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STACEY CHILDRESS

GEOFF MARIETTA

SARA SUCHMAN

Boston Teacher Residency: Developing a Strategy for Long-term Impact

In June 2008, Jesse Solomon, the founding director of the Boston Teacher Residency (BTR), faced an important decision about the organization's strategic direction. Since its founding in 2003, 125 of its graduates had joined the Boston Public Schools (BPS) and BTR had established a reputation as a provider of some of the district's best-prepared new teachers. The program had been hailed as one of the 10 best teacher preparation programs in the nation by an industry journal, and a number of cities around the country had expressed interest in replicating the BTR model. Yet Solomon wondered if their approach so far was optimal going forward.

BTR had been created in partnership with former BPS superintendent Thomas Payzant with a mission to "…recruit, prepare, and sustain excellent teachers in and for the Boston Public Schools." After a rigorous recruiting and selection process, residents started two months of training in July before spending from September to June working four days week in the classroom of a mentor teacher in a Boston public school. On Fridays, the only day outside of their classrooms, residents attended graduate classes and learned about instructional practices and behavior management techniques that they could apply with their students the following week. Upon successful completion, residents earned their master's degree and teaching certification, along with credits toward licensure in special education. With 84 residents in 2008, BTR was on track to meet its annual growth targets.

Carol Johnson, the new superintendent for BPS, was developing a district-wide improvement strategy that prioritized accelerating the performance of the district's lowest performing schools. Many of these reflected the national trends in low-performing schools: less experienced teachers and high turnover. Relatively few BTR graduates joined these schools – they were free to pursue teaching openings at any school in the district, and often the principals of higher-performing schools had more aggressive recruiting approaches. However, the need for effective teachers in high-priority schools prompted Solomon to wonder if they should be an explicit part of BTR's strategy.

Solomon knew the potential to partner more closely with the new superintendent was a time-sensitive opportunity with a number of questions. What were the implications of moving from an open hiring market to the placement of cohorts of BTR graduates in high-priority schools? Was BTR's model sufficient to prepare new teachers to join struggling schools in the absence of a comprehensive turnaround strategy? How could BTR continue to strengthen the quality of its program while supporting the new superintendent's priorities?

Lecturer Stacey Childress and Research Associates Geoff Marietta and Sara Suchman prepared this case. HBS cases are developed solely as the basis for class discussion. Cases are not intended to serve as endorsements, sources of primary data, or illustrations of effective or ineffective management.

Jesse Solomon and the Creation of the Boston Teacher Residency

Before starting his career in education, Jesse Solomon attended Massachusetts Institute of Technology (MIT) where he majored in mathematics. He then entered the Harvard Graduate School of Education's teacher education program and earned both a master's degree and teaching license in hopes of launching a career in urban education. Upon finishing the program in 1992, Solomon tried to secure a job with BPS:

> All I wanted to do was teach in Boston. For what it's worth, I had a bachelor's degree in math from MIT and a master's from Harvard and I couldn't even get an interview. The district has dramatically improved its recruiting and hiring processes in the last 15 years, but back when I finished graduate school, you basically had to know someone and I didn't know how to work the system. So, I finally took a job in Cambridge in August because I couldn't hold out for BPS any longer.

After two years in Cambridge, Solomon finally made the move to Boston, first to Brighton High School and then as one of the founding teachers at City on a Hill Charter School in 1995.

As one of Boston's first charter schools, City on a Hill was started during an era when charter schools were seen as laboratories through which to introduce new and effective practices and strategies back into the public school systems. Solomon's experiences with new teachers at City on a Hill solidified his frustration and disappointment with the preparation offered by traditional teacher education programs. With the help of a federal grant designed to facilitate cross-fertilization between charters and districts, Solomon was part of partnership with a BPS high school called the Urban Calculus Initiative in which mathematics teachers from both schools worked together on professional development. Based on this experience, Solomon and others at City on a Hill began to think about how a charter could influence educational improvement more broadly. This led them to create the Teachers' Institute at City on a Hill, which was in many ways a forerunner of BTR. Aspiring teachers spent a year at the school, working four days a week in the classroom with a mentor teacher and taking courses towards a state teaching license on Fridays. After running the institute for two years, Solomon began a series of informal discussions that stretched over two years with BPS deputy superintendent Tim Knowles and assistant superintendent Rachel Curtis about how the City on a Hill model could be applied to the district's approach to teacher recruitment, preparation and support.

Strategic Grant Partners

In the fall 2002, Joanna Jacobson (HBS 1987) of Strategic Grant Partners began talking with Knowles and Superintendent Tom Payzant to identify the right opportunity to help BPS improve student achievement. Strategic Grant Partners (SGP) was a newly-formed coalition of 13 family foundations "…working to affect systemic change in the areas of education and family services in Massachusetts." SGP functioned more like venture philanthropy than a traditional foundation, and as a result did not accept unsolicited applications or use a written grant making process. Rather, the Managing Partner and staff actively searched out opportunities with senior public-sector executives, non-profit leaders, and community stakeholders to find opportunities to invest in projects that were in line with its mission of systemic change. Jacobson explained:

> SGP starts with a nine to twelve month planning process with a potential grantee, during which we try to figure out how we might help an organization start-up, strengthen their work and/or increase capacity. Our grants typically range from one - four million dollars and we favor those opportunities that act as catalysts to change entrenched systems and are demonstrations of how to take entrepreneurial ideas to scale. We pride ourselves on our ability

> to get the key stakeholders at the table together and make agreements so that everyone has skin in the game. This is supported by a legal contract, which means we can hold the grantee's and institutional key stakeholders feet to fire if necessary.

Payzant and Knowles convinced Jacobson that the best opportunity for dramatic impact was to focus on finding, training, and keeping good teachers. Payzant believed that for students to learn, teachers had to know how to teach and that required a rigorous training program, which most certification programs did not offer. Knowles believed that teacher preparation should resemble a medical residency. Together they developed a formal plan to create a teacher residency for BPS.

Jacobson presented the idea to SGP's partners in February 2003. In the presentation, she highlighted the crisis in Boston's public schools that one local foundation executive called a "morally unacceptable status quo." Though improvement has been made in recent years, state assessments showed that only 24% of 4th graders in BPS were proficient in language arts and only 15% were so in math (**Exhibit 1**). When the results were disaggregated by race and income they were even worse (**Exhibit 2**). In addition, fewer than 65% of BPS students graduated from high school. On top of this, more than 50% of BPS's teachers were expected to retire within the next five years and close to half of Boston's new teachers quit within their first three years.

SGP agreed to fund the creation of the Boston Teacher Residency, and Jacobson worked with Payzant and Knowles to organize the new venture. Some BPS stakeholders felt that the program should be housed within the district. But Payzant and Knowles disagreed. As Payzant said, "BTR needed to be outside of the system so it could do its own recruitment and have independence in day-to-day operations." At the same time, both knew that the program would need some connection to BPS because of the complexity of teacher recruitment and hiring in the district. Knowles elaborated:

> Districts have a habit of eating their young and converting interesting entrepreneurial ideas into not so interesting ones, so keeping one foot outside allowed some focus and independence for an idea that was clearly going to be unusual. But one foot in is equally important because we wanted it to be imbedded in the DNA or the daily diet of the system and not be just an entrepreneurial outside-in reform.

However, the decision to create a "one foot in, one foot out" structure for BTR meant that Payzant, Knowles and Jacobson needed a partner to house the fledgling program. Payzant suggested that they discuss the idea with Ellen Guiney, the executive director of the Boston Plan for Excellence.

Boston Plan for Excellence

Boston Plan for Excellence (BPE) had been established in 1984 as a locally focused education fund and reorganized in 1995 to work in close partnership with the BPS. BPE's mission was to be a "…catalyst and support to the Boston Public Schools in transforming instruction to improve the performance of every student." BPE considered itself a partner on all aspects of BPS's school reform work and even staffed a team dedicated to solving operational problems in the district. BPE also conducted and distributed research intended to help build an understanding of BPS's reform efforts.

Because Payzant had a productive relationship with executive director Guiney, he saw BPE as the perfect partner to house BTR. Payzant commented on their relationship:

> Ellen and I knew each other's strengths and weaknesses, and we agreed 85-90% of the time. But when we disagreed, she was comfortable pushing me and I was comfortable telling her to

> back off, so it worked. But it's one of those tricky things because the partnership between BPS and BPE was based on the relationship between a couple of key players.

Being housed within BPE also had an added benefit for BTR. Private foundations and other funders leery of giving money directly to a large urban district or to an unproven start-up might be more willing to give to BPE.

Payzant, Knowles, and Jacobson brought the idea of forming BTR within BPE to Guiney, who needed little convincing. Guiney remarked, "One of the things that BPE recognized in its work with BPS was a lack of shared expertise and continuous learning in teaching. We saw BTR as really focused on this problem." After a series of discussions with BPE's board, a plan was worked out whereby BPE would provide BTR with office space, back office support, and assistance in fundraising.

Given his experience at City on a Hill and his conversations with Knowles and Curtis, Solomon was quickly targeted as the person to lead the new venture. SGP provided the seed money to hire Solomon for three months to create a detailed business plan for BTR. As a result of Solomon's business plan, a contract was drawn up between SGP, BPE, and BPS (See **Exhibit 3** for funding arrangement).

Officially, Solomon was accountable both to BPS's deputy superintendent of teaching and learning and to Guiney at BPE (**Exhibit 4**). Jacobson felt that the dual reporting line was critical to the success of BTR because it provided a tight link to the district and gave BTR access to its top administrators while also making Solomon a member of Guiney's team at BPE. Because BTR operated as a program within BPE, a steering committee was formed as opposed to a governing board. The steering committee consisted of Guiney, Jacobson, and two BPS executives – the deputy superintendent of teaching and learning and director of human resources.

Designing and Implementing the Program

From the beginning, the founders saw BTR as more than just a teacher training program for BPS. Local colleges and universities such as Simmons, Boston College and Boston University already filled that role through traditional undergraduate and graduate teacher certification programs. But BPS felt that the new teachers coming through these traditional routes were not prepared for the challenging and resource scarce environment of an urban school district where a vast majority of students came from low-income backgrounds and nearly one in five had a home language other than English (**Exhibit 5**). Guiney remembered the reaction from one professor from a local school of education:

> By starting BTR, we were essentially telling all the schools of education in the area that they weren't doing a good enough job preparing teachers for Boston's public schools. When we presented the idea to the BPE board the first time, I thought that one of our members, an ed school professor, would be resistant. But after the presentation he just said, in a positive way, 'There goes the cartel!'

Most of the traditional certification programs had a 13 to 15 week student-teacher component, which the founders of BTR saw as an insufficient amount of time to be prepared as a first year teacher. There was also evidence that many teacher education schools emphasized theoretical and generic pedagogy instead of giving teachers the practical skills and content knowledge to teach in urban classrooms. BTR would be a teacher residency program that addressed these shortcomings

through an intensive program of a yearlong student-teacher mentorship combined with rigorous graduate coursework.

Knowles continued to advocate for designing BTR on the medical residency model and saw the teachers' institute that Solomon had created at City on a Hill as a perfect example of how it could work in education. Knowles commented: "We don't let doctors who have only finished their coursework immediately perform surgery. First, they must go through a residency where they learn how to be surgeons by working side-by-side with experienced surgeons." A yearlong teacher residency – a rigorous training program that values practice along with content and theory and where future practitioners would apply what they were learning by working in the field alongside an experienced professional – would ensure that when new teachers stepped into the classroom alone for the first time they would be effective teachers. As Guiney explained:

> The whole reason to do a residency program is that you believe that you learn how to teach by teaching. It is not a crash course in the summer. It's not an eight-week practicum. It is the dailyness of being there a week before the school year opens and watching what you have to do to prepare for the roster of students that you have. And then it's watching, trying it out, getting feedback, working it through. That's how you learn to be a good teacher.

Implementing the Model

The 13 month program started in July with a two month summer institute followed by ten months in a classroom four days a week with a mentor teacher, and was capped at the end with a month of coursework necessary to finish the master's degree. During the year, residents did not earn a salary but instead received a stipend of $10,000. In addition, they were responsible for $10,000 in tuition for the residency and coursework. In return for completing three years of teaching in BPS after finishing the residency, BTR would forgive the tuition. Also, because BTR was part of the federal AmeriCorps program, residents that successfully finished the year also received an educational voucher for nearly $5,000 that they could use to pay off any student loans they had, including those incurred to cover the BTR tuition.

Recruitment and Selection Solomon and BTR recruiter Monique Davis defined three types of potential BTR candidates (**Exhibit 6**). Candidates applied to BTR through an online application that included essay questions such as "What are your thoughts about the opportunities and challenges in urban schools?" and "How do you think current movements in education affect urban schools?" Staff at BTR and the BPS human resources department evaluated the applications and invited a group of finalists to attend a daylong selection process at a BPS school.

During the day, each candidate taught a mini-lesson to students at the school, participated in a group problem solving activity, wrote a response to a classroom observation, and was interviewed by multiple raters. Applicants were then rated by teachers, BTR staff, BPS human resource staff, and course instructors. By the end of the day, each candidate had been evaluated performing multiple activities by 15 to 20 people. The selection day also offered an opportunity for mentors to look for a fit with prospective residents. (See **Exhibit 7** for biographies of successful applicants.)

At first, it was difficult to predict exactly what types of teachers BPS would need 18 months later, given that BTR began recruiting six months before residents started their yearlong residency. Working with BTR, the BPS human resources department built a model that could better predict the district's future teacher needs. Bill Horwath, director of staffing for BPS, explained, "What we try to do is align the supply and demand of teachers in BPS. We consider retirement and attrition trends in the district as well as the need to recruit a diverse group of teachers." As a result of the new

forecasting model, the BPS human resource department could let BTR know at the beginning of each recruiting cycle the composition of the new resident cohort that would best meet the district's needs.

Teaching Sites and Mentor Teachers The 14 schools that hosted residents during their residency year were called teaching sites. To be a teaching site, principals and potential mentor teachers filled out a lengthy application answering questions such as "How do teachers collaborate to improve instruction at your school?" and "What is your vision of the role of a mentor teacher?" The BTR team visited all of the interested schools to make sure the principal and faculty could meet the expectations of a teaching site (**Exhibit 8**).

From the beginning, Solomon felt that it was important that residents be placed as a group of at least six in teaching sites. By participating as a cohort during their preparation year, residents had a built-in support system of colleagues and the teaching sites were more likely to integrate the practices of the residency into their cultures rather than treating it as a side activity. However, placing groups of residents in schools presented challenges. This approach required that there would be at least six qualified mentors in each school. As of 2007, only half of the 14 sites hosted six or more residents, and around a third hosted four or fewer.

Hollee Freeman, the field director for BTR, worked with principals of teaching sites to select mentors to work with the residents. BTR staff interviewed prospective mentor teachers and observed them teaching a lesson. Mentors received a $3,000 stipend for the year and often found the experience rewarding, but finding enough quality mentors could be difficult. Some veteran teachers were hesitant to open their classrooms to outsiders, and the time commitment required to be a mentor was tremendous. Mentors not only had to ensure that their own students succeeded, but also that the resident was prepared to teach by the end of the year.

For some, the demand was too much to continue on as a mentor for consecutive years. As one mentor said, "I've thought about whether I would be a mentor again next year. I enjoy it and have really been able to tighten up my own practice. But, the amount of time it takes to support the resident and still do justice to your kids - I don't feel like there's enough time in the day." But others were willing to serve as mentors for an extended period. As one explained, "I love being a BTR mentor. I can see doing it every year for as long as I teach. It forces me to reflect on my own teaching practice and I really feel like I am helping people become better teachers."

Finding enough quality mentors had been a challenge from BTR's inception. Many of those recruited for the role had never mentored prior to BTR. Even those with mentoring experience had never served full-time for an entire school year. Freeman realized that mentors would need professional development on the BTR mentoring model and designed "Dimensions of Effective Mentoring" (**Exhibit 9**). They also instituted contracts that required mentors to commit to specific expectations. Mentors kicked-off the year with a two day training program that was followed by monthly all-mentor training sessions and weekly on site check-ins. During these meetings mentors were briefed on requirements that their residents were expected to complete and received training on how to differentiate their mentoring approach to meet individual resident needs.

Site Directors To help coordinate between the mentors, residents, principals and BTR, Solomon created the position of site director. Site directors were hired collaboratively by BTR and the principal at the school and their salaries were split equally between BTR and BPS. Most were teachers or instructional coaches in the school with half-time assignments as site directors. They were expected to play a coordinating and support function, but more importantly to help residents connect theory and practice. Site directors across all schools were expected to keep track of the BTR curricular

focus month to month and ensure that residents and mentors were focused on putting those concepts into practice in their daily work.

Solomon felt that it was important for the site directors to be school staff in order to best understand the school and the day-to-day challenges faced by residents and mentors. He explained:

> Most traditional preparation programs hire program supervisors from outside the host school. We wanted to place the supervision in the school with someone one knows the context – the kids, culture, other teachers etc. We also thought they would be better positioned to build the capacity of the school to effectively incorporate the ideas of mentoring and collaboration more broadly.

The site directors were critically important to the overall quality of the residency experience. As one recent graduate reflected:

> Our site director was key in fostering an environment in which we could really focus on learning to be good teachers. She created a place where we could grow. And there were seven of us, so she was able to accomplish that even with very, very different personalities. I think that's at least in part due to her hard work, compassion, and commitment to us.

Site directors attended twice a month training meetings with their peers focused on how best to work with mentor teachers and residents. BTR devised a rubric that identified the characteristics of a successful site director, and measured the performance of site directors against it (**Exhibit 10**).

Coursework While the 1993 Massachusetts Education Reform Act allowed BTR to operate a certification program, the classes that residents took outside their schools needed to be accredited in order to count towards a master's degree. BTR partnered with UMass Boston to provide accreditation for the courses, which were designed and taught by instructors hired by BTR. UMass Boston played a very limited role in overseeing and delivering the coursework and allowed BTR to hire instructors for its classes from the multitude of colleges and universities in the Boston area, as well as from a large group of knowledgeable practitioners and experienced coaches. This meant that BTR was able to recruit top talent to teach its residents. Marcie Osinsky served as BTR's curriculum director, and worked to develop a rigorous set of courses and experiences for residents.

BTR delivered a two month summer institute to give residents the necessary background to be prepared for the start of the school year. Mornings during the first month were fit to the needs of individual residents. For residents with limited classroom experience, this meant working in a summer school classroom while others with more experience but who had been out of college longer took prep classes for the state licensing exam. The July afternoons were reserved for basic classes on lesson planning and classroom management. In August, classes on teaching in specific content areas started (**Exhibit 11**). Once the academic year began, residents attended class for one three hour session during the week and then two three hour blocks on Friday

Because BTR attempted to link what the residents learned in the classroom to what they were working on with their mentor, the graduate coursework had to be aligned with the BPS curriculum and the rhythms of the school year. To ensure the relevance of the coursework, the BTR curriculum and resident portfolios were centered on BPS's existing Dimensions of Effective Teaching (**Exhibit 12**). BTR instructors were trained to develop their syllabi around this framework and focus on content that could be directly applied to teaching.

There were two exceptions to the typical schedule of a resident (**Exhibit 13**). In January, BTR pulled residents out of their schools for an intensive one and a half week training session on special

education and to conduct a midyear portfolio evaluation. As a requirement for the BTR program and master's degree, residents were required to develop a portfolio to demonstrate their progress toward mastering the Dimensions of Effective Teaching. The portfolios included examples of lesson and unit plans, videos of their teaching practice, and examples of rigorous evaluation of their students' work. The portfolio evaluation also provided an opportunity for residents to think about their teaching over the first half of the year and create an action plan to improve in the second half.

Another important part of the curriculum explored beliefs about intelligence. As Solomon explained:

> We have to understand that there are lots of achievement gaps, what they look like and what they mean. And we must know what the gaps have to do with the history of our city and the history of our country, and then think about the causes and our role in it. This has to happen at the same time a resident is starting to think about how to teach reading, math, history or science.

After successfully completing the 13 month program, residents earned a teacher license in their primary academic content area and a master's degree in education. Residents also received credit towards a dual licensure in special education, which they could fulfill by completing future classes offered through the UMass Boston/BTR partnership the following year for $4000 in tuition.

Hiring and Placement BTR was committed to having all of its graduates teaching in a BPS classroom the fall after completing their residencies. The hiring process in BPS, unlike some large urban school districts, was decentralized. Essentially, the BPS human resource department (HR) acted as a pipeline to schools for a pool of applicants that included BTR graduates. Principals posted positions on a central portal managed by the human resource department. Candidates applied for the open positions on the portal, and then principals could download all the submitted applications and cover letters for the jobs they had posted. HR provided online screening tools that could sort by certification level or degrees earned and BPS staffing specialists screened applications themselves to highlight top candidates for principals. Some positions, such as math, science, and special education were harder to fill and required more involvement from HR staff.

Once a principal identified a group of potential hires, the teacher's union contract specified that the interview process be conducted by a hiring committee that included teachers and the principal. This committee was also responsible for making the final hiring decision, though in practice it was usually made by the principal. For BTR, the decentralized system meant that the organization had little influence over where its residents ended up. By 2007, 55 of the 144 BPS schools had hired residents; only six schools had hired five or more, 80% had hired three or fewer, and around half had hired only one.

Ongoing Support The first year of teaching was very challenging for all teachers, and even though they felt well prepared, BTR graduates were no exception. During their residency, they could rely on the support and knowledge of their mentor teacher, but once in their own classrooms, some residents felt isolated. A growing number of graduates asked BTR to do more to support them once they began teaching. Solomon recounted, "Residents were telling us, 'when I went through BTR, there was someone in my classroom all the time. They were giving me feedback and talking to me about my teaching. Now, I started teaching on my own and nobody's ever in my classroom.'"

To give residents continuing support through their initial teaching years, BTR hired induction coaches. Some induction coaches were retired teachers while others had worked as instructional consultants in BPS schools. They visited the classrooms of first, second, and third year BTR teachers

to provide support, give feedback on lessons, or serve as a general sounding board for school challenges. One graduate explained, "The coaches give you suggestions on your teaching. They also point you to helpful resources, and when you really need help they are there to support you."

By the 2007-2008 school year, BPS had launched a similar support program for all first year teachers in the district. "New teacher developers" were deployed around the district to assist first year teachers. With a BPS support network in place for first year teachers, BTR moved its support to a hybrid model of BTR and BPS coaches. BTR graduates were supported by the district's new teacher developers in their first year and by BTR induction coaches in their second and third years. To prevent problems arising from the amalgamated support system, BTR's induction coordinators worked closely with BPS's new teacher support team.

Impact and Challenges

BTR had evolved into BPS's "grow your own" teacher program in its first five years and provided around 10% of all the teachers BPS hired in 2007 and more than a quarter of its new math and science teachers. Administrators within BPS saw the program as a way to access a predictable number of the teachers it needed without having to rely solely on local universities. Before they started their first year of teaching, BTR residents already knew the BPS curriculum and culture. Most importantly they were prepared for the specific challenges of an urban district. As one BTR graduate commented, "I was very well prepared for my first year of teaching. I don't know if I could have survived this if I had done another program." A current resident emphasized the reputation of the program, saying, "When principals see BTR on our resumes, their reaction is, 'Wow, you are highly qualified. You clearly have the skills to handle teaching, especially at BPS.' And at hiring fairs, we're competing with people from Harvard and getting the advantage. That says a lot about this program."

Because over 50% of its total graduates since 2003 were black or Hispanic, BTR had brought greater diversity into BPS's teacher ranks. In 2007, over 50% of BTR graduates hired were minorities compared with 21% of all new teachers. Also, retention of BTR graduates compared favorably to other first year teachers – nearly 80% of BTR graduates were likely to complete their third year of teaching compared to 53% of other BPS teachers (**Exhibit 14**). Not only were they staying longer, BTR graduates also had a strong reputation within the district. In a 2006 survey of principals, 88% viewed BTR teachers the same as or more effective than other first-year teachers at their school, and the majority (55%) believed them to be "significantly more effective."

However, BTR still faced challenges. As of yet, no empirical data existed to show that the students of BTR teachers outperformed those of other teachers. In 2007, BTR had enlisted the help of a team of Harvard researchers to measure its residents' effectiveness, but the results were not yet available. Individual classroom data had been hard to gather and it was difficult to control for differences in student background, school environment, and teacher characteristics. This was true for all BPS teachers, not just BTR graduates. Nevertheless, BTR could not yet claim that its graduates' impact on student achievement was significantly better than candidates the district hired from other sources, only that principals liked them and they stayed longer.

Solomon also saw variability in the experience of residents across the 14 teaching sites. His initial belief that it was more effective to have a minimum of six residents in any one site had been confirmed by experience, but this was the case in only half of the sites. He wondered if it made sense to work with fewer teaching sites that would each host a larger group of residents. As he explained, "Sometimes we are stretched thin trying to manage relationships across 14 schools – a teaching site with four residents requires about the same attention from us as one that hosts seven. I sometimes

think that with fewer schools we would have more time to build deeper relationships and increase the quality of the residency year at the same time."

In addition, Solomon wondered if the potential to change school cultures and have a dramatic impact on student performance was being diluted by following the district's decentralized hiring and placement approach. A BTR graduate reflected on how he thought about working in the same school with residents from his cohort:

> I really wanted there to be other BTR people in the school because of the camaraderie, mutual support, mutual philosophies, and the way we communicate with each other. At first I was just worried about getting the job, but after I was hired I emailed the principal and told him that he really should hire another BTR person.

Residents usually accepted their first offers, which tended to be from principals who were the most organized and deeply understood how the system worked. Guiney elaborated,

> The sharpest principals who run the best schools have figured out how to say in February or March, 'I don't have a job open right now but I promise you a job. You're going to have to wait to sign the contract until May but it will be in fourth grade and I can guarantee you it's going to happen.' And residents will accept that if the principal has a reputation for delivering. So, residents end up in really good schools because they have offers early.

In fact, of the 55 schools that had hired BTR graduates only six employed five or more former residents. Most of these schools had higher historical levels of student achievement than the district average (**Exhibits 15** and **16**).

Yet some district staff questioned the notion that BTR graduates could change a school's culture, even if they went in as a group. Without corresponding changes in school leadership and central office supports, this line of thinking was skeptical about whether placing cohorts of residents in low performing schools would make any difference, and worried that it would lead to higher turnover among BTR graduates because their early teaching experiences would be negative. As one senior manager at BPS remarked:

> The cultures in our struggling schools are so complex and so entrenched that to ask a small group of BTR graduates to take them on would be unfair. You're going to put the burden of changing the dysfunctional culture of a broken school on the backs of a handful of first year teachers? It would be smarter to think of BTR as one piece of what comprehensive school reform looks like, not the entire answer.

In the midst of these challenges, Superintendent Johnson began discussions with Teach For America (TFA) about entering Boston for the first time in its history. Johnson had partnered with TFA in her former districts and had a good relationship with the organization. TFA teachers would cost BPS around $3,000 each, which was less than the district's cost for each BTR teacher (**Exhibit 17**). Similar to TFA's arrangement with other urban districts, BPS could potentially direct TFA corps members to principals who had hard-to-fill openings in high-priority schools, which was in alignment with the mission of TFA. In addition, TFA might compete with BTR for qualified candidates at universities around Boston since its corps members could receive a full teacher's salary right away and did not have to train under a mentor teacher.

TFA also had its drawbacks. Corps members only received eight weeks of preparation the summer before they began teaching for the first time. Also, since TFA recruited nationally and only asked for a two year commitment, there was no guarantee that teachers would stay in Boston as long

as BTR teachers. In fact, only about one-third of TFA corps members nationwide remained in classrooms after their initial service. The national footprint also meant that BPS would have little influence over the content of corps members' training or which ones chose to teach in Boston.

Shaping the Future

For Solomon, the real measure of effectiveness for BTR over the long term would be whether or not the students of BTR teachers were achieving up to their potential. Even though he could envision ways to improve BTR, he deeply believed that the residency prepared teachers better than other options, and he wanted its graduates in classrooms with students who needed them the most.

He and his team engaged in a business planning process with the Bridgespan Group to develop a set of strategic options for increasing BTRs impact. In addition to BTR staff, the process included Guiney and other BPE staff, Jacobson, BPS's directors of HR and professional development, as well as a few trusted external advisors. The process yielded options for a new strategy that centered on three key activities: strengthening teaching sites, creating partner schools, and measuring impact.

Strengthening Teaching Sites

In order to increase the quality of the residency year, BTR considered partnering more closely with BPS to identify schools with the capacity to host as many as 12 residents per year. Rather than spreading 120 residents across more than 14 sites, BTR would focus on deeper relationships with 10 sites that would become known throughout the district as places in which the next generation of BPS teachers was being developed. This approach could also create a network of model schools that set the standard for how to create environments that valued continuous improvement and collaboration among professionals. With a critical mass of 12 mentors and 12 residents, BTR could invest in a full-time site director and make the on-site professional development available to all teachers in the school, not just those formally participating in BTR. Solomon described the option:

> Basically we would move from loose affiliations with 14 sites to deep partnerships with 10 over the next four years. A few of our schools are ready to make the leap to 12 residents now, but others will have to be cultivated and developed to a point where they have 12 high-quality mentors. It requires a big commitment from a principal, but the benefits could be significant in terms of resources, recognition as a model school, and a lever for building a deep culture of professional collaboration. From our standpoint, we expect more consistent quality because of the critical mass of professionals involved at each site and the increased standardization of the model across the schools.

This option required agreement from BPS to formally recognize teaching sites as model schools and give them some flexibility around key policies related to daily scheduling and formal roles to accommodate the residency model. This would signal to schools a more "official" tie between BPS and BTR than in the past when principals were welcome to participate but not formally recognized by the district for doing so. From a budget perspective, because BTR would be reducing the number of sites even as it invested more in each, the incremental annual cost of investing in training sites at full deployment would be approximately $350,000 over the current model (**Exhibit 18**).

Creating Partner Schools

A parallel option that BTR could pursue was to create closer linkages with a group of high-priority schools that would agree to hire a critical mass of residents over time. Solomon imagined that

nearly all BTR graduates would be eager to work in these schools, but with logistical hurdles such as the availability of positions in any given year, he estimated that 70% of graduates would join high-priority schools with the remaining 30% going to work in other schools in the district. Within five years, BTR projected that it could grow from eight partner schools to twenty-four, requiring an incremental annual cost of around $700,000 over the current model (**Exhibit 18**).

BTR would work closely with BPS to identify and select partner schools so that the increased presence of its graduates would be an integral piece of the district's strategy to accelerate the performance of particular schools. Principals in partner schools would hire several graduates over three to four years in order to build a critical mass of teachers specifically prepared to work in those types of schools who also had a deep understanding of how to nurture and participate in organizational cultures that valued professional collaboration.

Given the latitude principals currently had in identifying candidates for positions in their buildings, asking them to commit to hiring a certain number of teachers from the BTR pool over a number of years was a significant shift. In order to make this option a reality, BPS would have to agree to work closely with BTR to select partner schools and make the case to principals of low-performing schools that hiring residents was an integral part of the district's overall approach to supporting leaders attempting to turn-around their schools.

For BTR graduates, the opportunity to work with former residents who shared a common experience and point of view about teaching would provide the critical support and camaraderie necessary to sustain their commitment in the early years of teaching in a difficult school. Solomon elaborated on the attractiveness of moving to a partner school model, saying, "By working more closely with a finite number of high-need schools, BTR will have the potential to significantly impact student achievement in BPS."

BTR would invest in a coordinator for every four partner schools who would serve as a liaison between the program and the principals. In addition, the ongoing training and support that BTR offered to its graduates on topics such as special education and English as a second language would be available to all teachers in a partner school. Over time as performance in these schools accelerated, Solomon envisioned that rapidly improving partner schools could also serve as teaching sites, so that residents would have an opportunity to work side-by-side with mentors who were BTR graduates involved in turning around struggling schools.

Measuring Impact

Solomon had always been committed to delivering results, but the strategic planning process provided an opportunity to put a stake in the ground on a few areas of leverage and identify indicators that BTR could track over the coming five years. The four areas were recruitment, retention, graduate development, and teacher effectiveness.

Recruitment In this area, BTR would track the number of residents, the number of graduates, the percentage of first year graduates to the total of BPS new hires that were Hispanic or African-American and that taught math, science, special education or English as a second language.

Retention Under the retention category, BTR would track the percentage of graduates who became teachers and the percentage of graduates who stayed in BPS for three and five years.

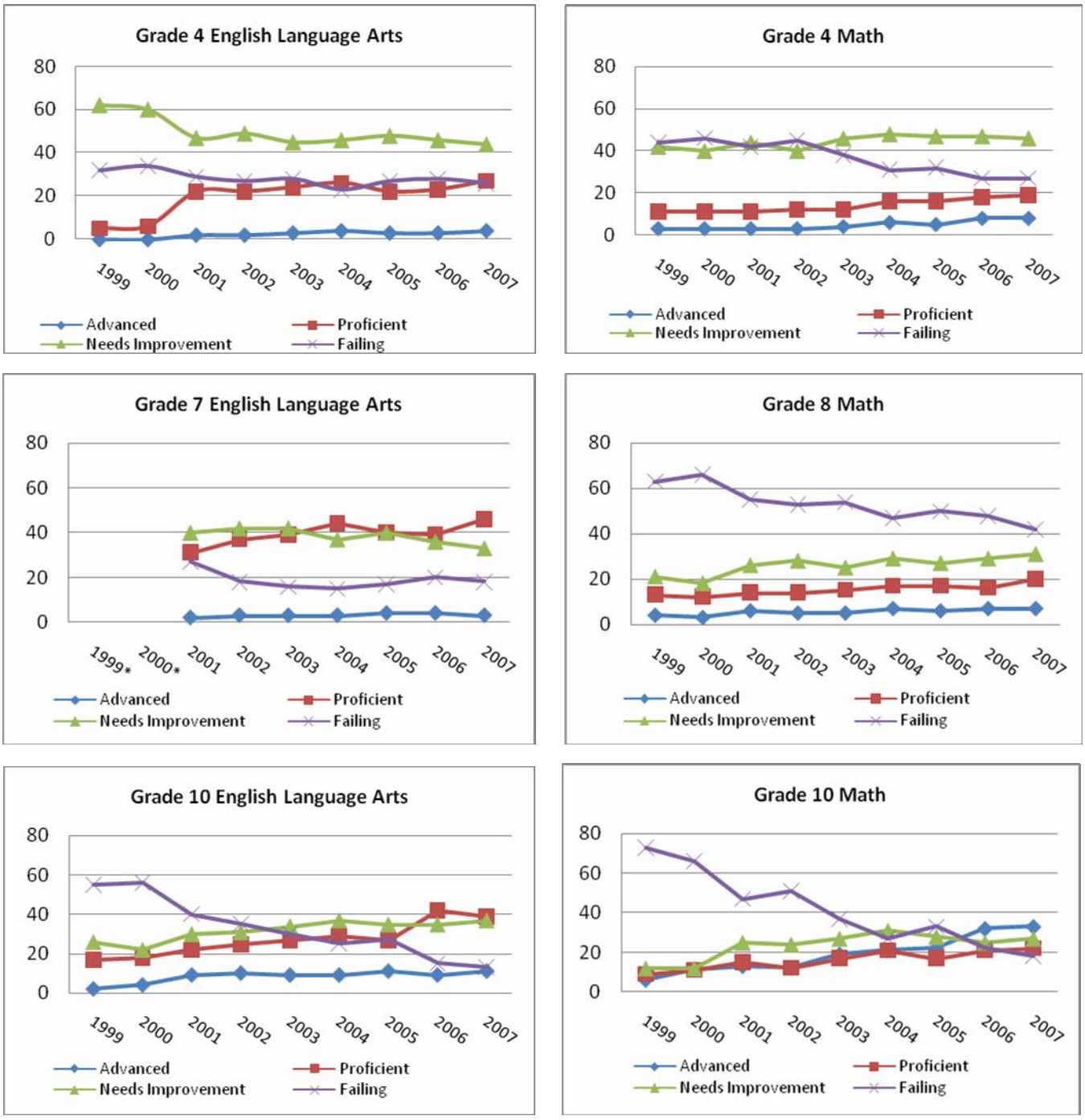
Graduate Development BTR would make a more concerted effort to develop BTR graduates to become mentors and site directors in the program after a few years of teaching, as well as track the percentage of its graduates that took on other types of leadership roles in BPS.

Teacher Effectiveness In order to measure the effectiveness of its graduates, BTR would compare their student results with all first year teachers in BPS. In years three and beyond it would track how its graduates performed relative to teachers from other preparation programs. It would continue to track BTR graduate turnover compared to other BPS teachers, as well as principals' impressions of their effectiveness through an annual survey.

As Solomon weighed the new strategic options against simply working on making the current model of preparation and placement as powerful as it could be, he was committed to choosing the path that would most support the goal that every student in BPS would have an effective teacher who gave them the opportunity to learn at high levels every day. He believed that in the long run, that would be the true test of BTR's impact.

Exhibit 1 Boston Public Schools MCAS Results 1999-2007

Percent of Students by Performance Level

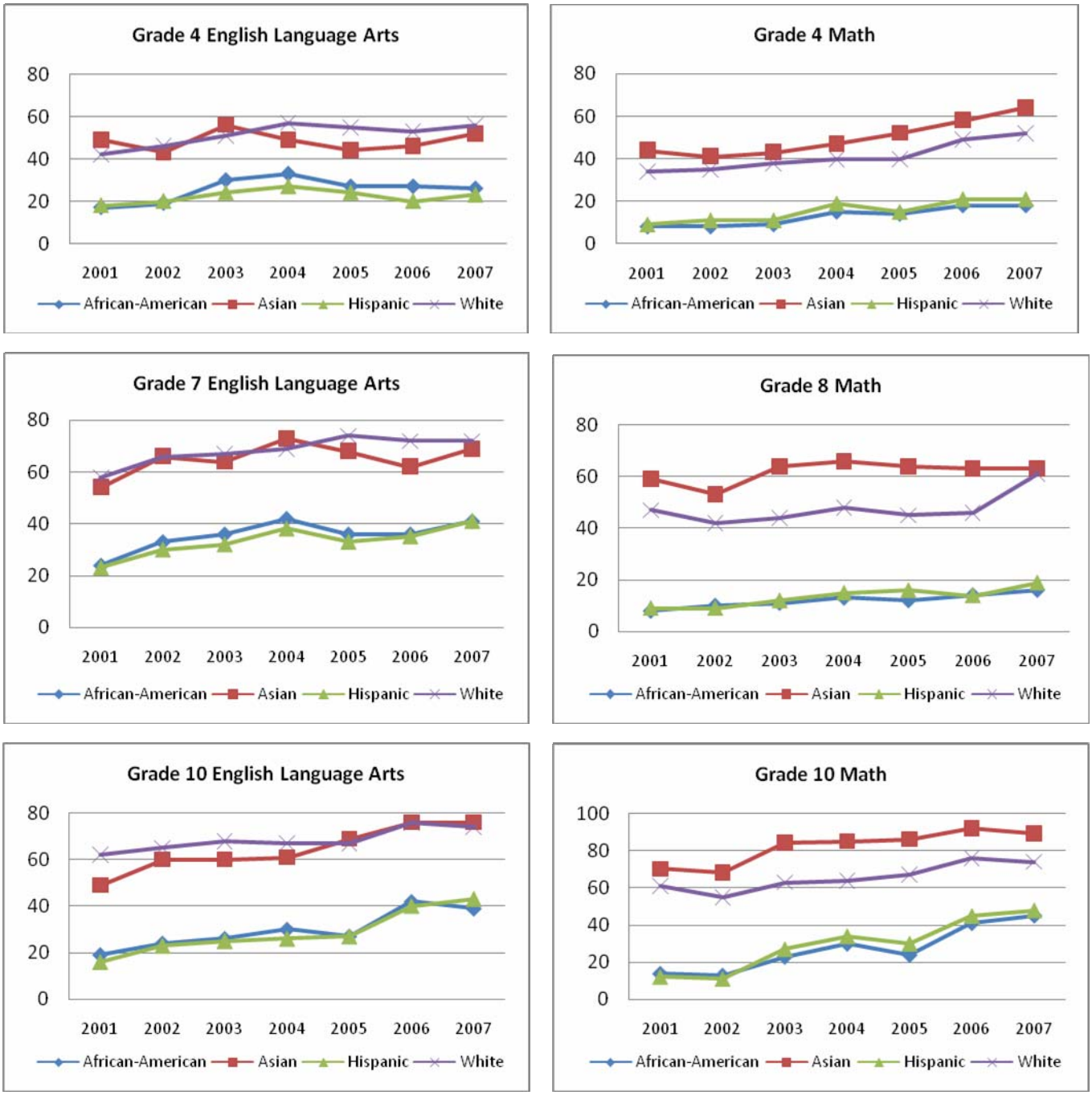


*Massachusetts did not assess 7th grade language arts proficiency before 2001.

Source: Massachusetts Department of Education, "MCAS Annual Comparisons for Boston," Massachusetts Department of Education web site, http://profiles.doe.mass.edu/mcas, accessed February 2008, and case writer analysis.

Exhibit 2 Boston Public Schools MCAS Results by Subgroup 2001-2007

Percent of Students Testing Proficient or Advanced



MCAS data by subgroup do not exist prior to 2001.

Source: Massachusetts Department of Education, "MCAS Results by Subgroup," retrieved February 2008 from http://profiles.doe.mass.edu/mcas/subgroups2.aspx?district=035&school=&mcasyear=2002, and case writer analysis.

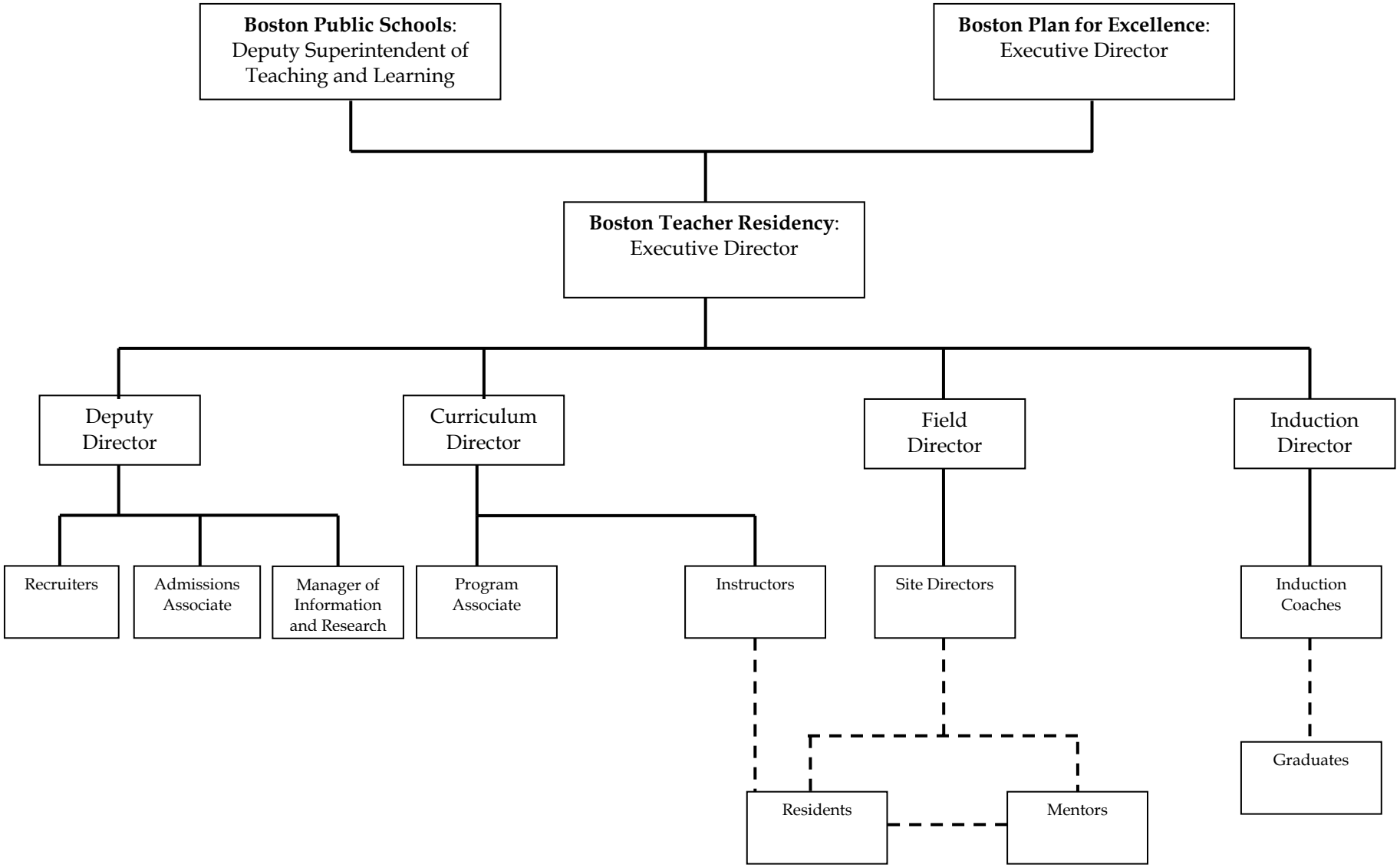
Exhibit 3 Boston Teacher Residency Funding Agreement

	03-04	04-05	05-06	06-07	07-08	08-09*	09-10
Strategic Grant Partners	100%	100%	-	-	-	-	-
Boston Public Schools	-	-	20%	40%	60%	51%	51%
Private Sources	-	-	80%	60%	40%	49%	49%

*Beginning with the 08-09 SY and continuing forward, BPS would become a "majority funder," likely supplying 51% of BTR's total budget, which had to be approved by the BPS superintendent and deputy superintendent of teaching and learning.

Source: Internal BTR Documents and case writer analysis.

Exhibit 4 Boston Teacher Residency Organization Chart



Source: Internal BTR Documents and case writer analysis.

Exhibit 5 2007-2008 Boston Public Schools Student and Staff Data

Student Demographics	
Total Enrollment	56,190
Black	41%
Hispanic	35%
White	14%
Asian	9%
Multi-racial, non-Hispanic	1%
American Indian	<1%
Students receiving free and reduced meals	71%
Students with disabilities	20%
English language learners	18%
Home languages of English language learners	
Spanish	58%
Haitian Creole	9%
Chinese	8%
Cape Verdean Creole	7%
Vietnamese	5%
Other*	13%

Staff Demographics	
Total staff positions	9,412
Teachers	53%
Administrators	8%
Support personnel	5%
Aides and monitors	13%
Secretaries and clerical	4%
Custodial/Safety/Technical	13%
Part-time and summer	5%
Teacher demographics	
Black	25%
Hispanic	9%
White	61%
Asian	5%
Administrator demographics	
Black	46%
Hispanic	33%
White	17%
Asian	4%

*BPS English Language learners come from more than 40 different countries

Source: Compiled from Boston Public Schools, "Boston Public Schools at a Glance," Boston Public Schools web site, http://boston.k12.ma.us/bps/bpsglance.asp, accessed February 2008.

Exhibit 6 Potential Boston Teacher Residency Candidate Types

Candidate Type	Characteristics	Marketing Approach
Recent College Graduate	Good GPA, youth focused community service, demonstrated leadership	College campus representatives, career fairs, campus career offices
Midcareer Switcher	Business, engineering or similar background, more than 10 years of work experience, looking for a job that "makes a difference"	Website, subway ads, radio, newspaper, social enterprise job search engines
Community Connected	Worked in a community service role, such as a domestic violence officer in a police department or church leader	Recruiters visit churches, community centers, non-profits, and schools networking and handing out informational pamphlets

Source: Case writer analysis.

Exhibit 7 Biographies of Selected Boston Teacher Residency Graduates

Neema Avashia. Ms. Avashia brings to Boston's schools her experience working with students as a tutor and mentor in elementary and secondary schools in Pittsburgh (PA) and Madison (WI). A graduate of Carnegie Mellon University with degrees in anthropology-history and professional writing and a minor in teaching English to speakers of other languages, Ms. Avashia also earned a master's degree in educational policy studies from the University of Wisconsin-Madison.

Sheila Brown. After graduating from Boston State College with a BA in mathematics, Ms. Brown spent over 28 years working at Verizon Communications in various positions, ranging from engineer to human resources business partner. For more than a decade now, Ms. Brown has demonstrated her commitment to youth and community by volunteering at St. Catherine of Sienna in Charlestown as a first communion teacher, a CYO Advisor, and a softball. In 1997 she received the Charlestown Community Unsung Hero Award.

Amit Gupta. Mr. Gupta holds a bachelor's degree in electrical engineering from Boston University and an MBA from the Olin Graduate School of Business at Babson College. He worked for 11 years in the technology field and volunteered for Babson's Coaching and Leadership program.

Jane Long. A graduate of Boston Latin School and Boston College with a bachelor's in communications, Ms. Long has been an active volunteer at the Gate of Heaven CYO, where she coached, mentored, and refereed girls' basketball. Ms. Long received the Gate of Heaven Catholic Youth of the Year award in 1999

Henry Paige. Mr. Paige graduated from South Carolina State University with a BA in English. He worked as a head teacher counselor at the Boys Club of New York, supervising counselor and camper daily activities, mentoring inner-city middle school students, and tutoring students in social studies, mathematics, and English. As a junior researcher for the department of transportation in Orangeburg (SC), he prepared and conducted educational activities for fifth through eighth grade classes, and wrote, designed, and edited a monthly newsletter highlighting African-American inventors.

Julie Perry. Ms. Perry holds a bachelor's degree in management from the University of Massachusetts/Amherst. After a career in recruitment and staffing for corporations such as Fidelity Investments and Shawmut Design and Construction, Ms. Perry joined the Somerville Public Schools last year as a substitute and assistant site coordinator for the city's 21st Century Community Learning Center program.

Nicole Tabolt. Before joining BTR, Ms. Tabolt worked as a curriculum planning coordinator and classroom aide with the America Reads program in Philadelphia. In her undergraduate summers, she also worked with youth as a dance and art teacher at the Cambridge Family YMCA. Ms. Tabolt received a bachelor's degree in English and minor in Hispanic studies from the University of Pennsylvania. She also received her diploma from the Boston Latin School. She completed her English residency at Brighton's Edison Middle School. Ms. Tabolt speaks Spanish.

Source: Boston Teacher Residency, "FAQs," Boston Teacher Residency web site, http://www.bpe.org/btr/.html, accessed March 2008.

Exhibit 8 Expectations of a Boston Teacher Residency Teaching Site and Principal, 2007

Overall Expectations.

BTR is seeking Principals who:

- Support the collegial analysis of instructional practice,
- Are instructional leaders,
- See the work of BTR and of the Mentor Teachers as integral to the successful operation of the school, and ensure that all involved have time to do it.
- Champion BTR.

BTR is seeking schools which:

- Have a developing culture of inquiry and improvement,
- Have a critical mass of teachers willing and qualified to serve as mentors,
- Will share the responsibility for the success of the Residents.

More Specifically.

A BTR host school principal commits to:

- Ensure that Mentor Teachers are available and scheduled to meet with Residents for at least *two hours per week*.
- Ensure that Mentor Teachers have sufficient time to fulfill mentoring duties.
- Make teaching public. Support and build a culture which encourages and facilitates the discussion and analysis of faculty members' teaching.
- Ensure that every Mentor Teacher identifies and makes public at the beginning of the year an instructional strength that they are willing to allow observers to see during the year.
- Ensure that every Mentor Teacher identifies and makes public an area of instructional focus which they will work on throughout the year.
- Attempt to hire teachers who are or who will soon be Mentor Teachers.
- Support good teachers who are not currently ready to be Mentors to develop into Mentor Teachers. This may involve collaborating with BTR to involve these teachers in selected BTR activities.
- Participate in an Annual School Review with all involved school personnel to identify strengths and areas of need.
- Identify teachers who are qualified to be Mentors: who are both excellent teachers skilled in the district's work, and are willing and able to coach an adult learner.
- Identify a teacher or other faculty member willing and qualified to serve as Site Director.
- Support the Site Director in the fulfillment of both BTR and school-based duties.

Source: Internal BTR Documents.

Exhibit 9 Dimensions of Effective Mentoring

1. Mentor holds high expectations for Resident

- Shows through words and actions the belief that Resident can meet high expectations
- Supports Resident to problem-solve in challenging situations
- Builds on Resident's strengths and identifies areas of challenge with clear accountability and support mechanisms.

2. Mentor reflects on own practice as a Mentor

- Regularly reflects on mentoring strengths, skills and areas of weakness; sets and assesses progress against learning goals with Site Director, Resident and other Mentors.

3. Mentor uses data to inform instruction

- Works with Resident to use a variety of formal and informal assessments to evaluate student learning and needs and uses that information to individualize instruction.

4. Mentor works to communicate effectively with Resident

- Uses appropriate communication techniques with Resident to discuss practice and to address conflicts
- Engages in inquiry-based conversations with Resident around practice
- Matches coaching approach with Resident's need for support and structure.

5. Mentor provides daily opportunities for Resident to practice teaching

- Encourages Resident to implement ideas from coursework and practicum; holds Resident accountable for careful implementation and assessment of effectiveness
- Fully participates in the structured release of responsibility by allowing and demonstrating to Resident how to take over specific portions of classroom instruction and activities
- Explicitly discusses with Resident philosophical approach and reasoning behind instructional decisions Maintains focus on student achievement.

6. Mentor models professional behavior

- Fully participates in BTR activities by being punctual and prepared; fulfills BTR commitments in the face of conflicting priorities
- Uses respectful language and discretion when discussing challenging situations; maintains confidentiality
- Routinely analyzes professional interactions and serves as a model for resolving concerns and issues in a timely and constructive manner.

7. Mentor functions effectively in a multilingual, multicultural and economically diverse classroom and school community

- Engages in two-way conversations with Resident around issues of equity, achievement, experience, race, class, and ability, and how these issues intersect with teaching and learning for the Resident and Mentor.

8. Mentor displays a commitment to implementation of BTR and BPS initiatives

- Effectively implements BPS instructional and curricular initiatives (e.g. Readers/Writers Workshop, LASW, CCL and other PD opportunities)
- Effectively uses BTR structural and curricular initiatives (e.g. Lesson Planning, two hours of sacred-time meetings, Monthly Mentor professional development meetings, documentation of Resident progress and goals).

Source: Internal BTR Documents.

Exhibit 10 Dimensions of Effective Site Directorships

1. **Site Director demonstrates excellence, equity and high expectations for Mentors and Residents**
    - Fosters and encourages Resident and Mentor learning
    - Plans Instruction

2. **Site Director reflects on own practice as a Site Director and makes work public**
    - Invites Residents, Mentors, BTR, principal, and other colleagues to observe her/himself in a professional setting (i.e. teaching, observing, debriefing, facilitating school-based PD, etc.) and uses feedback to improve.
    - Communicates with Field Director and other Site Directors regarding strengths, challenges and progress

3. **Site Director uses data to inform work with Residents and Mentors**
    - Works with residents to assess progress during their practicum experience
    - Works with mentors to assess development as mentors during the school year
    - Works with Residents and Mentors to thoroughly analyze student data to identify trends and areas of continuing challenge.

4. **Site Director models professionalism**
    - Ensures that all Site Director responsibilities are met (as outlined in the SD job description).
    - Functions effectively in a multicultural and economically diverse community of adults through the use of respectful language and discretion when discussing challenging situations and maintains confidentiality.

5. **Site Director establishes a safe, respectful and culturally sensitive learning community**
    - Works to manage the Site Director relationship to maximize learning for mentor and resident through effective communication, respect of differences and management of conflicts.
    - Provides daily/weekly opportunities for residents and mentors to explain their thinking and ask questions that deepen their learning.

6. **Site Director partners with school, BTR and BPS community**
    - Works with the whole school community to provide a rich learning experience for Residents
    - Makes resources available to Residents and Mentors, which will aid their work
    - Understands BTR and BPS curricular initiatives.
    - Engages in collaborative problem solving and decision-making based on what is in the best interest of the program.
    - Reflects on the successes and challenges of BTR and uses that information to improve the program.

Source: Internal BTR Documents.

Exhibit 11 Sample Boston Teacher Residency Course Offerings for High School Residents

Summer

- Becoming an Educator in Boston
- Reflective Seminar: Building a Culture of Achievement
- Curriculum Design; Backwards Design
- Community; Neighborhoods, Families, Schools

Fall

- Reflective Seminar/Pre-Practicum – Residency
- Content Methods Courses for Middle/High School (choose one):
    - Teaching Mathematics,
    - Teaching Science
    - Teaching Language Arts
    - Teaching History

Winter – mini courses

- Special Education: Introduction to SPED: IEP's and Categories for Disabilities
- Literacy Across the Curriculum

Spring

- Practicum - Residency
- Reflective Seminar
- Inclusive Education

Summer

- Special Education: Differentiated Instruction
- Working with ELL's: Language Acquisition

Source: Internal BTR Documents.

Exhibit 12 Boston Public Schools Dimensions of Effective Teaching

- **Equity and High Expectations**: Demonstrate a commitment to excellence, equity, and high expectations for all students with an emphasis on building on the strengths that students bring to the teaching/learning process and closing the achievement gap between subgroups within the school.
- **Professionalism:** Model professional behavior that addresses job responsibilities, district policies and procedures, and the expectations of professionals working in a multi-lingual, multi-cultural, and economically diverse community.
- **Safe, Respectful, and Culturally Sensitive and Responsive Learning Communities**: Build and maintain safe, fair, and respectful learning environments that celebrate the diversity of the student population.
- **Partnerships with Family and Community**: Initiate and maintain consistent communication and develop constructive partnerships with families, community members, and agencies, building on their strengths and recognizing them as co-educators.
- **Instructional Planning and Implementation**: Plan instruction and employ strategies that address the wide range of learning, behavioral, and communication styles of the student population.
- **Content Knowledge**: Have extensive knowledge of the content including, but not limited to, key concepts and facts, relevant research, methods of inquiry, and communication styles specific to the respective discipline(s).
- **Monitoring and Assessment of Progress**: Use a variety of assessment tools and strategies to gather data to monitor student mastery of instructional content, to improve instruction, and to assess the comparative performance of subgroups within the classroom.
- **Reflection, Collaboration, and Personal Growth**: Reflect on practice in collaboration with administrators and colleagues, monitor personal and professional growth, and pursue professional development in needed areas.

Source: Boston Public Schools, "Dimensions of Effective Teaching," Boston Public Schools web site, http://www.boston.k12.ma.us/teach/dimensions.pdf, accessed March 2008.

Exhibit 13 Typical Schedule of Elementary School Residents

	Monday	Tuesday	Wednesday	Thursday	Friday
7:30	Arrive at school. Prepare for the day.	Arrive at school. Prepare for the day.	Arrive at school. Prepare for the day.	Arrive at school. Prepare for the day.	
8:00					
8:30	School starts.	School starts.	School starts.	School starts.	BTR Course: Reflective Seminar
9:00	Readers Workshop	Readers Workshop	Readers Workshop	Readers Workshop	
9:30					
10:00	Writers Workshop	Writers Workshop	Writers Workshop	Writers Workshop	
10:30					
11:00	Math	Math	Math	Math	
11:30					
12:00	Lunch	Lunch	Lunch	Lunch	
12:30	Specialist	Social Studies	Specialist	Social Studies	BTR Course: Elementary Literacy
1:00					
1:30	Science	Collaborative Coaching & Learning	Science	Science	
2:00					
2:30	After-school tutoring		Meet with mentor teacher	After-school tutoring	
3:00	Meet with mentor teacher				
3:30		BTR Course: Elementary Mathematics			
4:00				BTR Course: Designing Curriculum	
4:30					
5:00					
5:30					
6:00					
6:30					
7:00					

Source: Boston Teacher Residency, "FAQs," Boston Teacher Residency web site, http://www.bpe.org/btr/faq.html, accessed March 2008.

Exhibit 14 Boston Teacher Residency Recruitment, Admissions, and Retention Data

Class of	Applied	Enrolled in Program	Ratio Applied: Enrolled	% of People of Color	% of Math/Sci at MS/HS level	Completed program successfully	Accepted hiring offer by BPS	Finished 1st year in BPS+	Finished 2nd year in BPS+	Finished 3rd year in BPS+	Finished 4th year in BPS+	Currently teaching in BPS+
2004	149	16	9.31	75%	71%	12	12	12	12	11	6	6
2005	300	39	7.69	41%	38%	36	31	31	31	27		27
2006	325	57	5.70	51%	55%	48	46	44	40			40
2007	408	65	6.28	53%	70%	58	56	53				53
2008	450	84	5.36	57%	57%	77	74					
2009	479	75	6.39	57%	68%							
Total	**2111**	**336**	**6.28**	**54%**	**62%**	**239**	**219**	**140**	**83**	**38**	**6**	**126**

+ As of 6/30/2008

Source: Internal BTR Documents.

Exhibit 15 2007 MCAS performance of schools that hired five or more BTR graduates since 2005

Mathematics

School	BTR graduates	% Proficient & Advanced	% Needs Improvement	% Failing
Murphy (K-8)	9	53	41	5
McCormick (Middle)	8	25	35	40
Parkway (HS)	7	49	36	15
Charlestown High (HS)	6	67	21	12
Boston Community Leadership Academy (HS)	5	59	36	5
Gavin (Middle)	5	19	34	47

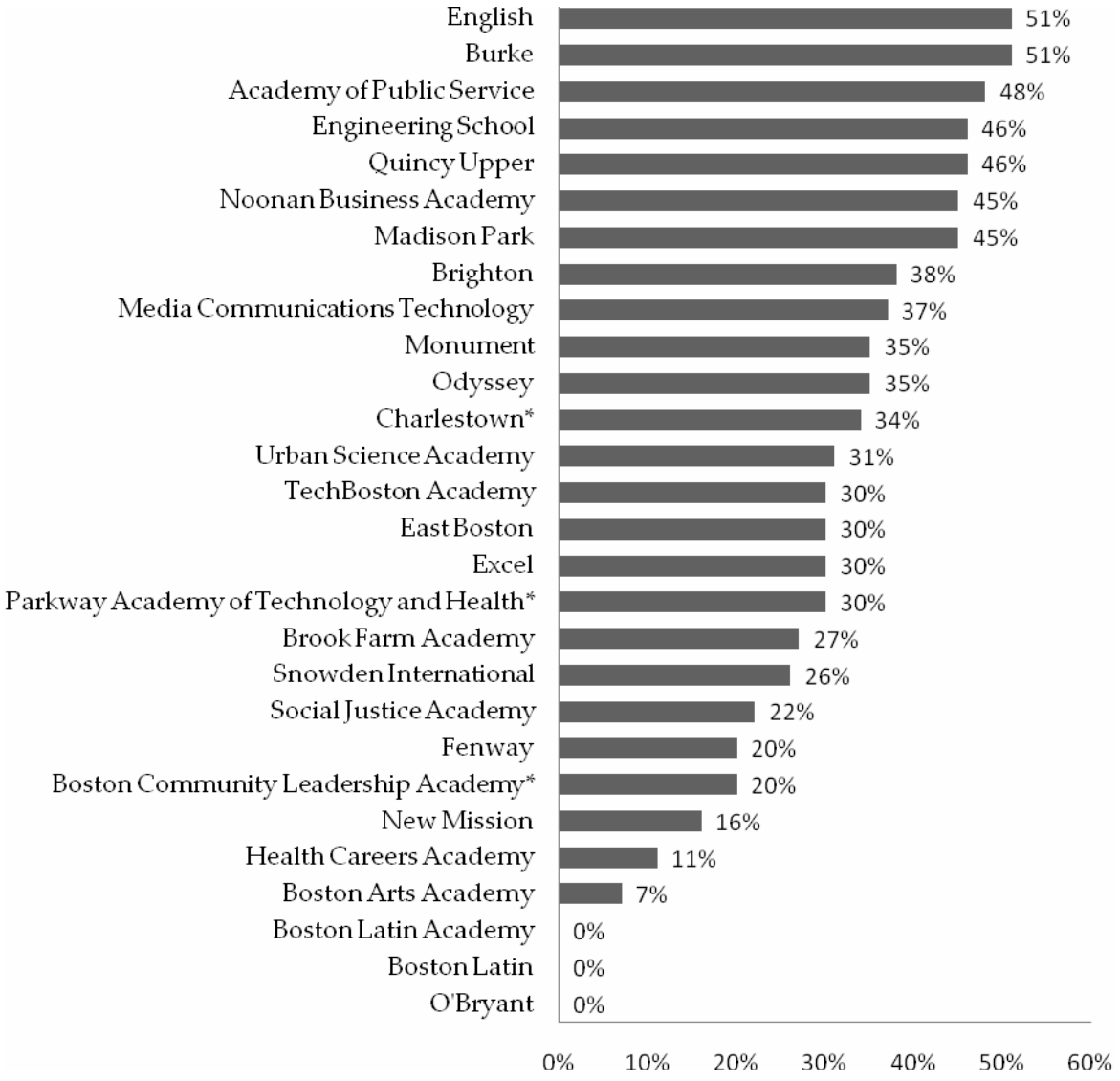
Language Arts

School	BTR graduates	% Proficient & Advanced	% Needs Improvement	% Failing
Murphy (K-8)	9	32	39	29
McCormick (Middle)	8	44	38	18
Parkway (HS)	7	34	49	16
Charlestown High (HS)	6	44	44	12
Boston Community Leadership Academy (HS)	5	53	39	7
Gavin (Middle)	5	29	42	28

Source: Massachusetts Department of Education and case writer analysis.

Exhibit 16 Past Performance of Students Entering Non-Specialized Boston High Schools

Percentage of first-time 9th graders in 2006 who had scored in the bottom quartile on the English Language Arts MCAS in 7th grade

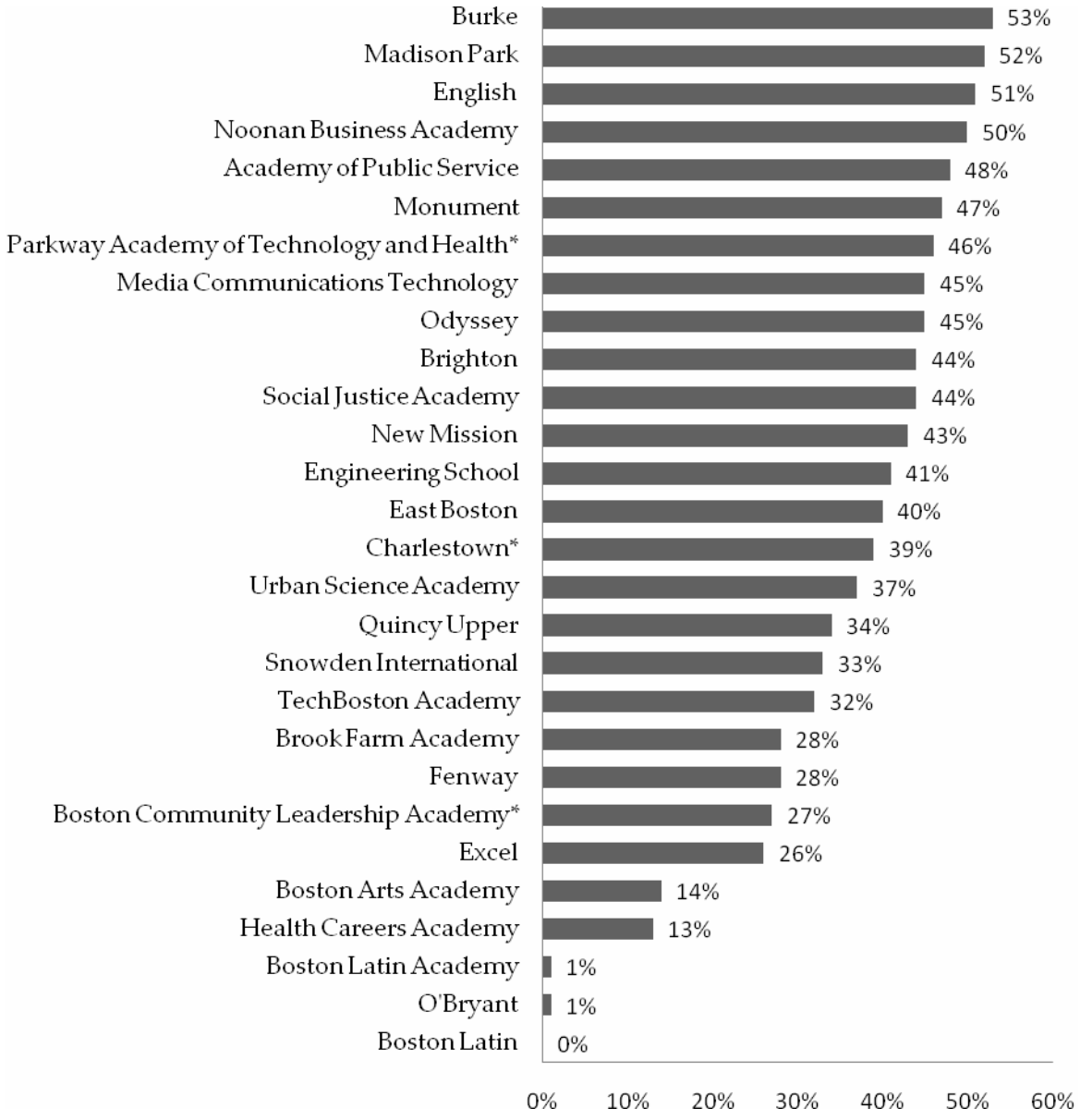


*High schools with 5 or More BTR graduates

Source: Internal BTR documents.

Exhibit 16 (continued)

Percentage of first-time 9th graders in 2006 who had scored in the bottom quartile on the Mathematics MCAS in 7th grade



*High schools with 5 or More BTR graduates

Source: Internal BTR documents.

Exhibit 17 BTR's 2007-2008 Annual Budget

	TOTAL	BY FUNCTION		
	2007-08 Total Budget	**Recruitment**	**Preparation**	**Induction**
		100 residents	***84 residents***	***125 graduates***
Expenditures				
Program				
Personnel (Salary and Benefits)				
Total Salary & Benefits	$775,498	$243,998	$368,873	$162,628
Recruitment & Admissions				
Advertising & Communications	$60,000	$60,000		
Events and Travel	$32,500	$32,500		
Selection Events	$10,798	$10,798		
Field Department				
Site Director Salaries	$465,864	$23,293	$442,571	
Mentor Teacher Stipends/Training	$313,900		$313,900	
Induction Coaches/Classroom Supp.	$133,020			$133,020
Curriculum Department				
Preparation Courses	$203,000		$203,000	
Induction Courses	$44,350			$44,350
Space/materials/logistics	$56,000		$42,000	$14,000
Textbooks	$52,749		$47,474	$5,275
Supplies & Equipment	$21,557	$4,311	$12,934	$4,311
Resident Expenses				
Stipends	$901,900		$901,900	
Resident's Health Insurance	$126,400		$126,400	
Scholarship Fund	$50,000		$50,000	
Evaluation	$50,000	$5,000	$20,000	$25,000
Online Capability	$39,280	$19,780	$11,250	$8,250
Administrative				
Administrative Expenses				
Telephone/Postage	$6,536	$3,922	$1,307	$1,307
Events	$10,000		$4,000	$6,000
Travel	$6,154		$4,123	$2,031
Total Expenditures	***$3,353,354***	***$403,603***	***$2,545,610***	***$404,141***
		$4,036 *Per Accepted Resident*	***$30,305*** *per Resident*	***$3,233*** *per Graduate*

Source: Internal BTR Documents.

Exhibit 18 Budget Implications for Proposed BTR Strategy

	2007-08	2008-09 (e)	2009-10 (e)	2010-11 (e)	2011-12 (e)	2012-13 (e)
Budget (m)	$3.4	$4.7	$5.6	$6.7	$6.9	$7.3
# of Residents	80	80	100	120	120	120
# of students taught	5,546	7,078	8,931	11,318	13,398	15,632
Cost per resident (k)	$34	$40	$41	$41	$41	$43
Cost per retained grad (k)	$44	$56	$58	$59	$58	$59
Cost per student	$613	$664	$627	$592	$515	$467

Source: Internal BTR Documents.