



**Massachusetts Title II-D Model Technology
Integration Grants (Fund Code 165)
Year End Summary Report for 2004-2005**

Prepared for the Massachusetts Department of Education

December 2005



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Introduction

Purpose, eligibility and awards

Funded through Title II-D of the No Child Left Behind Act, the Massachusetts Department of Education's Model Technology Integration grant program (fund code 165¹) identifies exemplary curriculum projects that have used advanced technology to improve student learning and supports teachers who have implemented these projects in mentoring other teachers in adopting the projects in their classrooms. Through these projects, teachers also help students gain technology skills as indicated in the Massachusetts Recommended PreK-12 Instructional Technology Standards.

Eligibility is limited to "high-need local educational agencies" or partnerships including one or more high-need districts. (See appendix for the FY 2005 Title II-D high need criteria and a list of high need districts.) The Department received 62 proposals for new projects to begin in the 2004-05 school year. Total requests exceeded \$1.8 million. Of the proposals received, 25 were funded to support 29 districts, including 23 classified as high-need. Total awards were nearly \$750,000 with individual awards ranging from \$29,474 to \$30,000. There were four districts that each received two grants. Table 1 provides an overview of the awards by district. Brief descriptions of each grant can be found at <http://www.doe.mass.edu/edtech/grants/fy05/fc165.html>

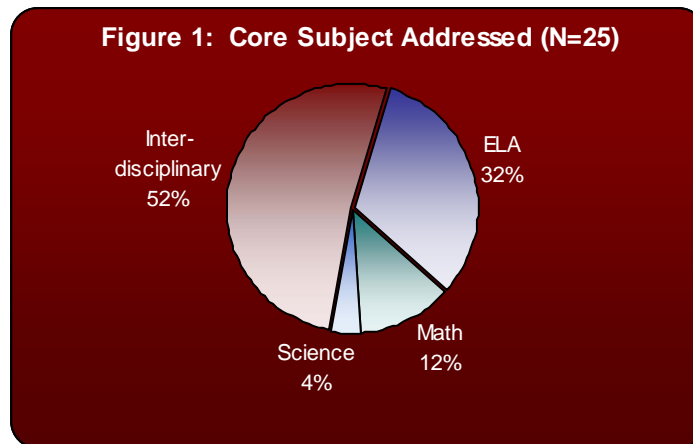
Table 1: FY 2005 Awards for Fund Code 165

Recipient	Amount	Recipient	Amount
Amherst Public Schools	\$30,000	New Bedford Public Schools	\$29,996
Ashland Public Schools	\$30,000	New Salem-Wendell Union School District	\$30,000
Boston Public Schools (2 grants)	\$59,648	North Adams Public Schools	\$30,000
Brockton Public Schools (2 grants)	\$60,000	Pioneer Valley Regional (2 grants)	\$60,000
Chelsea Public Schools	\$29,474	Plymouth Public Schools	\$30,000
Fall River Public Schools	\$29,966	Quincy Public Schools	\$30,000
Hampshire Educational Collaborative	\$30,000	Savoy Public Schools	\$30,000
Holliston Public Schools	\$30,000	West Springfield Public Schools	\$29,710
Ipswich Public Schools	\$30,000	Westfield Public Schools	\$30,000
Martha's Vineyard Regional School District	\$30,000	Worcester Public Schools (2 grants)	\$60,000
Mohawk Trail Regional School District	\$30,000		

Core subject areas and grade-levels

Grantees were asked to identify the core subject area(s) that would be addressed by their projects. Figure 1 shows the distribution of subject areas among the awarded grants. Thirteen of the projects (52%) were interdisciplinary in nature. Eight of the projects (32%) addressed language arts, three (12%) mathematics, and one (4%) science.

¹ A copy of the FY 2005 RFP for Fund Code 165 can be found at <http://finance1.doe.mass.edu/Grants/grants05/rfp/165.html>



There is a wide variation in the grade-levels impacted by each project. Table 2 shows the number and percentage of projects impacting each of the following grade-level categories: elementary (PreK-5), middle (6-8), and high school (9-12). These groupings are consistent with those generally used by the US Department of Education for reporting related to No Child Left Behind. The reader should note that many projects impacted students at multiple grade-levels, thus the percentages shown sum to more than 100 percent.

Table 2: Grade-levels Impacted			(N=25)
Grade-level	Number of projects	Percentage of projects	
Elementary School (PreK-5)	13	52%	
Middle School (6-8)	12	48%	
High School (9-12)	11	44%	

About this report

The remainder of this report summarizes data gathered through year-end reports submitted by each 165 grantee using a newly developed online survey component of the Department's Massachusetts Online Network for Education (MassONE)². The reporting template was available from August 1 through September 26, 2005. It was reopened in November so that several grantees could finish their incomplete reports or correct apparent mistakes. Reported expenditures are based on grantee estimates as the project was coming to an end. At the time not all of the project accounting had been completed. As such, dollar figures in this report are generally rounded so as not to indicate inappropriate levels of accuracy.

² Formerly the Virtual Education Space (VES)

Budget and Expenditures

For fiscal year 2005, a total of about \$690,000 was awarded to the 23 grantees that reported complete budget and expenditures information³. At year-end, approximately \$635,000 was spent, leaving about 8% of the FY 2005 available funds unspent. Figure 2 and the accompanying table display the proportion of expenditure by category. At 42% the largest expenditure category was hardware. Professional development costs accounted for 36%, exceeding federal guidelines that require at least 25% of the Title II-D funds to be spent on professional development. Administrative expenses accounted for 13% and software purchases 9% of total costs.

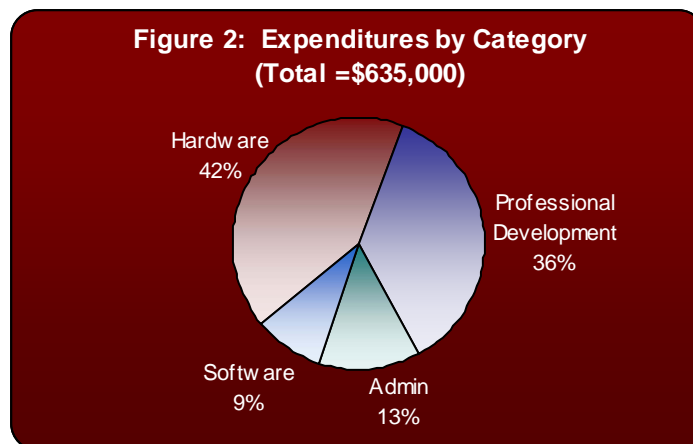


Table 3: Approximate Expenditures by Category

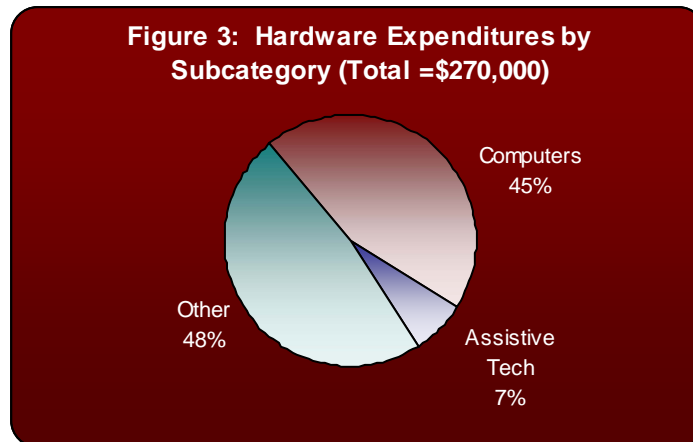
Category	Approximate Expenditure	Percent of Award
Hardware	\$270,000	42%
Professional Development	\$230,000	36%
Administrative	\$80,000	13%
Software	\$55,000	9%
TOTAL	\$635,000	

Hardware Purchases

Hardware purchases were reported by 19 of the grantees. On average, these grantees spent more than \$14,000. As illustrated by Figure 3, a further breakdown of total hardware expenditures reveals that:

- 45% (\$120,000) was used to purchase desktop and laptop computers.
- 7% (\$20,000) was used to purchase assistive technology hardware.
- 48% (\$130,000) was used for other hardware purchases including networking hardware, digital imaging and editing equipment, digital projectors, printers, flash drives, handhelds, equipment carts and miscellaneous accessories.

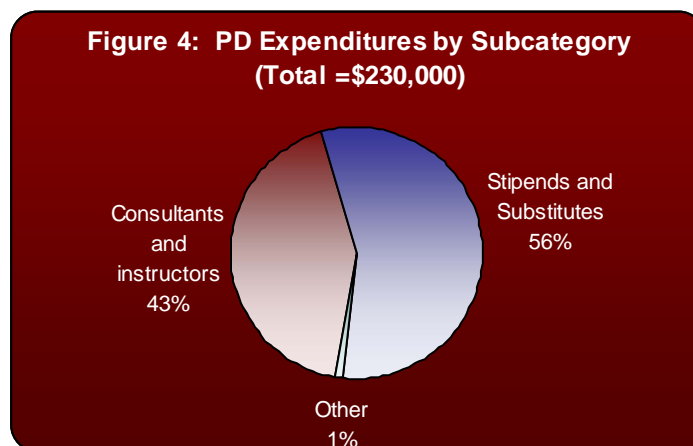
³ Boston's Literacy and Technology grant was unable to separate grant expenditures from other funding sources. Pioneer Valley's May the Force Be With You grant did not report any expenditures information.



Professional Development Expenditures

On average, grantees spent more than \$9,000 on professional development. As illustrated by Figure 4, a further breakdown of total professional development expenditures reveals that:

- 57% (\$131,000) was used for participant stipends or substitute teachers, which allowed teachers to participate in professional development during the regular school day.
- 42% (\$97,000) was used for consultant and instructor costs.
- 1% (\$2,000) was used for other professional development expenditures

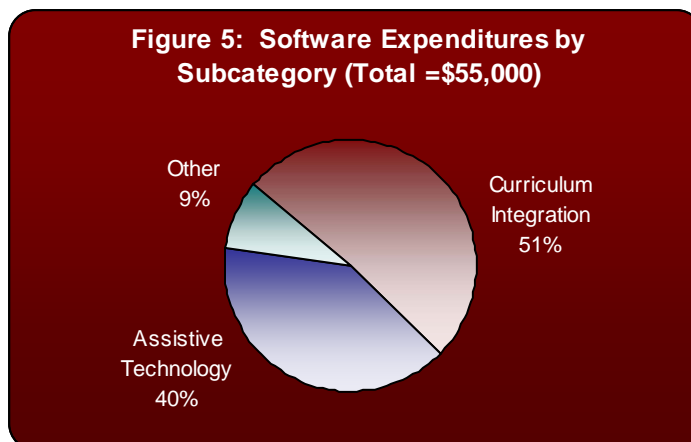


Software Purchases

Software purchases were reported by 16 grantees. Among them the average software purchase was about \$3,500. As illustrated by Figure 5, a further breakdown of total software expenditures reveals that:

- 51% (\$28,000) was used to purchase curriculum integration software. Of this, 75% (\$21,000) was used to purchase software subscriptions and the remaining 25% (7,000) was used for one-time purchases.
- 40% (\$22,000) was used to purchase assistive technology software.

- 9% (\$5,000) was used for other software purchases.



Administrative Expenditures

Remaining expenditures can be described as follows:

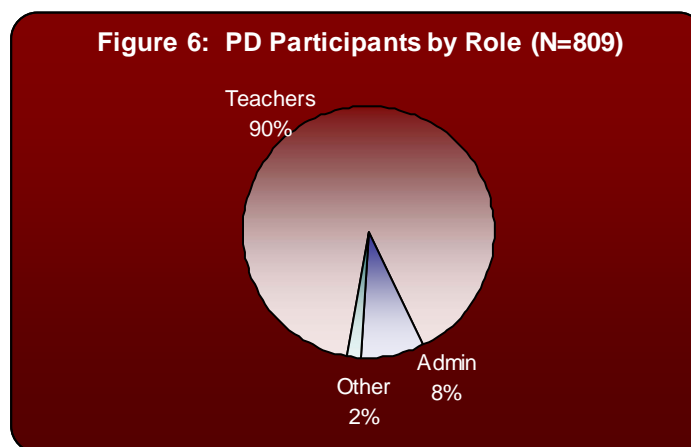
- 6% of total expenditures (\$41,000) are attributable to project coordination and administrative costs including program evaluation.
- 4% of total expenditures (\$24,000) are attributable to supplies.
- 2% of total expenditures (\$15,000) are attributable to other costs such as maintenance and support and travel.

Program Activities

Professional Development Activities

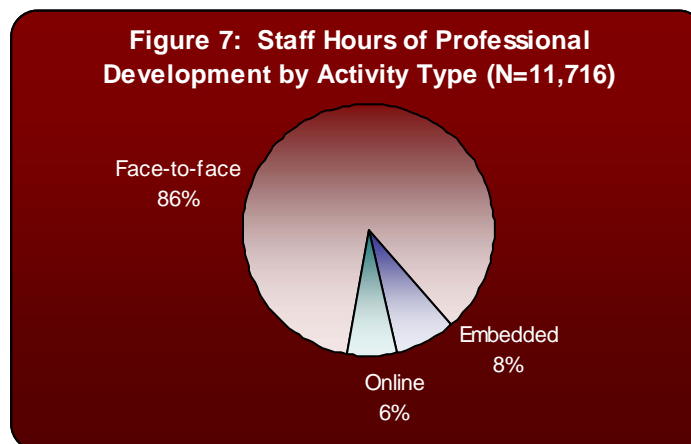
During FY 2005, Fund Code 165 supported nearly 200 professional development events serving more than 800 individuals. The average number of professional development participants was 32 per project with actual participation ranging from as few as 11 to as many as 158 individuals. Grantees reported a total of 245 individuals completing at least 45 hours of grant-funded professional development. On average each grant had about 12 participants completing 45 hours or more with actual figures ranging from none to 43 individuals. As shown in figure 6, 90% of the 165 professional development participants were teachers and 8% were administrators.

Figure 6: PD Participants by Role (N=809)



Grantees were also asked to report on the number of staff hours of professional development provided for three distinct types of professional development: face-to-face activities such as workshops, seminars and study groups; embedded activities such as coaching or mentoring; and online training. In total, the grantees provided more than 11,700 staff hours of training. As shown in figure 7, 86% of the hours were provided through face-to-face activities, 8% through embedded activities, and 6% through online professional development. It is important to note that embedded activities can be difficult to track and, thus may be underreported.

Figure 7: Staff Hours of Professional Development by Activity Type (N=11,716)



Hardware and Software Used

Grantees were also asked to identify the various types of hardware and software being used in their programs. Table 4 shows each of the items listed in the survey and the number of grantees using them, in descending order. The most commonly used items were multimedia presentations, online resources/websites, digital cameras, spreadsheets, MassONE and scanners – each used by more than 50% of the grantees.

Table 4: Hardware and Software Used		(N=25)
Item	Number of projects	
Multimedia presentation	22	
Online resources/websites, streaming video/audio	19	
Digital camera	19	
Spreadsheet	14	
MassONE (formerly VES)	13	
Scanner	13	
Curriculum software (e.g., Geometer's Sketchpad, etc.)	10	
Web design software (e.g., Front Page, Dreamweaver, etc.)	9	
Digital camcorder	7	
Other online teaching system (e.g., UMass Online, etc.)	5	
Electronic whiteboard	5	
Database	4	
Handheld computer	3	
Probes/data loggers	2	
TestWiz	2	
Videoconferencing	2	
Graphing calculator	1	
NCS Mentor	0	
Other	9	

Program Impact

Addressing Barriers to Effective Use of Technology

Each grantee was asked to identify the extent to which their Title II-D grant had allowed their district, and any partnering districts, to address specified barriers to effective use of technology. Table 5 summarizes grantees responses to each of the specified barriers. N represents the number of districts indicating that they have faced such a barrier and the percent represents the proportion of those districts indicating that grant funds have allowed them to substantially or fully address problems with that barrier. For instance, the most commonly identified barrier was the lack of adequately trained instructional staff. In all, grantees indicated that this was a problem for 33 districts and that nearly two-thirds of those districts were able to use grant funds to substantially or fully address the problem.

Based on these responses, it appears that grant funds were most effective in addressing barriers related to the training of instructional, technical, and administrative staff. In addition, about one-third of districts reporting software related barriers found grant funds to be helpful in this regard. Most districts also identified hardware issues as barriers, with more than one quarter reporting that grant funds allowed them to substantially or fully address their hardware barriers. Relatively few districts identified Internet connections and space issues as barriers. About 20% of those that did were able to affect substantial improvements with their grant funding. The available resources seem to be less focused on addressing problems with networking and infrastructure and building security.

Table 5: Grant funds have allowed our district to substantially or fully address problems with:

	N	Percent
Out of date hardware	24	29%
Insufficient quantities of hardware	24	25%
Unreliable or slow Internet connections	5	20%
The lack of age-appropriate or educationally-relevant software	20	35%
The lack of software products aligned with state standards	20	30%
Networking and infrastructure	8	0%
The lack of trained technical staff	18	39%
The lack of adequately trained administrators	13	31%
The lack of adequately trained instructional staff	33	64%
Building security	4	0%
Insufficient or inappropriate space	9	22%

N= the total number of districts, excluding those responding "N/A"

% = proportion of N districts choosing "substantially" or "fully"

Impact on Staff

Technology Use Survey

Each grantee was asked to administer the “Title II-D Technology Use Survey” to each of its participating teachers and administrators prior to the mid-year and year-end reports. Prior to the mid-year report, the survey asked participants to reflect back on the previous school year (2003-2004) in addressing each of the questions posed. Grantees submitted these responses as part of their mid-year progress reports. For the year-end report participants were asked to answer the same series of questions related to their activities during the 2004-2005 school year. While differences are not directly attributable to grant activities, comparing responses for the two points in time provides some insight into how participants’ technology usage changed during the first year of the grant. Tables 12 and 13 summarize responses from both points in time.

Table 12: Technology Use Survey Responses		
Item	2003-2004 Response (N=469)	2004-2005 Response (N=457)
How often do you use technology for professional activities such as lesson planning, administrative tasks, communications and collaboration?		
Nearly every day	74%	70%
About once a week	16%	23%
About once a month	6%	4%
Rarely or never	4%	2%
No response	0%	1%
How often do you use instructional technology with students for activities such as research, multimedia, simulations, data interpretation, communications and collaboration?		
Nearly every day	33%	40%
About once a week	31%	31%
About once a month	24%	17%
Rarely or never	10%	6%
No response	2%	6%
How often do your students use technology at school for activities such as research, multimedia, simulations, data interpretation, communications and collaboration?		
Nearly every day	23%	33%
About once a week	34%	30%
About once a month	15%	12%
Rarely or never	18%	10%
No response	10%	15%
How often do you use technology to support data-driven decision making?		
Nearly every day	14%	21%
About once a week	21%	20%
About once a month	21%	29%
Rarely or never	33%	13%
No response	11%	17%

In the first year of the grant, at least weekly:

- 93% of respondents reported using technology for professional activities – an increase of 3 percentage points over the prior year.
- 71% reported using instructional technology with their students – an increase of 7 percentage points over the prior year.
- 63% have students using technology for school related activities – an increase of 6 percentage points over the prior year.
- 41% reported that they use technology to support data-driven decision making – an increase of 6 percentage points over the prior year.

For both years very few participants reported using technology to deliver distance learning courses to students or other professionals. The numbers are so small that it is difficult to interpret the small year-to-year changes.

Table 13: Technology Use Survey Responses, continued		
Item	2003-2004 Response (N=469)	2004-2005 Response (N=457)
What kinds of distance learning courses did you teach in your own district?		
courses for students	1%	1%
professional development workshops	2%	1%
credit courses for teachers and administrators	2%	1%
What kinds of distance learning courses did you teach in your other districts?		
courses for students	1%	0%
professional development workshops	2%	0%
credit courses for teachers and administrators	2%	0%

Technology Self-Assessment Tool (TSAT)

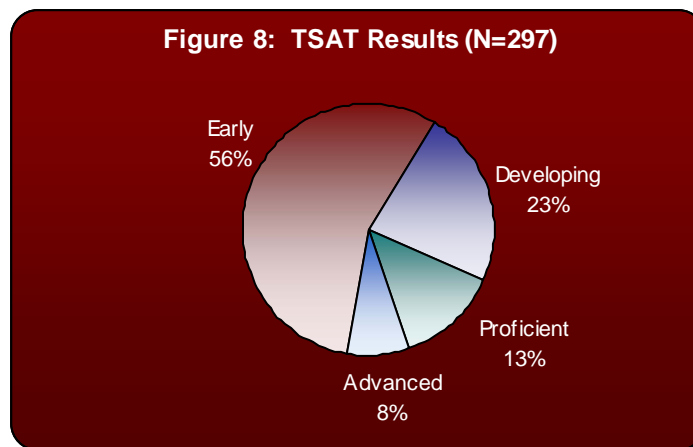
In total, 21 grantees reported that 520 teachers had completed the TSAT⁴. Reliable results were reported for 504 teachers⁵. As displayed in figure 8:

- 56% were at the early technology level.
- 23% were at the developing technology level.
- 13% were at the proficient level.
- 8% were at the advanced level.

⁴ Four grantees reported that none of their participating teachers had taken the TSAT. They were: Boston (2 grants), Martha's Vineyard and West Springfield.

⁵ Pioneer Valley's May the Force Be With You grant reported that 16 teachers took the TSAT, but did not report any results.

In the absence of pre-grant baseline measures against which to compare these results we cannot determine whether these grants had a measurable impact on teachers' technology skills. It does appear that there remains considerable opportunity to further enhance these skills.



Impact on Students

Among the grantees, 19 reported that their project directly involved more than 4,000 students. Table 14 summarizes the available information on students directly involved by the projects.

Table 14: Students Directly Involved		
Grade-levels	Number of Grantees	Number of Students
PreK-4	8	842
5-8	10	1,546
9-12	8	1,767

Each grantee was also asked to estimate the level of student technology literacy for the students involved in their project. Table 15 summarizes their responses. Relative levels of mastery appear to decline as grade-levels progress – particularly among high schools students where 63% had mastered less than half of the standards. This is likely a reflection of increasingly comprehensive standards for students in higher grades.

Level of Mastery	Percentage of students		
	PreK-4	5-8 ⁶	9-12
All or nearly all of the standards (90-100%)	50%	24%	21%
Half or more than half of the standards (50-89%)	34%	50%	16%
Less than half of the standards (0-49%)	16%	26%	63%

⁶ Mastery percentages for students in grades 5-8 are based on data for 1,421 students. Pioneer Valley's May the Force Be With You grant reported serving 125 students in these grades, but did not provide information on their level of technology literacy.

Appendix: FY 2005 Title II-D High Need School Districts

The term high-need school district means a school district that meets two conditions:

- (A) The district has at least 12% of the student population or at least 1000 children come from families with incomes below the poverty line (based on the U.S. Census)⁷.
- (B) The district operates one or more schools identified under section 1116 or the district has a substantial need for assistance in acquiring and using technology, based on the guidelines stated in the “Local Technology Benchmark Standards for 2003”.

Public Schools

Amherst	Easthampton	Haverhill	Marlborough	Provincetown	Tisbury
Avon	Everett	Holyoke	Methuen	Quincy	Ware
Barnstable	Fall River	Hull	Milford	Revere	Wareham
Boston	Falmouth	Ipswich	New Bedford	Salem	Watertown
Bourne	Fitchburg	Lenox	North Adams	Savoy	Webster
Brockton	Framingham	Lawrence	Northampton	Somerville	Wellfleet
Cambridge	Gardner	Leominster	Oak Bluffs	Southbridge	Westfield
Chelsea	Gloucester	Lowell	Oxford	Springfield	West Springfield
Chicopee	Greenfield	Lynn	Pittsfield	Sturbridge	Winchendon
Clarksburg	Harwich	Malden	Plymouth	Taunton	Worcester

Regional School Districts

Adams-Cheshire	Hawlemont	New Salem-Wendell
Athol-Royalston	Martha’s Vineyard	Northampton-Smith
Dennis-Yarmouth	Mohawk Trail	Quaboag Regional
Gill-Montague	Narragansett	

Agricultural/Vocational Technical School Districts

Bristol County Agr	Greater Lowell Voc Tec	So Middlesex Voc Tech Reg
Essex Agr Tech	Greater New Bedford Northern	Southeastern Reg Voc Tech
Franklin County	Berkshire Voc	Southern Worcester Cty VT
Greater Fall River	North Shore Reg Voc	Whittier Voc
Greater Lawrence RVT	Pathfinder Voc Tech	

Charter Schools

Abby Kelley Foster Regional CS	Community Day CS	North Central Charter ESS
Academy of Pacific Rim CS	Conservatory Lab CS	River Valley CS
Atlantis CS	Edward Brooke CS	Robert M. Hughes Academy CS
Barnstable Grade 5 HMCS	Health Careers Academy HMCS	Roxbury Prep CS
Benjamin Banneker CS	Lawrence Family Development CS	S.Boston Harbor Academy CS
Boston Evening Academy HMCS	Lowell Middlesex Academy CS	Sabis International CS
Boston Renaissance CS	Media & Tech CS	Seven Hills CS
Champion HMCS	Neighborhood House CS	Somerville CS
City On A Hill CS	New Bedford Global Learn. HMCS	Uphams Corner CS
Codman Academy CS	New Leadership HMCS	

⁷ The FY 2005 High Need School Districts list is the same as the FY 2004 list because the new U.S. Census data has not been published at the time the FY 2005 Request for Proposals were issued.