

PROGRESS AND PLANS OF NATIONAL NANOTECHNOLOGY INITIATIVE (NNI) AGENCIES

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Department of Transportation (DOT)

Federal Highway Administration (FHWA)

Summary

The Federal Highway Administration is pursuing nanotechnology-enabled solutions to improve the safety and performance of the Nation's transportation system. Innovative technologies and approaches to modernizing and renewing our transportation infrastructure are paramount to ensuring mobility, accessibility, and economic productivity for all Americans. Development and deployment of high-performance nanomaterials shows great promise for improving the durability, resilience, and long-term performance of extant and future transportation infrastructure.

Key Technical Accomplishments

Nanomaterials efforts focused on conventional and alternative cementitious materials have expanded the fundamental understanding of cement hydration kinetics by developing novel nanoscale interrogation and characterization techniques to complement advanced models. This fundamental knowledge will afford opportunities to influence and manipulate internal curing processes to yield longer-lasting and functionally superior infrastructure materials.

Plans and Priorities by Program Component Area (PCA)

PCA 3. Nanotechnology-Enabled Applications, Devices, and Systems

Building on prior work on cementitious materials, multifunctionality for structural health monitoring, and advanced coatings, new investments in 2018 and 2019 will seek to improve the performance, durability, and resiliency of these materials, with the potential to open new markets for transportation infrastructure materials.