

The CAPRI Bulletin

Research, progress, and implementation from CAPRI

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A LOOK BACK: FIVE YEARS OF IMPACT

Across America, millions of miles of asphalt pavement carry the daily movement of people, freight, commerce, and communities. These roads are expected to perform in every harsh and mild climate, under light and heavy traffic conditions, and through decades of changing demands. Yet every pavement begins to age from the moment it is built. Meeting those challenges requires more than isolated research projects or decades-long research efforts. It requires coordination, shared priorities, a nimble research model, and a clear path from research to implementation. **That is the role of the Consortium for Asphalt Pavement Research and Implementation, better known as CAPRI.**

CAPRI brings highway agencies, researchers, and industry stakeholders together to advance asphalt pavement technology through a national pooled-fund model. Rather than having organizations work separately on similar problems, CAPRI creates a forum where members can identify common needs, fund practical and timely research, and guide projects toward real-world use.

The strength of CAPRI is its broad membership. The consortium includes 30+ highway agencies and 25+ private organizations, representing state DOTs, FHWA, asphalt producers, contractors, suppliers, and other pavement stakeholders.

At the center of CAPRI's work is research that addresses practical problems facing the asphalt pavement community. In CAPRI's short history, it has supported more than \$1 million in completed research, with emphasis areas including BMD, pavement density, longitudinal joints, and asphalt aging. Completed projects include guidance for field validation of BMD implementation and best practices for asphalt longitudinal joints. Ongoing projects continue that practical focus, including work to validate short-term and long-term laboratory oven aging procedures, examine specimen fabrication variability in BMD testing, and evaluate reheating and aging adjustment factors for quality assurance.

CAPRI also recognizes that research alone is not enough. CAPRI's implementation resources help translate technical findings and outside resources into a usable guide. The CAPRI Chats webinar series extends that mission by connecting pavement professionals with timely information on topics from field validation to solvent regulations. In addition, CAPRI's two annual meetings give members the opportunity to help shape research and collaborate on critical issues and emerging needs.

As CAPRI moves into its next chapter, CAPRI-2 is now open under FHWA Solicitation 1642. New and returning members have the opportunity to continue the mission, to help guide the next generation of national asphalt pavement research, and drive innovation to implementation. The goal is straightforward but important: better decisions, better pavements, and longer-lasting asphalt roads for the traveling public.



**CAPRI group photo at the Spring
2026 Annual Meeting in
Savannah, GA.**

SUBCOMMITTEE HIGHLIGHTS

Our subcommittees bring together experts from agencies and industry to identify needs, advance research, and deliver practical solutions. Here's what each group has been working on.



TECH TRANSFER

The Technology Transfer Subcommittee (TTS) has been focused on expanding how CAPRI shares research and engages members between meetings. Active workstreams include updates to the CAPRI website, continued growth of the CAPRI Chats webinar series (five webinars from 2025 are available on the website), and the development of a research dashboard to give members a clearer, more interactive view of ongoing work across the consortium.



TECH EVALUATION

The Technology Evaluation Subcommittee (TES) is advancing two active research projects: *An Evaluation of Reheating and Aging Adjustment Factors (RAF/AAF)* to support BMD-based quality assurance, with letters of interest received from eight interested labs, and an interim-stage study examining how specimen fabrication variables affect BMD test results. The subcommittee also held a roundtable to surface future research priorities, with particular interest in HiMod aggregate selection, recycling agent evaluation, and IDEAL-CT robustness under production variability.



CRITICAL ISSUES

The Critical Issues Subcommittee (CIS) is focused on identifying aspects of asphalt pavement performance and sustainability that need to be improved. Currently, CIS has one active research project that is split into two separate parts that will occur simultaneously: *Validation of Short- and Long-Term Oven Aging Lab Procedures – Part 1 and Part 2*. The implementation of balanced mix design (BMD) happening nationally, the use of performance test using the short- (STOA) and long-term oven aging (LTOA) procedures per AASHTO R 30 and R 121, respectively, to appropriately age the mix is critical.



RESEARCH ROADMAP

The Research Roadmap Subcommittee (RRS) is advancing two synthesis topics to the Executive Committee: Artificial Intelligence Applications in Asphalt Materials, Construction, and Performance, and Current and Recently Completed BMD Research and Implementation Activities. In addition, the RRS will be forwarding two research studies to TES and CIS for their consideration: *Carbonate Aggregate Source, Production Level Testing with Handheld XRF*, and *An Assessment of IDEAL-CT Curve Analysis Alternative Approaches*.



CURRENT RESEARCH WITH CAPRI

Click or scan the QR code to visit the Research Dashboard and read more about CAPRI's current projects.

- **Validation of Short- and Long-Term Oven Aging Lab Procedures**
- **Examining Specimen Fabrication Variabilities of BMD**
- **BMD with Absorptive Aggregates**



Impact of Re-heating on Performance Test Results

New CAPRI study provides insights for agencies implementing BMD

By: Adam Taylor, Assistant Research Engineer, NCAT | tayloa3@auburn.edu

As agencies across the U.S. accelerate the adoption of Balanced Mix Design (BMD), understanding the variables that influence mixture performance test results has become increasingly important. A primary concern among practitioners is that asphalt mixture storage leads to oxidation and stiffening, producing test results that do not accurately represent the materials placed on the roadway. This need prompted an expanded study sponsored by CAPRI and conducted by NCAT to quantify these impacts.

There are two types of asphalt mixture storage that are of concern in the mixture testing environment: sample storage and specimen storage. A 'sample' is a bulk sample of uncompacted loose mix sampled from the plant or the roadway, while a 'specimen' is a split sample that has been compacted to a target density prior to testing. 'Lag Time' refers to the amount of time between loose mixture sampling and specimen compaction.

These mixture samples may either be split and compacted on the day of production with no additional re-heating, or may be allowed to cool for re-heating and splitting at a later time. 'Dwell Time' refers to the length of time individual test specimens are stored after compaction and prior to being conditioned and tested.

The research involved 10 unique mix designs from six states and seven participating laboratories, including state DOTs (WI, MD) and private labs. The BMD tests used to evaluate the effects of lag time and dwell time were the IDEAL-CT (ASTM D8225-19) for cracking resistance and IDEAL-RT (ASTM D8360-22) for rutting resistance. Lag times ranging from less than four hours (day of production) up to two months were evaluated in this study alongside dwell times ranging from four hours up to one week.

KEY FINDINGS & WHY IT MATTERS



Dwell Time: Compacted specimen storage had minimal impact on IDEAL-CT and IDEAL-RT results. Of 40 statistical comparisons between specimens tested after one day and one week, most showed no significant difference in cracking or rutting performance. While IDEAL-RT results increased slightly from same-day to next-day testing, the overall effect was negligible.

Takeaway: The effect of dwell time up to one week is statistically and practically inconsequential for performance test implementation.



Lag Time: The primary driver of test results was the re-heating process itself, not loose mix storage duration. Re-heating increased oxidation, generally improving rutting resistance at the expense of cracking resistance, while additional loose mix storage from two days to two months showed little statistical impact.

Takeaway: Test results from re-heated and non-reheated mix are not interchangeable and should not be compared to one another. Minimal impact was seen on additional specimen storage time for re-heated mixtures with up to two months of storage time.

Performance Test	Average Impact of Re-Heating (Relative to Production)
IDEAL-CT (Cracking)	13% to 22% reduction in CT _{Index}
IDEAL-RT (Rutting)	5% to 10% increase in RT _{Index}

Go deeper into this research by scanning or clicking the QR code.



FULL
REPORT



UPCOMING EVENTS

**OCT.
6-7
2026**

Fall Meeting

Columbus, OH.

More details & registration coming soon!



**SUMMER
2026***

CAPRI Chats

“Ask Me Anything”

**Date & registration details coming soon!*



WEB RESOURCES

The CAPRI website has recently undergone a major redesign, now featuring a research dashboard, an enhanced members portal, and improved access to resources and information for members.

Meetings & Events

CAPRI meetings bring agencies, industry partners, and researchers together to share progress, discuss implementation needs, and advance practical asphalt pavement solutions.

Research Dashboard

Track what's underway, what's coming next, and what's ready to put into practice from CAPRI.

3 Ongoing 4 Completed 1 Upcoming

Members Portal

This page is designed exclusively for CAPRI members to access critical resources and collaborate in the field of asphalt research and technology. Here you can view meeting resources, the research database, survey results, subcommittee and roster information, and contribute to the work that defines CAPRI.

View Meeting Photos Join CAPRI

QUICK ACCESS

Member Directory

Resources

Research Needs

Implementation Resources

Explore the real-world pavement technology areas that CAPRI nurtures research, develop, and advance through pooled fund collaboration.

Optimization

Balanced Mix Design (BMD)

Balanced Mix Design (BMD) is an iterative asphalt mix design that uses performance testing to ensure durability and resistance to cracking and rutting. By considering traffic, climate, and pavement structure, BMD optimizes pavement longevity and performance. This method enhances pavement quality and addresses the limitations of traditional volumetric mix design systems.

Learn About BMD

Check it out at CAPRIasphalt.us!



CAPRI FORUM

Q:

Which research gaps should CAPRI focus on next to help with implementation?

Q:

What's the biggest lesson you've learned so far with BMD implementation?



Scan or click the QR code to submit your response for a chance to be featured in the next CAPRI Bulletin!



SUBMIT

RESPONSE



MEMBER SPOTLIGHT

Richard Willis serves as Vice President of Engineering, Research, and Technology at NAPA and helped shape CAPRI as the organization's first chair. His leadership helped establish CAPRI as a collaborative space where agencies, industry partners, and researchers work together to address challenges and advance innovation in asphalt pavements.

“CAPRI has created a valuable space for our industry to work together and advance practical solutions that strengthen the future of asphalt pavements. I feel honored to have been a part of such an impactful organization.”

