AASHTO Innovation Initiative

[Proposed] Nomination of Innovation Ready for Implementation

Sponsor

Nominations must be submitted by an AASHTO member DOT willing to help promote the innovation. If selected, the sponsoring DOT will be asked to promote the innovation to other states by participating on a Lead States Team supported by the AASHTO Innovation Initiative.

1. Sponsoring DOT (State): Colorado Department of Transportation

2. Name and Title: Gary Vansuch, Director of the Office of Process Improvement

Organization: Office of Process Improvement - CDOT

Street Address: 2829 W Howard Pl

City: Denver

State: Colorado

Zip Code: 80204

Email: Gary.vansuch@state.co.us

Phone: n/a

Fax: n/a

Innovation Description (10 points)

The term “innovation” may include processes, products, techniques, procedures, and practices.

3. Name of the innovation:

Wildlife Underpass Sizing Improvement

4. Please describe the innovation.

This is a statistical-based methodology to determine the right size for wildlife underpasses, solving a long-standing issue that there previously had been no standard methodology for doing this. Using this saved $1.7 million for the sizing of the underpass on the Vail Pass Auxiliary Lanes project.

5. What is the existing baseline practice that the innovation intends to replace/improve?

Generally, they underpasses would be sized as large as possible within budget, disregarding the fact that it could be smaller because there wasn't research showing the sizing based on animals utilizing the underpass.

6. What problems associated with the baseline practice does the innovation propose to solve?

Improve budget efficiency, and making underpass designs more tailored to the animals using them.

7. Briefly describe the history of its development.

John Kronholm was assigned to work on the i70 corridor improvement project – and near vail there was a plan put in place to put in underpasses for wildlife. The stakeholders of the project were encouraging these underpasses to be as large as they could be, and not really taking time to do research. John thought critically about that decision and decided to do some research himself – he set up wildlife cameras to see what animals were considering crossing i70 in that area. After a while he also acquired a grant to fund a research project to determine how to best size wildlife underpasses. The Engineering firm JACOBS completed this research on his behalf and now we have an entire research document and process that helps DOT's size their underpasses better and helps save money in the process.

8. What resources—such as technical specifications, training materials, and user guides—have you developed to assist with the deployment effort? If appropriate, please attach or provide weblinks to reports, videos, photographs, diagrams, or other images illustrating the appearance or functionality of the innovation (if electronic, please provide a separate file). Please list your attachments or weblinks here.

JACOBS put together a research paper which is attached. I (Rose Bandrowski) have helped spread the word of his innovation by putting a video, an article, and a Lean Everyday Ideas Card together for this project which allows for easy sharing of this innovative idea and process. Idea Card link, Video link, Article Link, JACOBS Research Paper Link.

Attach photographs, diagrams, or other images here. If images are of larger resolution size, please provide as separate files.

State of Development (40 points)

Innovations must be successfully deployed in at least one State DOT. The AII selection process will favor innovations that have advanced beyond the research stage, at least to the pilot deployment stage, and preferably into routine use.

9. How ready is this innovation for implementation in an operational environment? Please select from the following options. Please describe.

☐ Prototype is fully functional and yet to be piloted

☐ Prototype has been piloted successfully in an operational environment

☐ Technology has been deployed multiple times in an operational environment

☒ Technology is ready for full-scale implementation

Andy Pott, is considering referencing the paper in the Bridge Design Manual when it comes to the design and sizing of wildlife underpasses, meaning it is ready for full-scale implementation

10. What additional development is necessary to enable implementation of the innovation for routine use?

This report is ready to be used without any additional development. (although some additional data on elk could create a stand alone elk model)

11. Are other organizations using, currently developing, or have they shown interest in this innovation or of similar technology?? ☒ Yes ☐ No

One of the authors of the report stated that another State (maybe a consultant) had referenced the report in their sizing of an underpass. John Kronholm received an email about this.

Potential Payoff (30 points)

Payoff is defined as the combination of broad applicability and significant benefit or advantage over baseline practice .

12. How does the innovation meet customer or stakeholder needs in your State DOT or other organizations that have used it?

Yes

13. Identify the top three benefit types your DOT has realized from using this innovation. Describe the type and scale of benefits of using this innovation over baseline practice. Provide additional information, if available, using quantitative metrics, to describe the benefits.

Benefit Types	Please describe:
Saves money	Now that we don't design oversized underpasses, money can be saved.
Improves our underpass design process	There's less guesswork on the side of the engineers now that an established process has been created
Makes future underpasses more financially viable	We're more likely to have wildlife underpasses as this research makes them cheaper to build

Provide any additional description, if necessary:

Click or tap here to enter text.

14 How broadly might this innovation be deployed for other applications. in the transportation industry (including other disciplines of a DOT, other transportation modes, and private industry)?

Any other DOT's that have Mule Deer crossing needs can utilize this research.

Market Readiness (20 points)

The AII selection process will favor innovations that can be adopted with a reasonable amount of effort and cost, commensurate with the payoff potential.

15. What specific actions would another organization need to take along each of the following dimensions to adopt this innovation?

Check boxes that apply	Dimensions	Please describe:
☒	Gaining executive leadership support	Click or tap here to enter text.
☐	Communicating benefits	Click or tap here to enter text.
☐	Overcoming funding constraints	Click or tap here to enter text.
☐	Acquiring in-house capabilities	Click or tap here to enter text.
☐	Addressing legal issues (if applicable) (e.g., liability and intellectual property)	Click or tap here to enter text.
☐	Resolving conflicts with existing national/state regulations and standards	Click or tap here to enter text.
☐	Other challenges	Click or tap here to enter text.

16. Please provide details of cost, effort, and length of time expended to deploy the innovation in your organization.

Cost: $50 thousand to fund the research

Level of Effort: minimal level of effort

Time: unknown

17. To what extent might implementation of this innovation require the involvement of third parties, including vendors, contractors, and consultants? If so, please describe. List the type of expertise required for implementation.

The report has an easy to follow chart for the sizing of wildlife underpasses and could be utilized by any government agency or consultant who is looking to size a wildlife underpass.