

Maine School of Science and Mathematics Vision 2020 to 2045



MSSM Discovery and Vision
Committees November 2020

MSSM Business Plan Committee 2020

Designation	Member
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Executive Director of MSSM	David Pearson, Executive Director
Treasurer of the Board of Trustees	Peter Orne, Business Manager-Rockland schools
Chair of the Governance Committee	Josh Chalmers, co-chair, Texas Instruments Manager
At-large member of the Board of Trustees	David Coit, co-chair, founder North Atlantic Capital
Representative of the Maine Dept. of Education	Dan Chuhta, Deputy Commissioner of DOE
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Alumni Representative	Kate Reilly-deLutio, alumna and former Maine State Economist
MSSM Foundation Representative	Jeremy Shute, alumnus and Google executive
At-large Member	Ruth Kermish-Allen, MMSA Executive Director

Executive Summary

The Maine School of Science and Mathematics (MSSM), founded in 1995 in Limestone, serves as the state's public residential school providing science, technology, engineering and mathematics (STEM) focused curricula to some of Maine's brightest and most motivated students. The school has educated many students over the years that have gone on to pursue very successful careers in science-based fields, many remaining in the state.

After 25 years of success, the school is facing physical and financial limitations with aging and outdated infrastructure, years of flat funding from the state, pressures on families to pay full room and board, and lack of university and research partnerships. To respond to these growing challenges, the Board of Trustees commissioned a Business Planning Committee to develop a new business model that preserves "the superior academic program in a safe environment for the students in MSSM's care and to identify partners to support the model."

The Business Planning Committee launched workgroups to conduct outreach and research to understand the opportunities and possibilities for MSSM and its role in Maine's economic and educational landscape. The Partnership Committee met with more than 35 business and education leaders in the state to seek input and the Discovery Committee commissioned research to understand the economic and education landscape in Maine, and how successful public residential STEM schools in other states operate. The outreach and research yielded the following findings:

Maine's State Economic Plans Call for More STEM Trained Workers as Key to Economic Growth

- Maine's economic development plans call for investments in talent, infrastructure, and innovation to fuel economic growth. The US Chambers of Commerce studies estimate that 50% of the country's growth in GDP is tied to innovation. To achieve these important goals, Maine will need more STEM trained workers.

Many Maine Students Are Falling Behind in Math Proficiency and Lack STEM Opportunities

- Maine students' proficiency levels in reading and math are lower than New England states and much lower for economically disadvantaged youth compared to others in the state. 2018 11th grade math scores for economically disadvantaged were 19% proficient compared to 43% all other students.
- Too few students have access to rigorous STEM education opportunities in Maine and most are found in the regions with more resources and population.

The In-Depth Review of Six Peer Public Residential STEM Schools Provided Insights into School Operations (AR, IL, LA, SC, MS, NC)

- All but one of the schools are in rural poor states like Maine.
- Similar to MSSM, all of the peer schools have a dual mission of providing challenging curriculum to the state's most motivated, high achieving students in the residential program and provide STEM learning opportunities to educators and students across the state. The peer schools are highly active in their outreach activities including providing distance education for students, educator professional development, curriculum, early programs to nurture younger student interest in STEM, and teacher certifications, to name a few.

- Most of the schools have deep relationships with universities and private laboratories to give students extensive mentored research opportunities. The two most rural schools, including MSSM, could not offer those opportunities due to remote locations.
- All of the peer schools are well funded by their states, 75% to 100% of the budgets are covered through state appropriations. MSSM is funded at 68%. MSSM is the only school that expects families to pay for full room and board. Some schools require meal fees and programming fees. All schools, including MSSM, offer financial aid to qualifying families and students.
- MSSM has the lowest enrollment capacity at 140, the others ranged from 236 to 680. With four grades, MSSM graduated the fewest students each year. Most of the other schools have 11th and 12th grades only, with plans to add 10th grade. The peer schools describe their value to their states as “producing highly motivated STEM trained graduates” each year.
- The social and emotional health of the high achieving students is paramount to the successful educational experience at each of the schools. Many students have a lot of anxiety and lack the social skills needed to thrive. The schools invest significant resources in promoting and protecting the social, emotional, and mental health of their students.

Implications and Vision for MSSM

The situation analysis and peer school review reinforced the areas where MSSM is doing quite well and identified the areas where it could have a larger impact on the economic and education landscape in Maine. The MSSM Board of Trustees reviewed the background work, the lessons from peer schools, and recommendations on October 24, 2020 and approved a vision for the school. The vision is as follows:

Residential Program Excellence

- Improve Maine’s Return on Investment
- Strengthen Research Partnerships
- Invest in Student Safety and Welfare
- Commitment to a Culture of Quality Improvement

Outreach Program to Support High Achieving Students in Maine

- Increase engagement with more of Maine’s high-achieving students
- Support Maine’s rural students and schools
- Build a state-wide community of “MSSMers”
- Become a resource on best practices for STEM instruction

*MSSM Board of Trustees approved the concepts in Phase 1.

Background

Founded in 1995, the Maine School of Science and Mathematics (MSSM) is the state's public magnet school focused on providing science, technology, engineering, and mathematics (STEM) education to high achieving students in a residential setting. This special purpose public school serves students who require a challenging course of study that cannot be offered at their local schools and who greatly benefit from learning with peers in a residential setting. "I found my people" is a phrase often used by current and former students who found great relief and opportunity when they entered the school of likeminded peers.

By many measures the school has been very successful. In 2019, *U.S. News & World Report* ranked the school second out of 17,000 public high schools in the nation and it ranked in the top 20 in the years leading up to that silver spot. Its students consistently achieve high scores on standardized tests and go on to have very successful careers in the sciences and related fields.

While MSSM has been successful in building a strong STEM school, educating many high achieving students over 25 years, it is currently facing physical and financial limitations. Its buildings, built in 1952 and 1973, have long outlived their useful lives and no longer support modern instruction nor student safety. Its remote location places it far away from the state's population center and out of sight from Maine's most innovative STEM businesses. It is also several hours drive to the state's research universities, precluding the natural synergies of proximity. State funding has remained flat for the past five years, while operating costs have increased. Unlike a traditional public school, MSSM does not have the ability to levy taxes on a wider community to cover gaps in state funding and needed services. Rather, the gap has been filled by requiring families to pay full costs of room and board, now \$9,300 per year. This expense is prohibitive for many families.

Faced with these challenges, the Board of Trustees commissioned a Business Planning Committee in May 2020 to develop a business model that preserves "the superior academic program in a safe environment for the students in MSSM's care" and to identify the resources and partners needed to support the model. The Business Planning Committee created three sub-committees; the Vision Committee, the Discovery Committee, and the Partnership Committee.

Partnership Committee. The Partnership Committee identified more than 35 STEM business and education leaders in the state and met with each to understand their views of MSSM and its potential role in Maine's economic and education landscape. From these discussions, the committee identified potential future partners. See Table 1.

Discovery Committee. The Discovery Committee investigated the current availability of STEM education in Maine, and state's workforce needs, and best practices at public residential STEM schools in other states.

Vision Committee. The Vision Committee used the findings from the Partnership and Discovery Committees to develop a vision for a successful and enduring residential STEM school.

Table 1. Partnership Committee Outreach Meetings

Sector	Partnership Outreach
Foundations	Bangor Savings Bank Foundation, Harold Alfond Foundation (pending), Maine Community Foundation, Maine School of Science and Mathematics Foundation
Industry	IDEXX, MaineHealth, WEX
Higher Education	<p>Private Colleges Bates College, Bowdoin College, Colby College, Thomas College, Unity College</p> <p>State Universities Maine Maritime Academy, University of Maine System, University of Maine, University of Maine at Presque Isle, University of Southern Maine</p>
Non-profits and Trade Associations	Educate Maine, Maine Education Association, Maine Math and Science Alliance
Research	Bigelow Laboratory, Jackson Laboratory, Roux Institute at Northeastern University
State Agencies	Department of Education, Office of Innovation

The Vision, described herein, is the first step in a multi-phase process articulated in the Business Planning Committee Charter:

- Phase 1: Discovery and vision development- COMPLETE
- Phase 2: Feedback and authorization from state partners
- Phase 3: Business plan development
- Phase 4: Implementation

This brief shares the findings from the environmental scan of STEM needs in Maine, lessons learned from peer schools in other states, and current needs for MSSM. It lays out the future vision for the school's next 25 years. This vision was developed in an open, dynamic process. Drafts were shared for input and comment at multiple community sessions for MSSM various stakeholders – faculty and staff, students, parents, and alumni. Through these discussions, the vision came into focus, adding analysis and answering questions. The current vision was discussed and adopted by the MSSM Board of Trustees on October 24, 2020 at a special board meeting.

The STEM Economy and the Role of State Residential STEM Schools

Maine's STEM Economy

STEM jobs fuel innovation and innovation drives economic growth, yet Maine has fallen far behind other states in the size and strength of its STEM economy. While there are several national and internationally known STEM organizations in Maine – Jackson Laboratories, Bigelow Laboratories, Roux Institute, WEX, IDEXX, MaineHealth, and the University of Maine System, to name a few – Maine lags the nation in research and development spending, STEM job creation, and STEM degrees earned.

The National Science Foundation Indicators show:

- In 2017, annual spending on research and development was 0.84% in Maine, compared to 2.80% nationally.
- In 2018, Science and Engineering jobs as a percentage of all jobs was 3.57% in Maine, compared to 4.89% nationally.
- In 2017, new STEM doctorate degrees conferred per 1,000 STEM professionals with doctorates was 18.1 in Maine, compared to 50.9 nationally. Maine ranked 50th by this measure.¹

In addition to the lack of investment and low numbers of STEM graduates, there are several demographic challenges that hold Maine back. The population is aging and there are relatively fewer young people entering the workforce. In addition to an overall workforce shortage, employers report an on-going misalignment between workforce skills and job openings.

- Maine is the oldest state in the nation, with median age of 44.9 versus 38.2 in the U.S., which portends many retirements in the coming decade.²
- Many Maine employers report a skills gap – not being able to find workers with the training and skills they need to fill positions, especially in STEM fields.
- Maine Department of Labor forecasts growth in STEM job openings by at least 4,000 per year each year for the next ten years, with new positions and filling open positions.³

STEM Skills are in Demand, but Many Students are Left Behind

There are many reasons students do not pursue STEM education including the lack of proficiency, self-confidence, and awareness of the opportunities. The deficit in skills starts early in life and the gap widens as young people move through primary and secondary schools. By the time students reach 11th grade, only 35% are proficient in math, with stark differences in proficiency levels between economically disadvantaged students, 19%, and those who are not, 43%.⁴

In recent years, schools and educators have taken steps to strengthen STEM education. There are a variety of programs that offer STEM curricula and hands-on learning opportunities to high school students to improve skills, increase interest, and prepare them for future STEM careers. Unfortunately, access to these rigorous programs is not universal.⁵ Of the 56,000 high school students in Maine, approximately 17% have access to a rigorous STEM program, and far fewer fill the limited seats available. These programs are located along the more populated I-95

corridor and coast, leaving the western and northern regions with limited access. These underserved areas tend to be rural and poorer, and many lost population and tax base in recent decades, further straining the ability to fund STEM programs. Furthermore, many schools face high and growing demand for mandated special education services, which are often very costly.

MSSM has an Important Role in Creating Talent, Driving Innovation

In 2019, the Maine Department of Economic and Community Development working with leaders from around the state developed a plan that lays out a roadmap to tap into Maine's strengths and grow the economy.⁶ The plan calls for focus and investments in talent, innovation, and infrastructure. Key among the recommendations is the need to increase and improve educational opportunities for residents at all stages of life so they can gain the skills they need to succeed. MSSM, as Maine's STEM magnet school, has a clear and important role to play in this vision.

Comparing MSSM to Public Residential STEM Schools in Other States

The pressing need and opportunity for MSSM to play a larger role in STEM education raises the question of how other states' public residential schools intersect with education and the economy and what are their best practices. In August 2020, MSSM commissioned a research study of the 15 public residential STEM schools in other states, including in-depth interviews with seven administrators of the most successful ones. This work revealed many lessons for MSSM. The six state schools in the deep review are located in Arkansas, Louisiana, Illinois, Mississippi, South Carolina, North Carolina, and all share similar economic challenges with Maine.

Table 2. Peer Schools' State Demographics

	Residential STEM School Enrollment Capacity	Expected Family Contribution (\$)	Population 2019	Distance from Population Center	Median HH Income 2018 (\$)	Bachelor's Degree or Higher 2019 (%)
U.S.					63,179	33.1
Arkansas	236	850	2,915,918	67	49,781	23.3
Illinois	652	5,300	12,830,632	40	70,145	35.8
Louisiana	360	1,450	4,533,372	139	49,973	25.0
Maine	140	9,300	1,328,361	250	58,663	33.2
Mississippi	239	1,000	2,967,297	117	42,781	22.3
North Carolina	680	0	9,535,483	66	53,369	32.3
South Carolina	271	2,400	4,625,364	66	57,444	29.6

Source: U.S. Census Bureau Data, accessed through State Fact Finder.

Five of the states are poorer and have lower educational attainment rates than Maine, with Illinois as the only state ranking higher by these measures. The states differ in rurality. Maine is by far the most rural and least populated of the states. Five are located within an hour or so of a major metropolitan area, with the Louisiana and Maine magnet schools being the farthest removed from centers of population and commerce. See Table 2.

State Support for the Successful Public Residential STEM Schools

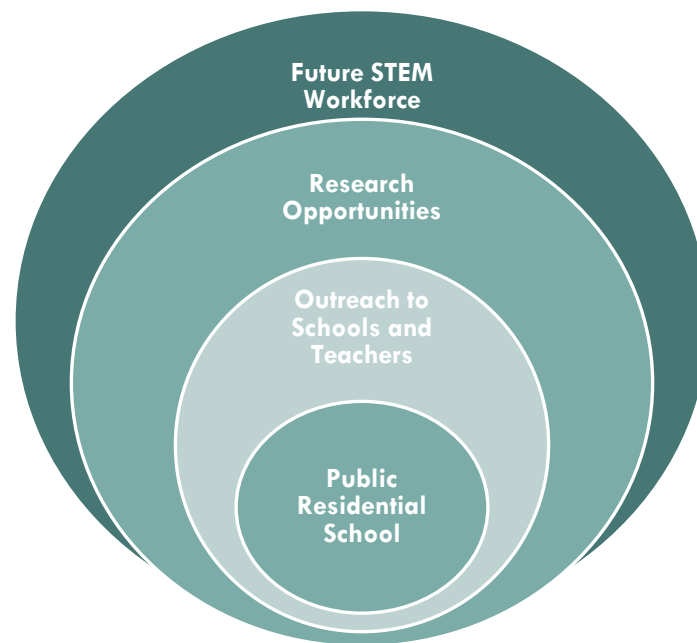
The peer states founded their STEM magnet schools in the 1980s and early 1990s, providing steady support for close to 40 years and over the course of many changes in government administration. The seven schools vary in size, operating models, and financial support. The median school enrollment for this group is 271 students. Five of the seven received more than 80% of their funding from the state, three receive more than 95%, with Maine as an outlier with the lowest share of state support, 68%. Six schools ask families to pay a small fee or cover the cost of meals. Only Maine requires families to pay full room and board, all states provide financial aid. See Table 2.

Attributes of Successful Schools

The successful peer schools are their state's premiere public residential school providing accelerated STEM education for talented and motivated students in the residential setting as well as in schools across their states. The residential STEM program is at the core of the institution and drives all the teaching and learning. The schools use this center of learning and excellence to build outreach programs to provide STEM teaching and learning to students and educators throughout their states. This outreach supports students in underserved regions, nurtures the STEM interests of younger high performing students, and bolsters educators' capacity to provide STEM curriculum.

Beyond the residential education and outreach spheres, the schools' students and staff engage in and contribute to high level research and scientific inquiry in their states. This gives the students the opportunity to work with university and industry researchers in a mentored setting to experience STEM careers firsthand. All these components work in tandem to strengthen the state's workforce and economy. See Figure 1.

Figure 1. Core Mission Supports Economic and Education Landscape



Residential STEM Schools are Increasing Capacity in STEM Education Statewide

Through the outreach and education efforts, the schools are strengthening capacity for STEM teaching and learning. The peer schools vary greatly in the scope and share of resources devoted to outreach and education beyond the walls of the residential school. MSSM and Louisiana have limited programming offered in the summer, while North Carolina and Illinois have separate divisions of professional educators developing and delivering STEM curriculum and professional development content to teachers and online instruction to students across their states. The Arkansas school, with a long history in providing distance learning in the state, provides extensive outreach to students and educators. Mississippi's outreach includes a program to identify students with talent in math and science in the early grades to nurture early interest in STEM. These schools reach thousands of students every year through their outreach activities. Specifically, the schools offer:

- Online coursework for synchronous and asynchronous learning
- Professional development for educators including preparation for certifications in teaching computer science and other STEM fields
- Curated curriculum and materials for educators
- Satellite and on campus experiential learning through camps, workshops, and competitions

University Partners Provide Research Opportunities

In addition to agreements with universities for early college credit, all six peer schools provide research opportunities for their students. There is, however, great variation in the type, scope, and rigor of those opportunities. North Carolina and South Carolina schools require the students to participate in graduate-level research opportunities that are paid for by the school. Other schools, in Louisiana and Mississippi, pair students with university faculty at other locations in the state to conduct research in the summer. In addition to research, the Illinois school places students in internships with universities and private companies. South Carolina, Illinois, and North Carolina also provide international opportunities for their students to conduct research.

Schools Play an Important Role in their State's Economic and Education Landscape

The six peer school representatives described their school's role in the state economic and education landscape as an important pipeline to provide talent in the STEM fields to support the state's research and development initiatives and strengthen the economy. They emphasized the short term value of preparing students for post-secondary education as well as when they return later in their careers to relocate or start a business.

Operating Models

The schools follow one of four operating models that differ by school location and partnerships. Two schools operate as stand-alone campuses, two are co-located with a state university, two are stand-alone campuses of the state's university system, and MSSM, in Maine, is co-located with a community school. The school representatives described differing experiences with their operations related to their model. While this qualitative review is purely descriptive of the seven schools and cannot be generalized to all public residential STEM schools, the information is instructive.

Notably, the schools with tighter affiliations to universities have greater access to dual credit, research, and a deeper faculty pool. The schools co-located with universities share many operating costs with their hosts, which lowers their budgets. The stand-alone campuses, not bound to a single higher educational institution, seem to have more partnerships with industry and universities. The rural schools face challenges attracting staff and faculty as well as providing research opportunities to students. See Table 3.

Table 3. Description of Seven Public Residential STEM Schools' Operating Models

Operating Models	Stand-alone Campus	Located on College Campus	Stand-alone Campus of the State's University System	Co-located with Local K-8 School System
State Residential STEM School	SC, IL	MS, LA	NC, AR	ME
Faculty Pool to Fill Open Positions	Good	Very Good	Best	Limited
Access to Residential Life Workforce	Good	Best	Good	Limited
Dual Enrollment	Multiple Agreements	Host Campus	Across the University System	Specific Agreement
Ties to Large Research University	Good	Good	Best	Limited
Ties to Businesses and Private Laboratories	Very Good	Varies	Varies	Limited

Key Supports for Success

While there are various operating models, the public residential STEM schools shared several key supports for success.

Partnerships for Research with Universities and Industry. All of the schools support students in finding research opportunities as a critical component of the STEM school experience. Five of the seven actively place students in research sites off campus. Four require research to graduate and three are active in international opportunities.

Dual Enrollment. Dual enrollment agreements with universities provide students with early college credit, providing challenging curricula and allowing them to move through higher education more quickly, saving students time and money. The formal agreements expand the course offerings and validate the rigor of the coursework as college level.

Mission Appropriate Facilities. Each of the peer schools started out in repurposed buildings, since that time most have modernized or built new buildings, and others have capital improvement plans underway. The investments and upgrades in mission appropriate facilities and dormitories support school expansion as well as student wellness and safety.

Social Emotional Health. In every school, the highest priority is student wellness including care and nurturing for the whole student to keep them active, healthy, and happy. High achieving students often have high levels of anxiety, depression, and other issues, so the schools provide wraparound support to meet their needs through residential life programming, professional counseling and health services, and wellness curricula.

Common Challenges

Along with similarities in operations, the peer schools face a common set of challenges as public, residential institutions. They remain concerned about the health, safety, and welfare of students in their care, making this a priority for success. They seek to build positive relationships with the local schools, educators, and families that send students to the residential school. The schools use their extensive outreach programming to turn the relationship into one that provides mutual value. Lastly, they find it critical to tell their students' success stories about the value of the school and outreach programming in preparing students for successful futures.

Implications for MSSM

The peer magnet schools play prominent roles in their state's public education and economic landscape as learning laboratories and public providers of STEM education and training to disadvantaged and underserved students statewide. Their state legislatures have consistently supported them, helping them grow and expand their reach across the states. MSSM, like its peer schools, has been successful in creating an engaging, stimulating course of study for its high achieving students. Unlike the peer schools, it is relatively unknown in the education and employer circles in the state. Additionally, it has had no significant reinvestment or renewal since it was founded in 1995, leading some to describe it as Maine's "hidden gem in public education." MSSM has a strong base and years of success upon which it can grow and implement many of the best practices from the peer schools.

It is time to reinvest in the MSSM pilot – launched 25 years ago.

The Vision

As underscored in the state's most recent economic plan, Maine is at a critical moment where it needs to invest in talent and innovation if it is to flourish. Recent announcements of large investments in STEM education and research at Maine's public and private higher education institutions by the [Harold Alfond Foundation](#) (\$500 million plus required match) and [Northeastern University](#) (\$100 million) have provided a much-needed influx of funding to grow the STEM workforce and support more research. To maximize these investments at the higher education level, the state needs to invest in strengthening the PK-12 STEM education system to develop the talent pipeline from the earliest ages. MSSM, one of the nation's top high schools, is ready to play a part in the important transformation.

Building on the input from the stakeholder meetings conducted by the Partnership Committee and the research conducted by the Discovery Committee, the Vision Committee followed a guiding statement to formulate its vision for MSSM's next 25 years:

A residential high school providing a nationally recognized academic experience in a safe and supportive environment for many of Maine's highest achieving students which actively shares its expertise and resources with other schools around the State of Maine.

This two-pronged vision with its traditional residential school focus at the center and enhanced outreach to underserved students across the state can foster growth in STEM skills and eventually grow the STEM workforce. The vision calls for MSSM to match its programs to Maine's needs and to do so in the most efficient and effective manner, maximizing the state's return on investment. Specifically, the objectives are to create a more supportive residential program and to develop an outreach program that meets the needs of Maine's underserved, rural students.

Residential Program Vision

MSSM will ensure all students are safe, secure, and thriving; invest in new facilities; expand enrollment; and grow its core academic program strengths to become a learning laboratory for best practices in STEM education.

At the heart of the residential vision is the need to provide a safe, healthy learning environment that nurtures student development. MSSM will achieve this by enhancing student social emotional learning and providing more opportunities to educate students holistically - academically, socially, and emotionally. A key aspect of safety is the need for mission appropriate facilities where students live and learn in buildings that support these functions.

MSSM will increase enrollment to 240 students, to add vibrancy to the education and research programs, as well as to increase the numbers of highly prepared STEM graduates. These steps will gain economies of scale, spreading the fixed costs of operating a school over more students. More graduates mean a deeper workforce pool of talent for the state's economy.

Like the peer schools, MSSM will strengthen its partnerships with institutions of higher education, private research laboratories, and industry to develop a closer tie between Maine's research community and the magnet school. These stronger ties will provide more opportunities for students to become involved in real-time, hands-on research and help them learn about current and future STEM jobs here in Maine.

The vision builds on MSSM's highly regarded residential academic program, a core strength, to become a laboratory for best practices in STEM education. This learning laboratory will support the outreach mission and will connect MSSM with STEM educators and students across the state.

Outreach Program Vision

MSSM will offer a highly effective STEM outreach program that meets the needs of Maine's high achieving, underserved students.

Along with establishing the state's first magnet STEM school, MSSM's enabling legislation directs the school to develop a plan for statewide educational programs "that guarantees opportunities and access to students and educators not residing full-time at the school." It also acknowledges the need for "distance learning to reach students and educators across the state." MSSM has long desired to meet these needs and hosts STEM-oriented summer programs for middle schoolers and teachers. Yet lack of funding has prevented it from further realizing its outreach mission. Given its record of providing high quality STEM education, MSSM has an opportunity to fulfill its mission by providing outreach and distance learning opportunities to students and educators in underserved communities.

MSSM envisions creating an outreach program rich in STEM education and research opportunities for students and educators across the state. The school will tailor this programming specifically to meet the needs of the rural state and underserved students. MSSM envisions working with students at early grades through high school to support high achieving, STEM motivated youth. It will do this by providing professional development, curriculum, and distance learning. Recognizing that this will be a new focus and there are others currently providing similar services, MSSM will partner with the state agencies, state universities, local schools, and STEM oriented non-profits to fulfill its outreach mission.

The Path Ahead

Intensive research, outreach, and deep stakeholder review shaped the vision for MSSM's next 25-years. The work confirmed the value of MSSM, Maine's "hidden gem", in the educational and economic landscape in the state. Yet, there is still much more work ahead to develop a robust business plan to realize this future. Most importantly, successful students and a successful public residential STEM school will need support and leadership from the legislature, the state, industry leaders, and higher education partners, working together they can create a stronger school and STEM economy.

Maine School of Science and Mathematics Business Plan Vision 2020 - 2045

Residential Program Excellence

Improve Maine's Return on Investment

Increase student enrollment to 240 and average annual number of graduates by 150% from 32 to 80

Lower annual cost per student

Strengthen Research Partnerships

Establish a strong college or university relationship to enhance learning opportunities

Build partnerships with research laboratories and industry to stimulate career considerations

Invest in Student Safety and Welfare

Increase investment in social and emotional learning (SEL) for residential students

Invest in mission appropriate facilities to support residential, academic, social, and recreational activities

Commitment to a Culture of Quality Improvement

Maintain a mind-set and programs that emphasize best practices nationally

Consistently measure effectiveness of academic and student welfare programs

Outreach Program to Support High Achieving Students in Maine

Increase engagement with more of Maine's high-achieving students

Recruit for summer camps for grades 8 through high school

Provide academic counseling, especially for first generation college students

Support Maine's rural students and schools

Provide teacher training in STEM instruction on-site in summer setting and via distance support

Facilitate distance instruction in math, computer science, etc. to supplement local instruction

Build a state-wide community of "MSSMers"

Create opportunities for residential and non-residential STEM students to gather such as hackathons, summer camps, and online events

Become a resource on best practices for STEM instruction

Share programs, tools, and experiences for enhanced STEM instruction

Share health and welfare program experience and advice for high achieving students

*MSSM Board of Trustees approved the bolded concepts in Phase 1.

End Notes

¹ National Science Foundation, Science and Engineering Indicators, State Indicators, <https://nces.nsf.gov/indicators/states/>

², Maine Department of Economic and Community Development, Maine Economic Development Strategy 2020-2029, A Focus on Talent and Innovation, November 15, 2019.

https://www.maine.gov/decd/sites/maine.gov.decd/files/inline-files/DECD_120919_sm.pdf

³ Maine Department of Labor, Center for Workforce Research and Information, Workforce Outlook, Statewide Employment Projections to 2028,

<https://www.maine.gov/labor/cwri/outlook.html>.

⁴ Maine Assessment and Accountability Reporting System (MAARS), <https://lms.backpack.education/public/maine>

⁵ The Reach Center @Maine Mathematics and Science Alliance, K-12 STEM Schools and Programs in Maine: Assessing assets and needs for educating students in Science, Technology, Engineering & Mathematics.

⁶ Maine Department of Economic and Community Development, Maine Economic Development Strategy 2020-2029, A Focus on Talent and Innovation, November 15, 2019.

https://www.maine.gov/decd/sites/maine.gov.decd/files/inline-files/DECD_120919_sm.pdf,