

**Number:** 25-49

**Proposed Title: Feasibility of using biochar in water quality, construction, maintenance, and supplementary cementitious material applications.**

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

ODOT is responsible for vegetation management within the right-of-way (ROW) of the State Transportation System and is also responsible for controlling roadside contamination (e.g., salt and 6PPD-quinone). ODOT also uses an estimated 250,000 cubic yards of concrete annually to construct and maintain the State Transportation System. It would be prudent for the agency to research opportunities for the use of biochar – an organic waste material – across agency operations to see where this material can be used as a tool for stormwater retention, vegetation management, carbon sequestration, and as a supplementary cementitious material (SCM) in concrete mixes.

**2. Document how this **transportation issue** is important to Oregon and will support ODOT’s **mission** and current **Strategic Action Plan**.**

Identifying opportunities for ODOT to utilize the many benefits of biochar supports the agency’s mission to provide a safe and reliable transportation system because it could reduce maintenance costs and greenhouse gas (GHG) emissions. The Strategic Action Plan calls on the agency to reduce its carbon footprint, implement transformative technologies and achieve sufficient funding, among other objectives. Biochar presents a wide range of application opportunities to achieve these priorities. As an SCM, biochar can reduce GHGs by replacing high carbon emissions materials in construction materials; it could also serve to sequester atmospheric carbon long-term. As an additive to roadside vegetation, it has the potential to reduce project construction costs by increasing the roadside soil’s ability to retain water and reduce maintenance costs related to mowing and localized flooding, as well as providing a protective barrier to prevent salt and other roadway contaminants from entering streams near roadways. Biochar has the potential to be a transformative technology that deserves further investigation for use in ODOT projects.

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

This proposal simply asks for a literature review of potential biochar applications for a state department of transportation. A list of potential applications for ODOT, along with any quantitative data (costs, GHGs avoided, etc.) and suggested next steps would be ideal and allow for the research to be implemented later.

**4. (Optional) If able, list the proposed scope of work tasks for this research project. This can include potential research, development, or technical transfer activity(ies) that may develop better understanding of the **transportation issue** and lead to an improvement in the Oregon’s transportation infrastructure or services.**

N/A currently.

**5. (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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Please note that ODOT may contact these individuals or others regarding this proposal

**6. Other comments:**

This proposal relates to other submittals on biochar. I am fine with this being merged with other research if deemed appropriate.

**7. Corresponding Submitter's Contact Information:**

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