

**The Worcester Pipeline Collaborative mission statement: “To encourage, educate and challenge minority and/or economically disadvantaged students for success in the health care and science professions, where they are traditionally underrepresented.”**

**1. What were the project’s objectives and to what extent has the project met these objectives?**

The project’s objectives continue to be aligned with the original proposal that was submitted to the Robert Wood Johnson Foundation. The University of Massachusetts Medical School (UMMS) and UMass Memorial Health Care (UMMHC) promote broader access for minorities to the Health Professions by striving with collaborating institutions through the Worcester Pipeline Collaborative (WPC) to dramatically increase the number of minority and/or disadvantaged students (K–20) in Central Massachusetts with the appropriate skill set and foundation.

**NORTH HIGH SCHOOL HEALTH SCIENCE ACADEMY (NHS-HSA)**

The original 1995 WPC objectives for the North High School Health Science Academy (HSA) were for 300 students (40%) of the student population to be enrolled in the Health Science Academy; eight accepted into baccalaureate programs; twenty-four continuing on to post-secondary education; eighty mentored per year; and forty participating in internships. *All goals have been met and/or exceeded.* The current NHS enrollment has increased to 998 students. The present enrollment in the HSA is 328 (33%) of the student population. Twenty-four students continued onto baccalaureate programs and twelve continued onto post-secondary education. As in previous years, the WPC continues to offer freshman students (ninety-six in year 5) in the HSA group mentoring (See *Table 1 for NHS &HSA enrollment numbers for years 1-5*).

**Table 1: Total Enrollment at North High School HSA (Years 1-5)**

	1995-96	1996-97	1997-98	1998-99	1999-00
<b>HSA Freshmen Enrollment</b>	30	70	90	90	96
<b>Health Science Academy</b>	158	208	258	301	328
<b>North High School Enrollment</b>	899	878	872	934	998
<b>HSA as Percentage of NHS Enrollment</b>	18%	24%	30%	32%	33%

During this past year, twenty-three 8<sup>th</sup> grade students in the HSA Grades 7-8 at Worcester East Middle School (WEMS) took the Fundamentals of Health Course taught by a NHS teacher at WEMS. Eighteen (78%) of the twenty-three continued on to NHS with ten (55%) of those NHS students enrolled in the HSA.

Sixty-nine seniors (exceeds goal of forty) participated in internship placements at UMass Medical School and UMass Memorial Health Care. Primarily from the Health Science Academy, they also include students from the Business and Early Childhood Pathways programs. The WPC continues to host the Senior Breakfast Awards Ceremony at UMMS (See Appendix for new NHS HSA Brochure & Breakfast Program). Students are encouraged to pursue higher education in the Health Professions before moving into the workforce. Outside evaluation also indicates that the WPC activities have been successful (*Table 2*).

**Table 2: Additional Indicators of North School/WPC Success**

Attitudes and Expectations of Health Science Academy Students versus other North High School Students – June 2000 retrospective study of North High School graduates conducted by the Massachusetts Institute for Social and Economic Research (MISER), University of Massachusetts, Amherst

- Health Science Academy graduates enter 4-year higher education institutions at a greater rate than other North High School alumni (58.8% HSA versus 48.5% other NHS)
- A greater percentage of HSA graduates felt well informed about higher education and career options, and better prepared for future careers than non-Academy alumni reported (70.3% HSA versus 64.8% other NHS)
- HSA alumni reported to be working in occupations related to their high school education at a greater frequency than non-Academy alumni (42.9% HSA versus 25.5% other NHS)

### WORCERSTER EAST MIDDLE SCHOOL (WEMS)

At WEMS, the original goal was to have 43% of the school population (301/700) enrolled in the Health Science Academy 7-8. Currently, 29% of the school population (220/781) is enrolled in the Health Science Academy. The lower than expected enrollment in the WEMS HSA is due to a school-based decision to have single 7<sup>th</sup> and 8<sup>th</sup> grade “clusters” (divisions, or groups) as part of the Academy. Thirty students continued on to the North High School Health Science Academy, and six entered the Health Assistant Program (HAP) at Worcester Vocational High School. Some of these students were part of the “*Fundamentals of Health*” course (referred to in NHS section) that was taught at Worcester East Middle School by a North High School HSA faculty member.

In the fifth year, two hundred and eleven of the two hundred and twenty students (*Table 3*) enrolled in the WEMS Health Science Academy participated in tours and shadowing activities at UMMHC and Fallon Health Care (another large healthcare provider in the city). The tours and shadowing visits are mentoring activities. A total of 211 students (goal of 40) were mentored in these activities. Twenty-two students in the Health Science Academy have become involved in the new “*After School Science Club*” that meets weekly and seeks to engage and mentor middle school students in science. Several of these Science Club students also participated in the “*Science Olympiad*” competition hosted by Assumption College (See photos in Appendix). The entire WEMS Health Science Academy population is involved in the Health Fair and Career Fair. During these events students interact with healthcare professionals in small groups. This provides the students with an opportunity to get first-hand information about career opportunities from health care providers.

**Table 3: Health Science Academy 8th grade Shadowing and 7th grade Tour Experiences**

<u>8<sup>th</sup> Grade Shadowing</u>	<u>Locations</u>	<u>Number of Students</u>
10/25/00	UMMS/UMMC	14
12/13/00	UMMS/UMMC	13
2/2/01	UMMS/UMMC	30
2/7/01	UMMS/UMMC	13
10/25/00	Fallon Healthcare	14
12/13/00	Fallon Healthcare	12
2/2/01	Fallon Healthcare	0
2/7/01	Fallon Healthcare	8
<b>Total # of students</b>		<b>104</b>
<u>7<sup>th</sup> Grade Tours</u>	<u>Locations</u>	<u>Number of Students</u>
11/8/00	UMMS/UMMC	12
01/10/01	UMMS/UMMC	30
3/20/01	UMMS/UMMC	14
5/30/01	UMMS/UMMC	25
11/8/00	Fallon Healthcare	12
01/10/01	Fallon Healthcare	0
3/20/01	Fallon Healthcare	14
<b>Total # of students</b>		<b>107</b>
<b>Total # of 7<sup>th</sup> &amp; 8<sup>th</sup> grades</b>		<b>211</b>

WORCESTER VOCATIONAL HIGH SCHOOL - HEALTH ASSISTANT PROGRAM  
(WVHS-HAP)

At WVHS the goal was to increase the number of students enrolled in the Health Assistant Program (HAP) to twenty-four, with sixteen going on to higher education and twenty mentored per year. By year four, sixty-nine HAP students were enrolled in the Program exceeding the goal.

The merger of the WVHS with the Worcester Public Schools during Year Three brought about many new and exciting changes for WVHS. New curricula offer competitive Allied Health Programs in addition to the Health Assistant Program. These programs, now known as the Worcester Vocational High School Allied Health Programs (**WVHS/AHP**), include Bio Technology Program, Environmental Program, Health Assistant, Medical Assistant, Pharmacy Tech, Veterinary Assistant and Home Health Aide (See Appendix for WVHS Brochure).

Currently there are only forty-five students enrolled in the Health Assistant Program. However, there are many other students enrolled throughout the (new) Allied Health Programs (Enrollment figures for the new programs are not available). This past spring 2000, thirteen seniors graduated from the Health Assistant Program (*Table 4*).

**Table 4: WVHS Total Enrollment in Health Assistant Program (HAP) for years 4 & 5**

	<b>Freshman</b>	<b>Sophomores</b>	<b>Juniors</b>	<b>Seniors</b>	<b>Total HAP</b>
<b>99-00 HAP</b>	20	21	15	13	69
<b>00-01 HAP</b>	14	8	13	10	45

QUINSIGAMOND COMMUNITY COLLEGE (QCC).

Worcester Technical Institute was an original WPC Partner. It was closed in 1998 and its programs were divided between WVHS and Quinsigamond Community College (QCC). Allied Health Programs once offered at Worcester Technical Institute and currently offered at Quinsigamond Community College include: Certificate Programs for Licensed Practical Nursing, Surgical Technology and Dental Assistant. Associates Degree Programs include: Medical Support Specialist, Opticianry, Allied Dental Services, Respiratory Care and Radiologic Technology. Many students from the Allied Dental Services and Radiologic Technology programs have been a part of the WPC Speaker's Bureau providing elementary students the opportunity to learn about their exciting careers. QCC Radiological Technology students

volunteered to participate in the Community Partners Promoting Positive Opportunities (C3PO) “*Know your Skeleton Night*” at Grafton Street Elementary School (See Appendix for photos).

### POTENTIAL & NEW PARTNERS

The Massachusetts College of Pharmacy and Health Sciences is in the process of negotiating a Memorandum Agreement. Information packages describing the WPC have been provided to the Colleges of the Holy Cross, Becker College, Massachusetts Podiatric Medical Society and New York College of Podiatric Medicine.

### ASSUMPTION COLLEGE

Assumption College began its five-year commitment in fall 1998. They immediately bought into and identified with the WPC mission. Assumption College is a private post-secondary partner supporting students in the Worcester Public Schools and the Plumley Village Science Club. As a host site for the annual *Science Olympiad* for middle schools, Assumption College extended the invitation to compete to the students enrolled in the WPC sponsored Science Clubs. This year, second time entry Plumley Village Science Club placed second in the “*Science of Fitness*” segment. Worcester East Middle School’s After School Science Club (first time entry) placed third in the “*Science Clue*” segment.

In addition to working with the Science Club students during this past year, Assumption College faculty members and students worked with the faculty and sixth grade students of Roosevelt Elementary School on a weekly basis. This newly built 650 students elementary school is a “feeder” to the WEMS Health Science Academy (grades 7-12). Assumption College students in science and health-related programs also benefit directly from the WPC partnership through access to the resources of the BASF Bioresearch Corporation, UMASS Memorial Health Care and University of Massachusetts Medical School.

Assumption College has committed additional financial support to the WPC efforts for the next five years. As Robert Wood Johnson Foundation (RWJF) funding for the WPC ends, Assumption College committed an additional \$2,000 for the current year and will double its contribution to \$10,000 for the next five years.

## WPC SCIENCE CLUB AT PLUMLEY VILLAGE

During the spring 2000 session, the program experienced increased enrollment and student commitment over the previous year. However, regular attendance decreased by half as the program competed with good weather and the baseball season (See Appendix, Plumley Village After School Program Chart). A new teacher was hired from Worcester East Middle School as the Science Club teacher. The WPC Laboratory Coordinator was able to provide him with materials needed for the class. The new Health Coordinator from Plumley Village Health Services provided excellent curriculum to the students (See Appendix, Plumley Village Health Coordinator's Topics). Classroom management and behavior issues were of concern on occasions. A highlight of the program was an end-of-the-year model rocket launch. Those students who built rockets the previous year were able to build rockets designed for the intermediate level.

In December 2000, eight students from Plumley Village Science Club were awarded second place in the *Science Olympiad* held at Assumption College. They competed against sixty other middle school student teams from seven suburban school districts. Several of these students were members of the Plumley Village Science Club Olympiad Team the previous year. Success for the second year of competition for the Plumley children is significant because it means that the first win was not just "freshman's luck," but knowledge of the subject matter. This second win gives them the incentive to look forward to next year's event. The Plumley Village Science Club members hold the title of the first students from the Worcester Public Schools to ever participate in the Science Olympiad (See Appendix for photos).

## SCHOLARSHIPS

Eighteen students enrolled at Worcester State College were recipients of the WSC/WPC \$1,000 scholarships. Fifteen students from the North High School Health Science Academy have also received twenty-eight scholarships and/or awards from non-WPC colleges. (See Appendix for complete list of Scholarships and Awards).

Additionally, three students were recipients of a "National Youth Leadership Forum Scholarship." The National Youth Leadership Forum on Medicine (NYLF) is a pre-medical education program reserved exclusively for high school students. These students have demonstrated academic achievement, outstanding leadership skills and a strong interest in

medicine as a career. The NYLF scholarships allowed three WPC students to participate in NYLF programs offered in California.

Assumption College also provided two academically qualified students identified by the WPC and NHS counselors with full financial aid packages this year. Continuance of the financial aid beyond the first year for the matriculated WPC students at Assumption College will depend upon their earning and maintaining a minimum cumulative G.P.A. of 2.8.

### FAMILY SUPPORT

One anticipated activity detailed in the original grant addressed the need for family support regarding issues of curricular changes. The Pipeline Lab continued to increase the number of contacts. In June 2000, the Laboratory Coordinator received a mini-grant for \$5000 to the Massachusetts Department of Education in order to continue Community Partners Promoting Positive Opportunities (C3PO), and the Massachusetts Department of Education's Parent Involvement Project (Mass-DOE, PIP) funded by the National Science Foundation.

The WPC Program and Laboratory Coordinators took the leadership roles for the project. Other community partners involved in this effort had administrative changes within their institutions that prevented their participation in this parent group initiative. The WPC through C3PO provided twelve training workshops for parents and families at the Family Literacy Center at Grafton Street Elementary School (a WPC school). WPC/C3PO organized three large Parent Discovery Night Workshops, the last of which had over sixty-eight parents and their children in attendance (See Appendix for Grafton Street School PIP). Parent take-home science kits were distributed to participants so that parent's could continue additional science activities at home.

When opportunities arose to contact more parents in other venues (i.e. area health fairs, etc.), the WPC distributed the same take-home science kits to health fair participants. These events included the African American Festival at Worcester State College (120 kits), UMMS Latino Awareness Health Fair at the Worcester Housing Authority (40 kits), the Kids Fair at the Centrum (300 kits), Take Your Daughter to Work Day at the UMMHC, Memorial and University Campuses (150 kits), Plumley Village Health Fair at Plumley Village (75 kits) and the Teddy Bear Clinic at the Greendale Mall (150 kits). This fall the C3PO group continued holding monthly meetings and bi-weekly parent math and science training workshops at Grafton Street Elementary School.

The UMMS Graduate School of Nursing (GSN) has become more active with the appointment of a new Dean. This year the GSN initiated a Community Service-Learning requirement that takes teams of Nurse Practitioners (NP) into the community. Two of these teams have chosen to work with two of the WPC North Quadrant Elementary schools (Grafton Street and Roosevelt). The parents from the Grafton Street School C3PO initiative benefit from this relationship from discussing health related issues that are of concern to them. The NP team surveyed faculty and staff members at the Roosevelt School for a needs assessment. The majority of responses from those surveyed requested the NP team share information regarding nutrition and exercise. The NP students have also implemented a monthly news letter for faculty and staff at the schools focusing on topics of interest. Some of the topics in the news letters included, “Aim for a Health Lifestyle: Start with a Healthy Weight,” “How to Evaluate your BMI (Body Mass Index)” and “A Plan for Lowering Cholesterol: Seven Top Strategies.”

#### SUMMER SCIENCE CAMP at WEMS

The WPC Summer Science Camp 2000 was titled “Science Odyssey 2000.” Session One was held June 19<sup>th</sup> - 30<sup>th</sup>, and Session Two was held July 5<sup>th</sup> - 14<sup>th</sup>. (See Appendix for Summer Science Camp Brochure). Since no middle school teachers were interested in teaching as in previous years, two high school teachers were hired. They regretfully, found working with middle school-aged students to be quite difficult. A member of the WPC staff had to be available each morning of the program to observe and assist administering the lesson plans.

Enrollment was between fifteen to eighteen students per session. In Summer 2000, the “*Gaining Early Awareness and Readiness for Undergraduate Programs*” (GEAR-UP) counselors at WEMS worked closely with WPC staff to provide meaningful curricular-based field trips each week. GEAR-UP, a new national program to encourage young people to have high expectations, targets low-income students and their families. GEAR-UP funded three of the four field trips scheduled for the Summer Science Camp (Summer Odyssey) students. GEAR-UP counselors also assisted in recruiting students and chaperoned field trips.

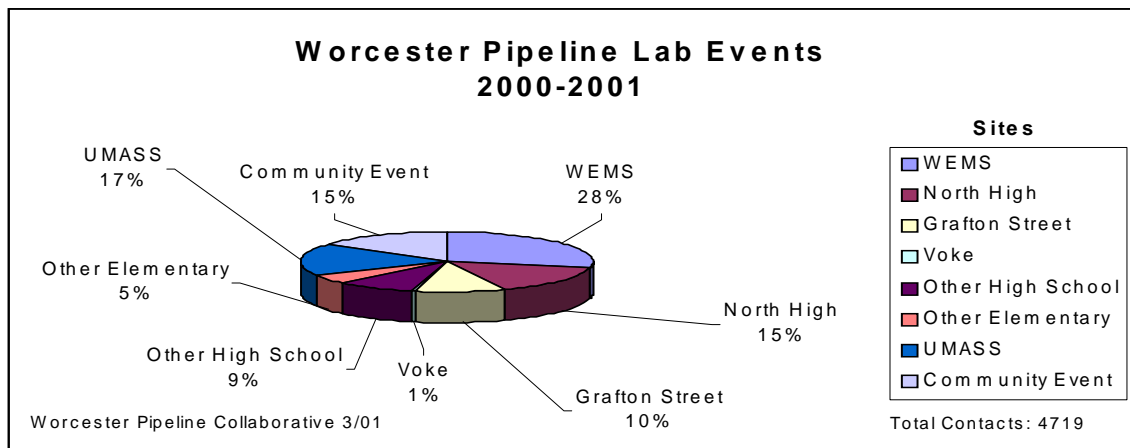
The success of this camp was measured by:

- 1) increased enrollment (from fifteen to eighteen students) weekly.

- 2) exit surveys filled out by the students 90% of the students stating that they would return for another Summer Science Camp experience (See survey form in Appendix).

WPC LABORATORY

As indicated by Graph 1 & 2, the Pipeline WPC Lab continues to be utilized by the North Quadrant schools and the activity level is very high. In WPC Year Five, 4719 students conducted scientific investigations through the WPC Laboratory; up from 3269 in Year Four. Due to increases in transportation costs, only 563 students visited the WPC Lab on Queen Street. The remaining 4,156 students conducted investigations at either school sites, the UMASS Clinical Anatomy Resource Center or in the community under the direction of the WPC Lab Coordinator. The majority of Pipeline Lab services (53% of all contacts) involved students from the north quadrant of Worcester: Worcester East Middle School (WEMS), North High School, and parents and students from the Grafton Street Elementary School Literacy Center.



**Graph 1: 2000-2001 Worcester Pipeline Lab Contacts.** The Pipeline Lab provided a variety of hands-on science experiences to the Worcester area. This year featured an increase in community based outreach events, many of which were designed to reach North Quadrant parents.

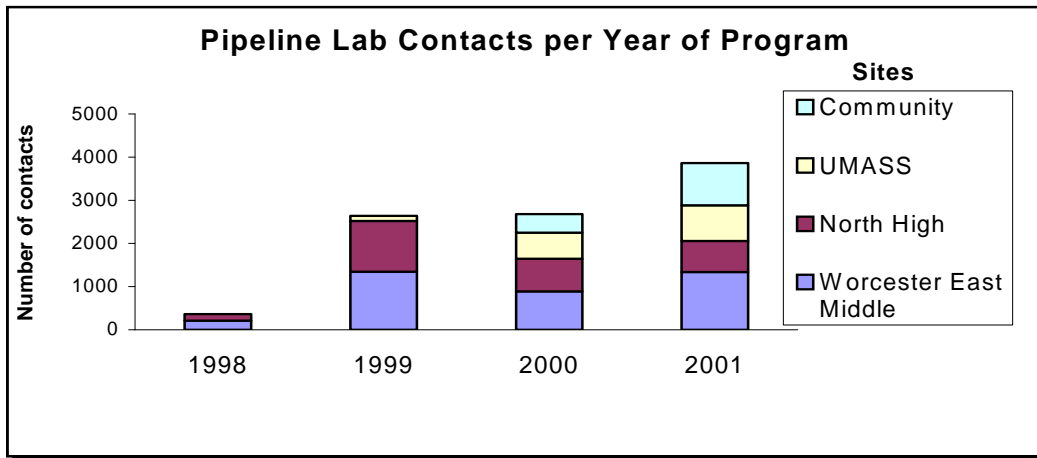
This year the WPC Laboratory had a significant decrease in participation from the Worcester Vocational High School (WVHS). WVHS funding of faculty salaries for after school program was delayed, resulting in a late start for the after school program. The After School Science Program at WVHS was seen by students as punitive, designed to earn missing science credits. Students were more concerned with being physically present at the lab, rather than

motivated by an interest in science. The program got off to a limping start. As of June 2000, both teachers left the Commonwealth for a new job or retirement.

As noted last year, many of the teachers at North High School (NHS) have been mentored in lab protocols in prior years by the WPC Lab Coordinator. They feel comfortable asking for “materials only” for labs. Students from NHS continue to come to the WPC Laboratory to utilize equipment not currently available at the school site (i.e. gel electrophoresis labs). Because of high transportation costs, the WPC Lab Coordinator and the Science Department Chair at NHS agreed to limit visits to the WPC Lab to those labs not easily done in the classroom or requiring special equipment. Doherty Memorial High School continued to come weekly for laboratory investigations connected with the Advanced Placement Chemistry (AP) class.

The WPC Lab Coordinator participated in a summer workshop on the utilization of probeware in the science classroom. A Massachusetts Academy for Science and Mathematics faculty member, who is a certified Vernier Probeware Consultant, provided the training at the workshop. Vernier manufactures the probeware. The WPC Lab Coordinator has become familiar with a variety of the probes and is a resource for teachers at NHS and at WEMS. The Vernier probeware and Texas Instruments Graphing Calculators were purchased by WPC through a \$20,000 grant from the Massachusetts Department of Education. NHS faculty also obtained training during a one-day professional development summer session. This exciting development has provided NHS students the opportunity to be introduced to this probeware at the school site. Temperature, gas pressure, colorimeter, pH, dissolved oxygen, motion detectors and conductivity probes were utilized in fall 2000 lab investigations at NHS and WEMS.

The Pipeline Laboratory continues to support the Advanced Placement Biology lab course at NHS. Two AP-Biology labs were successfully conducted utilizing the new probeware. Research labs in the UMMS Program in Molecular Medicine support this course.



**Graph 2: Pipeline Lab Contacts per Year of Program** The number of students contacted each year through the WPC Lab continues to grow. While the number of Worcester East Middle School and North High contacts remain steady, there is a marked increase in the number of community based contacts.

### MENTOR PROGRAM

The WPC Mentor Coordinator placed sixty-six mentors impacting 378 students (*Table 5*) in North Quadrant schools during Year Five of the project. The decrease in the number of students impacted was due to the increase in the number of mentors assigned to one-to-one mentoring in order to meet the individual needs of WPS students served within the program. In previous years, many of these mentors/tutors were assigned to WPS students in group settings.

**Table 5: Mentor Impact on Mentee's**

	1996-1997	1997-1998	1998-1999	1999-2000	2000-2001
<b>College Mentors / Allied Health Professionals*</b>	7	49	48	67	66
<b>Number of Mentees Impacted**</b>	42	220	345	415	378

\*Mentor numbers only reflect the total number of mentors assigned as of January 31, (FY grant year).

\*\*Mentee numbers vary yearly depending on mentors wishes to work with a class or individual student(s).

The Mentor Coordinator processed 150 applications and CORI forms (See Mentor /Database chart in Appendix that details the breadth of partnership connections.)

The following mentoring enrichment activities listed below took place within the individual WPC partner schools during year five. (Table 6) further describes these activities.

NORTH HIGH SCHOOL HEALTH SCIENCE ACADEMY:

- Group Mentoring
- Guest Speakers covering a variety of health care topics
- Mentors involved in MCAS Mathematics preparation (offered to general NHS population)

WORCESTER VOCATIONAL HIGH SCHOOL HEALTH ASSISTANT PROGRAM:

- Guest Speakers

WORCESTER EAST MIDDLE SCHOOL:

- After school science club; mentors assist students with science activities
- One-to-one science and math tutoring; mentors tutor students in math and science skills

LAKE VIEW ELEMENTARY SCHOOL:

- Mentor is paired with one or two students to assist them in various subjects
- Kids-to-College program coordinated by UMMS students offers college and career advice

MULTIPLE INTELLIGENCES AT DARTMOUTH STREET ELEMENTARY SCHOOL:

- Mentor is paired with one to two students for math tutoring
- Mentor assists students as Projects Fair Coach

ADAMS STREET EAST SIDE PREPARATORY SCHOOL:

- Mentors assist students with hands-on science activities
- Mentor is with students to assist with math skills

BELMONT STREET COMMUNITY SCHOOL:

- Mentor is paired with one to two students to assist with math and reading skills
- Mentors are paired to assist students with general academic studies and sports motor skills

ROOSEVELT SCHOOL:

- Mentors provide science class mentoring
- GSN students are working with parents and faculty

GRAFTON STREET SCHOOL:

- Mentor assists students in various subjects in after school homework center
- UMMS Professional is paired to assist students in various subjects in after school homework
- GSN students are working with C3PO parents regarding nutrition issues

GRANITE STREET ELEMENTARY SCHOOL:

Mentors are tutoring in math and science

RICE SQUARE:

- Mentors assist teacher with hands-on science activities in the classroom

CITY VIEW ELEMENTARY SCHOOL:

- A Mentor assists the Science Coordinator preparing science activities and assist students with activities

**Table 6: WPC Partner School Activities**

Name of School	One-to-One	Group	Tutoring	Guest	Visiting	Project Fair	Professional
	Mentoring	Mentoring	Math/Sci.	Speakers	Scientist	Coaches	Development
North High School		X	X	X	X		X
Worcester Vocational High School				X			X
Worcester East Middle School	X		X	X	X	X	X
Lake View School	X				X		
Multiple Intelligences at Dartmouth Street	X	X	X			X	
Adam Street School	X	X	X	X			
Belmont Street School	X	X	X				
Roosevelt School	X	X			X		X
Grafton Street School	X		X		X	X	X
Granite Street School	X		X				
Rice Square School		X					
City View School	X					X	

**2. What internal shortfalls, limitations or challenges did the project encounter that were related to its funding level, design, collaborations, staffing operations, or other project factors? Did any challenges internal to the National Program affect the project?**

Throughout the five-year period, the WPC has not to suffered any shortfalls in funding. New partners joined the WPC when there were losses of contributing partners. This past year, the original Program Secretary took a another position. This presented a challenge because she vacated the position during the end of our summer program. Temporary secretaries were hired and trained because funding for year six had not yet been secured. With the sixth year funding

in place, a permanent secretary was hired. She has made an easy transition to the UMMS system and has proven to be a real asset to the program.

The second challenge is the loss of charter staff members at partner institutions who were instrumental in providing additional on-site support and opportunities for programs. The *“Fit For Life Collaborative”* at WEMS shared the responsibility of tours and shadowing opportunities between the WPC and Fallon HealthCare System. When there were personnel changes made within Fallon, all of the responsibility reverted to the WPC to place all students at various locations throughout UMMS and UMMHC. There have been minimal core personnel changes in the past five years. No challenges at the National Program Office have affected the project.

### **3. What problems or successes were caused by factors external to the project?**

#### **CHALLENGES**

Due to the nature of the WPC, all problems and successes were related by internal factors. A continuing challenge is the science curriculum at WEMS in the Health Science Academy (HSA). One of the goals has been to link WPC activities with school-based curriculum. The WPC continued to work with WEMS administration and teachers to create a set of “standard labs” that meet the school’s evolving curriculum needs.

The after school science program at Worcester Vocational High School ended due to the departure of both science teachers to relocate to different parts of the country.

A key challenge to the Worcester Public Schools is the pressure of responding to mandated statewide testing (the Massachusetts Comprehensive Assessment System MCAS). Many Worcester students perform poorly on the MCAS. WPC secondary school partners, WEMS and NHS have significant numbers of students failing on the MCAS. Many after school tutoring and enrichment programs have been put in place at these schools to rectify this growing problem.

#### **SUCSESSES**

A new environmental science teacher was hired at Worcester East Middle School this year. She enthusiastically supported the mission of the WPC and encouraged other WEMS-based teachers to participate in WPC opportunities on a regular basis. This teacher and a

UMMS post-doctoral fellow co-teach the WEMS After School Science Club. Each week this diverse group of students (18–22) participated in the Science Club meetings.

Another success is continuing the Massachusetts Department of Education (Mass-DOE) Parent Involvement Project (PIP) that was started at Grafton Street Elementary School. Because of the leadership of WPC staff and the cooperation of the school and parents, this group has been provided with many opportunities for growth. They have participated in a number of community events with the WPC staff (listed previously in report on page 7). Parental efforts continue to increase dramatically at training sessions and Parent Discovery Night presentations. This past fall's event titled "Know Your Skeleton Night" was a real WPC success. It involved college students from Quinsigamond Community College's Radiologic Technology program, medical students from UMMS, Grafton Street teachers, trained parents, and WPC staff. Two UMMS minority students who had an opportunity to interact with other minority parents who had no idea there were minority students (Hispanic) attending Medical School. This exchange was an eye-opening educational experience because parents became aware that their children could also become medical school students one day, if they are academically prepared.

The Plumley Village relationship with the WPC has become a UMass system-wide initiative. The President's Office for the university system has led the collaborative effort for all five-campus. Through the President's Office, funding was secured from the Nellie Mae Foundation to support five system-wide UMass programs similar to the WPC. For Plumley Village, the funding has provided a Youth Program Coordinator that allowed the Homework Center to include high school students for the first time. Previously, the Homework Center was only able to assist elementary and middle school students.

In April 2000 the new 650-student Roosevelt School opened. This Environmental and Health Science Academy will serve as the official feeder for the Health Science Academy grades 7-12. There is 7,129 sq. ft. available to the WPC at Roosevelt School. Two classrooms totaling 2,448 square foot are dedicated for WPC activities. These rooms may also be used as laboratories. The nearby Library Room (3,090 sq. ft.) and Computer Room (1,591 sq. ft.) are also available for WPC related activities. (See Appendix for Roosevelt's School Brochure).

The other North Quadrant elementary schools continue to benefit from WPC programs (i.e. Visiting Scientists, Project Fair Coaches, Mentors, Tutors, Professional Development and Service Learning Programs.)

The Worcester Public Schools has secured funding for a new North High School. Five thousand square feet has been identified for the WPC's new home in the state-of-the-art facility (See Appendix for Proposal Letter & floor plan). Ground breaking is scheduled for mid-year 2002. This definite measure to institutionalize the WPC within the WPS reinforces the significant impact that the program has had on North Quadrant students during the last five years. This certainly redefines the term institutionalized commitment.

**4. If you are working in collaboration with other organizations, or depend on other organizations or institutions to meet the objectives of this project, how did those collaborations work?**

Effective communication keeps the goals and objectives in the forefront. Strong working relationships exist among the partner institutions such that the WPC continues to remain a progressive and cohesive unit providing services throughout North Quadrant Schools. Representative of our partner institutions also communicates WPC goals and objectives within their own institutions in order to maintain support for through key administrators. The Steering Committee continues to hold monthly meetings and the Executive Committee meets quarterly with over 90% attendance at all meetings (see Appendix for complete committee lists).

**5. With a perspective on the entire project, what have been the key communications activities?**

The Co-Principal Investigators, Program Coordinator, Mentor Coordinator and the Laboratory Coordinator made several presentations at conferences, community events and partner institutions. Program materials and science kits were distributed at many of these events. However, one of the highlights of the year was UMMS hosting of the National Association of Medical Minority Educators Northeast Regional Conference held March 9-12, 2000. This gave us the opportunity to showcase the WPC to other medical schools in the Northeast.

**See Bibliography section for detailed list of presentations and publications.**

**6. What were the project's other source of support?**

The project receives matching funds, support and a tremendous amount of cooperation from our partner institutions. The Technology Center opened December 6, 1999, during the WPC's Fourth Year. We will seek funding to staff the Technology Center during the future years of the program. In addition, we have received several

Massachusetts Department of Education grants in order to continue the Parental Involvement Projects (PIP) at Grafton Street School. A Howard Hughes Medical Institute grant funds significant development of the K-6 Science curriculum in the North Quadrant Schools. (See Table 7 for income provided for Year 5).

**Table7: Income provided from partners-Year 5**

University of Massachusetts Medical School	\$25,000.00
Worcester Public Schools	\$20,000.00
WPS Support for Mentor Coordinator	\$20,000.00
Quinsigamond Community College	\$ 5,000.00
BASF Bioresearch Corporation	\$10,000.00
Assumption College*	\$ 5,000.00
Science Club at Plumley Village	\$ 250.00
Worcester State College (Scholarship support **)	\$ 9,000.00
MASS, DOE/Parental Involvement Project (PIP)	\$ 5,000.00
MASS, DOE/Venier Probeware (CBL's)	<u>\$19,206.00</u>
<b>Annual dollar commitments from WPC Partners</b>	<b>\$118,456.00</b>
Robert Wood Johnson (HPPI Initiative)	\$85,066.00
<b>Total Program Annual Program Budget</b>	<b>\$203,522.00</b>
<b>In Kind Services</b>	
UMass Memorial Health Care (4,212 square ft., program space valued at)	<b>\$ 52,500.00</b>
UMass Medical School - utilities, postage, telephones	
<b>* Also provides two financial needs packages yearly</b>	
<b>** Recipients have been identified</b>	

**7. What was the significance of what was accomplished by the project?**

The WPC has worked with many students who continue to move through the pipeline. Many of the process goals having been met as the fundamental principles of the HPPI initiative continue to be addressed. To this end, the WPC expects to fully develop its databases to track students as they move through the pipeline and reach their career goals. The plan is to carefully follow students into their college years and beyond.

The WPC will finally create a web site for the program. The WPC lab needs to continue to provide materials and labs for teachers. Portable kits are being developed for popular labs, such as "Isolating DNA from Onion." Experienced teachers need only borrow the plastic suitcase-type kit in order to run the lab. Solutions and materials are refilled at the WPC Lab using student interns. This method will be expanded next year for other popular labs.

Understanding body systems is a major curriculum theme. Professional development for elementary school teachers around this theme is necessary. In Year five, the WPC Lab Coordinator recruited a cadre of medical students willing to be members of the “Pork Heart Brigade,” volunteers able to visit schools and help with dissections. Medical school students are usually in classes during K-12 school hours. Utilizing them for after school workshops for teachers is a goal for Year 6.

**8. What lessons did you, as project director of a project in a National Program, learn from undertaking this project?**

One of the most valuable lessons learned over the past five years is how important it is to keep the lines of communication open among the partner institutions. We recognize the different management styles that exist among partner institutions and how to work with those differences in order to collaborate effectively. Secondly, I’ve learned the importance of collecting pertinent data for the purposes of evaluating the program on an on-going bases.

**9. What are the post-grant plans for the project if it does not conclude with the grant?**

The post-grant plans are to continue the project. All of the partners with the exception of Worcester State College have agreed to double their financial commitment to the program for the next two to five years (See Letters of Support in Appendix). There are several area colleges interested in joining the WPC. There are also significant multi-year grants pending from NSF and HCOP. The \$315,000 NSF grant provides after school programming over a three year period. The five year HCOP grant has approved and funding is pending. (*See Table 8 for projected income for Year 6*).

**Table 8: Projected Income from WPC Partners – Year 6, February 2001 – June 2002**

University of Massachusetts Medical School	\$ 50,000.00
Worcester Public Schools	\$ 48,333.00
WPS Support for Mentor Coordinator	\$ 20,000.00
Quinsigamond Community College	\$ 7,000.00
Abbott Bioresearch Center (formally BASF)	\$ 10,000.00
Assumption College*	\$ 12,083.00
Science Club at Plumley Village	\$ 500.00
Howard Hughes Med. Inst./Summer Science Camp	\$ 11,500.00
MASS, DOE/Parental Involvement Project	\$ 5,000.00
MASS, DOE/Vernier Probeware (CBL's)	\$ 35,000.00
NSF WPC ASCEND Initiative (first year)**	<u>\$103,485.00</u>
<b>Total Annual dollar commitments from WPC Partners</b>	<b>\$302,901.00</b>
<b>In Kind Services</b>	
UMass Memorial Health Care (4,212 square ft., program space valued at)	<b>\$ 52,500.00</b>
UMass Medical School - utilities, postage, telephones	
* Also provides two financial needs packages yearly	
** We are in final negotiations with NSF	

#### **10. How do you assess the Foundation's role and the NPO's role?**

RWJF/AAMC creation of the HPPI in 1995 catalyzed collaborations in Central Massachusetts to become the partnership called the Worcester Pipeline Collaborative (WPC). At that time UMass Medical School already supported the health magnet program at North High School. The HPPI impetus encouraged UMMS, and other higher education institutions, community and business partners to commit to a K-20 effort that aims to reach nearly one quarter of the students in the Worcester Public Schools.

The original HPPI guideline to have partners commit "real" matching dollars has been significant. The total funding (RWJF plus matching dollars) now supports 3.5 core staff. As RWJF funding ends, partners have challenged themselves to double original financial commitments. We are confident that WPC activities will be appropriately funded and will continue in future years.

It would have been appropriate for the HPPI to have addressed national issues regarding educational standards and assessments. WPC members are very committed to Education Reform in the Commonwealth of Massachusetts and have a sense that other HPPI sites also are

confronted by their states' reform initiatives. This topic could have been a significant part of the HPPI programming organized by the NPO.