

New Mexico DOT Collaborations with University Transportation Centers

2019 NATIONAL RESEARCH ADVISORY COMMITTEE AND TRB STATE
REPRESENTATIVES MEETING, SANTA FE, NM, JULY 25, 2019

Regional UTC:

Transportation Consortium of South Central States
(TranSET – Region 6)

Bridge Deck Overlays Using Ultra-High Performance Concrete.

Participants: New Mexico State University, NMDOT Bridge Bureau, NMDOT District One, NMDOT Research Bureau.

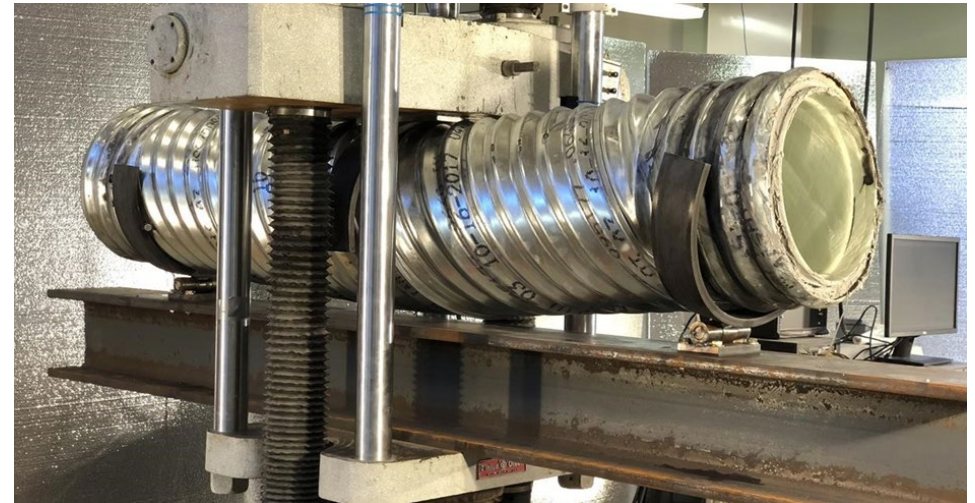
Summary: Compare use of polyester polymer concrete with ultra-high-performance concrete (UHPC) produced with local materials as overlay materials for concrete bridge decks.

1. STIC funds were used to develop an overlay mix design using local materials for UHPC to integrate into specifications.
2. TranSET funds were used to develop the technology and procedures to use UHPC produced with local materials as an overlay material for existing concrete bridge decks.
3. STIP funds will be used in 2020 by NMDOT District One to construct a bridge deck overlay for Bridge 7032 over I-25 in Socorro, New Mexico using UHPC.
4. NMDOT research funds will be used to compare the performance of the pilot UHPC thin-bonded overlay on a bridge deck with a traditional polyester concrete overlay on a nearby bridge.

Cost-Effective Methods to Retrofit Metal Culverts Using Composites.

Participants: University of New Mexico, NMDOT Hydrology Bureau, NMDOT District Six, NMDOT Research Bureau, private sector GFRP contractor.

Summary: The research project is developing a cost-effective technique for retrofitting corroded metal culverts using glass fiber reinforced polymers (GFRP) materials.



Recruiting, Retaining, and Promoting for Construction Careers at Transportation Agencies

Participants: University of New Mexico, NMDOT General Office, Louisiana DOT, Oklahoma DOT, Arkansas DOT, Texas DOT.

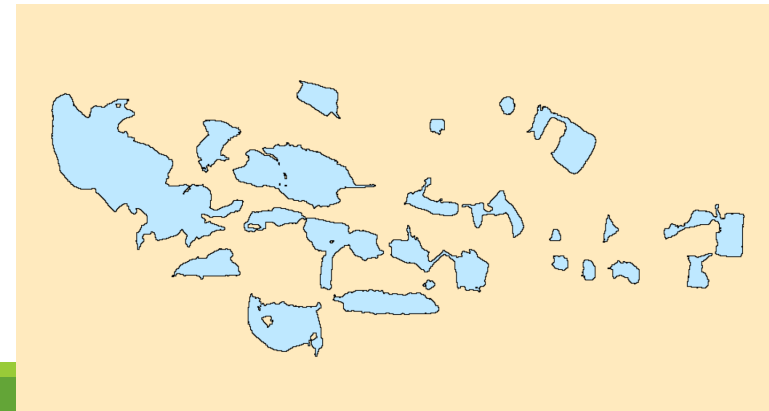
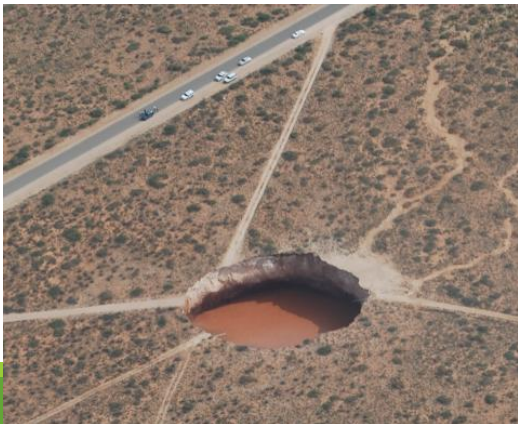
Summary: With cooperation from all of the DOT's in the region, the UNM researcher surveyed DOT staff in five states to examine factors that affect recruitment and retention of state DOT employees.

Karst Sinkhole Detecting and Mapping Using Airborne LiDAR

Participants: University of New Mexico, NMDOT District Two, NMDOT Research Bureau.

Summary: This study explored use of LiDAR to detect and map the surface expression of sinkholes to:

- (1) develop a complete process and toolset for detecting and mapping sinkholes using airborne LiDAR data;
- (2) identify best practices for implementation of a statewide sinkhole hazard management system (SHMS); and
- (3) develop a guidebook for LiDAR-based sinkhole detection and mapping for professional education and training.



Student Outreach:

1. The Navajo Technical University Internship
2. Augmented Reality Enhancing the Inspections of Transportation Infrastructure



NMDOT General Support for TranSET

- Work with NMDOT staff to identify possible TranSET projects for regional benefits.
- Organize review panels; provide external review of research proposals
- Review final research projects; evaluate for tech transfer potential
- Attend quarterly Advisory Board meetings

Tier 1 UTCs: Accelerated Bridge Construction – Florida International University

Participants: FIU, NMDOT Bridge Bureau, NMDOT Districts, NMDOT Construction Bureau, NMDOT General Counsel and Procurement offices, private sector construction firms, NMDOT Research Bureau

Summary: FIU will develop an Accelerated Bridge Construction (ABC) training(s) for the benefit of NMDOT employees and contractors, with FIU contributing \$10,000 in UTC funds for the project; NMDOT Research Bureau provided \$60,000.

How do other state DOTs participate in national UTC's?

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