

PROGRAM PROGRESS PERFORMANCE REPORT #2

GRANT: DTRT13-G-UTC45
Reporting Period: 04/01/2014 – 09/30/2014

RE-CAST:
**REsearch on Concrete Applications for
Sustainable Transportation**
Tier 1 University Transportation Center

Consortium Members:

Missouri University of Science and Technology
Rolla, MO

University of Illinois at Urbana-Champaign
Urbana, IL

Rutgers, The State University of New Jersey
Piscataway, NJ

University of Miami
Coral Gables, FL

Southern University and A&M College
Baton Rouge, LA

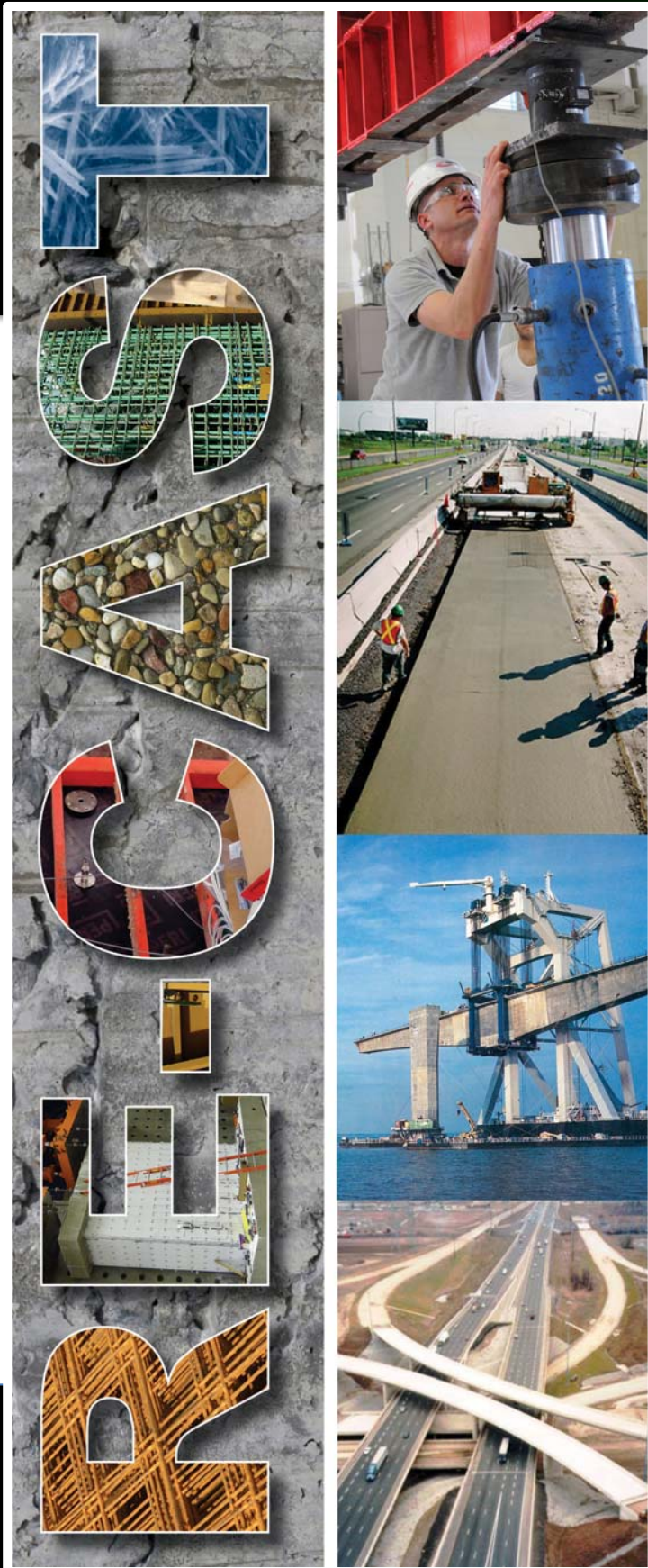


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1. ACCOMPLISHMENTS

1.A - What Are The Major Goals And Objectives Of The Program?

The overall goal of this grant is to develop the next generation of cement-based construction materials that are essential to address the growing technical and environmental requirements of the transportation infrastructure. The research program aims to fast-track the acceptance of these technologies and develop national standards and guidelines for their use in the reconstruction of the nation's infrastructure for the 21st Century.

Research Goals

The overall RE-CAST program goal stated above will be accomplished by performing the following nine research projects:

- 1-A. Ecological and Crack-Free High-Performance Concrete with Adapted Rheology
- 1-B. Formwork Pressure Measurements and Prediction of High-Performance Concrete with Adapted Rheology
- 1-C. Influence of Casting Conditions on Durability and Structural Performance of High-Performance Concrete with Adapted Rheology
- 2.A. High-Volume Recycled Materials for Sustainable Pavement Construction
- 2.B.1 Rapid Pavement Rehabilitation
- 2-B.2 Rapid Pavement Construction
- 3-A. Performance of Fiber Reinforced Self-Consolidating Concrete for Repair of Bridge Sub-Structures and fiber-reinforced Super-workable Concrete for Infrastructure Construction
- 3-B. Ultra-High Performance Fiber Reinforced Concrete for Infrastructure Rehabilitation
- 3-C. Performance of Reinforced Concrete Decks Strengthened with Fabric-Reinforced-Cementitious-Matrix Composites

Education and Workforce Development (EWD) Goals

The main goal of RE-CAST's Education and Workforce Development program is to develop a workforce trained in the interdisciplinary scholarship needed to understand and address the complex issues facing the implementation of a durable, reliable, and sustainable infrastructure. This is to be achieved by creating multidisciplinary educational opportunities for undergraduate and graduate students in the theme areas of the Center, as well as outreach activities for practitioners.

Education Objectives:

- 1) RE-CAST faculty members will collaborate to create the following courses related to the major thrust areas of the Center:
 - Fundamentals of Rheology and Self-Consolidating Concrete (S&T and UIUC)
 - Structural Health Monitoring Applied to Transportation (Rutgers University and SUBR)
 - Repair Materials and Strategies for Civil Infrastructure (Multiple Universities)
- 2) RE-CAST is to collaborate with national laboratories and DOT research entities, such as NIST and MoDOT-R&D, to host students on scholarly efforts.

- 3) The Center will actively contribute to annual conferences in the transportation field organized by the consortium Universities, including the Transportation and Highway Engineering Conference and the Structural Engineering Conference at UIUC as well as the Transportation Infrastructure Conference at S&T.

Workforce Development / Outreach Objectives:

A. Outreach Activities to Attract New Entrants into the Transportation Field

- 1) RE-CAST members will seek opportunities to invite junior faculty from complementary fields, such as engineering management, mechanical engineering, chemical engineering and chemistry to team up with RE-CAST faculty on various research projects.
- 2) *Graduate Research Assistantship in Transportation Areas (GRATA)* - RE-CAST will provide graduate research assistantships to highly qualified Ph.D. students.
- 3) *Invited Speakers and Field Trip Visits* – RE-CAST will collaborate with the CIES at S&T and student societies at the participating Universities, including ASCE and ACI to organize bi-monthly seminars featuring invited speakers from industry
- 4) *ACI / Portland Cement Association (PCA) / Prestressed Concrete Institute (PCI) Co-Funded Scholarships* – RE-CAST will explore the possibility of providing matching funds to the scholarship programs that these organizations currently offer on a nationwide basis for Fellowship students working within a focus area of RE-CAST.
- 5) *Student Competition* – RE-CAST will work with professional student societies to organize a new competition on sustainable construction materials.
 - Two competitions will be organized at different locations: (a) design of concrete with a minimum of 50% of recycled materials with the highest strength at Rutgers University/SUBR; and (b) development of fiber-reinforced thin elements with minimum fiber content and maximum ductility at UM/S&T.
- 6) *UTC Student of the Year* – Each year, RE-CAST will select a Student of the Year based on scholarly merit and academic achievement.

B. Primary and Secondary School Transportation Workforce Outreach

- 1) RE-CAST will support the *Minority Introduction to Technology and Engineering* MITE summer program.
- 2) *Proposed Activities with Career Technical Education System* – RE-CAST will reach out to local technical trade schools to offer short courses for students in construction-related degree programs to showcase recent developments within their trade.

Technology Transfer Goals

The main goal of RE-CAST related to technology transfer is to work towards advancing transportation proficiency through technology transfer and educational opportunities and to make research results available to potential users in a form that can be implemented.

Technology Transfer Objectives:

A. Partnerships Across Sectors to Move Research into Practice

- 1) RE-CAST will collaborate with MO-LTAP and LA-LTAP to introduce and deliver new

materials related to RE-CAST research themes that can be incorporated into workshops and technology transfer activities to service providers and professionals from the transportation industry.

- 2) RE-CAST will also work with the Louisiana Transportation Research Center (LTRC) on technology transfer.

B. Technical Assistance to Others in Applying Research Results

- 1) The Center's website will publish detailed documentation of special construction procedures through videos and photos and will also provide data from the research investigations.
- 2) Faculty from RE-CAST as well as technical staff will be available to provide technical assistance to practicing engineers and state and local agencies in the design and construction of the various materials developed by the RE-CAST program.
- 3) RE-CAST faculty will actively disseminate knowledge and develop guidelines and standards through numerous technical committees (TRB, ACI, ASCE, PCI, ACerS, RILEM, and CSA).
- 4) RE-CAST faculty members will also organize sessions at the technical conventions (e.g., TRB, ACI, ASTM, and ASCE) to disseminate the latest findings in the theme areas of sustainable construction materials, NDE and monitoring of infrastructure, service life prediction, and LCCA of transportation infrastructure.
- 5) RE-CAST will also collaborate with various technical committees (e.g., ACI) to develop certification programs on special test methods dealing with the characterization of the materials developed in the research program, including rheological properties, dynamic segregation, and pumpability of HPC-AR.
- 6) RE-CAST will also collaborate with other UTCs working in the State of Good Repair focus area as well as other national/regional centers, including the NSF Industry/University Coop. Research Center for the Integration of Composites into Infrastructure (CICI) at UM and the Infrastructure Monitoring and Evaluation (RIME) Group at Rutgers University.

C. Technology Transfer Mechanisms/Creation of New Business Entities

- 1) The RE-CAST research team will work with the Technology Transfer and Economic Development Center (TTED) at S&T to develop marketing plans and subsequent commercialization of any product(s) and deliverables that can stem from the research program.

D. Information Exchanges

- 1) The team will publish the findings of the proposed research in joint publications involving the different faculty and their students from the partnering consortium members.
- 2) Social media (Facebook and LinkedIn) will be utilized to publicize on-going research, training, and technology transfer events, including field demonstrations, webinars, and educational videos stemming from research activities.

- 3) Research outcomes of the RE-CAST program will be uploaded into the U.S. DOT Research Hub in a timely manner.
- 4) A website with links to a listing of upcoming technology transfer events, educational seminars and workshops, presentations, and project reports.
- 5) Quarterly newsletters highlighting project updates, featured faculty and students, and field implementations of research projects.

Diversity Goals

The main goal of RE-CAST with regard to Diversity is to broaden participation and enhance diversity of the students, researchers, and practitioners involved in transportation-related activities and careers. In the consortium Universities, many initiatives have been created to ensure an inclusive environment related to race, ethnicity, gender, gender identity, sexuality, disability, economic class, religion, and country of origin.

Diversity Objectives:

- 1) Summer Internship for Underrepresented Students - SUBR and Rutgers University, through collaborative projects among faculty members of the Center, will offer summer internship programs to undergraduate students to undertake internship programs at partner institutions.
- 2) RE-CAST will provide support in educational and outreach activities and financial aid in the form of scholarships to bring underrepresented students into transportation engineering-learning opportunities through the following programs:
 - The *Women's Leadership Program* at S&T
 - The *Summer Transportation Institute* at SUBR
 - The *Gates Millennium Scholars Program* at UM
 - The *Hammond Scholars Program* at UM

1.B - What Was Accomplished Under These Goals?

Research Objectives Accomplished

- 1) RE-CAST research projects have been developed to involve multiple university, government and industry partners. The majority of the projects will be completed in a period of two years with faculties from two to four universities and corresponding non-federal partners involved. In total, nine projects have been identified, and non-federal match agencies have been contacted for each to engage them in numerous aspect of the projects.

Each proposed project goes through a peer-review process to ensure it aligns with the Center's themes. This procedure is intended to streamline the funding process for everyone involved. Project requests are reviewed by the Center Director, Associate Directors, and the specific Focus Area Leaders using the following review criteria:

Intellectual merit of the proposed activity

- How important is the proposed activity to advancing knowledge and understanding within the Center's themes and the U.S. DOT Research Priorities?

- What is the likelihood of infrastructure implementation, both as demonstration project and full implementation into actual construction?
- To what extent does the proposed activity suggest and explore creative and original concepts?
- How well conceived and organized is the proposed activity?
- Does the proposer have sufficient access to resources?

Impacts of the proposed activity

- How well does the activity advance discovery and understanding while promoting teaching, training, and learning?
- How does the proposed activity broaden the participation of underrepresented groups?
- What is the feasibility of completing the work within the proposed period/budget?
- What plans are in place to disseminate findings?

2) S&T Transportation Infrastructure Conference

- a. Khayat - October 3, 2014 at Missouri S&T with two of the RE-CAST faculty and a member of the RE-CAST Research Advisory Committee members giving lectures:

- i. Keynote Speakers:

1. Dr. Hani Nassif, Rutgers, The State University of New Jersey
Title: *Structural Health Monitoring for the Assessment of Cracking Potential in Concrete Structures*
2. Mr. Ross Anderson, Bowman, Barrett & Associates
Title: *The O'Hare Modernization Program Engineering Challenges*

- ii. Presenter:

1. Dr. Jeffery Volz, University of Oklahoma
Title: *Recycled Concrete Aggregate for Infrastructure Elements*

Education and Workforce Development (EWD) Objectives Accomplished

- 1) RE-CAST hosted its **third research seminar** on June 17 – see Attachment A.
- 2) RE-CAST hosted its **fourth research seminar** on September 25 – see Attachment B.
- 3) RE-CAST faculty members have collaborated to create the following **course**, which was offered at Missouri S&T from July 14-17, 2014 – see Attachment C
 - Fundamentals of Rheology and Self-Consolidating Concrete (S&T and UIUC)
 - A total of 40 people attended the workshop from the institutions listed below.
 - Burns Concrete Inc., **ID**
 - University of Nebraska Omaha, **NE**
 - Rutgers, the State University of New Jersey, **NJ**
 - University of Illinois, Urbana-Champaign, **IL**
 - Missouri University of Science and Technology, **MO**
 - Durable Concrete, **NC**
 - University of Oklahoma, **OK**

- Southern University of Baton Rouge, **LA**
 - University of Miami, **FL**
 - Universidad Autónoma de Nuevo León, Monterrey, **Mexico**
 - Université d'Artois, **France**
- 4) Contacted **Rolla Technical Institute** to discuss providing hands-on laboratory experience in order to introduce students to novel construction materials as well as short course in construction-related degree programs to showcase recent developments within their trade. The Director was quite receptive to the idea and will coordinate laboratory/field visits with the CIES Senior Research Specialist.
 - 5) Plans for the **first student competition** are in the works. A. Nanni at University of Miami has proposed having concrete slabs blasted at the Missouri S&T Mine with students from across the country voting on with concrete design will be the most blast-resistant.

Technology Transfer Objectives Accomplished

- 6) Social media (Facebook and LinkedIn) pages have been utilized to publicize on-going research, training, and technology transfer events.
- 7) The RE-CAST **website has been updated** to contains links to listing of upcoming technology transfer events, educational seminars and workshops, presentations, and project reports.
- 8) The second quarterly **newsletter** was published in July 2014 – see Attachment D
- 9) The third quarterly newsletter will be published in October 2014.

Diversity Objectives Accomplished

- 1) During July 2014, four minority undergraduate students from Rutgers University and Southern University undertook **summer internships** at Missouri S&T. This program offered excellent education, training, and research opportunities for underrepresented students at the undergraduate level. The students worked on one of the collaborative research projects supported by the Center, which resulted in direct interaction with leading researchers and graduate students.
- 2) RE-CAST faculty participated in the following outreach programs during the Summer 2014.
 - The **Women's Leadership Institute at S&T** – Dr. John Myers of Missouri S&T assisted with the Women in Science and Engineering (WISE) summer outreach programs on behalf of RE-CAST. The WISE program puts on the following programs during the summer:
 - **“It's a Girl Thing”** for 7-8th grade female students - This week-long program provides a fun intro to engineering, science and technology to girls entering middle school. The students experience various science, computing, engineering and math careers; explore your personal interests

through group projects; and cheer on new friends during design competitions.

- **Summer Solutions** - 9th -10th Grade, Girls Only - This week-long program lets students experience college life while learning more about career options in engineering, math and science. The students meet current S&T students and professors, participate in team projects, and gain a better understanding of what engineers and scientists really do and how.
- **Girls Go Green** - 11th -12th Grade, Girls Only - During this week-long program students explore career options that help society while protecting our environment. Students work with faculty mentors; participate in team projects, industry tours and field trips; and gain a better understanding of the science and engineering behind a green environment. Each day focuses on a new theme like environmental engineering, water quality or the safety of nuclear power.
- **Jackling Intro to Engineering** - 11th -12th Grade, All Students - Students learn what engineers really do and the tools they use. Students explore each of the 15 engineering disciplines offered at S&T through hands-on activities and team design competitions while they make new friends and enjoy a taste of campus life. Students gain practical experience during labs and test your skills in friendly student competitions.
- **Summer Transportation Institute at SUBR** - As a support of the academic enhancement program of communities underrepresented in transportation, Dr. Shin presented the RE-CAST center and research project to the Summer Transportation Institute (STI) participants on June 26, 2014. During the presentation, Dr. Shin discussed the mission and research activities of the RE-CAST Center. He emphasized the importance of sustainability in transportation and the need to develop and implement novel construction material During the three week program of STI, students had a hands-on experience focused on the behavior of various novel construction materials and characterization techniques in transportation engineering.

3) **MoDOT Summer Camp** for minority high school students

- July 2, 2014 at Missouri S&T
- RE-CAST co-sponsored this program by sponsoring lunch and providing graduate students to lead hands-on activities and technical demonstrations.

1.C - What Opportunities For Training And Professional Development Has The Program Provided?

The RE-CAST has provided **two research seminars** as professional development opportunities. The topics/dates of those seminars are:

- Date: Tuesday, June 17, 2014
 - i. Presenter: Antonio Nanni, University of Miami
 - ii. Topic: Extending the Life of Concrete Structures: FRCM Technology
 - iii. Posted on RE-CAST website
- Date: Thursday, September 25, 2014
 - i. Presenter: Dr. Tyler Ley, Oklahoma State University
 - ii. Topic: Extending the Life of Concrete Structures: FRCM Technology
 - iii. Posted on RE-CAST website

Dr. Antonio Nanni also delivered an **ACI webinar** entitled “Guide to Design and Construction of Externally Bonded Fabric-Reinforced Cementitious Matrix (FRCM) Systems for Repair and Strengthening Concrete Structures” on Tuesday, August 5, 2014.

1.D - How Have The Results Been Disseminated?

The June and September seminars will be made available on the RE-CAST. A summary of the summer rheology course was included in the Summer 2014 RE-CAST newsletter. It led to many subsequent inquiries on the Center’s activities and similar future professional development programs.

Initial findings of various research projects are being compiled to prepare scientific papers and technical presentations at various conventions (e.g., ACI Fall Convention in Kansas City, 2015 TRB Meeting in Washington, D.C., and the World of Concrete 2015 in Las Vegas).

1. E - What Do You Plan To Do During The Next Reporting Period To Accomplish The Goals And Objectives?

- 1) First annual student competition
 - Design of concrete with a minimum of 50% of recycled materials with the highest strength to resist blast
 - Scheduled to be held at Missouri S&T Mine during Engineering Week in February 2015
- 2) Begin plans for short course on SHM & Modeling of Highway Pavement
 - to be scheduled in 2015 and offered by Drs. Shin and Nassif from RE-CAST in collaboration with a faculty from the Southern Plains Transportation Center – Region 6 Regional University Transportation Center
- 3) Publish third and fourth newsletter
- 4) Schedule fifth and sixth bi-monthly research seminars
 - to be held in November and December 2014 and broadcast via WebEx to all partner universities

2. PRODUCTS

2.A - Publications, Conference Papers, and Presentations

- 1) June seminar: see Appendix A
- 2) September seminar: see Appendix B
- 3) Summer 2014 Newsletter: see Appendix C
- 4) Journal Publication:

Arboleda, D., S. Babaeidarabad, C. Hays and A. Nanni, "Durability of Fabric Reinforced Cementitious Matrix (FRCM) Composites," 7th International Conference on FRP Composites in Civil Engineering, R. El-Hacha, Ed., Vancouver, Canada, August 20-22, 2014, pp. 384-390.

- 5) Conference Papers:

Cao, Q., Khayat, K.H., "Workability and Pumpability of Self-Consolidating Concrete Used in Bridge Deck-Girder Connection," Xiamen, China.

Feys, D., Esmailkhanian, B., Khayat, K.H., and Yahia, A., "New Test Method to Evaluate Dynamic Stability of Self-Consolidating Concrete," ACI Spring 2014 Convention, Reno (invited).

Feys, D., Khayat, K.H., "Recent Developments in Evaluating Pumping Behavior of Flowable and SCC, Third International Symposium on the Design, Performance and Use of Self-Consolidating Concrete," (SCC' 2014 – China), Xiamen, June 5-8, 2014, keynote paper.

Kassimi, F., Khayat, K.H., "Prediction of Structural Response in Flexure of Fiber-Reinforced Self-Consolidating Concrete," Xiamen, China, Invited paper.

Khayat, K.H., Jolicoeur, C., Vanhove, Y., Pavate, T., "Electrical Conductivity to Evaluate Homogeneity of Concrete." ACI Spring 2014 Convention, Reno (invited).

Nassif, H. et al., "Early Age Cracking in High Performance Concrete Decks of a Curved Steel Girder Bridge," July 7-11, 2014, Shanghai, China

Nassif, H. et al., "Modeling Of Train-Bridge Dynamic Interaction System for Bridges with Stepped-Beam Cross-Sections," July 7-11, 2014, Shanghai, China

- 6) Keynote/Invited Presentations

Dr. Kamal H. Khayat

- 2014 keynote speaker, Eco-Crete Conference, Reykjavik, Iceland
- 2014 keynote speaker, 3rd International Symposium on Design, Performance and Use of Self-Consolidating Concrete, Xiamen City, China
- Introduction to Missouri S&T, CIES, and RE-CAST followed by technical lectures during exchange visits to Reykjavik University (Iceland) in May as well as Hunan University, Tongji University, and Hong Kong University of Science and Technology in June 2014.

Dr. David Lange:

- Keynote lecture, Int'l Conf. on Aging of Materials and Structures (AMS '14), Delft, Netherlands, May 26-28, 2014

- Invited lecture, Nordic Concrete Research Conference, Reykjavik, Iceland, August 12-15, 2014
- Invited Lecture, OMP Lecture Series, Chicago, IL, September 4, 2014
- Invited lecture, International Concrete Repair Institute - Illinois Chapter, Chicago, IL, September 16, 2014

Dr. Antonio Nanni:

- CICE 2014, Vancouver, British Columbia, Canada, August 20-22, 2014
- REHABEND 2014: Congreso Latinoamericano sobre Patología de la Construcción, Tecnología de la Rehabilitación y Gestión del Patrimonio: Santander (Spain) 1-4 April, 2014

Dr. Hani Nassif:

- Early Age Cracking in High Performance Concrete Decks of a Curved Steel Girder Bridge, July 7-11, 2014, Shanghai, China
- Modeling of Train-Bridge Dynamic Interaction System for Bridges with Stepped-Beam Cross-Sections, July 7-11, 2014, Shanghai, China

2.B - Website(s) or Other Internet Site(s)

A website was created for the RE-CAST University Transportation: <http://recast.mst.edu>. This website is the central location for listing all activities related to the grant. In this reporting period, the highlighted tabs have been added:

- The Center
- Research Team
- **Projects**
- Research Areas
- Directory
- **Semi-Annual Reports (PPPRs)**
- Research Advisory Committee
- Newsletters
- Events
- **Webinars**

In addition to the main website, RE-CAST has also created a Facebook and LinkedIn Group for announcements. Those links are:

Facebook: <https://www.facebook.com/pages/Re-Cast-University-Transportation-Center/628790710502751>

LinkedIn: https://www.linkedin.com/groups/RECAST-University-Transportation-Center-6626216?trk=anet ug_hm&gid=6626216&home=

2.C - Technologies or Techniques

Nothing to Report.

2.D - Inventions, Patent Applications, and/or Licenses

Nothing to Report.

2.E - Other Products, Such As Data Or Databases, Physical Collections, Audio Or Video Products, Software Or Netware, Models, Educational Aids Or Curricula, Instruments, Or Equipment.

Nothing to Report.

3. PARTICIPANTS & COLLABORATING ORGANIZATIONS

3.A - What Organizations Have Been Involved As Partners?

The main consortium members of this University Transportation Center remain the same as the proposal:

- Missouri University of Science and Technology, Rolla, MO - LEAD
- University of Illinois at Urbana-Champaign, Urbana, IL
- Rutgers, The State University of New Jersey, Piscataway, NJ
- University of Miami, Coral Gables, FL
- Southern University and A&M College, Baton Rouge, LA

As stated in the proposal, the RE-CAST team is also partnered with Dr. H. Celik Ozyildirim, as a consultant, from the Virginia Center for Transportation Innovation and Research, Charlottesville, VA. Dr. Ozyildirim's main implication is to provide input for field implementation and development of specifications and standards.

In addition to the main consortium members, two additional universities are collaborating with with RE-CAST, due to faculty moving to those universities after the proposal was submitted.

Those new partners are:

- The University of Oklahoma, Norman, OK (Dr. Jeffrey Volz)
- New York University Polytechnic School of Engineering, Brooklyn, NY (Dr. Kaan Ozbay)

Several state governments and industrial partners are involved in various on-going RE-CAST projects and are providing financial and in-kind support to the research program. Those agencies include:

- Bowman, Barrett and Associates, Chicago, IL, financial support
- Dolese Bros. Co., Oklahoma City, OK financial support
- Louisiana Transportation Research Center (LTRC), Baton Rouge, LA, financial support
- Missouri Department of Transportation, Jefferson City, MO, financial support
- Missouri University of Science and Technology, Rolla, MO, in-kind support
- New Jersey Department of Transportation Research Division, West Trenton, NJ, financial support
- New York University Polytechnic School of Engineering, Brooklyn, NY, financial support
- O'Hare Modernization Program, Chicago, IL, financial support
- Small Modular Reactor Research and Education Consortium, financial support
- Structural Technologies, Hanover, MD, financial support

- University of Illinois, Urbana-Champaign, Champaign, IL, in-kind support
- University of Miami, Coral Gables, FL, financial support
- University of Oklahoma, in-kind support
- Virginia Center for Transportation Innovation and Research (via VirginiaTech) Charlottesville, VA , financial support

3.B - Have Other Collaborators Or Contacts Been Involved?

The Research Advisory Committee (RAC) has been established and is composed of the following individuals:

William Stone, Research Administrator, P.E. (RAC President)

Missouri Department of Transportation, Jefferson City, MO

Ross Anderson, Senior Vice President

Bowman Barrett & Associates, Chicago, IL

Casimir Bognacki, Chief of Materials Engineering

Port Authority of New York and New Jersey, New York, NY

Harvey DeFord, Ph.D., Structural Materials Research Specialist

Florida Department of Transportation State Materials Office, Gainesville, FL

Chiara “Clarissa” Ferraris, Ph.D., Physicist

National Institute of Standards and Technology, Gaithersburg, MD

Jim Myers, P.E., Senior Staff Engineer

Coreslab Structures, Inc., Marshall, MO

Karthik Obla, Ph.D. P.E., Vice President, Technical Services

National Ready Mix Concrete Association, Silver Spring, MD

Zhongjie “Doc” Zhang, Ph.D., Pavement Geotechnical Research Administrator

Louisiana Transportation Research Center, Baton Rouge, LA

The objectives of the RAC to advise the Center’s Director and Associate Directors on management and activities of the Center and to contribute to the Center core mission. The Center will interact with state DOTs, public agencies, and three primary industry components (material and equipment suppliers, general/specialty contractors, and design firms) through the RAC.

A meeting is scheduled with the RAC on November 11, 2014 at 11am CST via WebEx. The RAC Director, Mr. William Stone has circulated an agenda. The group will also meeting face-to-face during the TRB meeting in January 2015 with RE-CAST Director and Associate Directors.

4. IMPACT

4.A - What Is The Impact On The Development Of The Principal Discipline(s) Of The Program?

Nothing to report at this time.

4.B - What Is The Impact On Other Disciplines?

Nothing to report at this time.

4.C - What Is The Impact On The Development Of Transportation Workforce Development?

Several graduate and undergraduate students have been recruited to staff the RE-CAST projects for FY2013 and FY2014.

4.E - What Is The Impact On Physical, Institutional, And Information Resources At The University Or Other Partner Institutions?

Nothing to report at this time.

4.F - What Is The Impact On Technology Transfer?

Several invited speakers/keynote speaker lectures are scheduled for the Fall/Winter of 2014, many of which will report on some of the research findings of RE-CAST projects.

4.G - What Is The Impact On Society Beyond Science And Technology?

The RE-CAST projects are developing the next generation of cement-based construction materials to address the growing technical and environmental requirements of the nation's transportation infrastructure. The ultimate goal of the RE-CAST program is to fast-track the acceptance of these technologies and develop national standards and guidelines for their use in the reconstruction of the nation's infrastructure for the 21st Century, which will have a lasting impact on our nation's society.

5. CHANGES/PROBLEMS

5.A - Changes In Approach And Reasons For Change

There is now a total of 9 projects, which include an additional project on Rapid Pavement Rehabilitation that was added to the initial eight projects of the proposed work.

5.B - Actual Or Anticipated Problems Or Delays And Actions Or Plans To Resolve Them

In addition to the main consortium members of five universities, two additional universities are collaborating with with RE-CAST, due to faculty moving to those universities after the proposal was submitted in order to maintain the scope of the proposed work. Those partners are:

- The University of Oklahoma, Norman, OK (Dr. Jeffrey Volz)
- New York University Polytechnic School of Engineering, Brooklyn, NY (Dr. Kaan Ozbay)

The Office of Sponsored Programs at Missouri S&T has worked with each University in the consortium, as well as the universities listed above, to establish master contractual agreements to disperse funds. This process as well as collecting all required documentation is time consuming to coordinate and finalize. As of April 17, 2014 all master contracts are signed.

5.C - Changes That Have A Significant Impact On Expenditures

Nothing to report at this time.

5.D - Significant Changes In Use Or Care Of Animals, Human Subjects, And/or Biohazards

Not Applicable.

5.E - Change Of Primary Performance Site Location From That Originally Proposed

No Change to Report.

6. SPECIAL REPORTING REQUIREMENTS

Nothing to Report.