

Narratives

Executive Summary

The Minnesota Math Corps will have 200 AmeriCorps Members who will provide evidence-based interventions in core mathematical skills to students in 180 schools across Minnesota. At the end of the 1st program year, the AmeriCorps Members will be responsible for providing in-school tutoring services to help 5,000 4th-8th grade students to improve their academic performance in math. In addition, the AmeriCorps Members will leverage an additional 1,000 volunteers who will tutor students in fact fluency interventions that research links to improved math performance among struggling students. This program will focus on the CNCS focus area of Education. The CNCS investment of \$2,161,250 will be matched with \$1,428,407; \$1,112,000 in public funding and \$316,407 in private funding.

Rationale and Approach/Program Design

PROBLEM/NEED:

According to data from last year's state standardized tests, 109,092 MN students in 4th-8th grades did not demonstrate proficiency in math. Across Minnesota, only 42% of 4th graders and 35% of 8th graders are proficient in math (National Assessment of Educational Progress, or NAEP, 2013) -- meaning that 58%-65% of middle school-aged students do not have the math skills to succeed in the higher-level math courses needed for high school graduation, post-secondary education, and 21st Century careers.

The Minnesota Department of Education (MDE, 2013) found that as students progress in math studies from grade to grade, their proficiency scores actually decline -- a trend that mirrors national results and indicates that students aren't acquiring or retaining foundational skills. Where Minnesota exceeds national outcomes, sadly, is in our achievement gap -- the disparity in math proficiency rates between White students and students of color. The NAEP indicates that Minnesota's 8th grade achievement gaps in math proficiency exceed that of the nation overall, and are wider for key demographic groups, including Latinos and Native Americans (State of Minnesota Public Education, 2013) than elsewhere in the nation.

This achievement gap is especially pronounced in the urban school districts of Minneapolis and St. Paul. In the Minneapolis Public Schools, 67% of White students were proficient on the 2012 8th grade Minnesota Comprehensive Assessment (MCA) math test vs. 53% of Asian students, 23% of Hispanic students, and 17-20% of American Indian and Black students. In St. Paul Public Schools, 63% of White students were proficient compared to 38% of Asian students, 26% of Hispanic students and 15-

Narratives

18% of American Indian and Black students. Research indicates that these gaps begin to widen in middle school.

Lack of math proficiency is a critical roadblock to high school graduation and future economic success. Only 11% of students who failed 6th grade math then go on to earn high school diplomas (Balfanz, 2007). Minnesota residents without high school diplomas have an unemployment rate nearly six times the rate of those with Bachelor's degrees or better. Employment in Science, Technology, Engineering and Math (STEM)-related jobs (including computer science, accounting, economics, statistics, biochemistry and physics) routinely count among the highest-paid, with employment expected to grow faster than in most other industries through 2018, according to the US Department of Labor, Bureau of Labor Statistics.

Further, math skills learned in elementary and middle school prepare students for algebra, which is a gateway course that is positively correlated with higher education achievement (Matthews and Farmer, 2008). Students who master algebra can progress through geometry and algebra II to higher-level math (trigonometry, pre-calculus and calculus), the completion of which is positively associated with entering a 4-year college or university (Schneider, Swanson, and Riegle-Crumb 1998). The National Mathematics Advisory Panel (NMAP, 2008) found that completing algebra II during high school correlates positively with college graduation.

Minnesota Math Corps seeks to provide evidence-based math interventions to help 4th through 8th grade students achieve math proficiency, close math achievement gaps, and prepare students for success in algebra by 8th grade. Over three years, we propose to serve 15,000 ethnically, racially and linguistically diverse students in the Twin Cities and state-wide who are among the most disadvantaged in the state. Partner schools in Minneapolis and St. Paul have among the highest free and reduced lunch rates in the state, ranging from 50%-99%; the rate in greater Minnesota ranges from 50%-85%. Moreover, our program will serve students in 23 schools identified by MDE as focus and/or priority schools, which are ranked among the academically lowest-performing 10% of schools statewide. We are requesting an increase from 175 to 200 Members this year to support MDE in placing more Members and reaching more students in these focus and priority schools, where the need is urgent.

COMMUNITY IMPACT:

Minnesota Math Corps was designed to extend the instructional capacity of schools by harnessing the power of AmeriCorps Members to deliver much-needed resources to accelerate student acquisition of critical math skills. Experts conservatively estimate that 20% of the students in a class or grade need

Narratives

additional support, even when the teacher is providing excellent instruction (Tilly, 2008). Members are a highly effective means to help schools improve their students' academic achievement in math because they are able to provide something the schools cannot -- research-based, personalized tutoring for at-risk students.

Students eligible to receive Math Corps interventions are those whose standardized test scores indicate they will fail to meet proficiency on their 8th grade standardized exams (Minnesota Comprehensive Assessment, or MCA). Minnesota Math Corps will target those students most likely to fall through the cracks: students who scored just below proficiency (an MCA score of 50) in the previous year's standardized tests but who do not qualify for more intensive services such as Title I. Minnesota Math Corps selects students whose MCA scores are 40-49, indicating they have the capacity to become proficient in math but have deficiencies in core skills that can be corrected with supplemental tutoring. Without intervention, these students may experience prolonged and often permanent mathematics struggles, and are unlikely to have the skills necessary to be proficient in algebra or higher-level mathematics.

Minnesota Math Corps interventions will complement the schools' existing math curricula and align to both educational standards (e.g., state and Common Core) and evidence-based recommendations for math intervention. Math Corps Members will receive intensive training in evidence-based math interventions and coaching by Master Coaches, math experts who are contracted by Minnesota Math Corps to provide monthly coaching and fidelity checks. Members will serve in targeted schools under the daily supervision of an Internal Coach, who is a school staff member, usually a math teacher.

Members will deliver scripted Math Corps interventions based on research and best practices. Schools organize math instruction sequentially, so that later instruction builds on the foundation of earlier coursework. Students who perform worse in math as they rise through the grades, as MDE reports they do, need support in acquiring and retaining foundational math skills. For example, students trying to solve for x in an equation such as $4x + 3 = 17$ must understand numbers and symbols, subtraction, division, and working with fractions.

To support student mastery of these foundational skills, Math Corps builds on research that recommends that interventions focus on (1) conceptual understanding, or the ability to understand what math numbers and symbols mean and how to work with them; (2) computational proficiency, or adding, subtracting, multiplying and dividing; and (3) word problem-solving, which integrates math, reading, comprehension and critical thinking skills and is widely used in tests of college-

Narratives

readiness and for college entry, among other applications (Gersten et al., 2009; NMAP, 2008). These three sets of skills are the focus of interventions in the Math Corps toolbox.

Each week, the Member and Internal Coach will use data from the AIMSweb assessments to identify which intervention strategies in the Math Corps toolbox will be most appropriate to help each individual student to advance to grade-level targets. Members will track the number of minutes each student was tutored, what lessons were delivered and what AIMSweb scores were achieved each week.

Members will tutor eligible students for an average of 90 minutes / week per student (typically delivered in three 30-minute sessions). Full-time members impact at least 25 students annually. Students receive interventions for at least 20 weeks or until progress monitoring data indicate they are on track for grade-level targets.

Each Member also will recruit, train and supervise the work of five volunteers (1,000 in total) who will extend the instructional capacity of schools and support the effectiveness of the Math Corps by assisting student acquisition of fact fluency, which research links to improved math performance among struggling students (Gersten et al., 2009 and NMAP 2008). Each week, volunteers will engage students in fun, interactive, online games intended to boost their retrieval of basic math facts such as adding or subtracting fractions. Volunteers will be recruited from among parent groups, local businesses, colleges and retirement communities to work one-on-one with students either before school, during lunch or after school.

CNCS should invest in this program because, at the end of the three-year grant cycle, CNCS' investment will ensure that 15,000 children will be provided with evidence-based supplemental math intervention. At the end of each year, 3,750 of 5,000 (75%) will complete the Math Corps program; 2,437 of 3,750 (65%) students will demonstrate improved math skills as measured by AIMSweb assessments, and 1,584 of 2,437 (65%) will improve their state MCA scores, putting them on a trajectory to reach grade-level proficiency by 8th grade. This is consistent with our performance over the past three years when, on average, 65% of Math Corps students met or exceeded growth rates according to the Measures of Academic Progress or MAP, a nationally normed assessment that MN schools are currently phasing out. In other words, these students were achieving more than a year's worth of growth in a year's time thus putting them on a trajectory to catch up to grade level targets. There is no other community-based program in Minnesota schools that has the impact on math proficiency for at-risk middle school students than the Minnesota Math Corps.

THEORY OF CHANGE:

Our Theory of Change is that by providing evidence-based interventions to build students'

Narratives

conceptual understanding, computational proficiency, and word problem-solving skills in 4th-8th grade students will achieve math proficiency and acquire the competencies necessary to be successful in algebra by the end of 8th grade. This theory aligns with specific recommendations for at-risk students (Gersten et al, NMAP, 2008), including students of color who are subject to Minnesota's significant academic achievement gap.

In this model, 200 Math Corps Members will administer validated assessments (AIMSweb) and provide data-informed, evidence-based interventions to 5,000 students each year at 180 elementary and middle school sites in the Twin Cities and across Minnesota. Students, who are selected because they score only "partially proficiency" on state standardized tests, will receive 90 minutes of interventions weekly for at least 20 weeks or until they test at grade-level targets. Member-delivered Interventions will be supplemented each week with a one-to-one review of math facts provided by trained volunteers. As described below, these interventions will be delivered using explicit, systematic procedures, and will be supported by evidence-based practices in effective implementation, including formal and frequent fidelity observations and coaching.

EVIDENCE BASE:

Minnesota Math Corps will work to ensure that students in 4th through 8th grade acquire the foundational math skills that experts know students need to be ready for algebra by 8th grade (Gersten et al., 2009; NMAP, 2008). The interventions that Math Corps uses to improve these skills have an extensive evidence base. Moreover, Math Corps incorporated three additional recommendations by math experts (Gersten et. al., 2009) when selecting and developing interventions: : (1) Instruction during the intervention should be explicit and systematic, which includes providing models of problem solving, verbalization of thought processes, guided practice, corrective feedback, and frequent cumulative review; (2) Intervention materials should include opportunities for students to work with visual representations of mathematical ideas and interventionists should be proficient in the use of manipulatives; and (3) Interventions at all grade levels should devote about 10 minutes in each session to building fluent retrieval of basic arithmetic facts through review. Below, the interventions and accompanying evidence-base for each area are described.

(1) Conceptual understanding. Conceptual understanding includes awareness that abstract symbolism represents something tangible. This understanding provides a context for learning other math operations and procedures. To improve conceptual understanding, Minnesota Math Corps will use the Concrete-Representational-Abstract (CRA) approach (e.g., Butler, Miller, Crehan, Babbit, & Pierce, 2003; Witzel, Mercer, & Miller, 2003). This approach uses concrete manipulatives (e.g., base

Narratives

10 blocks and number lines) and pictorial representations (e.g., pictures with cubes) to illustrate fundamental math concepts.

For example, students might use blocks to work out that $3 \times 4 = 12$ represents either three groups of four blocks or four groups of three blocks. As students acquire this understanding, they can move to a representational approach by drawing three groups of four squares on a piece of paper. Finally, intervention focuses on the numbers and symbols: Students learn that the 'x' sign means "group together." With all the concepts understood, students have a strong foundation for developing proficiency with math computation. This CRA approach has broad empirical support, including evidence of effectiveness for teaching middle-school students fractions (Butler et al., 2003), and evidence in support of teaching early algebra concepts (Witzel et al., 2003). This broad evidence base contributes to a strong overall evidence rating in the Institute of Educational Science's (IES) Practice Guide for improving math outcomes with students in grades 4-8 (Gersten et al., 2009).

(2) Math computation. Once students develop conceptual understanding, intervention focuses on improving computation skills. Computation skills span a continuum from easy (addition and subtraction) to more complex (multiplication and division), and are necessary for working with whole numbers as well as rational numbers (e.g., fractions and decimals). Math Corps systematically develops computation skills. One technique, called "Incremental Rehearsal," (Burns, 2005) provides students with several opportunities to accurately solve computation problem, with progressively longer delays between each opportunity. Research shows students made clear improvements using this technique. Another intervention for improving the accuracy of math computation, called "Cover, Copy, and Compare" has the tutor complete the math skill while the student watches; the student complete the skill with the tutor's model present; and then the student complete the skill with the model covered (Coddling et al., 2007). Research found evidence of clear improvement among middle school students using this strategy.

Once students can accurately perform computational skills, Math Corps tutors ensure students can quickly and automatically perform the skill. These interventions involve the use of "explicit timing" and "taped problems" approaches, each of which help students become more proficient with math skills by facilitating practice with clear time-limits and helpful feedback. Individual studies show positive effects for these approaches (Woodward, 2006; Fuchs et al. 2008). Focusing math computation interventions on accuracy and proficiency is consistent with evidence suggesting systematic targeting of interventions based on student skills yields improved results (Burns et al., 2010). Taken together, these studies contribute to a moderate overall evidence rating in the IES

Narratives

Practice Guide for improving math computation skills (Gersten et al., 2009).

(3) Word problem solving. Word problem solving represents the highest level of mastery for core math skills, because it requires students to adapt their conceptual understanding and computational skills for the purpose of solving everyday problems (Swanson et al., 2013). It also draws on other skills such as reading, screening relevant and irrelevant information, determining the operation to be used, and executing the problem. To improve word problem solving, Minnesota Math Corps uses explicit instruction, guided practice and adult modeling. Members help to identify key instructions in the word problem, determine what's missing, decide the correct computational approach, help to set up the problem, and then teach how to solve the problem (Fuchs et al., 2006; Jitendra, Hoff, & Beck, 1999; Xin, Jitendra, & Deatline-Buchman, 2005). There is strong evidence of the effectiveness of this explicit instructional approach (Gersten et al., 2009).

MEMBER TRAINING:

At the beginning of each service year in August, Members attend a 3.5 day Summer Institute. The Summer Institute provides Members with essential information for success as an AmeriCorps member and as a math interventionist. Members learn about the power of AmeriCorps and national service as a solution to critical community needs, including the critical math needs in Minnesota. Members receive a handbook that details their service information, program expectations, AmeriCorps regulations, and prohibited activities. Summer Institute is when Members are trained to implement math interventions and use the AIMSweb Math Computation assessments. Training includes presentations, discussion, and practice activities.

Additional Member training includes data entry and use, including how to set-up student information in the Math Corps data systems (September) and classroom behavior management (October). About two months into the program, Members receive more-in-depth training on math interventions and assessments, which allows for substantive feedback and greater engagement by the Members who can bring their classroom experiences to the discussion. In November, members attend cultural competency training, which builds their skills in effectively serving a diverse population. Throughout the spring Members are trained in topics relevant to AmeriCorps services, including civic engagement, cultural competency, poverty awareness, and life after AmeriCorps.

Members also participate in member-led Professional Learning Groups (PLGs) that meet quarterly throughout the service year. Comprised of 6-8 Members who are serving in close geographic proximity to each other, each PLG builds camaraderie and supports member development. Members selected as PLG leaders are trained to facilitate meetings that allow for in-depth discussion of topics

Narratives

covered in trainings, such as civic engagement, cultural competency, poverty awareness and life after AmeriCorps.

All Members and Internal Coaches are trained in the AmeriCorps regulations at Summer Institute, including rules against prohibited activities. Members will use that knowledge to train generated volunteers as they on-board throughout the year to ensure that they also adhere to the rules.

MEMBER SUPERVISION:

Minnesota Math Corps provides a multilayer framework of supervision, including evidence-based coaching practices that ensure program fidelity (Fixen, Naoom, Blasé, Friedman, & Wallace, 2005) and adequate support and guidance. The first layer of supervision consists of the Internal Coach, who is a school-based professional who commits to working 6-9 hours per month per Member to supervise, identify areas for professional development, and encourage their effective delivery of the interventions. Coaches are trained in effective coaching and supervising practices at the Summer Institute.

The second layer includes Master Coaches, highly-trained math experts who provide support to both Members and Internal Coaches. Master Coaches make on-site visits at least monthly, and support Members and Internal Coaches to determine which interventions are most appropriate for individual students. In conjunction with Internal Coaches, they support members by conducting observations to ensure program integrity using Math Corps fidelity checks. In addition, Master Coaches are available for making more complex interpretations of the data, including when students may be ready to exit the program or how to assist students who struggle with particular lessons. Master Coaches are often former principals, district curriculum managers, or Ph.D. students with math education credentials.

Finally, program staff supervises Members, Internal Coaches, and Master Coaches by monitoring member-specific program data (caseloads, tutor logs, student assessment data) and visiting each school site at least twice per year. At these site visits, program staff identifies any concerns, discusses the Member's year of service and provides additional support that may be needed. Program staff also provides monthly updates to Members via e-mail and postings on the Minnesota Math Corps website. Program staff also is available via phone and email to problem-solve issues as needed.

AMERICORPS IDENTIFICATION:

The AmeriCorps logo is displayed prominently in all promotional, instructional and training materials. Members are given AmeriCorps clothing and a name badge to wear at their school daily to identify them as AmeriCorps members. Minnesota Math Corps provides service sites with outreach materials including signage, curriculum, and other program information that have been branded with

Narratives

the AmeriCorps logo. As part of monitoring conducted during site visits, Program staff ensures that each service location prominently displays the AmeriCorps sign, and that Members are wearing the AmeriCorps logo. All Members are trained to speak about their AmeriCorps experience and about national service as a solution to critical community needs, and are encouraged by program staff to speak to their local community about their service by participating in outreach events.

Organizational Capability

BACKGROUND AND STAFFING:

The Minnesota Math Corps is a signature initiative of the ServeMinnesota Action Network, which has the experience, staffing and management structure in place to plan and implement the proposed program. ServeMinnesota Action Network's mission is to rapidly incubate, replicate, and scale evidence-based AmeriCorps program models that address critical state priorities. We operate three AmeriCorps programs: Minnesota Reading Corps, with nearly 1,000 MSYs, Minnesota Opportunity Corps, with 30 MSYs, and Minnesota Math Corps, which is requesting to grow from 160 to 175 MSY.

Since our inception in 2010, ServeMinnesota Action Network has grown 35% from an organization of \$14.8 million with 26 staff to \$20.1 million with 40 staff. Some 80% of funding is provided by federal sources, and our staff has the experience, capacity and tools to administer multi-million dollar government grant funding. As our organization has grown, we have worked to ensure that our role of operating a statewide intermediary organization is matched by management expertise in scaling evidence-based practices, implementation science, and creating collective impact in measurable ways.

The staff is located in our Minneapolis headquarters or one of seven regional offices. This model allows us to build and maintain strong relationships state-wide with school districts and community partners in the field, and to meet the needs of rural communities more readily. Staff is well versed in the federal rules and regulations, including Office of Management and Budget requirements, which are critical to their duties in implementing the organization's AmeriCorps programs. ServeMinnesota Action Network's management team consists of the Executive Director, Finance Director, Operations Manager, Recruitment Director, Math Corps Program Director, Program Director-Greater MN, Human Resources Director, Senior Program Director, and Special Projects Director. This group meets weekly to ensure operational excellence and uses a dashboard reporting system to monitor program performance.

Executive Director Sheila Piippo (BA-Psychology, M.Ed) is responsible for the operational excellence of all of the ServeMinnesota Action Network's programs -- Minnesota Math Corps, Minnesota Opportunity Corps, and Minnesota Reading Corps. This position is part of the

Narratives

Administration cost. Finance Director Susan Saunders (BS-Accounting) has 25 years of non-profit finance and accounting experience. Susan has three years of fiscal management experience with AmeriCorps. She attended the Financial and Grants Management Institute in 2010. This position is part of the Administration cost. Math Corps Program Director Alison Jirik (BA - Sociology and Communication) has worked with ServeMinnesota Action Network 's AmeriCorps programs for over 5 years, and served for one year as a VISTA. She is a member of the Minnesota Council of Teachers of Mathematics. The Program Director provides supervision and guidance to the following staff:

Regional Program Managers/Program Coordinators: Responsibilities include relationships with sites and ongoing support for all Minnesota Math Corps Members and 1,250 Minnesota Reading Corps Members. Regional Program Managers and Program Coordinators are assigned to a geographic area and support and monitor the implementation of both AmeriCorps programs. This allows program staff to build stronger, cohesive relationships with their sites. Designated staff has over 65 years of combined experience in AmeriCorps programming and K-12 education. Greater MN Program Director Kari Gjerde (BA-Journalism; M.Ed.,) provides oversight of the implementation of Math Corps in Greater MN area and supervises Regional Program Managers. Kari has 6 years experience as a classroom teacher and 5 years of experience managing the Reading Corps program, served as an AmeriCorps member with College Possible and Teach for America. Senior Program Manager (to be hired): The Senior Program Manager will assist the Greater MN Program Director with Math Corps program oversight and implementation. Program Assistants: Responsibilities include technical support to sites and Members, ensuring all paperwork and documentation is collected in a timely manner, and provide administrative assistance to the Program Managers. Recruitment Director (to be hired): The Director will develop and implement a comprehensive year-round recruitment plan, leading the recruitment department and outside stakeholders to ensure member positions are filled. The Director will have proven experience leading large recruitment campaigns. Recruitment and Outreach Manager Anna Peters (BA-Psychology) manages diversity initiatives and engages alumni to recruit for Minnesota Math Corps and Minnesota Reading Corps. She has served in this position since 2008, recruiting over 2,000 AmeriCorps Members. Recruitment Coordinator Josh Kriz (BA-Landscape Architecture and Environmental Studies) is responsible for assisting the Recruitment and Outreach Manager with the overall recruitment campaign plan. He served for 2 years as a VISTA. Member Placement Coordinator Carla Jacobson has over 25 years of experience working in the non-profit sector. She monitors applicant data for consistency and thoroughness, ensuring that applicants are processed in a fair and timely fashion. Member Benefits & Compliance Specialists (1 staff to be hired)-

Narratives

Melind Gorder (BA-Human Resource Management) and Cynthia Aguirre implement daily administration of member services and files related to federal record-keeping requirements. Cynthia has over 15 years of experience working with for-profit organizations mainly within the payroll/human resources function, ensuring compliance of all local, state, and federal regulations for a major corporation. Melind has 7 years of experience within human resource administration, including benefit administration, payroll and on boarding. Operation Manager Chandra Westberg (BA- Hospitality and Tourism) provides logistical support, ensuring efficient operations, technology, materials distribution, data and administrative systems are in place. Data Coordinator Stephanie Hart (BA-Theology) supports data collection systems to ensure completeness and accuracy. She has over 15 years of administrative experience. Internal Coaches (site supervisors) are school employees who are required to provide 6-9 hours of support per month to supervise and coach each member at their site. Master Coaches provide mathematics expertise through 14 independently contracted positions. Master Coaches provide direct support to Members and Internal Coaches by observing interventions and ensuring fidelity of the program model.

The Board of Directors consists of seven members who have expertise in the fields of educational leadership, finance and public relations. The board meets on a quarterly basis and reviews the performance of the programs, financial statements and discusses recommendations set forth by the task force to continually advance the programs. Minnesota Math Corps maintains a task force that includes academic experts and practitioners who meet regularly to discuss ground-level content implementation and make recommendations for programmatic improvements to the board. The task force is responsible for analyzing the latest research to inform improvement to program delivery.

COMPLIANCE AND ACCOUNTABILITY:

Minnesota Math Corps ensures compliance with AmeriCorps rules and regulations (including those related to prohibited activities) by using a dashboard management system to identify and problem-solve challenges as they occur. Items monitored on the dashboard include member retention, member enrollment, member service hours and in-kind contributions. Program managers and coordinators conduct two annual site visits. to observe program implementation, identify issues that require additional support from staff, and review program data to identify any performance issues. This includes reviewing the signed site agreement that clearly articulates the rules and regulations. Members and Internal Coaches are trained in the regulations, including prohibited activities, and Member contracts acknowledge their understanding of all rules and regulations. Additionally ServeMinnesota staff provide technical assistance and monitoring on the fiscal and programmatic

Narratives

sides to ensure that rules and regulations are followed and documented as required.

Minnesota Math Corps prevents and detects compliance issues by using an established Internal Auditing Procedure to ensure the program is in compliance with federal AmeriCorps regulations. All new staff is oriented in AmeriCorps regulations and Minnesota Math Corps program expectations. Member Specialists review 100% of the member files. Staff completes timesheet audits at every pay period. Staff reviews activities and hours on timesheet categories to ensure hours are appropriately recorded. In addition, at site visits, program managers and coordinators speak with the Internal Coaches regarding prohibited activities to ensure the Internal Coach has a clear understanding of what types of service hours are allowed. The Program Director completes an annual internal audit of 20% of the member files to ensure compliance to all regulations, including checking timesheets to ensure hours were not spent on prohibited activities.

Minnesota Math Corps holds itself accountable and implements systems that allow management to take corrective action in a timely and effective manner. If instances of risk or noncompliance are identified by staff or Master Coaches, the issue is immediately addressed by the program staff assigned to the site and the Program Director. Depending on the severity of the issue, Minnesota Math Corps may transfer the Member to another site. If the issue is less severe, the site will be monitored closely for improvement. If the issue is not remedied, the site will not be awarded Minnesota Math Corps Members for the next school year. Minnesota Math Corps sends a mid-year and end-of-year Site Status Report to the principal of each school, which details the site's adherence to program expectations as well as how students served are progressing (progress monitoring assessments, benchmark scores, tutoring minutes). Math Corps also reports as required to ServeMinnesota and CNCS, and uses all reports as an opportunity to review program performance and design improvements.

PAST PERFORMANCE:

Over our last grant cycle (2010-2013), we were able to increase the targeted number of students who received Math Corps interventions for at least 20 weeks from 769 to 1950, a 60% increase. We were able to increase those students meeting growth targets from 736 to 1038, a 29% increase. As such, Minnesota Math Corps has exceeded performance targets in the number of students served over the last three years. However, the total percentage of students who exceeded their individual growth targets was 81% of what we set as a goal in the last program year.

Minnesota Math Corps has identified two factors that may have contributed to the lower than anticipated student growth rates. First, although students are scheduled to receive 90 minutes of

Narratives

tutoring each week, our progress monitoring revealed that a number of students fell short in this dosage because of snow days and other school-related scheduling conflicts. To correct this issue, Minnesota Math Corps has trained the Internal Coaches who are responsible for scheduling the tutoring sessions to be more pro-active with principals in advocating for priority scheduling of Math Corps sessions.

Second, we found that students need assistance with math vocabulary. Approximately 40% of the students we serve were not reading at grade level. While they were able to complete problems during tutoring, they struggled with vocabulary during assessments. For PY 13-14, Math Corps has implemented a more deliberate approach to vocabulary acquisition: Members will identify the most crucial vocabulary and introduce key words and meanings in each lesson.

Since our inception in 2008, Minnesota Math Corps has consistently met compliance requirements. Our A-133 audits have consistently documented that the ServeMinnesota Action Network qualifies as a low risk auditee.

Minnesota Math Corps had an enrollment rate of 100% and a retention rate of 87% in the 2012-13 program year. Because a high number of Minnesota Math Corps Members are math majors they have an exceptionally employable skill set. As a result, several of Members who did not complete their term of service received attractive job offers. To address this, Minnesota Math Corps is doing more intentional work during the recruitment process to reinforce the expectation of members making a year-long commitment to the program.

CONTINUOUS IMPROVEMENT:

Minnesota Math Corps provides a range of opportunities for internal and external stakeholders to provide feedback. Members and Internal Coaches complete electronic mid-year and end-of-year questionnaires. The results of these questionnaires are analyzed by ServeMinnesota Action Network staff to inform improvements that can be made to the program model. In addition to the questionnaire, staff complete fall and spring site visits, which are another opportunity to receive feedback. Minnesota Math Corps partners with David Parker (Ph.D., Educational Psychology), Research Director for ServeMinnesota, and a Math Corps task force to evaluate and analyze the effectiveness of the program. The task force meets quarterly to review performance measure data and discuss relevant research and best practices to improve program model and delivery.

Cost Effectiveness and Budget Adequacy

Math Corps, at a federal cost of \$12,350 per member or \$494 per student served (but offered free to families) compares favorably to other alternatives such as Mathnasium. An afterschool program that

Narratives

offers supplemental math tutoring in core math skills for preK-12 students in MN and across the country, Mathnasium costs parents \$2,000 per child per school year, plus the cost of transportation. If the public were paying for Mathnasium, the cost of serving a cohort of 25 students would exceed \$50,000. Similarly, tutoring services provided by Kaplan or Princeton cost upwards of \$100 per hour, an option costing parents over \$5,000 per student for the same dosage provided by Math Corps.

ServeMinnesota Action Network is supported by a diverse source of non-federal funds. Minnesota Math Corps requires a total of \$1,428,407 (cash) from non-CNCS sources to support the project. To date the Minnesota Math Corps has secured \$792,000 from state appropriations; \$320,000 from fees charged to each Minnesota Math Corps site. Private funds of \$316,407 are expected to be secured in repeat funding from private sources including: Otto Bremer, Boston Scientific, TKDA, HB Fuller, Women's Fund of Central MN, Cargill, and Morgan Family Foundation. We are confident that with our proven effectiveness in raising funds this gap will be filled prior to the start of the 2014-15 program year.

Minnesota Math Corps administers its program at a federal cost of \$12,350/MSY- \$950 below the allowable federal cost of \$13,300. Minnesota Math Corps has constructed a budget that supports the proposed program design. The budget ensures the appropriate mix of senior leadership and direct program staff for effective program implementation. It also includes carefully crafted estimates of the amount of training and master coaching time, program supply expenses, and evaluation costs that are required to achieve the desired outcomes for students. In-kind funding includes the program space, computers and materials donated by each site.

Helping students to achieve math proficiency by 8th grade will significantly reduce costs associated with post-secondary remedial studies. Of the 53% of Minnesota students in the class of 2008 who entered a public institution of higher education, 40% required remedial courses -- and most took math (Minnesota State Colleges and Universities and University of Minnesota, 2010). The Alliance for Excellence in Education reported that remedial courses cost Minnesota post-secondary institutions \$88 million in 2007-2008.

Evaluation Summary or Plan

Intervention Description

The interventions used by Minnesota Math Corps support the development of foundational math skills necessary for students to be successful in algebra by the end of 8th grade. They target skills identified as important by national math experts (Gersten et al., 2009; NMAP, 2008) as well as on state and

Narratives

national standards for math instruction (MDE, and Common Core State Standards or CCSS, 2010). These skills include (a) conceptual understanding, (b) math computation, and (c) word problem solving.

Members deliver interventions targeting these skills for 30 minutes a day, 3 days each week (not during class-wide teacher-led instruction), and administer regular math assessments to ensure students are making progress. A high-quality training, coaching, and observation framework also is adopted by Math Corps to ensure program components are implemented as intended and with maximum impact.

Our Theory of Change, as reflected in the logic model, is that by providing evidence-based math interventions to build 4th-8th grade students' conceptual understanding, computational proficiency, and word problem-solving skills, students will achieve math proficiency. This theory aligns with specific recommendations for at-risk students (Gersten et al., NMAP, 2008), and will ultimately give students the skills necessary to be successful in learning algebra, which is a critical outcome of the overall K-12 schooling process (NMAP, 2008). Math Corps expects to improve math skills for as many as 65% of the students who participate.

Evaluation Design, Research Questions, and Outcomes

Evaluation activities will uniquely leverage ServeMinnesota's Innovation Center, which centralizes research and development. The Innovation Center ensures that all ServeMinnesota programs, including the Math Corps, are grounded in research, continuously tested and progressively improved. Headed by educational researcher David Parker, Ph.D., the Innovation Center houses and integrates state-wide programmatic data, and it has the capacity to conduct Math Corps evaluation activities.

The evaluation goals of Minnesota Math Corps align with the education outputs and outcomes that have been prioritized by the CNCS. Below, the evaluation questions that directly correspond to priority outputs and outcomes are described. These evaluation questions correspond to outputs and outcomes identified in the logic model (note that priority outputs and outcomes are identified within the logic model). Supplemental applicant-determined components are also listed.

Narratives

Evaluation Goal #1: How many, and what percentage, of students in each grade completed participation in Minnesota Math Corps? Supplemental evaluation questions will include:

- * How many schools and districts were supported by Math Corps?
- * How many Members, Internal Coaches, and Master Coaches helped implement Math Corps programming?
- * What are the demographic characteristics of the students receiving Math Corps support?
- * With what level of fidelity were Math Corps assessments and interventions implemented?
- * How many community volunteers were mobilized by Math Corps Members?

Evaluation Goal #2: In each grade, how many, and what percentage, of students receiving Math Corps demonstrated improved performance as determined by scores that are at or above the rate of improvement for grade-level expectations on the AIMSweb Math Computation assessments? Further, how many students demonstrated increased scores on state standardized math assessments?

Evaluation Goal #3: How many, and what percentage, of students in each grade received at least 80% of their scheduled weekly minutes of math intervention? Note: this evaluation component requires the use of a percentage because it is unknown how many days will be available for intervention in a given week (e.g., Thanksgiving Holidays are typically a 2 or 3 day week). Supplemental evaluation questions will include:

- * How much tutoring did students participating in Math Corps receive?

Data Collection and Analysis

Specific data for answering these questions will come from two primary sources. Data on participation (Evaluation Goals #1 and #3) will be collected and maintained by Math Corps Members in their tutor logs (electronic records kept by Members and monitored by Internal and Master Coaches). Math Corps administrative databases also will be available to provide additional information to answer supplemental questions, such as how many Internal and Master Coaches implemented Math Corps and with what level of fidelity were assessments/interventions implemented. These data will be collected, analyzed, and reported for each quarterly report as well as in a year-end summary after each school year.

Narratives

Data for determining student improvement in math performance (Evaluation Goal #2) will come from two sources. The first is the AIMSweb online database system. Members will enter data from the Math Computation assessments into this database, and coaches will check the database for accurate data entry. Interim data will be collected and assessed for quarterly reports, and summary evaluations will reported in year-end reports. Improvement will be determined based on the rate of improvement that students make during intervention, as assessed on successive grade-level AIMSweb assessments (the Math Computation assessment has multiple equivalent forms for each grade).

The second source for evaluating student improvement in math performance consists of scores from the state standardized math assessment. These data will be collected directly from participating school districts and/or MDE. Improvement will be determined by comparing each student's scores on this annual assessment from their previous year of school with their current year of school (during which they received Math Corps). Increased scores across these two administrations will reflect improvement due, at least in part, to Math Corps tutoring.

Data Use

Evaluation results will be used to ensure Math Corps realizes its stated goals for participation and improvement outcomes. Interim reporting will permit Math Corps to understand how it is progressing toward those goals and make organizational responses when necessary to make sure progress is adequate. Year-end reporting will provide descriptive (not causal) data that will be used to inform programmatic adjustments for subsequent years (e.g., should an alternative intervention targeting word problem solving be identified for development and implementation?).

Amendment Justification

N/A

Clarification Summary

CLARIFICATION 2014 (4/9/14)

1) Budget Clarification Items:

- a) We are requesting 15 disability MSY, for a total MSY request of 175.
- b) Changes have been made directly in the application budget in eGrants.
- c) Changes have been made directly in the application budget in eGrants.

Narratives

d) We currently exceed the required match through a combination of site fees, state appropriation, and private funding. Consequently, we do not include program space as in-kind in the budget. The designated service site must provide a reasonable amount of space for tutoring to occur. Service sites report the amount and value of this space.

e) After reviewing our fundraising projections, we determined between state and private funding, we can raise an additional \$100 per MSY therefore reducing the CNCS cost per MSY to \$12,250. Helping students to achieve math proficiency by 8th grade will reduce costs associated with high school dropouts and post-secondary remedial studies. Growth and Justice, a respected MN economic think-tank, reported in 2008 that dropouts have higher reliance on public programs such as welfare and Medicaid, and are more likely to be involved with the criminal justice system. They conclude, "Prioritizing new investment in our human capital (based on evidence, directed where improvement is most needed, and focused on interventions that achieve results cost effectively) is the smartest investment MN can make." 89% of students who do not pass 6th grade math will eventually drop out of high school. The unemployment rate of Minnesota residents that do not graduate high school is six times the rate of those with a Bachelor's degree or better. Additional losses to the state of Minnesota include lower tax revenue from wages associated with lower paying jobs and unemployment.

2) Programmatic Clarification Items:

a) The 3.5 day pre-service institute is sufficient because we devote a half day to ensure members are trained in the AmeriCorps rules and expectations and 3 full days focused on the math interventions they will be implementing at their sites. The members are "quick studies" in the content of the interventions as we only select members that meet the proficiency expectations expected of a 10th grade student and they will be tutoring 4th through 8th grade students. Additionally, we don't rely on just the content training to ensure the members are effective in their service. We contract with math experts to serve as master coaches --- these coaches go on site monthly to observe the members providing interventions and to provide feedback that continually improves their effectiveness. Our master coach also provides support to the site supervisor (internal coach) thus improving the capacity of the site supervisor to continually reinforce and enhance the member's skill level. Additional training on our data systems is provided after members start their service and have a clearer picture of the data collection system used in their daily practice. All of this training and coaching is supplemented with an online member portal where members have access to instructional videos of tutoring interventions used in the program. To reinforce the training on AmeriCorps rules and expectations, program staff

Narratives

visit the members at their sites in the fall to review expectations and biweekly email newsletters provide reminders and reinforcement of expectations.

b) Part-time members provide Math Corps with the flexibility to serve schools with smaller student populations. As a result, we can reach more rural communities. The responsibilities of the full and part-time member are the same other than the caseload size. Part-time members have smaller caseloads.

c) SIF funding is not being used as match for our program. The St. Paul Schools Foundation received SIF funding to develop a model of using community volunteers to provide extra support to students struggling with Math. The foundation is seeking guidance from our Math Experts as they build their model and we anticipate that our Math Corps members may assist with training community volunteers in basic fact fluency.

d) Members recruited to serve with Minnesota Math Corps must have a high school diploma or equivalent or a higher education degree, and successfully complete specialized math training content provided at Institute. These criteria meet the requirements outlined in 45 CFR 2555.910. Specialized math content training is high quality and research-based. The initial training institute is comprehensive and interactive. It provides didactic content as well as ample opportunity to practice the procedures being trained, both intervention and assessment. The member training also goes beyond the initial training. The subsequent trainings provide additional content when members need it, such as guiding them through data-entry practices with data actually in hand. This is effective because they had been using the procedures learned at the initial training to collect real data that can then be used in the follow-up training on data entry. Ongoing coaching from two coaches--one local to the members' school and another expert in Math Corps--provide assistance at regular intervals and as needed. Studies of this training model show that high-quality didactic training with time for practice paired with ongoing coaching support are the most likely to lead to effective implementation (Fixsen & Blase, 2005). The program is also highly structured in terms of delivering interventions, which means very specific, step-by-step instructions will be laid out, trained to, and coached to for members to follow. It is also highly structured in terms of data-driven decision-making, which will be led by coaches. Therefore, members won't need to have in-depth training on making data-driven decisions. The training provided to members is directed toward math assessment and intervention practices that directly align with local and state educational practices for math. The interventions that are used have been directly aligned with specific state standards that all local agencies teach. The assessments that are used monitor progress of students within these standards.

Narratives

e) Grant start date and enrollment period: The start date is 08/01/2014. The enrollment period begins 08/01/2014.

3) Strategic Engagement Slots Clarification:

a) 10% of slots will be targeted to recruiting members with disabilities. Our program recruitment efforts focus on reaching out to individuals with disabilities. Math Corps will continue to use alumni, current members, and individuals with disabilities who are friends of Math Corps to provide introductions and opportunities to speak to the targeted audience. We will continue to connect with the offices of students with disabilities on campuses to inform them of our program and the opportunities that exist for the students they serve. In addition to working with offices of students with disabilities on college campuses, we hope to attract applicants with disabilities by featuring stories and photos on our recruitment materials and our social networking outlets. All materials, including position descriptions, contain a reasonable accommodation clause and a non-discrimination clause. Position descriptions also distinguish essential and marginal functions. Math Corps includes elements of universal design throughout the member recruitment and selection process, ensuring that interviews are held in accessible locations and reasonable accommodations are provided, upon request. Partner sites are informed of the non-discrimination and reasonable accommodation clause during the interview and selection process. Math Corps incorporates information regarding accommodations into our Internal Coach training, ensuring that coaches are aware of the principles behind universal design. Members with disabilities will be provided with reasonable accommodations to support successful completion of a term of service. When an accommodation is requested, Math Corps will work closely with the member, service site, Internal Coach, and Master Coach to ensure these needs are met. This may include additional individualized coaching, modifications to training materials, and transportation to and from training.

b) Math Corps requests an additional 15 MSYs (10 PT and 10 FT slots). These members would serve in schools in the Twin Cities metropolitan area.

4) MSY With No Program Funds Attached Clarification (No Cost MSYs): We are not requesting No Cost MSYs.

5) Healthcare Clarification Items:

a) The Corps Network, Summit America Insurance Services is the insurer we use for our AmeriCorps

Narratives

members.

b) Due to the AmeriCorps restrictions on health coverage for members there are few options in providing health coverage to members. The state commission in Minnesota has worked with a broker to assist Minnesota programs in providing coverage through The Corps Network. We transitioned to The Corps Network in 2010.

c) No, our proposed budget for healthcare does not provide for Minimum Essential Coverage.

d) We are unsure of what adjustments would need to be made to our budget in order to provide Minimum Essential Coverage.

e) Our broker does not currently have a cost available for a plan that would meet the AmeriCorps standard as well as Minimum Essential Coverage.

Continuation Changes

N/A

Grant Characteristics