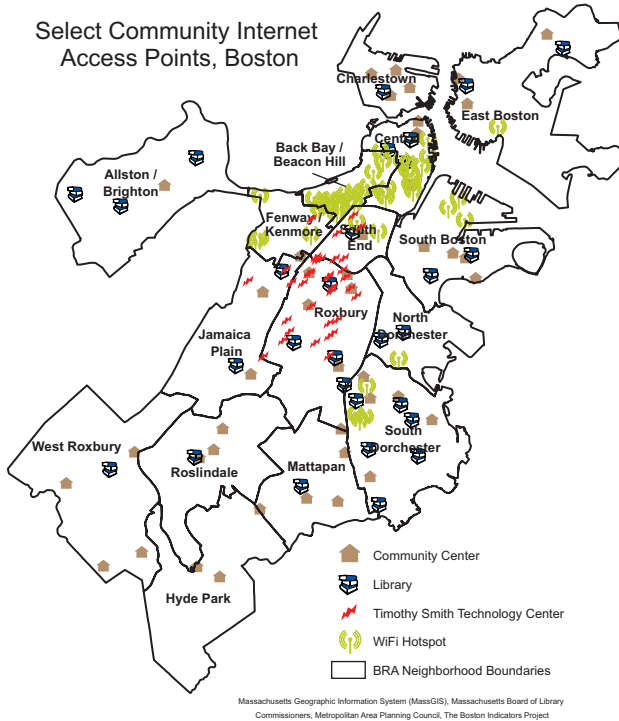


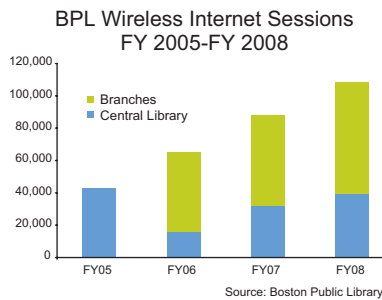
Technology



A hot-bed of technology access and innovation, Boston was the 5th “most wired city” in America in 2008 according to Forbes Magazine, and hub of the state’s science and technology workforce, driving job growth from research institutes, start-ups and industry clusters. The City of Boston has also made enormous strides in increasing Internet access for all and in bridging the “digital divide.” However, the great majority of Boston students lag their suburban and global peers in science and math education.

Bridging the Digital Divide

Boston Public Library: Use of the main Boston Public Library (BPL) and its 27 neighborhood branches as a source for public Internet and WiFi access has increased dramatically. Internet sessions increased by 7% from FY2005-2008 and WiFi connections



by 153% for a total 108,365 sessions. WiFi sessions at BPL branches increased by 42% since FY2006—the first year location data were disaggregated—and sessions at the main Back Bay library increased by 147%. In 2008, WiFi sessions at branch locations comprised 64% of all WiFi internet sessions.

The Timothy Smith Network: Boston has a unique resource for bridging the digital divide in its network of state-of-the-art community computing centers serving Greater Roxbury—the result of a gift to the City. As of 2008, there were 34 active Timothy Smith Centers, which provide comprehensive computer and technology training as well as open access “drop-in” time at most centers.

Key Innovation Indicators, Massachusetts Ranking

Spin-out companies from Research Institutions (1997-2006)	2nd
Initial Public Offerings (2007)	3rd
Technology Fast 500 Firms (2007)	3rd
Small Business Innovation Research, Dollars per Capita (2007)	1st
Patents per Capita (2007)	1st
Federal R&D per Capita (2007)	2nd
Federal R&D to Academic & Nonprofit Research Institutions (2007)	1st
NIH Funding per Capita (2007)	1st

Source: Massachusetts Technology Collaborative

Computer Access in the Boston Public Schools: As of 2007/08, the Boston Public Schools had one computer for every 3.6 students—a rate equal to the state average and higher than many suburban districts; 100% of classrooms had Internet and many had High-Speed Broadband. BPS is more than halfway through its Learning & Information Network for the Community (LINC) III plan to modernize technology, individualize student learning, implement a technology curriculum and create opportunities for teachers to pilot emerging technology. Through Laptops for Learning, BPS has placed new or refurbished laptops in classrooms and through the Project Refresh partnership between BPS and Boston’s business

community, 1,200 computers were updated and replaced in 45 schools in 2007. In addition, Boston’s Technology Goes Home program has served more than 3,500 families over 9 years in gaining training and home access to computer technology.

The Innovation Economy

Massachusetts tops all other Leading Technology States in key measures: Small Business Innovation Research Contracts; Patents per Capita; National Institutes of Health Funding; and federal R&D funding for universities and hospitals, according to the Massachusetts Technology Collaborative’s *Innovation Economy Index, 2008*. Since 1997, Massachusetts’ research universities have spun-off 451 start-ups, second only to California at 501. In 2007, Massachusetts had 47 *Technology Fast 500* companies based on the rate of growth over 5 years. In 2007, the per capita dollar value of Small Business Innovation Research grants was \$37,516, \$940 for federal R&D funding and \$656 for National Institutes of Health (NIH) funding, but other states are vying for those funds.

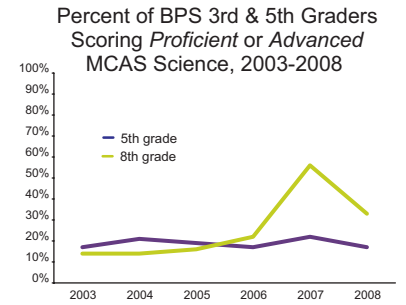
STEM (Science, Technology, Engineering, Math) Education

While Massachusetts students rank higher in global comparisons than those in most states, there are stark disparities between suburban and urban districts and by race/ethnicity, as experienced in the Boston Public Schools.

BPS 5th and 8th Grade Science: BPS students have participated in the MCAS Science exam since 2003. In 2008, 17% of 5th graders achieved at least the grade-level benchmark of *Proficient*—the same as in 2003. In 2008, Boston’s 8th graders performed better over time, with 33% achieving at least *Proficient*, similar to 39% statewide and up from 14% in 2003.

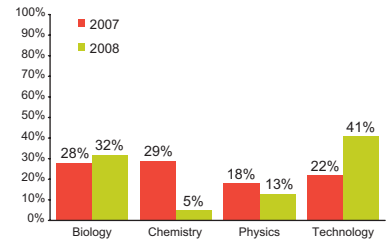
BPS 10th Grade Science: In 2007 and 2008, Massachusetts 10th graders were tested in subject-specific MCAS Science Exams (Biology, Chemistry, Physics and Technology). Scores were similar by gender: in Biology, 28% of boys scored *Proficient* or higher compared to 34% of girls; in Chemistry 4% of boys and 6% of girls scored *Proficient* or higher; in Physics 15% of boys and 12% of girls scored *Proficient* or *Advanced*; and in Technology, 42% of boys and 40% of girls achieved grade-level mastery or higher. However there were major disparities in scores among all the sciences by race and ethnicity.

Intended College Major: Some 19% of Massachusetts high school seniors intended to pursue a STEM degree in 2007, with 8% reportedly intending to major in Engineering—up from 7% in 2003—5% intending to major in Biological Sciences, 3% intending to major in Computer Science—down from 5% in 2003—2% in the Physical Sciences and 1% in Mathematics—while 20% intended to major in Health & Allied Services, a sector continuing to experience growth into 2009 (see Civic Agenda pull out).



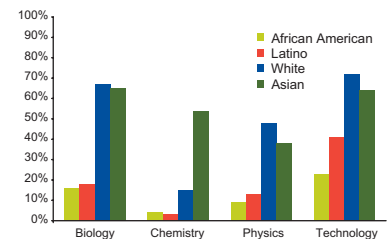
Source: Massachusetts Department of Elementary & Secondary Education

Percent of BPS 10th Graders Scoring Proficient or Advanced, MCAS Science 2007 & 2008



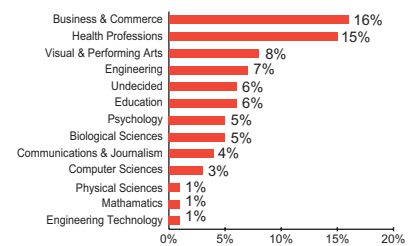
Source: Massachusetts Department of Elementary & Secondary Education

Percent of BPS 10th Graders Scoring Proficient or Advanced, MCAS Science by Race/Ethnicity, 2008



Source: Massachusetts Department of Elementary & Secondary Education

Intended College Majors of Massachusetts High School Students, 2009



Source: College Board