

MC²STEM High School
Metropolitan Cleveland Consortium for
Science, Technology, Engineering & Mathematics

A Proposal to

The Partnership for Continued Learning STEM Subcommittee

Submitted by

Cleveland Metropolitan School District

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MC²STEM High School –Metropolitan Cleveland Consortium

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The Cleveland Metropolitan School District (CMSD), in partnership with the 45 members of the Metropolitan Cleveland Consortium for STEM (MC²STEM), public education, regional industry, higher education, and community leaders, proposes a school designed for the 21st century. The MC²STEM High School (MC²STEM HS) is the result of a unique regional partnership with enrollment open to 124,000 students across 14 public school districts. Using a year-round schooling model, MC²STEM HS has been strategically designed to provide students with an integrated core curriculum that is informed by a variety of field experiences, fellowships, and apprenticeships in the STEM fields, followed by a dual enrollment program in which students earn college or apprenticeship credit during their senior year of high school. MC²STEM HS intends to serve as an incubator for this trans-disciplinary, innovative inquiry-based approach to preparing the students of Cleveland to enter the pipeline into the new workplace.

Greater metropolitan Cleveland today possesses all the essential ingredients to cultivate a premier 21st century workforce. With a population of 4.3 million, 23 major Colleges and Universities, and the corporate presence of 39% of all Fortune 500 companies, Cleveland has the resources to lead in innovation and invention (Yen, 2006). Research and production in advanced manufacturing, health and medicine, and alternative forms of energy all showcase Cleveland's heritage of ingenuity, and provide solid platforms for future innovation.

Cleveland is poised to capitalize on this rich environment and become a national leader in STEM education. MC²STEM, a regional public-private partnership formed to invest in and develop STEM education for the region, is led by the Cleveland Metropolitan School District along with its educational partners—the Cleveland First Ring Suburbs, St. Martin de Porres High School, Hathaway Brown School, and the Cleveland Entrepreneurship Preparatory School. NASA Glenn Research Center, University Circle Institutions, General Electric, Eaton, and Siemens are some of the organizations and companies with international stature that have joined Case-Western Reserve University, Cleveland State University, Kent State University, John Carroll University and Cuyahoga Community College to form this regional hub.

2.1 Oversight

MC²STEM High School (MC²STEM HS) will operate under a new IRN assigned by the Ohio Department of Education, and be legally governed by the Board of Education of the Cleveland Metropolitan School District (CMSD).

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In collaboration with the Board of Education and consistent with applicable state and federal laws, an eight-member Board of Advisors, formed as a 501(c)3 non-profit corporation, will oversee the delivery of a highly competitive four-year, rigorous, college-preparatory program focused on the science, technology, engineering, and mathematics (STEM) fields. This board, responsible for planning and implementing endowment efforts to ensure the long-term sustainability of MC²STEM HS, will be appointed by the MC²STEM Hub with representation strategically balanced to include essential expertise and experience within the STEM fields, in higher education, in K-12 school operation, and in endowment strategies. The term Hub is used to indicate the STEM entity were all of the Hosts partnerships reside.

Table 1: MC²STEM Host Partners

K-12 Public Education	
Cleveland Metropolitan School District Cleveland First Ring Superintendent’s Collaborative Cleveland Teachers Union E City: Cleveland Entrepreneurship Preparatory School Hathaway Brown School St. Martin de Porres Catholic High School	
STEM Organizations	Institutions of Higher Education
Eaton Corporation Cleveland Clinic Foundation General Electric Imaging Research Center, UMBC Jones Day MWH NASA Glenn Research Center RPM International, Inc. Siemens University Circle Institutions	Case-Western Reserve University Cleveland State University Cuyahoga Community College Hiram College John Carroll University Kent State University
Public Partners	Non-Profit/Philanthropic Partners
Center on Education Policy Cleveland Public Library Cleveland Public Power Congresswoman Cuyahoga Metropolitan Housing Authority Employment Connection Greater Cleveland Partnership NorTech U.S. House of Representatives, 11 th District of Ohio Workforce Investment Board	Cleveland Council on World Affairs Cleveland Engineering Society Cleveland Foundation Cleveland Scholarship Programs Great Lakes Science Center Manufacturing Advocacy & Growth Network Northeast Ohio National Society of Black Engineers Alumni Science/Mathematics Achievement Required for Tomorrow Team Northeast Ohio The George Gund Foundation University Circle, Inc. WIRE-Net Youth Opportunities Unlimited

2.2 Compliance

As the fiscal agent and legal governing body, CMSD accepts full responsibility for ensuring that MC²STEM HS operates in full fiscal and legal compliance with R.C. chapter 3326. The Deputy Chief Legal Counsel for CMSD will be directly responsible for this oversight, including review of proposed governance policies and operating procedures.

2.3 Curriculum and School Design

Curriculum Principles

MC²STEM HS is designed to provide a world-class STEM education that demonstrates the kind of teaching and engagement needed to educate young people and thus is designed both to add value to the STEM industries with interns and reciprocal relationships to energize the greater Cleveland education community with innovative teaching for all children. A core value of MC²STEM HS is that the teaching and engagement of students in their own learning must reflect a clear and evidence-based strategy that, "...expands the role of the teacher substantially, from someone who focuses just on subject matter to someone who focuses on students, including the larger context in which they live." (Foster, 1991,1995). Central to the school's vision are its seven core design principles. These design principles, crafted by the MC²STEM Hub (2007), provide the backbone for every aspect of the school's design and operation. They will be the basis for instructional change in existing schools and serve as a mechanism to advance teaching and learning for all students. MC²STEM HS will:

1. Ensure opportunities for all students to be academically challenged while appropriately supported.
2. Use multiple metrics to measure success and assess the demonstration of mastery.
3. Provide an instructional program that reflects the need for all STEM education to be trans-disciplinary:

Students will master core literacy skills of writing, reading, speaking, listening, viewing, and presenting.

Students will master STEM literacy skills of design, inquiry, invention, and teamwork.

4. Deliver an instructional program that is highly differentiated:

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Teachers will ensure a culture of discovery, collaborative learning, content integration, and workforce relevance using a problem-based learning approach.

5. Hire and train a diverse faculty:

The faculty will include industry partners, professionals from institutions of higher education and from the skilled-trades, and PreK-12 education instructors.

The leadership will ensure regular professional development focused on cross-training experiences, thorough development of trans-disciplinary instructional units, and systemic strategies for knowledge-sharing amongst the STEM disciplines.

6. Serve as a microcosm of the global STEM community:

All STEM school partners, including students, families, faculty and staff, and community participants, will be engaged in an array of opportunities to work collaboratively in leadership, internship/fellowships, advisories, mentorships, and service learning roles.

7. Recognize the importance of citizenship

The leadership and staff will create and support ongoing outreach opportunities promoting the strengths of the school community and ensuring that families are actively engaged in their child's education in relevant and meaningful ways.

The MC²STEM HS Innovative School Design

MC²STEM HS will employ a year-round schooling model which aligns with the world of work and reduces the dramatic knowledge loss associated with typical school calendars. Students attend classes in 10-week quarters followed by three-week breaks. Ten-week internships will be completed in various STEM fields in the first and second year of the program, followed by an in-depth, forty-week fellowship experience in the third year. MC²STEM HS will be embedded in existing field campuses of key STEM companies in the region so that students will be exposed to workplaces and participate in real world STEM experiences. To ensure a breadth of experiences in the STEM fields, each year of the MC²STEM HS program will be hosted in a different location. The fourth-year program will be a

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completely dual-enrolled early college and/or early apprenticeship program, allowing students to begin the pursuit of a skilled career in the STEM fields prior to high school graduation.

During the first three years, students will attend classes in the mornings and participate in internships and fellowships in the afternoon. The first year is tentatively planned to be hosted on the Nela Park campus of General Electric (GE) in East Cleveland. In the afternoon, students will be paired in one-to-one internship experiences with members of GE's 700-member workforce, providing one-to-one mentoring for our students and direct access to the STEM-related fields and professionals. This structured apprenticeship is based on research highlighting the power of linking classroom theory to practical learning experiences under the supervision of practicing professionals (Young & Baker, 2004). It allows students to learn "why this stuff is important". The sophomore year will be housed on a different STEM corporate campus and continue the 10-week internships. The junior year will be hosted in a downtown facility, with in-depth fellowship experiences hosted by multiple STEM companies throughout downtown, allowing smaller and specialized companies to participate. Each partner company will host a small number of fellows and provide a stipend to each student. While locations for the sophomore and junior years have yet to be determined, several potential partners have been identified. The senior year partnership is planned to be on or near the Case Western Reserve University and University Circle and serve as a "commuter campus center" for students as they begin a full dual enrollment experience for their senior year.

Development of Innovative and Inquiry-based Curriculum

Developing a solid curriculum that is responsive to industry needs, aligned to the Ohio Academic Content Standards, and connected to higher education courses will largely determine the success of this school and its students. A high-quality and diverse team with members from industry, higher education, and P-12 education will ensure that a rigorous, interdisciplinary and meaningful curriculum is created. The MC²STEM HS curriculum will be developed by the MC²STEM Hub's Curriculum and Instruction WorkNet committee. Under this WorkNet structure, several *work groups* will design specific curricular components: the STEM curriculum, the Humanities, The Arts and Design, Co-Curricular Experiences, and Health and Wellness. Each workgroup will include: representatives from STEM-related fields to ensure the curriculum aligns with workforce-readiness standards; representatives from post-secondary education to ensure the curriculum aligns with college-readiness standards; representatives from PreK-12

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education to ensure that curriculum is rigorous and complies with state content standards; and representatives from key stakeholders—families and students. The WorkNet strategy brings each work group together as a cohesive planning team, ensuring integration of these design components. The MC²STEM HS Board of Advisors will review the curriculum design, requesting revisions from the WorkNet until the design is aligned with the school's vision and design principles and with the MC²STEM Hub's broader expectations.

To ensure effective curriculum design, the Curriculum and Instruction WorkNet will use the research-based backward design planning model, Understanding By Design, developed by Wiggins and McTighe (1998), the Big Picture interdisciplinary curriculum design strategies of Jacobs (1989), and a school-level adaptation of the Harvard Public Education Leadership Project (PELP) Coherence Framework (Childress, Elmore, Grossman, and King, 2006) to guide their work. In concert, these design frameworks will drive this innovative curricular approach

The Ohio Academic Content Standards, Technical Content Standards for Information Technologies and Manufacturing Technologies and the planned Technical Content Standards for Engineering and Emerging Technologies will serve as the platform for all curriculum development and instruction. (RFP *Item 2.3.6*) WorkNet will demonstrate how the grade band benchmarks are successfully interwoven to create a cohesive trans-disciplinary curriculum and four-year Ohio core curriculum path. Finally, so that the curriculum is a meaningful tool that drives daily instruction, WorkNet will be responsible for publishing the finalized curriculum in kid-friendly language for use in the classroom as one tool for solving real life problems (Springer, 2006). Each quarter, using the student-driven program model (Springer, 2006), teams of students, teachers, higher education faculty, and industry partners will collaboratively identify a current problem facing modern STEM industries, identify the curriculum objectives that are necessary foundational competencies in order to study the problem, and work as teams of researchers with host partners to propose explanations and test solutions for the problem. (RFP *Items 2.3.1, 2.3.2, 2.3.4, 2.3.7, 2.3.8/ 2.3.9*) This provides a daily demonstration of the use of the design process to ensure that students master underlying scientific phenomena, and the logic of mathematics. Additionally, "Designing results in a distinctive kind of knowing and knowledge. ...through designing, people learn much of the tacit aspects of knowledge that resist formalization but are central to any practice." (Designing Communities, Roth, 1999) Furthermore, this provides a contextual framework from which to apply diagnostic, prescriptive and accelerative instructional strategies to ramp up

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mathematics understanding and mastery. (*RFP Items 2.3.2, 2.3.7, 2.3.8/ 2.3.9*) As evidenced in Boaler's research (1998), "The students who learned mathematics in an open, project-based environment developed a conceptual understanding that provided them with advantages in a range of assessments and situations".

The Board of Advisors will be responsible for vetting the completed curriculum proposal against the MC²STEM HS Design Principles, and evidence of academic research, industry data, and best practices supporting the proposal, before approving the curriculum.

A very strong host partnership is being created in the energy and sustainability STEM community. Many MC²STEM hosts are involved in developing northeast Ohio as a renewable and sustainable energy center with coordinated education offered to the community at large. MC²STEM HS students and their contributing districts will work closely with the industry as it forges ahead. No longer will students be analyzing dated materials—they will be side-by-side with the research and development of an economic cluster industry that is vital to their own lives in the coming century. Problems will be real and work will be timely and important beyond the school walls. The "T" and the "E" in STEM will no longer be layered in the curriculum but will be the bridge for the study of science and mathematics. Engagement with Geographic Information System, Computer Aided Design, Starlight™, animation, digital imaging research platforms and more will support their work in these areas. Moreover, students at MC²STEM HS will use inquiry throughout their high school career as they address the challenges of a new school as well as adolescence. They will be tooled for career-level decision making as well as lifelong learning. (*RFP Items 2.3.1, 2.3.2, 2.3.4, 2.3.5, 2.3.7, 2.3.8,/2.3.9*)

"The ability to communicate, adapt, diagnose problems, and find creative solutions is more important than ever before." (National Assembly of State Arts Agencies, 1998, p. 11). Rigorous study in the arts and humanities not only provides the communication tools necessary for the global economy, but also fosters natural creativity, student engagement, and persistence—essential problem-solving skills (National Assembly of State Arts Agencies, 1998). MC²STEM HS students will be expected to include both the arts and humanities in the study of these contextualized team problems. (*RFP Items 2.3.3, 2.3.9*) Through examining historical context as academic researchers, preparing and presenting scholarly papers, crafting two-dimensional sketches and drawings and three-dimensional models, presenting speeches and demonstrations, and studying science and technology principles through the lens of design,

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students will be engaged in “this basic human approach to meeting life’s challenges” (Haury, 2002). Students will apply design skills as engineering solutions to problems and issues and will also demonstrate their prowess by addressing novel and important situations, such as public issues facing their own neighborhoods and communities. (RFP Items 2.3.1, 2.3.2, 2.3.3, 2.3.5, 2.3.7/ 2.3.9)

Ohio’s *Individual Academic and Career Plan* (Ohio Department of Education, 2007a) supports each student’s individualized digital learning portfolio, and will be specifically used to personalize the MC²STEM HS learning experience. (RFP Item 2.3.5) The digital portfolio offers students and teachers a chance both to archive exemplary work samples and to be thoughtful about the importance of that work at the time. The portfolio will drive the continued design work needed to keep the school dynamic and responsive to student needs and alignment with the STEM industries. As students continually refine their education and work history, a major component of the digital portfolio, they will use their updated resume and application credentials to interview for internship, fellowship and university experiences. Finally, students will use the Individual Academic and Career Plan portion of the digital portfolio to collect work exemplars (including artifacts from team projects, artifacts from work-based experiences, and evidence of individual academic research) and formal academic data (including high school course transcripts, dual-credit transcripts, and achievement test data), and will describe why each artifact was selected and how it provides the best evidence of learning. (RFP Item 2.3.7) These individual digital portfolios, with multiple sources of evidence, will be a required component of the credit based on demonstration of competency plan described below. Students will present their portfolios each year to a committee comprised of their mentor, a parent/guardian, teachers, STEM professionals and community partners.

According to the National Governors Association (NGA) report, *Innovation America: A Compact for Postsecondary Education* (2006), “the knowledge-based economy requires that postsecondary education graduates are equipped with strong foundational skills and competencies as well as interdisciplinary problem-solving abilities vital to the nation’s overall competitiveness.” MC²STEM HS students will model these behaviors as a daily part of their academic and workplace experience.

2.4 Leadership

Leadership of MC²STEM HS will be central to its success. The Cleveland Foundation and The George Gund Foundation will fund Gelber Search Associates, an executive search firm for K-12 education, to conduct a national search for the Head of School. Potential candidates will be identified and screened against a profile based on the vision and design principles of the MC²STEM HS, the specific provisions of O.R.C. Section 3326.03(C)(3), the provisions of this proposal, and direct consultation with the Executive Director of the Teaching Institute for Excellence in STEM. A candidate will be selected after a series of interviews conducted by a committee to include the MC²STEM HS Board of Advisors and a representative from The Cleveland Foundation and The George Gund Foundation.

The successful candidate will bring a demonstrated track record of results in a high school leadership role, school startup or transformation and experience working with similar student populations. Preference will be given to candidates who have experience with STEM schools, other similar models or achievement oriented, non-traditional project-based learning schools.

Building a high-functioning leadership team is critically important. The Head of School will be supported by a Freshman Campus Manager (to be appointed in July 2008), a Sophomore Campus Manager (to be appointed in July 2009), and a Junior/Senior Campus Manager (to be appointed in July 2010). These managers will be screened based on the same profile and selected through a rigorous interview process.

The Cleveland Foundation and The George Gund Foundation have also funded an Interim Senior Executive for New Schools who will serve as project manager and interim head of school. Mr. Raymon Spottsville holds a Bachelor of Science in Biomedical Engineering and a Master's Degree in Business Administration. He has been recognized for raising the achievement of minority students in mathematics, with the Ohio's BEST Practice Award and the State of Ohio's Award of Distinction (in 1998) for the academic program *Instructional Mathematics: Helping Our Teens Excel Program*.

2.5 Professional Development

Professional development for faculty will use an evidence-based protocol aligned to the Ohio Standards for Professional Development (Standards for Ohio Educators, 2007). Building on the National Science Foundation and Horizon Research's 10-year longitudinal study of local systemic change in mathematics, science, and technology,

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(Banilower, Boyd, Pasley, & Weiss, 2006), the professional development plan for the MC²STEM HS includes three significant characteristics: quarterly faculty institutes; daily common collaborative time; and embedded industry internship experiences.

Professional development will be a “purposeful, structured, and continuous process that occurs over time” (Ohio Department of Education, 2007b, p. 60). A revised teacher workday allows for quarterly one-week STEM Development Institutes (SDIs), in which STEM partners will collaboratively engage in “the study, evaluation and integration of relevant and current best practices and research” (Ohio Department of Education, 2007b, p. 60). Agendas for each SDI will be collaboratively developed by the professional development workgroup of the MC²STEM Hub. Each SDI will conclude with a knowledge-sharing component to include locally juried presentations, submission of scholarly materials for presentation or publication, and other methods of scholarly knowledge-sharing. These quarterly SDIs will be open to all members of the MC²STEM Hub.

Second, specific time is built into the MC²STEM HS work day for collaborative faculty work sessions. Academic research indicates that common planning is most effective when it is set aside for the purposes of “planning ways to integrate the curriculum, analyze test data, review student work, discuss current research, and reflect on the effectiveness of instructional approaches” as opposed to using this time for attention to individual student concerns and issues (National Middle School Association, 2003, p. 29; Spears, 2005; Springer, 2006; and Williams & Blackburn, 2006); the campus manager, faculty, and staff will be expected to use this common planning time for curriculum development and professional growth purposes.

MC²STEM HS faculty will have opportunities during the first year of operation, and every four years thereafter, to acquire, enhance, and refine their own STEM-related skills experiences in STEM fields and participate in four individualized 10-week internships. These regularly scheduled faculty internships ensure that those teaching the knowledge and skills for success in STEM fields regularly refine that teaching, with in-depth professional development seminars (SDIs), daily collaborative planning, and by participating as functioning members of the professions for which they are training students.

2.6 Collaboration

The creation of MC²STEM HS is evidence of unprecedented collaboration as seen in the list of MC²STEM Host partners in Table 1 (page1) and in the attached Commitment Letters (See Appendix). Each partner contributes to the development of a unique educational experience that will cultivate the skills needed for future success. Partners bring experience in structuring internships for high school students, curriculum design, dual enrollment opportunities, and actual internship opportunities. This new collaborative partnership allows the metropolitan Cleveland community to envision the world-class education that is necessary for a competitive global economy.

MC²STEM HS will advance STEM education in the region using an incubator strategy. The successes of MC²STEM HS will inform and drive curricula and instruction at other Opportunity Schools of Choice within CMSD, including SuccessTech Academy, The Cleveland School of Science and Medicine, The Cleveland School of Architecture and Design, The Cleveland Early College High School, Max Hayes Career-Technical High School, and the planned Cleveland Early College School of Industrial Design (opening in August 2008).

Finally, MC²STEM HS will provide CMSD and First Ring Districts with an understanding of what works in STEM education. As an incubator it will fuel the development of infrastructures designed to capture this learning and key metrics, analyze with a value-added lens and push the new learning to the schools within the districts and across the region.

2.7 Support

The MC²STEM Hub members have committed both to the vision of MC²STEM HS and to the hard work of designing a school that successfully achieves that vision. Each individual and organization who has committed as a Host of the MC² STEM Hub has clearly stated definitive financial or in-kind resources provided to the Consortium and to the MC²STEM HS and the reciprocal benefits received. Sustainability is ensured through reciprocal relationships forged by these Host partnership commitments, as shown in the Commitment Letters in the Appendix.

2.8 Contingency Plan

Should MC²STEM HS close for any reason, remaining assets will be distributed as follows:

1. Physical classroom spaces will remain the property of the Host who holds title to the space and shall be returned to the owner in its current state, including any renovations or modifications.

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2. Consumable and loose inventory will be divided among the MC²STEM Hosts in a percentage consistent with the school's enrollment at the time of the decision to cease operations.
3. Fixed inventory that can be reasonably removed and re-used will be divided among the MC²STEM Hosts in a percentage consistent with the school's enrollment at the time of the decision to cease operations. Fixed inventory that cannot be reasonably removed shall be considered part of the physical space and become the property of the Host with title to the space.
4. Intellectual property (including the curriculum, assessments, Student Information System, all student records, employment records, etc.) will become the property of the Fiscal Agent who will assume responsibility of the maintenance and access.

2.9 Partnership Structure

The partnership structure involves all stakeholders as described in RFP sections 2.1, 2.3, 2.4, 2.5, 2.7, 2.11, 2.12/ 2.13. The Letters of Commitment provide documented evidence of enthusiastic support and commitment to the new school.

2.10 Student Enrollment

MC²STEM HS will serve students in grades 9 through 12 living within the boundaries of CMSD or the thirteen First Ring School Districts. No admission criteria will be used except those required by O.R.C. 3313.10. One hundred students will be served in each cohort. The first cohort, beginning in grade 9, will begin in July 2008 with additional grade 9 cohorts beginning each year thereafter. Of the 100 seats in each cohort, 75 seats will be available to students from CMSD and 25 seats will be available to students from the fifteen First Ring School Districts. If more students from either group seek admission than there are spots available, a lottery will be conducted to determine which students are admitted. Once all seats are filled by lottery, a lottery-based numerical waiting list will be created for remaining applicants.

An aggressive student marketing and recruitment plan, targeting racial, ethnic, socio-economic and gender balance reflective of the region, will be implemented in the spring of 2008. MC²STEM HS will be marketed as part of the CMSD portfolio of Opportunity Schools of Choice, and will be featured at the district's Victory Starts Early Parent Information Fair. Planned meetings with eighth grade teachers and students throughout the metropolitan region will

provide opportunities for students to learn more about MC²STEM HS. An informational website will be developed and regularly updated as part of the recruitment strategy, and targeted mailings will be sent to the homes of public, private, and parochial 8th grade students living within the CMSD and First Ring Suburb attendance boundaries.

2.11 Employment of Faculty

High quality STEM teachers “are critical to preparing children to succeed in the innovation economy” and yet schools and school districts across the nation are experiencing severe shortages of qualified teachers in STEM fields (NGA, 2007., p. 11). The aggressive recruitment of STEM faculty is critically important to the MC²STEM Hub. The selection of teachers and other staff members of MC²STEM HS shall be strictly based on interview, as is agreed upon by the Cleveland Teachers Union. MC²STEM HS faculty will be recruited and selected from P-12 education, higher education, and industry, and the search for faculty will include both regional and national advertisement and recruitment. In order to ensure a faculty with a breadth of experiences in both educational pedagogy and STEM content, MC²STEM HS will take advantage of each of the State of Ohio’s licensure pathways: traditional licensure, alternative licensure, and the new licensure route created in Ohio Revised Code section 3319.28. Cleveland State University has committed to host a teacher licensure program, a replication of University of Texas UTEACH program in alignment with the guidelines provided in the Revised Code and the applicable rules of the State Board of Education, to ensure that STEM High School teachers are highly qualified and licensed by the State Board of Education as described in RC 3326.13. Local Cleveland Foundations are supporting the Woodrow Wilson Foundation STEM Fellows program pilot. Ohio would join Indiana and California in this pilot program to support the education of STEM-content teachers.

Team-teaching and co-teaching in the problem-based, inquiry-based modular curriculum will ensure that those seeking STEM licenses are in structured apprenticeships and directly supervised by licensed educators. Business partners and higher education faculty may serve as STEM teachers provided they meet the guidelines provided in the Revised Code and the applicable rules of the State Board of Education. Each faculty member is required to submit to background checks as required by the Revised Code. Finally, the regularly scheduled training seminars required of new teachers will be embedded into the quarterly SDIs proposed in the Professional Development section.

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The Cleveland Teachers Union, Host Partner, has agreed to enter into a Memorandum of Agreement for the MC²STEM HS that allows for an extended school day and year, the selection of staff members through a specifically agreed-upon interview process, contractual requirements ensuring collaboration, and contractual requirements ensuring a faculty-led student advisory period.

2.12 Relation to Other Schools in the Region

Through the MC²STEM Hub, a wide variety of PreK-12 Host partners from public, private, parochial, and charter school communities have committed to the collaborative work of STEM and to share best practices to inform the work of the Ohio Department of Education. All partners participate in the workgroups described above, and bring knowledge learned from their school programs to the design of the MC²STEM HS. As part of the ongoing collaborative benefits of the MC²STEM Hub, each member Host will participate in the regular SDIs and the efforts to share lessons learned and best practices. Additionally, through the support of a corporate Host, an online learning community will provide a portal for the sharing of digital portfolios of knowledge captured from the SDIs.

2.13 Collaboration with Identified Ohio-based Nonprofit Enterprise

By design, the MC²STEM HS is a discrete component of the Metropolitan Cleveland Consortium for STEM (MC²STEM). MC²STEM was planned to serve as a regional Hub, allowing for the easy flow of information throughout metropolitan Cleveland and across the state of Ohio. Both the MC²STEM Hub and MC²STEM HS are prepared to work closely with the Partnership for Continued Learning or any nonprofit enterprise selected by the Partnership for this purpose. It is the intent of the MC²STEM Hub and MC²STEM HS to share knowledge and to gain knowledge about (a) curriculum development, (b) instruction, (c) assessment, (d) teacher quality enhancement, (e) leadership recruitment and training, and (f) community engagement. MC²STEM HS has reached out to the NGA STEM Center in Dayton to ensure that it is participating in the Center's work throughout the state. It is anticipated that the MC²STEM Hub will work on behalf of the school to deepen this relationship and work together to impact the statewide STEM agenda.

2.14 Sustainability

Five strategies will ensure a high probability of student success, sustainability, continued community support, and replicability of MC²STEM HS. First, by coordinating the MC²STEM Hub prior to designing this high

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school, the region has established a clear commitment to embed STEM education into the current educational system while expanding student support services to increase the probability of success. Second, the Board of Advisors for MC²STEM HS has been specifically tasked with the creation of an endowment for the support of the high school over time. Third, each Host partnership pledge of participation was written with great care to create established, concrete commitments on which the school can depend. These Host agreements were crafted to ensure a reciprocal relationship that returns value to the Host partner, thereby positively reinforcing the initial investment and insuring continued community support. Fourth, the public funds requested in this proposal have been specifically targeted for use with start-up costs. As an “incubator” school, MC²STEM HS will provide a laboratory and a model for innovative research-based instructional strategies that will realign the state’s education system so that all Ohio students have the knowledge and skills to fully participate in the 21st Century economy as innovators, inventors, and problem-solvers who are self-reliant, technologically proficient, and logical thinkers.

2.15 Project Budget

On behalf of MC²STEM, the CMSD is requesting \$600,000 from the Ohio Board of Regents to purchase equipment, software, and 9th-grade textbooks and resources, as well as the LifeTrak evaluation, 9th-grade curriculum development, website development, student and staff recruitment, and the additional salary and fringe costs associated with an extended-day, extended- year school schedule. A preliminary 3-year budget has been developed which reflects adequate and verifiable income to support proposed operations and innovative STEM programs and meets the goals expressed in ORC 3326. The budget includes extensive local and in-kind support integrated with state support. Year two and three represents local support of the proposed school. Upon funding, the MC²STEM Hub partnership will continue to define financial and in-kind commitments from the Host partners.