



STATE OF MICHIGAN
DEPARTMENT OF EDUCATION
LANSING



JENNIFER M. GRANHOLM
GOVERNOR

MICHAEL P. FLANAGAN
SUPERINTENDENT OF
PUBLIC INSTRUCTION

MEMORANDUM

TO: State Board of Education

FROM: Michael P. Flanagan, Chairman

DATE: December 3, 2007

SUBJECT: Approval of the Revised 2007 Master Plan for Michigan's Mathematics and Science Centers

Section 99 of the School State Aid Act requires the development of a Master Plan for Mathematics and Science Centers. The Master Plan is updated every five years. At the September 11, 2007 State Board of Education meeting, the updated 2007 Master Plan for Michigan's Mathematics and Science Centers was approved in concept and contingent upon receipt of a detailed plan. The following changes as suggested by the State Board have been made to the Master Plan:

- The revised Master Plan now refers only to the work of the 33 Centers.
- Center strategies to meet the needs of high priority schools have been added. Connections and coordination with existing state math and science initiatives have been added.
- Outcomes are clearly stated and included in the plan. References to the Network are included in the Appendices with a description of the Network in Appendix G. The Network is representative of all 33 centers over which the state has oversight authority. The Centers, through the Network, ensure a consistent and coordinated statewide outreach that assures high expectations for teaching and learning, achievement for all students, and assistance to high priority schools.

The Mathematics and Science Centers are an established infrastructure that provide assistance, products, and services to students, teachers, and local school districts. Centers are designed to enhance the knowledge and skills of educators and students to improve the quality of mathematics and science education in Michigan. The attached revised Master Plan provides a strategy that enables Michigan to achieve this goal.

It is recommended that the State Board of Education approve the 2007 Comprehensive Master Plan for Mathematics and Science Centers, attached to the Superintendent's memorandum dated December 3, 2007.

STATE BOARD OF EDUCATION

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Master Plan
For
Michigan's
Mathematics & Science
Centers

December 11, 2007

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**2007-2012
MASTER PLAN**

FOR THE

MICHIGAN MATHEMATICS AND SCIENCE CENTER PROGRAM

Building a 21st-century workforce by inspiring and nurturing excellence in mathematics and science for all Michigan schools, students, teachers, and communities.

A five-year Master Plan for the Program was first called for by the Legislature in 1992. The first Master Plan, adopted by the Michigan State Board of Education in February 1993, established the current structure of the Centers and Network and specified the services to be offered. The 2002 Master Plan gave direction to the Centers in their efforts to maintain high expectations for teaching and learning, increase the achievement of all students, and assist high priority schools.

This Master Plan for the Michigan Math and Science Centers Program updates the blueprint for the Program so that it can best serve Michigan's educational community over the course of this pivotal five-year period and is aligned with important existing Michigan educational initiatives. Notably, the Program is directly aligned with the Michigan State Board of Education's strategic goal and initiatives to "*Attain substantial and meaningful improvement in academic achievement for all students/children, with primary emphasis on high priority schools.*"

The Program is also aligned with Michigan's School Improvement Framework, which has become an integral and necessary part of continuous school improvement and system reform. Michigan's School Improvement Framework lays out five areas of general focus, referred to as "strands": I) Teaching for Learning; II) Leadership; III) Personnel and Professional Learning; IV) School and Community Relations; and V) Data and Information Management. The basic services and strategic plan requirements of the Program connect with this Framework and will help move Michigan's education agenda forward.

Additional historical details for the Program are included in the appendices.

MASTER PLAN KEY ISSUES FOR 2007-2012

This new Master Plan addresses key issues for the Mathematics and Science Center Program to continue to provide vital services to students and teachers throughout the state. The purpose of this plan is to provide a framework for the Michigan Mathematics and Science (M/S) Centers Program to thrive and provide continued service to all Michigan teachers and students for the duration of the plan. Six key strategies have been identified:

1. Create ongoing support for high priority schools and for teachers in those schools. Document outcomes with high priority schools and students as part of the accountability and evaluation of Center activities.
2. Provide greater accountability and more stringent measurement of Center and Network outcomes. Measures of accountability have been built into an "accountability matrix" that was adopted by the Centers and is included in Appendix F.
3. Create a path for greater participation by other stakeholders, including business and Science, Technology, Engineering and Math initiatives (STEM), in mathematics and science education in Michigan.
4. Identify diverse sources of sustainable support for the Centers and the Network. Seek reinstatement of base funding of \$6.5 million to the State Aid allocation to provide for a minimum level of Center services.
5. Build a Network organization with sustainable support that can provide services to the Centers as well as further develop and maintain the infrastructure within Michigan. The Network model has changed by becoming a 501(c)(3) organization which allows it to receive outside support, i.e., funding, and provide for additional staff to enhance the work of the Centers with local districts.
6. Establish the essential services to be provided to the Centers by the Network component of the Program.

ROLES AND RESPONSIBILITIES

The Michigan Mathematics and Science Centers serve as catalysts and resources for improvement in the teaching and learning of mathematics and science. They provide services that enhance and extend beyond those available at local districts within their region. Each Center is charged with attending to the six basic services specified in state statute. These services closely align with the strategic goals of the Michigan State Board of Education and the School Improvement Framework. They allow key relationships to be developed and maintained with all stakeholders.

The six basic services and examples of how Centers can provide them are shown below:

1. **Leadership** to reflect national and state standards, research, and a shared vision for improving mathematics and science education.

Centers will:

- Promote a shared vision of high expectations in mathematics and science education that:
 - Offers equal access to all students and educators
 - Fosters the belief that all students can learn math and science
 - Correlates with the Michigan Merit Curriculum (MMC), Grade Level Content Expectations (GLCE), High School Content Expectations, School Improvement Framework, other Michigan curriculum documents, Education YES! and other materials as adopted by the Michigan State Board of Education
 - Reflects effective instructional practices to help teachers enhance the learning of all students
 - Promotes interest in, and exploration of, mathematics and science career pathways.
- Promote themselves as a “first-line” resource for teaching and learning in mathematics and science.
- Expand collaboration with organizations, agencies, businesses, STEM, and professionals at a regional, local, and statewide level.

2. **Student Services** to improve and enhance mathematics and science learning for all.

Centers will:

- Advocate that programs and services for *all* students be correlated with current state and national curriculum documents and reflect effective instructional practices.
- Provide enrichment, remediation and/or accelerated programs and services for all students.

- Encourage equal access to enrichment/accelerated programs and services for all students.
- Work to ensure that enrichment/accelerated programs and services promote interest in, and exploration of, careers in mathematics and science.
- Include outcome measures to show progress as part of accountability.

3. **Professional Development** to strengthen and update teaching practices based on current research and local needs.

Centers will:

- Provide professional development for mathematics and science educators, in support of MDE initiatives, that assist them in teaching the curriculum content expectations to all students. The Michigan Merit Curriculum and Grade Level Content Expectations (GLCS) will be a focus of professional development for this Master Plan.
- Ensure that professional development reflects and models state professional development standards, as well as state and national standards in content, teaching and learning, and assessment.
- Advocate that all educators who participate in Center professional development programming work toward attaining best instructional practices for *all* students in their classrooms including instructional practices for remediation to give students the extra support needed.
- Provide leadership development in mathematics and science, both within the Center and within targeted K-12 Local Education Agencies (LEAs), with focus on high priority schools.

4. **Curriculum Support** to help develop curricula in local districts that incorporate research in teaching and learning as well as recommended national and state standards.

Centers will:

- Partner with regional stakeholders to support science and mathematics achievement in identified high priority schools.
- Assist districts with statewide mathematics and science test alignment and analysis as they strive to close the gap in student achievement.
- Help districts align local curriculum to implement the standards and benchmarks as outlined in the Michigan Merit Curriculum, Grade Level Content Expectations, High School Content Expectations, School Improvement Framework, and other relevant standards and benchmarks identified by the Michigan Department of Education.
- Facilitate and model the integration of technology into the mathematics and science curriculum.
- Assist the Michigan Department of Education with initiatives in mathematics and science.

5. **Community Involvement** to increase awareness, nurture ownership, and identify resources for innovative and bold educational programming.

Centers will:

- Collaborate with community groups to cosponsor mathematics and science programs and services.
- Involve the community in planning and implementing programs through advisory boards and task forces.
- Acquire and leverage direct and in-kind human and financial resources to provide the six basic services in mathematics and science.
- Promote public understanding of the goals and issues in mathematics and science education.

6. **Resource Clearinghouse** to collect and transfer information; to identify, acquire and distribute materials; and to locate and effectively utilize human resources.

Centers will:

- Furnish information and access to educational materials (e.g., books, documents, and electronic resources) and classroom teaching equipment in mathematics and science.
- Create and sustain an Internet presence to support mathematics and science education.
- Maintain an inventory of available human and material resources in mathematics and science for all students.

Each individual Center's plan/application will list specific goals, essential assessment questions for performance effectiveness, and data collection and analysis of strategies specific to its annual strategic plans. The annual report for each Center will include outcome data for the specific goals selected.

THE PLAN FOR DELIVERY OF CENTER SERVICES

The Mathematics and Science Center Program has chosen to place greater emphasis on three areas for the Master Plan 2007-12. The areas of focus are high priority schools and students; community connections; and increased collaboration with STEM programs to promote a statewide STEM initiative. These foci will maximize the key strategies to meet Center goals.

A FOCUSED ROLE FOR HIGH PRIORITY SCHOOLS

Educators often assume that the achievement gaps among our nation's students are the inevitable result of poverty, poor family structure, and social problems. While these are daunting factors and challenges, research suggests that if our poorest children are given a succession of motivated, well-prepared, and experienced teachers, the gaps in achievement between these children and their more affluent peers can be narrowed—if not completely closed.

Although many schools have dramatically increased the achievement of their poorest children, many other schools—and entire districts—continue to lag behind. In far too many of those underperforming or at-risk schools, a large number of teachers are inexperienced, poorly prepared, and generally less qualified than the teachers in other, more successful schools.

Schools *can* overcome the debilitating effects of poverty and racism on student achievement by helping teachers to improve instruction. Good instruction doesn't just happen because the belief system is in place; good instruction requires knowledge of content, pedagogy, and respect for and understanding of the student's background and culture. Good instruction and good teaching call for ongoing work on *the work*. It requires analytic thinking, the willingness to criticize and correct one's own work, and the ability to work collegially with peers to improve practice.¹

To ensure all students have the opportunity to achieve high levels of mathematics and science education, Centers will deliver targeted support to high priority schools consistent with the six basic services. Educators will receive professional development to improve instruction, align curriculum, engage students, develop leadership and involve communities

¹ Shana Kennedy, *Standards In Practice (SIP), An Instructional Gap Analysis*, The Education Trust, 2007

to improve achievement for all students. Centers will engage in one or more of the following:

- Develop instructional units/lessons for content expectations focusing on high risk students in high priority schools.
- Develop instructional units/lessons for high achieving students in high priority schools to increase the number of high priority students who are enrolled in high level courses, such as AP and Dual Enrollment.
- Plan, conduct, and deliver professional development specific to effective teaching strategies based on the instructional units/lessons for high priority schools/students.
- Coordinate professional development activities with existing efforts focused on high priority schools and students.
- Review and analyze assessment data to set priorities for instructional units/lessons.
- Evaluate assessment strategies to determine how to design instructional units/lessons to help in high priority schools.
- Provide building-wide professional development at the classroom level including: (1) classroom observations, feedback and support, (2) modeling math and science lessons, (3) content integration, (4) assessment assistance, and (5) gap analysis.
- Develop professional development designed to help teachers improve content knowledge and differentiated instructional delivery techniques.
- Partner with area-wide businesses and STEM associates to provide academic opportunities to students in high priority schools, including inquiry-based activities that support the math and science curriculum in the schools.
- Work with local districts to develop math and science initiatives to improve instruction based on student assessments.
- Use Michigan Educational Assessment Program (MEAP), Michigan Merit Exam (MME), Adequate Yearly Progress (AYP) data analyses to target specific strategies to improve achievement.
- Target a specific group of high priority schools and create an ongoing five-year plan for intensive interventions with those schools.
- Partner with schools and communities to provide enrichment activities for subgroup populations in high priority schools.

A FOCUSED ROLE FOR CENTERS IN THEIR COMMUNITIES

Centers deliver basic services in different ways. Regions vary considerably in geographic area, population, educational needs, and educational

resources available. (See appendices: Map, Listing of Centers) Services are determined by needs and priorities of Center stakeholders through collaborative strategic planning as identified in each Center's strategic plan and in accordance with the system of accountability developed by the Michigan Department of Education (MDE) in collaboration with the Network. This planning results in localized combinations of programs, resources, and consultative arrangements to build the capacity of teachers and others to provide successful mathematics and science education as evidenced by student achievement outcomes.

Programs are offered directly to teachers through professional development and to students through enrichment activities and/or accelerated programs. Increasing the participation and achievement of underrepresented students is also a high priority for Centers to assist schools in their efforts to ensure that no child is left behind.

Centers are expected to provide curriculum enhancement program options for students. In addition, some Centers provide a full-year program for students with high ability. These full-year programs must include a multiyear, coordinated curriculum for a minimum of 450 hours per year with a minimum of two and one-half contact hours per student per day. Students receive high school credit in mathematics, science, and technology from their local schools for successfully participating in such a Center-based program.

A FOCUSED ROLE FOR CENTERS' COLLABORATION WITH STEM INITIATIVES

Centers will develop outreach strategies to communicate, coordinate and collaborate with existing state-wide mathematics and science initiatives, such as those listed below and other funded Science Technology Engineering and Mathematics (STEM) programs:

- **Mathematics Education Resource Center (MERC)** with Oakland Schools: MERC works to build middle school teacher and principal knowledge of math and pedagogy and the need to deepen knowledge in these areas.
- **Making Mathematics Matter (PM3) Project** with Wayne RESA: PM3, a middle school and high school mathematics project, has two components: (1) an intense program of study (180 hours of learning mathematics knowledge and pedagogy); and (2) an on-site schedule of coaching: practicing good instruction.
- **Muskegon Area Middle School Mathematics Improvement Project** with Western Michigan University: Involves professional development sessions devoted primarily to increasing the

mathematics content knowledge and knowledge for teaching of middle school teachers.

- **Michigan Mathematics Rural Initiative** with Western Michigan University: This training model includes: a) three professional development days during each school year, b) an 8-day institute conducted during the first project summer and a 3-day institute conducted during the second summer devoted primarily to improving the mathematics content knowledge of participating teachers, and c) implementation of tuning protocols to facilitate the development of learning communities.
- **Michigan Mathematics and Science Teacher Leadership Collaborative (MMSTLC)** with Saginaw Valley State University, Grand Valley State University, University of Michigan (Dearborn), and University of Michigan (Ann Arbor): MMSTLC is a partnership of higher education, local schools, and the Michigan Mathematics and Science Center Network, all addressing different aspects of developing educational leadership around mathematics and science teaching and learning. The collaborative will develop a number of instructional modules.
- **Promoting Rigorous Outcomes in Mathematics and Science Education (PROM/SE)** with Michigan State University, St. Clair RESA, Calhoun ISD, and Ingham ISD: PROM/SE is a National Science Foundation (NSF) funded grant to improve science and mathematics instruction by deepening teachers' own mathematics and science content knowledge based upon data collected from the five consortium partners.
- **You Be the Chemist:** Sponsored by the Chemical Educational Foundation (CEF), this state-wide program is privately funded and receives technical assistance from the Math/Science Centers. The program targets middle school science students.
- **Michigan Council of Teachers of Mathematics (MCTM):** Sponsors Michigan Mathematics Leadership Academies (MMLA) to use a trainer-of-trainer model to train teacher volunteers in various curriculum and assessment models that they can then share back at their schools. These mathematics academies are primarily funded by a grant from Dow Chemical Company.
- **Michigan Science Teachers Association (MSTA):** Michigan Science Leadership Academies are critical to the dissemination of information regarding implementation of the Grade Level and High School Content Expectations in mathematics and science.
- **NASA Explorer Schools (NES):** A three-year partnership between schools and NASA provides sustained professional development, exciting student activities, and family involvement using NASA-unique science and mathematics content and advanced technology

tools. Targeting underserved populations in diverse geographic locations, NES brings together educators, administrators, students, and families in sustained involvement with NASA's education programs. Currently, Michigan has four Explorer schools:

Middle School at Parkside	Jackson
Saginaw Chippewa Academy	Mt. Pleasant
Saginaw Chippewa Middle School	Mt. Pleasant
A. L. Holmes Academy	Detroit

- **Michigan Environmental Education Curriculum Support (MEECS):** Five data-driven units on environmental education, developed by the Department of Environmental Quality (DEQ), are distributed with training sessions through the Math/Science Centers.
- **Michigan Grade Level Assessments and Content Expectations (M-GLAnCE):** Developed by Macomb ISD, M-GLAnCE is a series of grade-level specific professional development workshops for K-8 mathematics teachers focused on assessing students' understanding of the GLCEs.
- **Electronic Mentoring for Student Success (eMSS):** A packaged mentoring system for new high school science and mathematics teachers that teams veteran teachers in each field with new teachers and helps them with lessons and other new teacher concerns. Originally funded through the National Science Foundation (NSF), funding for 2007-08 is fully provided by the Goldman-Sachs Foundation.
- **High School—Math and Science Success (HS-MASS):** A series of workshops to help 8th – 12th grade teachers understand the new science and mathematics components of the MMC and MME and implications for teaching and learning in their classrooms.

Centers will continue to play a major role in the development of a Michigan Alliance of State Science and Mathematics Coalition based on the vision of the National Alliance of State Science and Mathematics Coalitions. The Alliance represents business, education, and public policy leaders working to improve science, technology, engineering, and mathematics education for all students. The goals of the Coalition are to ensure that:

1. All Michigan students have the necessary knowledge, understanding, and skills in science, technology, engineering, and mathematics, to be productive in their personal, work, and civic lives.
2. The state will have a competent and competitive workforce that meets the challenges of the global economy.

MATHEMATICS AND SCIENCE CENTER GRANT REQUIREMENTS

The Mathematics and Science Centers Program is committed to ensuring that all students and educators in Michigan have access to Center services. Each Center is subject to all Michigan Department of Education requirements and must address two or more of the required services, as described in this Master Plan, and implemented according to its individual strategic plan.

Each Center, on a rotating basis, must submit a five-year strategic plan. The plan must include goals, strategies, and performance effectiveness assessment measures for each of the six basic services that the Center addresses. Each goal in the plan includes an assessment question and methods for gathering the data. An external panel reviews the plan and makes recommendations to the Michigan Department of Education for funding approval. The external panel consists of Department staff and Center representatives. It often also includes mathematics and science educators, representatives from universities and community colleges, and personnel from business and industry. A Center whose five-year strategic plan is approved by the Department maintains its operational status.

Each Center must submit an annual application to MDE that includes an updated strategic plan and budget. The yearly application must address the following, keeping in mind that any Center's ability to conform to these criteria is commensurate with its current level of funding:

- Delivery of two or more of the basic services described in the Master Plan.
- Employment of a qualified (as determined by MDE) full-time director and staff designated to coordinate and deliver services.
- Detailed budget with rationale.
- Membership in the Michigan Mathematics and Science Centers Network with full participation including regular attendance at Network meetings and performance determined by the MDE/Network accountability matrix.
- Participation in statewide initiatives of the Network that focus on student achievement and contribute data related to student achievement.
- Other criteria as defined by the Michigan Department of Education.

Each Center must provide an annual report to the Michigan Department of Education that details expenditures, outlines accomplishments, compiles statistical indicators, and shows evidence of progress toward defined outcomes described in its five-year strategic plan.

A planning schedule with submission due dates can be found in the appendices. Annual approval of funding for Centers is contingent upon a review of each Center's annual report and updated application as defined by the Michigan Department of Education.

GOVERNANCE REQUIREMENTS

Each Center must have an appropriate governance structure that conforms to the requirements in place at that Center. The governance plan is part of the foundational documentation of the Center.

Centers are also required to maintain an Advisory Group that includes key stakeholders from schools, e.g., principals, superintendents, teachers from elementary, middle or junior high, and high school, and community partners. Governance structures vary among the Centers, but all Centers must include Advisory Group representation from their respective fiscal agents and from teachers with knowledge, skills, and interest in mathematics and/or science, from all three grade group levels.

It is also important that one or more principals with knowledge/interest in these subject areas be represented. Each Center may also include non-school partners (colleges, museums, business, higher education) in its governance structure. Centers may use various mechanisms to build stakeholder representation into their governance structure. To the extent possible, the governance structure should be representative of the population for which it serves. Changes in the governance structure will be subject to peer review and external review with final recommendation by the Michigan Department of Education, in the same manner as changes to the Center's strategic plan.

FUNDING FOR CENTERS

To maintain and strengthen Michigan's leadership in mathematics and science education, the Centers must receive stable and significant state and/or federal and private funding to support the basic infrastructure for their services, facilities, and staff. Through the delivery of basic services, the Mathematics and Science Centers support the efforts of the Michigan Department of Education in its initiatives to assist high priority schools, support high expectations, and help to close the gap in achievement.

Funding of Mathematics and Science Centers is based on the appropriations made by the Michigan Legislature under Section 99 of the State School Aid Act (MCL 388.1699). Annual funding recommendations are presented by MDE to the Governor through the Department of Management and Budget. The Legislature acts on the Governor's recommendation in its approval of the State School Aid Act. Based upon the Department of Education's review of each application and strategic plan, individual awards are given under the State School Aid Act.

The MDE and the Centers agree that making essential services and important programs in mathematics and science accessible to all of Michigan's K-12 teachers and students through the work of the 33 regional Centers requires investment.

Across Michigan, Centers vary in the number of K-12 students they serve. "Large" Centers (currently, there are 6) require more funds than do "medium" Centers (14) and "small" Centers (13). Regardless of size, every Center needs a base level of funding in order to, at a minimum, employ a qualified Center Director and cover the costs of essential operations.

Centers are committed to obtaining additional funds through the restructuring of the Network (as outlined in the appendix). Without adequate funding Centers are unable to provide adequate and equitable services throughout the state; lack the human capital to leverage additional money to benefit Michigan's K-12 students and teachers; and fail to diversify the sources of funds to improve mathematics and science education in Michigan. The Network will use the base funding allocated by the Legislature to leverage support for Centers from other sources.

DATA COLLECTION AND EVALUATION REQUIREMENTS FOR CENTERS

To ensure that funds are used effectively, Centers evaluate their programs and services continuously on an informal and formal basis. Evaluation of the goals and outcomes of each Center's strategic plan is aligned to:

1. Provide information to Center staff to guide decision making and strengthen efforts.
2. Determine the impact of programming on students, teachers, and schools.
3. Communicate progress and achievement to stakeholders.

Centers participate in common data collection around key indicators that provide the Department of Education, the Centers, and the Network with

knowledge about performance of the Centers and their effectiveness in reaching teachers and students in their regions; about dollars leveraged to support mathematics and science education in their regions; and about the staff and facilities the Centers provide. Areas of common data collection include performance indicators of services provided to each district in the region as well as outcome measures for district improvement in mathematics and science. Every effort is made to measure student achievement tied to Center activities.

Each Center summarizes the results of its internal evaluation in an annual report organized around the six basic services and tied to the goals and outcomes of the Center's strategic plan. This annual report is submitted to the Michigan Department of Education and reviewed with the State Superintendent.

OUTCOMES MEASURES FOR 2007-2012

Over the course of the five-year Master Plan, Centers will integrate outcome goals and measurement, with a particular emphasis on student achievement, into their five-year strategic plans. The relationship between the Centers' basic services and overall Program outcomes is detailed in the table that follows.

THE CENTERS: RELATIONSHIP BETWEEN SIX BASIC SERVICES AND PROGRAM OUTCOMES

Outcomes	Six Basic Services					
	Professional Development	Student Services	Curriculum Support	Community Involvement	Leadership	Resource Clearinghouse
Teacher math & science content knowledge improved	X			X		X
Teacher pedagogical skills & classroom practice improved	X		X	X		X
Teacher, administrator, and other educator knowledge and skills to support math & science improved	X		X	X	X	X
Increased opportunities for ALL students to learn math & science in challenging and effective ways		X	X	X	X	X
Improved student achievement/accomplishments in math & science		X	X	X		X
High quality math & science curriculum based on Michigan standards and benchmarks in place in K-12 schools			X		X	
Impact of collaborations and partnerships with local/regional/state organizations/institutions/agencies that support teacher and student learning in math & science	X	X		X	X	
Local/regional leadership to improve math & science education in ALL K-12 schools increased		X	X	X	X	X
Leadership capacities at local, regional, and state levels to support improved math & science in K-12 schools increased	X			X	X	
Math & Science instructional materials, specialized equipment and non-school site facilities available to teachers and students in K-12 schools maintained or increased	X	X	X		X	X

SUMMARY

Michigan has in place an effective statewide infrastructure in the Michigan Mathematics and Science Centers Network. This Master Plan advances the excellent work already accomplished by the Centers and enacts an approach that can further enhance and expand the reach and impact of both the Network and its constituent Centers. This Master Plan is a significant step forward in assuring the vitality of mathematics and science education for all Michigan students, and providing the great state of Michigan with the human capital to restore itself to educational and economic leadership.

LIST OF ATTACHMENTS

- Appendix A: Updated map of Centers, counties, and school districts
- Appendix B: Listing of Centers by name
- Appendix C: History of Program
- Appendix D: Yearly Timeline for Center Activity
- Appendix E: Funding Formula
- Appendix F: Network Accountability Matrix
- Appendix G: Network Support to Centers

APPENDICES

Appendix A: Updated map of Centers, counties, and school districts



Appendix B: Listing of Center by Name

**LISTING OF CENTER NAME
WITH 2005-06 STUDENT POPULATIONS
August 2007**

<u>Center Name</u>	<u>ISD/RESA</u>	<u>Student Population</u>	<u>Total Population</u>
ALLEGAN/VAN BUREN M/S CENTER 310 Thomas Street Allegan, MI 49010	ALLEGAN Van Buren	15,205 17,501	<u>32,706</u>
Alpena-Montmorency-Alcona/Iosco M/S Center Educational Service District 2118 US-23 South Alpena, MI 49707	Alpena Alcona Montmorency Iosco	} 7,058 5,149	<u>12,207</u>
Battle Creek Area M/S Center 765 Upton Avenue Battle Creek, MI 49037	Calhoun Branch Barry	26,703 6,458 5,163	<u>38,324</u>
Berrien County M/S Center 711 St. Joseph Avenue Berrien Springs, MI 49103	Berrien Cass	27,194 7,512	<u>34,706</u>
Central Michigan S/M/T Center 101 Ronan Hall- CMU Mt. Pleasant, MI 48859	Clare Gladwin Isabella Gratiot	} 8,755 } 14,544	<u>23,299</u>
COOR M/S Center 11051 North Cut Road Roscommon, MI 49930	Crawford Ogemaw Roscommon Oscoda	} 9,318	<u>9,318</u>
Western UP Center for S/M/EE Copper Country ISD, P. O. Box 270 Hancock, MI 49930	Keweenaw Baraga Houghton Ontonagon Gogebic	} 6,928 } 3,175	<u>10,103</u>
Northwoods M/S Center 2525 Third Avenue South Escanaba, MI 49829	Delta Schoolcraft	} 7,565	<u>7,565</u>
Detroit M/S Center 5057 Woodward, Room 932, Detroit, MI 48202	Detroit	131,568	<u>131,568</u>
Dickinson-Iron/Menominee M/S Center 1074 Pyle Drive Kingsford, MI 48902	Iron Dickinson Menominee	} 6,344 6,463	<u>12,807</u>

<u>Center Name</u>	<u>ISD/RESA</u>	<u>Student Population</u>	<u>Total Population</u>
Eastern UP M/S Center 315 Armory, P. O. Box 883 Sault Ste. Marie, MI 49783	Chippewa Luce Mackinac }	8,228	<u>8,228</u>
Genesee Area M/S/T Center 2413 West Maple Avenue Flint, MI 48507-3493	Genesee	83,299	<u>83,299</u>
GVSU Regional M/S Center 328 Henry Hall Allendale, MI 49401	Ottawa Kent Montcalm	46,657 105,634 13,211	<u>165,502</u>
Huron M/S Center 711 East Soper Road Bad Axe, MI 48413	Huron	5,252	<u>5,252</u>
Capital Area S/M Center 1013 South U.S. 27, Suite A St. Johns, MI 48879	Eaton Ingham Clinton Shiawassee Ionia	14,628 47,402 10,218 14,248 11,802	<u>98,298</u>
Jackson County M/S Center 6700 Browns Lake Road Jackson, MI 49201	Jackson	26,768	<u>26,768</u>
Kalamazoo Area M/S Center 600 West Vine Street, Suite 400 Kalamazoo, MI 49008	Kalamazoo St. Joseph	34,758 11,724	<u>46,482</u>
Lapeer County M/S Center 690 N. Lake Pleasant Rd. Attica, MI 48412	Lapeer	15,255	<u>15,255</u>
Hillsdale-Lenawee-Monroe M/S Center 4107 North Adrian Highway Adrian, MI 49221-9309	Hillsdale Lenawee Monroe	7,291 18,365 25,403	<u>51,059</u>
Livingston and Washtenaw M/S Center 1819 S. Wagner Rd. P.O. Box 1406 Ann Arbor, MI 48106-1406	Livingston Washtenaw	30,409 48,102	<u>78,511</u>
Macomb County M/S/T Center 44001 Garfield Road Clinton Township, MI 48038	Macomb	139,489	<u>139,489</u>

<u>Center Name</u>	<u>ISD/RESA</u>	<u>Student Population</u>	<u>Total Population</u>
Manistee/Wexford-Missaukee M/S Center 9905 E. 13 th Street Cadillac, MI 49601	Manistee Wexford Missaukee }	3,572 9,460	<u>13,032</u>
Mason-Lake/Oceana M/S Center 2130 West US Highway 10 Ludington, MI 49431-9307	Mason Lake Oceana }	5,824 3,553	<u>9,377</u>
Mecosta-Osceola M/S/T Center 15760 190 th Avenue, P. O. Box 1137 Big Rapids, MI 49307	Mecosta Osceola }	10,017	<u>10,017</u>
Muskegon-Newaygo M/S Center 630 Harvey Street Muskegon, MI 49442-2398	Muskegon Newaygo	32,325 9,524	<u>41,849</u>
Oakland Schools M/S/T Center 2111 Pontiac Lake Road Waterford, MI 48328-2736	Oakland	202,127	<u>202,127</u>
SVSU Regional M/S Center 7400 Bay Road, University Center Saginaw, MI 48710-0001	Arenac Bay Midland Saginaw Tuscola }	18,965 14,328 34,645 11,555	<u>79,493</u>
St. Clair RESA M/S Center 499 Range Road, Box 5001 Port Huron, MI 48061-5001	St. Clair	27,838	<u>27,838</u>
Sanilac County M/S Center 175 East Aiken Road Peck, MI 48466	Sanilac	8,191	<u>8,191</u>
SEE-North 220 Park Avenue Petoskey, MI 49770	Emmet Charlevoix Cheboygan Otsego Presque Isle }	10,915 10,258	<u>21,173</u>
The Glenn T. Seaborg Center for Teaching and Learning Science and Mathematics 1401 Presque Isle Marquette, MI 49855	Marquette Alger	10,200	<u>10,200</u>
Traverse Bay Area M/S Center 880 Parsons Road Traverse City, MI 49686	Antrim Benzie Kalkaska Grand Traverse Leelanau }	25,132	<u>25,132</u>
Wayne County M/S Center 33500 Van Born Road Wayne, MI 48184	Wayne Detroit	352,993 *-131,568	<u>221,425</u>

*Number reflects the population of Detroit being removed from the Wayne County total population

Appendix C: History of Program

THE NEED FOR MATHEMATICS AND SCIENCE EDUCATION IN MICHIGAN

Michigan's need for mathematics and science education is critical and undisputed. A variety of sources, from the Lt. Governor's Commission on Higher Education and Economic Growth to the recent Michigan Future, Inc. report, call for an emphasis in education that supports a knowledge-based economy. The Michigan Department of Education and the State Board of Education created, and the Governor signed into law, the new Merit Curriculum to better prepare Michigan's young people for success in college or the work place.

While the Michigan Merit Curriculum outlines what students must know and be able to do to be successful, implementation remains the responsibility of each district.

The Michigan Mathematics and Science Centers Program (MMSCP, or the Program), through its Mathematics and Science Centers and the Network that supports them, provides important and effective programs, services, and resources that help Michigan's K-12 schools implement the new Merit Curriculum and supports the quest for mathematical power and scientific literacy of *all* Michigan students.

This five-year Master Plan for the Michigan Mathematics and Science Centers Program defines goals and services of the Michigan Mathematics and Science Centers Network and the 33 Michigan Mathematics and Science Centers throughout the state. The plan incorporates Michigan's current challenges and needs and redefines and reestablishes the required components of the Program to best support a prosperous Michigan.

In 1988, the Michigan Legislature created the Michigan Mathematics and Science Centers Program to establish 17 regional Centers in cooperation with school districts, higher education, science museums, and professional associations with the goal of providing equitable access to expertise and services in mathematics and science education to all K-12 schools in Michigan. The Michigan Mathematics and Science Centers Network (MMSCN), a coordinated body of directors, was established to foster Center development and evolution. Today, the Network comprises 33 strategically placed Centers to serve all Michigan school districts and *all* Michigan students.

Michigan's mathematics and science knowledge base stands at a crossroads alongside Michigan's future economic prosperity, which must

begin to take shape as a knowledge-based economy to replace the downturn in manufacturing. While mathematics and science skills are more critical than ever to Michigan's growth, funding for the state's 33 Mathematics and Science Centers was slashed dramatically in the 2003/04 academic year and has not been restored.

ORIGINS OF THE MATHEMATICS AND SCIENCE CENTERS PROGRAM

The Mathematics and Science Centers Program, established during the 1988-1989 school year, provided grants to establish Mathematics and Science Centers in cooperation with local and intermediate school districts, universities and community colleges, science museums, and state and national mathematics and science associations, as well as with leaders from business and industry. Since its inception, the Program has undergone several changes through revised legislation.

The name of the Program changed from the Mathematics and Science Challenge Grant to Mathematics and Science Center Program Grant. The Program initially required that public or private sources provide matching funds, but the current matching funds requirement has been reduced to 10%. Today, however, nearly every Center obtains external funding in addition to that provided through the state's Mathematics and Science Centers Program. Some Centers have formed excellent partnerships with local businesses and industries, while others have tapped community groups or foundations. The result has been an impressive and collaborative effort by the schools, Centers, and communities to improve the quality of mathematics and science education in Michigan.

The initial Program required each Center to conduct both accelerated programs for secondary students and outreach activities to improve mathematics and science in kindergarten through 12th grade. Today, all Centers provide opportunities for intensive student programs. Several Centers provide academic-year, shared accelerated programs for students with high ability.

In 1988-1989, the Mathematics and Science (M/S) Centers Network (coordinated body of directors) was established to foster developing and operating Centers by providing communication channels, leadership, and resources for their evolution. The table below shows the funding history and the number of M/S Centers over the past 19 years.

History of Funding Table

Year	# Awards	# Centers	Funds Awarded	Notes
1988-89	25	17	\$1,000,000	
1989-90	27	20	\$2,117,100	
1990-91	24	16	\$1,872,100	
1991-92	20	20	\$2,372,100	Designated and competitive grants from Sec. 99 State Aid Act
1992-93	20	20	\$2,372,100	First Master Plan
1993-94	20	20	\$2,850,000	
1994-95	28	28+ 8 satellites	\$6,240,000	Funded according to Master Plan
1995-96			\$7,614,000	Expanded services
1996-97 through 1998-99 funding stayed constant.				
1999-2000	25	25+8 satellites	\$8,304,870	
2000-01	29	29+4 satellites	\$9,665,270	Update of Master Plan requested
2001-02	33	33	\$10,232,300	Master Plan approved by SBE
2002-03	33	33	\$10,232,300	
2003-04	33	33	\$2,500,00	Centers survived on carry over funds
2004-05	33	33	\$2,500,000	Services and staff cut
2005-06	33	33	\$2,500,000	New funding sources sought; update of Master Plan requested
2006-07	33	33	\$2,500,000 + \$1,000,000	Additional grant for implementing Merit Curriculum; 501c(3) status sought to apply for additional funds

A CONTEXT FOR THE FUTURE – MICHIGAN’S EDUCATION AND ECONOMIC CLIMATE

This is an important time for the Program and a critical time for Michigan. The course of the next five years (the duration of this Master Plan) will likely determine whether the Program can flourish and be given the opportunity to serve Michigan at this critical time. Much has changed since the adoption of the last Master Plan in 2002. Michigan has slumped into what is often referred to as a “one-state recession.” Job losses due to contraction of Michigan’s automotive and manufacturing sectors continue to plague the state. State budget woes are severe. The last few years have seen \$3 billion cut from the state’s budget, with predicted shortfalls continuing for the foreseeable future. Simultaneously, much attention has been focused on Michigan’s deficits in educational attainment and the out-migration of young educated graduates to other parts of the country. Notably, Michigan ranks 31st in the nation in the number of residents possessing a four-year degree. As manufacturing jobs in Michigan and the United States have shrunk by 19 percent, the nation has experienced a 32 percent increase in knowledge-based employment, compared to only 17 percent growth of knowledge-based employment in Michigan.

Significant steps are being taken to address the components of these issues that involve education. In December 2004, the final report of the Lt. Governor’s Commission (Cherry Commission) on Higher Education and Economic Growth was issued. This report concluded that education is at the root of much of Michigan’s current economic malaise and made a compelling argument for “Michigan to raise the floor of preparation for all students...(and) have the courage to move ahead boldly to develop more rigorous high school standards.” The Commission’s Preparation Workgroup established its first recommendation to “set high expectations for high school students through standards, curriculum, and assessment.”

In April 2006, Governor Granholm signed into law one of the most comprehensive sets of high school graduation requirements in the nation, the Michigan Merit Curriculum, which defines a common set of required credits for graduation and provides educators with a common understanding of what students should know and be able to do for credit. This law is the result of an extraordinary partnership among the Executive Branch, Legislative Branch, State Board of Education, Superintendent of Public Education, and numerous education organizations. It also provides students the learning opportunity, knowledge, and skills they need to succeed in college or the workplace. There is considerable emphasis on mathematics and science education within the Merit Curriculum.

The second recommendation of the Cherry Commission's Preparation Workgroup specifically identified the "importance of effective professional development of teachers, administrators, and instructional leaders to support implementation of high-expectations standards at the high school level."

Michigan has in place an infrastructure that supports excellence in the teaching and learning of mathematics and science and can significantly contribute to advancing the Merit Curriculum, teacher professional development, and student success. This infrastructure is the Michigan Mathematics and Science Centers Program.

Appendix D: Yearly Timeline for Center Activity

<u>DATE</u>	<u>ACTION</u>
July 1- June 30	Program Year
July 1- June 30	Collection of Outcome Data
July 31	Annual Statistical Data Due to SAMPI
July	State Aid Act signed
August (last Friday)	Application Due to MDE (assuming State Aid Act signed at least 3 weeks prior)
September	Center applications needing revision returned to Directors from (two weeks from MDE application date)
September (last Friday)	Revisions Due to MDE
October 1	Fiscal Year Begins
October/ November	MDE Approval of Application
October/ November	Award Letters to Centers from MDE
October	Payment sent to Centers from MDE
October 30	Annual Narrative Report Due – Mail to MDE and SAMPI Includes annual Statistic Data and Financial Resource Information
November 1	If applicable, Carryover Request Letter Due to MDE. Carryover Funds must be spent by June 30 of the coming year.
December/ April	External Review with approval of new five-year strategic plans
January	M/S Center Network Annual Report Distributed to Exec. Board
February (Network Meeting)	Final M/S Center Network Annual Report distributed to Centers/MDE

Appendix E: Funding Formula

Each year's state funding allocation is distributed among the 33 Centers according to the following formula:

Each Center starts with a base amount, called "x."

- 1a) Those Centers classified as "small" Centers (<20,000 student population in most recent state-reported data) have a multiplier of 1.0000 times "x"
- 1b) Those Centers classified as "medium" Centers (between 20,000 students and 90,000 students in the most recent state-reported data) have a multiplier of 1.3333 times "x"
- 1c) Those Centers classified as "large" Centers (>90,000 student population in most recent state-reported data) have a multiplier of 1.6666 times "x"
- 2a) Those Centers currently providing a full-year student program have an additional multiplier of 1.1538 (1.5/1.3) times the above multiplier in step 1
- 2b) Those Centers not providing a full-year student program have an additional multiplier of 1.0000 times the above multiplier in step 1

The value for "x" is calculated from the total state allocation using each Center's final multiplier. Each Center's allocated amount equals its base amount, "x" multiplied by its final multiplier.

Note: Current Center size determination and the 2006-2007 Center allocation table are listed at the end of this appendix for clarification.

CHANGES IN CENTER MULTIPLIERS:

Two types of changes can occur that result in changes in annual allocations to Centers:

- Changes in population served by individual Centers
- Changes in full-year student programming at individual Centers

CHANGES IN POPULATION SERVED BY A CENTER:

If the student population served (as defined in Master Plan) changes and results in an increased change of Center size, and thus an increased allocation multiplier to that Center per the funding formula, then allocations to other Centers are decreased proportionally in order to fund the mandated increased allocation to the Center in question.

If the student population served (as defined in Master Plan) changes and results in a decreased change of Center size, and thus a decreased allocation multiplier to that Center per the funding formula, then the surplus funds are distributed proportionally among all Centers based on the current allocation formula.

CHANGES IN PROGRAMMING AT A CENTER:

If a Center's full-year student programming status (as defined in the Master Plan) changes and results in a scheduled increased allocation to that Center per the funding formula, the following conditions apply:

No additional funds shall be allocated if existing Centers are not receiving minimum funding defined in the current Master Plan (\$6.5 million).

The Center shall receive full or pro-rated funding only if existing Centers are receiving minimum funding stated in the current Master Plan (\$6.5 million), and if additional funds above the minimum funding are available through the State's award to the Centers, and if all necessary adjustments related to population served have been made. Once additional funds are given to the Center for the full-year student programming, the Center will continue receiving funding via its multiplier in subsequent years, even if the Centers no longer receive minimum funding.

If the full-year student programming status (as defined in the Master Plan) at a Center changes and results in a scheduled decreased allocation for that Center per the funding formula, then the following conditions apply:

The funds from the decreased allocation shall be distributed proportionally among all Centers based on the current allocation formula if existing Centers are not receiving minimum funding. If

the Center in which funds were decreased reinstates full-year student programming in a later year, no additional funds will be allocated to support the change until existing Centers are again receiving minimum funding, and additional funds above the minimum funding are available through the State's award to the Centers, and all necessary adjustments related to population served have been made.

If existing Centers are receiving minimum funding stated in the current Master Plan, then extra funds shall be distributed among the Centers or ear-marked to support collaborative projects of the Centers' Network, according to a plan developed by MDE in counsel with the Centers.

Note: no additional funds can be granted for changes in full-year student programming unless, a) all Centers are receiving minimum funding (\$6.5 million) stated in the current Master Plan and, b) all Centers are receiving appropriate funding proportional to the student population they serve.

**Center Size Based on most Recent (2005-06) Student Population
to be Used for 2007-08 Section 99 Grant Funding**

Center Name	Population Category		Population (Student) 2005-06
Huron M/S/T Center	A		5,252
Northwoods Math Science Center	A		7,565
Sanilac County S/M Center	A		8,191
Eastern Upper Penninsula	A		8,228
COOR	A		9,318
Mason-Lake-Oceana M/S Center	A		9,377
Mecosta-Osceola M/S/T Center	A		10,017
Copper Country	A		10,103
Seaborg Center – NMU	A		10,200
Alpena Montmorency Alcona Iosco	A		12,207
Dickinson Iron	A		12,807
Manistee Regional M/S Ctr (Wexford-Missaukee)	A		13,032
Lapeer	A		15,255
SEE-North	B		21,173
Central Michigan S/M/T Center	B		23,299
Grand Traverse Area Regional M/S/T Center	B		25,132
Jackson County M/S Center	B		26,768
St Clair M/S/T Network	B		27,838
Allegan/Van Buren	B		32,706
Berrien County M/S Center	B		34,706
Battle Creek Area M/S Center	B		38,324
Muskegon-Newaygo	B		41,849
Kalamazoo Area M/S Center	B		46,482
Hillsdale-Lenawee-Monroe M/S Center	B		51,059
Livingston/Washtenaw M/S Center	B		78,511
SVSU Regional M/S Center	B		79,493
Genesee Area M/S/T Center	B		83,299
Capitol Area S/M Center	C		98,298
Detroit Mathematics and Science Centers	C		131,568
Macomb M/S/T Center	C		139,489
GVSU Regional M/S Center	C		165,502
Oakland Schools M/S/T Center	C		202,127
Wayne County M/S Center	C		221,425
Total			
A = Service to area with student population to 20,000			
B = Service to area with student population over 20,000 up to 90,000			
C = Service to area with student population over 90,000			

2006-2007 CENTER ALLOCATION

Center Name	Size	Pull Out	Base	Size Weighting Factor	Pull Out Weighting Factor	Multiplier (x)	Allocation
Allegan County Mathematics and Science Center	B	N	57,659	1.3333	1	1.333333333	76878
AMA-Iosco Mathematics and Science Center	C	N	57,659	1	1	1	57659
Battle Creek Area Mathematics and Science Center	B	Y	57,659	1.3333	1.1538	1.538399615	88702
Berrien County Mathematics and Science Center	B	Y	57,659	1.3333	1.1538	1.538399615	88702
Central Michigan Mathematics, Science and Technology Center	B	N	57,659	1.3333	1	1.333333	76878
Capital Area Science and Mathematics Center	A	N	57,659	1.6666	1	1.66666625	96098
COOR Science and Mathematics Center	C	N	57,659	1	1	1	57659
Western UP Center for Science, Mathematics and Environmental Education	C	N	57,659	1	1	1	57659
Detroit Mathematics and Science Center	A	Y	57,659	1.6666	1.1538	1.922999519	110878
Dickinson-Iron-Menominee Mathematics and Science Center	C	N	57,659	1	1	1	57659
Eastern UP Mathematics and Science Center	C	N	57,659	1	1	1	57659
Genesee Mathematics and Science Center	B	N	57,659	1.3333	1	1.333333	76878
Grand Traverse Regional Mathematics, Science, and Technology Center	B	N	57,659	1.3333	1	1.333333	76878
GVSU Regional Mathematics and Science Center	A	N	57,659	1.6666	1	1.66666625	96098
Hillsdale-Lenawee-Monroe Mathematics, Science and Technology Center	B	N	57,659	1.3333	1	1.333333	76878
Huron Mathematics, Science, and Technology Center	C	N	57,659	1	1	1	57659
Jackson County Mathematics and Science Center	B	N	57,659	1.3333	1	1.333333	76878
Kalamazoo Area Mathematics and Science Center	B	Y	57,659	1.3333	1.1538	1.538399615	88702
Lapeer County Mathematics and Science Center	C	N	57,659	1	1	1	57659
Livingston-Washtenaw Mathematics and Science Center	B	N	57,659	1.3333	1	1.333333	76878
Macomb County Mathematics and Science Center	A	Y	57,659	1.6666	1.1538	1.922999519	110878
Manistee Regional Mathematics and Science Center	C	N	57,659	1	1	1	57659
Mason-Lake-Oceana Mathematics and Science Center	C	N	57,659	1	1	1	57659
Mecosta-Osceola Mathematics, Science and Technology Center	C	Y	57,659	1	1.1538	1.1538	66527
Muskegon-Newaygo Mathematics and Science Center	B	N	57,659	1.3333	1	1.333333	76878
Northwood's Mathematics, Science and Technology Center	C	N	57,659	1	1	1	57659
Oakland Schools Science, Mathematics, and Technology Center	A	Y	57,659	1.6666	1.1538	1.922999519	110878
Sanilac County Science and Mathematics Center	C	Y	57,659	1	1.1538	1.1538	66527
The Seaborg Center-Northern Michigan University	C	N	57,659	1	1	1	57659
SEE-North Center	B	N	57,659	1.3333	1	1.333333	76878
St. Clair ISD Mathematics and Science Center	B	N	57,659	1.3333	1	1.333333	76878
SVSU Regional Mathematics and Science Center	B	N	57,659	1.3333	1	1.333333	76878
Wayne County Mathematics and Science Center	A	N	57,659	1.6666	1	1.66666625	96098
Totals						43.35845915x	2499995

Base Calculation

57658.87554

Appendix F: Accountability Matrix

ACCOUNTABILITY MATRIX FOR THE 33 MICHIGAN MATH/SCIENCE TECHNOLOGY CENTERS

Responsibility	Verification	Funding Level*	Consequence	Person or Entity Responsible***
ASSURANCES				
<i>Each Center shall:</i>				
1. Honor all assurances on page 2 of the Sec. 99 application	Network Meeting Minutes, records	Mandatory at all levels of funding	State and federal penalties exist for failure to achieve compliance	Director, Supervisor MDE verifies
2. Submit a strategic plan for approval by MDE	Plan approved by MDE	Mandatory at all levels of funding	Funding withheld until plan is submitted and approved by MDE	Director MDE verifies
3. Employ qualified staff	Sect. 99 Application	Mandatory at all levels of funding	Funding for unqualified personnel withheld until personnel issue resolved	Director MDE verifies
4. Access available to all qualified students and professional staff, including nonpublic	Letter of invitation is on file	Mandatory at all levels of funding	Funding withheld until compliance is verified	Director MDE verifies
5. Participate in Michigan M/S Centers Network (4 full meetings per year)	Network Meeting minutes	<u>State Funding* / Attendance Required</u> 38–99% funding: 3 meetings/year; 100% funding: 4 meetings/year	10% loss of funding for each non-compliance (one meeting can be via distance-video)	MSN Secretary MDE verifies
6. Have an Evaluation Plan on file	Plan available	Mandatory at all levels of funding	Funding withheld until compliance is verified	Director MDE verifies
7. Submit an Annual Report to MDE by November 30	Report on file	Mandatory at all levels of funding	Funding withheld until compliance is verified	Director MDE verifies

MMSCN Master Plan

Responsibility	Verification	Funding Level*	Consequence	Person or Entity Responsible***
<p>STRATEGIC INITIATIVES –</p> <p>The State Board of Education asks each Center to relate its activities to one or more Strategic Initiatives. The Strategic Initiatives are</p> <ol style="list-style-type: none"> 1. Ensuring Excellent Educators 2. Elevating Educational Leadership 3. Embracing the Information Age 4. Ensuring Early Childhood Literacy, and 5. Integrating Communities and Schools 	<p>Each center shall address one or more of the initiatives in their Annual Report</p>	<p>Mandatory at all levels of funding.</p>	<p>10% loss of funding.</p>	<p>Director MDE verifies</p>
<p>SIX BASIC SERVICES</p> <p>Each Center performs basic services as outlined in the State School Aid Act and as directed in the Master Plan approved by the State Board of Education</p> <ol style="list-style-type: none"> 1. Leadership 2. Professional Development 3. Student Services 4. Curriculum Support 5. Community Involvement 6. Resource Clearinghouse 	<p>Annual Report and SAMPI** Data.</p> <p>Completion of the Strategic Plan Evidence Form. Evidence entered in the SAMPI** database for verification</p>	<p>Mandatory at all levels of funding; however, fewer people are served with lowered funding, as has been documented.</p> <p>75% of each Center's Strategic Plan objectives must be met in each service area selected.</p>	<p>100% loss of funding for failure to provide basic services as directed by State School Aid Act and State Board of Education Master Plan.</p>	<p>Director MDE verifies</p>

* Refers to percent funding compared to recommended base funding level of \$6.5 million for 33 Centers serving all of Michigan.

** Refers to the *Science and Math Program Improvement Center* at Western Michigan University. SAMPI conducts an annual data collection effort to tabulate the numbers of students and professional staff who take advantage of Network programming.

*** Top line refers to the responsible for collecting the data; the bottom line refers to the person who verifies the data was collected. MDE Verification may include a team made up of MDE, Office of Field Service, and assigned Center Directors.

APPENDIX G: NETWORK SUPPORT TO CENTERS

THE MICHIGAN MATHEMATICS AND SCIENCE CENTER NETWORK: EXPANDING THE NETWORK'S ROLE IN SERVICE TO MATH AND SCIENCE EDUCATION IN MICHIGAN

The Network exists to support Michigan's individual Mathematics and Science Centers for the purpose of maintaining high expectations for teaching and learning, increasing the achievement of all students, assisting high priority schools, and advancing mathematics and science education in Michigan.

The original role of the Michigan Mathematics and Science Centers Network was secondary to the Centers themselves. The lack of a strong connected Network has likely contributed to recent difficulties, especially as state-wide initiatives such as content expectations and graduation requirements become more prevalent. The need has grown for the Network to increase its functions of coordination of services; ensuring consistency across regions; and securing external funding for the Centers. These needs must be met if the Network and the Centers are to deliver necessary and critical services to Michigan.

The Network is currently led by a president and executive board and supported by standing committees. These roles are all strictly voluntary and are responsibilities added to existing workloads of Center directors. Though these individuals are deeply committed and work long and hard, the lack of a dedicated and focused leadership at the statewide level has limited the Network's ability to fully organize itself to pursue further funding, and alignment of potential resources has not been fully realized.

This Master Plan acknowledges the role of the Michigan Mathematics and Science Centers Network to a greater degree than past plans. Given the limitations of the current state budget juxtaposed with the tremendous need for the services and outcomes of the Centers, an elevated and expanded role for the Network is called for at this time.

The Network has become a 501(c)(3) organization in order to seek and accept grants. As a 501(c)(3) it will have a governing board comprised of its members (the Center Directors) and stakeholders.

The greatest opportunities for an expanded Network role is in providing statewide outreach, partnership development, and funding development activities in support of the Centers. Ultimately, the expanded roles of the Network are to pursue new avenues of collaborative support from all sources (philanthropic, business, grants, and others) and provide the greatest leverage possible of the Michigan Mathematics and Science Centers Program.

DELIVERY OF NETWORK SERVICES

Essential Network services are:

1. Statewide outreach and partnership development.
2. Funding development.
3. Coordination of statewide initiatives undertaken by its member Centers.

As a 501(c)(3) the Network will operate with a very small staff: a full-time Network Director (ND) and part-time support staff. The primary role of the Network will be to:

- Promote the Mathematics and Science Centers Network and its member Centers as a “first-line” resource for professional development, teaching, and learning in mathematics and science and convene these resources throughout the state to support them.
- Assure Network/Center representation on Michigan’s Science, Technology Engineering, and Mathematics (STEM) Coalition.
- Support the efforts of the Michigan Department of Education to hold Centers accountable to standards of performance and participation associated with awards made through the Michigan Mathematics and Science Centers Program (see Accountability Matrix in appendix F). To this end, the Network will coordinate mentoring among its Centers to ensure the greatest probability of success for all Centers.
- Convene a statewide advisory board consisting of representatives of business, philanthropy, policy/government, MDE and education to assist in planning and implementation of programs and services provided by the Network or Centers. Convene the Network’s member Centers as necessary to assist the Centers in performing essential Center services.
- Collaborate with representatives from other sectors to cosponsor and otherwise support mathematics and science programs and services throughout Michigan.
- Secure long-term funding for Center services and Network activities from all sources: government, business, philanthropy, and other.
- Assume primary responsibility for community involvement in those instances in which the community is understood to be the entire state of Michigan, while continuing to encourage the Centers to collaborate with local and regional groups for their individual activities.
- Develop, strengthen, and promote the Network as Michigan’s leader in advancing mathematics and science education in Michigan.
- Pursue, broker, coordinate, and nurture partnerships with statewide, regional, and local entities in order to provide better educational opportunities in mathematics and science to all students and deeply integrate the Michigan Mathematics and Science Centers Network (and its member Centers) with other groups closely aligned with the Network’s purpose. The Network must reach out to the business, philanthropic, and higher education communities in pursuit of these partnerships.

NETWORK GOVERNANCE, FUNDING, AND EVALUATION

The first-year planning effort for the expanded Network will define strategies and tactics for the Network in greater detail and must address status, governance, funding, and evaluation.

- **Governance:** The governing body for the Network is a Board of Directors (composed of the Directors of its constituent Centers) and an Executive Committee of that Board, as outlined in the Network's bylaws.
- **Funding:** Funding for the Network is apart from base funding provided to Centers through the State Aid Act. As outlined in earlier sections of this Plan, pursuit of additional funding is a primary responsibility of the Network.
- **Evaluation:** An outside evaluator for Network activity and outcomes is recommended. Network evaluation must be based on its: goals, levels and sources of funding, building enduring partnerships, cultivating enduring participation of statewide community stakeholders from all sectors, and advancing mathematics and science education in Michigan. Evaluation will also ensure alignment with state goals and directions.