Greater Birmingham Mathematics Partnership

Annual Report
Project Year 5
Sept. 2008 – Aug. 2009

Excerpts: Sections 1, 2 and 5

Table of Contents

Section 1: Activities and Findings

Exhibit#1: Annual Implementation Matrix 2008-2009

Goal I: To increase the effectiveness of middle school mathematics teachers within GBMP school systems

1. (a) MEC Summer Courses (MSP Key Feature: T, P, C)		**Completed**	
Fall Tasks	**Responsible Party**	**Yes**	**No**
Consolidate feedback from past Summer courses and begin planning of next Summer courses.	Parker	X	
Begin recruitment efforts for Summer courses. Create and distribute materials to advertise and promote Summer courses.	District Liaisons, Dominick, Moore	X	
Begin processing enrollment information for Summer courses.	Liaisons, Dominick	X	
Begin notifying teachers of course date assignments.	Liaisons, Dominick	X	
Seek opportunities to give "update" talks to stakeholders in districts.	Liaisons, Dominick	X	
Collaborate with UAB mathematics faculty members to develop new MEC course, *Extending Algebraic Reasoning 3*	Millie Johnson		R
Plan for integrating engineering tasks into Summer courses	Parker, Lofgren	A	
Spring Tasks	**Responsible Party**	**Yes**	**No**
Finalize planning of Summer courses.	Parker	X	
Continue recruitment and publicity efforts for Summer courses.	District Liaisons, Dominick, Moore	X	
Continue processing enrollment information for Summer courses.	Liaisons, Dominick	X	
Continue notifying teachers of course date assignments.	Liaisons, Dominick	X	
Communicate information to teachers about UAB credit for GBMP courses.	Liaisons, Dominick	X	
Select sites for Summer 2008 courses.	Liaisons, Dominick	X	
Select dates for Summer 2009 courses.	Liaisons, Dominick	X	
Send information letter to participants about Summer courses and orientation sessions.	Liaisons, Dominick	X	
Send letter to IHE faculty members prior to Summer courses.	Parker	A	

1. (a) MEC Summer Courses (continued)		Completed	
Spring Tasks (continued)	**Responsible Party**	**Yes**	**No**
Research items (manipulatives, supplies, etc.) to go into teacher kits.	Moore, Dominick	X	
Research items (books, videos, etc.) to distribute to teachers.	Moore, Dominick	X	
Order teacher kit for new course *Extending Algebraic Reasoning 3.*	Moose		R
Order professional development books (Connected Math Project, etc.) to distribute to teachers.	Moose		E
Continue collaborating with UAB mathematics faculty members to develop new MEC course.	Millie Johnson	X	
Arrange enrollment for Summer course to include both middles school teachers and IHE faculty	Dominick	X	
Summer Tasks	**Responsible Party**	**Yes**	**No**
Continue recruitment and publicity efforts for GBMP.	District Liaisons, Dominick, Moore	A	
Attempt to accommodate teachers still requesting to attend Summer courses.	Liaisons, Dominick	A	
Prepare for orientation sessions to be held on the day before the start of each section of *Patterns.*	Dominick	A	
Send materials for GBMP courses.	Parker	A	
Set-up for GBMP courses.	Dominick	A	
Host GBMP courses.	Districts	A	
Offer orientation sessions prior to each section of *Patterns*.	Dominick	A	
Offer GBMP courses.	Parker	X	
Participate in GBMP courses.	District Teachers	A	
Discuss definition of challenging courses and curricula.	MEC faculty	X	
IHE faculty members participate in MEC Summer courses.	IHE faculty	X	
IHE and MEC faculty members hold discussions following GBMP courses.	IHE, MEC faculty	X	
Complete collaboration with UAB mathematics faculty members to develop 3rd new MEC course.	Millie Johnson	X	
Participate as interns with MEC instructors in Summer courses.	Interns	X	
Select sites for next year's Summer Courses.	Liaisons, Dominick	A	
Select dates for next year's Summer Courses.	Liaisons, Dominick	A	

1. (b) Academic Year Follow-up: Grade-Level Sessions (MSP Key Feature: T, P, C)		Completed	
Fall Tasks	**Responsible Party**	**Yes**	**No**
Remind teachers and administrators about dates and locations of Fall grade-level sessions.	Liaisons, Dominick	X	
Invite IHE faculty to attend the Grade Level Sessions.	Dominick	X	
Register teachers for grade-level sessions.	Liaisons, Dominick	X	
Host grade-level sessions.	Districts	X	
Local leaders and MEC instructors deliver Grade-Level Sessions.	District Leader	X	
Arrange for and fund substitute teachers.	Districts	X	
Participate in grade-level sessions.	District Teachers	X	
Spring Tasks	**Responsible Party**	**Yes**	**No**
Remind teachers and administrators about dates and locations of Spring Grade-Level Sessions.	Liaisons, Dominick	X	
Invite IHE faculty to attend the Grade Level Sessions.	Dominick	X	
Register teachers for grade-level sessions.	Liaisons, Dominick	X	
Host grade-level sessions.	Districts	X	
Local leaders and MEC instructors deliver Grade-Level Sessions.	District Leader	X	
Arrange for and fund substitute teachers.	Districts	X	
Participate in grade-level sessions.	District Teachers	X	

2. IHE Course Redesign and Development (MSP Key Feature: I, P, T, C)		**Completed**	
Fall Tasks	**Responsible Party**	**Yes**	**No**
Implement comparison test of three plans for MA 110 in-class student activities	Mayer, Stansell, Land	X	
Reflect on key aspects of challenging courses and curricula (CCC) in preparation for continuing development and revision of courses	IHE faculty	X	
Design UAB course rotation to support Middle School Mathematics Certification in conjunction with School of Education	Mayer, Smith	X	
Implement engineering projects in new and redesigned courses	Mayer, Feldman	X	
Offer MA 313 and MA 314 at UAB in regular course rotation	Smith, Ware	X	
Offer new calculus courses MA 123 and MA 124 at UAB in regular course rotation	Ward		R
Offer MA 372 *Geometry I* and MA 311 *History of Mathematics* at UAB in regular course rotation	Mayer	X	
Recommend workshop activities for MA 110 *Finite Mathematics* based on GBMP courses.	IHE Faculty	X	
Continue design of MA 411 *Integrating Mathematics Ideas: Algebra, Geometry, Probability, and Statistics*	Mayer, Ward	X	
Begin design of MA 412 *Connecting Mathematics Content to Science and Technology*	Mayer, Ward	X	
Recommend workshop activities for MA 105 *Pre-Calculus Algebra*	Mayer, Stansell, Land		R
Continue redesign of UAB course MA 105 *Pre-Calculus* Algebra to include parallel activities from MEC course, *Extending Algebraic Reasoning*, and to follow UAB Quality Enhancement Plan	Mayer, Ward, Johnson, Ware, Smith, Feldman		R
Continue conversations with Millie Johnson regarding course development	Mayer	X	
Attend some MST and/or Grade Level sessions	IHE Faculty	X	
Continue development of 5th year MS program for prospective middle school teachers	Mayer, Froning, Smith		E
Prepare proposal to Elementary Education faculty for revision of mathematics requirements to be more in alignment with GBMP goals and CCC	Calhoun, Smith, Mayer	A	

2. IHE Course Redesign and Development (continued)		**Completed**	
Spring Tasks	**Responsible Party**	**Yes**	**No**
Reflect on key aspects of challenging courses and curricula in preparation for continuing development and revision of courses	IHE faculty	X	
Design UAB course rotation to support Middle School Mathematics Certification with School of Education	Mayer, Smith	X	
Implement engineering projects in new and redesigned courses	Mayer, Feldman	X	
Offer MA 313 and MA 314 at UAB in regular course rotation	Smith, Ware	X	
Offer new calculus courses MA 123 and MA 124 at UAB in regular course rotation	Ward		R
Pilot redesigned MA 105 following UAB Quality Enhancement Plan	Kravchuk, W. Johnson, Stansell		R
Offer redesigned MA 110 *Finite Mathematics* following UAB Quality Enhancement Plan, and results of Fall test of three plans for in-class activities	Mayer, Stansell, Land	X	
Continue conversations with Millie Johnson regarding course development	Mayer	X	
Continue design of MA 411 and 412	Mayer, Ward	X	
Attend some MST and/or Grade Level sessions	IHE Faculty	X	
Continue development of 5th year MS program for prospective middle school teachers	Mayer, Froning, Smith		E
Submit proposal to Elementary Education faculty for revision of mathematics requirements to be more in alignment with GBMP goals and CCC	Calhoun, Smith, Mayer	A	
Summer Tasks	**Responsible Party**	**Yes**	**No**
Observe GBMP courses.	Mayer, Ward, W. Johnson, Ware, Smith, Feldman, Mullins, Stansell, Land, Dixon	X	
Reflect on key aspects of challenging courses and curricula in preparation for continuing development and revision of courses	IHE Faculty	X	
Implement engineering projects in new and redesigned courses.	Mayer, Feldman	A	

2. IHE Course Redesign and Development (continued)		**Completed**	
Summer Tasks (continued)	**Responsible Party**	**Yes**	**No**
Complete design of MA 411 *Integrating Mathematics Ideas: Algebra, Geometry, Probability, and Statistics*	Mayer, Ward	A	
Continue designing MA 412 *Connecting Mathematics Content to Science and Technology*	Mayer, Ward	A	
Design MA 473 *Geometry II*.	Ward, Mayer	A	
Offer MA 313 and MA 314 on regular basis.	Smith, Ware	X	
Offer MA 123 and MA 124 on a regular basis.	Ward		R
Offer MA 315, 316, and 317 in conjunction with Summer GBMP courses	Mayer	A	

3. Middle School Certification (MSP Key Feature: T, I)		**Completed**	
Fall and Spring Tasks	**Responsible Party**	**Yes**	**No**
Continue implementation of Mathematic Reasoning track within the Mathematics Major: - Publicize the major and get it into course catalogs - Schedule courses	Mayer, Ware, Ward, Froning, Smith, Feldman	X	
Recruit pre-service teachers for Summer GBMP courses.	Calhoun, Froning, Smith	X	
Recruit students for new major track and middle school certification – Recruit minority pre-service teachers	Calhoun, Froning, Smith	X	
Arrange for pre-service teachers to participate in field experiences with MEC-trained teachers	Smith	X	
Design UAB courses parallel to new GBMP courses: – *Integrating Mathematics Ideas: Algebra, Geometry, Probability, and Statistics* = EAR2 – *Connecting Mathematics Content to Science and Technology* = EAR3	Mayer, Ward, Smith, Froning	X	
Continue to explore feasibility of alternative Fifth-year program for middle grades mathematics - Align standards - Prepare checklists Submit proposal to Alabama Board of Education for approval	Smith, Froning		E
Refine UAB Education course rotation to provide continuous support of MS certification	Smith, Sims	X	
Coordinate proposed checklist with new major track in the mathematics department.	Smith, Mayer	X	

4. Engineering Projects (MSP Key Feature: P, C)		**Completed**	
Fall Tasks	**Responsible Party**	**Yes**	**No**
Continue accumulating background information related to each application task (engineering project--EP) under development: (1) Connected Math	Feldman	X	
(2) Existing hands-on mathematics and science application activities		X	
Cataloguing information related to each EP under development and mapping to the Alabama Course of Study (ACS) (1) Existing hands-on mathematics and science application activities	Feldman	X	
(2) GBMP class tasks		X	
(3) Fall MST session		X	
Application task (engineering project--EP) development (1) Review feedback of the EPs from field tests in the GBMP summer courses and from the website	Feldman, Lalor, Lucas	X	
(2) Continue development of EP for *Integrating Math* and corresponding IHE course			E
(3) Refine *Patterns* EPs		X	
(4) Refine *Data Analysis and Probability* EPs		X	
(5) Refine *Geometry* EP		X	
(6) Refine *Numerical Reasoning* EPs		X	
(7) Refine *Extending Algebraic Reasoning I EP*		X	
(8) Refine *Extending Algebraic Reasoning II EP*			D
Application task (EP) dissemination (1) Update website to include refinements and new EP for *Extending Algebraic Reasoning II*	Feldman, Grad student, IHE instructors		D
(2) Update kids website to include refinements and new EP for *Extending Algebraic Reasoning II*			D
(3) Use EPs in IHE classes		X	
Engineering applications in the new calculus courses (1) Field test an EP in UAB's *Calculus and Function with Applications I* (MA 123) course	Feldman, Ward		D
(2) Refine the EP for UAB's new *Calculus and Function with Applications II* (MA 124) course			D

4. Engineering Projects (continued)		**Completed**	
Spring Tasks	**Responsible Party**	**Yes**	**No**
Continue accumulating background information related to each EP under development: (1) Connected Math	Feldman	X	
(2) Existing hands-on mathematics and science application activities		X	
Cataloguing information related to each EP under development and mapping to the Alabama Course of Study (ACS) (1) Existing hands-on mathematics and science application activities	Feldman	X	
(2) GBMP class tasks		X	
(3) Winter MST session		X	
Application task (EP) development (1) Review feedback of the EPs from the MST session, IHE pilots, and from the website	Feldman, Lalor, Lucas	X	
(2) Complete development of EP for *Integrating Math* and corresponding IHE course			E
(3) Refine *Patterns* EPs		X	
(4) Refine *Data Analysis and Probability* EPs		X	
(5) Refine *Geometry* EP		X	
(6) Refine *Numerical Reasoning* EPs		X	
(7) Refine *Extending Algebraic Reasoning I EP*		X	
(8) Refine *Extending Algebraic Reasoning II EP*			D
Application task dissemination (1) Update website to include refinements	Feldman, Grad student, IHE instructors	X	
(2) Update kids website to include refinements		X	
(3) Use EPs in IHE classes		X	
Engineering applications in new calculus courses (1) Refine the EP in UAB's *Calculus and Function with Applications I* (MA 123) course	Feldman, Ward		D
(2) Field test an EP for UAB's *Calculus and Function with Applications II* (MA 124) course			D

4. Engineering Projects (continued)		**Completed**	
Summer Tasks	**Responsible Party**	**Yes**	**No**
Continue accumulating background information related to each EP under development: (1) Connected Math	Feldman	A	
(2) Existing hands-on mathematics and science application activities		A	
Cataloguing information related to each EP under development and mapping to the Alabama Course of Study (ACS) (1) Existing hands-on mathematics and science application activities	Feldman	A	
(2) GBMP class tasks		A	
Application task (EP) development (1) Review feedback of the EPs from the MST session, IHE pilots, and from the website	Feldman, Lalor, Lucas	A	
(2) Refine *Patterns* EPs		A	
(3) Refine *Data Analysis and Probability* EPs		A	
(4) Refine *Geometry* EP		A	
(5) Refine *Numerical Reasoning* EPs		A	
(6) Refine *Extending Algebraic Reasoning I EP*		A	
(7) Refine *Extending Algebraic Reasoning II EP*			R
Application task dissemination (1) Update website to include refinements	Feldman, Grad student, IHE instructors	A	
(2) Update kids website to include refinements		A	
(3) Pilot and process new EP in summer classes *Integrating Math EP*			E
(4) Continue to use and process EPs piloted the previous summer *Patterns* EP, Data analysis and *Probability* EP *Geometry* EP , *Numerical Reasoning* EP *Algebraic Reasoning I EP, Algebraic Reasoning II EP*		A	
(5) Use of *EPs in IHE courses*		A	
Engineering applications in new calculus courses (1) Refine the EPs in UAB's *Calculus and Function with Applications I and II* course	Feldman, Ward		R

5. Recruitment of Pre-service Teachers (T, I)		**Completed**	
Fall Tasks	**Responsible Party**	**Yes**	**No**
Meet with UAB student services staff and recruiting staff to enlist support in student recruiting.	Smith, Froning	A	
Meet with staff of urban personnel prep grant to establish liaison and recruit from its cadre of new teacher recruits for Birmingham City Schools (mostly minority candidates).	Froning	X	
Announce GBMP opportunities for pre-service teachers in appropriate classes.	Froning, Moore	X	
Recruit pre-service teachers for Summer courses.	Froning, Moore	X	
Recruit minority pre-service teachers for Summer courses.	Froning , Moore	X	
Remind pre-service teachers about Fall grade-level sessions.	Froning , Moore	X	
Participate in grade-level sessions.	District Teachers	X	
Spring Tasks	**Responsible Party**	**Yes**	**No**
Announce GBMP opportunities for pre-service teachers in appropriate classes.	Froning, Moore	X	
UAB Recruiting staff visits relevant classes.	Froning, Delmas		E
Recruit pre-service teachers for Summer courses.	Froning, Moore	X	
Recruit minority pre-service teachers for Summer courses.	Froning, Moore	X	
Remind pre-service teachers about Spring grade-level sessions.	Froning , Moore	X	
Award pre-service teacher scholarships for Summer courses.	Froning, Moore	X	
Summer Tasks	**Responsible Party**	**Yes**	**No**
Pre-service teachers participate in Summer classes.	Pre-service teachers	A	

Goal II: To increase the leadership capacity of middle school mathematics teachers within GBMP school systems

1. Mathematics Support Teams (MSP Key Feature: I, P, T)		**Completed**	
Fall Tasks	**Responsible Party**	**Yes**	**No**
Prepare for Fall MST sessions.	Parker, Lofgren	X	
Order supplies for MST sessions.	Moose	X	
Notify teachers of dates and sites for MST sessions.	Liaisons, Dominick	X	
Invite IHE faculty to attend the MST Sessions.	Dominick	X	
Host MST sessions.	Districts	X	
Deliver MST sessions.	Parker, Lofgren	X	
Arrange for and fund substitute teachers.	Districts	X	
Participate in MST Sessions.	District MSTs	X	
Incorporate challenging courses and curricula into MST sessions.	Parker, Lofgren	X	
Send follow-up communication to districts and MST's.	Dominick, Lofgren	X	
MSTs take on leadership roles in schools and/or districts.	MSTs	X	
Winter Tasks	**Responsible Party**	**Yes**	**No**
Prepare for Winter MST sessions.	Parker, Lofgren	X	
Send reminder about MST sessions.	Liaisons, Dominick	X	
Host MST sessions.	Districts	X	
Deliver MST sessions.	Parker, Lofgren	X	
Arrange for and fund substitute teachers.	Districts	X	
Participate in MST Sessions.	District MSTs	X	
Incorporate challenging courses and curricula into MST sessions.	Parker, Lofgren	X	
Field-test engineering application task and provide feedback.	District MSTs	X	
Send follow-up communication to districts and MST's.	Dominick, Lofgren	X	
MSTs take on leadership roles in schools and/or districts.	MSTs	X	

1. Mathematics Support Teams (continued)		Completed	
Spring Tasks	**Responsible Party**	**Yes**	**No**
Prepare for Spring MST sessions.	Parker, Lofgren	X	
Send reminder about MST sessions.	Liaisons, Dominick	X	
Invite IHE faculty to attend the MST Sessions.	Dominick	X	
Host MST sessions.	Districts	X	
Deliver MST sessions.	Parker, Lofgren	X	
Arrange for and fund substitute teachers.	Districts	X	
Participate in MST Sessions.	District MSTs	X	
Incorporate challenging courses and curricula into MST sessions.	Parker, Lofgren	X	
Field-test engineering application task and provide feedback.	District MSTs	X	
Send follow-up communication to districts and MST's.	Dominick, Lofgren	X	
MSTs take on leadership roles in schools and/or districts.	MSTs	X	

Goal III: To unite the GBMP stakeholders in support of mathematics education programs that are high quality and effective

1. Sessions for Administrators (MSP Key Feature: P, I)		**Completed**	
Fall Tasks	**Responsible Party**	**Yes**	**No**
Prepare for Fall administrator session sessions.	Parker, Lofgren	X	
Notify administrators of dates and sites for administrator sessions.	Liaisons, Dominick	X	
Send reminder about administrator session.	Liaisons, Dominick	X	
Deliver administrator session.	Parker, Lofgren	X	
Local leader co-facilitates *Lenses on Learning.*	Brown	X	
Incorporate challenging course and curricula.	Parker, Lofgren	X	
Participate in administrator sessions.	Administrators	X	
Winter Tasks	**Responsible Party**	**Yes**	**No**
Prepare for Winter administrator sessions.	Parker, Lofgren	X	
Send reminder about administrator session.	Liaisons, Dominick	X	
Deliver administrator sessions.	Parker, Lofgren	X	
Local leader co-facilitates *Lenses on Learning.*	Brown	X	
Incorporate challenging course and curricula	Parker, Lofgren	X	
Participate in administrator sessions.	Administrators	X	
Spring Tasks	**Responsible Party**	**Yes**	**No**
Prepare for Spring administrator sessions.	Parker, Lofgren	X	
Send reminder about administrator session.	Liaisons, Dominick	X	
Deliver administrator sessions.	Parker, Lofgren	X	
Local leader co-facilitates *Lenses on Learning.*	Brown	X	
Incorporate challenging course and curricula	Parker, Lofgren	X	
Participate in administrator sessions.	Administrators	X	
Send follow-up communication to administrators.	Dominick	X	
Inform administrators that they are welcome to participate in MEC Summer courses.	Liaisons, Dominick	X	

2. Outreach Activities to Parents and the Community (MSP Key Feature: P)		Completed	
Fall Tasks	**Responsible Party**	**Yes**	**No**
Send update letter to individuals and businesses that supported or were asked to support GBMP.	Clark	X	
Prepare for Fall community mathematics nights.	Parker	X	
Select/confirm sites for Fall and Spring community mathematics nights.	Liaisons, Clark	X	
Arrange logistics for Fall community mathematics nights.	Liaisons, Clark	X	
Identify new ways to encourage new participants and reluctant parents to attend.	Liaisons, Clark	X	
Distribute flyers to promote Fall community mathematics nights.	Liaisons, Clark	X	
Publicize Fall community mathematics nights and seek media coverage.	Liaisons, Clark	X	
Host Fall community mathematics nights.	District Liaisons	X	
Maintain sign-in sheets to identify parents who attend. Also collect data on diversity of attendees and their willingness to participate in research.	Clark	X	
Deliver Fall community mathematics nights at six locations.	Parker	X	
Insure community mathematics nights incorporate four key aspects of challenging courses and curricula.	Parker	X	
Attend community mathematics nights.	Parents, Teachers, Administrators, Design Team	X	
Inform parents that some MEC scholarships are available for parents to participate in courses.	Liaisons, Clark	X	
Send thank you letters to school and community members who assisted with community mathematics nights.	Clark	X	
Continue conversations with AMSTI and MMI.	Dominick	X	
Continue conversations with AMSTEC and A+ College Ready Program	Clark	X	
Confirm that Ann McMillan is willing to serve another term as CBAC chairperson.	Clark	X	
Select/confirm dates for Fall and Spring CBAC meetings.	Liaisons, Clark		D
Select/confirm sites for Fall and Spring CBAC meetings.	Liaisons, Clark		D
Arrange logistics for Fall CBAC meeting.	Clark		E
Set agenda with CBAC Chair for Fall CBAC meeting.	CBAC Chair, Clark		E
Send reminder to CBAC members about Fall community mathematics nights and CBAC meeting.	Clark		E
Hold Fall CBAC meeting.	Clark, Parker		E
Keep CBAC meeting minutes.	Clark		E
Send follow-up letter to CBAC members.	Clark	X	

2. Outreach Activities to Parents and the Community (continued)		Completed	
Fall Tasks (continued)	**Responsible Party**	**Yes**	**No**
Update GBMP website.	Moose	X	
Update MSPnet.	Moose	X	
Spring Tasks	**Responsible Party**	**Yes**	**No**
Prepare for Spring community mathematics nights.	Parker	X	
Arrange logistics for Spring community mathematics nights.	Liaisons, Clark	X	
Distribute flyers to promote Spring community mathematics nights.	Liaisons, Clark	X	
Publicize Spring community mathematics nights and seek media coverage.	Liaisons, Clark	X	
Host Spring community mathematics nights.	District Liaisons	X	
Deliver Spring community mathematics nights at six locations.	Parker	X	
Maintain sign-in sheets to identify parents who attend. Also collect data on diversity of attendees and their willingness to participate in research.	Clark	X	
Inform parents that some MEC scholarships are available for parents to participate in courses.	Liaisons, Clark	X	
Insure that community mathematics nights incorporate four key aspects of challenging courses and curricula.	Parker	X	
Attend community mathematics nights.	Parents, Teachers, Administrators, Design Team	X	
Send thank you letters to school and community members who assisted with community mathematics nights.	Clark	X	
Continue conversations with AMSTI and MMI.	Dominick	X	
Continue conversations with AMSTEC and A+ College Ready Program.	Clark	X	
Arrange logistics for Spring CBAC meeting.	Clark	A	
Set agenda with CBAC Chair for Spring CBAC meeting.	CBAC Chair, Clark	A	
Send reminder to CBAC members about Spring community mathematics nights and CBAC meeting.	Clark	A	
Hold Spring CBAC meeting.	Clark, Parker	A	
Keep CBAC meeting minutes.	Clark	A	
Send follow-up letter to CBAC members.	Clark	A	

2. Outreach Activities to Parents and the Community (continued)		Completed	
Spring Tasks (continued)	**Responsible Party**	**Yes**	**No**
Update GBMP website.	Moose	X	
Update MSPnet.	Moose	X	
Summer Tasks	**Responsible Party**	**Yes**	**No**
Continue conversations with AMSTI and MMI.	Dominick	X	
Continue conversations with AMSTEC and A+ College Ready Program.	Clark	X	
Send update to CBAC members.	Clark	A	
Update GBMP website.	Moose	A	
Update MSPnet.	Moose	A	

3. Partnership-Driven Project Management (MSP Key Feature: P)		Completed	
Ongoing Tasks	**Responsible Party**	**Yes**	**No**
Participate in Project Management Team meetings via email, phone, and in person, as needed.	Management Team	X	
Oversee the efforts of the Project Co-directors and Project Management Team.	Mayer	X	
Serve as primary contact person for UAB administration and NSF.	Mayer	X	
Serve as primary project director for the following project activities: MEC Summer courses, mathematics support teams, professional learning communities, administrator sessions, and recruitment of pre-service teachers.	Dominick	X	
Serve as primary contact for articulation with the Mobile Mathematics Initiative (MMI) and the Alabama Mathematics, Science, and Technology Initiative (AMSTI).	Dominick	X	
Handle public relations with the school systems.	Dominick	X	
Serve as primary project director for the following project activities: outreach activities to parents and the community (including GBMP website and MSPnet), IHE course redesign and development, middle school mathematics certification, and engineering projects.	Clark	X	
Serve as primary project director for the Management Team, Design Team, National Advisory Board, and Community and Business Advisory Council.	Clark	X	
Serve as primary contact for articulation with the Alabama Mathematics, Science, and Technology Education Coalition (AMSTEC) and the A+ College Ready Program.	Clark	X	
Handle public relations with the community.	Clark	X	
Seek appropriate media opportunities for GBMP.	Liaisons, Clark	X	
Hold monthly meetings between Evaluation Team and PI/PDs to discuss all aspects of the research and evaluation plan.	Mayer, Clark, Dominick	X	
Discuss a yearly overview for the Design Team meetings, keeping in mind a focus on research and evaluation and the importance of operationalizing the definition of CCC.	Mayer, Clark, Dominick	X	
Keep PDs and PI and Evaluation Team informed about school system concerns and input.	Liaisons	X	
Keep PDs and PI and Evaluation Team informed about GBMP courses and grade-level sessions.	Liaisons, Parker	X	
Keep PDs and PI and Evaluation Team informed about MST's.	Liaisons, Parker	X	
Keep PDs and PI and Evaluation Team informed about sessions for administrators.	Liaisons, Parker	X	
Keep PDs and PI and Evaluation Team informed about outreach activities.	Liaisons, Parker	X	
Keep PDs and PI and Evaluation Team informed about IHE course redesign and development.	Mayer	X	
Keep PDs and PI and Evaluation Team informed about middle school mathematics certification.	Froning	X	
Keep PDs and PI and Evaluation Team informed about engineering projects.	Feldman	X	

3. Partnership-Driven Project Management (continued)		Completed	
Ongoing Tasks (continued)	**Responsible Party**	**Yes**	**No**
Keep PDs and PI and Evaluation Team informed about recruitment of pre-service teachers.	Froning, Moore	X	
Deliver formative evaluation information as warranted.	Cochran, Snyder	X	
Respond to formative evaluation information when received.	Management Team	X	
Report on research findings at local, regional, and national conferences.	Design, Eval Teams	X	
Submit papers on research findings to journals for possible publication.	Design, Eval Teams	X	
Submit invoices and documentation and any needed reports to Grants Administrator.	MEC, BSC, Hoover City Schools	X	
Process submitted invoices and documentation and reports; verify that expenses and deliverables are in accord with the budget and the Annual Implementation Plan.	Moose	X	
Review invoices and reports forwarded by Grants Administrator.	Mayer	X	
Verify invoices for allowability of expenses and availability of funds.	White	X	
Fall Tasks	**Responsible Party**	**Yes**	**No**
Hold meetings with District Liaisons and all Superintendents to discuss challenging courses and curricula and the full scope of the partnership.	Dominick	X	
Remind Design Team about forthcoming NSF Management Information System online surveys.	Moose	X	
Complete NSF Management Information System online surveys.	Design Team	X	
Call and set agenda for Management Team and Design Team meetings.	Mayer	X	
Participate in Management Team and Design Team meeting.	Design Team	X	
Participate in monthly meetings with Center for Educational Accountability (CEA).	Mayer, Cochran	X	
Participate in monthly meetings with Grants Administrator and Finance Director.	Mayer, Moose, White	X	
Participate in quarterly meetings with engineering team.	Lucas, Mayer	X	
Report to Design Team and Evaluation Team about areas of responsibility (see Ongoing Tasks).	Management Team	X	
Discuss GBMP courses and course development, engineering tasks, grade-level sessions, MST sessions, administrator sessions, outreach to parents and the community, IHE course development, middle school certification, recruitment of pre-service teachers, project management and any district concerns.	Design Team	X	
Keep Management Team and Design Team meeting minutes.	Clark	X	
Send quarterly report to Evaluation Team.	Clark, Dominick		E

3. Partnership-Driven Project Management (continued)		Completed	
Winter Tasks	**Responsible Party**	**Yes**	**No**
Attend NSF MSP Learning Network Conference.	Design Team reps	X	
Begin preparations for annual National Advisory Board meeting.	Clark	X	
Call and set agenda for Management Team and Design Team meeting.	Mayer	X	
Participate in Management Team and Design Team meeting.	Design Team	X	
Participate in monthly meetings with Center for Educational Accountability (CEA).	Mayer, Cochran	X	
Participate in monthly meetings with Grants Administrator and Finance Director.	Mayer, Moose, White	X	
Participate in quarterly meetings with engineering team.	Lucas, Mayer	X	
Discuss GBMP courses and course development, engineering tasks, grade-level sessions, MST sessions, administrator sessions, outreach to parents and the community, IHE course development, middle school certification, recruitment of pre-service teachers, project management and any district concerns.	Design Team	X	
Keep Management Team and Design Team meeting minutes.	Clark	X	
Spring Tasks	**Responsible Party**	**Yes**	**No**
Set agenda for National Advisory Board meeting.	Clark, Parker	X	
Send details about annual meeting, agenda, travel reimbursement to National Advisory Board.	Clark	X	
Hold annual National Advisory Board meeting.	Clark, Parker	X	
Call and set agenda for Management Team and Design Team meeting.	Mayer	X	
Participate in Management Team and Design Team meeting.	Design Team	X	
Participate in monthly meetings with Center for Educational Accountability (CEA)	Mayer, Cochran		
Participate in monthly meetings with Grants Administrator and Finance Director	Mayer, Moose, White	X	
Participate in quarterly meetings with engineering team	Lucas, Mayer	X	
Report to Design Team and Evaluation Team about areas of responsibility (see Ongoing Tasks).	Management Team	X	
Report to Design Team and Evaluation Team about MSP Learning Network Conference.	Attendees	X	
Discuss GBMP courses and course development, engineering tasks, grade-level sessions, MST sessions, administrator sessions, outreach to parents and the community, IHE course development, middle school certification, recruitment of pre-service teachers, project management and any district concerns.	Design Team	X	

3. Partnership-Driven Project Management (continued)		Completed	
Spring Tasks (continued)	**Responsible Party**	**Yes**	**No**
Discuss the year-to-date efforts regarding public relations with the schools and the community, the efforts of the CBAC and NAB, and communication with AMSTEC, AMSTI, and MMI.	Design Team	X	
Discuss any needed revision to plans for next year based on what has been learned this year.	Design Team	X	
Keep Management Team and Design Team meeting minutes.	Clark	X	
Evaluation Team requests any information needed for evaluation report by March 1.	Evaluation Team	X	
Grants Administrator sends reminder about information needed for annual report by March 1.	Moose	X	
Management Team sends information for the annual report to the Grants Administrator and Evaluation Team by April 1 including information for the (1) activities and findings report, (2) management report, (3) information requested by Evaluation Team.	Management Team	X	
Draft of activities and findings report and management report sent to Management Team and Evaluation Team by April 15.	Mayer	X	
Management Team responds to draft report by May 1.	Management Team	X	
Final draft sent to Management Team by May 15.	Mayer	X	
Evaluation Team completes evaluation report by May 1.	Evaluation Team	X	
Project co-directors and co-investigators discuss the evaluation report, consider any needed actions, and write a response to evaluation report by May 15.	Clark	X	
Annual report submitted to NSF by June 1.	Moose	X	
Summer Tasks	**Responsible Party**	**Yes**	**No**
Send follow-up communication to National Advisory Board members.	Clark	X	
Call and set agenda for Management Team and Design Team meeting.	Mayer	A	
Participate in Management Team and Design Team meeting.	Design Team	A	
Participate in monthly meetings with Center for Educational Accountability (CEA).	Mayer, Cochran	A	
Participate in monthly meetings with Grants Administrator and Finance Director.	Mayer, Moose, White	A	
Participate in quarterly meetings with engineering team.	Lucas, Mayer	A	
Report to Design Team and Evaluation Team about areas of responsibility (see Ongoing Tasks).	Management Team	A	
Report to Design Team and Evaluation Team about National Advisory Board Meeting.	Clark	A	
Discuss GBMP courses and course development, engineering tasks, grade-level sessions, MST sessions, administrator sessions, outreach to parents and the community, IHE course development, middle school certification, recruitment of pre-service teachers, project management and any district concerns.	Design Team	A	
Keep Management Team and Design Team meeting minutes.	Clark	A	

Goal IV: To increase the mathematics achievement of all middle school students in GBMP schools and reduce discrepancies in disaggregated mathematics achievement data within these schools

All of the above activities found under Goals I-III also contribute to Goal IV.

Key to 5 Key Features:
C = Challenging Courses and Curricula
E = Evidence-Based Design and Outcomes
I = Institutional Change and Sustainability
P = Partnership-Driven
T= Teacher Quality, Quantity and Diversity

Note Regarding Assignment of MSP Five Key Features in Matrix:
Since more than one of the MSP Key Features describe most of the project's activities, the letter representing the key feature deemed most descriptive is listed first followed by the others that are applicable.

Note Regarding Completed Column:
At the beginning of the year, the above matrix serves as the Annual Implementation Plan. At the end of the year, the above matrix serves as the Implementation Matrix that will be attached as Exhibit 1 to the Activities and Findings section of the annual report. At the end of the year, for each task, the "Completed" column on the far right side of the matrix will be filled in with a letter according to the legend below.

In the "YES" Column:
"X" indicates task has been completed.
"A" indicates task is on schedule and will be completed by August 31.

In the "NO" column:
"D" indicates the task has been delayed
"R" indicates the task has been revised
"E" indicates the task has been eliminated
"N" indicates a new task has been substituted

Exhibit #2 Goals Matrix

Goal I: To increase the effectiveness of middle school mathematics teachers within GBMP school systems.

Outcome	Measure	Benchmark	Feature	Level of Attainment (check one)						Brief explanation if a goal has not been met
				On target to reach benchmark later as scheduled	Benchmark met	Benchmark not met	Target year has been revised	Benchmark has been revised	No longer a project benchmark	
Increase teachers' knowledge and understanding of mathematics (Outcome I-A)	MEC course completion	By the end of Year 1, 90 grade 6-8 teachers will have completed one course	TC		X					
		By the end of Year 2, 180 grade 6-8 teachers will have completed one course			X					
		By the end of Year 2, 66 grade 6-8 teachers will have completed two courses			X					
		By the end of Year 3, 225 grade 6-8 teachers will have completed one course				X				218 Grade 6-8 teachers completed one course
		By the end of Year 3, 132 grade 6-8 teachers will have completed two courses			X					
		By the end of Year 4, 274* grade 6-8 teachers will have completed one course (*unless population declines)				X				260 Grade 6-8 teachers have completed one course
		By the end of Year 4, 198 grade 6-8 teachers will have completed two courses				X				150 Grade 6-8 teachers have completed 2 courses
		By the end of Year 5, 274* grade 6-8 teachers will have completed two courses (*unless population declines)		X						
		By the end of Year 5, slots will have been provided for an average of three courses per grade 6-8 teacher		X						
		By the end of Year 5, 100 grade 5 teachers will have completed at least one course		X						
		By the end of Year 5, at least 20 grade 9-12 teachers will have completed at least one course		X						
		By the end of Year 5, at least 50 pre-service teachers will have completed at least one course		X						

Outcome	Measure	Benchmark	Feature	Level of Attainment (check one)						Brief explanation
				On target to reach benchmark later as scheduled	Benchmark met	Benchmark not met	Target year has been revised	Benchmark has been revised	No longer a project benchmark	
Increase teachers' knowledge and understanding of mathematics (continued)	CKTM	80% of participating teachers master 75% or more of the material presented at posttest in each course			X	X				Benchmark met for CKTM-Geometry, not for Patterns where there was a 3-point improvement from pre to post administration, yielding medium effect size of .5.
	Rubric	90% of participating teachers will demonstrate gains of one level or more on one or more of the rubric dimensions during their first MEC course			X					
		80% of participating teachers will score at Level 4 (proficient) or higher on all dimensions at posttest				X				There was statistically significant growth from pre-to post; however, at post, approximately 70% of participants scored at Level 4 or higher on all dimensions except accuracy (93% scored at Level 4 or 5).
		For all courses after the first, at least 33% of teachers will score above Level 4 on at least one dimension			X					
	Portfolio	After one course, 75% of teachers present evidence of high-quality classroom practice.			X					
		After two or more courses, 90% of teachers present such evidence			X					

Outcome	Measure	Benchmark	Feature	Level of Attainment (check one)						Brief explanation
				On target to reach benchmark later as scheduled	Benchmark met	Benchmark not met	Target year has been revised	Benchmark has been revised	No longer a project benchmark	
Improve classroom instructional practices (Outcome I-B)	SEC	Among GBMP participants, a 10% improvement in curriculum and pedagogical ratings in the year after initial training	TC	X						Sample sizes of repeated measures still too small to divide by number of courses taken
		An additional 5% improvement for each year that the teacher takes a subsequent course		X						Sample sizes of repeated measures still too small to divide by number of courses taken
		GBMP participants will show greater improvement than the comparison group							X	No comparison group.
	RTOP	Among GBMP participants, mean ratings of key areas will increase by 10% in the year after initial training			X					Small sample of repeated measurement of participants who were observed at baseline.
		An additional 5% improvement for each year that the teacher takes a subsequent course			X					Small sample size of repeated measurements.
		GBMP participants will show greater gains than the comparison group							X	No comparison group.
	Survey	Evidence of both initial satisfaction with training and improved self-reports of understanding and practice			X					

Outcome	Measure	Benchmark	Feature	Level of Attainment (check one)						Brief explanation
				On target to reach benchmark later as scheduled	Benchmark met	Benchmark not met	Target year has been revised	Benchmark has been revised	No longer a project benchmark	
Recruit and retain a diverse pool of candidates to middle school mathematics education (Outcome I-C)	Data	During Year 1, at least 10 scholarships will be awarded to pre-service teachers to attend MEC courses	TC		X					
		During Year 2, at least 10 scholarships will be awarded to pre-service teachers to attend MEC courses			X					
		During Year 3, at least 10 scholarships will be awarded to pre-service teachers to attend MEC courses			X					
		During Year 4, at least 10 scholarships will be awarded to pre-service teachers to attend MEC courses			X					
		By the end of Year 5, a total of 50 scholarships will have been awarded to pre-service teachers		X						
	Data	By the end of Year 2, at least 8 minority pre-service teachers will have completed at least one GBMP course			X					
		By the end of Year 4, at least 12 additional (total of 20) minority pre-service teachers have completed at least one GBMP course			X					
		By the end of Year 5, at least 10 additional (total of 30) minority pre-service teachers have completed at least one GBMP course		X						
		By the end of Year 5, at least 30 minority pre-service teachers will have graduated (under the current certification) having completed at least one GBMP course		X						
	Data	In Year 3, 5 students will be admitted to the new UAB middle school mathematics certification program				X				Delayed approval of certificate delayed admittance of students
		In Year 4 and Year 5, 5-10 students will be admitted to the program			X					
		30% of applications will be from minority groups			X					
		3 or more of the admitted students will be minority students			X					
		90% retention of students admitted to the teacher education program for the new middle school mathematics certification		X						Retention data not yet available

Outcome	Measure	Benchmark	Feature	Level of Attainment (check one)						Brief explanation
				On target to reach benchmark later as scheduled	Benchmark met	Benchmark not met	Target year has been revised	Benchmark has been revised	No longer a project benchmark	
Pre-service teachers will demonstrate content knowledge and pedagogical skills consistent with standards and best practices (Outcome I-D)	Portfolio	90% of middle school certification candidates will yield rubric-based scoring at the "emerging proficient" level prior to student teaching on all domains	T	X						Data not yet available due to approval delays
		90% of middle school certification candidates will yield rubric-based scoring at the "initial proficient" level at the end of student teaching on all domains		X						Data not yet available due to approval delays
Revise IHE courses and mentoring systems (Outcome I-E)	Evidence	Evidence of inclusion of MEC content and best teaching and assessment practices and include engineering activities developed (evidence gathered via syllabi, focus groups, RTOP)	I P T			X				Evidence of inclusion by some instructors, but not all.
		All necessary courses are designed (syllabi are developed) according to timeline			X					
		Mathematics and mathematics education curricula are approved by UAB and state according to timelines			X					Some delays on the approval side, but not on the development side
Place new teacher interns in best-practice settings (Outcome I-F)	Placement	The percentage of middle school certification students placed in grade 6-8 best-practice settings will increase by at least 10% each year in each IHE	T		X					
		The percentage of middle school certification students placed in grade 6-8 best-practice settings will be 100% in each IHE by Year 5		X						

Goal II: To increase the leadership capacity of middle school mathematics teachers within GBMP school systems.											
Outcome	Measure	**Benchmark**	Feature	**Level of Attainment (check one)**						**Brief explanation**
				On target to reach benchmark later as scheduled	Benchmark met	Benchmark not met	Target year has been revised	Benchmark has been revised	No longer a project benchmark	
MST's provide technical support to colleagues, provide model demonstration classrooms, mentor new teachers, and work with IHE faculty to improve teacher education (Outcome II-A)	Data	By the end of Year 1, at least 18-30 grade 5-8 teachers will have been identified as MST1's (first cohort)	IPT		X					
		By the end of Year 3, at least 20-30 grade 5-8 teachers will have been identified as MST2's (second cohort)			X					
	Log	By the end of Year 2, all eligible MST1's will have completed their first year of follow-up			X					
		By the end of Year 3, all eligible MST1's will have completed their second year of follow-up			X					
		By the end of Year 3, 75% of eligible MST1's will offer to serve as host teachers for pre-service teachers			X					
		By the end of Year 3, engineering projects will be included as follow-ups for MST1's who pilot projects			X					
		By the end of Year 4, all eligible MST1's will have completed their third year of follow-up				X				Cohort 1 MSTs did not have strong attendance at MST sessions in Year 4
		By the end of Year 4, at least 75% of MST1's will provide support and technical assistance to colleagues			X					
		By the end of Year 4, all eligible MST2's will have completed their first year of follow-up			X					
		By the end of Year 5, 50% of MST1's will facilitate sessions with parents				X				Of a sample of 24 MST respondents, 9 reported provided sessions for parents.
		By the end of Year 5, all eligible MST1's will have completed their fourth year of follow-up			X					
		By the end of Year 5, 75% of MST2's will offer to serve as host teachers for pre-service teachers								Data is not available
		By the end of Year 5, all eligible MST2's will have completed their second year of follow-up			X					

Outcome	Measure	Benchmark	Feature	Level of Attainment (check one)						Brief explanation
				On target to reach benchmark later as scheduled	Benchmark met	Benchmark not met	Target year has been revised	Benchmark has been revised	No longer a project benchmark	
Improved content and pedagogical knowledge by non-MST teachers attributable to mentoring or technical assistance by the MST's (Outcome II-B)	Survey	Colleagues and teacher candidates report specific content and pedagogical improvements attributable to interactions with the MST	T		X					
		Colleagues will report changes in the nature of curriculum and teaching practices in a manner consistent with program expectation			X					
		Specific beneficial MST behaviors are identified			X					

Goal III: To unite the GBMP stakeholders (teachers, administrators, parents, IHE's and the public) in support of mathematics education programs that are high quality and effective.										
Outcome	Measure	**Benchmark**	Feature	**Level of Attainment (check one)**						**Brief explanation**
				On target to reach benchmark later as scheduled	Benchmark met	Benchmark not met	Target year has been revised	Benchmark has been revised	No longer a project benchmark	
Increase the stakeholders' knowledge of mathematics education reform (Outcome III-A)	Focus / Log	Evidence of knowledge of the need for mathematics education reform, project efforts to improve mathematics teaching and learning, and evidence of support to schools who are making such reform efforts	P		X					
	Data	By the end of year five, the total attendance at public sessions will have been at least 1000	I		X					Attendance goal has accordingly been revised upward.
		Evidence of attendance at 3 or more sessions			X					By some parents
		Over 85% of survey respondents will have rated the sessions as 'informative' or 'extremely informative'			X					
Expand administrators' knowledge of and ability to support effective mathematics instruction (Outcome III-B)	Data	By the end of Year 2, school administrators from 30% of participating grade 6-8 schools will have participated in the public sessions and administrator sessions	I P		X					
		By the end of Year 5, school administrators from 90% of participating grade 6-8 schools will have participated in the public sessions and administrator sessions				X				Administrator participation in sessions has been very low.
	Interview / Survey	Evidence of administrator leadership in promoting mathematics understanding and mathematics education as a school/community priority				X				Evidence of some support, but not much active leadership in promoting GBMP

Outcome	Measure	Benchmark	Feature	Level of Attainment (check one)						Brief explanation
				On target to reach benchmark later as scheduled	Benchmark met	Benchmark not met	Target year has been revised	Benchmark has been revised	No longer a project benchmark	
Improve communication between K-12 school systems and IHE's (Outcome III-C)	Focus / Survey	Evidence that obstacles to successful communication are identified and solutions are jointly identified and implemented	I P T		X					
Support parents in their abilities to both understand and help their children as learners of mathematics (Outcome III-D)	Survey	Evidence of increased understanding of math, evidence of increased parent involvement in math education of children	I		X					
Form and nurture strong business and education partnerships in support of mathematics education (Outcome III-E)	Records	Evidence of expansion of number and nature of business involvements in GBMP efforts to publicize mathematics education reform and support reform efforts within the schools/IHE's	I P		X					

Goal IV: To increase the mathematics achievement of all middle school students in GBMP schools and reduce discrepancies in disaggregated mathematics achievement data within these schools.

Outcome	Measure	Benchmark	Feature	Level of Attainment (check one)						Brief explanation
				On target to reach benchmark later as scheduled	Benchmark met	Benchmark not met	Target year has been revised	Benchmark has been revised	No longer a project benchmark	
Increase standardized mathematics achievement performance of middle school students in participating schools (Outcome IV-A)	ARMT	The percentage of students in each disaggregated subgroup performing at proficient levels will increase within each school (that meets the inclusion criteria) by at least 5% per year during Year 2 in grade 6 math	EC			X				Growth of 5% or more in some schools at some grades
		The percentage of students in each disaggregated subgroup performing at proficient levels will increase within each school (that meets the inclusion criteria) by at least 5% per year during Year 3 in grade 5-8 math				X				Growth of 5% or more in some schools at some grades
		The percentage of students in each disaggregated subgroup performing at proficient levels will increase within each school (that meets the inclusion criteria) by at least 5% per year during Year 4 in grade 5-8 math								Year 5 ARMT data not available yet
		The percentage of students in each disaggregated subgroup performing at proficient levels will increase within each school (that meets the inclusion criteria) by at least 5% per year during Year 5 in grade 5-8 math								Year 5 ARMT data not available yet
		By the end of year five, we anticipate that the achievement gap between the underrepresented African American, American Indian and Hispanic students and the high achieving students at all participating schools will be cut by one third								Year 5 ARMT data not available yet
		Students in comparison schools will yield significantly lower gains within subgroups				X				Significant differences found for some schools.
	SAT	Improvements in average normal curve equivalent scores on math subscales				X				NCE improvements in some schools at high implementing grade levels

Outcome	Measure	Benchmark	Feature	Level of Attainment (check one)						Brief explanation
				On target to reach benchmark later as scheduled	Benchmark met	Benchmark not met	Target year has been revised	Benchmark has been revised	No longer a project benchmark	
Increase middle school students' abilities to solve mathematical problems and communicate their solutions in multiple ways (Outcome IV-B)	Balanced Assessment Program	Rubric-based scores improve across time.	EC		X					Evidence of change, but very small sample size
		At least 75% of students within each classroom perform at criterion-levels by the end of each year							X	There have been problems collecting pre-post evidence; sample sizes are too small to make judgments; tasks are reported by teachers to be too difficult for students

Outcome	Measure	Benchmark	Feature	Level of Attainment (check one)						Brief explanation
				On target to reach benchmark later as scheduled	Benchmark met	Benchmark not met	Target year has been revised	Benchmark has been revised	No longer a project benchmark	
Increase middle school students' access to and participation in challenging courses and curricula (Outcome IV-C)	Access	Within one year of completing the first MEC course, at least 85% of participants will meet some of the criteria for challenging courses and curricula (CCC) in their teaching practice and at least 10% of participants will meet most of the criteria for CCC in their teaching practice	C		X					
		Within one year of completing a second course, at least 90% of participants will meet some CCC criteria for and at least 50% of participants will meet most CCC criteria			X					
		Within one year of completing a third course, at least 95% of participants will meet some CCC criteria and at least 75% of participants will meet most CCC criteria			X					Small sample size
		For each additional course completed beyond three, an additional 5% of participants will meet most of the CCC criteria			X					Small sample size
	Participation	By the end of year 2, 25% of grade 6-8 students will be participating in courses that meet some of the criteria for CCC and 5% of grade 6-8 students will be participating in courses that meet most of the criteria for CCC			X					Based on sample
		By the end of year 3, 50% of grade 6-8 students will be participating in courses that meet some criteria and 15% will be participating in courses that meet most criteria			X					Based on sample
		By the end of year 4, 75% of grade 6-8 students will be participating in courses that meet some criteria and 30% will be participating in courses that meet most criteria				X				
		By the end of year 5, 90% of grade 6-8 students will be participating in courses that meet some criteria and 50% will be participating in courses that meet most criteria				X				

Narrative

Goal I: To increase the effectiveness of middle school mathematics teachers within GBMP school systems.

Activity 1. MEC Summer Courses and Academic Year Follow-Up (Grade-Level Sessions)

The summer courses have been one of the most successful components of the partnership. In the summer of 2008 (Project Year 4), MEC (Mathematics Education Collaborative) offered four sections of the first nine-day content course, *Patterns: The Foundations for Algebraic Reasoning,* three sections of *Numerical Reasoning*, two sections of *Geometry and Proportional Reasoning*, one section of *Probability and Data Analysis,* and one section of a revised course, *Extending Algebraic Reasoning 1*. Courses were attended by pre-service teachers, a community college faculty member, grade 5-12 teachers, mathematics and education faculty members from Birmingham-Southern College (BSC) and mathematics, education, and engineering faculty members from the University of Alabama at Birmingham (UAB). Kindergarten through 4th grade teachers also attended courses supported by local funds. To date, 26 university faculty have attended MEC's mathematics content courses alongside K-12 teachers. This has strengthened the work of the Partnership and has helped to bridge the divide between K-12 and IHEs. MEC instructors solicited feedback from all teachers and IHE faculty who attended courses and participant response to the courses continues to be highly positive.

The total number of Year 4 participants in each course is summarized below. Details about participation by grade level are given in the goals matrix.

Patterns:	114
Numerical Reasoning:	78
Geometry:	51
Probability:	30
Extending Algebraic Reasoning 1:	27

Major revisions were made to the introductory course, *Patterns: The Foundations for Algebraic Reasoning,* based on feedback from the instructor in the *Extending Algebraic Reasoning I* course and in an attempt to better meet the needs of a rather large number of teachers with poor mathematical preparation. Feedback from both classroom teachers and university mathematicians who attended was very positive and instructors felt the redesign made the mathematical ideas in the course, including multiple representations of functions, more accessible to participants. We will continue to offer the revised course in 2009 and beyond.

In June and July 2009 (Project Year 5), GBMP will offer 12 summer courses: four sections of *Patterns I: The Foundations for Algebraic Reasoning,* two sections of *Numerical Reasoning*, one section of *Probability* one section of *Geometry and Proportional Reasoning*, one section of *Extending Algebraic Reasoning I,* two sections of a new course titled *Patterns II: Continuing the Foundations for Algebraic Reasoning,* and one section of a new course titled *Extending Algebraic Reasoning II.* Project leadership determined that there was a need to bridge the content gap between the first *Patterns* course and the *Extending Algebraic Reasoning I* course

developed by Millie Johnson, MEC Associate. In response to this request, the MEC staff has developed an additional new course, *Patterns II*. Millie Johnson is currently finalizing the third new course, *Extending Algebraic Reasoning II*. MEC instructors, including one local instructor, will intern in the June course.

Three faculty members from UAB and BSC have interned in the *Patterns, Geometry, and Probability* courses to date. One BSC mathematician has already interned in and taught the *Numerical Reasoning* course several times, and will do so again in summer of 2009. One MST (Mathematics Support Team teacher) has interned in the *Patterns* course, taught the course in 2008, and will teach two sections of the course in 2009. One Project Director interned in the *Patterns* course in summer of 2009. This has exceeded our projected number of local mathematics leaders prepared to offer MEC courses beyond the duration of this GBMP project.

Again this year, GBMP provided two Grade-Level Sessions as school year follow-up for grades 5-6 and grades 7-8 teachers. These follow-up sessions focused on developing numerical reasoning with whole numbers, fractions, decimals and percents, and on the arithmetic properties underlying diverse computational procedures and algorithms .The Grade-Level Sessions were not a part of the original Five-Year Strategic Plan, but continue to be offered at the request of the school districts. These sessions also serve as an effective recruiting tool for teachers who have not yet come to a GBMP summer course. Teachers' responses to the sessions were overwhelmingly positive. This year, with support from Patty Lofgren, local well-prepared teachers delivered three of the Grade-Level Sessions and two more MSTs interned this year. These teachers are prepared to continue to deliver these sessions.

An initial goal of the partnership was that every grade 6-8 mathematics teacher in the nine partner school systems (274) would have completed at least two summer courses by the end of the grant period (August 2009). By the end of 2009, 303 teachers of grades 6-8 will have taken one course, and 172 will have had at least two courses. As discussed in the 2008 Annual Report, we think that competing initiatives from the State level explain the fact that all teachers who took one course were not able to take additional courses.

Originally, 100 grade 5 teachers were approved to take at least one summer course. Additional 5th grade teachers were approved by NSF and 177 will have attended by August 2009. GBMP expected a total of 20 high school teachers to take at least one summer course. By the end of 2009, 95 high school teachers will have attended at least one summer course.

Activity 2. IHE Course Redesign and Development

Redesigned mathematics courses MA 313 and 314 continue to be offered at UAB as well as other courses that closely parallel MEC courses. In addition, Tommy Smith, John Mayer, and Michael Froning have had discussions with Charles Calhoun, UAB Chair of the Department of Curriculum and Instruction, and with Lynn Kirkland, Program Coordinator for Pre-kindergarten-6th grade (P-6) Education at UAB, about changing the mathematics requirements for pre-service P-6 education majors. Currently P-6 majors are required to take 12 hours of mathematics for their certification. Many presently take MA 102 Intermediate Algebra, MA 105 Precalculus Algebra, MA 110 Finite Mathematics, and either MA 313 Patterns or MA 314 Geometry. Our

goal is to have P-6 majors take at least 2 and hopefully 3 courses from the middle school track of mathematics courses, MA 313 (Patterns) and 314 (Geometry), and possibly MA 315 (Numerical Reasoning). We have had discussions on making this change, but we have not formalized an agreement yet. There has been some confusion over Alabama State Department of Education requirements and the current UAB requirements. We plan to formalize an agreement for the sequence of courses before the end of the summer 2009.

The calculus courses MA 123-124 designed for prospective middle school teachers and biology majors were not successful because the biology students persistently choose the alternative of taking a regular calculus course. We have discontinued MA 123-124 and have substituted MA 125 (Calculus 1) and MA 106 (Pre-Calculus Trigonometry) in their place in the Mathematics Reasoning Track.

The pilot redesigned MA 105 following UAB Quality Enhancement Plan plan has been delayed. We will conduct a comparison of inquiry-based instruction versus traditional lecture in MA 098(Basic Algebra), both with a major component of computer-assisted instruction in Fall 2009. This is based upon a similar experiment in Finite Mathematics, MA 110, Fall 2008. It will be followed by similar experiments in Intermediate Algebra (MA 102) and Pre-Calculus Algebra (MA 105), in subsequent Fall Terms.

Activity 3. Middle School Mathematics Certification

The Middle Grades Certification in Mathematics (MGCM) at UAB has been fully integrated into the UAB School of Education as one of its normal offerings to students. As with each of the secondary programs within the School of Education, the certification requires a double major (in this case, education and mathematics). The parallel major in the mathematics department is the Mathematical Reasoning Track, which currently has 11 students at various stages in this program.

Students enrolled in middle grades and secondary mathematics methods during Fall 2008 were required to do a 50 hour practicum in local schools. Students who were not already full-time teachers were assigned to mentor teachers who had taken at least one GBMP course. Pre-service teachers were also invited to attend GBMP Community Math Nights to become more familiar with GBMP goals.

A project goal was to follow up this undergraduate certification program with a 5th Year Alternative Master's degree. We have decided to eliminate this goal because it has been unfeasible given the current teacher preparation guidelines enforced by the Alabama State Department of Education.

Activity 4. Engineering Projects

Virtually all of the tasks on the implementation plan for the Engineering Projects (EPs) for the first five years have been carried out or are on target. The ultimate goal is to have a high

percentage of partnership middle school teachers using the engineering project (EP) application tasks in their classrooms.

By the end of Summer 2009, 13 of 16 tasks will be completed. Revisions and refinements of summer courses have made it necessary to revise some EP tasks and have delayed or eliminated the development of others. For example, the *Integrating Mathematics* course was replaced by the *Patterns II* course eliminating the EP for the *Integrating Mathematics* course and requiring an EP for the *Patterns II* course.

In addition, in Summer 2008, the *Data Analysis and Probability* course was revised to just include *Probability*. This necessitated development of two new EPs that were not data collection driven. One was a modification of the original task to remove the data collection component and the other was a modification of a previously processed task in the course. The second was chosen and piloted in the course last summer. There was also concern about one of the in-class tasks on weighted probability. Two additional EPs were outlined to potentially replace this task for the coming summer.

In Summer 2008, the EP for *Extending Algebraic Reasoning I (EAR I)* was not piloted in the course due to concerns about covering the other planned material. It will be incorporated in Summer 2009. *Extending Algebraic Reasoning II (EAR II)* was not taught in Summer 2008, but will be taught in Summer 2009. The EP for EAR II is under development.

New tasks have been developed for *Patterns I* and *Paterns II* and are to be used in the Summer 2009 courses. Four application tasks for the new *Calculus I and II* (IHE) courses have been developed and presented to the mathematics faculty at UAB and BSC.

EP Development

By the end of Year 5, EPs will be completed for the following courses: *Patterns I* and *Patterns II*, *Data Analysis and Probability* (the original course), *Probability* (the revised course), *Numerical Reasoning*, *Geometry and Proportional Reasoning*, *Extending Algebraic Reasoning I* and *Extending Algebraic Reasoning II*. Currently there are 9 tasks approved for these 8 courses with 24 additional extensions, as well as an additional menu task with an additional challenge (Table 1), all on the website. At this time, 6 have been piloted and processed in summer classes, with two more to be done this summer. For each task, there is a "Why is this important?" page as well as how it maps to the *Alabama Course of Study*. Also for each task and extension there are teacher notes and a math solution. The four Calculus tasks have been presented to Mathematics faculty at UAB and BSC; but have not been piloted with teachers. There are no plans to put them on the website, since they are not for middle school students or teachers.

Table 1. EP Development through Spring Year 5.

GBMP/IHE Course	EPs	Extensions	Piloted	Processed	Website
Patterns I: The Foundations for Algebraic Reasoning	"Will it Heal?"	3 Extensions	X	X	X
	"You can be too Sweet"	2 Extensions			X
Patterns II: The Foundations for Algebraic Reasoning	"Did Speeding Cause the Accident"	2 Extensions	X	X	X
Data Analysis and Probability	"When will it Break"	3 Extensions	X	X	X
Probability	"When will it Break"-- non-experimental	1 Extension			X
	"Making the Light"	2 Extensions	X	X	X
Numerical Reasoning	"Don't Get Burned"	1 Challenge 4 Extensions			X
	"Traffic Lights"	3 Extensions 2 local examples	X	X	X
Geometry and Proportional Reasoning	"Healing Rate"	4 Extensions	X	X	X
	"Jill's Garden"	1 challenge	X		X
Extending Algebraic Reasoning I	"Drinking and Driving"	2 extension	X		X
Extending Algebraic Reasoning II	"Skateboard"	1 challenge			
Calculus I	"Look Before you Leap"	3 extensions			
	"Saving for a Non-Rainy Day"	9 extensions			
Calculus II	"Bioavailability of Cyclosporine"	1 Extension			
	"Did Speeding Cause the Accident"	2 Extensions			

EP Dissemination

Efforts to optimize the development of EPs in order to better disseminate them to middle school teachers have taken many forms. Different strategies have been used for each of the 9 approved EPs and the 4 EPs under review. Originally, piloting and feedback at MST sessions was used to help refine EPs. Over the last two years, however, the design team has become the feedback and approval group. The goal has been to focus on incorporation of the EPs in the summer courses and using the design team meetings to get the EPs ready for the courses.

To date, EPs have been introduced and processed over 800 times with teachers and students in a variety of settings including GBMP summer courses, MST sessions, IHE courses at UAB (both in the Department of Mathematics and the School of Engineering) and Birmingham-Southern College, individual school professional development sessions, the GBMP National Advisory Board Meeting, etc. The greatest exposure of EPs has been in the summer courses. It was determined that integrating and processing the EPs in the summer courses using MEC and GBMP instructors was the best way to get feedback for task refinement, disseminate the EPs, and foster their implementation in classrooms. Over 50 teachers said they would use the tasks in 2008/2009 and at least three have put the EP as their "most important task" for their portfolios.

EP Website
The website development has also been a critical part of the dissemination of the EPs. Virtually all the middle school MSTs and over 150 other middle school teachers have been exposed to the website. Materials provided on the website include all tasks and extensions for each approved EP, ready to print handouts, teacher notes, mathematical solutions, why is this important, mapping to the ACS, color pictures, other support material for each task, and the opportunity to give us direct feedback. This website material is also designed to provide enough information for those not previously exposed to the task to be able to use it. The website design is evolutionary with the addition of new materials and continued modification to old EPs based on feedback.

Based on feedback a website for the students was developed. The response to the website from the teachers at the MST and summer sessions has been very positive.

On the last day of each summer course, the Engineering website and the support material for the EP used in the course were explained. Teacher notes and assessment items were distributed. In addition, a sign-up sheet was passed around to get names and grades of teachers who planned to use the EPs during the coming academic year.

The impact of the EPs on students is being examined. Over 100 samples of student work have been collected and middle school teachers have been surveyed. Additional data will be collected in Summer 2009.

Activity 5. Recruitment of Pre-Service Teachers

At University of Alabama at Birmingham (UAB)
Discussions were held among UAB Education and Mathematics faculty and administrators during Fall 2008 focused on recruiting more students into the Mathematical Reasoning major track and into the Middle Grades Certification in Mathematics (MGCM) program. Since the GBMP courses are now regular opportunities for pre-service teachers, undergraduate advisors, staff of School of Education Office of Student Services and recruiters are aware of the programs and efforts are continuing to counsel and recruit students. The School of Education has a full-time recruiter who is fully informed about the MGCM program. Staff in the UAB School of Education Office of Student Services advises students who may have an interest in teaching middle school mathematics. The staff has been undergoing realignment of duties during this academic year and will begin to take over all undergraduate advising during Summer 2009. Dr. Smith met with the director in May to insure that staff continues to recruit for this major.

School of Education Dean Mike Froning speaks about the program at his introductory lectures to all new education majors every semester. The mathematics department recommends the major and its courses to students who show interest in mathematics courses they offer and several students have begun this track. Announcements about GBMP activities, including the new certification program and the summer courses, were made to students in mathematics methods courses and MA 313 in the fall and students in these same courses and MA 314 in the spring. Students were encouraged to apply and participate. Assuming viable numbers, the courses and programs developed under this grant will be able to continue into the future without further

external funding. In fact, state and federal teaching incentive programs may be excellent sources of scholarships to allow even greater enrollments.

Recruitment of minority candidates remains a priority of the university and of the School of Education in particular. The UAB Center for Urban Education was recently approved by the university system board of trustees. It houses an Urban Teacher Enhancement Program (UTEP) that is beginning to produce graduates. Dr. Smith is a faculty associate with UTEP. He informs all UTEP candidates interested in mathematics about the middle school certification option. There are several students interested in both UTEP and the GBMP. The first graduate of the new middle school mathematics program was also in UTEP and is currently a middle school mathematics teacher in the Birmingham City School System.

During Spring 2009, 10 UAB Education students have been recruited for and registered in GBMP summer courses. Five of these 10 pre-service teachers have registered to take multiple courses. Additionally, some in-service teachers in the masters program at UAB who are in partner school districts have been recruited to attend summer courses. Both pre-service and in-service teachers have the option of receiving mathematics credits for their participation.

To date, there have been 12 UAB pre-service teachers who have taken GBMP summer courses and accounted for 16 enrollments in all. By the end of summer 2009, a total of 20 UAB pre-service teachers will have taken at least 1 GBMP summer course, and the total number of courses taken by UAB pre-service teacher will have risen to 34.

At Birmingham-Southern College (BSC)
Pre-service teacher recruitment at Birmingham-Southern College has been very successful since the project's inception. Thirty-six pre-service teachers have attended a MEC course and nine will attend one this summer for a total of 45, with five students taking a second course. All of the pre-service teachers who have participated are female. Of the participants, 15% (seven students) have been minorities compared to approximately 10% minority student population at BSC.

The original plan for BSC pre-service teachers was to:

1. Enroll in ED 320 - Math Methods, an IHE improved course of the grant;
2. Observe MSTs during the first half of this course to see implementation of the literature they were reading, some of whom have been students in this program;
3. Teach a two-week unit from "Investigations" from a master teacher who had attended at least one MEC course;
4. Participate in a GBMP summer course with future supervisors for their internship;
5. Be assigned during their internship to at least one teacher who had attended MEC courses; and
6. Be employed by one of the partnership schools.

The plan has been followed exactly with the previous 36 students and will be honored for the current nine students who will take courses this summer.

Excluding the five current interns and the nine juniors at BSC enrolled in a MEC course this summer, all of the pre-service teachers have been hired in a partner school system with seven exceptions. There are five former students teaching out of state and one teaching in another city in Alabama (Huntsville). One student, upon the death of her brother, returned home to take his job with her family's business. The system predominantly hiring these students has been Jefferson County with 10 BSC former students which fully met the original proposal.

"The Birmingham-Southern College education department and this professor in particular are extremely appreciative to the Greater Birmingham Mathematics Partnership for an increased attention to mathematics education, inclusion of pre-service teachers allowing them to move toward ownership of the definition and application of challenging courses and curricula in their own classrooms, and enhancing and expanding BSC pre-service education to a seamless professional model. Additionally, students have participated in the Community Mathematics Nights for parents and gotten to visit with Dr. Ruth Parker, one of their textbook authors. The GBMP has truly been invaluable to us and our students and we celebrate the overall success of the grant." Eileen Moore, Professor BSC

Goal II: To increase the leadership capacity of middle school mathematics teachers within the GBMP school systems.

<u>Activity 1. Mathematics Support Teams</u>

MEC staff developed and delivered three two-day leadership sessions for the two groups of Mathematics Support Team teachers (MSTs) during the academic year. The first group is actually the combination of what we have previously referred to as *Cohorts 1 and 2* and includes 51 total teachers. Thirty-four of the 51 teach grade 5 or above. The second group we refer to as *Cohort 3*. It consists of 29 teachers, 21 of whom teach grade 5 or higher. The purposes of the sessions were to:

- Continue to deepen the mathematics content knowledge of participants (with attention to content knowledge specific to teaching).
- Provide a more focused opportunity for MSTs, within the context of a developing intellectual community, to examine and refine their classroom practice.
- Continue the process of preparing MSTs to lead from a place of confidence in their own understanding of mathematics and best classroom practice.

The content of these sessions was designed to reflect a deep level understanding of the mathematics that a well-prepared 9th grader would know upon entering high school. Acknowledging the importance of the topic at the middle school level, the content focus for the first group (Cohorts 1 and 2) for the entire year was "Spatial Reasoning & Spatial Visualization".

Rationale for these sessions:

- The ability to visualize three-dimensional space when it is shown as two dimensions is vital to success in higher mathematics as well as in many careers
- Moving between two and three dimensions is neglected in textbooks and curriculum

guides and hence children do not build, across the grades, these important skills.

Goals of these sessions:

- Make accurate 2-dimensional drawings of 3-dimensional structures,
- Build 3-dimensional structures from orthogonal drawings (top, side, and front views),
- Interpret and create orthogonal drawings from 3-dimensional structures,
- Create 2-dimensional "nets" of the surface area of 3-dimensional objects,
- Solve problems involving composition of 3-dimensional objects.

The content focus for the second group (Cohort 3) for the entire year was Proportional Reasoning.

Big Ideas in these sessions:

- Ratio and proportion.
- Part-to-Part Ratios, Part-to-Whole Ratios and Rates.
- Unit Rates, Factor of Change, Ratio Tables, Graphical Representations of Ratios.
- Scale and Scale Factor.
- Relationship between a ratio and its reciprocal.

Goals of these sessions:

- To provide ratio and proportion tasks in a wide range of contexts, including situations involving measurements, prices, geometric and other visual contexts, and rates such as miles per hour, pizza slices per person, or inches per foot.
- To encourage discussion and experimentation in predicting and comparing ratios. To help participants distinguish between proportional and non-proportional comparisons by providing examples of each and discussing the differences.
- To help participants relate proportional reasoning to existing processes, such as relating the concept of unit fractions to unit rates.
- To help participants recognize that symbolic or mechanical methods, such as the cross-product algorithm, for solving proportions do not develop proportional reasoning and should not be introduced until students have had many experiences with intuitive and conceptual methods.

Along with the mathematics done during each session, participants had homework assignments each evening consisting of professional readings around important issues in mathematics education. Time was devoted daily to discussion of these readings to allow participants to consider and more deeply understand issues in preparation for their ongoing roles as leaders. Additionally, at each of the MST sessions, MEC staff presented modules from the professional development materials *Connecting Mathematical Ideas* by Boaler & Humphreys and *Thinking Mathematically* by Carpenter, Franke & Levi. These sessions continue the project's work to introduce MSTs to the various leader opportunities on their "menu of leadership choices."

When asked to reflect, Math Support Team teachers described their experience with GBMP as "transformational". At their final session together, they wrote with sincerity and deep gratitude about the impact of the GBMP on their understanding of mathematics, their classroom practice

and their ability and willingness to assume leadership roles. Here are some samples of what they wrote:

> *"Prior to this project, I did not like math, nor did I enjoy teaching math and as a result, my students suffered. The experiences I have had in the GBMP sessions have truly been life changing. I now have confidence when tackling a math problem and have grown to love math. I have become a Math Nerd and I love it. These sessions enlightened me that it is imperative to teach math in ways that allow discoveries that deepen the mathematical understanding for students. That was lacking in my personal educational experiences and <u>that</u> is why I feared and hated math. I <u>will not</u> do that to my students. My students, year after year, will continue to reap the rewards of this project."*
>
> *"I have learned more, shared more, and experienced more mathematics than I have collectively throughout my entire life."*
>
> *"I have earned a Masters, Ed.S., and a National Board certificate. I can tell you that my experiences with GBMP have been equal to or superior to all of these opportunities in terms of impact on classroom instruction."*
>
> *"The GBMP instructors have modeled, through these sessions, inquiry-based instruction and we have been placed in the seat of the learner; it has made a huge impact on my ability to understand how my students learn. The tools introduced have equipped me to be able to differentiate my instruction so that I meet the needs of all of my students. Being a part of the MST group has made me able to lead change in my district and prepare students for the 21st century. I have never experienced professional development of this quality!"*
>
> *"Through my work as a Math Support Team teacher, I have gained the experience, confidence and resources to be a leader at my school. I have led book study groups for teachers, facilitated family math nights, led new-teacher in-service workshops, shared organizational ideas with my team, and supported students teachers by offering them opportunities to intern in my classroom. This opportunity has had a huge impact on me as a teacher and leader and will continue to enhance the mathematical understanding in my students and fellow teachers."*
>
> *"The GBMP has inspired me to be more of a leader in the math community. It has given me confidence to lead math sessions for parents and other educators. It has inspired me to start my own math book with my students and to write articles for math journals. It has permitted me to learn from and work with outstanding educators NATION-wide. I believe it was the reason why I was selected my school's nominee for the Jacksonville Hall of Fame Award. I have been on an exponential learning curve since day 1 of GBMP!"*

As mentioned in a few of the quotes above, some of the MSTs put their training to use to start professional development communities (PLCs) in their schools during the 2008-2009 academic year. Thirteen MSTs at 12 different schools from 7 of the partnership districts started such

groups. In total, they held 73 professional learning community sessions, an average of six sessions per school. Ninety-nine of their fellow teachers from a total of 18 local schools participated in these PLCs. On surveys following their final PLC sessions for the year, participating teachers as well as the MSTs who led them were asked to assess the professional learning community and its impact. Responses were overwhelmingly positive. Here's a sample of comments attending teachers made when asked whether the PLC sessions were having a positive impact on the teacher's classroom experience:

> *"I have branched out into many new learning styles and strategies! My delivery methods are more exploratory and meaningful to my students. I constantly ask/look for new ideas and borrow successful practices from other teachers."*
>
> *"(My) Students are becoming self assessors."*
>
> *"I am able to take the activities back to my class and use immediately."*
>
> *"As a result (of the PLC sessions) I've spent more time brainstorming new effective strategies."*

When asked to assess the PLCs they had led, MSTs were enthusiastic about what had been accomplished with their peers and motivated to continue these sessions in the future. They commented on the positive learning atmosphere created by bringing their peers together, how pleased they were with the productivity of the sessions, how open their colleagues were to changing practices and implementing new strategies in the classroom, and how dedicated their colleagues were to attending and participating despite the scheduling difficulties of getting teachers together outside of school hours.

Goal III: To unite the GBMP stakeholders in support of mathematics education programs that are high quality and effective.

Activity 1. Sessions for Administrators

Cohort #1 & Cohort #2

In September, October, and December of 2008 and January of 2009, Charlotte Brown continued delivery of EDC's *Lenses on Learning* administrator professional development series with a new module *Supervision: Focusing on Mathematical Thinking*. All four sessions were well received by the 28 administrators who attended. Administrators found value in the opportunity to examine and refine their professional practice. Based on the feedback of Cohort #2 to observing in a live classroom last year, in Year 5 we used live observations in a variety of grade levels as the vehicle for discussing supervision instead of video. Administrators were asked to do their own observations in their schools and each observation was followed by discussions about what to look for in their own faculties. Administrators wanted this kind of instruction going on in their schools, and it made the administrators more enthusiastic advocates for encouraging teachers to come to GBMP summer courses.

In addition, Ruth Parker facilitated a session titled "What To Look For in a Math Classroom" for superintendents, school administrators, school board members, community college faculty and administrators, and other interested individuals. Among those attending were the Special Projects Coordinator for U.S. Congressman Artur Davis and the Mathematics Coordinator for A+ College Ready. The session had a two-fold purpose: 1. To provide an opportunity for the participants to experience learning mathematics themselves in an environment that demonstrated GBMP's definition of Challenging Courses and Curricula, and 2. To look back on the experience as a framework for what to look for in a mathematics classroom. The feedback was positive and enthusiastic.

Activity 2. Outreach Activities to Parents and the Community

Ruth Parker presented twelve Community Mathematics Nights (CMNs) between September of 2008 and February of 2009 and will present an additional session in June of 2009. Community Mathematics Nights actively engage participants in doing mathematics while developing their understanding of important ideas in mathematics education. All five sessions, *Mathematics and Your Child's Future*; *Multiplication: Helping Children Know the Basic Facts*; *How to Help Your Child with Mathematics at Home; More Ideas for Helping Your Child with Mathematics at Home;* and *Algebra and Your Child's Future* were offered this year in different locations.

Year 5 attendance at these sessions totaled 1,994, bringing the cumulative attendance at the 53 Community Mathematics Nights held since project inception to 5,842, dwarfing our five-year project goal of 1,000. Attendance in Year 5 was boosted because the districts were invited to select the site and the topic rather than the project leadership selecting sites and topics. The session on Algebra was extremely popular with almost 300 attending at one site and 250 at another. Algebra will be the topic of the session offered in June as well, the first time a CMN has been offered in the summer. Participants continue to give these Community Mathematics Nights high marks. The ratings have been extremely positive across diverse populations that range from high minority and high poverty communities to highly affluent communities.

Reaching beyond our local communities, the leadership of GBMP has tried to take advantage of opportunities to participate in other initiatives in the state and to influence the course of mathematics education in Alabama. For example, Co-Director Ann Dominick is on the Advisory Council of the A+ Education Partnership and on the Governor's Commission on Quality Teaching. Co-Director Faye Clark represents GBMP with Yes We Can! Alabama, a network of community-based organizations working to support effective public schools.

The Community and Business Advisory Council (CBAC) recommended that a video be made that captured what they observed in GBMP classrooms. A member of CBAC who has a video company volunteered to videotape for GBMP. Four mathematics classes, interviews with the four teachers, and an interview with a school principal were videotaped. The project Co-directors are in the process of editing the videotapes. When the video is ready, the CBAC will be convened to view the video and plan for its use. The chairperson of CBAC continues to be in close contact with GBMP, advising GBMP of opportunities for community outreach and speaking on behalf of GBMP herself.

Activity 3. Partnership-Driven Project Management

The GBMP Design Team and Management Team continue to work together effectively. Meetings are held regularly for planning and decision-making. All nine districts supported the GBMP Sustainability Plan for years six and beyond in principle, but economic conditions have made the original plan impractical. Discussions are underway aimed at a more sustainable plan under adverse conditions. To help with planning, the National Advisory Board met twice this year with much valuable input from the Board regarding sustainability. Communication with the Evaluation Team continues to be frequent and highly productive. The partnership had a record number of presentations at mathematical research meetings this year. Details are below.

Dissemination of Project Work

In September 2008, John Mayer and Graduate Student William Bond made a presentation titled *Who Are We Teaching and How Do We Teach Them?* at the annual TEAM-Math MSP in Tuskegee, AL, available at http://team-math.net/tuskegeeconference/presession08.html.

Also in September, Rachel Cochran, Mayer, and Bernie Mullins presented at the Georgia PRISM Accepting the STEM Challenge conference in Atlanta, GA. The paper was titled *Changing K-16 Classroom Practice* and authored by Cochran, Mayer, Mullins, and Tommy Smith.

In November, Rachel Cochran and Jason Fulmore made a presentation titled *Evaluation of the Greater Birmingham Mathematics Partnership: Assessing Teachers' and Students' Exposure to Challenging Courses and Curricula* at the American Evaluation Association conference in Denver, CO.

Mullins and Mayer made two separate presentations in January 2009 at the Joint Meetings of the American Mathematical Society and the Mathematics Association of America in Washington, D.C. Mullins presented *The Impact of Challenging Mathematics Courses on Middle School Teachers* authored by Mullins, Cochran, Mayer and Smith.
John Mayer presented *Incorporating Inquiry-Based Class Sessions with Computer Assisted Instruction* authored by Mayer, Cochran, Laura R. Stansell, Heather A. Land, Jason S. Fulmore, Joshua H. Argo, and William O. Bond.

Rachel Cochran, John Mayer, and Bernie Mullins presented *Challenging Courses, Student Achievement, and Barriers to Implementation* authored by themselves and Tommy Smith at the NSF's MSP Learning Network Conference in Washington, D.C. in January, available at http://hub.mspnet.org/index.cfm/lnc09_cochran/page/index

John Mayer and Rachel Cochran also presented *Incorporating Inquiry-Based Class Sessions with Computer Assisted Instruction* authored by Mayer, Cochran, et al. at the NSF's MSP Learning Network Conference in Washington, D.C., available at http://hub.mspnet.org/index.cfm/lnc09_mayer/page/index

In February 2009, Tommy Smith presented a paper he authored along with Rachel Cochran, Donna Ware, and Melanie Shores titled *Mathematical Investigations in Inquiry-Based Courses for Pre-Service Teachers* at the MAA Conference on Research in Undergraduate Mathematics

Education (RUME) in Raleigh, NC. The paper is focused on IHE course reform and work with pre-service teachers and was published in the conference proceedings and available at http://mathed.asu.edu/crume2009/Smith_LONG.pdf.

Bernie Mullins presented *The Impact of Inquiry-Based Mathematics on Student Achievement* authored by herself, Rachel Cochran, Jason Fulmore, and John Mayer at the meeting of Alabama Association of College Teachers of Mathematics in Jacksonville, AL. in February.
In March 2009, Mayer and Mullins presented this same paper at the Mathematics Association of America Southeastern Section Meeting in Nashville, TN.

John Mayer and Bernie Mullins presented *Challenging Mathematics Courses: A Model for All Students*, authored by Cochran, Mayer, Mullins and Smith at the National Council of Teachers of Mathematics Annual Meeting in Washington, D.C. in April.

In May, Mayer and mathematics graduate student William Bond each made a presentation to NUMERIC, an association of mathematics educators in North Bay, Ontario. Mayer's talk was entitled *Implementation of Inquiry-Based Pedagogy Significantly Improves Middle School Student Achievement*, and Bond's talk was entitled *Inclusion of Inquiry-Based Group Work with Computer-Assisted Instruction Significantly Improves University Student Achievement in Finite Mathematics*. Both talks engendered lively discussion among the participants.

Goal IV: To increase the mathematics achievement of all middle school students.

All of the above activities contribute to Goal IV.

Annual Highlights

Challenges and Successes
Our application for Phase II funding was an opportunity to address the two main challenges of the project: 1) Lack of implementation by teachers who left summer courses enthusiastic and determined to create an inquiry-based environment in their classrooms; 2) Lack of building-level administrator involvement in the project.

The Community Mathematics Nights continue to be a highlight of the work of GBMP. Total attendance is nearly six times our original goal of 1000 and evaluations remain extremely positive. As districts began to take ownership of the CMNs and selected both the sites and the topics to be presented, the enthusiasm increased as did the attendance.

The involvement of IHE faculty is another strength of GBMP. IHE faculty taught revised courses in the new track of the UAB mathematics major, participated in summer courses and Math Support Team sessions, and interned in MEC courses to prepare to teach courses beyond the life of the grant.

The experiment in comparing pedagogy in MA 110 (Finite Mathematics) at UAB in Fall 2009, was a success. In this quasi-experimental study, all students had the same computer-assisted component for 2/3 of their class time in the Mathematics Learning Lab. This component consisted of computer instruction, online homework and quizzes, and four major tests online. Tests and quizzes were proctored. For the remaining 1/3 of their class time, one class meeting per week, students were randomly assigned to one of three treatments: a summary lecture of the week's material, a similar briefer lecture with a brief weekly paper and pencil quiz, and inquiry-based group work without prior instruction. Students receiving the group work treatment performed statistically significantly better in the areas of problem identification, evidence of problem-solving, and quality of explanation of results than the other two treatments on a pre- and post-test scored with a rubric focused on those three areas. There was no significant difference among treatments in either course grades, sum of the scores on the four major tests, or accuracy on the pre- and post-test. We conclude that the group work treatment has value-added in the areas of problem-solving and explanation.

The development and contribution of the two cohorts of Math Support Team teachers (MSTs), GBMP's teacher leaders, has been a strength throughout the project and was a particular highlight this year. In addition to the individual growth that MSTs reported, each cohort developed into a cohesive group across grade levels and diverse school districts. The MSTs took on leadership roles including facilitating Professional Learning Communities in Year 5, planning for district-wide Community Mathematics Nights and delivering school-based parent nights, and advocating to sustain GBMP's efforts beyond the funding period and to be an integral part of GBMP's Phase II proposal. Three MSTs expressed the following:

> *"This has, by far, been <u>the best</u> professional development I have participated in during my twenty-six year career. My participation in this partnership was instrumental in my successful completion of the National Board certification process in 2007."*
>
> *"As classroom teachers we take with us exceptional learning tasks, improved questioning strategies, and an incredible collaborative support system across the area."*
>
> *"The training I received from GBMP over the last four years has helped me to develop better teaching practices and take a leadership role in my school…. As a new teacher, I was reluctant to express ideas that differed from those of more experienced teachers in my school. Being selected as a Math Support Teacher by the GBMP gave me confidence in my teaching abilities. Today I am a member of my school leadership team and the math department chair."*

A new highlight of Year 5 is the start of Professional Learning Communities in twelve partnership schools. Attendance was strong and enthusiasm was high. In one school, the MST who led the PLC credits the sessions with bringing the faculty together in support of the work of GBMP. For those who had not attended courses, it led to their registration for this summer, and for those who had attended but needed more support for implementing, it gave them that support.

Support of the local community has always been outstanding. Every year GBMP has raised enough local money to pay the tuition and stipend for about 9 K-4 grade teachers in each course.

Since inception, GBMP has had contributions from 13 corporations/foundations and 11 individuals, with the Hugh-Kaul Foundation and the Community Foundation of Greater Birmingham making significant contributions each year. In 2008-2009, we received support from 3 foundations. Among these was a generous contribution from the Malone Family Foundation that will pay for 100 K-4 teachers to attend summer courses. This local support not only funded K-4 teachers, but soliciting the support was also a vehicle to educate the broader community about the NSF's grant to GBMP and the work of GBMP to provide quality mathematics education.

Noyce Master Teachers Program

GBMP was awarded a supplemental grant from the Noyce Master Teachers Program in September of 2008. The first four months of the program involved start up activities which included identifying targeted schools and teachers, publicizing the Noyce opportunity to them, developing teacher application procedures and forms, reviewing applications, conducting interviews and making candidate selections.

In total we received applications from 33 teachers seeking admission into the program. Twenty-one applicants were brought in for in-person interviews with PI John Mayer, Co-PI and Co-PD Ann Dominick, and Co-PD Faye Clark, and by mid-December, 16 candidates had been selected. The chosen teachers come from 10 different schools and 4 different school districts, namely Shelby County, Jefferson County, and the cities of Bessemer and Hoover. Seven of the participants teach grade 5, four teach grade 6, three teach grade 7, one teaches grade 8 and another teaches grades 6-12 (at an alternative school). Seven of the teachers are exclusively math teachers, the other 8 either teach math and 1 other subject or all subjects (5^{th} grade teachers). Eleven of the teachers already have an advanced degree. Fifteen of the 16 teachers are female, and 7 are of minority status.

Each teacher receives $833 per month in salary supplement and the salary supplements, which began in January 2009, are set to be paid each month and total $10,000 per teacher per year. As of this report, each teacher has received 4 months of the supplement for a total of $3,332. One challenge we encountered in the beginning was UAB Accounting's determination of the tax status of the Noyce participants for the purposes of supplying them with their salary supplement. It was finally decided that they should be classified as a kind of irregular employee, which means that they must be paid benefits which have not been budgeted for them. GBMP has asked that UAB Accounting reconsider this matter and it is currently under review.

Twice monthly 2-hour mathematics seminars began in the Spring semester taught by John Mayer, Bernie Mullins, and Tommy Smith. They have been well received by the teachers. The seminars to date have addressed mathematics content and articles on pedagogy. The mathematics content has included patterns involving fractions, operations on fractions, and problem solving. The group has discussed a series of articles on questioning technique, articles on implementing inquiry-based courses, and GBMP's definition of challenging courses and curriculum. Teachers submitted a portfolio of mathematical work together with reflections on teaching practice. The Fall semester will include a course on mathematics coaching taught by

Ann Dominick. For the Summer, all 16 Noyce teachers have enrolled in one of our project's summer courses.

Noyce teachers are expected to do the following.

- Attend and successfully participate in the twice monthly Mathematics Seminar for Master Teachers during the academic year, one 9-day GBMP course each summer, and 6 days of Mathematics Support Team professional development during the academic year, if available.
- Provide annual certification of employment in a high needs school while in the program.
- Participate in GBMP research and evaluation efforts.
- For those who do not already have a Master's Degree, apply, be accepted, and enroll in the UAB graduate school as a graduate student seeking a Master's Degree in Education (M.Ed.) with a concentration in mathematics at the earliest available date. Teachers also must make satisfactory progress toward obtaining their degree while in the program and take the Praxis II in middle school mathematics upon completion of the degree. Participants already holding their M.Ed. are encouraged to take courses toward an AA Certification or an Education Specialist degree (Ed.S.), but this is not required.
- Use what they learn in the Noyce Master Teachers Program by making a good faith effort to implement inquiry-based instruction in the classroom, presenting parent sessions, and taking on a leadership role at their school. Such a role may entail facilitating professional learning communities for other teachers, leading number talks, hosting pre-service student teachers, mentoring new teachers, serving the school district on textbook adoption and curriculum writing committees, etc.

Supporting master teachers in high-needs districts is a welcome and needed effort in the Greater Birmingham area. At the conclusion of the first semester of twice monthly seminars in May, Noyce teachers were asked to reflect on their experience in the program to date. All 16 participating teachers were positive in their assessments. Widely cited by the teachers as a highlight was the unique opportunity that the program has given them to collaborate with and learn from their colleagues from different schools and across different districts. Several remarked that they found readings for the seminar very informative and applicable to their classroom experiences and that they had grown as learners of mathematics through the seminar's focus on questioning. One teacher wrote: *"I always feel like the most inexperienced teacher when I'm in these sessions, but it's a good thing because I am learning to think much more differently than I have previously… Thank you for helping me to be a better teacher of mathematics."*

Section 2: Management Report

The organizational structure of the Greater Birmingham Mathematics Partnership remains the same in Year 5 as it was in the prior project year. There were a few minor changes in the personnel associated with the project but no significant changes involving key personnel such as the principal investigator, co-principal investigators, or co-project directors.

Section 5: Annual Implementation Plan 2009-2010

Goal I: To increase the effectiveness of middle school mathematics teachers within GBMP school systems

1. Offer GBMP Summer Course (MSP Key Feature: T, P, C)		**Completed**	
Fall Tasks	**Responsible Party**	**Yes**	**No**
Consolidate feedback from past Summer courses and begin planning of next Summer course.	Dominick, Clark		
Begin recruitment efforts for Summer course.	District Liaisons, Dominick		
Begin processing enrollment information for Summer course.	Liaisons, Dominick		
Begin notifying teachers of prospective course offering and date.	Liaisons, Dominick		
Spring Tasks	**Responsible Party**	**Yes**	**No**
Finalize planning of Summer course: Date, Time, Location	Dominick		
Continue recruitment and publicity efforts.	District Liaisons, Dominick		
Continue processing enrollment information for Summer course.	Liaisons, Dominick		
Communicate information to teachers about UAB credit for GBMP course.	Liaisons, Dominick		
Send information letter to participants about Summer course (and orientation session if needed).	Liaisons, Dominick		
Order manipulative that comprise teacher kits.	Moose		
Order professional development books to distribute to teachers (if required).	Moose		
Summer Tasks	**Responsible Party**	**Yes**	**No**
Send materials for GBMP course.	MEC		
Set-up for GBMP course.	Dominick, Moose		
Host GBMP course.	District		
Deliver GBMP course.	MEC		
Participate in GBMP course.	District Teachers		

2. Noyce Master Teachers Program (MSP Key Feature: T, P, C, I)		Completed	
Fall Tasks	**Responsible Party**	**Yes**	**No**
Develop Plan and curricula for twice monthly seminar.	Dominick, Smith, Mullins and Mayer		
Teach twice monthly mathematics seminar to be held at UAB (including math coaching seminar).	Smith, Mullins and Mayer		
Assure teachers chosen in January 2009 continue to teach targeted grades in Fall 2009.	Moose		
Advise teacher participants seeking masters, EdS, and doctoral degrees at UAB.	Mayer, Smith		
Manage the provision of program benefits such as monthly stipend and tuition payments.	Moose		
Monitor academic progress of those teachers seeking first Masters degree at end of Fall to assure they are making expected progress and continue to be eligible to participate	Mayer, Smith, Moose		
Participate in GBMP Evaluation efforts	Noyce Teachers, Management Team		
Spring Tasks	**Responsible Party**	**Yes**	**No**
Develop Plan and curricula for twice monthly seminar.	Dominick, Smith, Mullins and Mayer		
Teach twice monthly seminar to be held at UAB.	Smith, Mullins and Mayer		
Advise teacher participants seeking masters, EdS, and doctoral degrees at UAB.	Mayer, Smith		
Manage the provision of program benefits such as monthly stipend and tuition payments.	Moose		
Participate in GBMP Evaluation efforts	Noyce Teachers, Management Team		
Summer Tasks	**Responsible Party**	**Yes**	**No**
Enroll and participate in GBMP Summer course (unless already taken)	Noyce Teachers		
Advise teacher participants seeking masters, EdS, and doctoral degrees at UAB.	Mayer, Smith		
Manage the provision of program benefits such as monthly stipend and tuition payments.	Moose		
Participate in GBMP Evaluation efforts	Noyce Teachers, Management Team		

Goal III: To unite the GBMP stakeholders in support of mathematics education programs that are high quality and effective

1. Outreach Activities to the Community (MSP Key Feature: P)		**Completed**	
Fall Tasks	**Responsible Party**	**Yes**	**No**
Send update letter to individuals and businesses that supported or were asked to support GBMP.	Clark		
Continue conversations with AMSTI and MMI.	Dominick, Smith		
Continue conversations with AMSTEC and A+ College Ready Program	Clark		
Update GBMP website.	Moose		
Update MSPnet.	Moose		
Fall Tasks	**Responsible Party**	**Yes**	**No**
Continue conversations with AMSTEC and A+ College Ready Program.	Clark		
Continue conversations with AMSTI and MMI.	Dominick		
Update GBMP website.	Moose		
Update MSPnet.	Moose		
Summer Tasks	**Responsible Party**	**Yes**	**No**
Continue conversations with AMSTI and MMI.	Dominick		
Continue conversations with AMSTEC and A+ College Ready Program.	Clark		
Update GBMP website.	Moose		
Update MSPnet.	Moose		

2. Partnership-Driven Project Management (MSP Key Feature: P)		Completed	
Ongoing Tasks	**Responsible Party**	**Yes**	**No**
Participate in Project Management Team meetings via email, phone, and in person, as needed.	Management Team		
Oversee the efforts of the Project Co-directors and Project Management Team.	Mayer		
Serve as primary contact person for UAB administration and NSF.	Mayer		
Serve as primary project director for the summer course following project activities: Summer course, articulation with the Mobile Mathematics Initiative (MMI) and the Alabama Mathematics, Science, and Technology Initiative (AMSTI), and recruitment and public relations with school districts.	Dominick		
Serve as primary project director for the following project activities: outreach activities and public relations to the community, coordination of the Management Team, and primary contact for articulation with the Alabama Mathematics, Science, and Technology Education Coalition (AMSTEC) and the A+ College Ready Program.	Clark		
Seek appropriate media opportunities for GBMP.	Clark		
Hold meetings between Evaluation Team and PI/PDs to discuss all aspects of the research and evaluation plan.	Mgmt Team, Cochran, Fulmore		
Participate in budget meetings with Grants Administrator and Finance Director.	Mayer, Moose, White		
Discuss a yearly overview for the Design Team meetings, keeping in mind a focus on research and evaluation and the importance of operationalizing the definition of CCC.	Mayer, Clark, Dominick		
Keep PDs and PI and Evaluation Team informed about IHE efforts.	Mayer, Mullins		
Deliver formative evaluation information as warranted.	Cochran, Fulmore		
Respond to formative evaluation information when received.	Management Team		
Report on research findings at local, regional, and national conferences.	Mgmt, Eval Teams		
Submit papers on research findings to journals for possible publication.	Mgmt, Eval Teams		
Submit invoices and documentation and any needed reports to Grants Administrator.	BSC, Hoover City Schools		
Process submitted invoices and documentation and reports; verify that expenses and deliverables are in accord with the budget and the Annual Implementation Plan.	Moose		
Review invoices and reports forwarded by Grants Administrator.	Mayer		
Verify invoices for allowability of expenses and availability of funds.	White		

Fall Tasks	**Responsible Party**	**Yes**	**No**
Hold meetings with District Staff to update them on state of partnership and project efforts.	Dominick/Clark		
Remind Mgmt Team about forthcoming NSF Management Information System online surveys.	Moose		
Complete NSF Management Information System online surveys.	Mgmt Team		
Winter Tasks	**Responsible Party**	**Yes**	**No**
Attend NSF MSP Learning Network Conference and report about conference to rest of Mgmt Team.	Mgmt Team reps		
Spring Tasks	**Responsible Party**	**Yes**	**No**
Discuss the year-to-date efforts regarding public relations with the schools and the community, and communication with AMSTEC, AMSTI, and MMI.	Design Team		
Discuss any needed revision to plans for next year based on what has been learned this year.	Design Team		
Evaluation Team requests any information needed for evaluation report by March 1.	Evaluation Team		
Grants Administrator sends reminder about information needed for annual report by March 1.	Moose		
Management Team sends information for the annual report to the Grants Administrator and Evaluation Team by April 1 including information for the (1) activities and findings report, (2) management report, (3) information requested by Evaluation Team.	Management Team		
Draft of activities and findings report and management report sent to Management Team and Evaluation Team by April 15.	Mayer		
Management Team responds to draft report by May 1.	Management Team		
Final draft sent to Management Team by May 15.	Mayer		
Evaluation Team completes evaluation report by May 1.	Evaluation Team		
Project co-directors and co-investigators discuss the evaluation report, consider any needed actions, and write a response to evaluation report by May 15.	Clark		
Annual report submitted to NSF by June 1.	Moose		
Summer Tasks	**Responsible Party**	**Yes**	**No**
Review summer course implementation.	Mgmt Team		

Goal IV: To increase the mathematics achievement of all middle school students in GBMP schools and reduce discrepancies in disaggregated mathematics achievement data within these schools

All of the above activities found under Goals I-III also contribute to Goal IV.

Key to 5 Key Features:
C = Challenging Courses and Curricula
E = Evidence-Based Design and Outcomes
I = Institutional Change and Sustainability
P = Partnership-Driven
T= Teacher Quality, Quantity and Diversity

Note Regarding Assignment of MSP Five Key Features in Matrix:
Since more than one of the MSP Key Features describe most of the project's activities, the letter representing the key feature deemed most descriptive is listed first followed by the others that are applicable.

Note Regarding Completed Column:
At the beginning of the year, the above matrix serves as the Annual Implementation Plan. At the end of the year, the above matrix serves as the Implementation Matrix that will be attached as Exhibit 1 to the Activities and Findings section of the annual report. At the end of the year, for each task, the "Completed" column on the far right side of the matrix will be filled in with a letter according to the legend below.

In the "YES" Column:
"X" indicates task has been completed.
"A" indicates task is on schedule and will be completed by August 31.

In the "NO" column:
"D" indicates the task has been delayed
"R" indicates the task has been revised
"E" indicates the task has been eliminated
"N" indicates a new task has been substituted

An explanation will be given in the narrative for any action that is not carried out as planned.