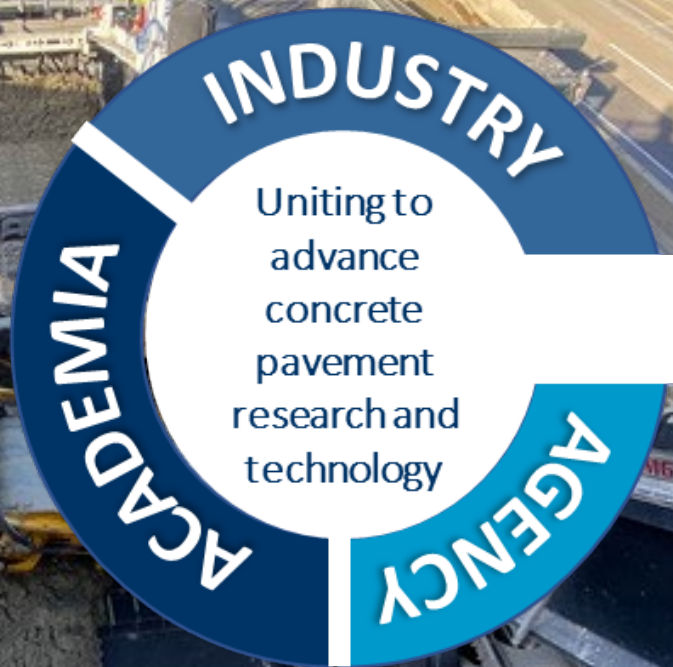


Vision...

for the new FHWA
cooperative agreement

Fall 2025 NCC Meeting
Springfield MA | Sep 9, 2025

National Concrete Pavement
Technology Center



IOWA STATE UNIVERSITY
Institute for Transportation

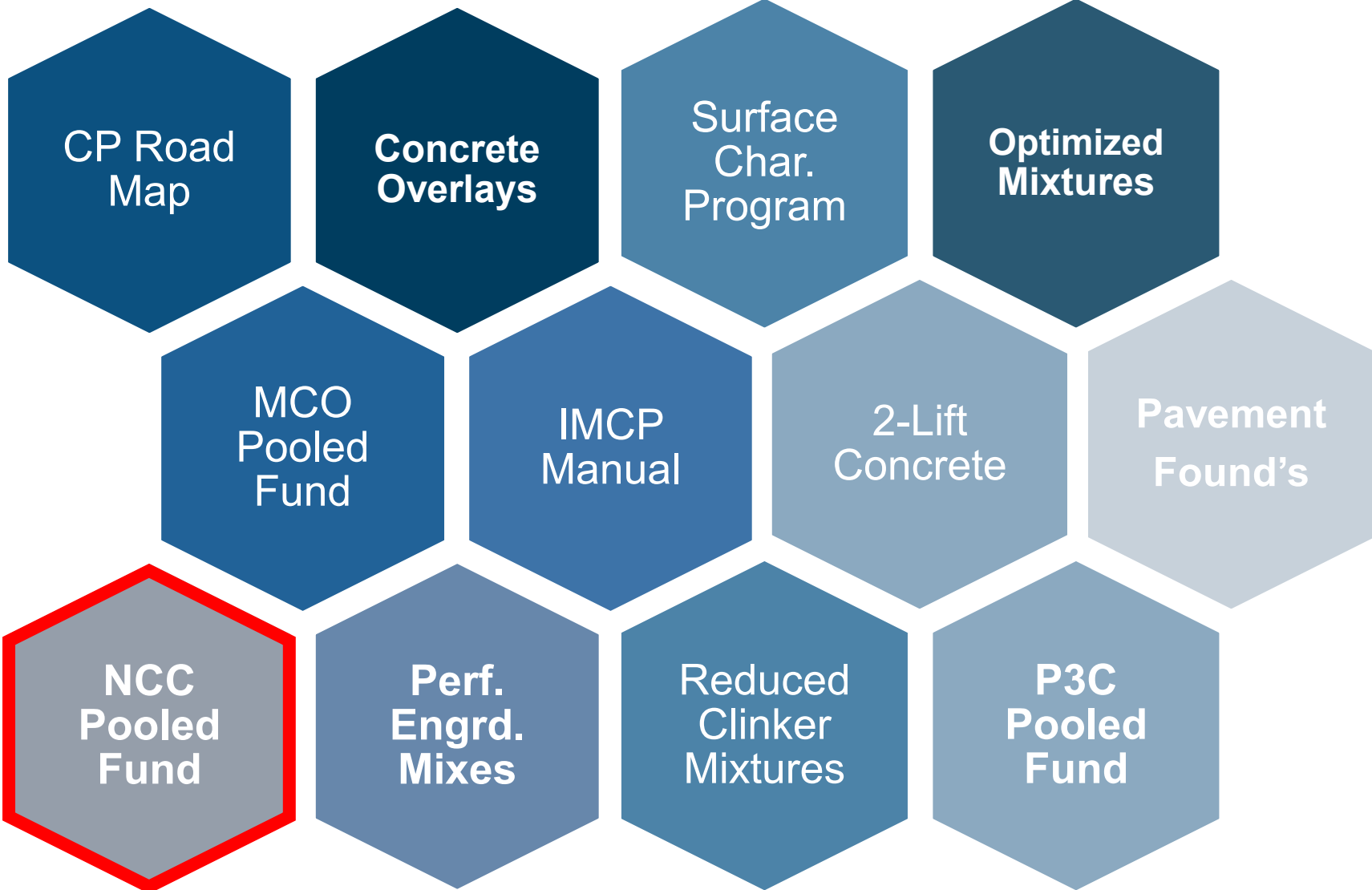
CP Tech Center Celebrates 25 Years!

INNOVATION



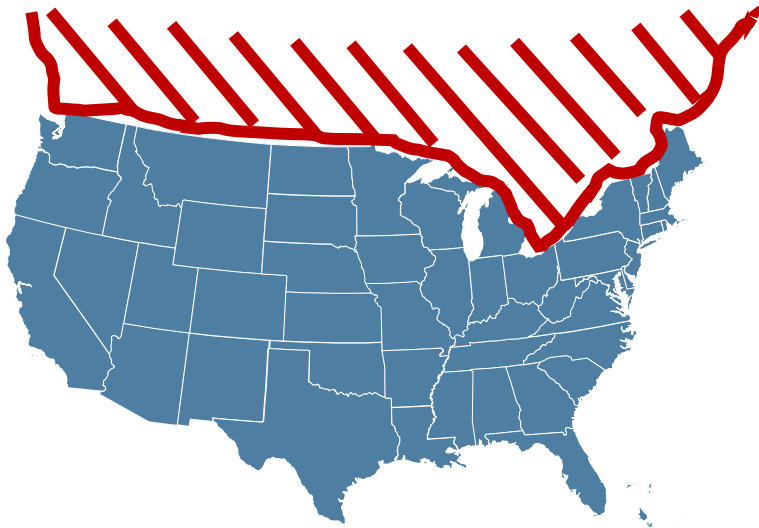
U.S. Department
of Transportation

**Federal Highway
Administration**



Broad Stakeholder Engagement...

.... over the last 25 years the CP Tech Center has worked with all 50 U.S. states, 23 universities and 27 different consultants.



~~50~~ 51?



23



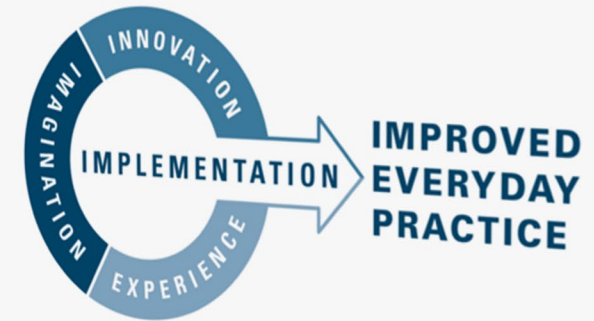
27

FHWA Cooperative Agreement

- 5-year FHWA cooperative agreement focused on *Development and Deployment of Innovative Technologies for Concrete Pavements*
- In support of the six **AID-PT program goals**, the **Performance Engineered Mixtures (PEM)** program, and **Performance Centered Concrete Construction (P3C)** program.
- Topics areas:
 - New and novel cements, SCMs, admix etc.
 - Life cycle impacts
 - PEM integration, improved mixtures
 - New testing regimes and technologies

InTrans / Oct 03, 2024

CP Tech Center awarded FHWA cooperative agreement



The CP Tech Center's technical approach under the FHWA cooperative agreement

The National Concrete Pavement Technology Center (CP Tech Center) and Federal Highway Administration (FHWA) signed a five-year \$6.7 million cooperative agreement on the Development and Deployment of Innovative Technologies for Concrete Pavement in late September 2024.

The CP Tech Center will lead a team consisting of the foremost academics and practitioners from 9 universities and 13 consulting firms from across the country.

"The Center's team represents a great cross section of experienced experts and energetic emerging leaders in our industry," said CP Tech Center's Director Peter Taylor. "We are excited to get started on the work."

The cooperative agreement will promote the deployment and rapid adoption of new and innovative materials, design and construction procedures, specifications, practices, and methods to improve concrete pavement performance and extend pavement life.

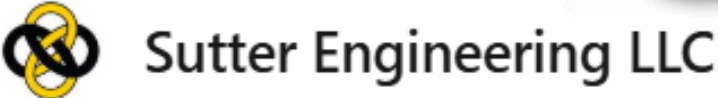
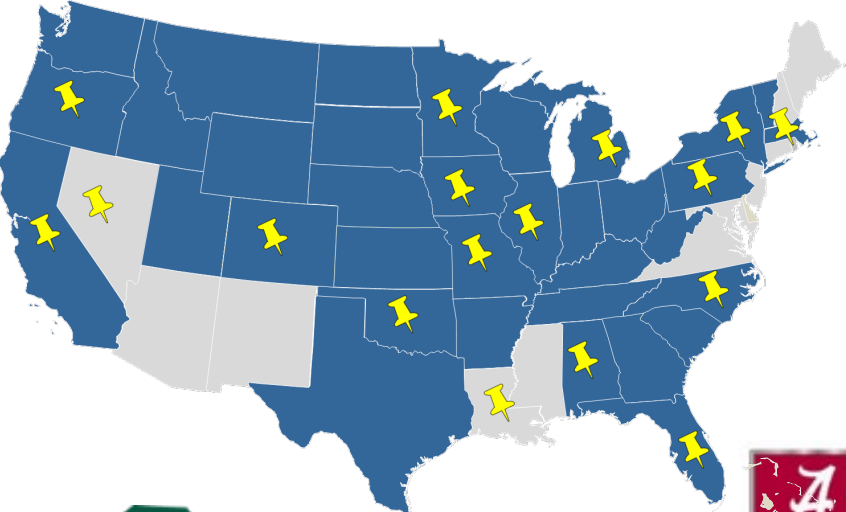
"The fundamental intent is to integrate current innovations into best practices in the near future," said Leif Wathne, the project's manager. "A key part of the work will be to evaluate proposed innovations to ensure that they are beneficial and effective and to ensure delivery of the right messages into the hands of the right people through impactful technology transfer efforts."

Approach



- **Helping practitioners** make wise decisions when designing, specifying, building, and maintaining cost-effective, sustainable and long-lasting pavements;
- Leveraging a **diverse team** with talent that provides the leadership and wisdom of its most experienced members, alongside the energy and resourcefulness of its newer members; and
- Developing and **delivering impactful materials** appropriate for a wide range of audiences, ranging from executives to field staff and from agencies to suppliers.

Diverse Team



Technical Approach...

- Harness the **imagination** of **experienced experts** and energetic **emerging leaders** to rapidly **move innovations** through **implementation** to improve **everyday practice**.



- Deliver the right messages into the hands of the right people through effective tech-transfer practices across all practitioner levels.

Work Area #1

The deployment of new, cost-effective designs, materials, recycled materials, and practices to extend the pavement life and performance and to improve user satisfaction.



- **Innovative and Novel Construction Materials**
 - **Evaluation Protocols** (cements, SCMs, uniformity bounds, admixtures etc.)
 - Impact on design, mixtures and construction
- Evaluation of innovative tests and technologies
- **Tools in support of agency needs** (Fresh Look)
- Asset management integration

Work Area #2

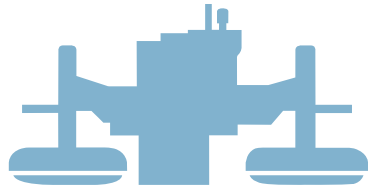
The reduction of initial costs and lifecycle costs of pavements, including the costs of new construction, replacement, maintenance, and rehabilitation.

- Reducing impacts beyond cradle to gate
 - Guide focused on Lifecycle Thinking
- Pavement Design Innovations
 - Structural Design of Concrete Pavement
 - Pavement Foundations



Work Area #3

The deployment of accelerated construction techniques to increase safety and reduce construction time and traffic disruption and congestion.

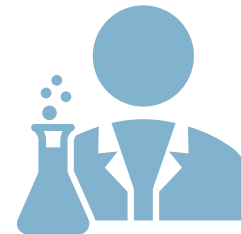


- **QC Best Practices for Local Agencies**
- **Quality Essentials (Water and Air)**
- P3C Implementation and Support
- MOT Strategies to Reduce Impacts
- Rapid Hardening Cements

Work Area #4

The deployment of engineering design criteria and specifications for new and efficient practices, products, and materials for use in highway pavements.

- **PEM/LCTM Integration, PEM Deployment and R101 Updates**
- **Update Mixture Design Methodology & Tool**
 - Improve mix design user interface
 - Data storage with AI Interaction



Work Area #5

The deployment of new nondestructive and real-time pavement evaluation technologies and construction techniques.



- R101 and P3C Tests: Case Studies and Field Demos
- **Maturity Implementation Support**
- Embedded Measurement System Evaluation
- Pavement Friction Characteristics
- **Pavement Crack Analysis Software Tool**

Work Area #6

Effective technology transfer and information dissemination to accelerate implementation of new technologies and to improve life, performance, cost effectiveness, safety, and user satisfaction.

- Facilitate Feedback Groups
- Implement New Standards (e.g. AASHTO)
- **AI Concrete Pavement Knowledge Agent**
- **Enhanced Communication and Training Tools (in-person and virtual)**
 - **Success stories....**
- **Expert Teams (e.g. WDM)**



FHWA COOP Objective

- **Make concrete better!**
 - Education and training
 - Provide state of the art guidance
 - Implementing best practices
 - Providing strategic solutions
 - Independence as third party experts
 - Leveraging funding



IOWA STATE
UNIVERSITY

Institute for
Transportation

National Concrete Pavement
Technology Center



THANK YOU!



cpotechcenter.org