

Report on the Detroit Area Pre-College Engineering Program (DAPCEP)
as required by
Public Act No. 342 of 2006, Sec. 65
for
2005-2006

(The following information about DAPCEP, as well as data from the Detroit Public Schools and national sources, was provided to the Michigan Department of Labor & Economic Growth (DLEG) directly by the DAPCEP staff.)

Background

The Detroit Area Pre-College Engineering Program (DAPCEP) is a pre-college engineering, science and technology initiative in metropolitan Detroit. DAPCEP is dedicated to increasing the number of historically under-represented minority students (African-American, Hispanic-American and Native-American) who are motivated and academically prepared to pursue careers in engineering, science and mathematics-related fields.

According to the 1998/99 Annual Report, DAPCEP was founded with a \$250,000 grant from the Alfred Sloan Foundation in 1976. In its first year of operation (inception) only 250 students were served in three Detroit Public Schools (DPS).

DAPCEP was incorporated in 1983 and since then an 18-person board of directors has governed it. Based on the records provided, DAPCEP has experienced phenomenal growth since inception, reaching 6,000+ students in 2001-2002 (4,192 in 2005-2006) by combining the resources of a large and active parent group, schools, colleges and universities, and corporations.

The STATE OF MICHIGAN provided \$340,050 dollars in support of DAPCEP during 2005-2006. In addition to the state support, DAPCEP generated \$3,358,337 in resources through corporate contributions, grants, and in-kind contributions.

DAPCEP operates three programs focused on K-12 students and their teachers:

In-School: DAPCEP trains Detroit Public School (DPS) teachers to present the DAPCEP curriculum, which includes Internet training, science fair projects, multi-cultural projects, field trips, corporate and university seminars, mentors and hands-on experiments for Detroit area students. In-school classes are primarily offered in DPS middle and high schools.

Saturday Enrichment: Colleges, universities and corporations conduct several diverse programs in the area of mathematics, computer science, engineering, physics, chemistry, and communications skill for students.

Summer Enrichment: Several Michigan universities offer on-campus enrichment programs in computer science, mathematics, science, engineering and communications. Each summer students participate in these residential and computer programs. Students in the K-3 or the 4th grade summer program are primarily recommended through the 10 partnering DPS schools.

Current Status

The following information is provided in fulfillment of the contract requirement to provide narrative information about the Detroit Area Pre-College Engineering Program (DAPCEP) as stated on page 5 of the grant agreement (Grant No. **641P62000832**) between Michigan

Department of Labor & Economic Growth Office of Career and Technical Preparation and DAPCEP.

a. If entrance to the program is competitive, what are the criteria for enrollment and how are those decisions made?

In-School Program:

Students self-select into these programs. DAPCEP In-School classes are primarily offered in middle and high schools that are part of the Detroit Public Schools.

Summer and Saturday Programs:

Students submit a transcript of school grades when they apply. Criteria for application are a 2.0 GPA or above, student interest in science, technology, engineering or mathematics, and a positive teacher recommendation.

Kindergarten – 3rd Grade Program:

Students in the K-3 program are primarily recommended through the 10 partnering DPS schools.

b. How are pre-college engineering program students evaluated?

In-School Program:

Students receive a letter grade for participation in the course (A, B, C, D, E.)

Summer and Saturday Programs:

Formal grades are not awarded to course participants. An informal evaluation is made by course instructors on an individual basis, where student interest, completion of homework, participation in class activities, and attendance are noted. Students who complete the course are given a Certificate of Completion.

c. How do you assess the overall performance of the pre-college engineering program?

DAPCEP evaluates its overall performance in a number of ways. Some program sites, such as the University of Michigan, Michigan State University, and Michigan Technological University, provide formal evaluations by outside evaluators.

Many DAPCEP program sites, however, are not able to perform a formal evaluation of DAPCEP programs due to financial constraints; these programs provide DAPCEP with internal evaluation results, consisting of student and parent surveys and anecdotal and word-of-mouth evaluations from students, parents, and teachers.

DAPCEP compiles this information to formulate an overall evaluation of the organization.

d. Provide any anecdotal evidence or quantitative data that documents students' academic achievement.

At the 2006 Metropolitan Detroit Science and Engineering Fair, Thirty- three (33) Detroit Public Schools with 43 DAPCEP In-School classes participated in the 49th Science and Engineering Fair of Metropolitan Detroit. The annual event was held at COBO Convention Center, Detroit, Michigan on March 7-10, 2006. DAPCEP middle school and high school participants received

175 Outstanding and Professional Awards which included three (3) Grand Awards , nine(9) First Place Gold Awards Twenty -three Second Place Gold Awards and Thirty-six (36) Third Place Gold Awards

e. List all funding sources and the amounts supporting the program.

The funding sources supporting the program for the period October 1, 2005 through September 30, 2006 include the following:

| | |
|--------------------------------|--------------------|
| Contributions: | \$799,000 |
| Grants: | |
| State of Michigan | \$340,050 |
| City of Detroit NOF | \$128,756 |
| Detroit Public Schools NSF/USI | \$79,958 |
| National Science Foundation | \$202,916 |
| In-Kind Contributions: | |
| Detroit Public Schools | \$1,339,539 |
| Other | \$713,927 |
| Interest Income: | \$39,597 |
| Other Revenue: | \$54,644 |
| Total | \$3,698,387 |

f. Provide a budget narrative for each budget line item.

Campus and School Based Programs – program salaries, evaluation, instruction, parent and teacher training, family and parent support/mentoring, university costs for programs housed at their respective sites, registration for programs, parent orientation, field trips, job preparation institute, and in-kind expenses.

After-School and In-School Programs: program salaries, teacher training, instructional and science fair materials, student receptions, and in-kind expenses.

Travel – science fair award trip and related field trips.

Administrative – administrative salaries and fringe benefits, office, equipment, and parking rentals, telephone, maintenance for equipment and software, tracking consultant, development consultant, legal and accounting, insurance, public relations, bank charges, and board expense.

g. Provide information about the number of DAPCEP participants that enrolled in college.

According to the National Science Foundation¹, in 1997, 57% of African American and Hispanic high school graduates enrolled in college during the October following high school.

Detroit Public Schools data from its 1998 survey of high school graduates lend some insights about the college enrollment of DAPCEP students who graduate from high school. Out of a total of 6,529 surveys sent, 917 respondents returned the survey and answered a question about their

participation in special programs, including DAPCEP. Of these 917 respondents, 233 (25%) indicated that they had participated in DAPCEP.

Comparisons between DAPCEP and non-DAPCEP graduates showed that:

- 94% reported they were African American, compared to 92% of non-DAPCEP graduates.
- 70% reported they were female, compared to 71% of non-DAPCEP graduates.

Significantly more DAPCEP graduates (94%) reported being enrolled in post-secondary education since graduation compared with their non-DAPCEP counterparts (83%)². This included enrollment in “a college, university, special school or training program.”³ Eighty-five percent (85%) of DAPCEP graduates reported being enrolled in school full time, compared with 75% of non-DAPCEP counterparts⁴. One hundred eighty-seven DAPCEP graduates (80%) reported currently attending a four or five-year college or university.

¹ National Science Foundation (2000) *Women, Minorities and Persons with Disabilities in Science and Engineering*.

² Chi-square = 17.05, $p < .000$, df 1, 895

³ Question #17 on Detroit Public School Graduate Survey

⁴ This difference is statistically significant: Chi-square = 9.78, $p < .002$, df 1, 770

h. After college graduation, what percentage of DAPCEP graduates obtained employment in the math/engineering/science fields?

The data below is based on a report completed by Moore & Associates, which conducted a follow-up Alumni Survey in late 2001. The Alumni Survey had 852 respondents. Although the results were noted to be taken with caution, due to a low response rate, the report indicated that respondents appear to be employed in science, math and/or technology related fields in much higher proportions than the national average.

Survey respondents were individuals who participated in DAPCEP between the program years of 1978 and 2001. Of those who responded, 90% indicated that they attended, are currently attending or have been accepted at a college or university. When asked if their major was math or science related, 63% of males and 60% of females responded positively.

A total of 308 (36%) of the survey respondents provided information regarding employment. Of those who clearly reported their position titles, 90 (82%) of the males and 116 (59%) of the females were working in math, science, engineering, or technology related positions. DAPCEP is currently establishing a reliable database of alumni. This is being accomplished through the distribution of alumni surveys first at corporations (i.e. DTE Energy) and then through other professional organizations.

i. Provide information on the participants: schools, postsecondary institutions and business partners.

DAPCEP partners with many organizations to provide academic enrichment programming. Following is a summary of Detroit Public Schools, postsecondary institutions, and business partners involved in our programming:

Detroit Public Schools

Please see the attached list of In-School Program Sites.

Postsecondary Institutions

University of Detroit Mercy, Wayne State University, Lawrence Technological University, Oakland University, University of Michigan – Dearborn, University of Michigan – Ann Arbor, Michigan State University, Michigan Technological University,

Business Partners

General Motors Corporation, Ford Motor Company, Tabernacle Missionary Baptist Church, Hartford Memorial Baptist Church, Exam Experts Learning Academy, EDS Engineering and Management Services, Nissan USA

Statistical Information

Results below are organized according to the statistical information requests included in the MDLEG/DAPCEP contract, page 6.

a. Provide a comparison by classification of dropout rates for DAPCEP students against the general population of Detroit Public Schools.

Detroit Public School Dropout Rate

| | |
|-----------|---------------|
| 2001-2002 | 10.59% |
| 2002-2003 | 19.19% |
| 2003-2004 | 12.73% |
| 2004-2005 | 10.72% |
| 2005-2006 | Not Available |

Source: State of Michigan Center for Educational Performance and Information (<http://www.michigan.gov/cepi>)

Sufficient data is not currently available to calculate the high school dropout rate for DAPCEP students for the 2005-2006 academic year. A survey conducted in 1998 showed a high school dropout rate of DAPCEP students of 2%.

b. Provide a comparison by classification of Grade Point Averages (GPAs) of all subjects for DAPCEP students, against the general population of Detroit Public Schools.

The most recent data available for DPS GPA is from 2002-2003; the GPA listed for DAPCEP students is for 2003-2004.

Overall GPA for DPS Student Participants 2003-2004

| | |
|------------------------|------|
| DAPCEP Saturday Course | 2.05 |
| DAPCEP Summer Courses | 3.1 |

c. What percentage of DAPCEP graduates enrolled in a college program specific to math, science, and engineering compared to the national average of non-DAPCEP students enrolled in the same field?

According to the National Science Foundation, in 1998, 33% of White, African American, Hispanic and American Indian freshmen intended to major in science and engineering. As reported earlier, The Alumni Survey conducted by Moore & Associates reports that of those

surveyed that had reported going to college, 63% of males and 60% of females were in a math or science programs such as Biology, Chemistry, Engineering (computer, electrical, mechanical), and Pre-Med. These results will be validated in a future survey.

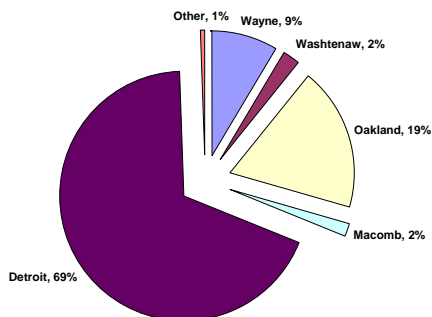
DAPCEP 2005-2006

Total Enrollment:

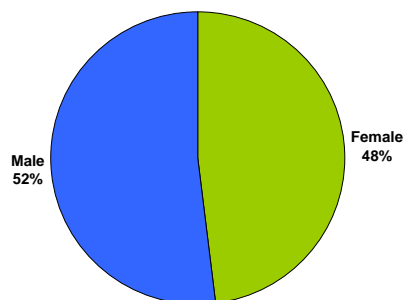
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|-----------------------|-------|
| Campus Based Saturday | 2,383 |
| Campus Based Summer | 355 |
| In-School Program | 1,214 |
| K-3 Program | 240 |

TOTAL Enrollment 4,192

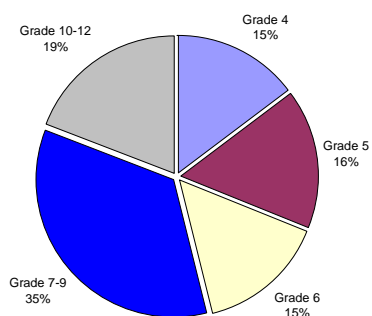
2006 Spring DAPCEP Program Participation Breakdown
City of Detroit vs. Surrounding Counties



2006 Spring DAPCEP Program Participants by Gender



DAPCEP Saturday Class Population Served by Grade Level
ITEST Students Included



DAPCEP In-School Program Sites:

Participating Detroit Public Schools

| | |
|----------------------------------|--------------------------------|
| Academy of The Americas | Lessenger Middle School |
| Bates Academy | Longfellow Middle School |
| Brenda M. Scott | Ludington Magnet Middle School |
| Burton International School | Mackenzie High School |
| Cass Technical High School | Marion Law Academy |
| Catherine C. Blackwell Academy | Mary McLeod Bethune Academy |
| Clippert Academy | McNair Middle School |
| Courtis Elementary/Middle School | Mumford High School |
| Denby High School | Northwestern High School |
| Dixon Elementary School | Remus Robinson |
| Dorothy Fisher Magnet School | Renaissance High School |
| Ellington Conservatory | Robeson Academy |
| Emerson Elementary School | Ruddiman Middle School |
| Finney High School | Southeastern |
| Grant | Spain Elementary School |
| Hally Magnet Middle School | Taft Middle School |
| Hutchins Middle School | Western International High |
| King High School | Winterhalter Elementary School |

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Report on the Grand Rapids Area Pre-College Engineering Program (GRAPCEP)
as required by
Public Act No. 342 of 2006, Sec. 65
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2005-2006

(The following information about GRAPCEP, as well as data from the Grand Rapids Public Schools and national sources was provided to the Michigan Department of Labor & Economic Growth (DLEG) directly by the GRAPCEP staff.)

Background

The Grand Rapids Area Pre-College Engineering Program (GRAPCEP) began in September 1997. It is a regional pre-college engineering program operated by Davenport University at Grand Rapids in partnership with the Grand Rapids Public Schools (GRPS.) The program is intended to meet the need for well-trained engineers and scientists for growing businesses of West Michigan and to increase the number of historically under-represented populations in these career fields. GRAPCEP achieves its mission by forming working partnerships with area schools, businesses and institutions of higher education. Together, these partners work to enhance the teaching and learning of mathematics and science in the target schools in order to enable students to develop the mathematical, scientific, and personal skills needed to succeed in science and engineering careers.

To become participants in the GRAPCEP program students go through a three-phase selection process – application, teacher recommendation, and personal interview. Acceptance criteria include having a 2.60 or better grade point average (GPA), achieving high scores in social and work habits during the last grade marking period, obtaining positive recommendations from two teachers, and successfully completing an individual interview conducted by a team of at least two GRAPCEP staff and teachers. The interview mirrors a job interview.

GRAPCEP operates three programs focused on middle and high school students and their teachers – In-School, Saturday Enrichment, and Summer Enrichment.

In addition to the above academic services GRAPCEP provides students with career development services that involved company tours, job shadowing, internships, and career fairs.

Current Status

Comparisons made to the General Population of the Grand Rapids Public Schools (GRPS) for Most Recent Academic Year with Comparative Data 2005 – 2006.

1. If entrance to the program is competitive, what are the criteria for enrollment and how are the decisions made?

The Grand Rapids Area Pre-College Engineering Program (GRAPCEP) at Davenport University serves over 3,000 students in schools in Grand Rapids Public Schools (GRPS). GRAPCEP provides curriculum, classes, workshops, summer camps, and competitions in GRPS middle schools and 4 traditional high schools. These GRAPCEP services are open to all GRPS students. The middle schools targeted for GRAPCEP services have high populations of students from economically disadvantaged backgrounds (70% or greater) and from ethnic minority groups (80% or greater). GRAPCEP also trains teachers throughout the state of Michigan to use inquiry and project-based teaching strategies, therefore influencing many more students in classrooms where these strategies are implemented. In 2005-06, 60

Michigan teachers participated in GRAPCEP training sessions, including some sessions for graduate credit.

In order for students to become part of the GRAPCEP Engineering & Biomedical High School, they must first complete an application form, either on-line or in hard copy. Application forms are available on the GRAPCEP website and in GRPS middle and high schools, charter schools, and some K-12 schools in the Grand Rapids Area. Students may transfer into the GRPS District in order to enter the GRAPCEP Engineering & Biomedical High School. All students are eligible to apply. The application forms includes the eligibility criteria of a grade-point-average of 2.50 or better, good scores in social and work habits for the last marking period (all scores of 1-3 and not 4-5 scores), and parent/guardian signature of permission. GRAPCEP and GRPS staff members check each student's school records to verify eligibility. Students and their parents may also be asked to participate in an individual interview with two staff GRAPCEP staff members or GRAPCEP teachers. Students who indicate an interest in careers in science, technology, engineering or mathematics are good candidates for GRAPCEP. Students who have participated in GRAPCEP activities while in middle school are also good candidates for the GRAPCEP Engineering & Biomedical High School. Other extra curricular activities may also be considered in selecting student for the GRAPCEP High School.

Students selected for membership in the GRAPCEP Engineering & Biomedical High School must then achieve success from year to year, as defined by GPA (2.0 or below results in probation with prescribed actions to improve grades), appropriate behavior, and continued interest in the course of study for career tracks in engineering or biomedicine. GRAPCEP staff and GRAPCEP teachers give students academic and personal support throughout their high school years. The students in the GRAPCEP Engineering & Biomedical High School are the affirmative development group of GRAPCEP, they are assisted and tracked throughout high school and college, and for 2 years into their work careers.

2. How are the pre-college engineering program PCEP) students evaluated?

Students involved in GRAPCEP classes, workshops, summer camps, and competitions are given pre- and post-tests to measure their learning in math or science. Further, students are often given certificates or awards for completion and achievement during these events. Students in the GRAPCEP Engineering & Biomedical High School can earn various awards including several given on a monthly basis. Students in the GRAPCEP School are monitored regarding test and course grades, participation in help sessions, GPA's, behavioral referrals, and scores on standardized tests.

3. How do you assess the overall performance of the pre-college engineering program?

GRAPCEP is assessed by the number of students and teachers who participate in program services, survey evaluations completed by students and teachers regarding those services, students' academic work in school, including GPA, course selection, persistence in school, preparation for careers in STEM, application for college and enrollment in college, and graduation from college programs, enrollment in graduate programs or success in the first 2 years of employment in appropriate jobs. Whenever possible, GRAPCEP successes will be evaluated in comparison to local, regional or national data.

4. Provide any anecdotal evidence or qualitative data that demonstrates students' academic achievement.

There are so many success stories about the students in GRAPCEP that it is difficult to choose only a few, but for the purposes of this report, two students who graduated from high school in 2001 will be

highlighted. Both students entered GRAPCEP as 9th graders, and both successfully completed GRAPCEP internships during the summer of 2000.

First, Qianna Armstrong, an African American female, became the first in her family to attend college. GRAPCEP staff advocated for her regarding admissions and scholarships for her chosen college, Michigan State University (MSU). From time to time, during her undergraduate years, she worked with GRAPCEP staff members to improve her study skills, especially for difficult science classes. She contacted GRAPCEP staff members for reassurance as she continued in her studies as a chemistry major. When she graduated from MSU with a chemistry major in 2004, she spoke to GRAPCEP staff members about postponing taking the MCAT even though she wanted to enter medical school, but thought that she should “take a year off.” GRAPCEP staff encouraged her to take the MCAT as soon as possible because she was best prepared to do well on it immediately after her undergraduate studies. Qianna followed our advice, and took the test, scored well, and had 4 offers from medical schools. She may have had fears of not doing well on the MCAT, but in the end her preparation paid off. She is currently enrolled in medical school at Ohio State University. In August 2006, the GRAPCEP Executive Director wrote a letter of recommendation for her for the US Air Force so that she will receive assistance in paying for her studies in medical school. She will be a physician in the near future, a professional who will better her community and the state of Michigan.

Second, Hien Dang, a young woman of mixed racial background, also graduated from high school in 2001, after being in GRAPCEP since 9th grade. She became the first in her immediate family to ever graduate from high school. She also completed a GRAPCEP internship during the summer of 2000, and she has kept in contact with the mentors she met during her internship and received assistance from them to this date. With the support and encouragement of the GRAPCEP staff, she entered Michigan Technological University (MTU) in the fall of 2001. She became the first graduate with the new Bioinformatics BS from MTU in 2004. She is currently working as an intern in a prestigious and competitive program at the National Cancer Institute in Maryland, and she plans to begin graduate studies in research science at the University of Chicago in fall 2007. She is another GRAPCEP student who will better her community and our state.

5. List all funding sources and the amounts supporting the program.

GRAPCEP received the following funds during 2005-06 (October 1, 2005 through September 30, 2006):

| | |
|---|------------------|
| Michigan Department of Labor & Economic Growth | \$340,050 |
| Partnership Grants with Michigan Technological University | \$ 18,890 |
| DTE Energy Foundation | \$ 25,000 |
| Bank One/Chase | \$ 5,000 |
| Cascade Engineering | \$ 1,500 |
| Fishbeck, Thompson, Carr & Huber | \$ 500 |
| Steelcase, Inc. | \$ 40,000 |
| Small Grant Fund Account | <u>\$ 35,125</u> |
| Total | \$ 466,065 * |

* In addition, company and university partners donated in-kind support for student job shadowing and paid internships, supplies and equipment, personnel to advise and work closely with the GRAPCEP staff.

6. Provide a budget narrative for each budget line item.

GRAPCEP Budget Totals for 2005-06 Fiscal Year
Administration \$ 146,499

| | |
|-----------------|-------------------|
| Campus & School | \$ 70,643 |
| Training | <u>\$ 248,923</u> |
| Total | \$ 466,065 |

The GRAPCEP Executive Director carefully monitors the budget of funds from Michigan Department of Labor & Economic Development (MDLEG) using standard accounting procedures and under the accounting and audit system of Davenport University. All of the MDLEG funds of \$340,050 for 2005-06 were used for direct expenses for the GRAPCEP program.

Accounting of expenses for GRAPCEP are listed in separate accounts and broken down into the 3 categories listed on the grant agreement: *Administration*, *Campus & School*, and *Training*. In general, the *Administrative* accounts cover the expenses for administrative support of the program. These include salaries and benefits for the Executive Director and Administrative Assistant, expenses for office supplies, duplicating, staff travel, staff and business meetings, professional dues, subscriptions, promotional materials regarding the program, telephone and postage. Any equipment expenditures or cost of equipment repairs would be included under *Administration*, but there were no expenses in those areas for 2005-06. The total expenses under *Administration* for 2005-06 were \$ 146,499.

In general, expenses under *Campus & School* include the cost of services directed to students participating in GRAPCEP programs. These include salary and benefits for the Program Specialist and the Counselor, supplies for student projects, stipends for students, travel and professional dues for the Program Specialist and Counselor, cost of student meetings and internship training sessions, cost of supplies and food for Summer Experiences, books or subscriptions or software for students, and promotional material for students. The total expenses under *Campus & School* for 2005-06 were \$70,065.

In general, expenses under *Training* include the cost of services directed to professional development for teachers. Since GRAPCEP follows a teacher professional development model, many of our expenses fall into this category, as we run our middle school and high school programs working side-by-side with GRPS teachers and as we disseminate our curriculum and materials to teachers throughout the state of Michigan. These include the salaries and benefits for the Curriculum Specialists, supplies for teacher training, stipends for teachers, travel and professional dues for the Curriculum Specialists, cost of teachers meetings, cost of supplies and food for teacher training, books or software or subscriptions for teachers, and promotional materials for teachers. The total expenses under *Training* for 2005-06 were \$ 248,923.

Please note that in these 3 categories GRAPCEP spent \$ 126,015 over the MDLED funds, which was supplied by funds from the grants listed earlier in this report.

7. Provide information about the number of GRAPCEP participants enrolled in college.

For the 248 GRAPCEP students who graduated from high school in the years 2001, 2002, 2003, 2004, 2005, and 2006 responses to numerous attempts to reach them resulted in a total of 149 or 60% responding and indicating that they are enrolled or graduated from college. GRAPCEP continues to attempt to contact all of the GRAPCEP students who graduated from high school over the past 6 years (In 1998 when GRAPCEP began working with students, the oldest students in GRAPCEP were 9th graders). *Chart 1* (attached) indicates the post-secondary educational institutions in which 149 GRAPCEP students enrolled.

8. After college graduation, what percentage of GRAPCEP graduates obtained employment in the math/engineering/science fields?

NA: GRAPCEP staff members are in the process of verifying the current status of the first high school graduating class that should have graduated from college in 2005 or 2006. For the 17 GRAPCEP students who graduated from high school in 2001, it is confirmed that 10 (59%) have graduated from college. Of those 17 students, it is also confirmed that 4 are currently in graduate school programs (in medicine, medical research, and 2 in MBA programs). Of those 17 students, 1 is confirmed as working as a nurse in Tennessee. The GRAPCEP staff will continue to confirm information regarding GRAPCEP students who are enrolled in college or who are in the work force.

B. Evaluation Data for the Grand Rapids Area Pre-College Engineering Program (GRAPCEP) for 2005 – 2006 Academic Year

Comparisons made to the General Population of the Grand Rapids Public Schools (GRPS) with Comparative Data for 2005-2006 (Also see attachments)

1. Provide a comparison by classification of dropout rates for GRAPCEP students, against the general population of the Grand Rapids Public Schools (GRPS).

GRAPCEP serves over 3,000 students who participate in GRAPCEP sponsored competitions (FIRST Robotics, Rocketry, National Engineers Week Competitions, etc.) and career activities in classrooms. In addition, GRAPCEP staff worked with **60 teachers** in GRPS and from districts throughout the state, offering them numerous professional development workshops and opportunities. The new teaching strategies the GRAPCEP teachers implement have positive effects on the learning of hundreds of students. For 2005-06, GRAPCEP works very closely with a core group of high school students enrolled in the GRAPCEP Engineering & Biomedical High School and seniors enrolled in the 4 traditional high schools in GRPS. For 2005-06, the total number of students in the GRAPCEP high school core group is **108** individuals. High school students in this core group are tracked throughout high school, college, and two years into the workforce.

For the academic year 2005-2006, the core group of students in the GRAPCEP program persisted in school at a rate of 99.99% (with two students dropping out of high school without graduating resulting in a 0.008 % dropout rate; and a 99.99 % retention rate). For the academic year 2005-06, the total number of GRAPCEP high school and college students in the core group is **314** students: 40 were 10th graders, 26 were 11th graders, 42 were 12th graders, and 246 graduated from high school in June 2001, 2002, June 2003 (with one student did not graduate from high school), June 2004, and June 2005 (and one senior did not graduate from high school in June 2006). The students in the GRAPCEP core group completed at least one active year of participation in the GRAPCEP program.

GRPS does not currently track graduation or dropout rates for students in GRPS high schools. Nonetheless, many administrators in the GRPS District estimate that the high school drop out rate is about 50% for the general population in their schools. None of the administrators consulted for this report thought that any of the GRPS high schools approaches the 99.99% persistence rate of the core group within GRAPCEP.

2. Provide a comparison by classification of Grade Point Averages of all subjects for GRAPCEP, against the general population of the Grand Rapids Public Schools (GRPS).

Chart 2 that follows illustrates the significant positive comparison by classification of the high school GRAPCEP core group's GPA to the general population of GRPS. (Note that NA on this chart indicates that no students of that population are enrolled in GRAPCEP). *Chart 3* also indicates the number of students in each of the populations compared and the percentage of students within each group.

The overall 2005-06 GPA's for the GRAPCEP students compare positively to the general GRPS population by grades level, for grades 10-12. The overall GPA for GRAPCEP 10th graders is 3.09 as compared to 2.42 for all GRPS 10th graders. The overall GPA for GRAPCEP 11th graders is 3.01 as compared to 2.59 for all GRPS 11th graders. The overall GPA for GRAPCEP 12th graders is 3.50 as compared to 2.73 for all GRPS 12th graders. **The combined GPA for all GRAPCEP students in grades 10-12 is 3.50 as compared to the combined GPA for all GRPS students in grades 10-12 of 2.73.**

The comparison of GPA's by grade and classification is further illustrated with bar graphs that follow, *Graphs 1, 2, and 3*. These bar graphs do not include illustration of populations where comparison is not available (either GRAPCEP does not have any students in that population or GRPS does not have a comparable group). *Graph 4* illustrates the combined GPA's by ethnicity for all grades (10th, 11th, and 12th).

3. Provide a comparison by classification of GRAPCEP student graduates who are now enrolled in college science/engineering/math-based curricula, against National Averages for non-PCEP student enrollments in the same field of study.

The GRPS School District is a disadvantaged district with more than 77 % of students receiving free or subsidized lunches (2005-06 data). The GRPS District does not track their graduates to see how many enroll in college, but national data on poverty indicates that students from poverty backgrounds are less likely to enroll in college after high school graduation, and are 13 times less likely to earn a college degree than wealthy students. (National Action Council for Minorities in Engineering, 1997 Annual Report).

In addition, the GRPS School District's enrollment includes 75.7 % of students from ethnic minorities (2005-06 data). "Every year, across the country, a dangerously high percentage of students—disproportionately poor and minority—disappear from the educational pipeline before graduating from high school. Nationally, only about 68 percent of all students who enter 9th grade will graduate 'on time' with regular diplomas in 12th grade. While the graduation rate for white students is 75 percent, only approximately half of Black, Hispanic, and Native American students earn regular diplomas alongside their classmates." (Orfield, G., Losen, D., Wald, J., & Swanson, C. (2004). "Losing our future: how minority youth are being left behind by the graduation rate crisis.)

For the GRAPCEP high school graduates, the combined graduating classes of June 2001, 2002, 2003, 2004, 2005 and 2006 total 246 students. **Based on self-declared survey information as of fall 2006, 149 GRAPCEP high school graduates are enrolled in college. Of the 149 GRAPCEP students who indicated enrollment in college, 83 students or 56 % are currently enrolled in science, math or engineering programs. The high percentage of GRAPCEP students enrolled in engineering and science programs compares very favorably with the 20% of all students who took the ACT test in 2001 and indicated an interest in entering college programs in engineering, science or mathematics.** *Graphs 5, 5.1, 5.2, 5.3, 5.4, and 5.5* illustrate the GRAPCEP students' college majors for the high school graduating classes of 2001, 2002, 2003, 2004, 2005, and 2006. *Graph 6* illustrates the composite college majors for all GRAPCEP students enrolled in college.

The attached *Chart 1* indicates the specific **colleges and major for the 149 GRAPCEP high school graduates enrolled in college.** It is clear that the GRAPCEP students in SME chose majors reflecting the extensive exposure to careers in those fields given by GRAPCEP. The internships and co-ops arranged by GRAPCEP greatly influenced those students participating in them.

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Attached Chart (1-3) and Graphs (1-6)