1. **Develop and retain faculty and staff**
   - Faculty members are active in two national organizations, The American Mathematical Society [AMS] and The Mathematical Association of America [MAA]. Members participate in the professional development programs available through the organizations. We used the AMS website to advertise the full-time temporary position authorized for fall 2013. In the past, the Department interviewed candidates for tenure-track positions at conferences of the organizations.
   - Dr. Benjamin Atchosion, the newest member of the Mathematics Department, is active in the mentoring programs at FSU. In addition, each new member of the Mathematics Department is assigned a mentor from the Department.
   - The Department purchased an industry-standard software package, MATLAB, in 2011-2012. The license included 5 professional licenses for faculty research plus a 50-user concurrent package for students. The software was installed and ready for use in Fall 2013.
   - The Department purchased iPads and APPS for each tenure-track or tenured faculty member. Faculty used applications such as Wolfram-Alpha to facilitate their work and integrated the software into their teaching.

2. **Strengthen new student preparation, induction, and academic success**
   - Five members of the Mathematics Department participated in the VISION Project, which included workshops and discussions with faculty members from FSU, Mass Bay Community College, and area high schools. Faculty members worked together to find ways to improve college readiness and to improve student participation in STEM programs.
   - Mathematics faculty have participated in the Foundations program since its inception and continue to enthusiastically support its goals. Three members of the faculty taught Foundations class in fall 2012 and three will teach sections in fall 2013.
   - Assessment in the Department is multi-faceted and the various initiatives are listed below.

**Undergraduate Program Assessment**
- Surveys of alumni (with regards to the outcomes of the outcomes of the major from their perspective) were written, distributed, and analyzed. The results were very positive and we will use suggestions to improve our programs.
• As a result of recommendations from our last 5-year program review, the Department has expanded offerings of electives – Dynamical Modeling, Probability and Statistics (in preparation for actuarial exams), and History of Mathematics. A goal is to offer two electives per semester and to differentiate the electives based upon our 3 concentrations.

• The Department is designing a capstone course for the general options concentration. An outline has been prepared and particulars of the course will be completed in 2013-2014.

• Students in the mathematics major with a secondary education minor and in the mathematics coordinate major are being assessed by instruments developed for NCATE accreditation in addition to instruments used earlier. The instruments are being revised and data is entered and analyzed in LIVETEXT.

General Education Course Assessment
• Faculty members participated in the development of rubrics and the assessment of quantitative reasoning artifacts from general education courses.

• The Mathematics Department performed a pilot study to determine the effectiveness of various measures of success in College Algebra. The study included the development of an in-house diagnostic test and an analysis of the relationships between the results of the test, accuplacer, success in the General Mathematics course and final grades of students in the course.

• Faculty members in the Department monitor the academic progress of their advisees carefully with respect to academic success and sequence of courses. Faculty provided 5 independent studies from summer 2012 through spring 2013 to assist students to complete their programs in spring 2013.

3. **Pursue excellence and engagement in the academic experience**

• The Department sponsored two collaborative research projects between faculty and students. One student and a faculty member compiled and analyzed the results of the alumni surveys and another student and a faculty member performed the initial analysis of the College Algebra study. In each case, the students applied their statistical skills and found how the art and science of statistical analysis both contribute to establishing conclusions.

• The Department was granted $15,000 in 2012-2013 Strategic Plan Funds to purchase computers for a computer lab. Initially, we requested laptop computers, but as particulars were discussed within the Department and with ITS, we modified the plan. We will work with ITS and other interested entities on campus to devise a proposal for a multi-purpose learning classroom. One aim of the classroom would be to provide a
space for experiential learning including software, manipulatives, and other multi-media.

- Two faculty members who were involved in the VISION project redesigned and implemented courses that provide a “natural learning environment” for students.
- The Math Club provided a venue for students to explore mathematics outside the classroom. For example, they designed “irrational number” clocks and traveled as a group to the regional meeting of the Northeastern Section of MAA. The students especially enjoyed the trip to the conference because they learned that their background in mathematics was sufficient for them to understand many of the presentations.
- Each year, Dr. Sarah Mabrouk, organizes an MAA dinner and a presentation by a mathematician. Area mathematicians and students are invited. She has been particularly successful in recruiting the attendance of students.

4. Prepare students for global citizenship and competitiveness
   - The Mathematics Department responds to recommendations of national mathematics organizations with respect to curricula and appropriate software so that our students will graduate with competitive skills. Surveys of alumni confirmed that graduates felt well-prepared for graduate school and for the job market.

5. Strengthen and expand STEM programs and student success in STEM areas
   - The increase in the number of mathematics majors and the number of mathematics major graduates has been significant over the past several years.
   - The Mathematics Department employs upper level undergraduate mathematics majors as tutors for FSU students.
   - All tenure-track or tenured mathematics professors are on campus at least 4 days per week to be available for extra help and/or advising. We subscribe to an open-door policy.
   - The Mathematics Department has a mathematics lounge where students meet informally for study groups. The lounge is near faculty offices giving students the opportunity to interact with faculty.
   - Dr. Sheree Arpin is working with other STEM faculty to engage middle school students in activities that serve to encourage their participation in STEM.
   - Three high school students have contacted the Department asking for information about advanced mathematics courses. The students will be enrolled in 200-level or above courses in fall 2013. Two of the students will apply for dual enrollment scholarships and take courses through continuing education. A third students will enroll in day division courses.
Two mathematics majors visited Natick Labs on a trip organized by Jonathan Lee. Dr. Benjamin Atchison worked with Dawn Ross of career services to strengthen our ties to the local scientific community.

The implementation of the new general education model provides an opportunity for the mathematics department to design diverse mathematics courses for FSU. Faculty members met with faculty from Mass Bay Community College with a goal of designing a new quantitative reasoning course to become a part of the general education curriculum at FSU. The work was financed through a grant administered by Susan Chang.

As a part of the VISION project, high school students and community residents were invited to presentations by Dr. Story Musgrave, an astronaut. He met with selected students from FSU, Mass Bay Community College, and local high schools to discuss their interest in STEM fields.

An important part of readiness of students for STEM courses is the preparation of their teachers. The Mathematics Department is well-known in the area for preparing excellent mathematics teachers. In addition, faculty members provide professional development opportunities for local teachers. Two faculty members are mathematics facilitators for the Massachusetts Department of Education Initiative for Mathematics/Intel [MIMI] program. The program offers graduate credit for MIMI courses taken at FSU. Faculty members have worked on the program since its pilot initiative in 2007. The program has since spread nationwide.

6. Respond to labor market trends in academic program and center development

Dr. Robert Page, supervisor of student teachers, maintains a dialogue with faculty in local school districts.

Hanover Insurance Company in Worcester, MA, contacted the Mathematics Department asking to speak with our students and to encourage the students to participate in their Future Leaders Program and to apply for employment. One of our graduates plans to take the first actuarial exam and apply for a position at Hanover.

Members of the Mathematics Department assisted in the design of courses for the Master of STEM Education offered through the graduate program at FSU. The first mathematics course was taught in fall 2012 and the second will be offered in fall 2013.

The Master of Education degree with a concentration in mathematics is one of the strongest graduate programs on campus. Recently, several of the courses have been revised to target middle school teachers. A new course, Calculus for Teachers was taught in spring 2013. With the support of Scott Greenberg, we try to offer two courses per semester for this program.
**Unmet Needs of the Mathematics Department**

- Use of MATLAB and other software – There is a significant lack of computer lab space to use during class time. Thus, the software cannot be integrated with classwork, but is done independently by the students. We hope that the proposal that we submit regarding a multi-purpose lab will be approved.

- The Mathematics Department has committed its resources to all levels of its mission. Tenure-track or tenured faculty teach 100-level courses, undergraduate courses for its majors (including PBTLs), and graduate courses in two graduate programs. We feel that the integrity of all of these programs relies upon the participation of day faculty. We would like to expand our undergraduate programs and our graduate programs, but cannot do so without a concrete commitment from the administration that new faculty can be hired.