

# ARC International Wildlife Crossing Infrastructure Design Competition

## Phase 2 Questions & Answers

This update posted **Oct. 14<sup>th</sup>, 2010**

Q1: *The competition brief specifies that “the bridge span must accommodate the PEIS Preferred Alternative of 6 lanes and an Advanced Guideway System (AGS) for elevated commuter rail in the central median, with an expected clearance of 5.5 meters or 18 feet above grade”. Is it possible to place a structural support for the bridge between the car lanes and the commuter rail, and also in the middle of the commuter rail right-of-way?*

A1: Yes. A mid-point structural support is acceptable.

Q2: *Is the expected clearance of 5.5 meters only for the future commuter rail line or do we have to keep this clearance for the car lanes as well? If this clearance is not required for the car lanes, what is the minimum height we should consider?*

A2: The usual minimum clearance over traffic lanes is 5 meters or 16.5 feet. However, this project requires a minimum clearance of 5.5 meters or 18 feet above grade for all six lanes in order to accommodate oversized truck traffic. This is because there is no alternative routing for oversized vehicles in either direction for 241 kms or 150 miles.

Q3: *Please elaborate on the dimensions for the elevated commuter rail that is being planned for the median. The Brief indicates width and height, and we interpret the height as the elevation of the rail guideway above the road. If this is the case, please advise on the clearance for the train itself.*

A3: The Programmatic Environmental Impact Statement (PEIS) calls for a 7.9 meter or 26 foot wide Advanced Guideway System (AGS) envelope down the center median of the highway where the AGS is elevated for safety. The planned clearance of the elevated AGS is 5.5 meters or 18 feet above grade, and this envelope includes the train. If the AGS is on the ground (as it may be going under the wildlife overpass) a clearance zone has not yet been established, as we do not yet know the operational characteristics of the system. The best available information requires that we specify a 7.9 meter or 26 foot wide AGS corridor at a minimum of 5.5. meters or 18 feet clearance under the bridge, so as not to preclude the AGS system.

Q4: *We would like to request a southern extension to the aerial view given in the file ‘CDOT WVP Ortho Aerial VP-11\_sp83’. An area equivalent to this file would place milepost 187.4 in the center of a geographical area. It would also be helpful to know if*

*there is a scale associated with the aerial photo. Knowing this would take out the guesswork when overlaying the aerial with the topography drawing.*

A4: We have posted 2 additional ortho-aerial images that extend the main image provided. These 2 images are now available as files in the Technical Appendices (under “maps”) on the competition website. The files are called ‘CDOT WVP Ortho Aerial VP-12\_sp83.tif’ and ‘CDOT WVP Ortho Aerial VP-13\_sp83.tif’. The new images cover additional area along I-70 southeast of the milepost and you can stitch them together to create a composite image if desired. **However:** please be aware that the 3 site maps in the Brief (all of which are downloadable in the Technical Appendices) all use the main ortho-aerial image (CDOT WVP Ortho Aerial VP-11\_sp83.tif) as the base drawing over which the topographic data have already been laid. We have provided 3 site maps at 1:23,000, 1:6000 and 1:3000 and these are scaled to the topographic data (contours) provided using the same ortho-aerial image.

All ortho-aerial images provided have a resolution to 0.15 meters or 0.5 feet. Because these images are taken from a moving aircraft whose flight path was set at a fixed elevation, the scale of the image necessarily changes as elevation of the road goes up and down with the topography. This is a standard characteristic of ortho-imagery, and it means that you must calculate a scale for any desired projection of the image. You can do so using a fixed point of known dimension(s) within the image. For example, the highway lanes in this area are 3.67 meters or 12 feet wide, the shoulder is approximately 3 meters or 10 feet wide, each white stripe is 3 meters or 10 feet long, and each gap between white stripes is 9.1 meters or 30 feet. A CAD or GIS operator should be able to estimate a scale with this information should you wish to create a custom scaled image for the site area.

Q5: *In making the site model (1:200), it may be advisable that we locate the median of the road to represent the future condition of six lanes, along with a possible train line for those six lanes. Because of the topography, the realignment to six lanes would not be centered on the existing road, but rather pushed to include more of the shoulder on the south side of the road (in the traffic headed to Denver). Please advise us on the state of the road we should use for the model, and whether the number of lanes should represent the current (4-lane) or future (six-lane) condition.*

A5: As discussed in the Competition Brief, the conditions to be considered for the wildlife crossing should incorporate the “Preferred Alternative” recommended in the Draft PEIS. The “Preferred Alternative” includes six lanes and an elevated rail line (the Advanced Guideway System). However, there are no construction plans for the widened I-70 as yet because the decision is still subject to NEPA. For the purposes of the competition, we advise the teams to estimate an appropriate alignment of the I-70 highway under a six-lane scenario.

Q6: *In addition to the required model on an A1 base and at the 1:200 scale, can a second model be submitted, perhaps at a different scale to encompass more of the topographical landscape, but at the same A1 size?*

A6: A second model is not permitted.

Q7: *The requirements for the competition submission are significant, and the time to generate concepts and produce the required submission materials is short. Is it possible to either not have the model as part of the submission for all teams (for example, have the submission requirement for the winning team only), or still require a model submission, but have it delivered after the November 2nd deadline but before the jury sits on the 12th (as the design cannot change after the submission of the panels)?*

A7: As explained in the Competition Brief, the physical model is a requirement of submission for all short-listed teams. The competition period is 8 weeks, which is a standard timeframe in many design competitions for public infrastructure. All submission requirements have been public since the release of the Competition Brief and the announcement of the short-listed teams on September 7<sup>th</sup>. Given this lead time, the deadline for all submission elements, including the model, remains unchanged. All materials are due as stipulated in the Competition Brief on November 2<sup>nd</sup>.

Q8: *At milepost 187.34 there is a small hill on the south-western side of the road. Is this hill natural or is it artificial? For example, was the hill created during the construction of the I-70?*

A8: CDOT believes the hill is natural. The geotechnical investigation suggests this area is slipping so it is not unlikely that this material has been eroding down the hillside draw for a long time.

Q9: *Please confirm that the 240' length illustrated in the Felsburg Holt Ullevig 2009 Report, page 67 'Conceptual Bridge Elevation', is for illustrative purposes only, and is not a strict horizontal dimensional requirement.*

A9: Correct. There is no horizontal dimension requirement.

Q10: *We have downloaded the recently provided aerial images (VP-12\_spc83.tif and VP-13\_spc83.tif) from the arc-competition website, but we cannot read them. Is it possible to provide the images in a different file format or re-upload them?*

A10: Yes. The images in question have been re-uploaded and are working properly now. They are the same format as the main site image, CDOT aerial VP-11\_spc83.tif.

Q11: *We would like to know if you have drawings or documentation of the following:*

- *As-built of the roadway/Construction Plans*
- *As-built of the bikeway*
- *ROW boundaries along the roadway*
- *Drainage infrastructure along I-70*

A11: (Revised answer) ARC has now received this information from CDOT. The files are available on the ARC website under the Technical Appendices in a folder called "CDOT As-Built I-70 Data".

Q12: *We have reviewed the camera data available within the competition documents (Technical Appendices). Would it be possible to receive the data for each camera, including the camera at mile marker 187.4 in a database format?*

A12: (Revised answer) The cumulative data from the monitoring stations are summarized in the Eco-Logical Monitoring Report supplied in the Technical Appendices. It is not possible to receive the raw data (as images) from each of the cameras in the monitoring area, as there are hundreds of images in the database. However, ARC has arranged with the owner of the images, the Center for Native Ecosystems (CNE), to provide a range of relevant sample images from cameras along the I-70 monitoring area—including the Vail Pass—for use by the finalist teams in their research and preparation of competition materials. The images are the property of CNE and the lead firm(s) for teams wishing to access these images must sign a *Use Agreement Form* before they are permitted to use the images. Teams can download their customised *Use Agreement Form* from the ARC website under the Technical Appendices in the folder called "CNE Database Use Agreement Forms". Completed and signed forms must be sent back via email to [questions@arc-competition.com](mailto:questions@arc-competition.com) and copied to Andrea West at CNE at [andrea@nativeecosystems.org](mailto:andrea@nativeecosystems.org). Once the signed forms have been returned to and acknowledged by CNE via email, the teams requesting the images may download and use them. The images are on the ARC website in the Technical Appendices in the folder called "CNE Images\_Camera Data for ARC".

Q13: *Does the 15-page requirement for the booklet include a cover, back and contact page? Is the cost estimate separate from the 15-pages?*

A13: (Revised answer) The booklet may include front and back covers, which are not counted in the 15-page limit. However, the cost estimate and the contacts page(s) are to be included within the 15-page limit.

Q14: *In the submission it is stated that physical scale model should have a scale of 1:200 on an A1 panel size. This scale and the panel size make it impossible to present the wildlife crossing with enough of its surroundings. Are we allowed to reduce the scale of the model to 1:400 (on an A1 panel) in order for us to be able to present the wildlife crossing in its environment?*

A14: The model must be constructed at a scale of 1:200 on an A1 panel size. The purpose of the model is to provide detail of the concept design of the overpass structure in three dimensions; a scale of 1:200 on an A1 panel size permits this. The topographic context of the bridge can be shown more effectively in section, along with a clearly articulated site plan.

Q15: *Can we get more information about the other possible locations of the wildlife crossings?*

A15: The wildlife crossing location for the ARC design competition is clearly articulated in the Competition Brief. The proposed location is the identified site area near milepost 187.4. This area has been determined as the most appropriate location for a wildlife crossing by CDOT and several other agencies over a decade of study. Relevant reports and supporting data for the site are available in the Technical Appendices on the ARC website.

Q16: *Are there any restrictions to how the 11x17 book is to be bound?*

A16: No.

Q17: *Is there a requirement for a title on the book cover?*

A17: No.

Q18: *Are there any restrictions to how creative we can get with the 11x17 book in terms of presentation and packaging? Can we include separate objects attached/included with the book to help facilitate the ideas brought forward by our team?*

A18: As long as the page limit, content, and booklet size are consistent with the submission requirements, ARC welcomes the teams' creativity in presentation and packaging.

Q19: *Is there any information of how the boards will be displayed for the jury or on the day of the exhibition? Are they going to be individually placed? Can we have them lineup horizontally or vertically?*

A19: As stated in the Competition Brief, “the panels may be aligned to read as a single narrative, or as discrete components”. This means the teams can choose to align the panels in whatever orientation best suits their design and narrative, and ARC will place the panels accordingly for the jury’s review and adjudication, and in any subsequent exhibition. It will also help us to ensure proper placement if teams number their panels with a small placement diagram on the back of each panel.