

Number: 25-79

Proposed Title: Improving the Safety and Lifespan of Guardrails along Oregon’s Coastal Highway

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

Guardrails along coastal routes are essential safety features. However, the current standard in Oregon is a one-size-fits-all design. This approach is posing challenges in highly erodible sections of roadway by potentially accelerating the rate of erosion in some cases (see side photo of a standard post and guardrail system along Hwy101 installed at a high-erosion location). This challenge signals the need for alternative guardrail design along with guidance to help ODOT make appropriate place-based guardrail design and material selections that avoid local erosion challenges and preserve the integrity of the road surface. Erosion reduction and road surface preservation are critical to improving road safety and reducing costly maintenance. Research is needed to identify effective alternative designs and establish performance under Oregon’s coastal conditions, including coastal bluffs.



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

Issues of concern to ODOT include 1) guardrails posted in unstable materials are less likely to be effective, posing a road safety challenge, 2) coastal erosion rates along the Oregon coast and beyond are increasing due to climate change (wave intensity, sea level rise and more frequent storms), and 3) erosion and landslides are the highest cost maintenance challenge at ODOT. It is critical that basic design standards do not exacerbate these hazards and add to safety challenges and costs. This research supports the RAC priorities of safety, economic stewardship, and climate change challenges for ODOT infrastructure.

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

The final product will be a report that provides 1) a scan of coastal guardrail design to inform options or signal gaps, and 2) a guidance document to inform guard rail design selections. The research will include a global scan of guardrail design, especially for infrastructure along coastal routes. Investigation into precedent work will allow ODOT to follow existing designs, which will direct the research effort for piloting the identified design(s) under Oregon coastal conditions. If no existing designs are appropriate, new designs will be developed and tested.

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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5. Other comments:

NA

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