Excellence and equity for all

Unlocking opportunities for off-track youth
in Boston Public Schools

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In the preparation of this Report, EY US relied on information provided by Boston Public Schools, district and school interviews and publicly available resources. EY US has not conducted an independent assessment or verification of the completeness, accuracy or validity of the information obtained.

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Foreword

In 2007, Boston Public Schools commissioned a report from EY-Parthenon to examine how the district was serving youth who were off-track to graduate from high school. That examination of the dropout pipeline revealed a serious need for improvement and was followed by investments in some crucial areas, and in alternative education in particular, to better serve our youth.

Since then, significant efforts have been made by BPS and by the Boston community as a whole to support all of our students not just to graduation, but also to a fruitful life after high school. Thanks to these concerted efforts, the BPS four-year graduation rate has risen from 57.9% in 2007 to 72.7% in 2017. Over the same timeframe, the annual dropout rate has fallen from 7.9% to 3.6%.

But these improvements are not enough. With that in mind, last year I commissioned a second report to update our understanding of how our secondary schools support our youth who are off-track to graduate. With support from the Barr Foundation, EY-Parthenon has worked tirelessly to identify patterns of when, why, and how students fall off track to graduate, as well as which early warning indicators might help us see which students are at risk to fall off track.

This study has confirmed what we suspected: (1) some of our own policies are contributing to the inadequate service for our youth and (2) our practices are not yet sufficiently developed to prevent students from falling off track or to help them recover fully if they do. I concur fully with the findings and recommendations presented in this report. BPS will act decisively and with the support of our partners to implement these recommendations. We must be bold, not incremental, so that we see significant change following from this report.

This report has given BPS a strong foundation and clear direction from which to act. I have directed staff to develop an initial response to the report including a set of actions that can be taken immediately. I will also convene a steering committee to formulate a longer-term strategic plan to address each of the findings and the recommendations and their implications in detail.

My team and I are extremely grateful for the generous support from the Barr Foundation that enabled this crucial analysis. We are equally grateful to the EY-Parthenon team for their dedication to rigorous and honest analysis. Our commitment is to dramatic, not incremental, change.

Sincerely,

Tommy Chang, Ed.D.
Superintendent, Boston Public Schools

Boston Public Schools
Tommy Chang, Superintendent

Boston School Committee
Michael Loconto, Chair

City of Boston
Martin J. Walsh, Mayor

Introduction: Journey of off-track students

Kayla's story

Kayla was in the 9th grade when she first started to fall behind in school. She was attending a large, open enrollment high school in Boston Public Schools and was struggling in her classes: "I sometimes felt like my teachers didn't have enough time to help me and the students who were behind. It was more the guidance counselors who were supposed to look out for you, but there weren't that many of them." Kayla also struggled to connect what she was learning to the real world: "They didn't teach that much about real life things, like what we really need to eventually get a job. I just didn't understand the point."

Eventually, Kayla started skipping school and failing multiple classes. Even so, she was promoted on to 10th and then 11th grade, which led her to believe she would be graduating on time. "I knew I was failing deep down, but they kept moving me up. There wasn't really anyone telling me what I needed to do." It was only in her third year of high school that she realized how far behind she had fallen. She dropped out soon afterwards. "I tried to get back on track, but it was too late."

Jean Claude's story

Jean Claude entered 9th grade with declining grades from middle school, having gone from Bs and Cs in 6th grade to Ds in 8th grade. Falling in with a new group of boys at his large, open enrollment high school, he struggled to adjust: "I don't think I was used to all that freedom. In middle school, you don't walk around by yourself. I took that freedom and rolled with it ... I don't know how many times I was suspended, but more times than my hands can count." Jean Claude failed every class but one in 9th grade and all but two in 10th grade. Other than suspensions, his attendance was high, but he simply did not complete any academic work.

Jean Claude was referred to an alternative program after 10th grade and slowly began to adjust to a smaller environment, an accountability system through restorative justice rather than through suspension and his own growing maturity. "I was closed-minded at first, but they really opened my mind. My maturity level bounced. People say that 9th grade is the most important year academically, but you don't take it seriously until you see it start to affect you." Jean Claude's adjustment came slowly, but he passed three classes in his first year, then four and eventually six in his last year, earning his diploma and enrolling in higher education.

Kayla and Jean Claude are not the real names of these students. But their stories are the real lived experiences of students in BPS high schools today. This report asks: what would it take to get students like Kayla and Jean Claude to graduation and beyond? How should BPS be rethinking its high school system to better serve those students who are most at risk of falling off track, not graduating and not being prepared for college, career and life after high school?

The landscape of BPS high schools

In the 2016–2017 school year, Boston Public Schools enrolled more than 16,800 students in grades 9 through 12.[1] These students attended 37 high schools located across the city (see Appendix for full list of BPS high schools). Additionally, there were 2,500 students who attended high school in public Commonwealth charter schools and another 3,800 students who attended private or parochial high schools.[2] Students enrolled in these schools are not covered within the scope of this report.

Throughout this report, a standard categorization is used to describe BPS high schools. While there are different ways that high schools could be grouped, this report uses modes of admissions to categorize schools.

The 37 high schools are categorized by BPS into six groups:

▸ **Open enrollment schools (53% of students, 18 schools):** These schools are accessible to all students and can be selected through the lottery-based choice process. As part of this process, BPS uses a computer algorithm to assign students to open enrollment schools based on their preferences and the availability of seats in each school. If students do not participate in the choice process, they are assigned to a school with available seats based on their home address.

▸ **Exam schools (24% of students, 3 schools):** Students access seats in exam schools via a competitive admissions process, which is based on the student's grade point average and scores on the Independent Schools Entrance Exam. Students typically enter these schools in grades 7 or 9.[3]

▸ **Selective application schools (10% of students, 4 schools):** Selective schools require students to submit a special application and/or artistic portfolio. All of the schools labeled as selective in this report are also "pilot schools," which means they have more autonomy around hiring, budget, curriculum and admissions. However, not all pilot schools are selective. While some pilot schools have chosen to develop separate, selective admissions processes, there are also open enrollment pilot schools that are accessible to all students through the BPS lottery-based choice process.

▸ **Lottery admissions schools (4% of students, 2 schools):** The lottery admissions schools, also known as Horace Mann charter schools, admit students on the basis of lotteries that are separate from the main BPS choice process, but are open to all students. The model of Horace Mann charter schools was established by Massachusetts law to create schools within traditional districts that have greater autonomy around mission, curriculum or teaching methods as well as control over budgets and hiring decisions of teachers and staff.

▸ **Special populations schools (3% of students, 4 schools):** The special populations schools are designed to serve students with disabilities who may require specialized services and settings, and they include both a fully inclusive school and the district's three separate day schools.

▸ **Alternative schools (6% of students, 6 schools):** Unlike the other school categories, alternative schools generally do not admit first time 9th graders but instead aim to educate students who were not served well by a traditional high school academic setting or who are otherwise off-track or over-age for high school.

▸ **English Learner (EL) school (<1% of students, 1 school):** BPS' EL school, Newcomers Academy, serves students ages 15-18 who are entering the United States school system for the first time and who have limited English proficiency or gaps in their formal education.

What does it mean for youth to be off-track to graduate?

Since August 2017, EY-Parthenon has worked with BPS to complete an in-depth data analysis to understand when, where and why high school students become off-track to graduate. This report focuses on graduation as a high school outcome, both because it is the gateway to further education and the measure that is most systematically tracked. However, BPS and many stakeholders in the city, supported by initiatives like Success Boston, are moving to the view that enrollment, persistence and success in post-secondary education are the most consequential and important measures. Our analysis shows that BPS high schools have an urgent need for improvement, even just focusing on attaining high school graduation. If a college and career readiness lens were applied, the need would be much more glaring and urgent.

In order to assess the off-track-to-graduate population, BPS provided the EY-Parthenon team with blinded student data on all students in grades 6 through 12 who enrolled in BPS at some point over the past eight years (SY2009–2010 through SY2016–2017). For the purposes of this study, **a student is defined as "off-track to graduate" if they are at least two years behind relative to typical age and credit accumulation patterns of graduates of BPS high schools**. Although BPS does not have standardized credit requirements for graduation across its high schools, on average, analysis of student-level data indicated that earning at least 5.5 credits can be used as an effective proxy for one year of credit accumulation and is highly correlated with students' eventual graduation outcomes. This definition was confirmed with BPS after an extensive process of evaluation and iteration with a Steering Committee of BPS stakeholders, and analysis shows that it is highly correlated with students' graduation outcomes.

### Age and credit thresholds for defining off-track to graduate

Age	Cumulative credits
16	Fewer than 5.5 credits
17	Fewer than 11 credits
18	Fewer than 16.5 credits
19 or older	Fewer than 22 credits

This definition utilizes credit data that is reported to the district by high schools and, as such, is reliant upon the integrity of the data itself. The data was evaluated by both BPS stakeholders and the EY-Parthenon team to assess enrollment trends over multiple years and

cohorts. Overall, we observe that credit accumulation is highly correlated with student outcomes.[4] Wherever possible, the final high school student outcomes (graduation, dropout, etc.) reflected in the analysis have also been verified by the state Department of Elementary and Secondary Education (DESE).

The vast majority of off-track students attend open enrollment schools, with the next largest portion attending alternative schools, as Figure 1 illustrates. Selective and exam schools enroll very few off-track students. Enrollment patterns reflect disparities that exist across Boston Public Schools: Black and Latino students are significantly more likely to be enrolled in open enrollment schools, while the majority of white and Asian students are enrolled in exam and selective schools (Figure 2).[5] Furthermore, less than 10% of English learners and 20% of special education students are enrolled in exam and selective schools. The majority of both subgroups attend open enrollment schools. These patterns and their effects are explored in more detail in the body of this report.

Figure 1: BPS off-track to graduate high school student population, by school type, SY2015–2016
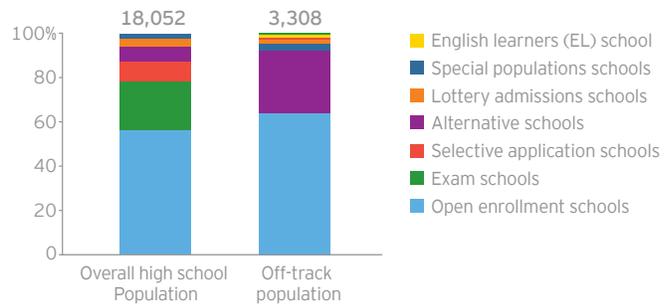
Note: Non-diploma bound students excluded from analysis; school enrollment numbers reflect enrollment as of September 2015; source: BPS data; EY-Parthenon analysis

Figure 2: High school placement by race/ethnicity, snapshot view, SY2015–2016
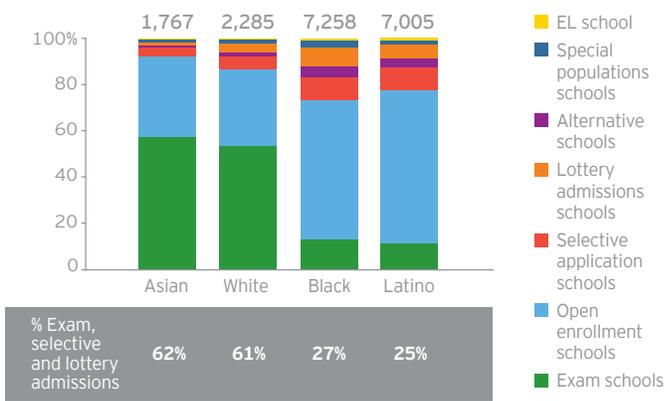
Note: Native American and other students are not included due to sample size issues; source: BPS data; EY-Parthenon analysis

Part 1: A systemic and long-standing challenge

Today, there are thousands of BPS high school students who fall off track during their time in BPS high schools. At the start of the 2015–2016 school year alone, 3,308 students, or approximately 18% of the high school population, were off-track to graduate — meaning they were two or more years behind in high school.[6] Twenty-four percent of the Class of 2017 fell off track at some point during their high school careers, and the vast majority of these students never recovered to graduate from high school.[7]

Falling off track and not making it to high school graduation has potentially dire consequences for these young people in their educational and life outcomes. It is well-documented in national research that dropouts earn less money over their lifetime, are more likely to be incarcerated and are likely to have poorer health outcomes, including lower life expectancy.[8] High school graduation is not enough to secure success in college or career, but it is a necessary gateway to future opportunities and a key goal for BPS as a district. For the approximately one in every four BPS students today who fall off track and are in danger of not graduating, the stakes are high.

Given the statistics that show success in the modern economy requires not just a high school diploma, but

success in postsecondary education, it's all the more important to find ways of not just keeping students on track to graduation, but to longer term success.

> When I first got to high school, I got lost a lot and asking for help was hard. I didn't know anyone when I entered my high school. We didn't really get to know the school before they jumped into teaching.
>
> BPS high school student*

In addition to the consequences for students, BPS as a system will struggle to make significant further progress in its graduation rate without addressing the needs of off-track youth: both preventing students from falling off track and helping students re-engage once they have. This is because the graduation rate for on-track students is already very high: for those high school students who never fall more than one year behind, 9 out of 10 graduate within 6 years. Just 35% of off-track students, on the other hand, graduate within 6 years. Off-track students represent the vast majority of all BPS dropouts. The key to system-wide improvement on high school graduation is in the needs of off-track youth (Figure 3).

As Figure 4 indicates, the demographics of off-track students mirror the broader achievement and opportunity gaps that appear within Boston Public Schools: off-track students are disproportionately more likely to be Black or Latino. Although white and Asian students make up 22%

Figure 3: Graduation rates of on-track and off-track students

Students who stay "on track": graduation outcomes

84% of on-track students graduate within **four years**

An **additional 5%** of on-track students graduate within **six years**

Students with a history of falling "off track": graduation outcomes

25% of off-track students graduate within **four years**

An **additional 11%** of off-track students graduate within **six years**

Note: Analysis includes all students in the class of 2014 who are considered diploma-bound; source BPS data; EY-Parthenon analysis

* All quotes throughout the document came from focus groups conducted with students.

of all high school enrollment, they represent only 10% of the off-track to graduate population. Similarly, students who are English learners and/or who have special education status are more likely to have fallen off track.
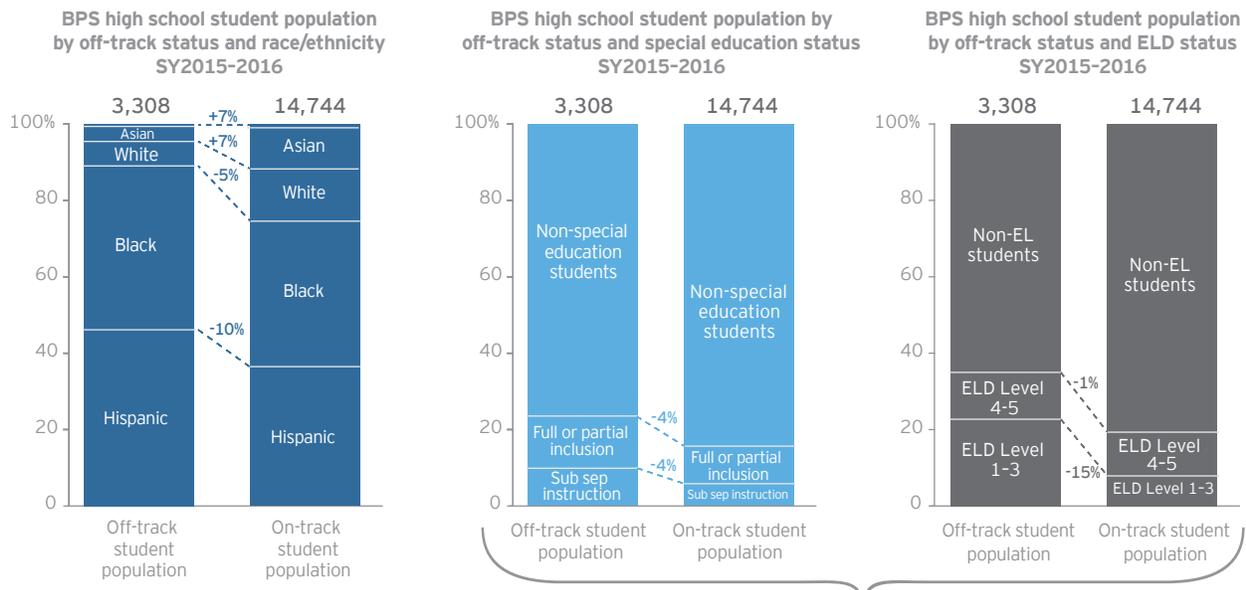
The fact that so many BPS high school students are being allowed to fall off track is a systemic and long-standing challenge. In 2007, a similar study of off-track students was completed by EY-Parthenon working with BPS. At the time, the district had approximately 2,000 more high school students, with a broadly similar profile of student need.[9] Off-track students represented 20% of the high school population. The district's graduation rate was stagnant at 60%, and the drop-out rate stood at 9.1%. Over the past decade, BPS has made significant strides in terms of graduation rates (now at 73%) and has reduced the annual drop-out rate by half.

But analysis indicates the percentage of all students who are off-track has changed only marginally: 18% of the high school population is now off-track, down 2% from a decade

earlier. According to interviews with BPS stakeholders, this is despite considerable efforts on the part of the city, BPS and its partners, which included the following actions:

‣ Around the time of the 2007 report, BPS had recently broken up large comprehensive high schools into smaller schools as a potential strategy for creating more effective high schools, and this change was soon to be in process for other schools; since then, many of these schools have closed or merged.

‣ Subsequently, the district aimed to turn around a number of significantly underperforming schools (e.g., the Burke High School, the English High School).

‣ BPS also opened innovative new schools, some of which target English learners through dual language offerings and students with special needs in inclusion settings (e.g., Margarita Muñiz Academy, Newcomers Academy, Lyon Pilot High School, Henderson Inclusion High School).

Figure 4: Demographics of off-track students

BPS high school student population by off-track status and race/ethnicity SY2015–2016

BPS high school student population by off-track status and special education status SY2015–2016

BPS high school student population by off-track status and ELD status SY2015–2016

The disparity for students who are both special education and EL is particularly acute: while a quarter of all students fall off-track in the Class of 2017, almost half — 48% — of students who are both special education and EL fall off track.

Note: Analysis excludes non-diploma bound students; source: BPS data; EY-Parthenon analysis

- Following the 2007 report, the district also sought to reform the alternative education system to serve Boston's most at-risk students, including by growing the Boston Day and Evening Academy and formalizing the Boston Collaborative High School program.

- The district also made substantial investments in strategies such as credit recovery.

- The Re-Engagement Center, which helps to re-enroll students who have dropped out of school and provides a pathway to alternative education for those who need a different environment, was launched in 2009.

- The district made extensive reform and investment in its human capital strategies, most notably in shifting to an early hiring model in which all schools can select their teachers earlier in the year.

- In 2008, Success Boston was launched with the goal of doubling the college completion rate of BPS students. This initiative is led by BPS, Boston Foundation, the City of Boston, 37 local higher education institutions and local nonprofit partners. Through individual high school student coaching, Success Boston seeks to prepare BPS students to thrive in a higher education setting, earn a degree and successfully connect to employment pathways.

- Finally, the district created a funding formula that was intended to more effectively differentiate based on factors of student need — particularly special education — known as Weighted Student Funding.

The combination of these and other actions appears to have had a positive impact on graduation rates, perhaps by reaching those students who were already closer to graduation. But the data suggest that BPS faces a deeper issue in changing outcomes for the most underserved students who are two or more years off-track. To more dramatically improve the trajectory of progress for these students may mean considering more fundamental issues at both the system and school level. Our findings and recommendations aim to highlight exactly where BPS and city leaders could focus to define their path forward.

Why high school?

A logical and common question when discussing youth who fall off track in high school is: isn't this really a problem that starts earlier? Shouldn't we be focusing on middle school, elementary school or even early childhood? Indeed, these are all important parts of the solution. For many students, their struggles in high school do have roots in earlier grades: nearly half of all students who fall off track in BPS high schools showed an identifiable "early warning indicator" in 8th grade (Figure 5.)
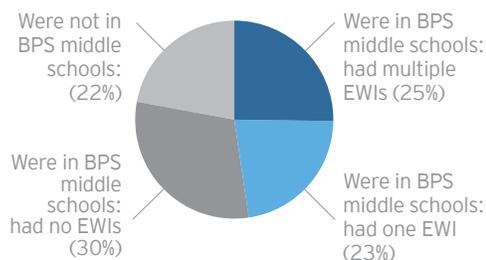
At the same time, two key facts illustrate how **the needs of off-track youth in high school must also be addressed with high school strategies.** First, data indicates that large numbers of students — about one-third of all off-track youth in BPS — are falling two or more years behind in high school despite having **no** early warning indicators in 8th grade. Another group — approximately 20% of all off-track youth — enters BPS for the first time in high school. These students may or may not have shown early warning indicators in their middle schools, but BPS's opportunity to address their needs occurs only during high school. All this means that, for the **majority** of off-track youth in BPS, the high school years are the critical or only point to effect change.

Early warning indicators (EWIs)

EWIs: characteristics students display in the 8th grade that correlate with students falling off track and not graduating high school.

- **Attendance:** less than 85% attendance
- **Discipline:** 1 or more days suspended out of school
- **Core course failure:** 1 or more English or math courses failed
- **MCAS:** Warning level on both 8th grade MCAS exams

Figure 5: Off-track population by early warning indicator status, class of 2017 cohort

Were not in BPS middle schools: (22%)

Were in BPS middle schools: had multiple EWIs (25%)

Were in BPS middle schools: had no EWIs (30%)

Were in BPS middle schools: had one EWI (23%)

Note: Analysis excludes non-diploma bound students; source: BPS data; EY-Parthenon analysis

Part II: Key findings

Finding 1: Many open enrollment schools are not meeting the high needs of many of their students – and demand for these schools has fallen over time.

The majority of BPS high school students, and the vast majority of students who have fallen off track to graduate, attend open enrollment schools. Though some of these schools demonstrate pockets of strong performance, many are places where large proportions of students appear to be falling off track (often with no history of early warning indicators) and where fewer and fewer students and families want to enroll. Together, the data suggest the need for a dramatic new approach to improving open enrollment schools – with the progress at some schools suggesting the promise that all schools can deliver much stronger outcomes for all students than is seen today.

Struggling performance: While a quarter (24%) of all BPS high school students fall off track, data suggest that more than a third of students in open enrollment high schools (37%) fall off track at some point in their high school career. Perhaps the starkest illustration of the need for improvement in these schools is the large number of students who exhibited no prior observed early warning indicators in the 8th grade and are falling off track for the first time in high school (Figure 5). These are students who passed their core 8th grade classes, did not receive Warning levels on their MCAS exams and who did not show signs of poor attendance or incidence of suspension. Yet more than a fifth of these students (22%) fall off track in open enrollment high schools. Open enrollment schools also serve large numbers of students who do enter the 9th grade with some sort of "early warning indicator," as well as a substantial portion of students who have other types of differentiated need (English learners, substantially separate special education students, etc.). But most open enrollment schools – especially those where large numbers of students are falling off track – still appear to meaningfully underperform even when the needs (including early warning indicator status, special education/EL status and other demographic characteristics) of their student population are controlled for in a regression analysis (Figure 6).[10]

Figure 6: Actual vs. expected cohort graduation rates by school attended in 9th grade, Class of 2017 cohort
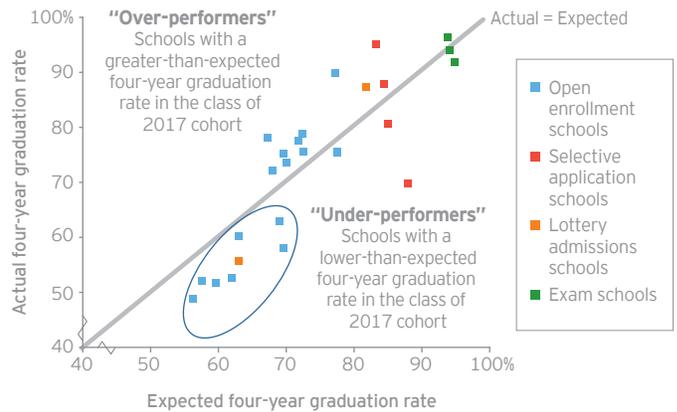
Note: Expected and actual graduation rates are shown only for students in the Class of 2017 cohort who were enrolled in BPS in the 8th grade and in their respective high schools as first-time 9th graders in 2013–2014 (n=3,101); source: BPS data; EY-Parthenon analysis

Declining demand: Over the past decade, many open enrollment schools have seen significant declines in the number of students they serve – as much as 30–50% down from peak enrollment (Figure 7). With the overall city population of high-school-age children dropping only slightly over this period, these numbers suggest that many families have been "voting with their feet" when it comes to choosing schools for their children. Moreover, the current level of enrollment that does exist in these schools is not necessarily a result of family demand. Instead, it is often propped up as a result of policies BPS has adopted that restrict students applying in later rounds to only schools that did not fill through Round 1, that assign students to these schools after every other seat is full ("administrative assignment") or that place programs for students with particular educational needs (special education students and English learners) disproportionately at under-selected schools. In many open enrollment schools, these policy decisions – rather than true family choice – fill anywhere from 50–80% of 9th grade seats (Figure 8).

Figure 7: Peak high school enrollment vs. recent enrollment, SY2008–2009 – SY2016–2017
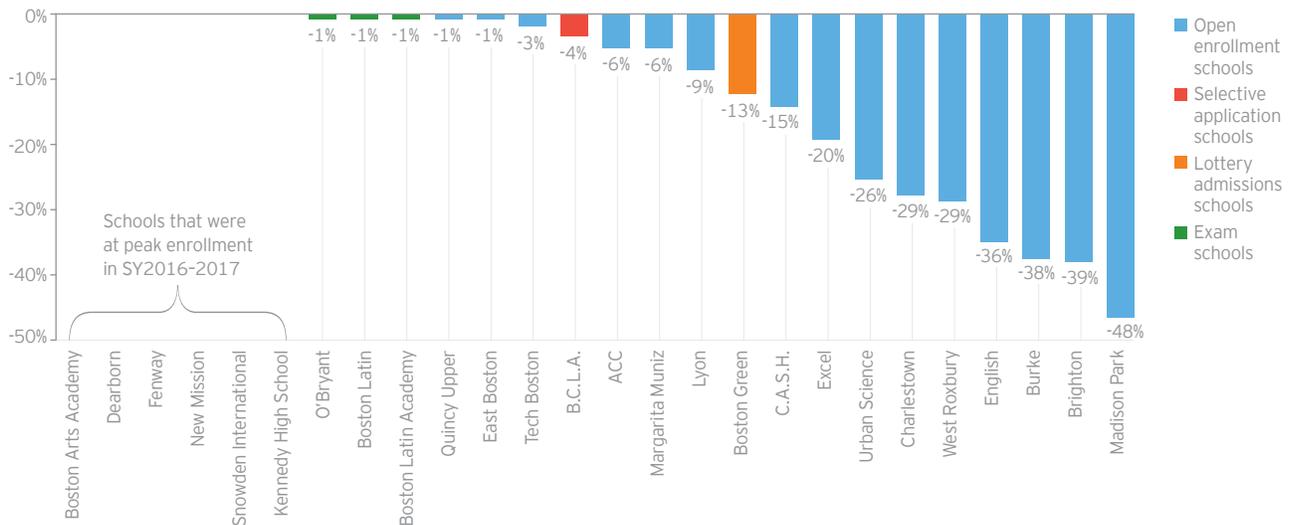
Note: In DESE data reports; Newcomer's Academy is included within Boston International; current enrollment is measured in September, BINCA's peak enrollment doesn't occur until later in the year, so they are excluded from this analysis; from SY2015–2018, Burke and Dearborn shared a building, which could affect Burke's enrollment numbers, however enrollment at the school was declining at ~4% per year prior to co-location and the schools will occupy separate buildings in fall 2018; source: BPS data; DESE data; EY-Parthenon analysis

Figure 8: Number of entering 9th graders by entry mode
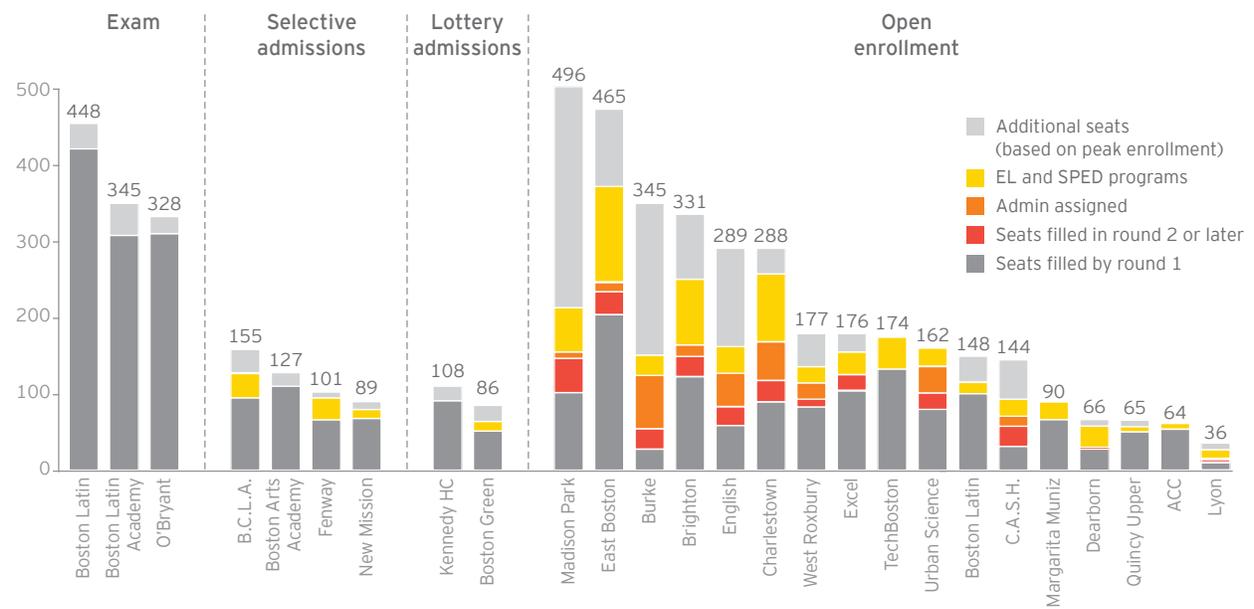
Note: "Peak" enrollment is here defined as the maximum 9th grade enrollment a school has experienced over the past decade; school assignment data is shown for first-time 9th graders as of September 2015, and therefore does not include late entrants or repeating 9th graders; the September snapshot does not accurately reflect enrollment at BINCA, which receives many late entrants, so it is exclude from this analysis; beginning in SY2015, Burke and Dearborn have shared a building – this co-location could affect Burke's enrollment numbers, though enrollment at the school was declining at ~4% per year prior to co-location and the schools will be in separate buildings beginning in SY2018–19; source: BPS data; DESE data; EY-Parthenon analysis

Figure 9: Performance relative to expected graduation rate – TechBoston Academy
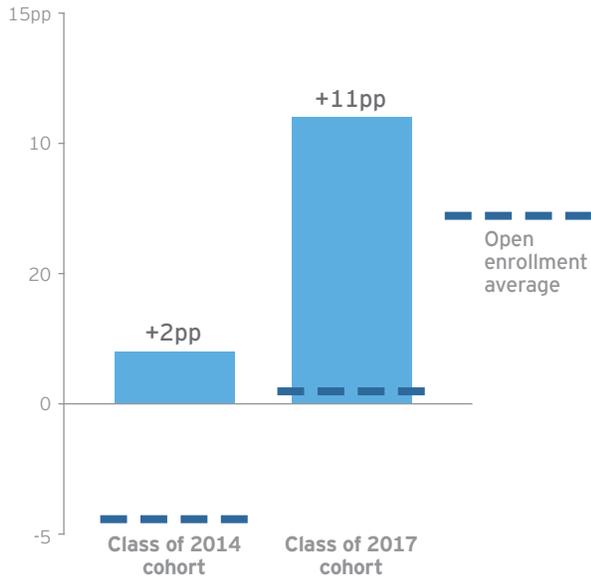
Note: Relative performance based on regression analysis; all graduation rates shown are 4-year outcomes of Class of 2017 students who were enrolled in a given school as first time 9th graders in SY2013–2014 and who attended a BPS school for 8th grade; source: BPS Data; EY-Parthenon analysis

Signs of promise in the past few years: Despite the challenges in many schools, signs of promise in BPS – at the system and school level - are showing that it is possible to more effectively serve students who have substantial and diverse needs. As a system, BPS open enrollment schools show accelerating progress over the past three years in particular: in the Class of 2014, based on data analysis, 33% of 9th graders with no 8th grade early warning indicators fell off track in these schools. For the Class of 2017, this had improved to 22%. But expanding on that progress will have to involve more dramatic gains at the schools that have struggled the most.
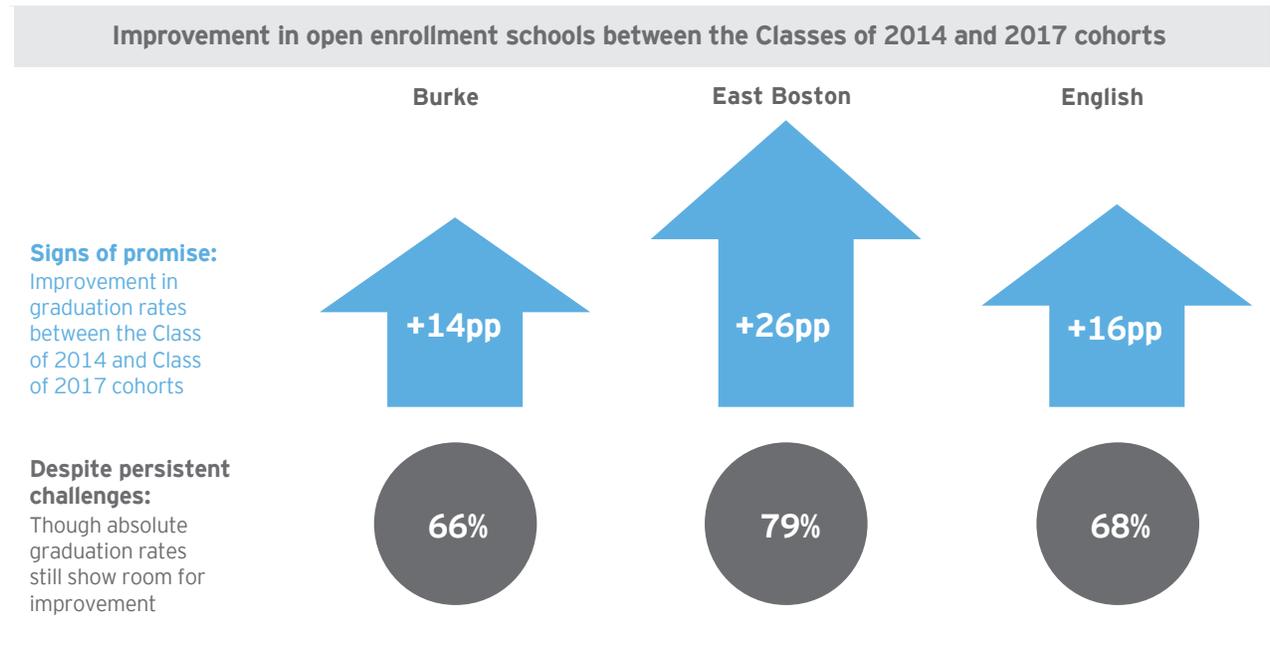
In considering how to move forward with these schools, there is an opportunity to learn from open enrollment schools that are showing the strongest performance or greatest progress – which are identified by using measures that adjust for the student population being served. For instance, TechBoston Academy (TBA), an open enrollment school with approximately 550 high

school students,[11] has demonstrated its ability to over-perform graduation expectations in the regression analysis over multiple cohorts. Its overall graduation rate is high and rising, and its seats are in high demand from families (Figure 9). TBA demonstrates promising high school outcomes for students even though a significant share (39%) of its students enter the 9th grade with 8th grade risk factors (EWIs), which is higher than the average for open enrollment schools (30%). Similarly, progress at schools such as the Jeremiah E. Burke High School and the English High School (both subject to turnaround over the last 10 years), and East Boston High School (a Level 3 school), also provide potential examples of strong practice based on their improved student outcomes (Figure 10). In separate qualitative assessments commissioned by BPS, observers of these promising schools have identified three key factors – student supports to graduation, positive youth development and strategic use of resources and data by empowered school leaders – as common points of strength. School designs that include a focus on these factors may provide a starting point for dramatic improvements in the schools that are lagging today.

> " The key to our success is relationships between students and staff. One of the most critical things is knowing what your students are carrying with them when they start 9th grade – knowing your students' stories. It's an ongoing, 24/7 process of making sure you know what's going on with your students at all times. Our model commits to one student support worker per grade level; we also intentionally build student schedules so everyone can be successful and regularly touch base with students' families. It doesn't matter how big your school is, it's about committing to systems that continuously monitor academic and social emotional learning performance. In my eyes, no student should ever fall through the cracks, because we have multiple layers of support to catch students before they fail. I think the strength and weakness of schools is that they are always changing and we are constantly looking at how we can continue to improve and redesign our structure to better support students. The work is not done until every student in every grade is successful 100% of the time. "
>
> Nora Vernazza, Co-Headmaster, TechBoston Academy

Figure 10: Table with school performance

Improvement in open enrollment schools between the Classes of 2014 and 2017 cohorts

	Burke	East Boston	English
Signs of promise: Improvement in graduation rates between the Class of 2014 and Class of 2017 cohorts	+14pp	+26pp	+16pp
Despite persistent challenges: Though absolute graduation rates still show room for improvement	66%	79%	68%

Note: Analysis only considers students who were first-time 9th graders in SY2015–2016; all graduation rates shown are 4-year outcomes of Class of 2017 students who were enrolled in a given school as first time 9th graders in 2013–14 and who attended a BPS school for 8th grade; source: BPS data; EY-Parthenon analysis

Finding 2: Part of the difficulty for open enrollment schools results from the stratification of the BPS system, in which high concentrations of need in a subset of schools exacerbate the challenge of helping students succeed.

Although BPS high schools have much room for improvement based on the students they serve today, it is also true that policies and practices of student assignment create conditions in which many schools are not set up for success. For a limited number of schools, "expected" graduation rates based on the regression analysis are high – nearly 100%. But for the majority of schools, and particularly open enrollment schools, expected graduation rates are well below 80% and in some cases below 70% or 60% (Figure 11). These trends correlate with race and other demographics: the majority (65%) of white and Asian students are enrolled in schools with an expected

graduation rate above 80%. The opposite is true for Black and Latino students: only 27% attend schools with an expected graduation rate above 80% and nearly 40% are enrolled in schools where the expected rate is below 65%. This disparity also holds for English learners and special education students, where almost half are enrolled in schools with an expected graduation rate below 65%.

Ultimately, the way in which students are able to access seats in BPS high schools contributes to the stratification of the system. Higher levels of need in a given school make it more challenging to serve all students well, and open enrollment schools have especially high concentrations of student need. Open enrollment schools serve 53% of the overall student population in Boston, but they serve close to 80% of students with some type of differentiated need, including substantially separate special education students, English learners, students

> " Adult members of the school community at the Burke work as 'organized collectives' and understand that the ongoing fruits of their labor are crucial to closing the achievement gap. We work collaboratively and consistently to promote design principles that help drive improvement. For instance, in our school community, 85% of our students have experienced trauma in their lives. As a response, our entire staff has been trained in trauma sensitive pedagogy and have integrated social emotional learning as a daily instructional routine. We have also partnered with community agencies to provide counseling for every child that needs or desires it. Equally important in our work at Burke is the importance of challenging our understanding of equality to engage a very nuanced practice of equity and a whole-child approach. This means building meaningful and altruistic relationships with students and reorienting our school culture, processes and structures to respond to the varied needs that are so often characterized by our diverse student population. Giving every student what he or she needs to reach their full potential is the cornerstone of our growth and our existence: there is no place here for a silver bullet or a one-size-fits-all methodology. Finally, we bring ourselves to the work every single day with intentionality and teach and lead with love, respect and a focus on readiness for life. "
>
> Lindsa McIntyre, Jeremiah E. Burke High School

who demonstrated early warning indicators in 8th grade and students who were over-age upon entering high school. In most open enrollment schools, more than 60% of the entering 9th grade class had at least one of these indicators of need — almost double the concentration of need in selective schools and five times the level of need of exam schools (Figure 12).

There are a variety of BPS policy decisions that might contribute to this demographic disparity. To begin with, nearly 45% of seats for incoming 9th graders are excluded from the main choice lottery process. These seats are largely governed by more selective modes of entry, such as applications or exams, which funnel higher performing students away from open enrollment schools and toward exam and selective schools. On top of this, when students with specific educational needs, including English learners and special education students educated

in substantially separate environments, enter the high school choice process, they face a limited set of choices.[12] These students are encouraged to enroll in programs designed to accommodate their needs — and 90% of the seats for these programs have been placed by BPS in open enrollment schools (with about half of these seats in only four schools). Finally, 95% of students who enter in late lottery rounds or enter schools mid-year are assigned to open enrollment schools. These students are nearly three times as likely to have demonstrated prior risk factors in the 8th grade as their peers who were assigned a school in the first round of the choice lottery.

The impact of this high level of concentration in open enrollment schools in and of itself can have a detrimental impact on the odds of students' success in these schools. Utilizing a regression analysis, this study can assess the odds of graduation for any student enrolled in any BPS high school based on the district's current makeup. For example, the regression analysis indicates that an illustrative "at-risk student"[13] today has a 70% chance of graduating in an average BPS high school. But placing this student in environments that have different "concentrations of need" (defined as the percent of the student body that demonstrated 8th grade early warning indicators) appears to have a profound impact on the student's odds of success. In a "low concentration" school, the student's expected graduation rate rises to 85%. In a "high concentration" school, the student's odds of graduating drop to just 52% (Figure 13). This means that changing nothing about a student or a school other than the concentration of need can change an at-risk student's

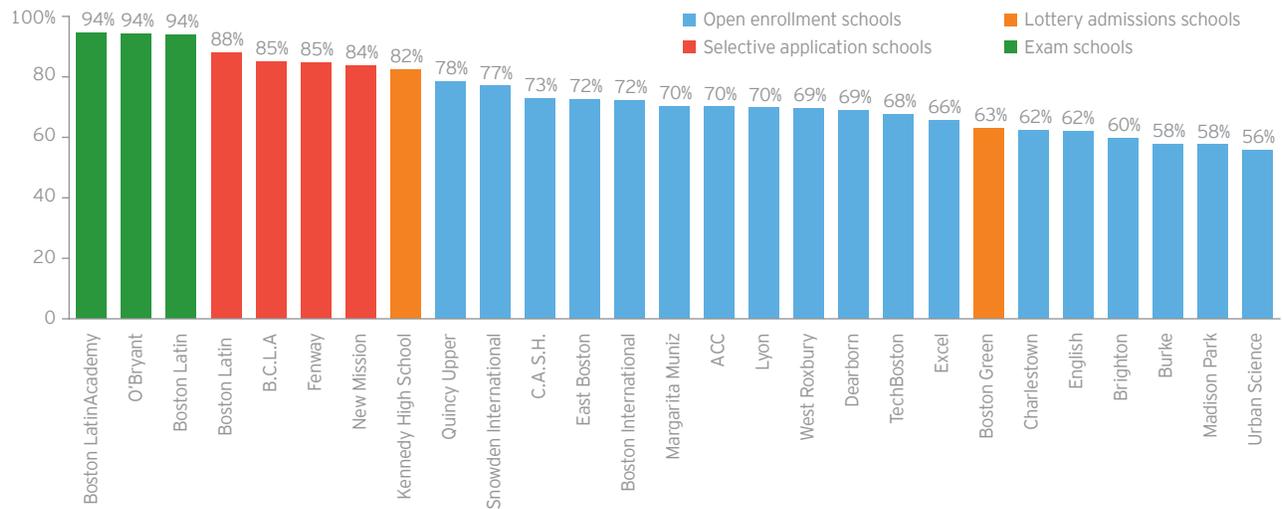> " I wanted to go to [pilot school]. They had an essay, though. I didn't end up doing it. I wasn't, like, trying to write an essay to get into a school. Looking back, I guess I should have done it. "
>
> BPS high school student

> " In 8th grade, they didn't teach you about high schools. They just gave you a list, you picked your top three and that was it. It was right there, you chose that day. "
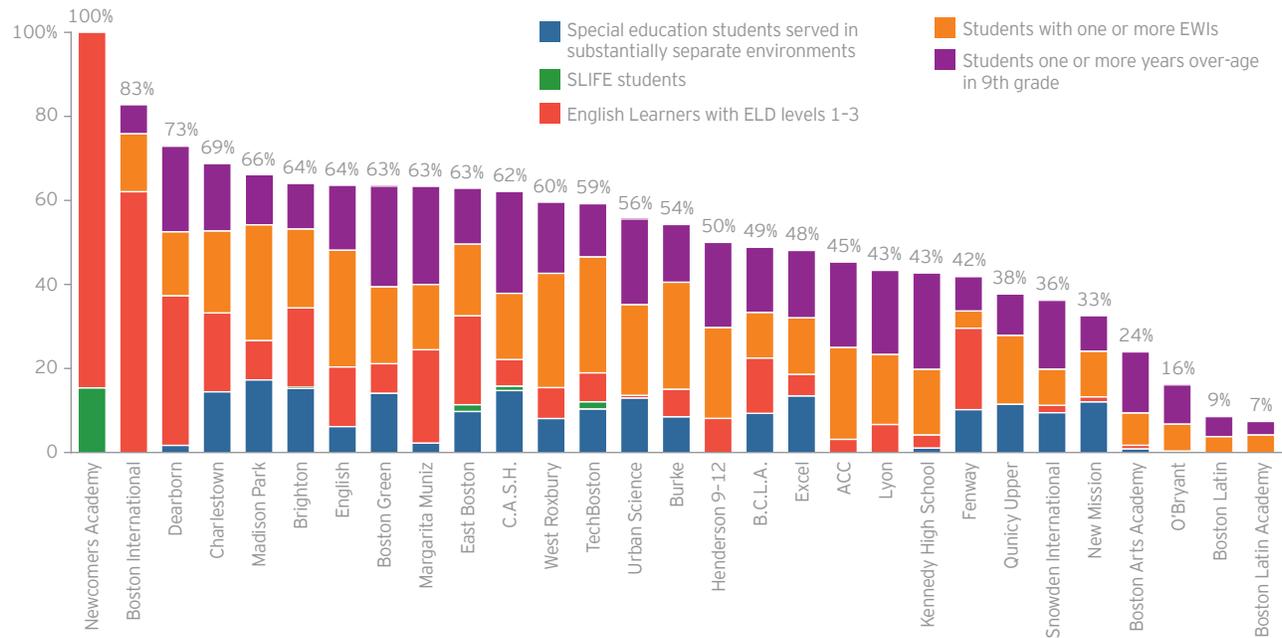>
> BPS high school student

Figure 11: Expected four-year graduation rates by school attended in 9th grade, Class of 2017 cohort

Legend: ■ Open enrollment schools   ■ Lottery admissions schools   ■ Selective application schools   ■ Exam schools

School	Rate
Boston LatinAcademy	94%
O'Bryant	94%
Boston Latin	94%
Boston Latin	88%
B.C.L.A	85%
Fenway	85%
New Mission	84%
Kennedy High School	82%
Quincy Upper	78%
Snowden International	77%
C.A.S.H.	73%
East Boston	72%
Boston International	72%
Margarita Muniz	70%
ACC	70%
Lyon	70%
West Roxbury	69%
Dearborn	69%
TechBoston	68%
Excel	66%
Boston Green	63%
Charlestown	62%
English	62%
Brighton	60%
Burke	58%
Madison Park	58%
Urban Science	56%

Note: Expected and actual graduation rates are shown only for students in the Class of 2017 cohort who were enrolled in BPS in 8th grade and in their respective high schools as first-time 9th graders in SY2013–2014 (n=3,101); model explains ~73% of the variation in actual graduation rates of schools in which first-time 9th graders of the Class of 2017 cohort enroll; source: BPS data; EY-Parthenon analysis

Figure 12: Number of entering 9th graders with differentiated needs relative to total entering 9th grade class, snapshot view, SY2015–2016

Legend: ■ Special education students served in substantially separate environments   ■ Students with one or more EWIs   ■ SLIFE students   ■ Students one or more years over-age in 9th grade   ■ English Learners with ELD levels 1–3

School	%
Newcomers Academy	100%
Boston International	83%
Dearborn	73%
Charlestown	69%
Madison Park	66%
Brighton	64%
English	64%
Boston Green	63%
Margarita Muniz	63%
East Boston	63%
C.A.S.H.	62%
West Roxbury	60%
TechBoston	59%
Urban Science	56%
Burke	54%
Henderson 9-12	50%
B.C.L.A.	49%
Excel	48%
ACC	45%
Lyon	43%
Kennedy High School	43%
Fenway	42%
Quincy Upper	38%
Snowden International	36%
New Mission	33%
Boston Arts Academy	24%
O'Bryant	16%
Boston Latin	9%
Boston Latin Academy	7%

Note: Analysis only considers students who were first-time 9th graders in SY2015–2016; students with multiple unique needs are assigned to only one category based on the hierarchy as ordered in the legend above; source: BPS data; EY-Parthenon analysis
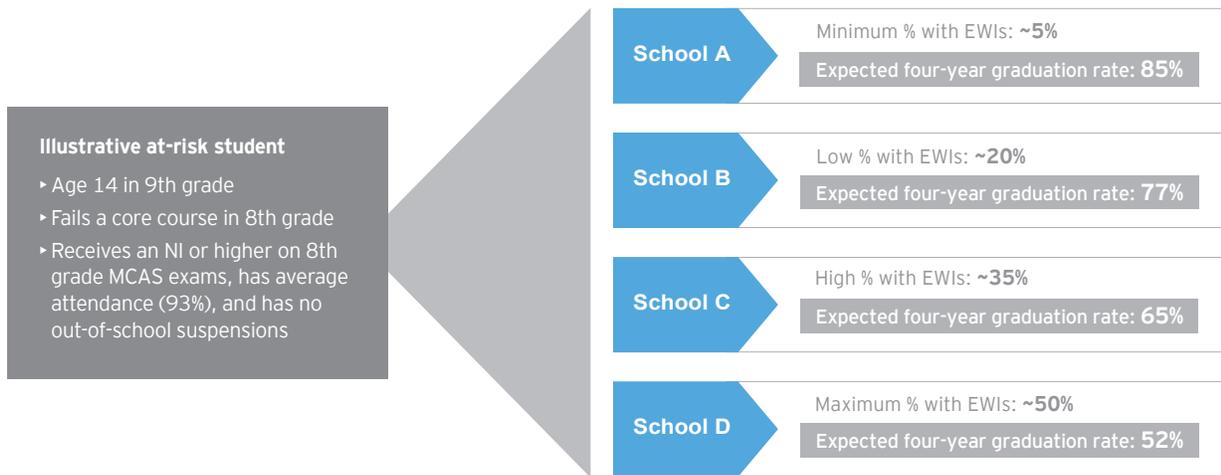
chances of graduating by more than 30 percentage points. And the analysis also shows that the impact of concentration on students is not linear: the more acute the level of need in a school, the steeper the effect on a student's odds of graduating. Yet at-risk students within BPS are disproportionately enrolled in the schools that have the highest concentrations of need.

Finding 3: Funding of BPS high schools does not reflect the highly differentiated levels of need across schools and school types.

BPS' Weighted Student Funding (WSF) formula is intended to "ensure resource equity for all students no matter the school they attend."[14] BPS stakeholders believe WSF has been effective in many respects, especially in delivering significantly differentiated resources to students with disabilities and to English learners. However, BPS' allocation system has not yet differentiated resources in a significant way for other students who are academically at-risk or off-track.

In fiscal year 2017–18 (FY18) BPS budgeted ~$230m for high schools, between school budgets and direct central office supports.[15] About $140m of the $230m, represents the base allocations all high schools receive based on the number of students they enroll in each grade. Another ~$40m flows to high schools based on the WSF to support programming for students with disabilities, English learners and students with limited or interrupted formal education (SLIFE students), and in accordance with legal requirements. The remaining ~$50m can be considered "supplemental resources"[16] in the sense that these are funds over which BPS has the greatest level of discretion to align resources with strategic and policy priorities. The way these supplemental resources are allocated today reflects a range of initiatives, such as vocational education, social and emotional learning and external partnerships. However, only ~$2m is allocated for "high-risk" 9th and 10th graders across all BPS high schools – less than 1% of overall high school funding.

Figure 13: Expected four-year graduation rates by concentration rates by concentration effect at 9th grade school

Illustrative at-risk student
- Age 14 in 9th grade
- Fails a core course in 8th grade
- Receives an NI or higher on 8th grade MCAS exams, has average attendance (93%), and has no out-of-school suspensions

School A
Minimum % with EWIs: **~5%**
Expected four-year graduation rate: **85%**

School B
Low % with EWIs: **~20%**
Expected four-year graduation rate: **77%**

School C
High % with EWIs: **~35%**
Expected four-year graduation rate: **65%**

School D
Maximum % with EWIs: **~50%**
Expected four-year graduation rate: **52%**

💡 **The same student would be expected to have very different graduation outcomes in different school settings as currently designed.**

Note: All school profiles shown here reflect the concentration of students with EWIs who were enrolled in BPS in 8th grade and who are in the 9th grade classes of actual BPS high schools in the SY2015–16 school year; source: BPS data; EY-Parthenon analysis

Figure 14: High school "supplemental resources" vs. school concentration of need, FY2018
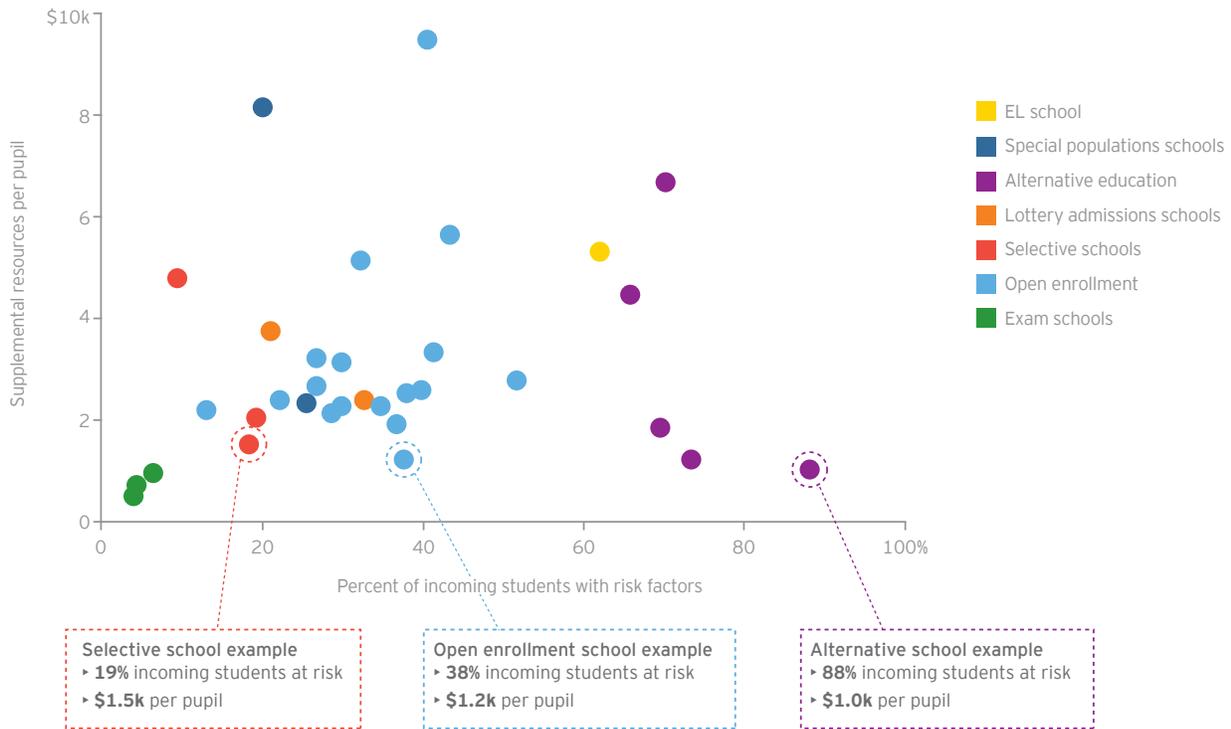
Note: At traditional high schools, % incoming students with risk factors is the share of first-time 9th graders who are already off-track at their entry to high school, or are flagged as having at least one EWI from 8th grade; at alternative high schools, percentage incoming students with risk factors is the share of students who are off-track at their entry into the alternative school; all student data shown is for the 2015-16 school year; excludes Community Academy, Horace Mann, the Carter Center and the McKinley Schools given the differentiated funding needs of those programs; source: BPS data; EY-Parthenon analysis

On the whole, the $50m of supplemental resources appears to be spread relatively evenly across open enrollment, selective and alternative schools – although these categories of schools serve very different levels of student needs, as Figure 14 illustrates. This lack of differentiation is particularly notable in alternative schools, which serve the most off-track population of students in the system, potentially making it difficult for these schools to adequately differentiate their programming and level of support to meet student needs. One explanation is the districts' current definition of need and reliance on poverty measures to differentiate funding – poverty, as measured by federal free and reduced price lunch programming, is more evenly spread across the district while high-risk student populations are more concentrated.

When seeking resources that could be invested to support off-track youth, it is also worth considering the impact that school excess capacity has on BPS' budget. Over the past decade, BPS has transformed, opened and expanded a number of high schools, with the net effect that there are now roughly 400 more high school seats available today at open enrollment, selective, lottery and exam schools than there were 10 years ago.[17] At the same time, however, enrollment in these schools has fallen by nearly 15%, with declines concentrated in the subset of open enrollment schools in which at-risk and high-need students are most likely to be enrolled (as illustrated by Figure 7). The resources invested in sustaining these additional seats – for example, the fixed costs associated

with operating each school – could be considered resources that would otherwise be available for improved instruction or deeper student supports if schools were more fully enrolled.

None of this is to suggest that the solution to the challenge of serving off-track students can be found in greater levels of funding alone, or that schools with higher levels of financial resources will necessarily perform better. In keeping with the guiding principles of Weighted Student Funding, however, BPS should continue to consider whether its resource allocation would better reflect all dimensions of need if it accounted for a student's at-risk or off-track status in a more intentional way. Beginning in FY19, BPS is already taking a step in this direction through the piloting of the Opportunity Index. At the high school level, the Opportunity Index primarily considers students' prior

academic and non-academic performance, a metric that is similar to the early warning indicators analyzed in this study. BPS indicates that it is allocating several million to high schools through this method.

Finding 4: Students who eventually become off-track frequently transfer from school to school within BPS and often experience poor outcomes when they transfer.

Across BPS, many students transfer between schools throughout their high school career. These are students moving from school to school within the district, rather than those who move out of the city or leave the district altogether. Some level of transfer activity reflects expected mobility of students and families. But the data show that the percentage of students who transfer from one high school to another varies widely when comparing BPS schools, ranging anywhere from 3% to 31% of an

Figure 15: Percentage of students transferred from school attended in 9th grade, Class of 2017 cohort
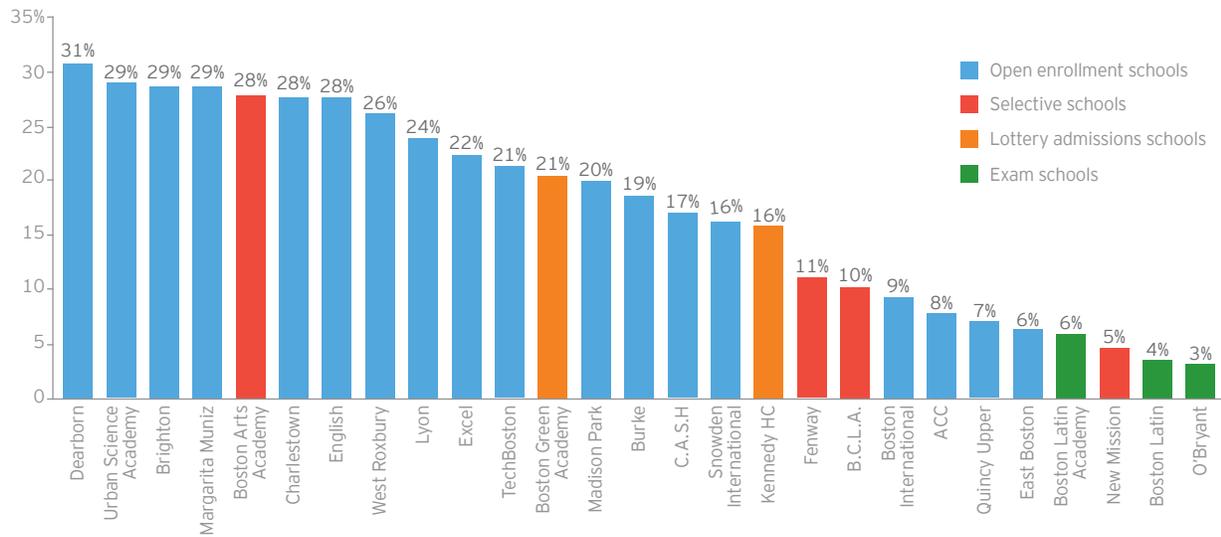
Note: All transfer and graduation rates shown are four-year outcomes of Class of 2017 students who were enrolled in the given school as first time 9th graders in SY2013-14 and who attended a BPS school for 8th grade; source: BPS data; EY-Parthenon analysis

Figure 16: Graduation rate of students who remain in vs. transfer from 9th grade school, Class of 2017 cohort

Open enrollment school 1

Open enrollment school 2

Selective school 1
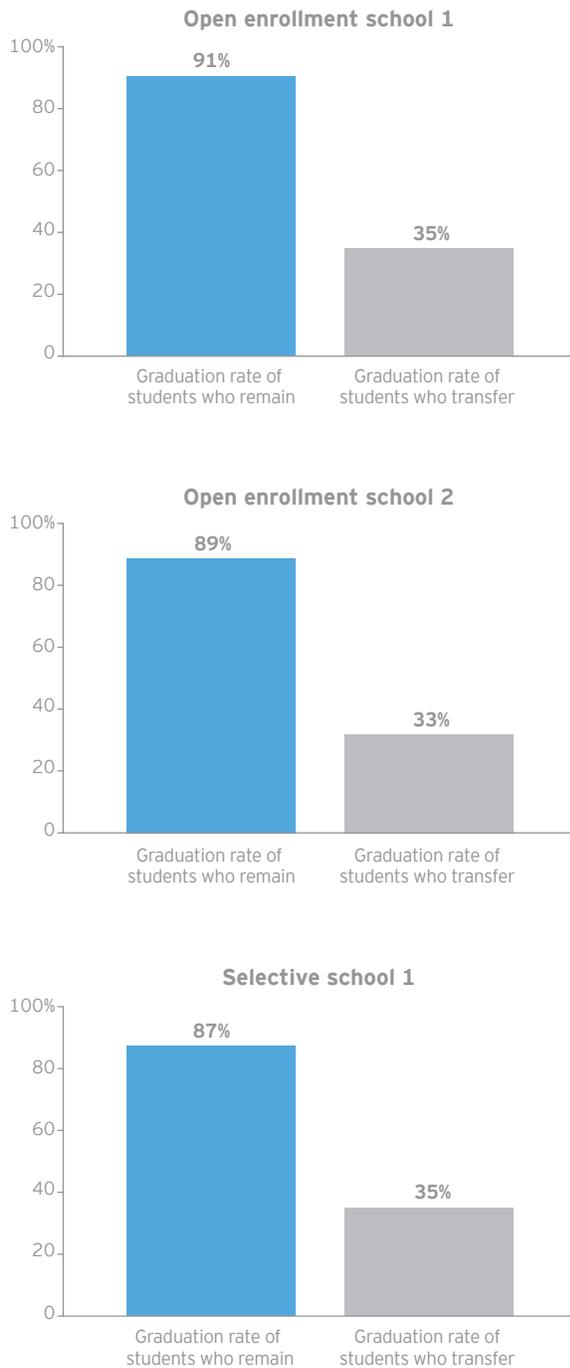
Source: BPS data; EY-Parthenon analysis

incoming freshman class transferring to a different BPS school during their high school journey (Figure 15). The variability between school transfer rates suggests that the issue is not just one of natural student mobility; rather, it raises questions of what other factors may be contributing to the disparity, including whether off-track students are being encouraged by their schools to find another place to enroll. In fact, off-track students are two to three times more likely to transfer from their 9th grade school than on-track students.
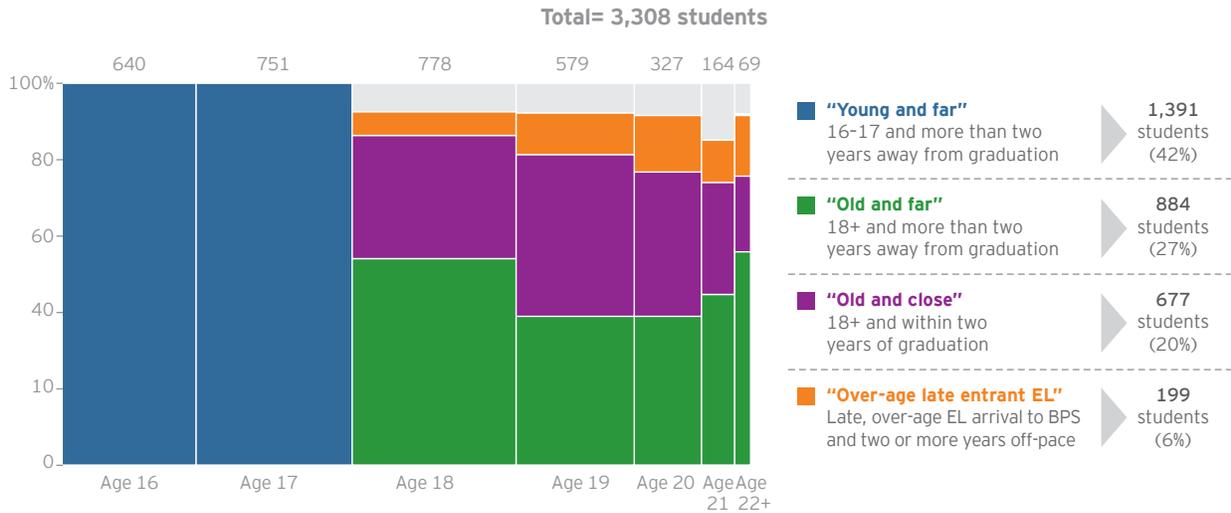
While there are certainly situations in which a transfer is in the best interest of a student, the overall outcomes of students who transfer within BPS suggest that this is a trend that warrants closer management and a higher level of accountability. On average, data indicate that these students are not performing better in their new environments; instead, the outcomes of students who transfer lag those who remain in their 9th grade school. In almost every school, students who transfer graduate at considerably lower rates than students who stay in the same school. Figure 16 displays three illustrative schools that align to schools illustrated in Figure 15. In School 1, for example, 91% of the students who entered the school in 9th grade and stayed for their entire high school career graduated in four years. However, just 35% of the students who started at School 1 but eventually transferred to another high school graduated in four years.

> " When I transferred between schools, it was really difficult. The two schools weren't on the same system at all. One had semester classes, the other had full-year classes ... my schedule was all messed up, and that made it even harder to adjust to a new environment. I really needed a lot of support to get through it. "
>
> BPS high school student

The high rate of transfer among off-track students, and the lower outcomes experienced by many of these students, beg important questions: why are so many students transferring from certain schools in the first place? Are high-quality seats available when students seek a transfer? What responsibilities do schools have to hold on to students who are struggling before determining that

Figure 17: BPS off-track student population by age and credits accumulated, snapshot view, SY2015–2016

Total= 3,308 students

640	751	778	579	327	164	69

"Young and far" 1,391
16–17 and more than two students
years away from graduation (42%)

"Old and far" 884
18+ and more than two students
years away from graduation (27%)

"Old and close" 677
18+ and within two students
years of graduation (20%)

"Over-age late entrant EL" 199
Late, over-age EL arrival to BPS students
and two or more years off-pace (6%)

Age axis: Age 16, Age 17, Age 18, Age 19, Age 20, Age 21, Age 22+

Note: Data availability limits the feasibility of analyzing the extent to which "other late entrants" are off-track; there were 157 "other late entrants" enrolled in September 2015; analysis excludes non-diploma bound students; source: BPS data; EY-Parthenon analysis

a transfer should be made? And when transferring is the best option for a student, how might the "home" school, the receiving school and the district monitor the process and better support students throughout the transfer so that they are positioned for success at their new school?

Finding 5: Alternative education schools, on average, are not successfully re-engaging off-track students, and students seeking a placement in alternative schools are frequently unable to find one.

Not all off-track students have the same profile. A 19-year-old student who has accumulated only a year's worth of high school credits and is at risk of aging out of the system before graduation is likely to require a dramatically different school design and set of options than a 16-year-old who is a couple of years behind. To help illuminate one aspect of the range of needs among students who are off-track to graduate, this study segments the population by age and credits accumulated.

These segments can imply the need for different program models and strategies: "young and far (from graduation)," "old and far," "old and close" and "over-age late entrant English Learner" each call for distinct designs and approaches to effectively serve students (Figure 17).

When viewed through the lens of these student segments, the alternative education system does not appear well-designed to align with the mix of distinct student needs it is serving, nor does it offer clear pathways for off-track or disconnected students seeking placement in alternative education schools in the first place.

Today, students can enter alternative education either via a direct school-to-school transfer or by a referral from the Re-Engagement Center (REC).[18] Data evaluated from the REC offers the clearest view of the challenges that students may face in finding a place in an alternative school. Designed originally to conduct outreach to and re-engage students who had already dropped out of school, the REC today is both the primary point

of entry for disconnected students and an additional pathway for students who are seeking a transfer to the community-based alternative programs that fall under Boston Collaborative High School.[19] In the most recent year, data illustrate that while the REC is referring ~80% of the students with whom it interacts to an alternative school, ultimately only half of these students are placed in alternative seats.

For those students who are not placed by the REC, the majority end up dropping out or remain disconnected from school. School leaders and other stakeholders interviewed cite a variety of reasons why this may occur, including students not persisting through the referral process, specific admissions criteria of alternative education programs in some cases and an inability of alternative programs to serve some students with unique needs or profiles because they lack the necessary settings, resources or designs. The problem is not simply that alternative programs are full; because enrollment in alternative education programs can fluctuate widely throughout the year, seats may go unfilled despite students' attempts to enroll. Regardless, the district must grapple with the number of students who are seeking an alternative education seat but are not able to find one that can suit their specific needs. More often than not, these students do not go on to graduate.[20]

At the same time, the challenging reality is that those students who do gain access to an alternative school are, on average, not performing better in the alternative school than comparable students who remain in open enrollment schools. For the most recent six-year cohort, both attendance rates and graduation rates in the alternative education system are lower than for off-track students who remain in traditional schools. The average attendance rate for off-track students is 56% in alternative education versus 77% in all other BPS high schools. Likewise, the six-year graduation rate for off-track students in alternative education schools is 30% versus 39% in all other schools. These lagging outcomes for alternative schools hold even after controlling for and comparing students who have similar risk profiles between

> " I went to an open enrollment school first, but I joined with all of my middle school friends. I ended up getting in trouble with them and got expelled there, so I went to an alternative school. There was no motivation there at all. They let us do whatever we wanted. "
>
> BPS high school student

A successful alternative education system would be one that re-engages off-track students, even generating outcomes for off-track students that exceed outcomes for off-track students in traditional schools. What, then, may be contributing to an alternative education system with lagging outcomes? Today, data indicates that alternative schools often enroll a wide range of off-track students across all age and credit-based segments, despite the fact that these profiles likely reflect very different student needs. Furthermore, the system does not appear to have models intentionally tailored to serve these differentiated needs, effectively asking the alternative schools to be all things for all students. For a set of schools already charged with serving students who are most off-track — and who are not currently afforded a differentiated set of resources — it is worth considering the redesign efforts that may be needed to successfully create a set of high-quality alternative education offerings.

Part III: Recommendations

The issues described in this report are sustained and systemic in nature. They are not new to this administration and, unaddressed, they could be expected to persist into the future. To enable more dramatic and lasting improvement, a holistic and integrated approach is likely needed. There will be changes needed both at the school level, in the way that leaders, teachers and support staff work together to serve students, and at the system level, in the mix of schools and programs that are offered and the conditions in which schools operate. And while some of these changes may require one-time investments or establishment of specific initiatives, most will depend on an ongoing approach to the management of high schools, in which BPS leaders are focused on analyzing high schools as a system and pursuing continuous improvement.

We highlight the notion of looking at high schools as a system because the challenging outcomes of off-track youth are partially a byproduct of deeply interrelated system conditions in BPS. The data findings in this report highlight many of those conditions: student assignment, school admissions, school capacity levels, school funding formulas, limited fiscal resources and others. Developing a plan that both insists on a higher level of performance within schools while also accounting for these intertwined system issues can be likened to untangling a particularly complex knot. Any attempt to pull just one thread only winds up tightening the knot; instead, it must be untangled deliberately and from the center. In the same way, a systemic approach to high school strategy consists of multiple actions undertaken in a coherent, mutually reinforcing sequence – rather than, as is too often the case in public education, single isolated initiatives that effectively pull on an individual "thread."

As BPS considers its own comprehensive strategy, the key findings from this report point to five recommendations that could serve as fundamental components of the path forward:

1

Transform open enrollment and selective schools though a systemic and coordinated plan:
The overriding question for this plan would be: what actions can BPS take to increase the number of high school students who are in high-quality schools that they and their families have chosen?

Open enrollment and selective schools in BPS are a diverse group. Some are underperforming on both absolute and relative measures of student outcomes; many of these same schools are rarely chosen by families. Some others are showing promising momentum in improving student achievement and keeping students from falling off track. Still another group has strong student outcomes and is consistently over-subscribed with demand from families. Of course, some schools show a combination of these characteristics.

A systemic plan to increase the number of students in high-quality schools of their own choice could follow some basic guiding principles. Expand or replicate high-quality, over-subscribed schools, in line with a consistent district definition of school quality. Treat schools with strong momentum as opportunities for learning and fertile ground for new models. Look at schools that are both underperforming and under-selected by families as candidates for fundamental redesign. And overall, try to align the number of seats and types of programs in the system with what is demanded by families.

At times over the past decade, BPS has taken all of these types of actions. But those steps were often reactive (e.g., in response to state accountability structures) rather than proactive or were taken in one place without explicit planning for consequences that could result from localized action in another part of the system. The overall impact has arguably been less than the sum of the parts. The analysis and findings in this report, combined with other work ongoing within BPS, offer the opportunity to develop a cohesive multi-year approach to transforming high schools that deploys the district's resources in coordinated ways.

2 **Overhaul alternative education:** Replace existing seats with newly designed and resourced school models that are rooted in a clear definition of the student segments they aim to serve and a candid assessment of the designs and supports it will take to serve those students well. As a system, alternative education needs clear points of entry that increase access for students in need.

Even as traditional high schools improve, there will always be a need for high-quality alternative educational offerings to better serve students who could thrive in a nontraditional setting. BPS' alternative education system should focus on improving quality with truly differentiated, intentionally designed models and supports built around the needs of the students served by those schools. There are multiple ways of understanding off-track students and their needs; one way is through the age and credit accumulation framework described on pages 8 and 22. While the district should provide high-quality options for all segments of off-track students, there is a particular opportunity today for the alternative education system to be weighted toward admitting students who are "young and far" (16 or 17-years-old and more than two years away from graduation). For these students, earlier intervention is possible because they are not yet at-risk of aging out of the system. Today, "old and far" students represent the largest share of enrollment in alternative education schools, though they are the most challenging segment to help achieve graduation. Instead of waiting to age 18 or 19 to admit students, intentional design of alternative programming could help to reduce the number of "old and far" students over time by getting them back on track sooner.

Over time, there may be reason for BPS to change the number of alternative seats offered – and to shift the models and supports required, based on the needs and profiles of students, using measures that go beyond students' age and credit accumulation. But these decisions can be made after confirming the quality of existing seats, based on the results of traditional and alternative redesign efforts and a data-driven, ongoing assessment of the needs of students to enable models and designs that best meet the needs of students as measured.

Alongside a redesign of the alternative education portfolio, the pathways and other system conditions surrounding alternative education also warrant attention by BPS. Today, the process of transferring from traditional to alternative schools is not managed in a centralized or coordinated way; whether a student can find a seat in alternative schools can be relationship-based or dictated by admissions policies at individual schools that may not align with system needs. Whether through the REC, at school, or through the central office, BPS could better monitor admissions procedures to fit with the needs of students, as well as seek to create more consistent structures and supports across the district that enable off-track students to understand their options and find the right school for their future.

3   **Put early warning data in the hands of educators and help them use it to enact school-wide changes as a first step in enabling more strategic use of data district-wide:** According to data analysis performed, nearly 80% of off-track youth can be identified with a limited number of data indicators either before or during the 9th grade year – just one example of how data can be used to design and manage more effective schools. Empower all schools with data in timely and easy to use ways and support them to develop systems and processes that enable effective responses.

When students who enter high schools with early warning indicators from middle school are kept on track in high school, more than 80% of them go on to graduate in four years. In other words, having an early warning indicator in middle school does not mean that a student cannot ultimately succeed – what matters is if the student is able to start and stay on track in high school. Fortunately, there is ample opportunity to identify these students: looking at just four indicators of student performance in both the 8th and 9th grade (course failure, MCAS scores, attendance rate and suspensions), data suggest that nearly 80% of students who eventually go on to fall off track can be identified by the end of the first year of their high school or earlier. This means that BPS has a real opportunity to meaningfully improve graduation rates by using early warning data to identify these students and developing both student-level and school-level strategies to effectively support them.

Today, several high schools have adopted early warning indicator data systems to actively monitor, identify and respond to students, with some support from the BPS central office. Expanding this initiative to be district-wide would first entail building infrastructure to enable timely, user-friendly access to student data. Merely building better data infrastructure, however, may ultimately not have a meaningful impact if schools do not have the designs, strategies and processes to effectively respond to that data by individualizing their approach to students in need. Schools that do this work well typically find that the most effective response to the data goes beyond individual student-by-student interventions; they see patterns in the data that cause them to make broader school-wide changes to get at the root causes of students falling off track. While some schools at BPS have already adopted such systems and practices, many other schools may benefit from effective support from the district or outside partners to learn how to apply new strategies and processes that drive continuous improvement through better use of data.

> " My old school would just move you up even if you fail. You know you've failed, but you just keep getting moved up. It's too late before you realize how far away you are from having what you need to graduate. "
> BPS high school student

Better use of data is a common theme throughout many of our recommendations. While the first two recommendations speak to ways that data can be examined by BPS at the system level, the active use of EWI data is one example of potential school-level shifts to a more strategic ongoing use of data. A wide variety of indicators and measures related to student mobility, academic performance and progress, and background could be considered by BPS to help schools design their offerings and support around the specific needs and interests of students.

4 **Use policy to enhance equity and create conditions that allow all schools to succeed:** In particular, BPS could look at changes to admissions policies, funding policies and policies related to student mobility, in order to better align its policies with a broader high school strategy.

Admissions policies: The data in this study illustrate that many open enrollment schools face a high concentration of need and that the impact of that concentration is detrimental to a student's odds of graduation. On average, student outcomes across BPS could benefit from reducing this disparity – potentially through adjustments to some of the district's admissions policies. These may include, but are not limited to:

‣ Lengthening the time of Round 1 student assignment

‣ Placing more focused programs for special education students and English learners in higher-performing schools

‣ Requiring all schools to admit a certain level of students midyear and/or during later lottery rounds

‣ Reconsidering the criteria by which schools make decisions around which students to accept

Funding: While reducing the most acute examples of stratification in BPS appears a logical implication of this study, there will likely always be schools with differentiated levels of need. BPS can help to address those ongoing disparities by considering ways to further differentiate funding based on a fuller range of student need. Today, some of the indicators that appear most correlated with graduation rate – namely, 8th grade risk factors of low attendance, disciplinary issues and prior academic warning indicators – are not considered explicitly in the funding formula, though initial efforts will be piloted next year through the BPS Opportunity Index initiative. Taking additional steps to incorporate such measures – especially in redesigned alternative schools – could enhance the ability of schools who serve the greatest level of need to provide more intensive structures and supports for students.

Student mobility: The data in this study demonstrate an association between falling off track, transferring and low graduation outcomes for students. In conversation, school leaders have also commented on the challenges of educating a highly mobile population and the impact that instability can have on a school that is consistently receiving an influx of new students from elsewhere in the system. This all suggests BPS can work to reduce the level of mobility when it is not in the best interests of students – without taking excessive steps to curtail student and family choice. For example, there is an opportunity to focus particular attention on high schools that have disproportionately high rates of student transfer and/or low rates of success for those students who do transfer out. These statistics could be more regularly tracked and publicly reported, and BPS could also consider including an assessment of school stability as part of the overall accountability and performance evaluation approach of school leaders.

5   **Evolve how the district manages its high schools to enable effective implementation of strategic priorities:** None of these actions can simply be a one-time effort. Instead, the final overarching recommendation is for the district to align management of high schools with its priorities by shifting to an ongoing, data-driven, active management approach.

Together, the recommendations above mean implementing a coordinated and multiyear plan intended to transform schools, change the way data is used at the school and system level and use policy to create conditions that allow all schools to succeed. Leading practices indicate that implementing this kind of effort will likely require a prioritization in how the central office staff spend their time and attention. In this model, lists of discrete programs, school-specific initiatives and centrally led school improvement or turnaround initiatives are not the model for change.

Instead, the leadership and central office — and ideally a specific office dedicated to managing the high schools — could focus on creating conditions that allow all schools to succeed, recruiting and developing great school leaders who are then given meaningful autonomy and creating clear, data-driven accountability for equity and outcomes across the system. The district would take on a series of complex questions over time: how can admissions and enrollment policies shift to set schools up for success, rather than contribute to significant inequity? What data will the district actively use to assess the real performance of high schools (in ways that go beyond what demographics alone could predict) and drive continuous improvement over time? How can BPS recruit and retain effective high school leaders? And what stakes will be set for school leaders to serve all students and create meaningful academic growth year after year? Though the state's accountability system offers one approach, taking a more active approach would require BPS to also be evaluating schools using its own, clearly defined set of metrics.

Conclusion

In attempting to answer the question of what it would take to more effectively serve students within BPS who are most at risk of falling off track and not graduating, this research has uncovered some sobering truths: there are thousands of BPS high school students who fall off track during their time in BPS, and this challenge is a systemic and long-standing one. Many of BPS' high schools are not meeting the high needs of many of their students—and a variety of policies within BPS exacerbate the challenge of helping students succeed. On the other hand, our findings also offer signs of promise: progress at some schools within BPS today suggests that all schools can deliver much stronger outcomes for all students than is seen today.

Ultimately, the recommendations listed in this report represent only a starting point for what can be a comprehensive strategy for the district going forward. However, detangling the "knot" of system conditions and performance issues affecting off-track youth in BPS high schools is no easy task, and doing so in a way that truly benefits all students will take time and deeper engagement with the community. But with over 3,000 students currently off-track in high school, the urgency is clear. Data and interviews conducted during this project suggest that while the district has made improvements in the past three years especially, it cannot carry these efforts alone. Meeting the needs of students will require the coordinated efforts of elected officials, community partners, advocates, philanthropy, and – most of all – school leaders, teachers, and families. But if these coordinated efforts succeed, it is possible for Boston Public Schools to rethink the high school experience and create the conditions for all students to be prepared for college, career, and life after high school.

Appendix:

Project timeline

Phase	Description	Key Stakeholder Engagement Efforts
Phase 0: Initial stakeholder engagement and data collection (July–August)	EY-Parthenon worked with BPS' Office of Data and Accountability to collect blinded individual student data and led interviews with key stakeholders for preliminary hypotheses.	Throughout this project, internal and external stakeholders were briefed and consulted along the way. Beyond the Project Steering Committee, BPS Executive Cabinet and BPS leadership, others consulted include:
Phase 1: Data analysis and sharing of data-based findings (August–December)	EY-Parthenon shared data findings with a project Steering Committee of 21 members that included a cross-functional group of district officials and school leaders who provided input and suggested areas for further analysis; every three weeks, findings were shared with the BPS Superintendent and Steering Committee and every six weeks, with the BPS Executive Cabinet.	‣ City Hall ‣ School committee ‣ School leaders ‣ Student focus groups ‣ The Boston Private Industry Council and Re-Engagement Center staff ‣ Funders in the Boston community and national community
Phase 2: Recommendation development and final report drafting (December–February)	EY-Parthenon conducted 1:1 interviews with every Steering Committee member, continued regular Steering Committee meetings, and solicited input from a number of internal and external stakeholders to develop and continuously iterate and refine a set of recommendations in conjunction with BPS leadership.	
Phase 3: Final report development (February–April)	EY-Parthenon developed and wrote the final report, with significant input from BPS leadership and the Steering Committee.	

BPS high schools

School name	School type	Grade span	Grade 9-12 Enrollment[21]
Another Course to College (ACC)	Open enrollment	9-12	224
Boston Adult Technical Academy (BATA)	Alternative	9-12	154
Boston Arts Academy (BAA)	Selective	9-12	469
Boston Collaborative High School	Alternative	6-12	182
Boston Community Leadership Academy (BCLA)	Selective	9-12	474
Boston Day and Evening Academy (BDEA)	Alternative	9-12	404
Boston Green Academy (BGA)	Lottery admissions	6-12	304
Boston International High School	Open enrollment	9-12	366
Boston Latin School (BLS)	Exam	7-12	1,656
Boston Latin Academy (BLA)	Exam	7-12	1,224
Brighton High School	Open enrollment	9-12	682
The Burke High School	Open enrollment	9-12	472
The Carter School	Special populations	K-12	24
Charlestown High School	Open enrollment	9-12	920
Community Academy	Alternative	9-12	79
Community Academy of Science & Health (C.A.S.H.)	Open enrollment	9-12	389
Dearborn STEM Academy	Open enrollment	6-12	174
Dorchester Academy	Alternative	9-12	42
East Boston High School	Open enrollment	9-12	1,344
Kennedy Academy for Health Careers (Kennedy HC)	Lottery admissions	9-12	380
The English High School	Open enrollment	9-12	539
Excel High School	Open enrollment	9-12	491
Fenway High School	Selective	9-12	364
Greater Egleston High School	Alternative	10-12	105
Henderson Inclusion School	Special populations	K-12	229
Horace Mann School	Special populations	K-12	33
Lyon Pilot High School*	Open enrollment	9-12	124
Madison Park High School	Open enrollment	9-12	859
Margarita Muñiz Academy	Open enrollment	9-12	298
The McKinley Schools	Special populations	K-12	212
New Mission High School	Selective	9-12	320
O'Bryant School of Math and Science	Exam	7-12	1,223
Quincy Upper School	Open enrollment	6-12	229
Snowden International School	Open enrollment	9-12	444
TechBoston Academy (TBA)	Open enrollment	6-12	559
Urban Science Academy (USA)	Open enrollment	9-12	392
West Roxbury Academy (WRA)	Open enrollment	9-12	475

* While BPS classifies Lyon as a special populations school, 50% of the school's seats are open enrollment while the other 50% are special education; we therefore include them as an open enrollment school.

Glossary of terms (all definitions confirmed/determined by BPS)

Term	Definition
Administrative assignment	Process used by BPS administrators to enroll students in high school if they either participated in the BPS Central Lottery and did not receive admission offers to any of their choices or if they did not participate in the BPS Central Lottery (see below for definition). Students are typically placed in the open enrollment high school closest to their home address with available seats.
Alternative school	School that aims to educate students who were not well-served by a traditional high school academic setting or are otherwise off-track or over-age for high school
BPS Central Lottery	An open, algorithm-based lottery that takes into account student and family preferences for open enrollment high schools and the availability of seats in each school. This lottery system is the primary mode of admission into BPS open enrollment schools and operates over several rounds (see below for definition of Round 1 and Rounds 2–5).
Cohort	A group of students with the same intended 4-year graduation date
Early warning indicators (EWIs)	Student characteristics displayed in 8th grade that are predictive of students falling off track and dropping out. These characteristics include: ▸ Attendance: less than 85% attendance in 8th grade ▸ Discipline: 1 or more days suspended out of school in 8th grade ▸ Core course failure: 1 or more English or math courses failed in 8th grade ▸ MCAS Warning: Warning level on both 8th grade MCAS exams
EL school	School specifically designed to serve the needs of students who are English learners. BPS' EL school, Newcomers Academy, is housed with Boston International High School and provides students with ESL instruction and math, science and social studies instruction in sheltered English.
English language development (ELD) levels	Descriptors of the stages of development of English learners (see below for definition) that designate their stage of increasing proficiency in English as a new language. ELD levels range from 1 to 5, with 1 signifying the earliest stages of English language acquisition.
English learners	Students who are native speakers of languages other than English and who are at earlier stages of English language acquisition and may require additional language support. English learners are assigned an ELD level (see above for definition) to denote the stage of their language development.
Exam school	School that admits students via a competitive admissions process, which is based solely on the student's grade point average and scores on the Independent Schools Entrance Exam. Students typically enter these schools in grades 7 or 9.
Full/partial inclusion	Special education students with .1–.3 designation who spend either all or part of their day in general education classes
Horace Mann charter school	School that admits students on the basis of lotteries that are separate from the BPS choice process, but are open to all students. These schools also have school-level autonomies over mission, curriculum, teaching methods, budget and hiring/firing of staff.

Term	Definition
Individualized education program (IEP)	A plan designed to ensure that any child with a disability who is attending an elementary or secondary educational institution receives specialized instruction and related services to facilitate access to the general curriculum[22]
Lottery admissions school	In our report, we use the terminology "lottery admissions schools" to denote what are legally known as Horace Mann charter schools
Massachusetts Comprehensive Assessment System (MCAS)	Massachusetts statewide assessment program developed in 1993. Students take the exam in ELA, math and science[23] starting in 3rd grade. Tenth grade students must pass the exam in both ELA and math to be eligible for graduation.
Non-diploma bound student	Special education students who are served in substantially separate environments and have IEPs *(see above for definition)* that do not place them on a path to graduation
Off-track to graduate	Students who are two years behind the typical age and credit accumulation patterns of their peers at any time throughout high school
Open enrollment school	Schools open to all BPS students and selected through the lottery-based choice process
Pilot school	Schools within BPS that have autonomy over budget, staffing, governance, curriculum/assessment and the school calendar to provide increased flexibility to meet the needs of students and families[24]
Portfolio management	An ongoing method of managing the school options available in a district with the ultimate goal of expanding the number of high-quality seats available in the district. This can take many forms, including, but not limited to, school quality and accountability standards, school expansion, revitalization and closure and school data tracking.
Program placement	Program placement refers to two methods of placement: 1. The assignment of English learners and special education students into secondary schools with programs suitable to their individual needs. This takes place outside or within a limited subset of the traditional choice system. 2. The placement of highly specialized programs, such SLIFE, substantially separate and ELD, within BPS schools with the expectation that the school will serve students with that highly specialized need. Today, most programs are placed in open enrollment schools.
Re-Engagement Center (REC)	Created in 2009 as a partnership between BPS and the Boston Private Industry Council (PIC), the REC works to re-engage young people who have dropped out or disengaged from school and connect them with a school option that can put them on the path to high school graduation.
Round 1	Students access open enrollment high schools in 9th grade through the central BPS choice process. The first round of the lottery occurs in January – this year, from January 3 to February 9 – and is the primary opportunity for students to enroll in these schools.

Term	Definition
Rounds 2–5 (late rounds)	BPS offers several additional lottery rounds for students who missed the first lottery round, were not satisfied with the school they received in the first round or are enrolling in grades 10-12. Students enrolling in late rounds only have access to seats not filled through Round 1.
Selective admissions school	Selective schools are pilot schools that require students to apply for admission by submitting a special application and/or artistic portfolio. The process to enroll in these schools is separate from the BPS central lottery.
Student with Limited or Interrupted Formal Education (SLIFE)	BPS offers specialized programming for newcomers to the district who are more than two years behind their peers in literacy, have had limited or interrupted formal education and have low levels of English language development (ELD 1–2). These programs are geared toward supporting students' education in their native language and preparing them to enter an English immersion program, and are placed in a handful of high schools today.
Special populations school	Schools designed to serve students with disabilities who may require specialized services and settings
Students with disabilities	For the purposes of this report, we consider students with disabilities to include any student with an Individualized Education Plan (IEP). Based on students' IEPs, BPS' Office of Special Education assigns each student a code to denote the nature of their identified special need (e.g., V = Vision) and the assessed level of severity of their need (.1–.4, with .4 being the most severe). These codes signify the settings in which the students are served to adhere to their IEP.
Substantially separate special education	Some students with disabilities (those with a .4 designation) are primarily served through specialized instruction in a small group setting and spend less than 40% of their school day in a general education classroom.
Supplemental resources	We have defined "supplemental resources" as resources allocated to high schools beyond the base and specialized programming allocations, including poverty, vocational and high-risk WSF *(see below for definition)* categories, school-specific programmatic investments, autonomous buybacks, homelessness initiative investments, SEL and wellness (including athletics), school safety, external partnerships, extended learning time programs, turnaround supports and additional central office supports for high schools.
Weighted Student Funding (WSF)	BPS allocates funds directly to schools based on their projected enrollment levels and the needs of their individual students. Dollars follow students to their school and are weighted according to target class size and average teacher salary. Additional funding is allocated for students who are English learners, are high-risk in grades 9 or 10, live in poverty, have disabilities or are enrolled in vocational education.

Endnotes

1   Massachusetts Department of Elementary and Secondary Education, 2016–17 Enrollment by Grade Report.

2   Massachusetts Department of Elementary and Secondary Education, 2016–17 Enrollment by Grade Report;
    Non-Public School Report.

3   O'Bryant School of Math and Science offers seats to a small number of 10th graders, as well.

4   Please see the methodology section for more details regarding the treatment of school-reported credit or other data.

5   Students' race and ethnicity is based on BPS internal data that are limited to one of six options: Asian, black, Hispanic (shown here
    as Latino), Native American, white and other.

6   A student is counted as off-track to graduate based on their age as of September 1, 2015, and credits they accumulated in the prior
    year. All students who were enrolled in BPS high schools at any time during the month of September 2015 are included in this count.
    Non-diploma bound special education students are excluded from this off-track analysis.

7   The Class of 2017 includes all students who began 9th grade in SY2013–2014, with an expected four-year graduation date of June
    2017. Please see the methodology section for more details.

8   For studies on dropouts' lifetime earnings, please see: U.S. Bureau of Labor Statistics, "Unemployment rates and earnings by
    educational attainment; U.S. Census Bureau, "The Big Payoff: Educational Attainment and Synthetic Estimates of Work-Life Earnings.
    For dropouts' increased odds of incarceration: Northeastern University, "The Consequences of Dropping Out of High School: Joblessness
    and Jailing for High School Dropouts and the High Cost for Taxpayers. For the impact of dropping out on health outcomes: Centers for
    Disease Control, "Reframing School Dropout as a Public Health Issue."

9   The most significant change over the past 10 years has been a 13 percentage point increase in the share of English learners. However,
    our research shows that — controlling for all other factors — EL students are less likely to fall off track than other students. In addition,
    there has been a 9 percentage point decrease in the share of black students and a 7 percentage point increase in the share of Latino/a
    students. High school enrollment shares of all other racial groups and special education students have remained constant overall.

10 For more details on this regression analysis, please reference the methodology section. Note that actual graduation rates are calculated
    based on the school students attended in 9th grade; this is done so that the analysis is comparable to the expected graduation rate,
    which reflects a school's incoming 9th graders.

11 TechBoston Academy is a 6–12 school that has approximately 550 high school students and 380 middle school students.

12 Students who are ELD Levels 1–3, or are a special education student with a .3 or .4 designation, can be placed in schools based on their
    programmatic requirements, which limits the subset of schools open to serve them.

13 14 years of age, fails a core course in 8th grade, receives an NI or higher on the MCAS exams, has average attendance and has no out
    of school suspensions.

14 BPS, Weighted Student Funding Overview

15 This total does not include transportation, facilities, food services, fringe benefits or centrally administered IEP-related services.

16 We have defined "supplemental costs" as all other resources allocated to high schools, including poverty, vocational and high-risk WSF
    categories, school-specific programmatic investments, autonomous buybacks, homelessness initiative investments, SEL and wellness
    (including athletics), school safety, external partnerships, extended learning time programs, turnaround supports and additional central
    office supports for high schools.

[17] As the BuildBPS report notes, there are a number of ways to define seats and school capacity. Here, we use a simple definition by comparing the number of high school students enrolled in BPS' open enrollment, selective, lottery, and exam schools in the 2007-08 school year to the peak enrollment seen at those schools over the past decade – this peak number gives us the implied number of seats available in the system. This analysis does not consider the needs of 21st century learning environments analyzed by BuildBPS. The 21st century capacity would reduce the number of available seats listed here, but would still imply a net increase in seats over the past decade.

[18] Description of alternative entry process is based on conversations with the REC and BPS stakeholders.

[19] At the high school level, these programs include ABCD University High, EDCO Youth, William J. Ostiguy High, LogOn Academy and St. Mary's Alternative School. Due to limitations in BPS central enrollment data, we are unable to identify the specific programs individual students at Boston Collaborative High School attend.

[20] For instance, after visiting the REC during the 2016-17 school year, 244 students (52% of students who visited the REC during that period) were not able to find a successful placement in an alternative program. Of these, 44% went on to drop out of school or remain out of school, if already disconnected.

[21] Massachusetts Department of Elementary and Secondary Education, 2017-18 Enrollment by Grade Report.

[22] U.S. Department of Education

[23] The science MCAS is not taken every year, nor offered at every school. Students do not need to pass this assessment to graduate.

[24] BPS website

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About EY-Parthenon

Parthenon joined Ernst & Young LLP on 29 August 2014. EY-Parthenon is a strategy consultancy, committed to bringing unconventional yet pragmatic thinking together with our clients' smarts to deliver actionable strategies for real impact in today's complex business landscape. Innovation has become a necessary ingredient for sustained success. Critical to unlocking opportunities is EY-Parthenon's ideal balance of strengths – specialized experience with broad executional capabilities – to help you optimize your portfolio of businesses, uncover industry insights to make investment decisions, find effective paths for strategic growth opportunities and make acquisitions more rewarding. Our proven methodologies along with a progressive spirit can deliver intelligent services for our clients, amplify the impact of our strategies and make us the global advisor of choice for business leaders.

About the EY-Parthenon Education practice

The EY-Parthenon Education practice has an explicit mission and vision to be the leading strategy advisors to the global education industry. To achieve this, we invest significantly in dedicated management and team resources so that our global experience extends across public sector and nonprofit education providers, foundations, for-profit companies and service providers, and investors. We have deep experience and a track record of consistent success in working closely with universities, colleges, states, districts, and leading educational reform and service organizations across the globe.

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