

FY 2010 RESEARCH PROBLEM STATEMENT

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TITLE ([more info](#))

The evaluation of thin and ultra-thin white topping for rehabilitation projects.

PROBLEM (Description of need) ([more info](#))

ODOT, along with other DOTs, is in need of rehabilitation techniques that provide cost effective solutions with minimal construction time. Areas that have typically created difficult construction solutions are intersections or roadway segments with high truck volumes. Historically, these areas experienced limited success with asphalt overlays that may not have the required strength to resist rutting and shoving. ODOT must look to adopt effective solutions to highway rehabilitation procedures that allow fast fixes with lasting performance.

Thin and ultra-thin white topping has been used by other states to rehabilitate roadways that are more susceptible to rutting or having weakened subgrades in place of conventional HMA overlays. White topping uses the existing asphalt surface as a base and structural material to carry the tensile stresses while the overlying concrete is loaded in compression, as the two materials work together to form a composite pavement. This interaction utilizes both materials physical characteristics to provide an efficient loading platform. Modifications in recent years in concrete slab size and material have proven to further increase white topping performance.

PROPOSED RESEARCH, DEVELOPMENT OR TECHNOLOGY TRANSFER ACTIVITY ([more info](#))

Identify a rehabilitation project that exhibits pavement deficiencies and traffic volumes that fit the characteristics of a good candidate for a white topping project.

Develop a pavement thickness recommendation based on other state DOT or industrial standards for white topping design. Construct the white topping section of roadway and evaluate the pavement performance, construction cost, and maintenance cost associated with the roadway section.

BENEFITS ([more info](#))

Other state DOT's have experienced success in thin and ultra-thin white topping sections and have pavements in place that have well exceeded their design life. Using the existing asphalt as a roadway platform eliminates the timely process of subgrade preparation and grading, minimizing construction time and cost.

The bond formed between the existing asphalt and small panel sizes used for white topping design allow the white topping section to perform without the use of dowel bars and reinforcing steel. Also, PCC additives allow for rapid-cure concrete to be used in areas that must be opened to early traffic. The finished roadway is one that requires minimal maintenance and effective life cycle costs. In thicker asphalt sections, milling may also be incorporated to result in a rehabilitated profile which matches the previously existing profile and grades.

CONTACT INFORMATION:

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