction as species are limited to increasingly isolated patches in which they can live and move. More recently, climate disruption portends a new need for wildlife to migrate unimpeded across landscapes in search of new habitats as resources become scarce in their current home ranges and ecosystems. New, lighter, flexible and adaptive infrastructures may offer effective means to facilitate wildlife mobility and population survival under uncertain climate conditions.

An emerging priority for both transportation and natural resource agencies is to make highways safer for both drivers and wildlife. One of the proven solutions known to improve safety, reconnect habitats, and restore wildlife movement is the provision of wildlife crossing infrastructure at key points along transportation corridors. Throughout Europe and in various North American locations, wildlife crossing structures have been deployed with demonstrated success. These structures include both underpasses and overpasses, both of which have been constructed in a variety of sizes and designs. Although wildlife underpasses are less costly structures to build and more commonly used, wildlife overpasses are more widely recognized as they are visible and noteworthy to passing motorists. As such, wildlife overpasses present a timely opportunity for the general public to experience—and identify with—engineered landscape designs that create safer roads while protecting wildlife populations and restoring ecosystem function through improved landscape connectivity.

Notably, the protection of wildlife corridors and ecological connectivity has become an increasingly high-profile issue on public policy agendas across North America. For example, conservation organizations and state wildlife agencies across the western US have worked together to establish priorities and make recommendations for policies. In 2007, the Western Governors' Association (WGA) passed a resolution to identify and protect wildlife corridors and crucial habitats. In 2008, the Western Governors adopted a series of recommendations as part of the *Wildlife Corridors Initiative report*, including a chapter on transportation that highlights the importance of wildlife crossings (WGA 2008). In Colorado, wildlife crossings and environmental sustainability were identified as part of Governor Ritter's *Transportation and Finance Implementation Panel*. In this context, the ARC International Design Competition capitalizes on a timely window of opportunity to offer new methods, new materials and new thinking for transportation infrastructure that protects wildlife and reconnects ecosystems.

Wildlife crossing structures in Banff and the Bow River Valley, Alberta, Canada (photo: WTI and T. Clevenger).

OBJECTIVES

THE ARC COMPETITION ENDEAVOURS TO:

- Provide an avenue for international teams of design professionals to address new design challenges in the coalescent issues of road transportation safety, structural engineering, wildlife conservation and landscape ecology;
- Explore creative new approaches, materials, and designs that address the fundamental and emerging issues of transportation engineering and ecology;
- Increase the number and variety of potential solutions for cost efficient, ecologically responsive, safe, flexible, innovative crossing designs that can be adapted for widespread use in other locations;
- Consider adaptive infrastructures that offer flexibility and mitigation for wildlife mobility under conditions of climate disruption;
- Engage design professionals and students in the interdisciplinary nature of road ecology with a real-time, in-situ application;
- Create a design that is harmonious with existing policies and programs for the West Vail Pass area; and
- Address creatively and resolve intelligently the competing site challenges at West Vail Pass.

The wildlife crossing structures in Banff, Alberta, Canada, serve as a model from which to apply lessons learned in designing innovative crossing infrastructure (photo: N.M. Lister, 2008).

West Vail Pass Site, looking west on I-70 (photo: N.M. Lister, 2008).

SITE

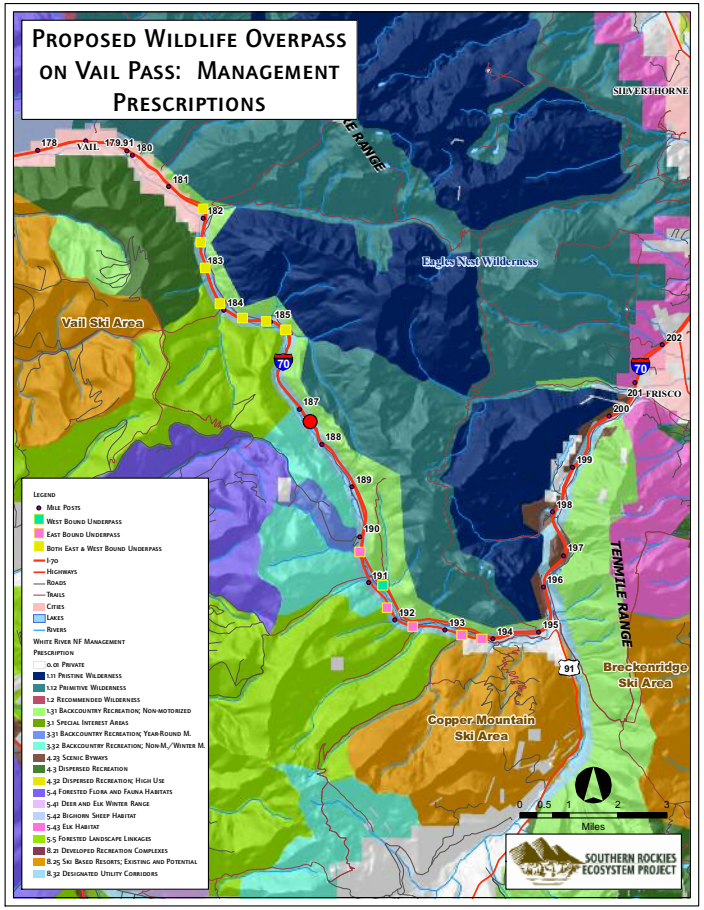
The site of the ARC design competition is located where natural and human-dominated worlds collide. Between the rapidly urbanizing metropolitan area of Denver and the resort communities of Vail, Aspen and Breckenridge, Colorado, the site sits at approximately 10,000 feet (3,000 meters) above sea level and 90 miles (145 kilometers) west of Denver along the I-70 Mountain Corridor just west of Vail Pass. Identified as a critical habitat linkage in the Rocky Mountain Corridor, and home to a variety of iconic species such as black bear, cougar, bobcat, Canada lynx, coyote, elk, deer and American marten, the West Vail Pass site serves as an ideal setting for design teams to explore innovative means to safely reconnect a landscape with the charismatic wildlife that depend on and define this place.

SITE SELECTION PROCESS

During 2008-2009, the ARC team studied a variety of eligible sites for the design competition. A site competition was held in which 25 eligible sites in 16 states were submitted for review by ARC technical advisors, including representatives from state agencies and conservation organizations. A combination of criteria were used to rank the proposed sites. These included ecological importance of the adjacent habitats; number and frequency of vehicle-wildlife collisions; traffic volume; public recognition/visibility of the location; charismatic nature of the site and its wildlife; priority of the site for the local Department of Transportation (DOT); willingness of the DOT to work with ARC; and existing plans for a wildlife structure under new infrastructure funding. Using these criteria, the site at West Vail Pass on I-70, managed by the Colorado Department of Transportation (CDOT) was selected as the competition site. In December 2009, a Memorandum of Understanding was signed between ARC and CDOT with respect to the use of the West Vail Pass site for the design competition and the role and use of the winning concept design (see: Process/Winning Design in this document).

THE SITE: WEST VAIL PASS

The I-70 Mountain Corridor has been extensively studied by USDOT, CDOT and a variety of local environmental organizations. Located at the core of the 144 mile (232



Wildlife underpass locations and the proposed location of a wildlife overpass structure west of Vail Pass (map: Southern Rockies Ecosystem Project, 2006).

kilometer) Mountain Corridor that stretches across the central Rocky Mountains of Colorado along I-70 from Glen-wood Springs to C470 in Denver, the area is considered to be of statewide and national importance. I-70 is the only east-west interstate crossing Colorado and is the only continuous east-west highway in the study area; it serves as the main transportation artery in Colorado, providing for the movement of people, goods, and services across the state. I-70 is also the primary route for access to many of Colorado's recreation and tourism destinations (I-70 Mountain Corridor Programmatic Environmental Impact Statement (PEIS), 2004: Pg. Es-1).

The portion of the I-70 Mountain Corridor that runs from Glenwood Springs to C470 in Denver is particularly congested as daily commuters, weekend travelers and recreational enthusiasts in the rapidly growing area all demand access to the corridor. The site area at West Vail Pass is also widely recognized as a habitat linkage for wildlife populations seeking breeding and feeding grounds that are bisected by the existing divided four-lane highway. This situation has the potential to deteriorate if and when the corridor is widened to six lanes, as evaluated by the I-70 Mountain Corridor PEIS (2004). As is the case for many of the continent's large mammal species, the ranges and territories of Rocky Mountain wildlife in this region run north-south, and these are typically and effectively severed by the US interstate system.

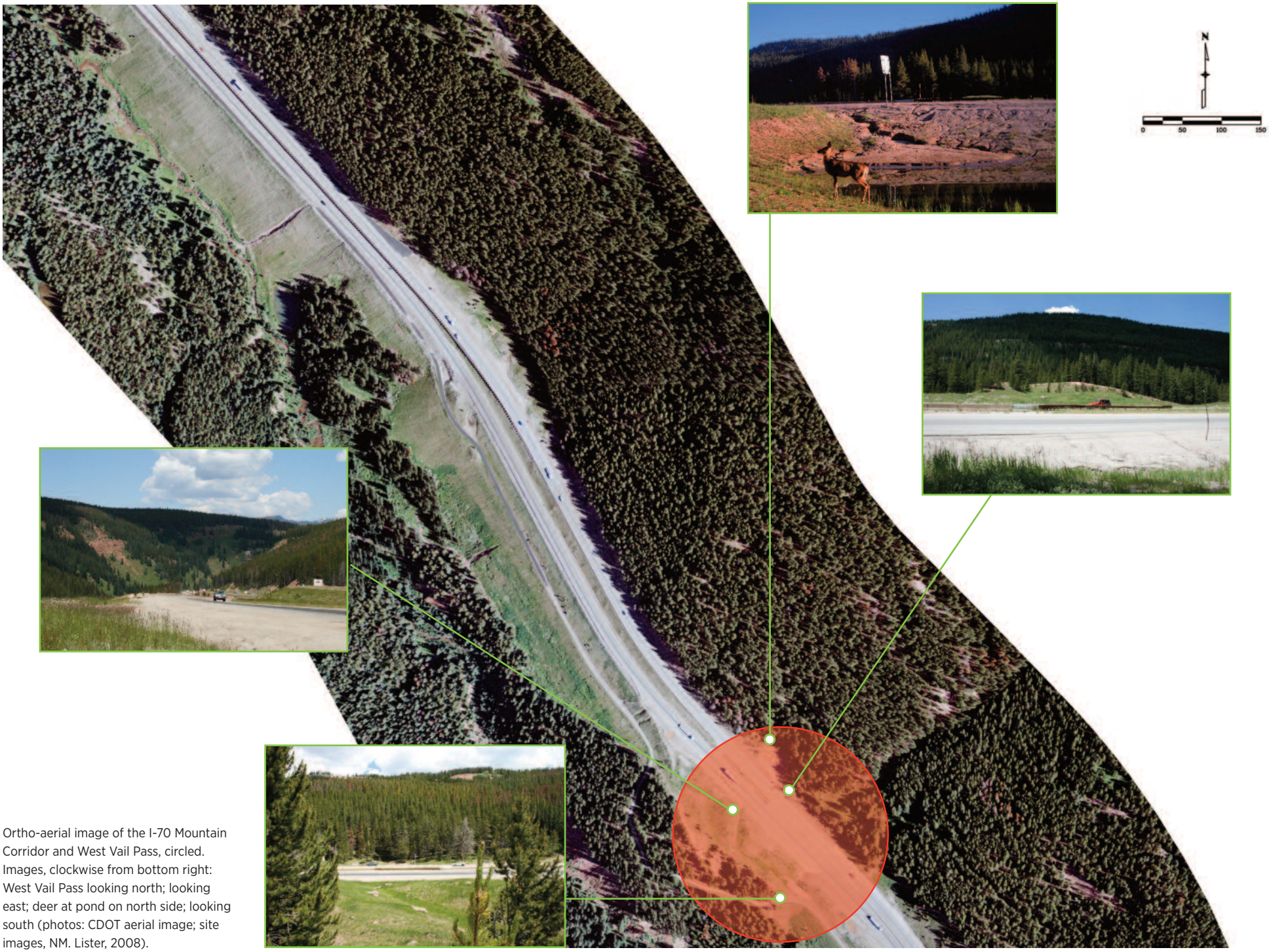
PROPOSED CROSSING STRUCTURE LOCATION: MILEPOST 187.4

The proposed location for the wildlife overpass structure is at milepost 187.4 on I-70. The site is located in Eagle County and is surrounded by the White River National Forest, which is managed by the US Forest Service. Relatively dense vegetation borders both sides of the site and Black Gore Creek runs parallel to the south side of the highway. In general, the site slopes north to south.

The site lies within the Subalpine Life Zone and is characterized by vegetation adapted to elevations ranging from 9,000 feet (2,700 meters) to approximately 11,400 feet (3,500 meters). The landscape in this area is dominated by coniferous forest, alpine meadows, riparian forests and shrub species. A variety of wildlife species are associated with and rely on these vegetation communities, including black bear, cougar, bobcat, Canada lynx, coyote, elk, deer, American marten, porcupine, yellow-bellied marmot, snowshoe hare and red squirrel, among others.

CDOT found that I-70 on the west side of Vail Pass has two distinct areas in relation to the ability of wildlife to move across the roadway. The lower portion of the pass—which lies approximately between mileposts 181.7 and 186—has a series of bridge

The West Vail Pass Site. Top: looking east from the north side of I-70. Bottom: Milepost 187.4 on the north side of I-70 (photo: NM. Lister, 2008).



Ortho-aerial image of the I-70 Mountain Corridor and West Vail Pass, circled. Images, clockwise from bottom right: West Vail Pass looking north; looking east; deer at pond on north side; looking south (photos: CDOT aerial image; site images, NM. Lister, 2008).

structures over drainage areas. This area of the pass allows for wildlife movement under the highway without the need for animals to traverse the roadway. By contrast, the upper portion of the pass—which lies approximately between mileposts 186 and 190, and in which the proposed overpass site lies—does not have any structures that allow for wildlife movement, and animals have no choice other than to traverse the traffic lanes. There are also multiple barriers along the roadway that wildlife must negotiate, including guardrails, median barriers and grade separation of the east and westbound lanes of the highway (Felsburg, Holt & Ullevig, 2009).

Overall, this section of the highway is recognized as a significant barrier to wildlife movement. Wildlife monitoring data gathered by state and conservation agencies, as well as volunteer reports of roadkill and wildlife sightings by citizens have provided cumulative evidence of the importance of this site as a critical habitat linkage. In particular, the White River National Forest (which is bisected by I-70) is home to a wide variety of species, including the recently reintroduced Canada lynx, a Federally threatened and regionally rare species thought to be recolonizing the area. Roadkills at the site are common, recently including three (3) Canada lynx as well as the first recorded gray wolf since 1936, a female that dispersed from Yellowstone National Park, where it had been reintroduced. The Colorado Department of Wildlife (CDOW) has determined that an overpass structure at West Vail Pass will aid in the recolonization efforts of lynx and other significant species (CDOW unpublished data, 2010).

Following a preliminary site analysis, CDOT determined that the upper pass location at milepost 187.4 offers several benefits for construction of an elevated wildlife crossing structure over I-70. The north side of the highway lies at a favorable grade and elevation for construction of a bridge landing, and other off-bridge landscaping. The elevation difference from the highway to the terrain along either side is considered to be within a workable range for an overpass approach structure. The slope on the south side of the highway is less steep than along a majority of the I-70 Mountain Corridor, which will allow for construction of a fairly simple bridge approach. Given the favorable grading at this location, disruption of the existing vegetation can be minimized as compared to other potential crossing locations along I-70 (Felsburg, Holt & Ullevig, 2009). Preliminary indications suggest that all features of a vegetated wildlife overpass could be built within the existing easement that CDOT has for this highway from the US Forest Service.

Further site details will be available in the Phase 2 Competition Brief and Technical Appendices.

The West Vail Pass Site as seen from the center median barrier, looking east along the divided highway (photo: NM. Lister, 2008).

One of 3 rare Canada lynx killed during crossing attempts of the I-70 at the West Vail Pass site (photo: Vernon Phinney, USFS).

CONTEXT

THE ARC PARTNERSHIP

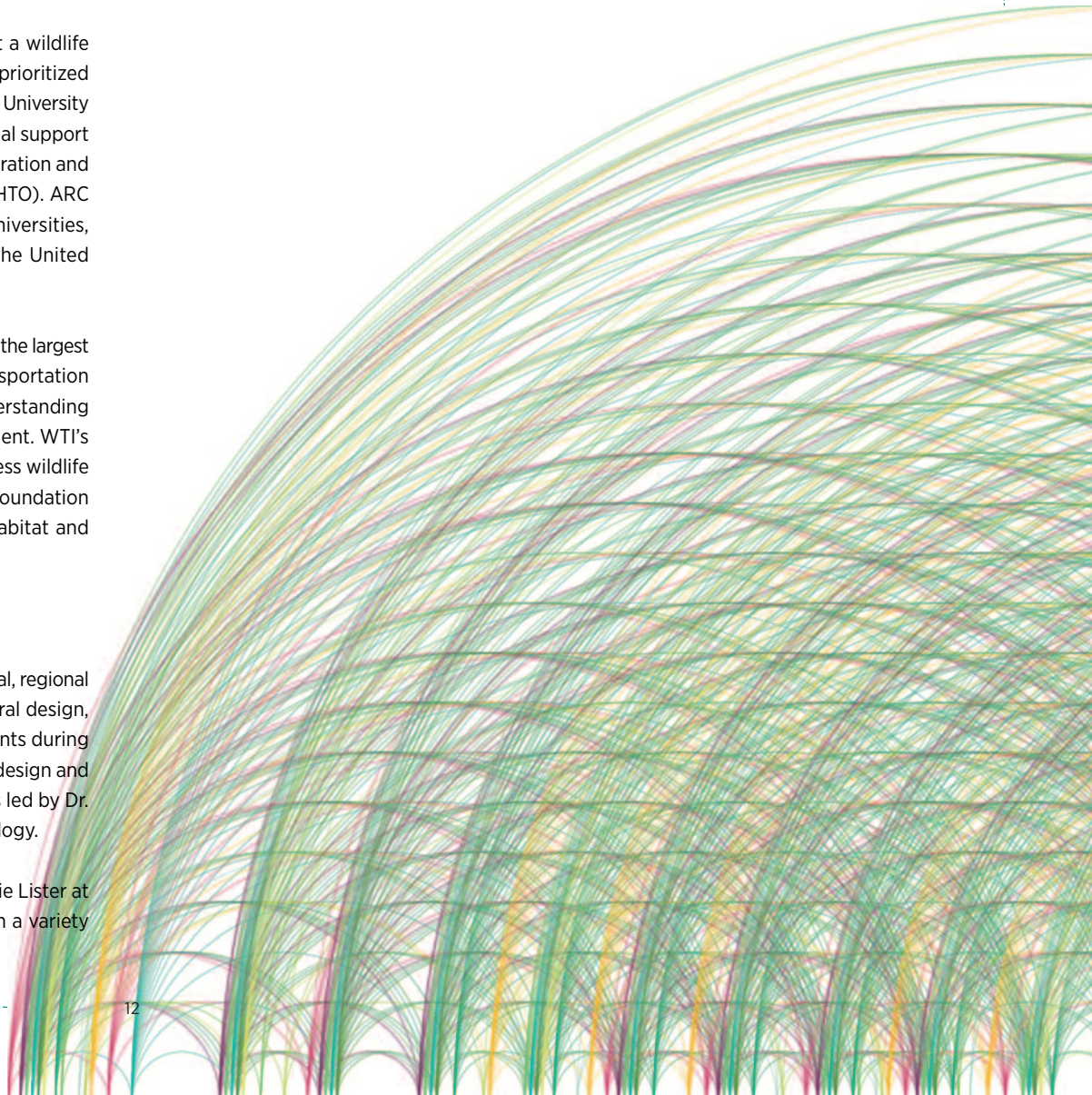
ARC is a partnership that was created in 2008 to develop and implement a wildlife crossing infrastructure design competition at a high-profile, ecologically prioritized site. Initiated by the Western Transportation Institute (WTI) at Montana State University and the Woodcock Foundation in New York City, ARC quickly drew additional support from the Edmonton Community Foundation, the Federal Highway Administration and the American Association of State Highway Transportation Officials (AASHTO). ARC continues to draw mounting support from federal and state agencies, universities, professional associations and non-profit conservation organizations in the United States and Canada.

ARC is managed by WTI in partnership with the Woodcock Foundation. WTI is the largest National University Transportation Center in the US focused on rural transportation issues. WTI's Road Ecology program provides national leadership in understanding the interaction between roads, natural resources and the natural environment. WTI's research, development and implemented solutions include those that address wildlife movement near highways and vehicle-wildlife collisions. The Woodcock Foundation is a private foundation whose funding interest includes transboundary habitat and corridor conservation for wildlife.

ADVISORS

ARC is supported by a Technical Advisory Committee (TAC) comprised of local, regional and national experts in wildlife biology, ecology, landscape and architectural design, engineering and transportation. The TAC provides expert advice at key points during the competition, including background research, site selection criteria, site design and program criteria, and engineering and ecological specifications. The TAC is led by Dr. Tony Clevenger at WTI, a leading wildlife scientist specializing in road ecology.

The ARC competition is overseen by a Professional Advisor, Prof. Nina-Marie Lister at Ryerson University, Toronto, whose work in ecological planning appears in a variety of international design competitions and commissions.



ARC AND THE I-70 MOUNTAIN CORRIDOR

Through a partnership with CDOT and the selection of the West Vail Pass site, the ARC design competition will contribute to a state-level initiative to improve wildlife mobility and address natural resource protection issues in Colorado. Demand for safe travel is increasing in the I-70 Mountain Corridor between Glenwood Springs and C470 in Denver. In response to that demand, CDOT released the Draft I-70 Programmatic Environmental Impact Statement (PEIS) in December 2004 to disclose preliminary transportation alternatives, environmental impacts and potential associated mitigations (SREP 2008).

The PEIS recognizes that the benefits derived from a transportation system supporting Colorado citizens, local communities and economic interests can come at a cost to other resources, including interference with the ability of wildlife to use the landscape in a manner that maintains population viability. It is acknowledged that the I-70 Mountain Corridor fragments and isolates existing habitats, interferes with free movement of animals within their habitat, and reduces remaining quality wildlife habitat by making such habitat less accessible to many native species. In addition, high traffic volumes form a barrier to wildlife movement, often resulting in vehicle-wildlife collisions and serious levels of mortality for some rare or wide-ranging species (ALIVE MOU, 2008).

To improve conditions for wildlife in the I-70 Mountain Corridor CDOT convened the ALIVE Committee, a technical advisory committee consisting of biologists from local and regional government agencies. The ALIVE Committee developed a landscape-based ecosystem approach for consideration of wildlife needs and conservation measures, and recommended measures to improve habitat connectivity across the I-70 Mountain Corridor between Glenwood Springs and C470 in Denver (ALIVE MOU, 2008).

The ALIVE committee identified important areas designated as Linkage Interference Zones (LIZ) for wildlife movement throughout the corridor. The LIZ locations were determined by integrating local expert knowledge concerning wildlife within the corridor, habitat characteristics and a GIS analysis of potential roadway barriers. A wildlife overpass at West Vail Pass was first recommended as a priority through the ALIVE committee in early 2000 (Felsburg, Holt & Ullevig, 2009).

A bi-partisan effort recently allocated $500,000 in public funds for the wildlife overpass structure from the 2005 Appropriations Bill through the Public Lands Discretionary funding source. Due to the efforts of the Southern Rockies Ecosystem Project (SREP) and Wilderness Workshop, $420,000 was allotted in November 2005 to CDOT to undertake preliminary analysis and site assessment for a wildlife bridge structure near West Vail Pass (SREP 2008). Given the constraints of the allocation, the proposed location at milepost 187.4 on I-70 was determined to be the most appropriate location to consider a wildlife overpass.

The Collaborative Effort, a 27-member group including CDOT and the Federal Highway Administration, represents varied interests of the corridor. The group was convened to reach consensus on a recommended transportation solution for the I-70 Mountain Corridor and was to be informed by solutions to improve safety and mobility for all users while preserving and restoring or enhancing ecosystem functions. The Collaborative Effort's recommendation for the corridor is a multi-modal transportation solution including non-infrastructure components, a commitment to evaluation and implementation of a rail-based Advanced Guideway System (AGS) and highway improvements. Non-infrastructure-related components include increased enforcement, driver education and bus service. AGS is a central part of the recommendation and envisions the implementation of rail passenger service in the corridor. Highway improvements include the addition of two auxiliary lanes, truck pullouts and parking and improvements to interchanges (I-70 Coalition, 2008).

PROCESS

With this Call for Expressions of Interest, ARC seeks international interdisciplinary design teams to enter a two-phase design competition for the proposed wildlife crossing structure:

PHASE ONE is the current Call for Expressions of Interest (EOI) in which respondent design teams will self-identify, articulate their design approach and present their qualifications for evaluation by the ARC Selection Committee, who will select a short-list of teams to proceed to Phase 2. The Phase 1 prequalification is open to international design firms of licensed professionals from a variety of disciplines. These and other pertinent details are provided under Team Structure and Submission in this document. By responding to the Phase 1 EOI, teams are deemed to have agreed that the decision of the ARC Selection Committee is final and binding.

PHASE TWO will involve an intensive, eight (8) week design exercise undertaken by a short list of between four (4) and six (6) finalist teams selected by the ARC Selection Committee from the respondent pool. The short-listed teams will be asked to develop and submit a bold, innovative and buildable concept design for the wildlife crossing structure at the proposed location near West Vail Pass. Phase 2 design concept submissions will be sufficiently detailed so as to convey all design intent and character of the intended project and its site context. A jury of international experts will evaluate the finalist submissions and decide upon a winning design concept for the competition, and its decision will be final and binding. More details are provided under Jury in this document.

All finalist submissions will be placed on public exhibition in January 2011 at the Trans-

Wildlife crossings may be underpasses or overpasses, although underpasses are the more common and less costly typology. Overpasses are useful to many species of wildlife because the landscape surface is more familiar to traveling animals and less intimidating than other crossing structure types (photos: WTI & T. Clevenger).

portation Research Board Annual Conference in Washington, DC, where the winner will be announced following the competition's conclusion. As part of a larger outreach and education campaign, a wider public exhibition of the finalist and winning designs will follow at times and places to be determined.

ARC reserves the right to amend this information and/or the competition documentation at any time as deemed necessary.

TEAM STRUCTURE

ARC is open to design and engineering professionals and related specialists from around the world, with the exception of ARC team members, advisors, jurors and their immediate family members.

Design teams must include a minimum of two (2) registered professional firms with current licenses in landscape architecture and civil or structural engineering. Teams may opt to include a Registered Architect as well as other specialists. International and out-of-state licenses are acceptable for Phase 1 of the competition. However in Phase 2, at least one (1) team member on each of the short-listed teams must hold (or be qualified to hold) a current professional civil or structural engineering license to practice in the state of Colorado. The lead firm may be one firm or more firms in joint venture, and must be clearly identified. The choice of firm(s) and area(s) of practice must be rationalized by the respondent team in the Phase 1 submission. Firms are not required to be exclusive to one team, with the exception of the identified lead firm or firms in joint venture. ARC encourages interdisciplinary collaboration and expects that respondent teams will also include wildlife biologists, ecologists, transportation specialists, and others deemed necessary to the context. Teams are also encouraged to include other experts they feel will enhance both the local sense of place and the international interest in the Rocky Mountain Corridor.

COMPETITION BRIEF

The short-listed qualified design teams selected to progress to Phase 2 will be asked to produce a concept design for a wildlife crossing structure at West Vail Pass based on a Competition Brief that will only be released to those teams at the launch of Phase 2. The Brief is being written by the Professional Advisor together with the TAC and other ARC partners. The Brief will be guided by the research studies, policies, and planning documents referred to in this Phase 1 Call for Expressions of Interest as well as other relevant documents produced by WTI, CDOT, local and regional agencies, ARC's partner organizations, and other stakeholders. Those documents will be available as technical appendices to the Phase 2 Competition Brief. The Brief will also include detailed descriptions of existing site conditions, future uses and requirements for the site, design criteria, opportunities and constraints and a complete list of competition submission deliverables.

JURY

A jury of distinguished, internationally acclaimed experts in landscape architecture, engineering, architecture, ecology and transportation will review and adjudicate the

Phase 2 design submissions with input and advice from ARC's Technical Advisors and Steering Committee. The decision of ARC's jury shall be final and binding.

The jury will be chaired by Charles Waldheim, Professor and Chair of Landscape Architecture at Harvard University, Graduate School of Design. The full jury will be announced with the launch of Phase 2 in the Design Brief and on the ARC website.

WINNING DESIGN

The ARC International Wildlife Crossing Infrastructure Design Competition is one of many steps in a larger mitigation effort for Colorado's I-70 Mountain Corridor and the region beyond. The winning design selected for the competition site may be implemented at the West Vail Pass location or it may be utilized at additional or different sites along the I-70 corridor at the discretion of CDOT, pending the results of the appropriate National Environmental Policy Act documentation. It is important to understand that the ARC competition does not preclude or minimize the collaborative stakeholder process. Furthermore, the ARC design competition has no formal relationship to the PEIS and does not indicate a decision on the part of CDOT to build a wildlife overpass at West Vail Pass. CDOT may choose to enter into contract with the winning team for the development and implementation of a design for a wildlife crossing structure. CDOT may also opt not to enter into any contracts for reasons that are at the sole discretion of the agency.

With respect to the winning design concept for the ARC competition, CDOT and ARC have agreed on the following terms in the Memorandum of Understanding signed by both parties in December 2009:

All submissions to the competition will become the property of ARC, which as the sponsor of the competition will be permitted to use those designs in publications, exhibits or other public venues. The winning design will not be the property of CDOT unless purchased from the design teams in the form of a tender or other contract. However, the design teams will retain the intellectual property and copyright to their designs (CDOT and WTI/ARC MOU, 2009).

Provided that the design teams submit to CDOT the required Pre-Qualification documentation, hold the required professional licenses to practice business in the state of Colorado and have built portfolios that meet CDOT's usual criteria for project management expertise, the winning design team(s) of the design competition will be considered "pre-qualified" and eligible to participate in any subsequent process for design development and construction of an overpass structure on the I-70 corridor (CDOT and WTI/ARC MOU, 2009)

If CDOT wishes to use any aspect of the winning design or a finalist's design, CDOT will enter into an agreement with the team (or teams) directly, independent of any input from WTI/ARC (CDOT and WTI/ARC MOU, 2009).

WTI/ARC recognizes that there is no guarantee that wildlife crossing structures will be part of the I-70 reconstruction at Vail Pass (CDOT and WTI/ARC MOU, 2009).

HONORARIA

All short-listed teams invited to participate in Phase 2 of the design competition who submit a complete concept design proposal will be awarded a US$15,000 honorarium,

subject to the conditions set out in the Phase 2 Brief.

The winning team, whose submission is decided upon by the jury, will also receive a prize of US$40,000 subject to the conditions set out in the Phase 2 Brief. Honoraria are paid by ARC as a gesture only and do not imply a contract to build.

As noted in the Winning Design section of this document, CDOT may choose to enter into contract with the winning team for the development and implementation of a design for a wildlife crossing structure. CDOT may also opt not to enter into any contracts for reasons that are at the sole discretion of the agency.

COMMUNICATIONS

Questions during the first stage of the ARC design competition may only be submitted by email to **questions@arc-competition.com** between June 28th and July 9th. The question period will close at 4 pm Mountain Time on Friday July 9th, 2010. The source of all questions will remain confidential. Questions with repetitive content will be provided with one common answer.

No other means of communication will be acknowledged. Questions and answers during Phase 1 of the competition will be posted on the competition website in a single collated document which will be updated regularly throughout the question and answer period. It is the responsibility of the respondents to check the competition website for updates and responses to questions. It is also respondents' responsibility to seek clarification of any matters they deem to be unclear. ARC shall not be responsible for any misunderstanding by a respondent of the EOI, the competition brief or any associated documents. ARC reserves the right to make changes to these documents and the competition process at any time deemed necessary.

Respondent teams should channel all communications regarding the competition to the ARC team by email at: **questions@arc-competition.com** . Prospective respondent teams and firms must not attempt to make contact with any member of ARC's Steering Committee, Technical Advisors, Professional Advisor or supporting agencies or jurors. Any and all communications made by prospective or respondent teams outside of the formal question and answer protocol will not be acknowledged.

Infrared camera images capture the range of wildlife movement on the crossing structures in Banff National Park, Alberta, Canada (photos: WTI & T. Clevenger, 2008).

SUBMISSION

Using no more than sixteen (16) pages of 8.5" x 11", or eight (8) pages of 8.5" x 11" if double-sided, each respondent team is asked to submit an Expression of Interest document that highlights the team's unique strengths, talents, design approach and philosophy and breadth of knowledge and experience. The submission document must include a signed cover letter (which is not included in the page limit) and the following information:

1. DESIGN APPROACH

- A statement explaining the team's design philosophy and approach to the challenge.
- A description of how the team intends to work, including methods, techniques, and organizational structure of the competition team.

2. EXPERIENCE AND PERSONNEL

- Identification of and rationale for the lead firm or lead firms in joint venture.
- Descriptions of the lead and supporting firms, principals, project manager(s) and professional staff who would work directly with the client agency (CDOT), indicating their major projects to date.
- A history of the team members' and firms' experience including number of projects, years of operation, range of project sizes and budgets, awards, prizes, citations and any other relevant information.
- In an Appendix (which is not included in the page limit), copies of the relevant core team members' required professional licenses to practice and contact information for all listed firms on the team.

3. WORK SAMPLES

- Samples of up to five (5) projects that the respondent team's constituent firms have completed in the areas of landscape architecture, architecture, and engineering in the past 15 years.
- Work samples must include full-color graphic representation of the project, a description of the program, the nature of the work, the size and complexity of the project, as well as the name of the client and/or a contact person who is able to provide a reference.
- Any other information that teams believe would make their participation in this innovative design competition of greatest value in envisioning the future wildlife crossing infrastructure.

SUBMISSION LOCATION & DEADLINE

Eight (8) full-color copies of the Phase 1 Call for Expressions of Interest submission document must be received in hard copy only by 4 pm Mountain Time on July 30th, 2010 at the office of the ARC team, at this address:

ARC International Design Competition
c/o Western Transportation Institute (WTI)
Road Ecology Program Area
Montana State UniversityV́
PO Box 174250V́
Bozeman, MT 59717-4250

Late submissions will not be accepted.

SELECTION

In evaluating Phase 1 Expression of Interest (EOI) submissions, the selection committee will place high value on the following factors, not necessarily listed in order of importance:

1. INNOVATIVE APPROACH

An approach to design that goes beyond conventional solutions and emphasizes:

RISK-TAKING

Not accepting received wisdom but starting with fundamentals to go beyond easy and safe design solutions, and exploring new methods, new materials, and new thinking.

INSPIRATION

Commitment to creating infrastructure that is extraordinary in its ability to reconcile the mobility of humans and wildlife, while elevating people's everyday experience of landscape.

UNDERSTANDING

Synthesizing complex or competing agendas in an energetic way so that the whole is greater than the sum of the parts, and the design challenge is met at several scales.

2. OUTSTANDING WORK SAMPLES

A portfolio of superlative site work, planning projects, competition entries and/or exemplary analytical studies that demonstrate:

EXPERIENCE IN DESIGNING SPECTACULAR INFRASTRUCTURE

Innovative projects with feasible, buildable context-sensitive and compelling design solutions for safe, efficient, cost-effective, and ecologically responsive infrastructure.

EXPERIENCE WITH SUSTAINABILITY

Projects that exhibit extraordinary design excellence with an emphasis on environmental consciousness and sustainability to create long-lasting economic, ecological and social value.

EXPERIENCE WITH SCALE

Projects that demonstrate an understanding of scale and connection beyond the immediate site; projects that address phasing and the reciprocal relationship of local and regional development.

EXPERIENCE WITH COMPETING SENSIBILITIES

Projects that pay careful attention to ecological, architectural, engineering, landscape, and social-cultural needs.

3. COMMITMENT OF PRINCIPALS TO LEAD THE TEAM

A description of the role of each of the key personnel on the team and some indication of the talent and time that principals and/or senior associates will contribute to the project

TIMELINE

PHASE 1

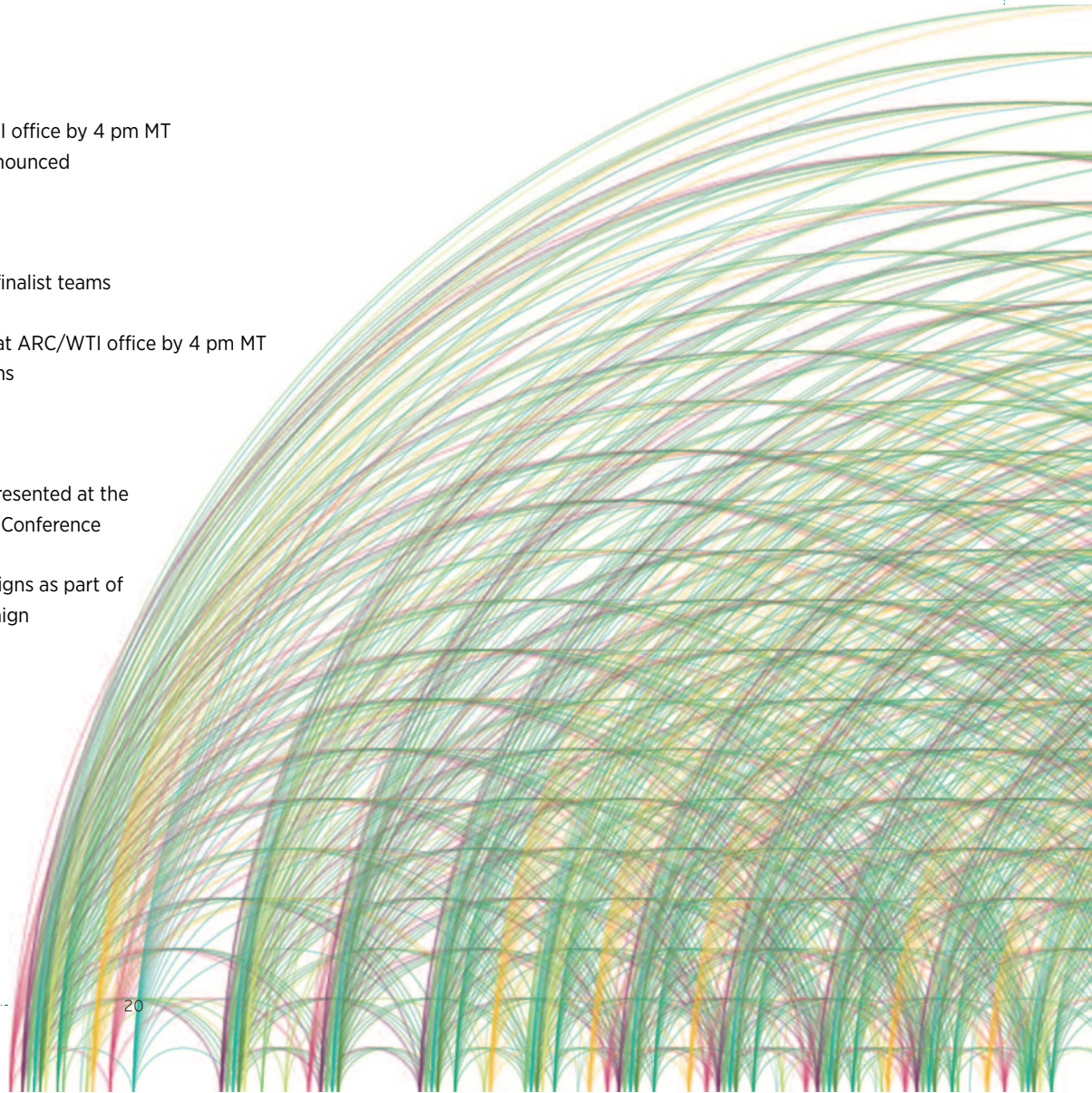
June 14, 2010	Call for Expressions of Interest
June 28–July 9, 2010	Question and Answer period
July 30, 2010	Expressions of Interest due at ARC/WTI office by 4 pm MT
September 6, 2010	Short list of 4-6 finalist teams to be announced

PHASE 2

September 6, 2010	Design competition begins
September 24–26, 2010	Mandatory site visit for all short-listed finalist teams
September 27–October 8, 2010	Question and answer period
October 29, 2010	Phase 2 submissions due in hard copy at ARC/WTI office by 4 pm MT
November 12–14, 2010	Jury convenes to adjudicate submissions
January 2011	Winner announced

POST-COMPETITION

January 25, 2011:	Finalist Projects and Winner's Award presented at the Transportation Research Board Annual Conference in Washington, DC
Winter/Spring 2011	Exhibition of finalists' and winner's designs as part of a larger outreach and education campaign (under development).



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The following is a list of useful references, some of which are cited in this Brief. These include site-specific research and policy papers, as well as scientific research studies on wildlife crossings and road ecology in general. More detailed technical and site-specific information will be available in Phase 2 of the competition.

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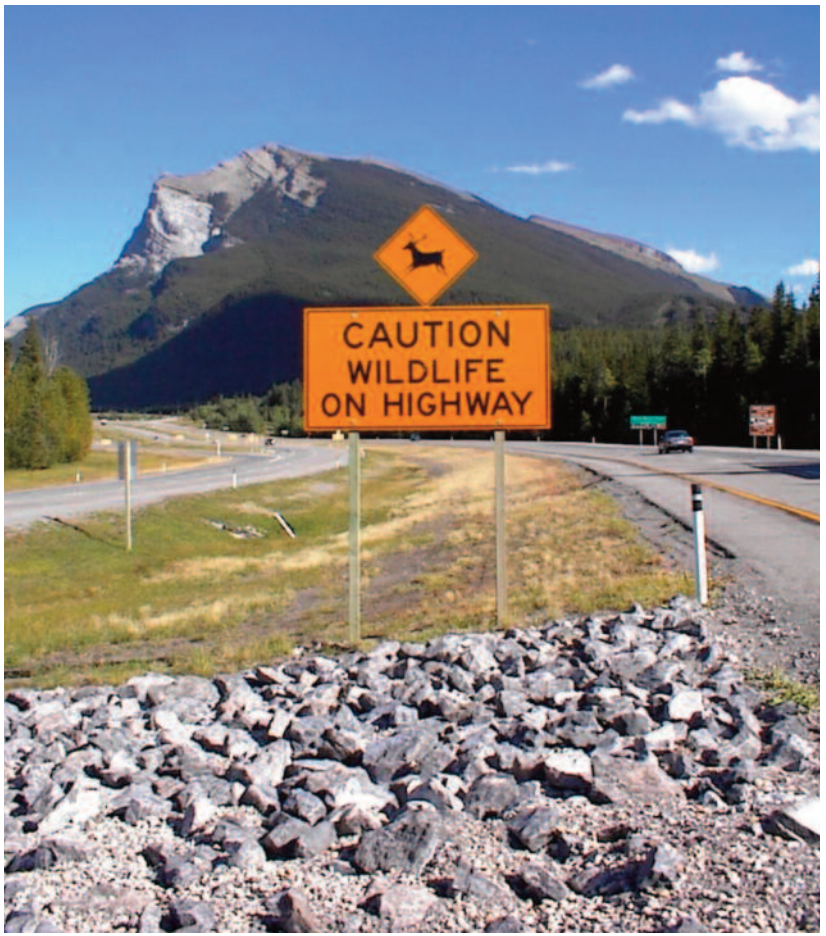

Image courtesy of Tricia White