

Number: 25-37

Proposed Title: Construction Work Zone Design BCA Tool

1. Concisely describe the **transportation issue (including problems, improvements, or untested solutions) that Oregon needs to research.**

ODOT strives to choose appropriate work zone designs for large scale projects on high volume highways based on real-world performance. Two common approaches to interstate work zone configurations are the crossover design and nighttime closures. Crossover designs reduce overall construction costs by reducing the project duration and can be safer, but high-volume locations experience significant delay. Nighttime closures cause less delay, but increase duration and cost required to complete the project and increase worker exposure to risk. Choosing the final work zone design often relies on minimizing delay as the primary determinant of work zone design. There are multiple factors beyond duration and delay to consider when choosing a design, but no tools that methodically includes all the factors in one place to make decisions based on rigorous benefit-cost analysis. As ODOT needs increase at the same time resources are declining, we need tools to make decisions utilizing our scarce resources efficiently and effectively, and not make decisions based primarily on delay impacts to system users during construction.

2. Document how this **transportation issue is important to Oregon and will meet the [Oregon Research Advisory Committee Priorities](#)**

Making decisions based on real-world data enables ODOT to make efficient decisions that impact the cost of finishing projects, time required for completion and impacts to highway users. ODOT needs analytical tools to assist in making informed decisions that consider the complex nature of designing construction work zones. This is a current issue because one primary element is determining work zone delay, which is the delay imposed on highway users. Decisions incorporating factors used in robust benefit cost analysis ensures we provide the greatest return on investment to the agency and people of Oregon. This approach implements ODOT's commitment to providing good stewardship of public assets, operating a safe and efficient transportation system, and seeking to realize cost reductions to the extent possible.

3. What **final product or information needs to be produced to enable this research to be implemented?**

The deliverable expected from this proposal is a benefit/cost evaluation tool informing staff when choosing the most cost-effective construction work zone design. This is a tool ODOT has needed for a long time. Several attempts have been made to develop one internally, but the large number of variables and complexity has placed development of such a tool beyond the reach of ODOT staff. The most likely way to develop such a tool is through a research project that incorporates proficiency across a range of expertise in the areas of safety, construction work zone design, project budgeting, and benefit/cost analysis.

4. (Optional) Are there any individuals in Oregon who will be instrumental to the success of implementing any solution that is identified by this research? If so, please list them below.

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Justin King	ODOT State Work Zone Engineer	justin.s.king@odot.oregon.gov	503.986.3584
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5. Other comments:

It should be noted that a project manager in Region 3 was told by an experienced quality vendor they will not bid on interstate construction projects if a crossover work zone is not used. Their reason is due to an unacceptable risk to employee injury. This is a concern because it impacts the potential pool of competitive bids from quality vendors.

6. Corresponding Submitter's Contact Information:

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