Rowan University
CENTER FOR RESEARCH & EDUCATION IN ADVANCED TRANSPORTATION ENGINEERING SYSTEMS

CREATEs has the technical expertise and state-of-the-art facilities necessary to evaluate performance of manufactured and bio-based materials in civil engineering applications. The Center's resources bridge the gap between fundamental and readily implementable research.

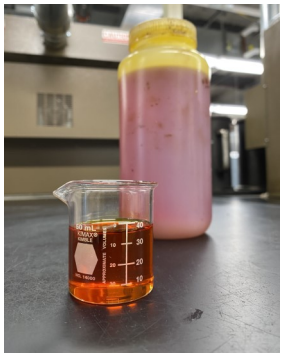
CREATEs labs are certified by the AASHTO resource accreditation.

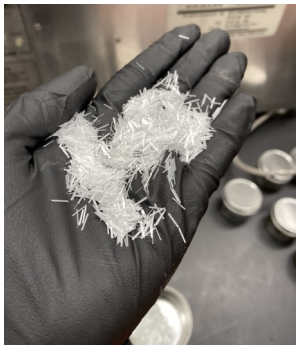
SERVICES PROVIDED BY CREATES TO EVALUATE SOILS, CONTRUCTION MATERIALS, FLEXIBLE AND RIGID PAVEMENTS

Rejuvenator / Liquid Additive

Plastics / Polymers

- Determination binder PG Grade (AASHTO M320)
- Evaluation of binder blending and dosage optimization
- Measurement of asphalt mix rutting (APA)
- Measurement of cracking performance BBF, SCB, ITS, IDEAL-CT, OT)
- Conduct Superpave Mix Design
- Optimization of blending time
- Determination of crosslinking/networking via
- fluorescence microscope
- Evaluation of Storage stability





Soil Natural, Chemical and Bio-admixtures (cement, natural fibers, salt solution, microbial solution)

Geosynthetic Materials (fibers, geogrids)

Recycled Admixtures (coal ash, biochar)

- Soil structure characterization (Camera, Microscope, X-ray CT, SEM): crack analysis, void distribution, surface roughness, image processing
- Soil mechanical properties: shear strength, compressive strength, tensile strength, volumetric shrinkage/expansion
- Soil hydraulic properties: permeability/hydraulic conductivity, pore connectivity
- Soil electrical properties: electrical conductivity/resistivity, permittivity
- Soil thermal properties: thermal conductivity/resistivity

For additional information, please visit www.rowan.edu/creates Details of our accreditation is at aashtoresource.org

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Concrete Chemical Admixtures (accelerators, retarders, water reducers, hydration control, rheology control, shrinkage reducers, pumping aids)

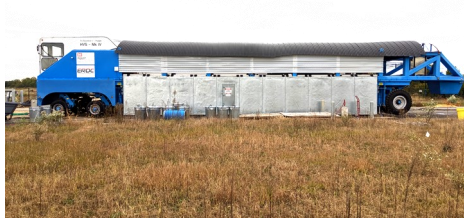
Fibers (steel, polypropylene, cellulose, nanofibers)

Recycled materials (crushed concrete, electronic waste)

- Mixture proportioning: normal concrete, lightweight concrete, fiber-reinforced concrete, self-consolidating concrete, ultra-high performance concrete
- Determination of fresh concrete properties: slump, air content, rheology
- Determination of mechanical properties: compressive strength, modulus of rupture, shear strength, tensile splitting strength, pull-off test / bond testing
- Evaluation of durability: freeze-thaw durability, electrical resistivity, alkali-silica reactivity, permeability, volume stability

Heavy Vehicle Simulator (Testing range from 5 to 90C)

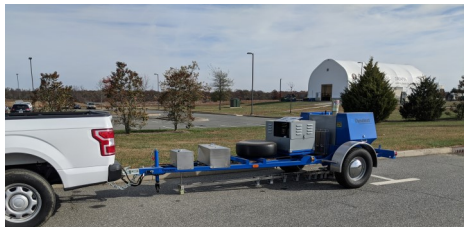
- Determination of lifespan of rigid and non-rigid pavement
- Evaluation of reflective cracking
- Evaluation of rutting performance
- Determine Impact of truck and aircraft loading on pavement performance.



Heavy Weight Deflectometer

Field Tests

- Determination of multilayer pavement stiffness
- On-location non-destructive testing of Pavement
- Conduct Dynamic cone penetrometer
- Conduct sand cone density



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