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Priority 1--Need for assistance

Richland School District Two (Richland Two), located in Columbia, South Carolina, is applying for MSAP funds to significantly revise two magnet programs into school-wide magnet schools and create one magnet school that are within close proximity to each other in the neediest area of the district. The proposed wall-to-wall magnet schools will implement Full STEAM Ahead! These schools will form a “continuum” of learning at the elementary, middle, and high school:

- ✓ Killian Elementary School (grades k-5)
- ✓ Longleaf Middle School (grades 6-8)
- ✓ Westwood High School (grades 9-12)

The curricula and project activities at the lower grades are designed to align with curricula at the high school. More importantly, the plan is to recruit students at an early age to the schools in this lower part of the school district and to provide the programs and resources to keep them at these magnet schools. The most effective method to create a more diverse student body at Longleaf Middle School and Westwood High School is to slowly increase the diversity of the student body at Killian, the elementary feeder school level.

A project with the scope, the vision, and the potential for success of the **Full STEAM Ahead!** project will be impossible to implement without financial and technical assistance as described fully in the attached project narrative. The University of South Carolina and a Magnet School Advisory Board have provided the guidance and direction to this project and will continue to do so as the plan to turn around these schools builds momentum.

The Secretary evaluates the applicant's needs for assistance under the MSAP regulations

- (a) The costs of fully implementing the magnet schools project as proposed;**

Funding from the Magnet Schools Assistance Program is absolutely necessary for Richland Two to implement its plans for three magnet schools in the neediest areas of the district. Financial support is essential for the district to provide these critical activities:

1. Provide comprehensive professional development for administrative staff and faculty members at all three schools to integrate the magnet theme;
2. Restructure the curricular programs at the three schools to encompass a comprehensive **STEAM** curriculum;
3. Develop and write curriculum in each content area which incorporates highly engaging activities and aligns with rigorous core content and state standards in core content areas and includes science, technology, engineering, mathematics, and the arts;
4. Conduct a community-wide public awareness and student recruitment campaign;
5. Establish Magnet School Advisory Boards *at the school level* to ensure parent/community involvement;
6. Develop relationships with community groups to promote the STEAM theme;
7. Install technology and equipment to support student achievement and faculty development.

Richland Two is requesting \$4,437,441 over a three-year period to implement the **Full STEAM Ahead!** project. During Year 1, the budget includes significant funds for professional development at all three schools to facilitate the full implementation of the magnet programs. Funding is also necessary to provide technological advancements necessary to conduct hands on activities, such as science equipment, robotics kits, and engineering project supplies. Funding is also requested to provide student research materials, to support facility upgrades at schools to “scream the theme,” and to fund both in-state and national professional development conferences for staff members who will be instrumental in implementing this program with fidelity.

This grant funding will be critical in acquiring one-time purchases necessary for implementing the Full STEAM Ahead! program. The majority of large item purchases will be made during Year 1. These items include creating or redesigning hands-on learning labs, and purchasing equipment necessary for graphic arts design and musical keyboarding studios. Providing curriculum development training opportunities, purchasing professional development texts and non-fiction student materials to expand the libraries at each target school, software, and additional equipment all contribute to meeting the stated goals.

A comprehensive independent evaluation will be conducted by the South Carolina Education Policy Center in the College of Education (SCEPC) at the University of South Carolina. The principal investigator for the evaluation is Dr. Robert Johnson. He is referenced in the Personnel Section and his resume is included in Appendix B.

The Year 2 budget includes funds for intensive professional development, a primary investment in our teachers to increase self-efficacy. In addition, funds will provide facility upgrades at all schools to enhance the magnet theme, literacy materials to expand their Media Centers, and additional STEAM lab enhancements.

The major expenses during Year 3 will be continued staff professional development and upkeep and maintenance-related costs. The remaining funds will be allocated for expendable supplies and costs of the final evaluation.

(b) The resources available to carry out the project if funds were not provided;

The **Full STEAM Ahead!** program will reduce minority group isolation for African-American students at the elementary, middle, and high school levels in Richland Two. As noted in Table 1 and Table 3, the African American population exceeds the district average of 59% at all three schools. This full continuum is impossible to implement without outside assistance.

Should this project not be funded, district assistance and resources will be directed toward maintaining the level of educational opportunities currently available at each school. The Magnet School Advisory Board will continue to work with partners to provide limited opportunities, but the full program is too costly for the district to implement without MSAP funding.

The plan to develop a vertically aligned and articulated feeder system will be put on hold if this proposal does not receive funding. District resources earmarked for existing magnet schools will continue to be allocated, but this allocation, alone, cannot be successful in lowering the incidence of minority group isolation without the development of a carefully articulated elementary, middle, and high school comprehensive magnet program of study. The goal is to develop positive public attitudes toward the schools in the neediest areas of the district, beginning at the elementary level and continuing through the middle years so that parents will be enthusiastic about sending their children to Westwood High School.

(c) The extent to which the costs of the project exceed the applicant's resources; and

The cost of full implementation of the **Full STEAM Ahead!** project exceeds the district's resources by approximately \$4,377,441. If this proposal is funded, the district will assume personnel costs for the additional student load at each of the three schools. Since all three schools will become school-wide magnets, the total costs of operation will also become part of the total cost of the district's commitment to the project.

(d) The difficulty of effectively carrying out the approved plan.

The Full STEAM Ahead! program is well developed. However, the superior quality of the program includes costly professional development expenses, student equipment, and necessary classroom supplies necessary for conducting genuine hands-on learning experiences. The district would experience great difficulty in carrying out this project because funding is

simply not available. The proposed magnet school continuum, placed in the neediest areas of the district, is logical given the district's demographics. Our community wants this program, but without funding, the project cannot be implemented as proposed.

Priority 4—Promoting STEM Education (up to 10 additional points).

Richland School District Two leads the state in the number of National Board Certified Teachers (NBCT), with 654 educators who have earned this distinction. The district supports those teachers seeking NBCT and is continuously surveying those teachers to refine its activities to best meet the needs of this very talented group of teachers. The services are comprehensive:

- Host an initial orientation to the certification process facilitated by NBCT who offer their own authentic perspectives on successfully completing the rigorous process
- Provide a National Board Candidate support notebook which explains the complete process leading to certification.
- Arrange use of high quality technical equipment and resources.
- Provide mini sessions, workshops and seminars as a result of survey requests of teachers who are involved in the process of seeking certification.
- Offer a mentoring program where those teachers who are seeking national board certification are matched with mentors who have successfully completed the process.
- Coordinate a study group which was a direct result of several national board candidates who requested that study groups separated by the fields of certification.

This inclusive, supportive program is one clear example of the level of importance placed on teacher competency in the classroom. The district is committed to providing quality teachers in every classroom. Thinking systemically, the district continues to place a very high level of importance on professional development. Similar supportive services will be offered for the Full

STEAM Ahead! project. The amount of professional development offerings is multi-layered to include content-focused training in science, technology, engineering, and mathematics infused with a strong project-based learning approach.

Projects that are designed to address one or more of the following priority areas:

(a) Providing students with increased access to rigorous, engaging coursework in STEM.

The curriculum will be designed using a project-based, problem-centered learning approach. With the understanding that fostering student engagement is crucial to the success of the learning experience, several curriculum characteristics have been identified as powerful sources of leverage for creating deep learning in the classroom. Students are more apt to be highly engaged in the learning when they see the importance of the content they are asked to learn, as well as when the work they are asked to do produces a real, authentic, tangible product of learning (artifact, performance, demonstration, model, solution, etc.) that they see value in accomplishing, especially if their input into how their work will be judged is solicited by the teacher. When students are given choices both in the ways they access and interact with the content as well as in the nature of the product they are asked to produce, they are more likely to be engaged as a result of feeling that their input in the processes is valued and welcomed by the teacher. This is enhanced when the learning takes advantage of new technologies and ways of learning that are significantly different from the “routine” to which they have become accustomed. Learning experiences that protect students from initial failures by providing guidance and feedback promote deep learning by giving students a chance to learn from their stumbles and make modifications to their efforts. Finally, when students are given the opportunity to work collaboratively, in a manner that mimics work done in real-world STEM professions, they are more likely to be highly engaged in the learning, even more so when their

work has the opportunity to be seen and valued by others in their community, such as fellow students, faculty and staff, family members, community representatives, etc.

Further, as the curriculum is designed with authenticity in mind, all learning experiences will be supplemented with the Patterson/Paxton STEM units of study that are sequential and developmental (Appendix D). At the *elementary* level, the “STEM Train” includes units on Creative Communications, Elementary Engineering, Powerful Possibilities, and Totally Transportation. At the *middle* school level, Alternative Energy, Audio Communications, Computer-aided Drafting, Computer Numerical Control, Computer Graphics & Animation, Digital Music, Environment & Ecology, Electricity, Energy & Power, Flight Technology, Forensic Science, Health & Fitness, Mechanism, and others provide units of study that will engage students in being actual scientists, technology specialists, engineers, and mathematicians. At Westwood *High School* level, a number of components are already in place and will provide the additional focus on STEM. High energy multimedia instruction is offered where students participate fully in each unit of study. The content is delivered by customizable interactive multimedia. With a heavy emphasis on the inter-relationship of science, engineering and technology, the units are aligned to the National Science Education Standards, the ITTEA Standards for Technological Literacy and SC State. Each unit of study also demonstrates deep alignment through testing and rubric assessments.

(b) Increasing the opportunities for high-quality preparation of, or professional development for, teachers or other educators of STEM subjects.

Across the nation there is a movement in K-12 education to emphasize STEM qualities, but a comprehensive, research based curriculum for the elementary level does not exist. Conclusive research points to offering students training in the sciences and math as early as pre-

kindergarten for success in today's global economy. This project includes a transformative professional development model where teachers, immersed in STEAM content, design engaging curriculum and develop effective instructional strategies. Training will enhance teachers' understanding of, and ability to implement, the eight essential elements of science and engineering outlined in the Framework for K-12 Science Education document:

1. Asking questions (for science) and defining problems (engineering)
2. Developing and using models
3. Planning and carrying out investigations
4. Analyzing and interpreting data
5. Using mathematics and computational thinking
6. Constructing explanations (for science) and designing solutions (for engineering)
7. Engaging in argument from evidence
8. Obtaining, evaluating, and communicating information (NRC 2011, p.49).

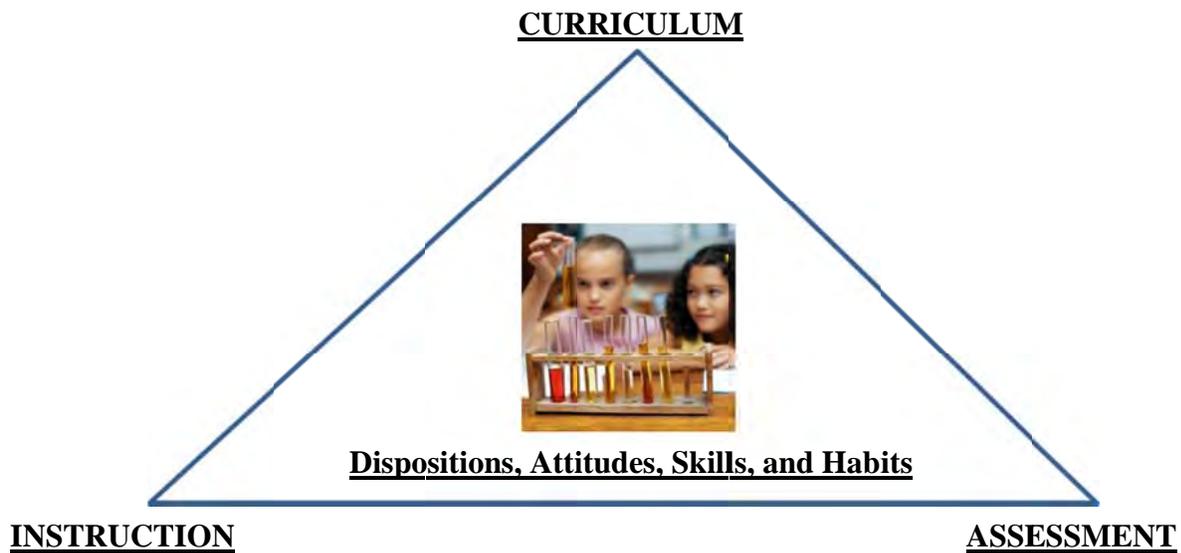
Within this effort, technology and mathematics will be used extensively, and explicit connections will be made to highlight both as important tools scientists and engineers use when conducting research and/or solving problems. Because a teacher's ability to effectively teach rests on his/her ability to accurately ascertain the STEM-related conceptions held by students, this project will also provide teachers with important knowledge of germane assessment practices. For example, project activities will include sessions on the Smarter Balanced Assessment System (Smarter Balanced Assessment Consortium, 2012) and formative assessment practices in science, engineering, and mathematics (Capobianco & Thompson 2012; Keeley 2008; NRC 2000; Thompson & Lyons 2008).

Full STEAM Ahead! has been created through intensive collaborations of Richland School District Two, a public school district, the University of South Carolina professors, and several community organizations that focus on STEAM education. The district is currently implementing a one-to-one technology integrations initiative in grades 3-12 where every student will have access to a computing device. Because students already have a technology-rich environment, the focus will be on increasing teachers' understanding of key STEAM practices while infusing technology.

Science and engineering are human intellectual endeavors, with their own respective communities of practitioners, unique bodies of established knowledge and practices, and cross-cutting ideas and approaches (National Research Council [NRC] 2011). Although science and engineering work are often portrayed as being similar in nature, and there is much overlap across the two disciplines, one may say there is just as much *difference* that exists across science and engineering. In particular, engineering generally yields outcomes that include products and processes rather than theories and scientific knowledge (National Association of Engineering [NAE] & NRC 2009). The nature of work within the disciplines also varies; engineers solve specific problems using the design process while scientists conduct inquiry into natural systems (NAE & NRC 2009). Adopting and accurately representing these ideas and principles for science and engineering have become important components of a national effort to move science education toward a more coherent, globally responsive vision. Against this backdrop, it is generally agreed that the classroom teacher is the primary school-based factor impacting student learning (Darling-Hammond & Young, 2002; National Academies, 2011) and multiple studies provide evidence of a correlation between student and teacher understandings in science (Hashweh, 1987; Marton, 1994; Tullberg, Strodahl, & Lybeck, 1994; Wandersee, Mintzes, &

Novak, 1994). *Thus, our efforts to enhance students' understandings of STEM practices will include a concerted effort to improve teachers' understanding of key science, technology, engineering, and mathematics practices, as well as their abilities to teach these practices and related concepts to students.*

The professional development model includes three major areas of Curriculum (National Science Standards, Core Content Standards, 21st Century Skills, and Curriculum), Instruction (project based learning, inquiry, 1:1 technology integration), and Assessment (e-portfolios, checklists, ratings, rubrics for work).



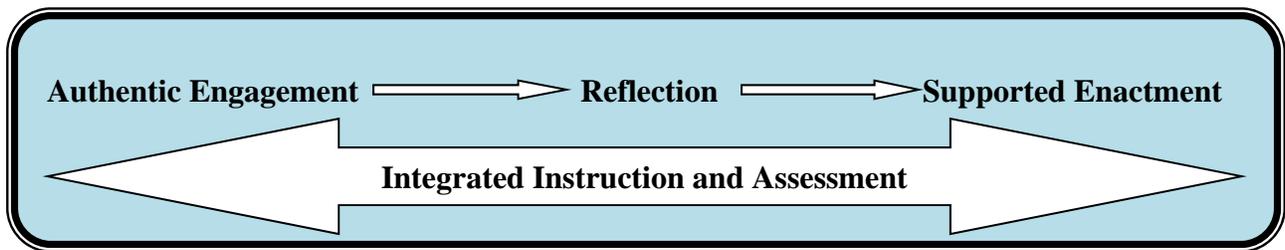
These components must be aligned to achieve desired student outcomes. This model places students in the center of decisions about teaching and learning. Consideration of student characteristics such as interests, skills, and background knowledge are central to effective instructional planning. At the vertices are curriculum, instruction and assessment. Learning is improved when all three are aligned and accomplished with expertise. The best set of curriculum standards (curriculum), will improve student learning only if they are accompanied by sound pedagogy (instruction) that includes those standards. Similarly, what is tested (assessment)

should reflect both the intended outcomes (curriculum) and the way it was taught (instruction) if the teacher wants the assessment to promote learning, often referred to as assessment *for* learning in addition to serving as an accurate measure of learning outcomes, commonly referred to as assessment *of* learning.

Clearly these relationships are bi-directional. There are instructional strategies that are content specific; what is to be taught should influence how it is to be taught. Schulman (1987) referred to this as pedagogical content knowledge, the teacher's knowledge of how to blend content and pedagogy in ways that take into account both the demands of the academic discipline and the interests and abilities of learners. Similarly, how students are assessed and the content of assessments influence what students determine is important to learn, what teachers determine is important to teach, and how teachers deliver that content. An extreme example of this relationship is the influence of high stakes testing, which has sometimes narrowed the curriculum to what will be tested and instruction to the types of isolated and short learning tasks that reflect the short, multiple choice items that often make up the tests. If students are to do *real* science, technology, engineering and mathematics; to integrate these subjects in authentic ways; and to incorporate 21st century skills that the global workplace requires of employees in these fields, then assessment must reflect these outcomes. This will require that assessments expand dramatically from traditional paper and pencil tests to include authentic assessments of learning that can be used by teachers to guide learning and by students to support self-directed learning.

The professional development model, depicted below, focuses on the integration of authentic instruction and assessment. The first stage, **Authentic Engagement**, occurs during summer institutes as participants (teachers, administrators, and district curriculum leaders) engage in authentic STEM practices. Participants assume the role of learners to solve

engineering design problems and engage in scientific research under the guidance of practicing scientists, technology specialists, engineers, and other professionals in the field. Later the teachers utilize these same strategies and materials as they form small teams to design lessons which each will teach.



The second stage, **Reflection**, begins after teachers engage in the STEM practices and continues throughout the academic year. The primary structures used to facilitate reflective practices are Professional Learning Communities (PLC) consisting of institute instructors and grade-level teacher teams formed during the summer institutes. PLCs take part in activities designed to help them make connections between institute activities, targeted concepts, instruction and assessment practices. The PLCs are also an integral part of the third stage of the professional development model, **Supported Enactment**. For example, during summer institutes PLCs complete collaborative curriculum mapping activities to increase the likelihood that newly-learned instructional practices, assessment strategies, and guiding concepts are applied across the teachers' curriculum. PLCs continue to meet monthly throughout the academic year to ensure continuous interaction among PLC members and provide school-based support for enactment of science and engineering practices within the elementary curriculum.

Across the professional development experiences, institute instructors emphasize concepts and strategies associated with **Integrated Instruction and Assessment**. The PLC meetings play an important role as they help teachers see the value of formative assessment,

serve the purpose of developing a common language, and provide teachers with concrete examples of best assessment practices (Black & Wiliam, 1998). By infusing the materials throughout the entire professional development experience, teachers learn the value of student-centered strategies for their and their students' learning (Rushton, Lotter, & Singer, 2011).

The literature on effective professional development supports the design of this program in that Full STEAM Ahead! provides opportunities for teachers to build their content and pedagogical content knowledge, provides time for teachers to reflect on their practice, immerses teachers in research-based learning approaches that they can use with their students, and forms a collaborative community of professionals (Bell & Gilbert, 1996; Garet et al., 2001; Loucks-Horsley et al., 2003; Thompson & Zeuli, 1999). This professional development model includes a summer institute each year, creation of sustained PLCs, and consistent interactions between university faculty and project participants during the school year centered on enactment of STEM practices with students. Further, the program embeds the use of student data and assessments within content instruction for teachers and their students as a part of interactive inquiry and student-centered instructional strategies that increase student learning and content retention (Duschl, Schweingruber, & Shouse, 2007; NRC, 1999).

(a) Plan of Operation (30 points)

(1) The Secretary reviews each application to determine the quality of the plan of operation

Introduction: This application is from Richland School District Two (Richland Two). The district is eligible to receive MSAP assistance. Richland Two is the largest school district in the Midlands of South Carolina and one of the two fastest-growing of the 85 school districts in the state (SC Depart. of Education Rankings, 2012). Richland Two is located in Richland County and covers 242 miles, with 83 square miles located on Fort Jackson property. Fort Jackson is the

nation's largest and most active military training installation for the US Army. Hence, 2,831 students in our district are connected with the military. Currently, Richland Two serves approximately 26,666 pre-kindergarten-grade 12 students and employs more than 3,400 full-time people. Although Richland Two reports a 51% free or reduced lunch rate (F/R), the three targeted schools (Killian, Longleaf, and Westwood) will form a continuum of magnet schools which are located squarely within pockets of poverty in the district. Killian has a 69% F/R; Longleaf Middle has 64% F/R; and Westwood has 53% F/R. Data indicate that high school students are not seeking to qualify for F/R lunch rates, as is common across the nation.

Richland Two has a richly diverse student population: African American (59%), White (29%), Asian (3%), Hispanic (6%), and Other (3%). With 57 different languages identified within the district and a growing minority student population, diversity is as synonymous to this district as is growth. An imaginary yet highly discernible dividing line is apparent when viewing the district as a whole: The eastern region of the district continues to grow and thrive as the at-risk area becomes more depressed. Because of its geographic size with the juxtaposition of urban and rural areas, housing patterns have led to areas of segregation. In addition, there are 10,895 students, mostly of underrepresented ethnic groups, living in this district who are enrolled in private schools. Past success with magnet schools and school choice options have convinced the district that strong academic programs that are supported by research proven methods and practices can have a positive impact on both school demographics and on student achievement.

These three targeted schools have been selected to transform into compelling magnet schools because of the need to find legitimate ways to attract a more diverse student body and address specific student educational needs. The need for these programs has been established by:

- the desire to address profound educational needs of the at-risk area within the district;

- the use of community feedback to establish the magnet theme;
- the decrease of student academic achievement based on accountability reports;
- the lack of parental and community involvement at the schools;
- the isolation of African American students, compared to the district average, in these schools.

A program of the scope, vision, and potential for success of the proposed **Full STEAM Ahead!** will be impossible to implement without the financial and technical assistance that is described elsewhere in this proposal. A district level Magnet Schools Advisory Board, partnerships with higher education, and committed representatives from community and professional organizations have all provided guidance and direction to this project and will continue to do so as the plan to improve racial balance, close the achievement gap, and to build sustainable programs builds momentum.

Historical Magnet School Background: Richland Two began implementing magnet schools in the early 1990s. The district has 12 elementary, 10 middle, and 10 high school magnets. For the upcoming 2013-2014 school year, 1,737 magnet applications were filed at the elementary level, 1,556 applications for the middle level, and 662 for the high school magnet programs. These numbers are indicative of the continued high level of interest for enrolling in a magnet. The popularity of district magnets, combined with minority group isolation and the lack of magnet schools in the at-risk area of the district, has led Richland Two to pursue funding to significantly revise two magnet programs into magnet schools and to create one new magnet school in the at-risk area of the district that is currently underserved by existing magnet schools. Although all schools accept students district-wide unless they are at capacity, students in the at-risk, targeted area of the district are unlikely to apply to schools that are excessively far away from their homes.

(2) The Secretary determines the extent to which the applicant demonstrates—

(i)(5 pts.)The effectiveness of management plan to ensure proper, efficient administration;

The management of the Full STEAM Ahead! program will be provided at several levels. The Board of Trustees has ultimate responsibility for the project. The Board's immediate contact is the Superintendent, Dr. Katie Brochu. This project enjoys the strong support of the Board, [letter of support in Appendix B], the Superintendent and the administration across the district.

Richland School District Two has personnel that are experienced in the implementation and the administration of magnet schools and programs. Currently, there are seven MSAP-funded magnet schools (whole-school projects) in the district and several district-funded magnets which operate as a school-within-a-school. The four 2004 MSAP-funded schools demonstrated exceptional results in meeting their program and desegregation goals and have garnered national recognition for the quality of their programs. For example, Forest Lake Technology Magnet School is a NASA School and received a "Technology Excellence" award. It was given by the Intel and Scholastic Schools of Distinction. Another MSAP recipient, Conder Elementary Integrated Arts School was one of five schools in South Carolina to win the 2012 Promising Practice award winner for its A+ Girls practice. This character education program is an intensive mentoring program that focuses on positive behavioral support, increased academic involvement and higher self-esteem. The students participate in service projects such as Big Sisters/Little Sisters, performing songs for retired veterans, and serving breakfast for grandparents.

Full STEAM Ahead! will be implemented by the same team of professionals that was so successful in the creation of the district's original MSAP projects which were funded in 2004 and 2010. Although the 2010 MSAP project director is retiring, Dr. Arlene Bakutes, the proposed 2013 project director is well prepared and will devote 100% of her time to the project.

Her duties are outlined in section b(2i) *Quality of Personnel* and include working closely with all personnel assigned to the magnet school through the present project and supervision of the efforts of district office staff who provide services to the target schools. Dr. Bakutes will work closely with the Director of Academic Programs-Ms. Dawne McLeod, with the Director of Curriculum, Instruction, and Professional Development-Ms. Nancy Gregory, and with the Chief Academic Officer-Ms. Sue Mellette to insure that MSAP initiatives and directive are consistent with all legislative directives.

The budget has been developed by the collaborative team including principals and their leadership, district office staff, and community partners. All MSAP-related purchases will be aligned with the submitted budget and approved by the project director. Administrative and fiscal control of the project remains with the project director. An organizational chart showing her position within the district is provided in Appendix B. In addition to her other duties, the project director will meet quarterly with the Magnet School Advisory Board and monthly with the Magnet *School* Advisory Team to keep them apprised of the progress of the Full STEAM Ahead! project. This rich environment will garner input and specific feedback on improving project performance, meeting project goals, and other important conversations.

(ii) (5 points) The effectiveness of its plan to attain specific outcomes that—

(A) Will accomplish the purposes of the program;

Richland School District Two has designed a comprehensive plan to meet the purpose of the MSAP initiative. The proposed STEAM magnet program at Killian, Longleaf, and Westwood will reduce minority group isolation. All magnet programs promote national, state, and local systemic reform, and are aligned with challenging content and student performance standards. These unique magnet programs, which address both curricular and instructional

themes, will accomplish all four annual performance measures established through this competition:

- (a) Student applicant pool will reduce, eliminate, or prevent minority group isolation.
- (b) Student academic achievement from major racial and ethnic groups on State annual progress standards will be increase in reading/language arts.
- (c) Student academic achievement from major racial and ethnic groups on State annual progress standards will increase in mathematics.
- (d) The administrative and fiscal infrastructure for offering the magnet program will be refined so that it continues to operate and excel (as measured by the absolute rating) after the federal funding period has ended.

With the funding provided through the MSAP program, Richland School District Two will significantly revise two magnet programs into school-wide magnets and create one whole-school magnet program under the umbrella of a STEAM focus. Because the requested funding is “seed money,” this program has the support and backing necessary to operate without further federal assistance.

Full STEAM Ahead! includes purposes which align with the four performance measures:

Promote Diversity: The target schools are located in the at-risk area of Richland Two. As indicated in the attached desegregation plan’s historical ethnicity charts, two schools have experienced an increasing rate of minority group isolation. The third school just opened in 2012, so historical ethnicity has not yet been established. Killian has steadily increased minority enrollment since it opened in 1998 from 78% to 94%. At Longleaf Middle, its minority population is showing some increase in diversity which may be attributed to the ZooBot magnet

program. The program opened in 2009 where the enrollment reports this increase. This example holds great promise for expanding into a magnet school to reduce minority group isolation.

Increase Academic Achievement: The target schools need a systemic reform to provide all students the opportunity to meet challenging State academic content standards and academic achievement standards. Reports for schools are published in an Annual School Report Card. Their ratings are based on the South Carolina Performance Vision: “By 2020 all students will graduate with the knowledge and skills necessary to compete successfully in the global economy, participate in a democratic society and contribute positively as members of families and communities.” The Palmetto Assessment of State Standards (PASS), designed to measure the performance of students in grades 3-8 in five subject areas: writing, English language arts (ELA), mathematics, science, and social studies, is used for state accountability purposes. Referencing the attached Annual School Report Cards in Appendix D, the absolute and growth ratings indicate that the schools are in need of assistance to increase student achievement.

Develop connections: The target schools also are located within a disconnected community. On the most recent school report card, Killian reports that 75% of teachers are satisfied with home/school relations, and 78% of parents were satisfied. At Longleaf, 71% of teachers compared to 80% of parents were satisfied with school-home relations. In focus groups, it was clearly summed up: the parents are happy with the amount of communication coming out of our schools, but administration and teachers are not. The school is eager to share bullying tips, cyber-safety, STEM activities, and other training with them. More importantly, they want to highlight their students’ fine work in the community.

Because a major portion of our community includes the military, it is critical that the district have the opportunity to offer a STEAM-focused program where community is a major

participant in showcasing student learning. Students whose parents are stationed at Fort Jackson enroll in our schools on a daily basis. These families come to us having moved, on average, four times. With the strong emphasis on developing connections, military-connected students and their parents would experience less anxiety about attending a new school. With MSAP assistance of a systemic strategy to link parents and their students with the school community, these magnet schools will flourish. Taken all applicable data into consideration and feedback obtained within focus groups, the Magnet School Advisory Board aligned the needs of the target students with the qualities of the proposed program:

Need	Full STEAM Ahead!
Promote diversity by reducing, eliminating, or preventing minority group isolation	The magnet schools will attract students from diverse backgrounds from other areas of the district.
Increase academic achievement by achieving systemic reforms to provide all students the opportunity to meet State academic content and academic achievement standards;	The program will provide a project-based, highly rigorous STEAM curriculum within a seamless educational matriculation at the elementary, middle, and high school levels;
Develop connections between students, parents, and teachers and their school, community, and global environments;	The proposed plan includes systemic strategic planning to establish strong connections across community, state, and international entities;
Improve the capacity, including through professional development, to continue operating magnet schools at a high	Through scheduled trainings and multiple opportunities for staff and school enhancement, the three magnet schools will continue to be

performance level after the Federal funding has ended.	successful and well sustained after the grant funding period.
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(B) Are attainable within the project period;

The timeline outlines major activities and the sequence in which they will occur. The chart clearly shows that all major project activities are easily attainable within the project period.

Year 1: Oct. 2013-Sept. 2014

Event	1 st Qtr.	2 nd Qtr.	3 rd Qtr.	4 th Qtr.
	Jan.- Mar.	Apr.- Jun.	July- Sept.	Oct.- Dec.
Notification of funding				•
Bring staff and partners together to confirm project initiative and plan for implementation				•
Confirm specific dates for project events, beginning with announcement of grant				•
Host MSAP training for principals, staff, others				•
Scream the theme collaboration sessions for all schools			•	•
Monitor grant activities closely	•	•	•	•
Meet with Finance Ofc. to confirm funding amounts	•	•	•	•
Conduct site visits to exemplary magnet schools	•	•	•	
Order supplies and equipment			•	•
Begin public information campaign				•
Disseminate Choice information				•

Full STEAM Ahead!

Participate in district-wide Choice Fair				•
Publicize Westwood as a new STEAM magnet school	•	•	•	•
Publicize Killian & Longleaf as revised magnet schools	•	•	•	•
Hold magnet school orientations at all schools	•			•
Meet monthly with MSAP Advisory Team	•	•	•	•
Meet quarterly with MSAP Advisory Board	•	•	•	•
Begin and monitor curriculum development	•	•	•	•
Begin project-based pedagogical training sessions	•	•	•	•
Monitor student recruitment efforts	•	•	•	•
Note when magnet school applications are due	•			
Hold school selection lottery	•			
Notify students of magnet school enrollment	•			
Attend MSAP Washington meeting	•			
Attend MSA conference		•		
Conduct formative evaluation; meet with evaluators	•	•	•	•
Note state-wide student assessment		•		
Survey parents, teachers, students, and partners		•		
Collect data for summative evaluation		•	•	
Submit Year 1 Annual Performance Report				•
Coordinate Summer Institute-professional dev.		•	•	

Year 2: Oct. 2014-Sept. 2015

Full STEAM Ahead!

Event	1 st Qtr.	2 nd Qtr.	3 rd Qtr.	4 th Qtr.
	Jan.-	Apr.-	July-	Oct.-
	Mar.	Jun.	Sept.	Dec.
Open Westwood as a whole-school magnet			•	
Killian, & Longleaf open as whole-school magnets			•	
Host MSAP training for new staff, others				•
Scream the theme collaboration sessions for all schools			•	•
Monitor grant activities closely	•	•	•	•
Meet with Finance Ofc. to confirm funding amounts	•	•	•	•
Conduct site visits to exemplary magnet schools	•	•	•	
Order supplies and equipment			•	•
Begin public information campaign				•
Disseminate Choice information				•
Participate in district-wide Choice Fair	•			•
Hold magnet school orientations at all schools	•			•
Meet monthly with MSAP Advisory Team	•	•	•	•
Meet quarterly with MSAP Advisory Board	•	•	•	•
Monitor curriculum development	•	•	•	•
Begin project-based pedagogical training sessions	•	•	•	•
Monitor student recruitment efforts	•	•	•	•
Note when magnet school applications are due	•			
Hold school selection lottery	•			

Full STEAM Ahead!

Notify students of magnet school enrollment	•			
Attend MSAP Washington meeting	•			
Attend MSA conference		•		
Conduct formative evaluation; meet with evaluators	•	•	•	•
Note state-wide student assessment		•		
Survey parents, teachers, students, and partners		•		
Collect data for summative evaluation		•	•	
Submit Year 2 Annual Performance Report				•
Coordinate Summer Institute-professional dev.		•	•	

Year 3: Oct. 2015-Sept. 2016

Event	1 st Qtr. Jan.- Mar.	2 nd Qtr. Apr.- Jun.	3 rd Qtr. July- Sept.	4 th Qtr. Oct.- Dec.
Full STEAM Ahead! begins Year 3 implementation				•
Host MSAP training for new staff, others				•
Scream the theme collaboration sessions for all schools			•	•
Monitor grant activities closely	•	•	•	•
Meet with Finance Ofc. to confirm funding amounts	•	•	•	•
Conduct site visits to exemplary magnet schools	•	•	•	
Order supplies and equipment			•	•
Begin public information campaign				•

Full STEAM Ahead!

Disseminate Choice information				•
Participate in district-wide Choice Fair	•			•
Hold magnet school orientations at all schools	•			•
Meet monthly with MSAP Advisory Team	•	•	•	•
Meet quarterly with MSAP Advisory Board	•	•	•	•
Monitor curriculum development	•	•	•	•
Begin project-based pedagogical training sessions	•	•	•	•
Monitor student recruitment efforts	•	•	•	•
Note when magnet school applications are due	•			
Hold school selection lottery	•			
Notify students of magnet school enrollment	•			
Attend MSAP Washington meeting	•			
Attend MSA conference		•		
Conduct formative evaluation; meet with evaluators	•	•	•	•
Note state-wide student assessment		•		
Survey parents, teachers, students, and partners		•		
Collect data for summative evaluation		•	•	
Submit Year 3 Annual Performance Report/Final				•
Coordinate Summer Institute-professional dev.		•	•	

(C) Are measurable and quantifiable; and

A team of professional project evaluators will work on an on-going basis with the project director to collect data, suggest project revisions, and to assist in the federal reporting and documentation process. Full STEAM Ahead's success in meeting its goals to reduce/prevent minority group isolation and to close the achievement gap among different demographics in the district will be documented by measurable and quantifiable data including enrollment data and standardized test scores at both the target schools and in the feeder schools in the district. Results from student, teacher, and parent/community surveys will provide measures of impressions and attitudes about the project that can inform and guide project improvement. A rigorous, objective evaluation, described in detail in *Section (e) Evaluation Plan* outlines the comparison group analysis that will be employed to determine the causal effects of the Full STEAM Ahead! in Richland School District Two.

(D) For multi-year projects, can be used to determine the project's progress in meeting its intended outcomes;

Richland School District Two has established four project objectives for the Full STEAM Ahead! project, each defined by specific performance measures. The annual performance report will provide objective data to establish progress toward meeting the goals of promoting, eliminating, or preventing minority group isolations, implementing an innovative STEAM program that will increase academic achievement of students from major racial and ethnic groups, and improving the infrastructure for continuing a magnet program.

All grant activities have been designed to accomplish these project objectives and to support their specific performance measures. The project director will create and implement a fair and equitable application and selection process. Working collaboratively with the Director of Research, she will maintain data on the composition of the candidate pool and the racial balance

at the feeder schools across the district. It is anticipated that, with the implementation of this program, the district will be able document the composition of the applicant pool as having a favorable impact on the racial balance at each of the target schools as a result of these efforts.

With the valuable assistance of the school facilitators at each school, the magnet content theme (scream the theme) will be fully implemented on schedule as outlined on the project timeline. State PASS data will be reported to document the district's progress in increasing academic achievement at the target schools and in reducing the achievement gap among major racial and ethnic groups. It is expected that the percentage of students at the three target schools who "Met or Exceed" the state standards will increase annually.

The project director, with the assistance of the school principals and school facilitators, will ensure that teachers are trained in the magnet theme and project-based instructional approach. She will also ensure that materials, equipment, and specialized classrooms necessary to support the magnet themes will be provided. Because much time has been spent on gathering community/parental requests for magnet themes, and STEAM has been requested frequently, The public is fully aware and will support this program. All in all, these efforts will lead to a sustainable program that will continue long after the seed money from MSAP is no longer available to the district. While it will take three years to document these performance objectives completely, the district can document that the seven magnet programs established with prior MSAP funding are currently thriving and will continue to operate in the future because of the comprehensive professional development, funding of materials and supplies, and the public relations and recruiting campaigns that were initiated and accomplished so successfully.

(iii) (2 points) The effectiveness of its plan for utilizing its resources and personnel to achieve the objectives, including how well it utilizes key personnel to complete tasks;

The quality of administration and staff is critical to the success of any project. With the administration and staff in place who helped to implement the 2004 and 2010 MSAP projects successfully, the Full STEAM Ahead! project will begin with seasoned leadership and vigor. Dr. Bakutes, project director, has established strong working relationships with the district's administrative team and has developed program operating procedures that are effective. She convened the "STEAM Team" more than one year ago to begin the creation of this proposal, and principals, teachers, students, and partners have offered sound advice for strengthening the overall design of the project.

School facilitators are the key to the successful implementation of Full STEAM Ahead! They must demonstrate enough curriculum development knowledge and experience to garner the respect of faculty members at their respective schools, and they must be able to work collaboratively with outside partners to provide staff training and guidance in the implementation of the magnet theme. While curriculum coordinators at the district level will be available to assist the school facilitators, it is their responsibility to determine training needs and to assure that all teachers are adequately prepared, both professionally and with project attitudes to implement the magnet program. Their success with staff development and with ensuring that appropriate equipment and materials are in place will be a positive factor in creating a sustainable magnet program after the federal funding has lapsed.

(iv) (3 points) How it will ensure equal access and treatment for eligible project participants who have been traditionally underrepresented in courses or activities offered,

All students who are selected to enroll in the Full STEAM Ahead! magnet program will receive equal treatment and equal access to all components of the project that are available to other students in the program at their grade level. If there are qualified students, then services

will be offered for the disabled, for the gifted and talented, and for the limited English proficiency students, and for any other groups, to the same extent that these services are offered at feeder schools. The only exception to this policy will be those students whose Individualized Education Plans (IEP's) or 504 plans expressly preclude them from participation in some specific aspect of the STEAM curriculum.

Careful attention will be paid to the racial/ethnic distribution of students in various curricular, instructional, and enrichment activities promoted through the project. This information will be analyzed to ensure board participation and interaction. The intentional decision to include the Arts in STEM is a deliberate attempt to foster interaction among various social and ethnic groups and to replicate many of the positive results documented by the research on the connection between the Arts and children of poverty (Jensen, 2009).

(v) (15 points) The effectiveness of its plan to recruit students from different social, economic, ethnic, and racial backgrounds into the magnet schools.

Recruitment of students to the three magnet schools will occur both on a formal and an informal level. Informal activities include community events and outreach such as flyers and brochures placed in key areas such as restaurants, museums, libraries (particularly branch libraries in key recruitment zones), beauty parlors, shopping malls, and other public arenas. Targeted mailings will be sent to all homes in particular subdivisions and housing developments to reach out to students determined to be strong candidates for recruitments. The goal is to make parents aware of the programs with appealing pictures and a brief synopsis of the magnet theme accompanied with the project director's contact information. The project director makes visits to homeowners' associations and realtors in the areas where there are concentrations of student who would favorably impact the candidate pool to make the public more aware of the project. Radio

spots, news articles, and public presentations by school personnel to local civic organizations, such as Rotary, will all contribute to the general awareness of the magnet schools and will create positive public attitudes and opinions about the project.

The more formal recruitment process involves a series of district-wide initiatives designed to give all schools an opportunity to “advertise” to the community in a systematic and equitable way. A description of all magnet programs and schools is available online and updated each fall which describes the district’s choice policy, magnet school application and selection process, key dates to remember, and links to videos of all magnet programs. The *Choice Fair* is also held in the fall where parents and student attend a public meeting where the choice policy and magnet school selection process is explained. Parents and students are encouraged to visit booths set up by each school. The fair provides the opportunity for parents to collect specific information about various schools and programs at one time and to compare the various options that are available for their children. Individual schools schedule Open House meetings where parents and students may visit the schools to obtain further information about their program. The schedule for applying for a seat at one of the MSAP schools will occur during the month of Jan. with the selection being made in March. Every opportunity is provided for student to permit them to attend the school of their choice in Richland Two.

The project director and her team have strong marketing skills. Tactics that have been used in prior years with great success and which is still being used include targeted mailings to all homes in specific zip codes or subdivisions where large numbers of families send their children to private schools or where many families home-school their children. They will continue to advertise MSAP programs online as well. Major dates of application deadlines, Open House schedules, as well as the Choice/Magnet Fair will be widely disseminated. Notices

in the local newspapers and on the district's public service television station remind parents of the availability of magnet programs and their deadlines. Applications are filled out online, which adds to the convenience of applying for a magnet program. Indeed, the district has instituted several important steps to ensure that convenience is central to supporting parents and students.

These informal and formal student recruitment activities are undertaken for the specific purpose of meeting MSAP's established performance measure of *The percentage of magnet schools whose student applicant pool reduces, eliminates, or prevents minority group isolation.*

(b) Quality of Personnel. (15 points)

(1) The Secretary reviews each application to determine the qualifications of the personnel the applicant plans to use on the project.

According to R. A. Dentler (1991), research reveals that while the magnet theme is important to the success and viability of a school, the more critical factor is having teachers, administrators, and board members committed to the theme, bringing "conviction, enthusiasm, and readiness to contribute." Indeed, Richland Two has a comprehensive supportive structure already in place: a district-level administrator focused completely on the magnet schools as part of a broader choice program. The district uses an internal decision-making structure to coordinate and support the magnet effort. District administration recognizes that success depends to a great extent on choosing the right principal for each school: a strong instructional leader who is passionate, committed, and hard-working--who can cultivate teacher buy-in and ownership---who can establish a culture of collaboration while reaching out to community stakeholders.

(2) The Secretary determines the extent to which—

(i) (5 points) The project director (if one is used) is qualified to manage the project;

Dr. Arlene Bakutes, proposed project director, has 27 years of experience in education, with 13 of those being in Richland School District Two. Dr. Bakutes is certified in grades 5-12, ELA/English and is a National Board Certified Teacher in the area of English Language Arts/Adolescence and Young Adulthood. Dr. Bakutes holds a Bachelor of Science and a Master of Arts degree in Secondary Education. She received a Ph.D. in Curriculum & Instruction from Indiana State University. She has experience in coordinating grant-writing development, securing funds for district initiatives, and providing support for the completion of required reporting at the local, State, and Federal levels. As a former instructional coach, she has worked extensively with teachers and has assisted with creating new magnet programs at the elementary, middle, and high school levels. She has been instrumental in the development of magnet programs in Richland School District Two, both as a teacher and as an administrator.

In 2007, she proposed the School of Entrepreneurial Leadership which was originally funded through a Public Choice Innovation Grant offered by the SC Dept. of Education. She demonstrated fiscal responsibility and curricular leadership in the implementation of the project. In 2010, she convened a team of principals, district office staff, teachers, community leaders, and students to submit “The International Baccalaureate Continuum” proposal for the MSAP competition. That proposal was funded, and the project has been implemented successfully on time and within budget.

Dr. Bakutes is a dynamic and resourceful leader who is fully knowledgeable with the MSAP regulations. Her present success in directing projects provides valid evidence of the future success of yet another MSAP project. Her full resume is included in Appendix B.

Richland School District Two’s 2004 and 2010 MSAP-funded projects were successful in meeting their desegregation goals and have documented high achievement with both minority

and non-minority students. The projects achieved their goals of reducing minority group isolation at the seven targeted schools, of reducing the achievement gap, and of building the capacity to sustain the magnet schools once the Federal funding ceased. Under district guidance and leadership, these projects have produced remarkable results, and the district's support will continue with the implementation of the next phase of its master plan for magnet schools in Richland School District Two which is the Full STEAM Ahead! project.

The project director's job description includes the following personal skills: 1) exhibits exceptional written, oral communication, and management skills; 2) has prior administrative experience; 3) possesses strong curriculum, instruction, personnel evaluation, and organizational skills; 4) and demonstrates prior leadership ability in working with students, school faculty and administrative staff, parents, and the community. The full description of the project director's responsibilities is found in Appendix D. An organizational chart, included in Appendix B, shows the project director's position relative to the top administrative positions in Richland Two. The project director's position reports directly to the district's Chief Planning Officer. Also noted, the Chief Planning Officer-- who is responsible for the Choice Program and for conducting the student lottery-- is also directly accountable to the superintendent.

(ii) (4 points) Other key personnel are qualified to manage the project;

Dr. Steven Hefner, former district superintendent, was well recognized as a pioneer in the school choice movement in South Carolina. He orchestrated the choice district-wide initiative in 1993 as a proactive measure to manage escalating enrollments, to maximize the use of facilities, and to complement the student assignment plan. He was an ardent supporter of the previous 2010 MSAP grant project and recognized its potential to eliminate minority group isolation across the district. The success of those projects has led our current superintendent, Dr. Katie Brochu, to

seek additional funding to address newly developing racial imbalances in Richland School District Two. Under her leadership, the district maintains a well-developed, systemic vision for the district. With that said, this project is a collaboration that includes viewpoints of a diverse group of dedicated professionals. Each person identified below has provided a resume which is included in Appendix B.

Sue Mellette, Chief Academic Officer in Richland School District Two, is the major link between the Full STEAM Ahead! project director and the Superintendent. Her oversight will ensure that the project is administered within the district's academic policies and procedures. She has been directly involved in the discussions regarding the magnet theme and is passionate about the amazing opportunities for students, faculty and staff, and the community.

Fred McDaniel, Chief Planning Officer, maintains application and enrollment data for the magnet and school choice programs in the district. His office oversees student magnet and choice applications, collects data on the candidate pool, and oversees student selection procedures in accordance with all Federal guidelines. His office will provide enrollment data to be used in Federal reporting and project evaluation. Having attended meetings regarding the selection of a magnet theme, Dr. McDaniel actively supports the Full STEAM Ahead! project.

Dawne McLeod, Director of Academic Initiatives, will oversee staff development and teacher training initiatives for the project. She will ensure that magnet curricular activities are aligned with the district's overall goals for curriculum, instruction, and student achievement. Her assistance will be critical during the schools' infusion of the vertically aligned curriculum.

Jeff Potts is the Director of Accountability and Evaluation for Richland School District Two. In our data-driven district, his expertise in statistics and research design are invaluable. Mr. Potts has a Bachelor of Arts in Mathematics from Eastern Illinois University and is currently

working on his doctoral degree in Research and Measurement at the University of South Carolina. From the outset, Mr. Potts provided student achievement data to support the discussion when determining those schools who would create the Full STEAM Ahead! continuum.

Killian Elementary School <https://www.richland2.org/ke>

Most students enrolled at Killian Elementary matriculate to Longleaf Middle School. Dr. Robert Scotland, previously an assistant principal for five years, has been the principal at Killian for the past two years. He is eager to begin implementation of the Full STEAM Ahead! project for he recognizes the amazing opportunity to transform his school into a genuine learning community focusing on STEAM content. Dr. Scotland has a Bachelor of Arts in English Education and a Master of Education in Counselor Education from SC State College. He also holds a Master of Divinity from Interdenominational Technological Center and a Doctor of Ministry from Columbia Theological Seminary. His certifications include K-8 elementary supervision, English, middle and secondary guidance and middle school language arts. He has twenty-nine years of experience in education. Dr. Scotland took over as principal of Killian Elementary in 2011. There was much anxiety in the leadership change because the former principal was favored by faculty and staff alike. However, when Dr. Scotland spoke candidly to the faculty for the first time about his hopes and dreams for Killian, their reservations were erased. Over the past two years, he and the staff have worked together to make significant improvements-in policies and procedures--in communication avenues--in the school climate. The significant revision to their magnet academies is the next major step along their road to success.

Longleaf Middle School <https://www.richland2.org/lm>

Mr. Dan Reyes, principal at Longleaf Middle School, holds a Bachelor of Arts Degree in history and political science, a Master of Science degree in higher education administration, and

a Master of Arts in Teaching at the elementary education level. He holds an Elementary Administration Certificate from the University of South Carolina. He has seven years of teaching experience as well as serving in various other roles such as Diversity Coach, Novice Teacher Mentor, and Athletic Director. When the former principal received a promotion to Executive Director of Special Services, Mr. Reyes recently took over the principalship position. Because he had served as the assistant principal, it was a seamless transition. Faculty members are working diligently with Mr. Reyes to ensure that the design of Full STEAM Ahead! is a perfect fit for their students. As noted by the attached letter of commitment, they will remain steadfast in their quest for a successful implementation of the project.

Westwood High School <https://www.richland2.org/wh>

Mr. Ralph Schmidt will oversee the Full STEAM Ahead! project at Westwood High. Mr. Schmidt holds a Bachelor of Science in Health, Physical Education, and Recreation from Lander College and a Master of Education in Educational Administration from the University of South Carolina. Mr. Schmidt opened Westwood High School this year. Previously-for nine years, he was a principal at another high school in our district that established the highly successful International Baccalaureate Program using MSAP funds. He has also served as principal at a middle school in the district. He remains true to his teaching certification area of physical education as an avid supporter of the school's basketball, football, softball, golf, and lacrosse teams. Mr. Schmidt is highly respected by district staff and his faculty alike. He was intensively involved in the magnet discussions because he understands that such projects will help to reduce minority isolation and increase academic rigor. He understands the challenge ahead in implementing a whole school magnet program, but his wealth of experience, professionalism, and his persistently positive attitude will contribute to the overall success of the project.

District Curriculum Coordinators

Richland Two maintains a cadre of highly qualified and motivated curriculum coordinators who are subject area and content specialists for English, math, science, and social studies. These professional educators all hold at least a master's degree, a valid SC teaching certificate in his/her content area, and at least five years of successful teaching experience. Their involvement and commitment to the project will ensure quality instruction will include the appropriate rigor and challenge in the classroom. The coordinators will assist with providing sustainability for the project once the funding period has ceased. They will continue to support the program's goals and initiatives at each targeted school.

All teachers who are involved in the project will be highly qualified, properly certified, and will meet the highest standards of professional development. Richland Two is proud of the exceptional quality of its teaching staff. As reported on the 2012 Annual District Report Card, 72% held advanced degrees. The district does not have a high turnover rate: 91% of teachers returned from the previous year. The teacher attendance rate was 95%. Only 0.1% of positions were vacant for more than nine weeks. When a vacancy occurs, it is filled quickly due to the district's highly regarded reputation in the state as a supportive, innovative school district.

Other personnel required to manage the implementation of the Full STEAM Ahead! project includes three school-based school facilitators. This group of "go-getters" will be more than just school facilitators, they will be hosting parent events, arranging field studies, and ensuring all activities are scheduled in a timely fashion and within budget. Based on principal recommendation and faculty approval, the school facilitators are well aware of the needs of the school as well as the opportunity afforded through this project. Principals recognize the

importance of having a competent staff member to lead the school-wide magnet program. The duties of the school facilitator are specific and diverse, as noted in Appendix D.

Killian Elementary School Facilitator

Mrs. Nancy Diggs will serve as the school facilitator at Killian Elementary School. She holds a Bachelor's degree from South Carolina State University, a Master of Education from the Citadel, and a Master's Plus 30 from the Citadel. Mrs. Diggs has a well-rounded educational career with comprehensive experience at the teacher and administrator levels. Her valuable experiences-including implementing the Minds-On, Hands-On Science collaborative through the University of South Carolina Science Dept. and facilitating the development of school-wide comprehensive assessments in core content areas-will ensure that she knows the most effective method for arranging the various activities within the project as well as those individuals at her school who need to be involved in collaborative decision-making. Indeed, Mrs. Diggs is a teacher leader who is well respected by faculty, staff, and administration. She has the dedication and knowledge to oversee the implementation of the project at Killian Elementary.

Longleaf Middle School Facilitator

Joe Eberlin will serve as the school facilitator at Longleaf Middle School. Mr. Eberlin holds a Bachelor of Arts in English and a Master of Education in Secondary English and Educational Administration from the University of South Carolina. He is also a National Board Certified Teacher in the Adolescence and Young Adulthood/ELA area. He achieved Eagle Scout in 1989, was the recipient of the J. Daniel Scholarship in 1996, and was the 1999 Soccer Coach of the Year. Mr. Eberlin's experiences prepare him fully to implement and advance the Full STEAM Ahead! project. He was a classroom teacher for ten years. He also was the Director of Magnet Programs, working with Mr. Schmidt, at another high school in the district for six years

prior to becoming an assistant principal at Longleaf Middle School. With Mr. Eberlin's background, he became the logical choice to further the whole school magnet initiative.

Westwood High School Facilitator

Dr. Cheryl Guy will serve as the school facilitator for Westwood High School. Dr. Guy has a Bachelor and Master of Arts in Education and an Education Specialist and a Doctorate of Philosophy in Educational Leadership from the University of South Carolina. She has more than twenty years of teaching experience. She received National Board Certification in Social Studies in 2002. In 2005, she received the Distinguished K-12 Teaching Award from the National Council for Geographic Education, and in 2004, she was selected as the Teacher of the Year at a local high school. In 2006, she was named the South Carolina ASCD Educator of the Year. She has been an instructional coach to mentor new and Year 2 teachers. Most significantly, she was the Smaller Learning Communities (SLC) grants coordinator where she oversaw a \$1.2 million five-year grant at the high school level. Indeed, the depth of her experiences will ensure that as the school facilitator, Westwood High will have a successful implementation.

All curriculum facilitators are highly qualified. More importantly, they have a vested interest at their schools as they are currently holding an administrative appointment. Since they are already accepted by their faculty, they will be able to "hit the ground running" leading to a smooth implementation of this program.

Dr. Robert Johnson and his evaluation team will provide the external evaluation for the project. He has served as an evaluator for Richland School District Two's MSAP-funded grants. As a result, he is exceedingly familiar with the evaluation and the reporting requirements for the Magnet Schools Assistance Program. He understands the goals of the Magnet Schools Assistance Program and remains committed to Richland School District Two in its effort to

expand the STEAM initiative across the district. In the conduct of evaluations, Dr. Johnson collaborates with Dr. Tammiee Dickenson, director of the Office of Program Evaluation, and Dr. Diane Monrad, director of the South Carolina Educational Policy Center in the College of Education at the University of South Carolina. They have developed and conducted formal evaluations of numerous educational initiatives across the state. Their stellar reputation for assisting school districts with data collection, analysis, and evaluation is well known. Dr. Johnson routinely presents at national conferences to share results with other professional educators. In addition, he has extensively published in journals related to program evaluations. Dr. Johnson is committed to making a difference in the lives of children by searching for initiatives which will improve education. He recognizes that these educational initiatives will benefit the community where he lives--working side-by-side with teachers, bus drivers, administrators, parents, and children.

The evaluator will have specific duties as it relates to the Full STEAM Ahead! project. All data-related objectives and activities will be coordinated with the project director. Highlights of their duties for this project include monitoring of the project, developing appropriate measurement instruments, leading evaluation discussions with school and district staff, collecting and analyzing data, completing timely reports to the project director and school site staff, making recommendations for program modifications and improvements, and preparing the annual summative performance reports.

(iii) (5 points) Teachers who will provide instruction in participating magnet schools are qualified to implement the special curriculum of the magnet schools; and

Richland School District Two assures that all teachers at Killian Elementary, Longleaf Middle, and Westwood High School will be appropriately certified, highly qualified, and

properly trained to implement the Full STEAM Ahead! project. At present, 100% of faculty at all three target schools meet the state and federal guidelines for highly qualified teachers. Currently, the three target schools employ a total of 57 nationally board certified teachers (Killian-16; Longleaf-12; Westwood-29).

Funding is requested for each target school to provide specialized STEAM-related content using a project-based learning approach for its staff members in order to implement the Full STEAM Ahead! with fidelity. In addition to having a highly competent staff at the three schools, all instructional personnel will be specifically trained to use effective instructional methodologies and to incorporate the STEAM theme into their instruction. With the assistance of external educational organizations and professors from post-secondary institutions, a comprehensive professional development program will aptly prepare the instructional staff.

(iv) (1 point) The applicant will ensure that its personnel are selected for employment without regard to race, religion, color, national origin, sex, age, or disability.

As stated in the enclosed GEPA statement, Richland School District Two has specific policies, procedures, and training in place to ensure equal access and treatment for all students, staff, parents, community members, and others who are involved in the Full STEAM Ahead! project. As stated in our nondiscrimination policy, Richland School District Two does not discriminate on the basis of race, color, religion, national origin, sex, disability, age, or other protected characteristic in its programs and activities.

Richland School District Two has designated the following individuals to handle inquiries regarding our non-discrimination policies:

- Title IX Coordinator (Sex Discrimination)- Traci Batchelder, Director of Classified Employment and Employee Services

- Title VI Coordinator (Racial Discrimination) -Michele Taylor-Brown, Human Resources Director of Teacher Quality
- Section 504/Title I Coordinator (Disability Discrimination) - Dr. Karen Lovett, Executive Director of Human Resources
- Title VII/ADEA Coordinator (Age or Other Discrimination)- Roosevelt Garrick, Chief Human Resources Officer

The district's focus on equal educational opportunity serves as a guide for the school board and the staff in making decisions related to school facilities, employment of personnel, selection of educational materials, equipment, curriculum and regulations affecting students. It is the policy of Richland School District Two to provide a working environment where employees are free from any form of discrimination or harassment related to one's race, color, sex, religion, national origin, age, disability, or other protected characteristic. Richland Two practices these nondiscrimination policies on a daily basis. Training on diversity is offered systematically to all school personnel. This training covers a broad range of diversity issues and comprises a process with three main components: 1. Creating an awareness of self and others; 2. Increasing interpersonal, social/cultural, communicative and organizational skills; and 3. Enhancing the understanding of values, beliefs, world views, and the day-to-day realities of other cultures.

(3) To determine personnel qualifications, the Secretary considers experience and training in fields related to the objectives of the project, including the key personnel's knowledge of and experience in curriculum development and desegregation strategies.

All key personnel have extensive experience in the various components necessary to effectively develop and implement a successful magnet school program in Richland School District Two. Essential experiences are described which will provide the project with high

quality curriculum development, standards integration, vertical and horizontal alignment of curriculum, rigorous formative and summative assessment, and utilization of effective and innovative instructional strategies. These dedicated and motivated staff members will contribute their individual expertise to the collective strength of the Full STEAM Ahead! project. As project director, Dr. Bakutes' prior experience with the implementation of MSAP grants is an invaluable resource while the Chief Planning and Academic Officers will be instrumental in assuring that all suggestions of the MSAP personnel are aligned with applicable Federal laws governing equitable access for students with special needs and with all applicable Federal civil rights legislation. Richland School District Two has an administrative team that is knowledgeable about and experienced in the realm of civil rights and equal access issues.

Richland Two's voluntary desegregation plan outlines the district's philosophy relative to the importance and the necessity of maintaining a diverse student body. Further, the staff reflects the racial and cultural mixture which mirrors the diversity of this community.

(c) Quality of Project Design. (30 points)

(1) The Secretary reviews each application to determine the quality of the project design based on sections 5305(b)(1)(A), 5305(b)(1)(B), 5305(b)(1)(D)(i), 5305(b)(2)(D) of the ESEA.

Richland School District Two (Richland Two) has selected three schools whose demographic enrollment indicate minority group isolation of African American students as compared with the district average. The schools (elementary, middle, and high) will create a vertically and horizontally aligned STEAM magnet program designed to attract more underrepresented students to their campuses and to close the achievement gaps among the various demographic sub-groups represented at these schools. Killian Elementary (Killian), Longleaf Middle (Longleaf), and Westwood High (Westwood) School all have African

American populations in excess of the district average of 59%. Killian reports 84%, Longleaf and Westwood report 79%. These schools are in the same feeder pattern: students from Killian transfer to Longleaf at the end of 5th grade, and students from Longleaf go to Westwood after 8th grade. The strength of the current MSAP proposal lies in its common magnet theme of Science, Technology, Engineering, Arts, and Mathematics (STEAM) using a project-based instructional approach into a local system that includes an inclusive K-12 feeder pattern. It is conceivable that a kindergarten student at Killian next year could graduate from Westwood twelve years in the future having been challenged academically and involved socially. Such students will be better prepared for higher education or for the world of work, and they will be responsive citizens as a result of the rigor and community service activities which are integral components of the project design.

A continuous K–12 project-based STEAM curriculum is also key to meeting the needs of the many Richland Two students whose parents are stationed at Fort Jackson, the largest Army basic training facility in the nation. These highly mobile students transfer into the district, or move from the district, at all points of the school year. A highly rigorous, hands-on STEAM program of study provides the depth and breadth of learning that these students need in order to easily transition from one school to another across the country, or abroad.

With the selection of the STEAM theme for all three schools, a clearly articulated K-12 curriculum that is highly challenging and that provides meaningful opportunities for student and community engagement will attract a diverse pool of candidates for the student selection process. Focus group surveys have identified this theme as one that is appealing to parents, and as one for which they would consider transferring their children to another school in order to participate in such a program of study.

The Full STEAM Ahead! Project has unanimous support from the Board of Trustees and from the Superintendent who requested and received an endorsement from the Board to pursue MSAP funding. The Superintendent and the Board of Trustees understand that there are rigorous program standards and accountability measures which will be put in place leading to student success. Support will be provided at the highest levels in the district to assure that these standards and measures are met. The district’s mission clearly supports the vision of the project: *In partnership with our community, Richland School District Two prepares all students for success by providing meaningful, challenging, and engaging learning experiences.* Richland Two is committed to creating a vivacious yet highly rigorous classroom environment where the student is at the core of all decision-making. The STEAM magnet theme supports the goal of producing high quality schools and high-achieving, responsible students.

The Full STEAM Ahead! project is seeking federal MSAP support to build a highly rigorous magnet curriculum in a K-12 feeder pattern in southern Richland County, SC. With MSAP support, the district will implement the STEAM focus in three schools, ultimately creating a seamless K-12 education program. Students will be able to enter the magnet school at any grade level and continue participation in this magnet sequence until high school graduation.

(2) The Secretary determines the extent to which each magnet school will—

Killian Elementary School: 628 students enrolled with 69% F/R Lunch Rate

Af. Am: 85%	White: 6%	Hispanic: 6%	Asian: 1%	Indian: 0%	Other: 2%
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Killian opened in 1998 with a total of 592 students serving grades K-5. This elementary school is located on a major thoroughfare just off of a major interstate running north/south. Its proximity to this major artery makes it a convenient location for our community. As noted by the

demographics, Killian is experiencing minority group isolation of its African-American students. The principal and staff want to increase academic achievement while preparing the whole child for success, and they have designed a comprehensive plan to transform their school into a genuine learning organization. They have been included in the planning for the present MSAP grant and understand the additional training they will be required to undergo, the major revisions to their curricula, and the necessity to faithfully implement the Full STEAM Ahead! project.

(i) Promoting desegregation at Killian Elementary:

In 2009, the Board of Trustees approved a whole-school Leadership, Talent, & Development Academy (LTD) magnet program proposed by a principal who is no longer employed by the district. The magnet program was separated into *four* academies:

1) *Whole Child Academy* had the mantra “Where Better Teachers Mold Better Students.”

Teachers developed objectives, activities, and assessments to nurture students’ growing minds.

2) *Single Gender Academies* was a single-gender environment that focused on instruction on the gender differences of boys and girls--allowing them to maximize their academic potential.

3) *ITEC and iPAC Academy* focused on infusion of technology. Recognizing that technology is, and will continue to be, a driving force in workplaces, communities, and personal lives in the 21st Century, it is important that students are provided the opportunity to become technology savvy beginning at the elementary age. This academy has become outdated because the district has gone to student one-to-one computing where all students have access to a computer, and integration of technology into the curriculum occurs on a daily basis.

4) *The Genesis Academy* was a K-2 program for students with school readiness indicators participated in a conceptually-organized and spiraling curriculum. They moved through their early elementary years in a cohort, with their teachers collaborating closely.

This proposal includes a desperately needed major revision to the magnet academies at Killian Elementary. The four academies within one large magnet program were just too confusing for parents and lacked the attractiveness to recruit students and rigor necessary to increase academic achievement. In preparing the school's magnet program revision, the principal and staff have "kept the best of the best" such as the collaborative nature and the integration of technology. They recognize the value of the STEAM curriculum taught using a project-based instructional approach to engage students fully in learning.

As noted by the historical enrollment table in Appendix A, Killian's magnet program has not been successful in promoting desegregation. In 2009 when the four magnet programs were created, 458 (84%) of the students were African-American students. Currently, that number has not decreased but rather increased by 73 (.51%) In this proposal, Table 3 provides figures for reduction of minority group isolation of African Americans at Killian and for its prospective feeder schools. The school is currently under-populated for its size and can accommodate 170 new students without overcrowding or compromising student safety. To plan for the orderly conversion of Killian to a STEAM-focused magnet school, during year 1 of the grant, we project 20 new students will be selected by random lottery for enrollment who will reduce minority group isolation. In year 2 of the grant, an additional 14 new students will be selected. If space is available, additional new students will be selected. The goal is to provide a greater opportunity for parents to enroll their children in the program at the earliest grade level to maximize exposure to the project-based STEAM curriculum without denying a student at any grade level an opportunity to participate in this challenging program.

(ii) Improving student academic achievement at Killian Elementary:

Killian reported dismal scores on the state assessment. When compared to the district average, the achievement gap is evident in the content areas of math and science:

% <u>not</u> meeting standard	ELA	Math	Science	SS	Writing
Killian	32%	36%	40%	22%	27%
District	25%	22%	23%	20%	21%

Killian will offer a school-wide emphasis on project-based learning with the particular focus on STEAM. Teachers will work collaboratively with Longleaf Middle to design rigorous, highly engaging units of study. Indeed, the project calls for a major investment in teacher professional development, but the district’s stance is that when funds are invested in the staff, the students and their families reap the rewards of a dedicated, stellar teacher in every classroom. In turn, increased teacher efficacy leads to increased student achievement.

Because an “umbrella” of project based learning coupled with rigorous curricula has been designed by teachers and staff, the school will present a more unified school environment where student learning is at the core. Killan is continuing its partnership with the University of South Carolina College of Education. Dr. Stephen Johnson, associate professor of Instruction and Teacher Education; Elementary Science Education, has been working with Killian to increase teacher efficacy. He teaches a practicum class at the school and works collaboratively with Killian teachers and administration. He recognizes the value in investing in teacher professional development and has contributed significantly to this proposal. Dr. Thompson will support school-year professional development and lead the summer institutes.

Killian teachers will have ample planning time to organize project-based learning activities that will be relevant for their community and engaging for their students. The school

environment will allow every opportunity for students to take risks and develop their own interests for study. Based on the *Ethics of Excellence* (2003), every student will produce quality work. Further, students, engaged in their learning, will retain information at a much higher level.

Paxton/Patterson will also provide STEM curricula for grades 3-5 that is sequential and developmental. Students will expand their 21st Century skills-including teamwork, initiative, problem-solving, self-direction, and career development. STEM lessons support Next Generation Science Standards and Common Core State Standards. They are designed to facilitate discovery, problem-solving, and creative thinking. The units of study are well defined:

- Creative communications that includes design elements and graphic relationships
- Elementary engineering that analyzes basic engineering principles
- Powerful possibilities that includes systematic processes and control
- Totally transportation that includes data analysis, estimation, and evaluation

These units of study will be in addition to the teacher-guided student-created projects.

Elementary AVID will be offered as academic support for Killian students. AVID Elementary is based on the same learning foundation that underlies the AVID Elective. However, whereas the AVID Secondary site is a combined effort of a dedicated elective class and core content area classes to create a school-wide impact in middle and high school, AVID Elementary is designed to be embedded into the daily instruction of all elementary classrooms across entire grade levels to impact school-wide structures. AVID Elementary is a foundational component of the AVID College Readiness System and supports AVID Center's mission to close the achievement gap by preparing all students for college readiness and success in a global society. AVID's key components clearly align with a project-based instructional approach:

- Student Success Skills: communication skills, self-advocacy, study skills

- Organization: mental and physical organization within agenda/planner, organizational tools, time management, goal setting, note-taking strategies
- WICOR Lessons: emphasis on writing to learn, inquiry, collaboration, organization, reading to learn in all content areas
- Partnerships: classroom, grade levels, sites, feeder patterns, families, communities

Skills which students learn in the Elementary AVID program will provide a strong foundation as they matriculate to the middle school AVID program at Longleaf Middle.

Plans for high quality activities to supplement academic enrichment at Killian Elementary:

Killian Elementary has worked collaboratively with the other targeted schools (Longleaf and Westwood) in developing this Full STEAM Ahead! project so that they may share successes. All schools plan to share effective technology software and devices to utilize fully the district's one-to-one computing initiative. Killian also has Smartboards in all classrooms which will be used effectively. They plan to skype with other model STEAM/STEM schools to collaborate on various projects, but they also plan to use other modes of communication to ensure that the project is fully realized, such as pen pals, Edmodo, google docs, etc. Killian will also connect with professionals in the world of work (scientists, technology specialists, engineers) to provide students with first-hand knowledge about their working environment and discuss real-life projects in which they are involved. Because Killian is a Title I school, they do offer free afterschool care to 125 students. This program is designed to strengthen the academic and social skills of at-risk students and to improve their academic performance.

Killian Elementary will also create a First Lego League (FLL) Robotics Team. This will garner student interest in science, technology, engineering, and math by encouraging teamwork, initiative, self-confidence, and appreciation of diversity. Killian students will work together to

create new ideas and concepts---with the younger students being “mentored” the older students to design authentic products of learning. Supportive community organizations and businesses, such as Trane/Ingersoll Rand, the 1st Battalion of the Dept. of the Army, the Boys & Girls Clubs, and Radiate Church are just a few longstanding partners who will assist Killian (Appendix C).

Killian Elementary also recognizes the strong link between the Arts and academic achievement. An expanding list of research studies presents compelling evidence connecting student learning in the arts to a wide spectrum of academic and social benefits. These studies document the habits of mind, social competencies and personal dispositions inherent to arts learning. Additionally, research has shown that what students learn in the arts may help them to master other subjects, such as reading, math or social studies. Students who participate in arts learning experiences often improve their achievement in other realms of learning and life. At Killian, the arts will be included through the creation of an orchestra. The arts will be most significant through a dedicated partnership with the University of South Carolina String Project (Appendix C). Under the director of Dr. Gail Barnes, students will travel to the university where they will receive instruction on the stringed instrument of their choice. The String Project creates a partnership of providing teaching experience for the University of South Carolina undergraduate students while providing accessible string education for community children and adults. The project was created to support area school music programs. Killian students will be sitting side-by-side other students attending private school or being home schooled. Considering the typical child at Killian, he or she would not have the opportunity to play a stringed instrument nor interact with that group of students. Students will gain artistic thinking skills, problem-solving skills, techniques, and motivation to prepare them for the more comprehensive instruction as they matriculate to middle school. In addition to weekly strings instruction,

students will have multiple outlets for the arts through clubs, classroom projects that integrate the arts into the core content disciplines, and through performances and demonstrations.

Students will also be introduced to graphic arts. A classroom has already been identified to house the graphic arts studio. A class set of Macintosh computers, ideal for design, will provide students the opportunity to learn the graphic arts programs. These programs will be used when developing projects for school-wide and community-wide display.

Killian students and their parents will also have the opportunity to visit EdVenture Children's Museum. Most children at Killian have never had the opportunity to visit this local museum. Entrance fees, paid through MSAP funds, will allow students to experience the marvels firsthand. Students will see Eddie, the World's Largest Child. Students will be amazed as they are led through his brain, heart, stomach, and other body structures. Another favorite exhibit is the World of Work where students explore a real fire truck in Dalmatian Station, a child-sized grocery store in the Little Pig Market, a John Deere tractor on the farm, an actual Volkswagen Beetle in AutoWorks, and the inner workings of a house in the Building Boom. This kid-friendly museum will open children's minds to STEAM-thinking and their hearts to learning.

Lastly, an outdoor classroom behind the school will provide the venue for numerous project-based learning activities, such as testing the pH level of the streams, testing the composition of the soil, and measuring the rain to be reported on the school's news show.

(iii) Encouraging greater parental decision-making and involvement at Killian:

The Killian community, according to the 2012 US Census, is 72% owner-occupied. This percentage, however, is deceiving because what the data do not show is that several family members are living in one house. For example, Grandma and several family members, including their own children, comprise one household. Killian is well aware of its community and regularly

schedules “Grits for Grans, Donuts for Dad, and Muffins for Mom,” and other events that target all family members who contribute to the educational wellness of its children.

The Killian principal and staff recognize the value in working collaboratively with parents and community stakeholders.

- Hot Dog Supper is held at the beginning of each new school year where the PTO and SIC recruit volunteer parents to help with activities throughout the year.
- Walk to School Day where parents, students and staff put on their sneakers and meet at the nearby bank to walk to school and celebrate the event.
- Family Night where families come to the Media Center to meet with staff and also purchase books and other literacy materials.
- Bojangles Share Night where families and school staff meet at Bojangles to share happenings at Killian Elementary while enjoying a relaxing dinner.

To address this critical issue, the school identified “increased parental involvement” as one of its annual School Improvement goals and has initiated many activities to bring parents and the community more frequently into the school. Killian has a Parent Teacher Organization (PTO) whose members have agreed to work closely with the school administration to advise current membership of the benefits of implementing the Full STEAM Ahead! program. Parent involvement and decision-making will become even more important at Killian as the school transitions to a school-wide STEAM theme. To advance parents’ understanding and support of the program, the school plans to involve them in many of the artistic and academic events that will occur. New initiatives to address the goal of carrying out a high quality educational program that will encourage greater parental decision-making and involvement include:

Full STEAM Ahead!

- Administering a survey to find out what skills or talents parents and other community members are willing to share with the school;
- Parents will serve on the *school's* Magnet Advisory Board where major decisions will be made regarding the progress of the Full STEAM Ahead! publicity campaign.
- Hosting many “Presentations of Learning” where students will showcase their newly found learning through a variety of media, to include Prezi, PowerPoint, etc.
- Asking parents to coordinate some of the “Student Exhibition Nights” as the culminating activity from their units of study
- Arranging opportunities for parents to participate in project-based learning activities along with their children.

Longleaf Middle School: 694 students enrolled with 61% F/R Lunch Rate

Af. Am: 78%	White:13%	Hispanic: 6%	Asian: 1%	Indian: 0%	Other: 2%
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Longleaf Middle is the sole target for the middle grades level of the MSAP-funded Full STEAM Ahead! project. Longleaf will be the *only* middle school in the district offering the rigorous STEAM focus. In 2009, the Board of Trustees approved a 6-8 ZooBot magnet program at Longleaf. Its focus included zoology and botany partnering with the local Riverbanks Zoo.

Actual student applications by year appear to be stable:

Year	2009	2010	2011	2012	2013
applications	55	101	96	96	94

However, the magnet program is not attracting students from diverse groups to the school. In other words, the ZooBot program has not been effective in decreasing minority group isolation at Longleaf. Also, ZooBot is only a magnet program. Therefore, this proposal seeks

funding to significantly revise the magnet program to focus on the STEAM curriculum in a wall-to-wall magnet environment. Based on focus group recommendations, the STEAM curriculum will be a much sought after magnet and will prompt families living outside Longleaf's attendance zone to apply to the school. With a capacity of 1,000 students, Longleaf has all the right components to expand its student enrollment, diversify its student body, and grow into a stellar STEAM magnet school.

(i.) Promoting desegregation Longleaf Middle

Longleaf serves the northern part of the district and surrounding neighborhoods and has a total enrollment of 694 students. African American students comprise 78% of the student population, while White students represent 13%. Hispanic students represent 6%, Asian students represent 1% and 2% are classified as Other. Growing African American student enrollment and projected increases will make the school's African American students highly isolated in the absence of an intervention. Of the 694 students, 61% receive free or reduced lunch. The school's project-based STEAM focus will be implemented school-wide. This student-centered, project based instructional approach aligns with the school's mission:

Longleaf, in collaboration with students, parents and community members, provides a quality education that allows students to develop the skills needed to become productive citizens in our global society, to celebrate diversity, and to enable students to become confident, self-directed, life-long learners.

Collaborative learning groups will form and re-form based on student interests, learning styles, and content standards being addressed. These groups will be representative of the racial and ethnic makeup of the classroom and will not result in minority group isolation. Teachers will be charged with the responsibility to prevent single race or single gender groups, or

ethnically isolated groups. The school has developed a diversity plan to help teachers and their students to understand their own culture and the culture of others. Diversity coaches plan and organize participatory activities for faculty each month to better prepare them to meet the needs of the racially and economically diverse groups of students in their classes. The emphasis is on intercultural understanding, tolerance, celebration of differences, and other related topics.

The Full STEAM Ahead! project will attract students to Longleaf from all across the district, not just the students who live in this school's attendance zone. Parents who responded in focus groups perceived the STEAM program to be a challenging curriculum. As noted in Table 3, Longleaf will enroll 13 new magnet students in its yr. 1, and once the program has been widely publicized, will enroll 33 students in Year 2 of implementation. Year 3 projects an additional 32 students bringing enrollment to 772 students. While there will be no ethnic quotas, it is anticipated that approximately 59 (75%) of the new students, selected through the district randomized lottery, will be from underrepresented ethnic groups. At full revision in the fall of 2014, and thereafter, there will be additional new magnet students accepted at Longleaf, in addition to the students who are zoned to attend that school. It is projected that the total number of students at the school will grow to approximately 1,000 students, at capacity, resulting in a successful reduction of minority group isolation.

Longleaf is located just off the major I-77 interstate, so access is ideal for parents dropping off their children at the school on their way to work. It is also central to other middle schools in the district and does not place a great burden on parents (map in Appendix D). Other positive indicators that the STEAM magnet will attract students that will increase diversity at the school:

- Parents whose children attend Killian Elementary will recognize the highly rigorous project-based STEAM magnet as effective for their elementary children. Therefore, they will seek out a natural progression to the middle school level at Longleaf.
- Due to a successful publicity campaign, parents and community members will want their children involved in the LEGO competitions, arts activities, and other events held continuously as proposed by the Full STEAM Ahead! project.
- Because Longleaf is the grade 6-8 continuum, Longleaf will become the school of choice for parents who want their children to have access to the strong STEAM focus at Westwood High School.

In order to provide heterogeneous, culturally diverse student groupings, students will be assigned to classes based on factors, including student achievement, reading level, test scores, and socio-economic status.

Individual teachers, through monthly school-based diversity training, are reminded of the importance of providing both instructional and social opportunities for students from varying backgrounds to interact with each other. Cooperative learning groups, student teams for class projects, and lab partners are assigned with this principle in mind. Students from all groups are encouraged to run for student government positions, to participate in musical, dramatic, and debate activities, and to present their artwork for public display.

(ii) Improving the academic achievement for all students at Longleaf Middle

The school's objectives developed by the PTO/School Improvement Council with assistance and input from staff aligns clearly with the goals of the Full STEAM Ahead! project. The goals stress meeting the needs of the whole child and working closely with families and the local school community:

1. Implement initiatives to improve academic success.
2. Create a safe and nurturing environment that supports the intellectual, social, and physical development of all students.
3. Create a professional learning environment that attracts and supports faculty and staff.
4. Collaborate with parents and the community to enrich Longleaf Middle School.

Increasing academic achievement is a major focus at Longleaf. Student achievement data are analyzed by the Leadership Team. This information is then used as the framework discussed with teachers who design project-based units of study to stimulate academic growth. Teachers work to ensure that the core curriculum is aligned with the district model as guided by South Carolina state core content standards. Teachers work by grade levels and by content areas to vertically and horizontally align curriculum. Academic programs are structured so that all students experience hands-on instruction with an emphasis on research, application, and higher order thinking skills. Recognizing the impact of technology in the lives of students, teachers use blogs, tweets, wikis, podcasts, and vodcasts as strategies to infuse technology.

The faculty will continue to update and expand its use of authentic assessments. The district and the school support and encourage student learning by providing feedback on the learning process to inform and enhance the teaching process, and to promote positive student attitudes towards learning. In addition, teachers have participated in staff development to help them create and administer assessments that promote the development of higher-order cognitive skills by providing final objectives that address these skills. Lessons are designed to promote a deep understanding of subject content by supporting students in their inquiries set in real world contexts. As a school, Longleaf will continue to provide professional development on project based learning coupled with authentic assessment. The school has made a concerted effort,

through staff development and the acquisition of Smart Boards and other media, to integrate 21st Century Learning Skills into the curriculum.

As Killian's 5th grade students matriculate into Longleaf as 6th graders, they will have worked in Paxton-Patterson labs. Furthering their knowledge using Paxton-Patterson, Longleaf will offer the Action Labs STEM package. These units of study are highly engaging and participatory:

- Alternative Energy

Students will use a model wind turbine to determine efficiency and use mathematics to calculate voltage output. They will use a solar panel to gain an understanding of the photovoltaic process and will calculate the number of solar panels needed to power a typical household. They will explore other alternative energy sources including nuclear, biomass and geothermal. In the design section, students will engineer the construction of a solar cooker.

- Computer Aided Drafting (CAD) - Students gain an understanding of how CAD is used to communicate design and engineering information. Using popular education CAD software, students learn the fundamentals of CAD operation by performing a series of exercises on pre-drawn templates.

- Environment & Ecology - Students learn about recycling, availability of clean water, and the effects of acid rain. They perform water testing, acid rain and hydroponics experiments under controlled conditions. This experience provides a real world simulation of bio-related challenges that students will need to address as adults.

- Electricity - Electricity and electronics are the fundamental technologies of our age. Students achieve an understanding of, and create real experiences with, this aspect of physics and how it relates to the world around them. Students build circuits for varying applications while

studying the mathematical principles of circuit design. Using a durable training console with permanently mounted components, students complete a variety of hands-on experiments.

Other units of study include Energy & Power, Audi Communications, Computer Numerical Control (CNC), Forensic Science, Energy & Power, Flight Technology, and Mechanisms.

Indeed, many of the skills learned at the STEAM elementary level will be accentuated at Longleaf Middle. Particular academic supportive programs, such as Advancement Via Individual Determination (AVID), encourage low-income students to develop high educational goals and aspirations, and to enroll in highly demanding courses. AVID is seen as a means of preparing students for highly demanding coursework, but it can also be viewed as a method of fostering interaction between groups of students who may not have considered higher education as a personal option and students for whom college attendance is a given. Longleaf currently offers AVID at grade 7-8. Grade 6 will be added during the first year of funding. For one class period each day, students who have the desire to be academically challenged by rigorous honors classes, who want to attend a four-year college attend an AVID class where they learn organizational and study skills, work on critical thinking and asking probing questions, get academic help from peers and college tutors, and participate in enrichment and motivational activities that make college seem attainable. AVID students participate in tutorials that include collaborative study groups, writing groups, Socratic seminars, and inquiry and collaborations. Students are given the personal, organizational, and academic skills to compete with students whose backgrounds have always included high educational and professional aspirations. Their skills learned at Longleaf will prepare them well for the advanced STEAM focus and continuing AVID at Westwood High.

Longleaf will join Killian in participating in the First Lego League (FLL). They will create their teams in the fall and develop their plan for competition. Longleaf has an afterschool

program with large participation rates, so student groups who want to become involved will be high. Transportation will not be a barrier to students participating in this league. As noted Melchior, Cutter, & Deshpande (2009), students who participate in FLL are 50% more likely to attend college, twice as likely to major in science or engineering, and three times more likely to major specifically in engineering. Furthermore, minority members of FLL are more than twice as likely to enter fields of science and engineering.

A graphic arts lab and musical keyboarding course will provide a comprehensive STEAM focus for this STEAM continuum. Because Killian students will have learned the basics, students will be well prepared for the next, advanced level of study.

As noted in the letter of support, Longleaf has already been working closely with Lowe's, located less than one mile away from the school, to plan a community garden. This plan has all the features of project based learning: it is student-designed, will be student-led, has been created with a gardening specialist, and will offer service learning opportunities for students as all vegetables and fruits will be donated back to the community. Longleaf will have an outdoor classroom that will offer a wide variety of learning opportunities for students.

Plans for high quality activities to supplement academic enrichment at Longleaf Middle:

Teachers will work collaboratively to develop project based learning activities that have a STEAM focus. Some of the activities will include, but will not be limited to the following:

- Testing water samples to determine the course of contamination and use electrophoresis to identify the sickle cell protein with the Director of the Center for Science Education at the University of South Carolina.

- Working in collaboration with Clemson University and Sesquicentennial State Park, the agricultural science assistant and Park Interpreter will create a community garden. In the process, students will learn much botany-related information.
- Working with the local Lowe's staff in the community garden. The Lowe's Live Nursery Specialist will provide knowledge on cultivation of plans as well as providing materials free of charge. This Lowe's is within walking distance of Longleaf.
- Collaborating with Pawmetto Lifeline, a nonprofit organization focused on solving pet overpopulation in the Richland County area, to connect science standards through authentic learning experiences.
- Exploring the field of marine science and its impact on conservation of animals and the environment with the Marine Science Program at the University of South Carolina.
- Strengthening the relationship with Riverbanks Zoo where students will participate in many hands-on learning experiences associated with animals and plant adaptations.

Students at Longleaf will also have the opportunity to learn at EdVenture Children's Museum. Known as a "cool" place for teenagers to congregate, they will have ample opportunities to visit the museum where exhibits will be geared toward STEM-learning. Zap-Electricity at Work is based on 6th grade Science standards and brings them to life. Students experience how incredible energy fuels our modern world. Students learn about the flow of electrons, circuits, and the ways in which electrical energy can be transferred. Through hair-raising experiments, and hands-on interaction, students learn to recognize the uses and dangers of electricity while gaining a comprehensive understanding of how and why electricity is the mainstay of modern power. Other exciting exhibits include Robotics and The Chemistry of Fire.

Longleaf has an extended day program designed to encourage the academic, social and physical development of the student. The schedule provides time for homework assistance, computer use, reading, athletic activities and school sponsored clubs along with a break for nutritious snacks. The school also offers academic assistance for those students experiencing difficulty in Pre-Algebra. Students are provided with test preparation skills.

Indeed, students at Longleaf will be offered many opportunities to expand their learning potential through rigorous project-based learning activities. Longleaf will provide early opportunities for students to conduct original research and to examine big issues and ideas so that they can fully participate in designing projects. As the middle school teachers will rewrite their curricula to include the STEAM focus, each planning group will develop student assignments that emphasize research skills, writing skills, open-ended questions, and historical, mathematical, and scientific, as well as literary thinking skills.

(iii) Encouraging greater parental decision-making and involvement at Longleaf:

Strong parent support is evident, and there are future plans to increase parent support:

- The School Improvement Council, which serves as an advisory board to the Administration, is a high energy and involved organization which helps to benefit the school through recruiting volunteers and offering a forum to parents to communicate to the school.
- The Parent/Teacher Organization also provides a dedicated monthly forum for teachers, parents, and administration to discuss the progress of school initiatives.
- The Fort Jackson Military School Liaison (letter of support in Appendix B) serves as a liaison and resource between the dependent children of military personnel stationed at Fort Jackson, their parents, and area schools.

- The parent volunteer program involves adults offering help in the office and media center, tutoring, and assisting teachers. Volunteer hours total more than 1,765.
- Career Exploration provides opportunities for exploring a variety of careers. Shadowing experiences give students opportunities to actually go to work places for on-site observation and, in some cases, participation. Additional career insights and opportunities for children to interact with adults are provided through service learning.

Longleaf has a conscientious and hardworking group of parents. The school staff is convinced that parental input and involvement is crucial to the success of the students. Parents assist with school registration that is held in August of each school year. They share information about Girls' Empowered, Quiz Whiz, Mock Trial, BETA Club, 4-H Club, and various other extracurricular activities offered. They encourage parents to become involved in their child's education by joining PTO/SIC and becoming volunteers through these opportunities:

- At the beginning of each year the school sponsors an Open House for families of students. This event will be expanded to include the specific focus on the magnet STEAM.
- During Report Card Night, parents pick up their child's report card and talk with teachers in an informal atmosphere. Parents will be encouraged to make suggestions for improving teaching and learning.
- Parents will have key roles in hosting the Book Fair that is held every year during the fall. Non-fiction and fiction texts with a STEAM focus will be highlighted.
- Students and their parents/adult family members will plan and organize Family Science Night where students lead experiments in labs.
- Parent volunteers will work with staff to organize student celebrations, such as the First Lego League tournament results.

- Parents, as major stakeholders, will be included and actively participate in all strategic planning.

In addition to school events that are already well-established, the school plans to increase the number and the frequency of programs that will bring parents and the community into the school. As Full STEAM Ahead! is established at Longleaf, student exhibitions will allow students to demonstrate their new skills and knowledge and will inform the parents and the public about the nature of the program and the academic and community service demands that it requires of students.

Westwood High School: 1,208 students enrolled with 53% F/R Lunch Rate

Af.Am: 79%	White: 15%	Hispanic: 4%	Asian: 1%	Indian: 0%	Other: 1%
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Westwood High opened its doors in August 2012. The excitement of adding a fifth high school in the district has re-ignited the joy of learning for many students and staff. A new building with high quality technological enhancements comes along very rarely. Westwood serves grades 9-12. As is indicated by current thinking, the education of the whole student is key in 21st century learning. MSAP funds are requested to establish a collaborative learning environment across the curriculum at all grade levels, to create a school-wide Full STEAM Ahead! program. The STEAM-focused program, with its emphasis on project based learning, high academic standards, and a comprehensive study of the major bodies of knowledge, fully addresses high-level academic content in a manner that produces reflective thinkers and involved citizens.

Last fall, Westwood’s administration and faculty participated in a book study of Berger’s *An Ethic of Excellence* (2003). They are seeking to create a similar ethical and highly rigorous environment for their school--where students take risks and are rewarded for their ingenuity. The

program of studies currently in place at Westwood will be richly enhanced by the ideas, values, and initiatives driven by Full STEAM Ahead!. Administration and staff have thoughtfully named their school-wide magnet as the Research, Engagement, and Design Institute (RED) which matches their mascot, the Red Hawk, and their colors of black, red and silver. They have chosen the school-wide program structure serving *every* student rather than a magnet program serving only a *limited* number of students.

(i) Promoting desegregation-increasing interaction at Westwood High School:

The plan for implementing the Full STEAM Ahead! project provides multiple examples of how desegregation will be achieved through grant activities:

- Offering school-wide student exhibitions to promote awareness of our diverse society.
- Promoting community service and involvement by hosting events included in Wishes of Westwood (WOW), a year-long service initiative where funds are raised for cancer research, foster children, homeless students, and abused mothers and their children.
- Emphasizing the importance of science, engineering, and mathematics for all students.
- Creating a global connection for all students through the use of technology.

Westwood is expected to attract approximately 254 new students in Yr. 1 of implementation from neighboring public and private high schools. Yr. 2 will include 132 new students, and Yr. 3 will add 73 students. By the end of the funding period, 459 magnet students are expected to matriculate into Westwood annually. This influx of students from other high schools will gradually decrease minority group isolation of African American students at Westwood without adversely affecting ethnic/racial diversity at the other four high schools. Students of all racial, ethnic, social, economic, and language groups participate in classroom activities, athletics, the arts, student government, and the various clubs and social groups on

campus. The RED Institute (iRED) will create more opportunities for students in all demographic subgroups to participate in project based learning opportunities within rigorous and challenging coursework and the arts.

Westwood is already known for its innovative educational programming. In the summer of 2012, the school offered a “Red Hawks Fire Rescue Camp for Women” and plans to make it an annual event. In partnership with local fire and Emergency Medical Service (EMS) agencies, the school hosted a five-day Fire & EMS Training Camp specifically for young women in the 9th -12th grade (including rising freshmen). The goals of the Fire Rescue Camp are to instill confidence, build leadership and team skills in young women, and to provide an opportunity to try firefighting and EMS through hands-on training. Local female firefighters and paramedics lead the instruction. The activities were designed to provide a detailed overview of firefighting:

- Orientation to Fire Recue Camp: Basic overview of activities, expectations, discussion of fire extinguishers, practical exercises with fire hose and extinguishers.
- Self-Contained Breathing Apparatus (SCBA), physical exercise drills, team building exercise, search and rescue techniques.
- Ladders: Basic ladder operations to include aerial ladders. (Ladder truck)
- Vehicle Extrication-extrication of patients from vehicle, basic first aid and CPR certification
- Hazmat: Basic hazmat operations, de-con procedures

Because of volunteers from respective agencies, this camp is offered at no cost to students.

By ensuring that all students at Westwood actively participate in the Full STEAM Ahead! project, the school will be providing the impetus and motivation for more students of differing backgrounds to work and learn together. Such students are more likely to pursue higher education and aim for professional career fields. In addition to fostering interaction among

different groups of students, the program will provide opportunities for personal, academic, and career enhancement, and develop positive relationships among students from all ethnic, racial and economic groups.

(ii) Improving the academic achievement of all students at Westwood High:

The Full STEAM Ahead! project at Westwood will be implemented with fidelity. Because the project was designed by faculty and staff, buy-in already exists. The natural progression from elementary and middle levels will provide the foundational knowledge necessary for students entering Westwood to achieve greater successes. A most effective method for increasing academic achievement lies in the project-based learning approach. When students are highly involved in their learning, the depth of their learning increases significantly.

In 2012, prior to the opening the school, Westwood had to apply to the SC Dept. of Education to offer the first Fire-fighting class in the state. Specifically they wanted to provide students with knowledge that, in an emergency, would provide a valuable service to their community. When planning the school's curriculum for STEM education, they specifically chose *not* to use Project Lead the Way due to its math levels being too rigorous for a few of their students. Staff did not want to have this unnecessary barrier to learning. Instead, they selected Paxton-Patterson and have found students highly engaged in hands-on learning labs that include alternative energy, architectural design, robotics & animation, and digital electronics among other units of study. In essence, all students have the opportunity to be involved in STEM activities--not just a chosen few.

The STEM focus will be expanded using the project-based learning approach leading to increased student engagement. With the increased focus on teacher professional development, Teachers will encourage students to assist with designing lessons based on their interests, the

needs of the community, and the availability of specialists in the area. Considering the common core standards in Statistics & Probability, students will be required to summarize, represent, and interpret data on a single count or measurement variable. They will also be required to make inferences and justify conclusions from samples surveys, experiments, and observational studies. As an example, a class may propose to survey their class and community stakeholders about the need for a stop light at a busy intersection near the school. A student team would research the traffic patterns; others would conduct interviews to gather quantitative data. Students would collect various additional statistical. Interpretations would be made, and students would present the outcome of their research at a community-wide meeting. This example would lead to increased traffic safety near the school as well as providing an authentic, meaningful learning experience for those students involved.

Westwood is a strong advocator for Advancement via Individual Determination (AVID). They offer all four levels of AVID. The AVID curriculum, based on rigorous standards, was developed by middle and senior high school teachers in collaboration with college professors. At Westwood, the AVID curriculum is used in elective classes and in content-area classes as a whole-school model. Students learn organizational and study skills, work on critical thinking and asking probing questions, get academic help from peers and college tutors, and participate in enrichment and motivational activities that make college seem attainable. Students enrolled in AVID are required to enroll in at least one honors or Advanced Placement course, in addition to the AVID elective. As students progress in AVID, their self-images improve, and they become academically successful leaders and role models for other students. The program encourages students to continue their educational pursuits. The Manhattan Institute for Policy Research

reports that in a 2011-2012 AVID Senior data collection of 33,204 students, 76% of graduates who applied were accepted to four-year colleges and universities.

Westwood will also continue the First Lego League continuum. Students who have competed at the elementary and middle level will look forward to continuing their league at the high school level. Experienced students will act as mentors to solving problems using engineering concepts, presentation techniques, and robots. Those students who are new to the program will be honored as founding members of the Westwood League.

The arts at Westwood will be expanded to include a graphic arts class. The school already is in a position to offer a graphic arts class. They have the Macintosh computers but will need staff training and software. Also, the school plans to offer a musical keyboarding class and needs this equipment. All in all, the continuum established through the Full STEAM Ahead! project provides opportunities to become specialists in their courses. This creation of a more coherent series of courses, linked by the focus on project-based learning opportunities, will make learning more meaningful and relevant to students. This thinking process will lead students to make connections between ideas, to think both critically and creatively, and to employ the proper research strategies to express their thoughts and ideas. Learning will become personally meaningful and academic achievement will improve.

The thread of an outdoor classroom runs through each targeted school's plan--which will vary by the increasing level of knowledge. Westwood is known for its respect for the environment. It received the LEED Silver certification with a unique cooling system that uses IceBank storage systems to create ice during off-peak hours. The certification is based on five major credit categories: 1) sustainable sites 2) water efficiency, 3) energy and atmosphere 4) materials and resources, 5) indoor environmental quality. Teachers and staff make students,

parents, and community stakeholders aware of their certification in an effort to heighten environmental awareness initiatives.

Westwood's outdoor classroom will be highly advanced to focus on green technologies, such as solar power, wind energy, and rainwater reclamation, among other studies. Because the school is located in an unpopulated area of the district, the outdoor classroom will be expansive. The students will design their own projects; however, a sampling may include these topics:

- Students will explore the health of their local watershed and the preservation (or lack thereof) of nearby wetlands.
- They will study the impact of "clear cutting" of a nearby forest to make room for an industrial park in their community.
- They will take air samples and, working with the Department of Health and Environmental Control (DHEC) specialists, inform the community of their results.
- They may create a solar-powered bike or other method of transportation and share its design with the community.

Plans for high quality activities to supplement academic enrichment at Westwood High:

The emphasis, at all grade levels at Westwood, will be to develop and strengthen the STEAM curriculum and create high expectations for student achievement. To reach that goal, *all students* will be considered magnet students in the iRED. Teachers and staff will work collaboratively to develop project based learning activities that have a STEAM focus. As noted in Appendix C, some of the activities will include, but will not be limited to the following:

- Connecting students with businesses to provide shadowing, mentoring, and internship opportunities through the Midlands Education & Business Alliance (MEBA);

- Integrating students into Columbia’s thriving artistic and cultural community with specific support provided through Columbia Mayor Benjamin’s office;
- Increasing rigor in the Health & Science courses in collaboration with Palmetto Health;
- Emphasizing authentic experiences in the sciences by working with the Columbia Police Department in the forensic science lab experiments, bomb detection technology, information technology used during accident reconstruction, and DNA/crime scene re-enactments;
- Working closely with PurePower Technologies, the school’s closest neighbor, to provide students as their future workforce.

This list is a mere example of the activities that will be stressed as part of the Full STEAM Ahead! project. A common theme across all activities will be working collaboratively with the school community. Indeed, projects are the primary framework through which student skills and understandings are learned. When students realize that their work makes a difference, they feel invested and seek to work harder.

(iii) Encouraging greater parental decisionmaking and involvement at Westwood:

Since Westwood is a new school, its parent base is just coming together. Currently the school has created an SIC group of parents, staff, and community members. The school also has a parent volunteer group which is settling in to serve throughout the school. This group is involved with areas of teacher appreciation and school events. The school will foster these relationships and increase parent involvement by recruiting parents to create, organize, plan, and offer many innovative activities that support the RED Institute. The school will utilize the district’s longstanding relationship with Fort Jackson in order to involve more military parents.

The district concedes that the implementation of the STEAM-focused program in the three targeted schools to reduce minority group isolation of African American students is an ambitious project, but the implementation plan presented above is sound:

- Has the support and endorsement of all the major stakeholders that are involved;
- Employs the guidance and advice of professional consultants and trainers who are personally and professionally involved with the program;
- Includes a comprehensive teacher training component to be well-prepared to implement the program;
- Identifies the resources needed in order to provide a high quality learning experience;
- Sequences grant activities and assigns grant responsibilities so that tasks are manageable;

Implementing project based STEAM components in a K-12 Continuum will provide a high-quality, research-proven, and challenging course of study for students who opt to pursue admission through the lottery to this rigorous academic program. The progression from elementary to middle through high school will educate the “whole child” and provide numerous benefits over the course of a student’s educational career.

(d) *Budget and Resources.* (5 points)

The Secretary reviews each application to determine the adequacy of the resources and the cost-effectiveness of the budget for the project, including—

The three schools selected for the implementation of the **Full STEAM Ahead!** project were chosen after careful consideration of many factors in addition to the minority group isolation of the African American students in this identified at-risk area of the district. This particular group has increased representation in all three targeted schools when compared to the school district average of 59% as indicated below:

Ethnicity (by student count and percentage-Pacific Islander included with Other)												
Af.Am		White		Hisp.		Asian		Nat Am		Other		Total
#	%	#	%	#	%	#	%	#	%	#	%	#
15,397	59%	7,313	28%	1,615	6%	766	3%	40	1%	910	3%	26,041
Killian Elementary School												
531	84%	38	6%	35	6%					19	3%	628
Longleaf Middle School												
544	78%	91	13%	38	6%					16	2%	694
Westwood High School												
949	79%	189	16%	42	3%					20	1%	1,208

(1) (1 point) The adequacy of the facilities that the applicant plans to use;

The condition of the physical facilities and the availability of space to accommodate additional students were also prime considerations for this proposal. Please note all school layouts in Appendix D. Clean and attractive school buildings coupled with a rigorous, project-based STEAM magnet theme will more likely attract the underrepresented ethnic groups from surrounding private schools and other interested parents and students. The district’s Director of Facilities and the three principals assessed the school facilities as part of the planning process for this proposal. This assessment looked at the viability of the buildings as sites for the specialized areas necessary for the implementation of the magnet school theme. These three buildings have ample space for the designing units of study (science labs, graphic arts labs, etc.) that are cited in the individual school project designs.

Killian Elementary has the capacity to accommodate 740 students, so the school will be able to accept 112 additional students. With the implementation of the Full STEAM Ahead! program, the school will be transformed: it will have a project-based focus that is technologically and academically superior when compared to private schools nearby. Facility plans for the school include providing electrical upgrades to install the necessary enhancements required for STEAM units of study. The school will have the STEM Paxton-Patterson labs-common for all three schools. Killian will also transform classrooms into a well equipped graphic arts studio and a musical keyboarding lab. This arts area will be common throughout all three targeted schools.

Longleaf Middle will provide the middle level of the STEAM-focused school. Longleaf has a capacity of 1,000 students, so the school has 306 seats available. Longleaf will have the Patterson-Paxton ActionLabs which include alternative energy, electricity, forensic science, robotics, structural engineering, among others. This school will also provide a keyboarding studio to provide students with the opportunities to learn the fundamentals of the keyboard, composition software to create and print their own musical compositions, and headphones to work independently without disrupting other students. The music studio will provide students with the depth of musical understanding necessary to transition from Longleaf to continue at the advanced level at Westwood High School.

At Westwood High, since the school just opened, no facility upgrades are scheduled. The high school's capacity is 1,700, so the school can accommodate 492 additional students. With district foresight, Westwood has already been equipped with the necessary Patterson-Paxton labs for the Full STEAM Ahead! project. The school will enhance its graphic arts labs and digital media studio to prepare for receiving students from Killian/Longleaf who have been well prepared for the next level of graphic and digital media productions.

The completion of facility work will be scheduled immediately upon notification of funding and completed by the end of the first year. The school district's Director of Facilities, having been in the same position since the original MSAP grant, recognizes the value of providing well maintained facilities to attract underrepresented student groups to these whole school magnets.

(2) (2 points) The adequacy of the equipment and supplies that the applicant plans to use;

Each of the magnet schools is located in a school building where there already exists a basic amount of academic audio-visual, computer, science, art, music, and physical education instructional equipment and supplies including textbooks and library resources required to implement the State core curricular standards. All equipment and supplies that will be purchased with the Magnet Schools Assistance Program funds will supplement--not supplant—supplies and equipment purchases. This proposal includes only those supplies and equipment that are required and will be used specifically to implement the Full STEAM Ahead! project. Richland Two will not decrease the amount of funding which the three targeted schools currently receive for operation expenses, unless all schools' budgets are reduced. In other words, the district's per capita allocations will be the same in magnet and non-magnet schools throughout the district.

At all three targeted schools, funding will provide for enhanced scientific, technological, engineering, and math equipment which is critical when designing STEM units of study. Killian Elementary and Longleaf Middle will be provided with the STEM components of the Paxton & Patterson equipment and high quality musical keyboarding equipment, equipment necessary in the graphic arts studios. Specifically Macintosh computers, headphones, microphones, computer tables and chairs, and other supplies are planned.

All three schools have requested upgrades to their classroom libraries to include non-fiction materials because as the core content standards are implemented, students are required to interact with non-fiction publications. The three schools have fictional materials but are in need of non-fiction. Therefore, multi-source databases, e-book subscriptions, local and national newspapers, and other related literacy materials are requested.

The three magnet schools will implement the project-based Full STEAM Ahead! project that offers the best equipment and supplies to support the theme. When parents of students attending private schools and other parents interested in the schools visit these three targeted magnet schools, students will be using this equipment and supplies on a daily basis.

(3) (2 points) The adequacy and reasonableness of the budget for the project in relation to the objectives of the project.

Richland Two's Business Services has been long recognized for its fiscal frugality. This office provides services to school district personnel in support of their activities and operations by providing support, training, and advocacy to enable principals and school staff to focus on instruction. It prepares financial and management reports and files state and federal grant reimbursement claims. It procures goods and services in accordance with the district's procurement code which is in conformance with the state of South Carolina's procurement code. It coordinates the annual financial and procurement audits and prepares the district's Comprehensive Annual Financial Report (CAFR). Based on the fine work of this office, Richland Two is the only district in South Carolina to receive an "AA" bond rating from the three national bond rating firms. Business Services has received awards from both the Association of School Business Officials and the Governmental Finance Officer's Association for excellence in financial reporting for 21 consecutive years. Their staff has been a part of the

planning of this proposal. They assisted with the creation of the budget narrative and recognize the extremely positive impact that this project will have on the three targeted schools.

All budget funds are reasonable and align with the objectives of this proposal: promoting diversity by reducing and preventing minority group isolation; increasing student academic achievement by implementing systemic reforms to provide all students the opportunity to meet challenging State core content standards and academic achievement standards; developing connections between students, parents, and teachers and their school, community, and global environments; and building the capacity, including professional development, to continue operating magnet schools at a high performance level after the Federal funding has ended.

Indeed, the objectives of this project are of great importance to the Richland Two community in reducing the minority group isolation of African American students in the three targeted schools as well as increased student academic achievement. The most effective method in these proposed magnet schools to attract additional students is to offer a curriculum that is of the highest quality. The advisory board, based on focus group responses, believes the STEAM curriculum provides a “perfect fit” for students and will achieve the objectives of this proposal. The district is well prepared to implement the Full STEAM Ahead! project on schedule and within budget. Our parents, students, and community will benefit immensely.

(e) *Evaluation Plan.* (10 points)

The Secretary determines the extent to which the evaluation plan for the project—

(1) (2 points) Includes methods that are appropriate to the project;

The evaluation of Full STEAM Ahead! project will be conducted by an evaluation team led by Dr. Robert L. Johnson, professor in the Educational Research program in the Educational Studies Department at the University of South Carolina (USC). Also on the evaluation team will

be Dr. Diane Monrad, who is the Director of the South Carolina Educational Policy Center (SCEPC) at the University of South Carolina, and Dr. Tammiee S. Dickenson, who is the Director of the Office of Program Evaluation (OPE) at USC.

The evaluation of the Full STEAM Ahead! continuum will use a variety of methods to provide both formative and summative outcome data for the project director, school and district staff, parents, and other project stakeholders. Annual performance reports will describe the implementation of the project and the degree to which program objectives 1-4 are met. Each summer the evaluation team will meet with the school leadership team at each school to review evaluation results.

Formative Evaluation. The formative evaluation will provide school leadership teams with updates on their meeting program objectives. The formative evaluation will involve teachers and principals in reviewing project implementation and outcomes. To document project implementation, evaluation team members will attend project staff meetings to monitor the progress of the project activities. The review of project outcomes will involve project staff in the development of data collection instruments, the interpretation of the results from data collection, and planning based on the results.

Summative Evaluation. The evaluation team has designed a comprehensive summative evaluation that allows a determination of whether the Full STEAM Ahead! project has met the four major project objectives. These four objectives and the twenty-one performance measures for the Full STEAM Ahead magnet were developed by the evaluators in collaboration with district staff and the leadership teams at the proposed magnet schools. Each of the objectives and its associated performance measures will be described in Section (2). A variety of methods appropriate to the Full STEAM Ahead project will be used to assess whether or not each

performance measure is met, including analyzing demographic information, pre- and post-test student assessments, and school climate data. Additionally, data on graduation rates will be collected and analyzed for Westwood High School. Further, teacher and student perceptions of the magnet programs will be evaluated through annual surveys, and the level of parental decision making and involvement will be assessed by parent surveys. Lastly, the number of teachers attending professional development, awareness and parental involvement activities, and student community service projects will be collected and reported.

(2) (6 points) Will determine how successful the project is in meeting its intended outcomes, including its goals for desegregating its students and increasing student achievement; and

Project Objective 1: Promote diversity by reducing and preventing minority group isolation (see Table 1). To examine the effectiveness of the project in reducing minority group isolation, the evaluation team will review demographic data for each magnet school to determine if the proportion of African American students is decreasing. For performance measures 1a and 1c, the district’s Planning Department will provide the student enrollment data for the Full STEAM Ahead magnet and feeder schools. Student data will include ethnicity, grade level, and feeder school attendance. Each program year, the evaluation team will compare the percentage of African American students at each magnet school to the corresponding school’s three year mean enrollment of African American students to ensure that African American student enrollment is decreasing at each school (1a). The evaluation team will also compare the percentage of White students in the applicant pool to the percentage of White students in the Full STEAM Ahead magnet to determine if the applicant pool reduces minority isolation (1b).

Table 1. Project Objectives and Performance Measures for Promoting Diversity

Project Objective 1: Promote diversity by reducing and preventing minority group

isolation.	
Performance Measures	Data Collection Methods and Sources
<p>1a. By October 1 of each project year, minority group isolation of African American students will be reduced by one percentage point in the first implementation year and by two percentage points in each of the second and third years of implementation.</p>	<p><i>Performance measures 1a-1c</i></p> <p>Methods: Demographic data for each school will be reviewed.</p> <p>Sources: Full STEAM Ahead magnet school enrollment statistics, magnet school applications, transfer statistics, principals, and district personnel.</p>
<p>1b. For each year of the project, a student applicant pool will be recruited for each MSAP magnet school that would reduce minority group isolation consistent with the projected enrollment for each school.</p>	
<p>1c. For each feeder school with minority group isolation, the minority enrollment will not exceed the increase in the district's average as a result of the implementation of the magnet schools.</p>	

Project Objective 2: Increase student academic achievement by implementing systemic reforms to provide all students the opportunity to meet challenging state academic core content standards and academic achievement standards (see Table 2). Performance measures for objective 2 reflect federal priorities that schools meet South Carolina’s annual progress standards in reading/language arts and mathematics, as measured by the Palmetto Assessment of State Standards (PASS) and the High School Assessment Program (HSAP). PASS is administered in grades 3-8 and is aligned to the state academic standards. It includes,

among others, tests in English language arts (ELA) and mathematics. The HSAP includes tests for ELA and mathematics and is first administered in Grade 10. Included as measures of achievement in science are the PASS Science Test, which students complete in grades 4 and 7, and the state End-of-Course Biology Examination (EOC Biology). These assessments will provide feedback to school and district staff about the STEM component of Full STEAM Ahead. Thus, performance measures 2a to 2f reflect the objective that all Full STEAM Ahead magnet schools will meet or exceed the rigorous SC standards for ELA, mathematics, and science and that the magnet school scores on the statewide test will increase annually.

Table 2. Project Objectives and Performance Measures for Increasing Student Achievement

Project Objective 2: Increase student academic achievement by implementing systemic reforms to provide all students the opportunity to meet challenging State academic core content standards and academic achievement standards.	
Performance Measures	Data Collection Methods and Sources
2a By the end of the project, students from ethnic groups (number greater than or equal to 40) at each magnet school will meet or exceed the State’s annual progress standards in English language arts and mathematics.	Performance measures 2a-2i Methods: Data on annual progress standards will be collected from district data bases and the annual state report cards. Performance on state assessments for magnet school students will be reviewed each
2b. At Killian Elementary Schools and Longleaf Middle School magnet schools, the percentage of students who score Met or above on the Palmetto Assessment of State Standards will increase by 2 percentage points each year.	
2c. At Killian Elementary Schools students, the percentage	

<p>of 4th grade students who score Met or above on PASS Science will increase by 2 percentage points each year.</p>	<p>year of the project. Data on graduation rates will be collected annually.</p> <p>Sources: School report card, administrators, students, and the Richland School District Two data base.</p>
<p>2d. At Longleaf Middle School, the percentage of 7th grade students who score Met or above on PASS Science will increase by 2 percentage points each year.</p>	
<p>2e. At Westwood High School, the percentage of 10th graders who pass both subtests of the High School Assessment Program (HSAP) will increase by two percentage points per year.</p>	
<p>2f. At Westwood High School, the percentage of students who earn a passing score (i.e., 70 or higher) on the End of Course Biology Examination will increase by two percentage points per year.</p>	
<p>2g. At Killian Elementary Schools and Longleaf Middle School, the percentage of students who Meet or Exceed their Measures of Academic Progress growth target from fall to spring will exceed that of the national norm group for reading and mathematics.</p>	
<p>2h. At least 85% of students participating in the project will agree on annual spring surveys that the project based learning approach contributes to their academic success.</p>	
<p>2i. The graduation rate at Westwood High School will increase by 1 percentage point by spring 2014 and 2</p>	

percentage points by spring 2016.	
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Performance measure 2g focuses on increasing the percentage of students at Killian and Longleaf who Meet or Exceed their growth target from fall to spring on the Measures of Academic Progress (MAP) assessment. The target is for student growth to exceed that of a comparable national norm group in reading and mathematics. Performance measure 2h is designed to involve students directly in judging program effectiveness through annual surveys measuring students' views of the degree to which the various Full STEAM Ahead components have contributed to their academic success. Additional information about the magnet increasing student achievement at the high school level will be collected for performance measure 2i.

Project Objective 3: Develop connections between students, parents, and teachers and their school, community, and global environments (see Table 3). Interaction and engagement will be increased for students of different social, economic, ethnic, and racial backgrounds (performance measure 3a), and the Full STEAM Ahead program components will increase student engagement in learning (performance measure 3b). These performance measures will be measured by examining the responses of students and teachers on surveys to be developed by the evaluation team in collaboration with project staff and administered annually.

Improving school climate through the use of Full STEAM Ahead strategies is the focus of performance measure 3c. Researchers have noted the importance of a positive school climate for teachers, parents, and students. A favorable school climate provides the structure within which students, teachers, administrators, and parents function cooperatively and constructively (Byrk & Thum, 1989; Ma & MacMillan, 1999; Gottfredson, Gottfredson, Payne, & Gottfredson, 2005; Brown & Medway, 2007; Gareau, May, Mindrila, Ishikawa, DiStefano, Monrad, & Price, 2010). South Carolina is one of a few states that require students, parents, and teachers at every

public school to complete a school climate survey annually. The South Carolina Educational Policy Center has analyzed the state's climate survey data base for the last three years and has used factor analytic techniques to identify 14 school climate factors. The state’s climate survey will be used to gauge the connections between members of the school community (i.e., students, parents, and teachers). For the Full STEAM Ahead magnet schools, at least 10 of the 14 school climate factors will be at or above the 50th percentile by the end of the project.

The evaluation will also document each magnet school’s social marketing/public relations awareness campaign and parental involvement activities.

Table 3. Project Objectives and Performance Measures for Developing Connections

Project Objective 3: Develop connections between students, parents, and teachers and their school, community, and global environments.	
Performance Measures	Data Collection Methods and Sources
3a. At least 85% of students at each magnet program will agree on annual spring surveys that they interact with students of different social, economic, ethnic, and racial backgrounds.	<i>Performance measures 3a-3e</i> Methods: Students’ perceptions of the magnet programs at each school will be evaluated through an annual spring survey. Perceptions of home-school relationship and parental decision making will be collected through annual teacher, student, and parent school climate surveys. The number of awareness activities as part of the public relations campaign, community service learning
3b. At least 85% of students at each magnet school will agree on annual spring surveys that the project based learning approach is increasing their engagement in learning.	
3c. At least 10 of the 14 school climate factors will be at or above the 50 th percentile by the end of the project	

<p>3d. All magnet schools (100.0%) included in the project will conduct a social marketing/public relations awareness campaign.</p>	<p>outreach projects, and parent involvement activities will be collected.</p>
<p>3e. Each targeted magnet school will increase its number of parental involvement activities annually.</p>	<p>Sources: Recruitment documents, School coordinators, school climate data files, SIC meeting agendas, students, parents, and Project Director.</p>

Project Objective 4: Build the capacity, including professional development, to continue operating magnet schools at a high performance level after the Federal funding has ended (see Table 4). In order to improve the district’s capacity to maintain the Full STEAM Ahead program after potential funding ends, the Full STEAM Ahead leadership team is ensuring that professional development services are of sufficient quality, intensity, and duration to lead to profound improvements at all three targeted schools. Richland Two will use magnet school funds to provide Full STEAM Ahead training. The number of teachers attending the professional development will be collected at each school with a performance measure of 95.0% of teachers attending (4a). The perceptions of those teachers attending these professional development workshops will be gathered through workshop evaluations and the annual end-of-year teacher survey. The performance measure will be for at least 85% of teachers participating in these workshops to rate them as effective (4b). Further, teachers’ perceptions of being prepared to teach the Full STEAM Ahead curriculum within state guidelines will be collected through an annual survey (85% agreement, performance measure 4c). Lastly, teachers participating in the Full STEAM Ahead magnet will be asked on the annual survey whether instructional components are effective at meeting students’ needs (85% agreement, performance measure 4d), which is an indicator of instructional capacity.

Table 4. Project Objectives and Performance Measures for Building Capacity

Project Objective 4: Build the capacity, including professional development, to continue operating magnet schools at a high performance level after the Federal funding has ended.	
Performance Measures	Data Collection Methods and Sources
4a. At least 95% of the magnet school teachers will participate in professional development on project-based learning each year.	<p>Performance measures 4a-4d</p> <p>Methods: The number of teachers completing Full STEAM Ahead professional development will be collected at each school. Records will be kept of the professional development hours for each teacher. Teachers’ perceptions of professional development workshops will be gathered through professional development workshop evaluations and annual surveys. Teachers’ perceptions of the magnet programs at each school will be evaluated through annual surveys.</p> <p>Sources: Training handouts,</p>
4b. On annual spring surveys, at least 85% of teachers participating in professional development workshops will rate workshop components as effective.	
4c. At least 85% of teachers participating in the project will indicate on annual spring surveys that they agree that they understand how to implement the project based learning approach within state standards guidelines.	
4d. At least 85% of teachers participating in the project will indicate on annual spring surveys that project-based instructional components are effective in meeting students’ needs.	

	<p>school teacher professional development records, curriculum documents, checklist of Full STEAM Ahead activities, and teachers.</p>
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(3) (2 points) Includes methods that are objective, will produce data that are quantifiable.

As sections (1) and (2) of the evaluation plan described, the formative and summative data collection and analysis methods are comprehensive and include both quantitative (e.g., demographic information, test scores from state and national assessments, graduation rates, school climate data, and annual surveys of teachers and students) and qualitative data (e.g., feedback to open-response survey items). The evaluation team is dedicated to ensuring the objectivity of results, validity and reliability of measures, and quantification of results.

Objectivity and Validity/Reliability of Measures. Although some evaluation data collection will be maintained by district project staff, objectivity will be maintained by ensuring that the entire evaluation analysis and reporting is conducted off district-site by the trained SCEPC and OPE evaluation team members at the University of South Carolina. Validity will be increased by soliciting ongoing feedback from project staff as part of the development of evaluation instruments, such as annual surveys and workshop evaluations, to ensure that instrument content is accurately assessing program constructs. Further, the internal consistency reliability of the annual surveys will be tested using Cronbach’s alpha, which computes correlation values among groups of items measuring the same construct. The reliability associated with the state assessments (PASS, EOC Biology, HSAP) and the norm-referenced

Measures of Academic Progress assessment is considered acceptable by the advisory groups that provide psychometric expertise in test development.

Quantifiable Results. The evaluation methods will produce quantifiable results for all four project objectives and twenty-one performance measures. The assessments used in Objective 2 to review increases in student achievement include state assessments (PASS, EOC Biology, HSAP) and the norm-referenced Measures of Academic Progress assessment. Thus, the evaluation team will be able to review with faculty at each school their increases in student achievement of state content standards and increases in student achievement as compared to students in a national, norm-referenced test. In addition, the evaluation team will use confirmatory factor analysis (CFA) to explore school climate data at each magnet school for Objective 3. This multivariate statistical procedure will determine how well the survey items measure the climate constructs and will result in mean factor scores for each of the school climate factors for each school. Quantifiable statistics will also be shared in the annual performance report for the following data elements: item analysis of teacher and student annual surveys and teacher workshop evaluations, frequencies and percentages of parental involvement, awareness, and community outreach activities, graduation rates, district and school student enrollment percentages by grade level, and annual performance standards in reading/ELA, mathematics, and science.

(f) *Commitment and Capacity.* (10 points)

(1) The Secretary reviews each application to determine whether the applicant is likely to continue after assistance under the program is no longer available.

The Richland School District Two Board of Trustees is committed to reducing minority group isolation and increasing academic achievement throughout the district (Appendix B). The

proposed **Full STEAM Ahead!** is one strategy for accomplishing those goals. The district is known throughout the state as a leader in its Expanded Choice and Magnet Programs. Through these two programs, Richland Two families have access to a variety of specialized educational programs. Though students are assigned to schools based on their residential address, they may apply to a magnet school, a school with a magnet program, or another school within the district through the Choice program. Expanded Choice offers parents and students residing in Richland Two the opportunity to request permission to attend a school other than their residentially assigned school. In 1991, Richland Two offered The Learning Collaborative (TLC), its first magnet program. The program has a proven track record of success by offering a rigorous, intellectually stimulating academic environment. TLC students continue to score among the highest on state and national standardized academic assessments. Currently, the district fully supports thirty-two magnet structures, and **no** magnet program has failed:

<u>Date</u>	<u>Name of Magnet</u>	<u>Grades</u>	<u>Structure</u>	<u>Emphasis</u>
1991	The Learning Collaborative	6-8	Program	Honors/pre AP
1992	Horizon	9-12	Program	Honors/AP
1995	Discovery	9-12	Program	Honors/AP
1995	Explorations	9-12	Program	Tech., math, science
1996	Center for Inquiry	k-5	Whole school	Inquiry-based
1997	Center for Knowledge	k-5	Whole school	Core Knowledge
	iLink	9-12	Program	technology
2000	Leadership at Wright (LAW)	6-8	Program	Core Knowledge
2001	Palmetto Center for the Arts	9-12	Program	Arts
2004	The TWO Academies	6-8	Program	Single gender

2005	Center for Achievement	2-5	Whole school	Acad. Enrichment
	Scholars Academy	9-12	Program	Human Ecology
2006	Convergence Media	9-12	Program	Media Technology
	Fine Arts Media Enhancement	6-8	Program	Fine Arts & Tech.
	Conder Arts Integrated Magnet	k-5	School	Arts Infusion
	Forest Lake Tech. Magnet	k-5	School	Technology Infusion
2008	Center for Accel. Preparation	7-9	Whole school	Accelerated Curric.
	Academy for Civic Engagement	k-5	Program	Civic Education
	Kelly Mill, INC	6-8	Program	Business
	Academy-Exercise Physiology	6-8	Program	Fitness & Wellness
	Allied Health Sciences	9-12	Program	Health Sciences
	BioHealth Sciences	9-12	Program	Health Sciences
	Spears Creek Child Dev. Center	Prek-1	Whole school	Montessori
	Pontiac Elem/Upper Elem.	-----	Program	Montessori
2009	Sch. for Entrep. Leadership	k-5	Program	Entrepreneurship
	Environmental Fitness (efit)	k-5	Program	Environ. fitness
	Sci., Tech., Eng., Math School	k-5	Program	STEM
	ZooBot	6-8	Program	Zoology and Botany
	Leadership, Talent, and Dev.	k-5	Whole school	Leadership develop.
2010	Windsor Elementary IB	k-5	Whole school	IB Primary Years
	Wright Middle IB	6-8	Whole school	Middle Years (MY)
	Richland Northeast High	9-12	Whole school	IB MY & Diploma

Please note the shaded 2006 and 2010 magnets were created with MSAP funds. As exemplified by the various magnet programs and schools offered in the district, the Board of Trustees and the Superintendent are fully committed to the successful implementation and continued support of activities within magnet programs and schools throughout the district.

Our county's penny sales tax is a revenue source for the school district budget and consumer buying dropped dramatically in previous years. Like most public school districts across the nation, the school district is just now beginning to recover from recent budget reductions of \$14.8 million. Federal funds are requested to provide program components that are beyond the capacity of the district to provide. These funds will provide required personnel, curricular improvements, and activities that will make the magnet schools more attractive to diverse groups of students. Through the infusion of federal funding, the district will have the ability to implement high quality educational programs that will attract students and their families of underrepresented ethnic groups in order to eliminate the minority group isolation of African American students thereby creating diverse school settings. Federal funds will provide the magnet schools with the necessary resources to establish a unique STEAM program that will earn reputations for quality, innovation, achievement, and rigor. Local funding offered by Richland Two consists of State Title I Replacement Funds, Magnet and Specialty Programs Funds, and community-wide and district support.

Richland School District Two has a well-developed desegregation effort which was first implemented on a voluntary basis, as indicated in the attached documentation. The district has continuously operated its desegregation activities through local, state, and federal funding. The district has an unwavering commitment to utilizing magnet schools and programs to promote desegregation and foster interactions among various student groups and to improve experiences

of students through innovative, standards-based activity-driven, rigorous curriculums. This philosophy aligns with Frankenberg and Hawley’s research (2009) that suggests that students who attend magnet schools have higher achievement and are given the opportunity to learn in schools that are more racially diverse. The Full STEAM Ahead! program will provide an avenue to continue this long-standing tradition of magnet school success.

(2) The Secretary determines the extent to which the applicant—

(i) (5 points) Is committed to the magnet schools project; and

Richland Two is fully committed to implementing the proposed Full STEAM Ahead! program. The superintendent, other chief administrators, and the school board have publicly committed themselves to the success of the magnet program continuum at all three targeted schools. They recognize their importance in meeting the guidelines of the district’s voluntary desegregation plan. The district has assumed the initial costs of planning and designing the program and activities described in this application and, until MSAP funding is received, will continue supporting the costs of program development.

Also, Richland Two will provide equivalent operating support for this magnet continuum as it provides for other whole school magnets. As all schools in the district, these schools will continue to receive their district allocation for staff salaries and benefits, public utilities and energy, materials and supplies, capital outlay, purchased services, and instructional budgets. District allocations for the schools are considered average given the lean economic situation.

Avg. annual cost	Killian	Longleaf	Westwood
Salaries and Benefits	██████████	████████████████████	
Operating	\$407,552.94	\$556,522.80	\$1,659,092.52
Total	\$3,982,416.91	\$4,456,791.43	\$9,369,988.20

Cost per student	\$6,291.34	\$6,642.02	\$7,933.95
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The total cost of the basic program (averaging \$6,955.77 per student) will be the responsibility of the district. As indicated in the list of current district magnet programs, the financial allocations support the successful implementation and sustain the programs well. None of the expenses requested in this proposal represents supplanting. All line items in the budget are necessary to provide the highest level of instruction and to create the environment necessary to guarantee the success of the proposed STEAM project.

With the infusion of project-based, highly engaging instructional materials and resources, evidence-based and promising instructional strategies, specialized labs, professional development activities, and supplies needed to establish one and revise three exemplary school-wide magnet programs, the continuum works well within the district. The curriculum is sound, the reputation is impeccable, and the student benefits have been researched widely.

The schools will receive their regular allocation for staff and other operating expenses just like other schools in the district. The goal of this application is to request supplemental funding needed to provide the required teacher training, curriculum development, equipment and technology, instructional materials, and marketing materials that are vital to the success of magnet programs—but outside of the ability of the district to fund. With MSAP funding, Richland Two is committed to the implementation and longtime support of the magnet continuum as described in this application. After federal funding concludes, Richland Two will provide ongoing support and sustainability for these programs.

At the conclusion of funding for the 2004 and 2010 MSAP grants, the district continued to provide substantial support for the five magnet schools and two magnet programs. The same personnel are still employed and continue the arts infused and technology magnet programs. The

district also continues to service technological equipment purchased with MSAP funds and provides updated equipment on a regularly scheduled basis. These magnet programs created with MSAP funds successfully continue to reduce minority group isolation and increase academic achievement.

(ii) (5 points) Has identified other resources to continue support for the magnet school activities when assistance under this program is no longer available.

The budget requests for the three proposed magnet schools are heavily weighted in three areas: professional development, equipment, and travel. Equipment will be a one-time cost. MSAP funds will be used to provide the infrastructure to support the specialized curriculum at the target schools, but once the initial equipment purchases are made, only nominal funding, assumed by the district, will be required for maintenance and supplies. Support is necessary to provide many of the supplies necessary for Richland Two to purchase to start and maintain the academically rigorous magnet programs. Examples of such items include the STEAM curricular materials, equipment for the science labs, graphic arts studio, and technology. Once these items have been obtained, there will be no immediate need for replacement. The magnet programs can continue indefinitely without incurring major equipment costs again.

While equipment is necessary to implement the magnet themes, perhaps the most important support that will be provided by MSAP funds will be the comprehensive professional development that is necessary to support the magnet program at all three schools. Since each school will implement the STEAM curricular theme and an associated instructional methodology that is distinct from other district staff development initiatives, specialized training will be required of the staff at each school in order to assure project success. Teachers and staff at these three schools will participate in regular district-sponsored training-which aligns with the project-

based highly engaging professional development offerings made possible through this project. Also, MSAP-supported staff development will be accomplished during the summer or other non-school time. Once staff members have been trained and experienced success with the curricular focus at their respective schools, they can assume the responsibility and leadership for training and mentoring new teachers in future years. The district has used this professional development approach in the past, known as “train the trainer” and has experienced success.

Most grant applications include a significant amount of funding for personnel, such as the project director, curriculum facilitators, and other staff. Richland School District Two uses a systemic management model where each project proposal is intricately aligned with the district’s vision. Highly competent staff members are already employees of this district, so no additional staffing is necessary. Using the collaborative team-based approach, successful implementation of the project is greatly increased because all principals, school facilitators, and district office Academic, Finance, and Student Enrollment staff responsible for its implementation have initially assisted with the design of the project. Indeed, the chances for sustainability are greatly enhanced and buy-in is embedded for all schools and district level administration.

The district has used this management model for the past three years. Grant-funded projects totaling more than \$8 million have been managed successfully using current staffing with a heightened sense of dedication to the projects. When each school’s leadership recognizes that they are directly responsible for the outcomes of the grant-funded project, they tend to work more productively toward a successful completion--rather than it being the responsibility of one or two people at the district office level.

In summary, initial “seed money” is sought to provide the infrastructure for the Full STEAM Ahead! continuum so that the magnet schools can be supported by the district once the

initial funding is no longer available. A major portion of the federal funds will be used for project development, teacher training, and to purchase the necessary supplies and equipment required to develop the curriculum and implement the magnet themes.

Outside support for the magnet program has already been obtained from a strong mix of businesses and professional groups. Local business/community partners for the schools and their parental groups have all approved the magnet school plan and agree that it is vital to have strong and inviting program in their area in order to provide a diverse student body and to improve the academic achievement of individual students, as noted in Appendix B.

Any additional costs associated with the **Full STEAM Ahead!** project after the grant award period are not major in the context of the district budget. The school facilitators, working with a *highly qualified* faculty, have already developed an on-site leadership team that will maintain the magnet program at the elementary, middle, and high schools with guidance from district level academic coordinators and the Director of Academic Initiatives. The principals and school facilitators at these schools are well prepared to assume the operation of these programs. The goal is to develop on-site leadership and commitment to the project so each magnet school operates with a site-based management team coupled with continuous support from the district. This recipe for success began and is currently operating in the district's 32 magnets which have been created over a 22 year span. The district's philosophy has served the students and their families well. As Collins (2001) noted in *Good to Great*, when he reviewed companies who experienced good-to-great transformations, the one word that kept coming to mind was *consistency*. With that said, site-based management coupled with on-going, continuous support of these three targeted magnet schools is the district's consistent recipe of magnet school success.