



RESEARCH NEED STATEMENT

Call for Projects 2015

Project Research Title: Cold Asphalt Recycling

TDOT Sponsor Director: Brian Egan

List TDOT Research Team Lead: Mark Woods

List TDOT Research Team Members: Hong J. Park, Sampson Udeh, James Maxwell

1. Define the problem or research requested. What is the goal/objective of the research?

During a recent Department tour of asphalt facilities throughout the state, it was identified that many asphalt mixture suppliers in Tennessee currently have very large stockpiles (greater than 100,000 tons) of asphalt millings generated from state projects. An evaluation of TDOT average unit prices further established that in most years, the Department has generated more asphalt millings than what is possible to be recycled. Previous research has established that current departmental limits on recycled material percentages are already near their maximums. Technologies are available that utilize 100% of asphalt millings into mixtures at ambient temperatures, known as cold in-place recycling (CIR) and cold central plant recycling (CCPR), but the Department has little to no experience with these products.

The Department would like to explore potential options of 100% recycled mixtures such as cold in-place recycling (CIR) and cold central plant recycling (CCPR) to hopefully better balance the Department's generation of asphalt millings and recycled asphalt use, ultimately maintaining the Highway system in a more sustainable fashion.

2. Is this research a continuation of a past or present project?

☒ No ☐ Yes

If yes, provide current research project title, RES # and reason for the project continuation.

3. Describe anticipated benefits/expected deliverables.

- Recommendations on whether CIR or CCPR are applicable to the Department's program
- If applicable, recommended material, design, and construction specifications for CIR or CCPR

4. What is your timeline for completion of the research?

3 years

5. List the anticipated tasks for this research.

- Conduct a literature review on cold recycling methods

- Make early recommendations for draft specifications of 100% recycling projects
- Evaluate the effectiveness of 100% recycling methods as an option for TDOT projects

6. Describe how the project results will be implemented?

Recommended TDOT specifications.

7. Will this study produce software, web page or other technology that will involve the Information Technology Division?

☒ No ☐ Yes, please describe:

8. Will training be provided to employees as a result of this research?

☒ No ☐ Yes, please describe:

9. Will this research involve equipment or materials purchase?

☒ No ☐ Yes, please describe:

10. Research must support the Long Range Transportation Plan Policy Recommendations **and/or** TDOT Operational Goals and/or Strategic Initiative. (*See attachments for additional information*)

Please indicate which categories the research will support:

Transportation Long Range Plan Policy Recommendations

☐ (A) Accessibility

☒ (B) Safety, Security, and Transportation
Resilience

☐ (C) Coordination, Cooperation, and Consultation

☐ (D) Demographic and Employment Changes and Trends

☐ (E) Freight Logistics and Planning

☒ (F) Financial

☐ (G) Mobility

☐ (H) Travel Trends and System Performance

TDOT Operational Goals and/or Strategic Initiative

☐ (A) Deliver transportation projects on schedule and within budget

☒ (B) Maintain the state transportation system to protect the long term investment in our infrastructure assets

☐ (C) Operate and manage Tennessee's transportation system to provide a high level of safety and service to our customers and workers

☐ (D) Expanding mobility choices to maximize access

☒ (E) Dramatically change the paradigm for delivery of transportation products and service to improve the efficiency and effectiveness of Tennessee's transportation network

11. Please explain how the research supports the Long Range Transportation Plan Policy Recommendations **and/or** TDOT Operational Goals and/or Strategic Initiative selected above:

A recommended specification for 100% cold recycling in Tennessee will provide the Department with additional options for resurfacing that minimize environmental impact and maximize economic efficiency.

For additional information, please contact:

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