Race to the Top
Progress Update – August 2012 Monthly Call

Directions: In preparation for monthly calls, a State must provide responses to the questions in Part A for their overall plan, and responses to the questions in Part B for ***two*** application sub-criterion.

Part A: *In preparation for monthly calls, States must provide information that addresses the three questions below on the implementation of all aspects of its approved scope of work. This may include a written response. If your State already has a state-specific system to report on its progress, please work with your program officer to determine the best method of providing this information for your State.*

1. What were the State's key accomplishments and challenges this past month?

   Accomplishments:

   - Project 2/1 (Program Evaluation) – We received an analysis of LEA monthly reports (April-June), a draft of the Transition Plan analysis, and a draft of the EEA survey (3 academies only) from CAIRE. The first phase of the utilization evaluation has commenced.
   - Project 44/41 (Breakthrough Center) – Finalized evaluation process and methods with CAIRE. Evaluation will focus on three levels; effectiveness of MSDE Cross Functional Team (CFT) in delivering services; impact on district-level organization; impact on school turnaround. Will involve three school systems- Baltimore City, Prince George's County, Dorchester County. Potential for 14 case studies – 9 schools, CFT, 3 districts, Aspiring Leaders' program.
   - Project 47/45 (Coordinated Student Services)- A two-day workshop, *RTTT Response to Intervention Workshop*, was provided to 35 participants that included principals and student service team leaders in turnaround schools in Prince George's County. It was a collaborative and coordinated effort that included five project managers (Lynne Muller, 47/45; Stephen Douglas, 46/57; John Grymes, 50/58; Tito Baca, 49/63; Mary Jo Harris, 48/69) involved with the Breakthrough Center. They have just been invited back to provide the same training for additional schools.
   - Project 36/75 (UTeach Maryland) – 20 students have begun the Step One Course at Towson University.
   - Project 28/47 (Develop and Implement a Statistical Model to Measure Student Growth) – Initiated a sub-project for creating a standards and recommendations manual for how to use assessment tools' document when implementing k12 SLOs
   - Project 10/28 (Media Training) – waiting for proposals from vendors for LEA LDS Coaching Academy

- Project 13/61 (Enhancement to LDS to Develop P20 and Workforce Data Warehouse and center) – P20 data warehouse approaching alpha rollout stage – presentation on 9/24 to the Governor of the first draft dashboards and new P20 policy maker interface
- Project 26/43 (Implement a System to Support ELearning for Intervention, Enhancement, and Enrichment) - Completed all contractual negotiations and secured ratified contracts with LMS vendor. Procurement has now proceeded to the final stages—submission to the Board of Public Works for final approval, currently scheduled for September 19, 2012
- Project 14/31 (Develop and Implement State Curriculum Management System) - Uploaded subject area content (Reading/ELA, Math, STEM, and Literacy frameworks) to mdk12.org and provided communication to the LEAs for access and review
- Project 22/6 (Develop Online Instructional Intervention Modules) - Completed vendor selection for 200+ instructional intervention modules
- Project 21/42 (Implement a Statewide System to Support Student Instructional Intervention) - Completed technical oral presentation with SIIS vendors. Pricing review is underway

Challenges:

- Project 13/61 (Enhancement to LDS to Develop P20 and Workforce Data Warehouse and Center) – length of time to gain approval and do reviews for selecting vendors for awarding hardware server procurements
- Project 14/31 (Develop and Implement State Curriculum Management System) - Development of the CMS continues under very tight timelines with measured progress utilizing Oracle Spaces framework

2. Is the State on track to meet the goals and timelines associated with the activities outlined in its approved scope of work? If not, what strategies is the State employing in order to meet its goals?

   We are on track to meet our goals and timelines. We have a number of governance processes that enable us to address obstacles/issues in a timely manner.

3. How can the Department help the State meet its goals?

   We do not require any additional help at this time.

Race to the Top
Progress Update – August 2012 Monthly Call

Part B: *In preparation for monthly calls, States must submit written responses to the following questions for **two** application sub-criteria (e.g. (A)(2) and (D)(4)).* [1] *All responses in this section should be tailored to the goals and projects associated with this sub-criterion.*

Application sub-criterion:[2]
STEM: Competitive Preference Priority – Emphasis on Science, Technology, Engineering, and Mathematics (STEM)

STATE's goals for this sub-criterion:

STEM is found throughout the Maryland grant application and is woven through many of its goals.

Relevant projects:

- Project 5/4: STEM Technology Education
- Project 6/76: STEM Technology - New Career and Technology Education (CTE) Program of Study in Construction Management and Design
- Project 51/71: STEM Project Lead The Way – Gateway To Technology - Career and Technology Education (CTE) Program
- Project 15/7: Expansion of MSDE Teacher Tool Kit
- Project 16/20: STEM Instructional and Career Support – STEM Innovation Network
- Project 35/26: Elementary STEM Teacher Certification
- Project 36/75: Secondary Stem Teacher Recruitment and Preparation
- Project 43/21: Develop On-Line PD on Educator Instructional Improvement Content
- Project 4/3: Curriculum and Formative Assessment Development
- Project 41/24: Educator Effectiveness Academies: 41/24
- Project 34/51: Compensation Incentives for Teachers in Shortage Areas
- Project 7/5: World Languages Pipeline

1. What is the extent of the State's progress toward meeting the goals and performance measures and implementing the activities that are included in its approved scope of work for this sub-criterion?

[1] On each monthly call, program officers and states should work together to select two sub-criteria for the following month.
[2] All highlighted fields will be pre-populated by the Department Program Officer prior to State completion.

The following projects submitted their last report to USDE in January 2012

Project 35/26 Elementary STEM Teacher Certification

Maryland approved, teacher preparation pathways, both traditional and alternative, continue to receive funds to participate in an Elementary STEM Certification Network to develop, pilot, revise, and implement Elementary STEM teacher preparation programs. Network meetings continue on a regular basis. Beginning fall 2012, two additional project partners will receive funding through this project, one of which is an alternative certification program. These two new partners, along with our seven existing partners, have participated in Network meetings this spring and sent representatives to the annual Elementary STEM Certification Summer Institute.

On-site technical assistance for project partners continues to provide MSDE Project Managers the opportunity to review program/course offerings, budgets and required paperwork. MSDE Project Managers have observed local school system as well as higher education institution STEM teacher professional development, attended steering committee meetings and participated in other grant related activities as part of technical assistance.

In April 2012, the Maryland State Board of Education accepted the STEM Standards of Practice for students, developed by MSDE's Office of STEM Initiatives in the Division of Instruction. STEM Standards of Practice for teachers were developed to parallel the student STEM Standards of Practice. The standards for teachers were developed by the MSDE Elementary STEM Certification project managers, in consultation with Program Approval Specialists and Network Members. These STEM standards of practice provided the framework for developing and assessing approved teacher preparation programs in elementary STEM.

Since January 2012, three Elementary STEM Network meetings and the second annual Elementary STEM Summer Institute have been held. These meetings provided networking opportunities and support for the development of new elementary STEM programs. In addition, the project has funded state and national experts to present to our Network members their perspectives and promising practices related to elementary STEM teacher preparation. Guest presenters include:

- Donna Clem, MSDE Coordinator of STEM Initiatives
- Michelle Shearer, 2011 National Teacher of the Year, Chemistry teacher form Frederick County Public Schools

- Brenda Capobianco and Chell Nyquist, education faculty from Purdue University and project directors for the Science Learning through Engineering Design (SLED) project
- Susan Hoban, project coordinator of NASA's BEST (Beginning Engineering, Science and Technology) Students project
- Claudia Morrell, Chief Operating Officer at the National Alliance for Partnerships in Equity and
- Elizabeth Parry, engineering educator from North Carolina State University.

Additional presenters working in the field of elementary STEM education from throughout the nation are scheduled for future meetings.

National conferences have continued to be an important source of expertise and resource for project partners. In May 2012, one MSDE Elementary STEM Certification Project Manager and the MSDE Coordinator of STEM Initiatives presented the Maryland STEM Standards of Practice and the Elementary STEM Certification project at the first National Science Teachers Association (NSTA) STEM Forum.

Network project partners are working to enhance their approved initial elementary certification programs to include a concentration in STEM for pre-service teachers. At the beginning of August, project managers presented the Elementary STEM Certification project to the MSDE Professional Standards Board and Teacher Education (PSTEB). Project Managers and project partners made a compelling case for an endorsement in Elementary STEM for practicing teachers. The potential for this endorsement is on the agenda for the PSTEB September meeting.

In July, MSDE Project Managers facilitated the annual Elementary STEM Certification Network Summer Institute in Cambridge, Maryland. A total of forty-five participants attended the institute to include representatives from each project, MSDE personnel and local school system STEM representatives. The lead presenter was Dr. Elizabeth (Liz) Parry from North Carolina State University. STEM note booking was modeled and used by all participants during the two day institute. Evaluation results reflect an 87% response rate and noted the following presentations as the most useful (1) STEM Note booking, (2) Project Sharing of Assessments and Challenges, and (3) Project Group Meeting time. 73% of participants indicated STEM Note booking was useful in their project work. 54% of participants reported that the presentation, Integrating Across the Curriculum, was useful. They indicated the resources in the presentation were excellent but there

was too much information in the time allowed. Participants recommended limiting the presentation to exploring several key resources. Participants suggested the following topics for future meetings: (1) Pedagogy for teaching STEM, (2) Rubrics and tools for assessing field and clinical experiences related to STEM, and (3) Project meeting time with partners.100% of participants indicated the accommodations met their needs.

The Elementary STEM Certification project has continued to complete all milestones to this point and has accomplished all planned deliverables. In the spring of 2012 there were two high-quality proposals submitted by partnerships to join our Network. We amended our budget so we are able to fund both projects in Years Three and Four, and will fund two additional projects in Year Four. In early 2013, proposal guidelines for two additional project partners for 2013-2014 will be released.

Project 41/24 Educator Effectiveness Academies (This report only addresses the STEM portion of the EEA. A complete report of the academies will be submitted in September 2012)

The outcomes for STEM professional development activities at the 2012 EEA were to have teachers, administrators, and other instructional leaders:

- Develop knowledge of the Maryland STEM Standards of Practice and Frameworks.
- Develop knowledge of STEM unit components and resources.

These outcomes were met.

STEM Standards of Practice were introduced, clarified, and demonstrated through interactive, ands-on activities. The foci of the introductory activities included: STEM as a process; STEM proficiency for all students; and integration of STEM Standards of Practice across all content areas. Through guided instruction, participants analyzed the organization, content, and use of STEM Standards of Practice frameworks in grade bands for K, 1-2, 3-5, 6-8, and 9-12. This instruction aided teachers in achieving a greater understanding of the STEM educational structure and the developmental scaffolding of skills and processes associated with STEM education. Participants learned about the STEM learning environment, STEM pedagogy, and implementation strategies. Corresponding instructional guides were provided to participants and explained, affording participants with needed support, resources, and examples.

In order to promote the implementation of STEM education and instructional practices, participants received instruction on the components and use of STEM unit and lesson planning templates. Follow-up webinars for the academies are being planned using interviews from academy participants and the filming of teachers implementing STEM Standards of Practice in the classroom. Looking toward the 2013 Educator Effectiveness Academies, STEM education is expected to delve deeper into classroom instruction and practice.

Project 36/75 UTeach Maryland

The partnership among the Maryland State Department of Education (MSDE), the UTeach Institute, and the National Math and Science Initiative (NMSI) was confirmed through the selection of Towson University as the local teacher education partner to join the initiative. This selection followed a Request for Proposals (RFP) that was developed, disseminated, scored and recommended to MSDE by a team of reviewers from UTeach and NMSI in May 2012. A second university, the University of Maryland Baltimore County (UMBC) did submit a proposal but was not recommended for funding at this time. Although NMSI and MSDE agreed to work with UMBC to develop a fundable proposal, UMBC decided not to pursue the project at the current time.

In May 2012, a design team from Towson University and the MSDE Project Director attended the UTeach Institute Annual Conference in Austin, Texas. At that time, both a program officer and a budget officer were assigned to Towson to facilitate their project implementation. In June, an initial grant award was made to Towson with the final MSDE RTTT award to be made in October 2012. Once MSDE funding is exhausted, the funding from NMSI, through the Michael and Susan Dell Foundation, will be released to complete the Towson UTeach project. Towson is already working to achieve grant and foundation funding to sustain the program in the future. Working with the development team at Towson are both MSDE and Dr. Nancy Grasmick, former State Superintendent of Schools in Maryland and now a Presidential Scholar at Towson University and a member of the Board of Directors of NMSI.

A June meeting between MSDE and the Towson team began the process of rewriting the secondary education programs in mathematics and science to interface with the UTeach requirements. As agreed to in the MOU referenced in the previous report, the program will integrate the Maryland-required 1995 *Institutional Performance Criteria of the Redesign of Teacher Education* upon which is built the MSDE State Program Approval process. This

requires that candidates be placed in a Professional Development Schools (PDS) for a minimum of 100 days in their final year of training. The program will also meet the criteria for NCATE accreditation, required in Maryland for all colleges and universities that have teacher education programs and have over 2000 full-time students.

In July, the College of Education at Towson named Dr. Qing Li as the project co-director from that college to join Dr. Linda Cooper from the Fisher College of Math and Science. On August 21, the entire team consisting of the deans of both colleges, Dr. Grasmick, the assistant Dean of the College of Education, the Towson Coordinator of Placements, the project co-directors, the finance and budget representative to the project and the MSDE Project Director met to assess the progress. At that time, the deans announced that 20 students were enrolled to begin the Step 1 class, the first in the UTeach series, the following week, and that a highly-skilled master teacher to co-teach the course , along with a second semester run of Step 1 and the Step 2 course, as well. Considering that funding was not loaded into the Towson budget until July, MSDE is very pleased with a 20-student start. In addition, the deans made a commitment to assure the 100-day PDS internship required by the Maryland Redesign. (Retention and effective studies in Maryland over eight years have pointed very clearly to stronger retention and early performance from teachers who were trained in PDS than those not so trained.)

Discussions during the above meeting included investigating ways to incorporate the required outcomes of several portfolios – those already used at Towson and that required by UTeach – into one electronic submission designed to interface with a new State teacher evaluation system and utilize the Towson experience with the Teacher Performance Assessment (TPA) hallmark assessments to which Towson has been a pilot partner. Those discussions are extremely preliminary, but have great possibilities for aligning a newly-rewritten teacher education program concentrating on the STEM areas of certification with a newly-developed State-wide teacher evaluation system.

The next meeting of the above team is scheduled for sometime in September. End-of-year reports will be collected, as required by MSDE in order to fulfill its RTTT reporting requirements, prior to September 30, 2012.

Project 43/21 Develop On-Line PD on Educator Instructional Improvement Content

Project Goals:

- Develop a sustainable model to deliver teaching academies regarding Common Core Curriculum, Assessments, and effective use of the Instructional Improvement System in future years.

- Develop a total of 12 online professional development courses: Elementary reading, math, and STEM; middle school reading, math, and STEM; Algebra I and II, English 10 and 11; and 2 high school STEM courses. Development will take place in the most cost-effective manner either by buying existing course content and adapting it to Maryland's needs or by hiring a consultant to develop courses.

In February and March 2012, collaboration continued with the MSDE Educators Effectiveness Academies (EEA) team. EEA staff conferred with the Project Director about using web-conferencing to provide essential support during the Summer 2012 EEAs for school teams during off-site work. Project 21's Director shared online, print and mobile device UDL resources for use during the EEAs.

Collaboration began in March with Project 21's newly assigned Technical Assistant, Harry Holt, a Race to the Top technical consultant. He is providing assistance for RFPs, RFQs, and business operations. He also provides vital information on the essential infrastructure that will support this project, especially selection of a learning management system (LMS), which will house this Project's OPD courses--and its impact on online course solicitation, selection and purchase or development.

In April 2012, the US Department of Education approved Project 43/21's amendment proposal package, which included essential revisions to the list of twelve online professional development (OPD) courses to align them with the Maryland State Common Core Curriculum Standards, Assessments, and work underway through other Race to the Top Grant projects. The budget was also revised to apportion funding to Year Two so that work could begin sooner than Year Three. As the result of this approval, the twelve OPD courses to be acquired or developed are: elementary English Language Arts/Literacy, mathematics, and STEM; middle school English Language Arts/Literacy, mathematics, and STEM; Geometry and Algebra II; English 10 and 11; and two high school STEM courses. Development will take place in the most cost effective manner by either buying existing course content and adapting it to Maryland's needs or hiring a

consultant to develop courses as part of a procurement contract. The USDE-approved budget revision allocates $700,000 for Year Two; $1,500,000 for Year Three, and $800,000 for Year Four.

The Project Director collaborated during March and April with the content coordinators in the Division of Instruction to determine which courses could be purchased or developed first, since the essential Common Core standards were not yet complete for all content areas. After a brief presentation by the Project Director and discussions at two Division of Instruction Coordinators' meetings, the Coordinators for English Language Arts/Literacy, mathematics, and STEM completed a course scheduling survey tool. Five priority courses were identified for the first round of OPD course reviews: Middle School English Language Arts/Literacy, High School English 10, English 11, Elementary School Mathematics, and Middle School Mathematics. MSDE Mathematics, STEM, and English/Language Arts/Literacy coordinators and specialists also provided guidance on precise qualifications for consultants to review online commercial courses in each of the major content areas and for specific features and content that should be required in each course.

The Coordinators and specialists' responses guided development of two Requests for Quotations (RFQs): one for content experts to review the courses that vendors would submit, and one soliciting vendor submissions of OPD courses in the five prioritized areas for possible purchase by MSDE. The first RFQ--for expert reviewers—was published in May. Since it yielded an insufficient number of responses, it was re-issued June 8 with postponement of the mandatory training until July 13-14 and the deadline for completed reviews until August 16. Additional qualified experts were identified for hiring through this re-issued RFQ.

On June 1, MSDE published Project 21's second RFQ—this time seeking vendor submission of online professional development courses for review and possible purchase. The document specified requirements for content, Common Core standards alignment, instructional design, structural design, and technical features. While several vendors responded to the RFQ with questions and offers to develop courses that would meet Maryland's needs, no vendor submitted a course for review by the deadline of June 29. As a result, qualified expert reviewers were notified that there would be no review work for them to perform.

Year Two grant schedule revisions approved by USDE included an MSDE review of the *National Standards for Quality Online Courses* published in 2011 by the International Council for Online Learning (iNACOL). This review was designed to ensure that current, appropriate standards

would be employed for evaluating OPD courses under consideration for purchase and would also guide the development of courses. In June, MSDE staff conducted an extensive examination of iNACOL's standards and determined that, while very sound, they were more applicable to courses for high school students than to ones for adult learners. Staff expanded the review to include the Southern Regional Education Board's (SREB) *Standards for Online Professional Development* (2004), and the *Maryland Teacher Professional Development Standards* (2005). Staff then created a new document that would guide educator professional learning course developers and reviewers of such products: *Development Guidelines: Online Professional Learning Courses* (July 2012). These guidelines were shared with the Project Director for Project 7, who provided them to the contractor developing that Project's online PD courses.

In Project 43/21, the new guidelines proved useful in creating the Request for Proposals (RFP) to develop one or more of the five prioritized courses—a next step that was specified in the grant proposal should existing courses meeting the criteria not be available for purchase. This RFP, created jointly by the Project Director and the Technical Assistant, was submitted to Procurement for review on August 16. Scheduled meetings have been postponed several times by Procurement staff, so no feedback about any needed revisions has been provided to date. Thus far, we are on track to meet the goals and timelines associated with the scope of work; however, if any additional delays occur in receiving Procurement approval, we will have difficulty meeting the timeline.

Looking beyond this issue, we plan to apply lessons learned this year to issuing the RFQ(s) for the remaining seven courses that must be procured or developed. The results of the summer 2012 RFQ soliciting vendor submission of existing courses for possible purchase—and the questions submitted in response by vendors—showed us very clearly that vendors who already market a particular course cannot or do not wish to enter into an outright sale of that course to Maryland. Accordingly, we will omit the first "see what's out there that we may buy" RFQ for the remaining seven courses and issue instead an RFQ soliciting bids for *leasing or* development.

The following projects submitted their last report to USDE in May 2012. These are updates.

Project 5/7 Expansion of MSDE Teacher Toolkit

Planning for the next phase has started for MPT deliverable 1, Tech Correlations/Articulation of Thinkport Resources. MPT will begin technical articulation in September. MSDE approved

adolescent literacy modules developed for MPT deliverable 2, set 1, New Instructional Resources for Adolescent Literacy, STEM, and Algebra II. MPT has submitted a plan for deliverable 2, set 2 – STEM - and has started on content outlines for the STEM content. Deliverable 3 is in the process of completion. MPT has submitted the professional development course for Algebra I scripts and is currently producing the online course production modules. MSDE has reviewed content outlines for the professional development course in English II and is in the process of receiving and reviewing scripts. MSDE and MPT have nearly finalized a Test and Evaluation Plan for products resulting from deliverables 2 and 3. The project team held a pre-proposal meeting about the RFP for procuring technical services for a toolkit vendor with proposals due in September.

The Expand Instructional Toolkit project scope of work is progressing according to schedule for the first three MPT deliverables. The toolkit vendor acquisition is now slated for fall and steps will be taken to accelerate the vendor's work once they are brought onboard.

Project 16/20 STEM Instructional and Career Support – STEM Innovation Network

MSDE established a partnership with the Maryland Business Roundtable to develop STEMnet. STEMnet is envisioned as a resource for all of Maryland's STEM stakeholders that will be fully developed over time utilizing technology as the backbone for communication among its members/partners. It will be developed in stages with the first two hubs of the network servicing teachers and students.

The STEMnet Teacher Hub and the STEMnet Student Hub will provide teachers and students access to Maryland's rich inventory of STEM resources, deliver programs, services, and support to teachers and students, facilitate communication and collaboration among partners, and establish a vibrant human network to support Maryland's world-class teachers and students.

The first component of the STEMnet Teacher Hub is the STEM Specialists in the Classroom which was developed and piloted during the 2012-2013 school year. The first phase of the program recruited and trained biology/life science specialists from industry, government agencies, and higher education to work with high school biology teachers in their classrooms.

MBRT STEMnet has expanded its Teacher Hub – STEM Specialists in the Classroom program by increasing the number of counties served. Five of six counties have been selected for

participation during the 2012-2013 school year. The counties include Baltimore City, Baltimore County, Harford County, Prince George's County, and Queen Anne's County. The sixth county will be selected by September 1, 2012. MBRT has recruited algebra and additional biology Specialists and prepared lessons for use in algebra and biology classes. Specialist training dates in late September and early October have been selected and training materials prepared.
MBRT is gathering resources for the second component of the Teacher Hub – the STEM Resource Clearinghouse. This clearinghouse will provide a variety of resources including lesson plans, websites, research articles, online games, and challenge ideas that teachers can use to strengthen classroom instruction in STEM.

The first component of the STEMnet Student Hub is Career Exploration**,** an online site where students can explore multiple aspects of a STEM career. MBRT's Student Hub for Career Exploration includes information about STEM careers with a biology or mathematics focus and provides students with the opportunity to learn about careers that require different degrees of educational preparation, to understand what it takes to qualify for them, to chart a course of action to enter one of these careers, to investigate opportunities for high school internships in these fields, and to explore the educational opportunities available in Maryland to prepare for these careers. A second component of the Student Hub is the STEM Challenge Program. The STEM Challenge Program offers students the opportunity to solve real world problems posed by industry specialists will launch this school year.

An online platform to support STEMnet has been designed and developed with the help of IBM and a local technology vendor. MBRT determined the framework of the system based on current and future RTTT program needs. Technical and business requirements were established for teachers, business partners, parents and students. MBRT launched a successful online platform in the fall of 2011. Improvements and updated versions of the system continue to be made on a monthly basis.

The State is on track to meet the goals of this project. In recent months, MBRT recruited 30 additional volunteers in biology and algebra for the Specialist in the Classroom program and refined the method by which teachers and Specialists connect to each other. Strategic planning for greater implementation of the Specialist program in individual schools has occurred through increased contact with local educational agency superintendents, video promotion, development of marketing materials, and collaborative dialogue between participating teachers.

The following projects submitted their last report to USDE in June 2012. These are updates.

Project 4/3 Curriculum and Formative Assessment Development

ELA, Math, STEM, and Literacy units, lesson plans, lesson seeds, and related resources were completed and loaded into the Educator Effectiveness Academies version of the Curriculum Management System (project 31) for educator use between June and August. Additional units and lessons have been created and posted on mdk12.org. Proposals for the RFP for cybersecurity and environmental science online high school STEM courses were evaluated and a selection recommendation will be made in September. A second RFP for two more courses in gaming design and development and forensic science are at final DoIT review and are expected to be posted in September. STEM course topics for a third upcoming RFP have been selected. Planning is continuing with the formative assessment team (Project 2).

The Curriculum Development and Formative Assessment project scope of work is progressing according to schedule. While the first online STEM course procurement is behind schedule, the second procurement is on target and the third procurement has been initiated ahead of schedule. All online STEM courses are slated to be hosted on the State's new learning management system.

Project 5/4 STEM Technology Education

In June 2012, teachers administered the post-assessment and design challenge for the Foundations of Technology (FoT) course. All post-assessment and design challenge data were compiled into a series of comprehensive reports, which were communicated to teachers and school system supervisors. School systems have been using the data to inform local curriculum development and professional development. A total of 75 teachers from ten local school systems participated in face-to-face professional development in June/July/August. Evaluations are being compiled. Comments made by participants were very positive. Evaluation results are expected to be similar. The Maryland FoT professional development team met to revise next year's face-to-face PD model. A draft outline was developed. Luke Rhine has made several school system presentations showcasing the new FoT curriculum/assessment online portal and allowing school system staff to review curriculum, import students and conduct trial assessments. Additional presentations will be made in August/September. Individual and group webinars for teachers will be offered to showcase the new FoT curriculum/assessment online portal. This project has been ahead of

schedule since its first year. Wicomico County and Worcester County public school systems will be implementing the FoT course in school year 2012-2013, bringing the total to 20 participating school systems, 175 schools and 556 teachers. LEA participation has been strong and this project is on schedule to meet its goals.

Project 7/5 World Languages Pipeline

The purpose of this project is to collaborate with LEAs to plan and implement new STEM-focused world language programs in elementary schools. The greatest challenge faced by this project continues to be the hiring and retention of qualified candidates for the three world language specialist positions. Two of the positions are currently vacant because of resignations. While recruitment and review of applications is ongoing, the energy of the MSDE project manager and the sole RTTT world language specialist has been directed to moving the project forward. As a result, all project activities have been completed on schedule. In fact, by utilizing the Maryland Marketplace bid board to recruit consultants/translators as well as the MOU partnership with the National Foreign Language Center (NFLC), activities have been assigned to national experts and local consultants with knowledge, expertise, and skills matched to specific tasks.

Accomplishments since January 2012:

- STEM curriculum modules for grades K and 1 developed by Maryland teachers during the summer of 2011 underwent extensive review and revisions by the MSDE/NFLC staff because the quality of the drafts was very uneven. It many cases, it was necessary to re-write the entire module. An additional issue that emerged was the standardization of quality and content across each module for all languages. It became apparent that there was a need to develop the English version as the anchor upon which all language-specific versions could be developed. The team quickly adjusted its approach and was able to develop English, Arabic, Chinese, and Spanish versions of the modules. They have been disseminated to all Maryland LEAs and are posted on the MSDE website.
- The new online continuing professional development course for teachers, “Engaging Young Learners in the Language Classroom,” was designed and taught by two renowned national experts through the MOU with the NFLC. Response to the course was very positive; participants included teachers in project schools as well as other world language teachers who were interested in acquiring additional pedagogical knowledge and skills to teach or support teachers in elementary world language programs.

- The curriculum writing teams have been selected and the July 2012 workshop to develop STEM curriculum modules for grades 2 and 3 has been planned. The same experts that taught the online course will lead the workshop.
- The second continuing professional development course has been written, approved by MSDE, and will be offered this summer.
- The MSDE project manager and RTTT world language specialist have provided technical assistance and fiscal monitoring to the four LEA world language programs that were awarded funding through site visits and ongoing communication. Two of the programs were implemented in 2011-12 and two proposals called for planning in 2011-12 and start-up with students in 2012-13.
- Four LEA proposals were approved for funding for 2012-13:Anne Arundel County, Chinese after school and summer camp program; Howard County, Chinese and Spanish science pilot program; Howard County, Spanish dual immersion after school program; Prince George's County, Spanish dual immersion STEM program

Since June 2012, STEM curriculum modules for grades 2 and 3 were developed by Maryland teachers in July 2012 and are now being reviewed by MSDE staff and the lead consultants. Following the review and revisions of the anchor modules in English, they will be translated into Arabic, Chinese, and Spanish and posted on the MSDE website. Teachers are enrolled and participating in the new online continuing professional development course, "Engaging Young Learners in the Language Classroom II: Curriculum Development,"; it will be completed by October 31, 2012. In addition, to technical assistance and fiscal monitoring, the MSDE project manager and RTTT world language specialist have developed a progress report to be completed by the LEA projects that were awarded funding in Years 1 and 2.

Project 6/76 STEM Technology - New Career and Technology Education (CTE) Program of Study in Construction Management and Design

The purpose of this project is the development of Career Technology Education (CTE) curricula in Construction Management and Design. The new four-course program is titled, *Construction Design and Management (CDM)* and aligns to college-level programs in Architectural Design and Construction Management.

Curriculum development and teacher professional development is on schedule. The curriculum writers have been meeting with Design Team members and with several teachers selected to pilot the new material. A two-day training session in July provided pilot teachers additional resources for Course I and Course II. Three Local School Systems are piloting the curriculum materials in current Drafting and Design programs and providing feedback to the Design Team.

The CDM Design Team met in August 2012 to review feedback from the pilot sites and to continue the development of curriculum resources and assessments Major accomplishments in the past 3 months include:

- Convening the Design Team in June, July and August 2012 to review specific projects and on-going development of pacing guides and curricula resources;
- Meeting with AutoDesk representatives on July 25, 2012 regarding software licensing agreements and on-line tools for teachers and students; and
- Establishing access to an on-line Learning Management System to host course materials and on-going professional development for teachers;

Year two activities are on schedule, with on-going implementation of projects from Course I and Course II. Based on feedback from pilot sites regarding Course I and Course II modules, the materials for Course III and Course IV will be further developed as planned. There is a slight delay in the distribution of Pilot Projects from Course II and Course IV. The projects and assessment materials for Course III and Course IV will be shared with the existing pilot sites/teachers in September 2012 (not June 2012 as first planned).

This project summary was submitted in our July 2012 report. The below is a replication of that report.

Project 51/71 STEM Project Lead The Way – Gateway To Technology - Career and Technology Education (CTE) Program

The project team working through the Breakthrough Center has had success in identifying low-performing schools ready to implement the Project Lead the Way (PLTW) Gateway to Technology (GTT) program in Prince George's County Public Schools and Baltimore City Schools. Prince George's Public Schools will implement the GTT program in three new sites: Oxon Hill, Thomas Johnson and Thurgood Marshall Middle Schools and will continue the

program at Drew Freeman, Benjamin Stoddert and G. James Gholson middle schools. Earlier this year, the project team met with Baltimore City Central office staff and scheduled school visits to five potential GTT sites. Each visit included a meeting with the school administration to discuss project expectations and a tour of the school facilities which would support the program. As a result, four potential schools have been identified in Baltimore City which could implement the GTT program in project years three/four. The potential sites are:

- Calverton Elementary/Middle
- Cherry Hill Elementary/Middle
- Garrison Middle
- Commodore John Rogers Elementary/Middle

In Prince George's County, the Career and Technology Education (CTE) office is being restructured. The CTE office has been the primary contact in managing the GTT sites. However, GTT implementation plans are moving forward. During this period of transition, the project team will work through the Breakthrough Center and with Prince George's County central office staff to finalize teacher training and equipment purchases for all sites.

At this time, Prince George's County school staff are completing training for GTT at the University of Maryland, Baltimore County (UMBC). The UMBC training model includes two-weeks of intense professional development on each of the GTT modules that will be implemented in the coming school year. Staff will conclude training at the end of the month. Further, Prince George's County central office staff have approved the project year two grant from MSDE and will begin purchasing equipment within the coming weeks.

Within Baltimore City, the project team will continue to work through the Breakthrough Center to confirm the list of sites and provide technical assistance. Several of the potential sites have requested school visits to existing GTT programs. During the 2012-2013 school year, the project team will schedule site visits and address questions related to implementation.

2. What methods, tools, and processes is the State using to determine the progress toward the goals and performance measures and the quality of implementation of the activities described for this application sub-criterion?

We utilize project management techniques for monitoring and controlling the program at the project/activity level and for determining progress towards milestones and goals. Microsoft Project Professional is being used to develop project level schedules. Project schedules have been detailed for projects with specific activities planned for years two, three, and four. The project managers review their project schedules with their program director monthly to ensure that project activities, issues, risks, and concerns are resolved. Project managers are responsible for maintaining up-to-date project schedules as they relate to percentage of activities completed and changes in the duration for completing tasks. Monthly reports are also submitted by the project manager.

The RTTT Leadership Team meets weekly to discuss progress and address any risks that have arisen. Working with the Office of Budget, we have also developed a process for monthly reviews of project budgets involving our finance manager, program directors, and project managers. Project managers meet with program directors bi-weekly or monthly to discuss progress, identify risks and discuss strategies that have been or will be taken to address obstacles, review budgets, and identify actions that will be taken to move the project forward. The Core Team also meets bi-weekly to discuss progress and address risks by deciding upon actions that need to be taken to resolve any concerns or issues..

Technology projects also follow the State's Department of Information Technology (DoIT) software development life cycle (SDLC) process. Technology projects are also subject to additional quarterly reviews by DoIT.

The project manager for Project 2/1, Program Evaluation, meets monthly with the CAIRE Leadership Team to discuss progress and address any risks/obstacles that may endanger progress. On as needed basis, the CAIRE Leadership Team and the RTTT Leadership Team meet to develop future plans and address any issues. We receive a monthly deliverables report from CAIRE that delineates the status of deliverables, other completed tasks, and work to be completed the next month. If the need arises, issues are elevated to the Core Team for resolution.

3. What is the State's assessment of its quality of implementation to date?

Excellent - Projects are on track

4. If the State is not on track to meet the goals, performance measures, timelines and quality of implementation related to this sub-criterion as outlined in its approved scope of work, why not, and what strategies is the State employing in order to meet goals and performance measures?

   The State is on track to meet the goals and timelines.

5. What are the obstacles and/or risks that could impact the State's ability to meet its goals and performance measures related to this sub-criterion?

   Obstacles and risks are identified on a continual basis and addressed (e.g. hiring of additional staff with needed expertise, slowness of the review and procurement process). To date, we have not identified any obstacles or risks that cannot be overcome enabling us to meet goals and performance measures in this sub-criterion.

Evaluation: Based on the responses to the previous question, evaluate the State's performance and progress to date for this sub-criterion (choose one)

Red (1) Orange (2) Yellow (3) Green (4)[3]

[3] Red – substantially off-track and/or has significant quality concerns; urgent and decisive action is required; Orange –off-track and/or there are quality concerns; many aspects require significant attention; Yellow –generally on-track and of high or good quality; only a few aspects require additional attention; Green – on-track with high quality.