

**RESEARCH PROBLEM STATEMENT**

<b>DATE:</b> 09/06/2019	<b>PROJECT AREA:</b> Pavements
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**TITLE:** Exploring Re-use Options for Grinding Slurry from Asphalt and PCC Pavements

**PROBLEM STATEMENT:**

Increasingly, contractors in Arkansas are looking to diamond grinding both asphalt and concrete pavements to improve surface roughness. Because speed is paramount in many paving jobs, it is easier for a contractor to lay down a pavement quickly and use diamond grinding as a way to make the pavement smoother. Diamond grinding is also used as a maintenance method in ARDOT's preventative maintenance plan. As PCC pavement cracks or as the surface of asphalt pavement deteriorates, grinding can be a relatively simple method to quickly return a pavement to serviceability. A side effect of this grinding however, is production of a slurry of the ground surface material. This material can be highly alkaline in the case of PCC or contain bituminous material and thus raises issues with safe disposal. Reusing this slurry (or the solid constituents of the slurry) in new concrete or asphalt mixtures has not been explored but is a potentially cost saving and environmentally friendly alternative for new construction. If the quality of the resulting material isn't suitable for highways, it may be suitable for use in lower priority construction such as sidewalks, curbs, sound walls, or local roads.

**OBJECTIVES:**

1. collect grinding residue from asphalt, PCC, and bridge deck projects
2. design mixtures which replace a portion of new mix designs with recycled grinding residue (either as a slurry or after drying)
3. measure the fresh and hardened properties of the portland cement mixtures to determine the impacts of the addition of these recycled materials
4. measure the volumetric and strength properties of the resulting asphalt mixtures to determine the impacts of the addition of these recycled materials
5. make recommendations on the appropriate replacement rates for adequate mix properties

**FORM OF RESEARCH IMPLEMENTATION AND RETURN ON INVESTMENT:**

This project will result in new options for re-use of diamond grinding slurry. This re-use will reduce the environmental impacts of diamond grinding and create a new additive to reduce the cost and environmental impact of new construction. If successful, this new material will be included in supplementary specifications or proposed updates to ARDOT's current specifications.

**Estimated Project Duration:** 24 Months

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**REVIEWER:**

Standing Subcommittee  
Ranking

Advisory Council  
Ranking

Statement Combined with  
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