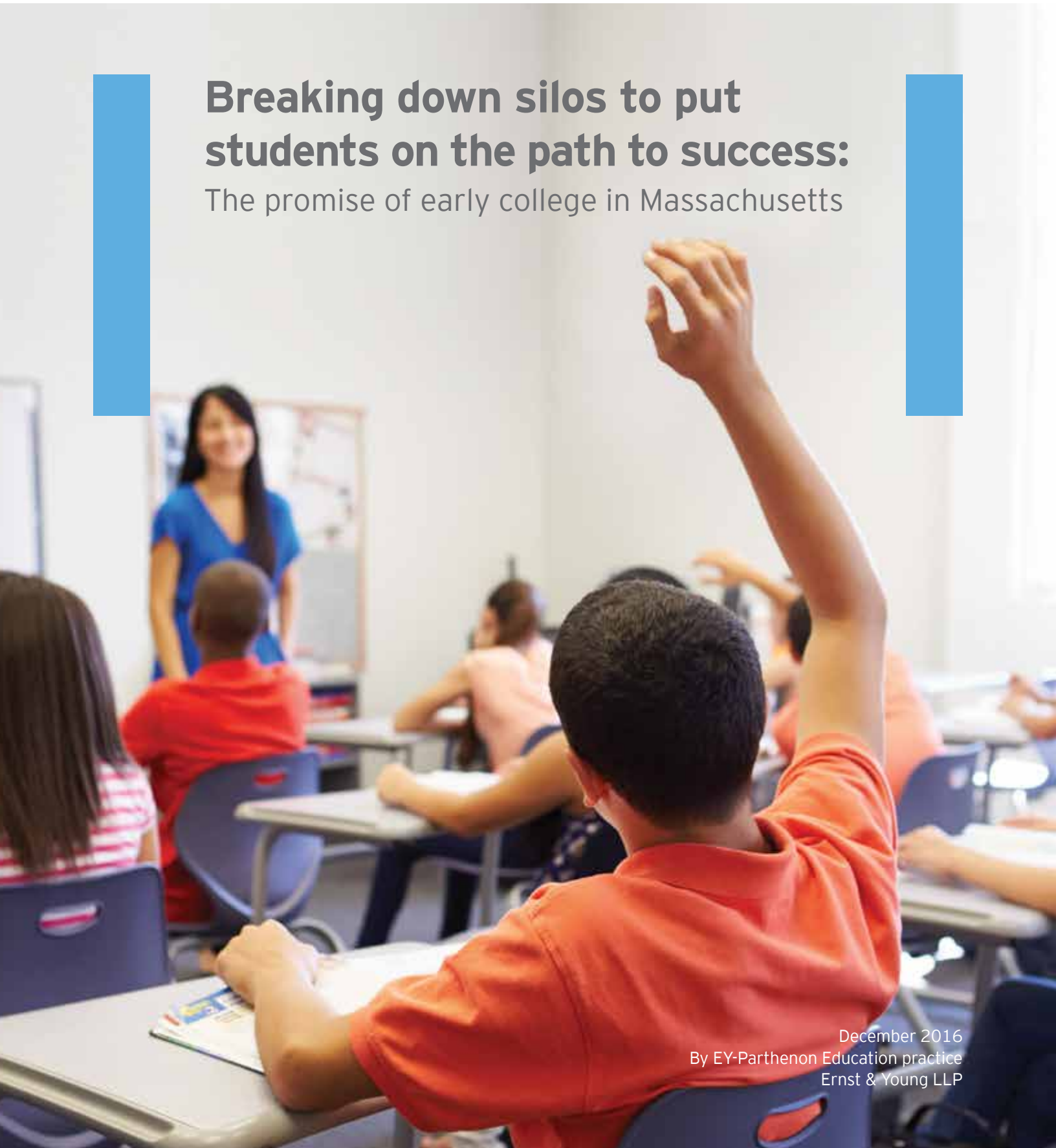




Breaking down silos to put students on the path to success:

The promise of early college in Massachusetts



December 2016
By EY-Parthenon Education practice
Ernst & Young LLP

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This project was made possible by the strong cooperation of state leadership at the Department of Elementary and Secondary Education, the Department of Higher Education, and the Executive Office of Education. We are grateful to the members of the Steering Committee and the Working Group for the time they devoted to this effort, the guidance they provided throughout the research engagement, and the commitment they demonstrated to finding novel approaches to improve outcomes for under-served students.

Over the past four months, we have had the chance to consult with key groups in Massachusetts which were already focused on this issue, including the dual and concurrent enrollment Advisory Group, the Massachusetts Community College Chief Academic Officers, Massachusetts Gateway to College Program Officers, the Massachusetts Association of Vocational Administrators, and the STEM Advisory Committee. We deeply appreciate the time we were able to spend with more than 100 individuals from across Massachusetts, including 22 school districts, 15 community colleges, 5 public universities, and employers.

In addition, we were fortunate to speak with thought leaders from across the nation on the topic of early college, including Jobs for the Future, American Institutes for Research (AIR), Education Commission of the States, Gateway to College National Network, and the SERVE Center at the University of North Carolina at Greensboro, and with practitioners from eight states – Colorado, New Hampshire, New Mexico, North Carolina, Ohio, Rhode Island, Texas, and Washington.

Finally, we thank the Barr Foundation for its engagement and support of this research, and more importantly, for its leadership and collaboration in helping meet the needs of Massachusetts' students.

EY-Parthenon Education practice
Ernst & Young LLP

Foreword

Dear Fellow Massachusetts Education Stakeholders:

We have been pleased to act as members of a Steering Committee to support the creation of a report that assesses the potential impact that early college high schools could have on student outcomes in our state. This report follows a call from the Board of Elementary and Secondary Education and the Board of Higher Education (the Boards) at a joint session in January 2016. The two Boards share a priority of seeking strategies to help advance an important, fundamental goal in our state: more students, especially low-income students and those who are potential first-generation college-goers, completing a postsecondary credential and being prepared to succeed in careers and in life.

We accept this report with gratitude and thank the Barr Foundation for responding to the call issued by the Boards, and for supporting a strategic planning effort by the EY-Parthenon Education Practice to help understand the landscape of related work in the Commonwealth and across the country. We also thank the many stakeholders who participated in the process and provided input and feedback along the way as we explored the potential for more focused work here in Massachusetts. Moving forward, we challenge ourselves and all education stakeholders to turn this report into actions on behalf of students who need our help the most.

Massachusetts is the recognized leader among states in educational success: our math and reading proficiency rates are the highest in the nation, and we lead the country in terms of the percent of our adult population holding a college degree. Yet much more progress is required across the Commonwealth before every student's education can be considered as fully preparing them for success and to meet the growing demand of our high skills based economy. Our goals are to improve overall attainment levels and to close the opportunity gap for underserved youth.

As leaders of our K-12 and higher education systems, there is much we can do – and much we are already doing – to address these goals on our own. This project came from asking ourselves: what more could we do if we worked together to break down silos between secondary schools and colleges and universities?

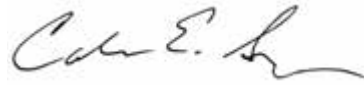
This determination to break through barriers to allow greater student success underpinned the two Boards agreeing to look carefully at the potential of early college, a model that relies on deep partnership between a school district and an institution of higher education to help high school students graduate not just with their high school diplomas, but with college credits on an academic pathway that paves their path to success in college. Massachusetts already had promising examples, but we wanted to know whether this emerging sector could be catalyzed to grow with high quality to the scale that would matter to meeting our overall goals.

This final report both summarizes the findings of the research in the Commonwealth and across the country, and proposes a framework for a Massachusetts Early College Initiative that could extend our state's leadership in public education. We are encouraged by the energy and consensus that the work uncovered, and are excited to continue the discussion about the framework it suggests. We look forward to working with practitioners, stakeholders, elected officials and others to develop this initiative further over the coming months.

Sincerely,



Mitchell Chester
Commissioner, Department of Elementary
and Secondary Education



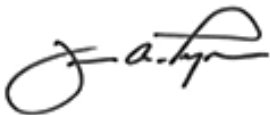
Carlos Santiago
Commissioner, Department of Higher Education



Paul Sagan
Chair, Board of Elementary and Secondary Education



Chris Gabrieli
Chair, Board of Higher Education



Jim Peyser
Secretary of Education

Introduction: Breaking down silos



Today's state leadership and the broader education community in Massachusetts are committed to the idea that increasing postsecondary success is critical to both the future prospects of young people and the long-term prosperity of the state. The data is clear: in an increasingly competitive world and a state with a growing knowledge-based economy, postsecondary education – encompassing four- and two-year degrees, as well as industry-recognized certifications – is often the distinguishing factor not just of economic success but of a wide range of indicators for personal, social, and civic well-being.

Yet the structure of the education system means the shared goal of postsecondary success is typically pursued in silos. Massachusetts' elementary and secondary schools pursue higher standards that are designed to be college-ready, and work to support teachers in achieving those new expectations – but they lack control over so many of the factors that cause challenges for students as they transition to college. Our community colleges and universities wrestle with issues of affordability, access, and rapid innovations in instructional technology – but they continue to struggle with high levels of remedial coursework required by seemingly under-prepared students. By some estimates, the amount of remedial coursework required in the Commonwealth costs the state \$20 million–\$57 million annually and is often unsuccessful.¹ The success of each sector – and, more importantly, of all students – is deeply dependent on the work of the other. Yet examples of deep coordination and partnership are limited.

This report calls attention to the opportunity for Massachusetts to break down these silos by embracing one particular strategy for postsecondary success:

to expand high-quality early college high schools across the state, by inviting educators from both K-12 and higher education to come forward with jointly designed school models.

We provide a high-level definition of early college high schools, e.g., early college high schools are schools that combine the traditional high school experience with the opportunity to earn significant college credit on an intentional pathway in a rigorous, highly supportive environment.

We launched our work following a joint expression of interest from the Boards of Elementary and Secondary Education and Higher Education, which sought more information about whether early college high schools were an attractive strategy for the state to improve postsecondary completion, especially for under-served categories of students. This was not a new idea in Massachusetts; others have pioneered these models in pockets across the state, and many have advocated for their expansion. Numerous studies helped set a foundation for this work, including some simultaneous efforts such as the state's Dual and concurrent enrollment Advisory Group, the STEM Advisory Council, and the New Skills for Youth Initiative. (See *the call-out box on page 8*.) Our goal in this research is to connect the dots across these many different efforts, to provide an assessment of the potential impact of early college high schools that takes into account data and perspectives from Massachusetts and around the country, and to set out a potential framework for how high equality early college might be expanded in Massachusetts.

Other initiatives

- ▶ **Dual and concurrent enrollment Advisory Council:** A group made up of leaders from state universities and community colleges, high schools, nonprofit organizations, the Department of Elementary and Secondary Education (DESE), and the Executive Office of Education (EOE), and is focused on determining a sustainable future for the Dual Enrollment program in Massachusetts and looking at barriers to growth. This initiative is led by the Department of Higher Education Dual and Concurrent Enrollment staff.
- ▶ **STEM Advisory Council Subcommittee on STEM Early College Career Pathways:** Led by the Governor's STEM Advisory Council, this group is made up of STEM Council members and practitioners, and is focused on developing STEM early college pathways for students in conjunction with the broader STEM Council.
- ▶ **CCSSO New Skills for Youth Planning Grant:** Massachusetts is among 24 states that has secured a grant for Phase One of the New Skills for Youth Grant opportunity. This initiative, led by DESE, is aimed at increasing economic opportunity for young people by strengthening career-focused education starting in high school and ending with postsecondary degrees aligned with business needs.

In the end, our work highlights three distinct advantages of early college high schools as a means of improving post-secondary completion and narrowing opportunity gaps across groups of students:



Alignment with state goals:

While early college high schools remain generally small-scale in Massachusetts, independent research

from other states shows meaningful impact in accelerating and increasing postsecondary completion, including some studies finding even greater impact for low-income and minority students. At scale, early college high schools could be a substantial part of achieving ambitious statewide goals.



A base to build upon:

Leaders from K-12 and higher education – as well as employer representatives – demonstrated

consensus in our project around how to define the high

quality threshold to which Massachusetts should aspire in supporting early colleges. This strong consensus at a leadership level is underpinned by a number of promising local programs in each part of the state, whose leaders generally have significant appetite to expand their work.



Improved outcomes for reasonable costs:

We evaluated program budgets with school leaders at some of the most

promising models across the state, and estimate that their work could potentially be sustained at scale for an additional investment of \$700-\$900 annually per pupil during the high school years. This investment, in turn, provides each high school graduate with a target average of 12 transferable college credits and shortens their time to degree completion at the postsecondary level, not only by decreasing their credit burden, but also by reducing their likelihood for remediation or to enroll in courses that might not contribute to a degree.

This incremental investment, equivalent to approximately 5%-6% of the average current Massachusetts per pupil high school spending, could yield positive returns for families in increasing college affordability, for students in improving likelihood of postsecondary completion, and for the state overall, as a beneficiary in the long run of increased employment and a stronger economy. A rising tide of student outcomes benefits both high schools and higher education institutions: greater high school graduation rates, stronger pipelines of students ready to enroll in college, and increased persistence once they do enroll. And all stakeholders with whom we

spoke were committed to implementing these models in communities that would bolster equity and narrow Massachusetts' stubborn gaps in postsecondary access and success.

Today, early college high schools in Massachusetts are small in scale, but rich in promise. Their leaders are eager to be part of a statewide conversation about how their work helps to break down silos on behalf of the students who need help the most. We hope this research helps jump-start that conversation, and is seen by all parties as a foundation from which the state can build.



Methodology

Figure 1: Massachusetts College Initiative development timeline

	Stakeholder engagement and data collection	Development of initial hypothesis	Refinement of framework and continued engagement with stakeholders	Final report production and preparation for initiative roll out
EY-Parthenon	EY-Parthenon conducted data collection and led interviews with key stakeholders.	EY-Parthenon facilitated discussions between Working Group and Steering Committee members.	EY-Parthenon facilitated discussions with the Working Group and Steering Committee, and conducted outreach to stakeholders to solicit their input.	EY-Parthenon developed and wrote final report, with significant input from the Working Group and the Steering Committee.
Working Group	Working Group provided input on stakeholder engagement (including helping connect the team to key stakeholders) and utilized data to begin process of developing initial hypotheses.	Working Group developed initial hypothesis on key recommendations and potential structure of an early college initiative.	Working Group continued to refine recommendations and reach consensus, and provided input on stakeholder engagement.	
Steering Committee	Steering Committee provided input on stakeholder engagement (including helping connect the team to key stakeholders) and began the process of meeting with legislators to solicit their input on ideas.	Steering Committee provided guidance on input on the Working Group's recommendations.	Steering Committee provided final "sign-off" on recommendations, and began to solicit input from other key stakeholders, including legislators.	Steering Committee and Working Group leaders helped to develop process to prepare for the roll-out of the initiative.
Key meetings	Key meetings 4/15: Working Group 5/25: Working Group	Key meetings 6/22: Working Group 6/28: Steering Committee 7/14: Working Group	Key meetings 8/9: Working Group 9/2: Steering Committee 9/16: Working Group	

As previously acknowledged, this work is the result of several months of conversations with stakeholders across the Commonwealth, as well as subject-matter experts from a variety of other states. This effort began with the *Working Group*, comprised of individuals representing the Department of Elementary and Secondary Education, the Department of Higher Education, various state institutions of higher education, school districts, as well as employers. Before and throughout the engagement, the *Working Group* pushed forward the thinking on what a Massachusetts Early College Initiative might look like. Specifically, the group worked together to develop the principles that define high quality early college (elaborated on in Part 3 of this report), as well as the framework for what a Massachusetts Early College Initiative could be (Part 4). The EY-Parthenon practice of Ernst & Young LLP was engaged by the Barr Foundation to assist with research and the writing of this report in the context of these principles and framework.

The *Steering Committee*, comprised of state education leadership, as well as leadership from the Barr Foundation, served in an advisory role throughout this engagement, and provided feedback and refinements on the principles and ideas suggested by the Working Group.

In addition to significant engagement with these two groups, this project involved a substantial amount of data collection. While some of this data was already available, through resources such as the Department of Higher Education and the Department of Elementary and Secondary Education, the EY-Parthenon team also collected data through one-on-one interviews with community college staff members, as well as program directors at both the K-12 and postsecondary levels. The data collection efforts began with surveying all 15 community colleges through individual calls with chief academic officers, K-12 partnership directors, and/or community outreach directors. These individuals provided information on the size and scale of any

committed partnerships between the community college and local K-12 districts. The EY-Parthenon team then conducted individual interviews with districts and schools participating in early college programs to learn more about the programs. We also conducted one-on-one interviews with several state universities, as well as with institutions within the University of Massachusetts system.

Throughout the data collection and aggregation process, we utilized the same terms and definitions for demographic groups that the Massachusetts Department of Elementary and Secondary Education typically uses. Specifically, when referring to “low income” students, we are referring to students who qualify for free or reduced price lunches.

Ultimately, our team interviewed more than 100 individuals from across the Commonwealth. Synthesized interview findings were reviewed by our Working Group, many of whom represent early college or dual enrollment programs, or the agencies that oversee them.

Finally, when considering how to construct an early college initiative in Massachusetts, the Working Group and Steering Committee also relied on information we gathered about early college programs in other states. We compiled this information through secondary research as well as interviews with education experts, practitioners, and administrators in education agencies in other states.

We relied on secondary research and on interviews to understand how existing programs were structured, operated, and funded, and also to develop estimates of what an early college program might cost, at scale, and what kinds of investments might be needed at the system level to support an early college initiative in Massachusetts. All future financial information, including potential investments that might be needed, is based on objective primary and secondary research.

Part 1:

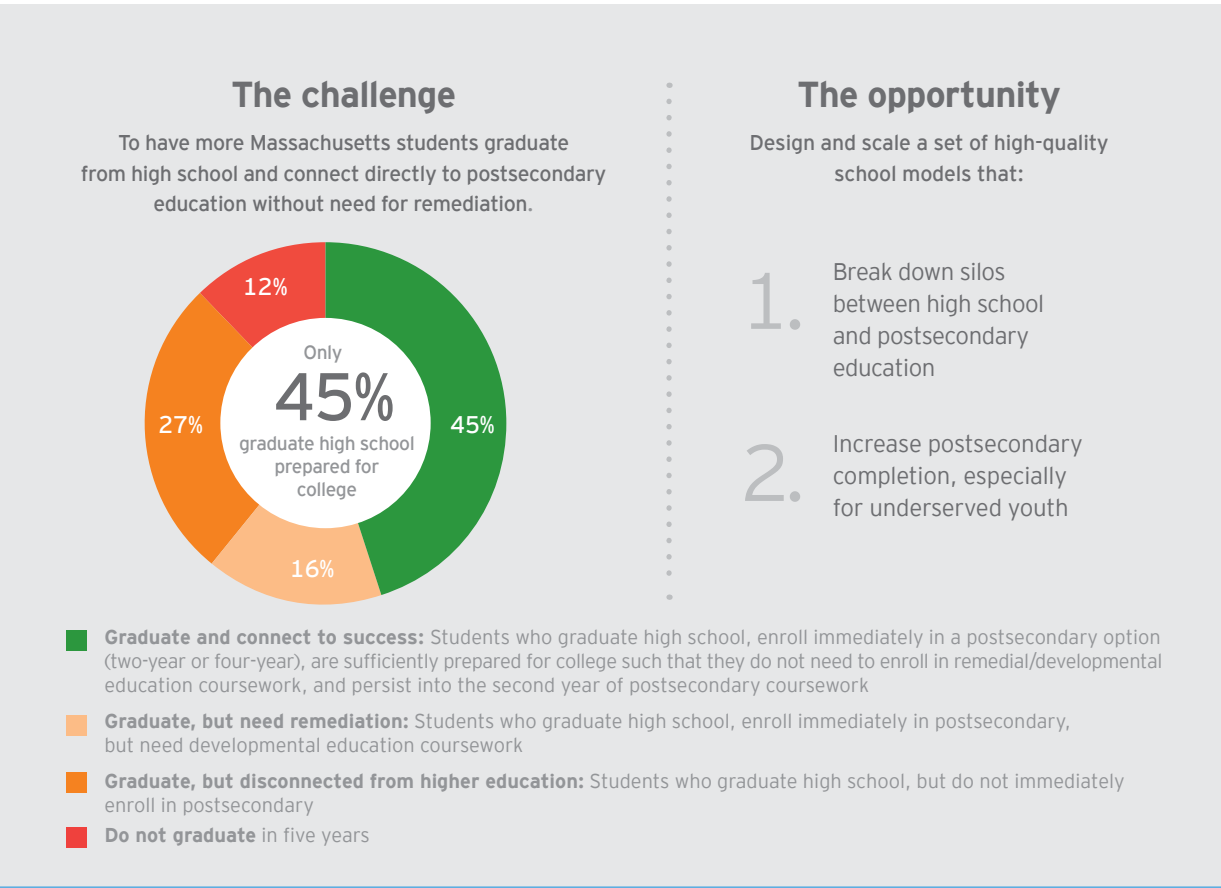
The opportunity for Massachusetts



Massachusetts is the recognized leader among states in educational success: math and reading proficiency rates are the highest in the nation, and the state continues to be a national leader in the percentage of recent high school graduates who enroll in college and in the percentage of the overall adult population holding a college degree. Yet, much more progress is required across the Commonwealth before every

student’s education can be considered as fully preparing them for success and to meet the growing demand of the Commonwealth’s high skills based economy. As illustrated in Figure 2, large numbers of high school students struggle to connect with and complete postsecondary education.ⁱⁱ This is particularly troubling against a backdrop of a labor market that increasingly demands postsecondary education as a gateway to success.

Figure 2: Percentage of Massachusetts high school students graduating and connecting to postsecondary success

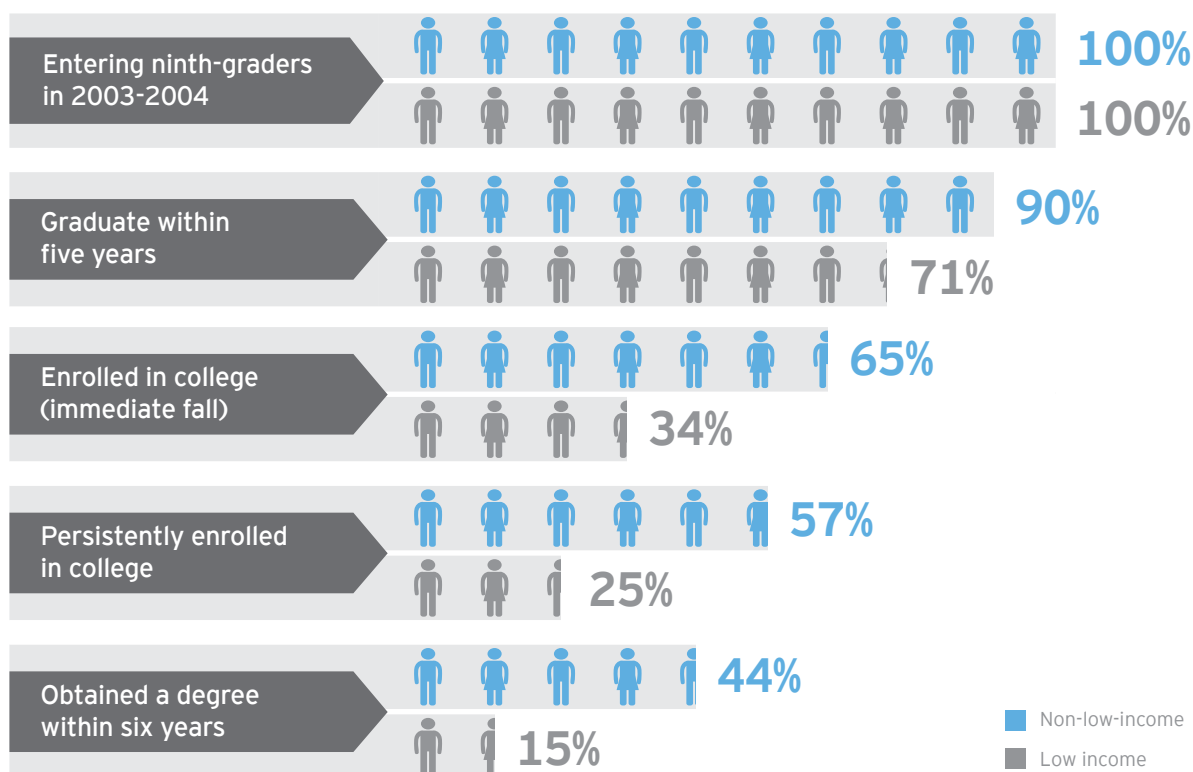


Source: Internal analysis based on data collected from the Massachusetts Department of Elementary and Secondary Education, Fall 2015.

The needs of Massachusetts students come into even more stark relief when we consider the current performance of low-income students, students of color, and potential first-generation college-goers. Figure 3 illustrates the opportunity gap between low-income students (defined as students who qualify for free or reduced lunch¹) and non-low-income students. When analyzing the trajectory of a ninth grade cohort, 71% of low-income students graduate high school within five years, compared to 90% of more affluent students,

and the gap continues to widen significantly over time. By the time students “on trajectory” would receive a postsecondary two- or four-year credential, only 15% of the low-income 9th grade student cohort attain this level compared to 44% of the more affluent student cohort. In other words, moderate- and high-income students are three times more likely than low-income students to obtain a postsecondary credential within six years after graduation.ⁱⁱⁱ

Figure 3: Progression of a sample Massachusetts cohort of students from ninth grade to postsecondary degree attainment



Source: “District Analysis and Review Tool (DART) for Success After High School,” *Department of Elementary and Secondary Education* database, December 2015.

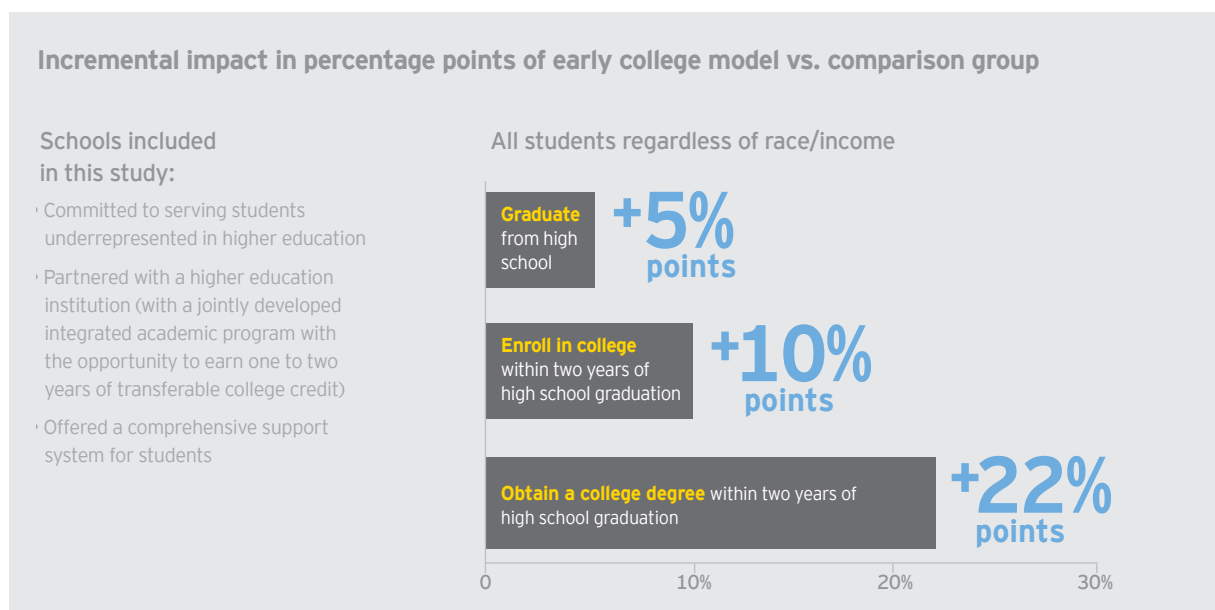
1. Massachusetts is no longer using “Low Income” as a student indicator and has instead chosen to use “Economically Disadvantaged.” However, for the purposes of this report, we use “Low Income” as the currently available data still uses this indicator.

began as an initiative with only three schools has since expanded to more than 280 schools serving more than 80,000 students in 31 states and the District of Columbia.^{viii} Figure 4 (see page 15) illustrates how early college high school models have expanded across the nation.^v

There is compelling national research to support the efficacy of an early college strategy in Massachusetts. Several academic studies on early college models have found that these models have a beneficial impact on all students, making them more likely to graduate from high school, enroll in college, persist through, and obtain a degree.^{vi} One of the most well-known studies, conducted by the American Institutes for Research (AIR), also found that early college models significantly reduced the opportunity gap (measured by the students' likelihood to obtain a college degree) between low-income

and non-low-income students, and actually closed the opportunity gap between minority students and non-minority students.^{vii} Figure 5 is based on the AIR study that relied on a lottery system for student admission to the early college to guard against potential selection biases. It shows the incremental impact in percentage points on 1,044 students enrolled in early college models vs. 1,414 students in the comparison group. Students in the early college high schools saw a 5 percentage point improvement in high school graduation rates relative to the control group, a 10 percentage point improvement in postsecondary matriculation rates, and a 22 percentage point improvement in credential attainment rates (at the associate's degree level, since the study does not yet have sufficient longitudinal data to assess results at the bachelor's degree level).

Figure 5: Incremental impact of early college model versus comparison group



Source: American Institutes for Research, *Early College, Continued Success, Early College High School Initiative Impact Study*, January 2014.

Massachusetts also has promising examples of early college programs. Two such examples and their early outcomes are provided as case studies in the table below.

	Marlborough High School's STEM program	Gateway to college
Demographics	<ul style="list-style-type: none"> ▶ 39% economically disadvantaged ▶ 30% Hispanic ▶ 75% of incoming freshmen into the early college program were designated for "non" honors courses 	<ul style="list-style-type: none"> ▶ Students who have dropped out of high school, or who are at risk of dropping out of high school ▶ 67% low income ▶ 54% students of color ▶ 76% first generation college students
Size:	<ul style="list-style-type: none"> ▶ ~250 	<ul style="list-style-type: none"> ▶ ~500 students across six community college campuses
Potential college credits:	<ul style="list-style-type: none"> ▶ Students have the opportunity to earn between 12-24 college credits 	<ul style="list-style-type: none"> ▶ Students generally earn 20-30 college credits
Focus areas:	<ul style="list-style-type: none"> ▶ Courses are aligned along multiple STEM pathways; students also engage in internships in STEM fields 	<ul style="list-style-type: none"> ▶ Students engage in general education coursework
Early outcomes: ^{viii}	<ul style="list-style-type: none"> ▶ After two years, 78% of early college students were placed in honors and AP courses ▶ 98.3% MCAS pass rate in 2015 ▶ 100% graduation rate ▶ 95% college placement rate ▶ 52% of students continuing with STEM fields in college 	<ul style="list-style-type: none"> ▶ Students graduate with an average of 26 college credits and a 2.69 college GPA (after entering with a high school GPA of 1.39)

Source: Program Directors of Massachusetts Early Colleges, interviewed by EY-Parthenon, May 2015.

In the June 2016 report titled, *The Degree Gap: Honing In on College Access, Affordability & Completion in Massachusetts*, the Massachusetts Department of Higher Education articulated several broad goals for the state: improving college access and affordability, raising overall completion levels in order for students to later gain employment, and addressing the persisting opportunity gap.

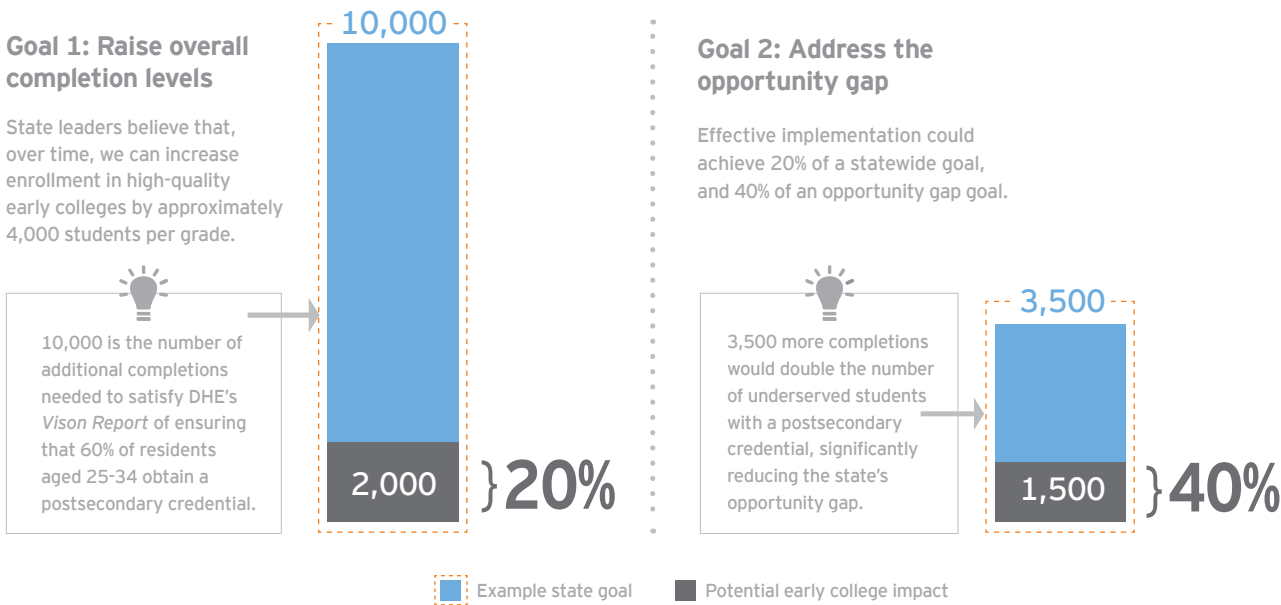
While there are many initiatives that could potentially help reach these goals, the Massachusetts Early College Initiative could be a strong contributor.

- For example, a Massachusetts Early College Initiative that aims to increase the number of early college seats in high school from the current state of approximately 2,400 seats to a future state of approximately 16,000

seats (out of the approximately 290,000 total seats across the four high school grades) over the next 5-10 years has the potential to contribute significantly to the broadly articulated state-wide goals, as long as the plan is implemented with fidelity to the quality design principles described in detail in Part 3 this report, “Defining quality.”

- This goal of 16,000 early college seats is both large enough to make a meaningful contribution to state-wide goals and small enough that the state will be able to monitor the progress of an early college initiative and determine how it is affecting students before considering extension or expansion of the Initiative.
- Figure 6 illustrates the potential contributions of early college seats to “example” state goals (goals that are

Figure 6: Potential contribution of the Massachusetts Early College Initiative to example state goals



Source: *The Degree Gap: Honing In on College Access, Affordability, & Completion in Massachusetts*, a report to the People of Massachusetts from the Massachusetts Department of Higher Education, June 2016.

reflective of the state's broadly defined initiatives) by applying the impact findings of the AIR study to a universe of approximately 16,000 early college seats in Massachusetts. In these illustrative scenarios of progress, the Massachusetts Early College Initiative has the potential to contribute 20% of overall annual needed increases in postsecondary completions state-wide, and can also help the state 40% of the way toward doubling the number of underserved student completions in the Commonwealth.



Part 2:

A base to build upon



While early college efforts in Massachusetts do not yet have the kind of scale we see in some other states, they have made a very important contribution to the broader education landscape in the state. They have shown that the concept is possible to implement in the Massachusetts context, they have contributed to generating broader interest in the education model, and perhaps most importantly, they have established compelling examples and a strong foundation and body of work, which can be built upon and scaled further.

The idea of opening up college experiences to high school students has a rich history in Massachusetts, and is executed in several ways throughout the state: dual enrollment, concurrent enrollment, and early college programs.

Dual enrollment:

For years now, many of the Commonwealth's higher education institutions have offered dual enrollment opportunities to high school students, thus enabling students to take college-credit bearing courses at a neighboring college while still enrolled in high school. The state first established a program to provide funding for dual enrollment in 1993, continued it through 2001, and then resumed again in 2008 after a hiatus. The program is now called the Commonwealth Dual Enrollment Partnership (CDEP).^{ix} Students who pursue

dual enrollment opportunities generally take one or several college-level courses at a partner college before they graduate high school. The degree to which these courses are "one-off" in nature vs. part of a sequence of courses or part of a more guided academic pathway varies widely by district and depends, at least in part, on the individual motivations and interests of the student.

Recent data indicate that, of the approximately 290,000 high school students in Massachusetts, approximately 6,300 engaged in at least one dual enrollment course in 2015. Approximately 2,100 of those students accessed state funds from the Commonwealth Dual Enrollment Partnership to do so. These students enroll in courses across community colleges, state universities, and University of Massachusetts campuses, with the most significant percentage (85%) enrolled at community colleges.

Concurrent enrollment:

In recent years, Massachusetts high schools have also begun to offer concurrent enrollment (a type of dual enrollment), which is the term for students taking college-credit bearing courses on the high school campus, taught by credentialed high school teachers (teachers who have been approved by the college partner as qualified to teach courses that will receive college credit). Concurrent enrollment has proven to be

290,000	high school students in Massachusetts
6,300	in dual enrollment courses
1,300	in a concurrent enrollment modality
2,100	funded through CDEP (the remainder is funded through self-pay and district-pay)

a viable strategy for high schools that are located far away from a college campus. Concurrent enrollment is tracked somewhat less rigorously than enrollment in courses offered on college campuses, but additional research in this area indicates that, of the approximately 6,300 students engaged in dual enrollment, approximately 1,300 are able to take courses on their high school campuses through concurrent enrollment.^x

Some high schools have begun to build even deeper partnerships with local colleges, including through resource sharing. Malden High School, for example, lends space to Bunker Hill Community College, which has established a “satellite campus” on the high school campus. In exchange, Malden High School students can enroll for free in the courses that are hosted on the Malden High School campus (this is technically a form of dual enrollment, as a college professor is still teaching the courses). Students can stay on their own campus, while still benefiting from learning side-by-side with college students.

Early college programs:

The Commonwealth is also home to “early college programs” which generally involve a cohort of students in a particular high school engaged in a more defined academic pathway toward earning college credits, with significant student support provided along the way in the form of counseling, advising, and tutoring. Students in these “early college program” seats are likely counted as a subset of the approximately 6,300 students who participate in dual/concurrent enrollment opportunities (although the data is not centrally tracked). In fact, the dual/concurrent enrollment policies adopted by the Commonwealth (such as funding the ability for students to earn dual credit, both at the high school and in college) and executed through partnerships between school districts and colleges are a critical enabling factor for early college programs. They are a strong

foundational element on which districts and schools can build to create the more guided academic pathways that are the backbone of early college programs.

Early college programs in Massachusetts have benefited from the thought leadership and implementation efforts of several nationally recognized organizations. One of those organizations is the Commonwealth’s very own Jobs for the Future (JFF), located in Boston. Another is Gateway to College, a national network of college-based programs across 21 states. The early college programs in Massachusetts can be broadly separated into three distinct categories:

- **Pathways to Prosperity and Youth Career Connect:**

The Boston-based nonprofit, JFF, has been one of the foremost leaders in early college work for the past decade. Several of the Commonwealth’s early college programs fall within the JFF network, whether that is defined by funding streams JFF has helped to secure – such as Youth Career Connect, a \$4.9 million grant from the U.S. Department of Labor, or within JFF’s Pathways to Prosperity network. These programs generally have a heightened focus on career preparedness, while maintaining academic rigor, and offer students a more structured academic pathway that incorporates exposure to one or multiple different career fields (such as STEM career fields).

- **Gateway to College:** Massachusetts is home to six Gateway to College programs on various community college campuses. These programs target students who either have dropped out of high school or are at significant risk of doing so, and engage them in an intensive academic program hosted on a college campus. The Gateway programs provide students with robust academic and social support structures and a communal atmosphere, allowing students to work toward earning a high school diploma and

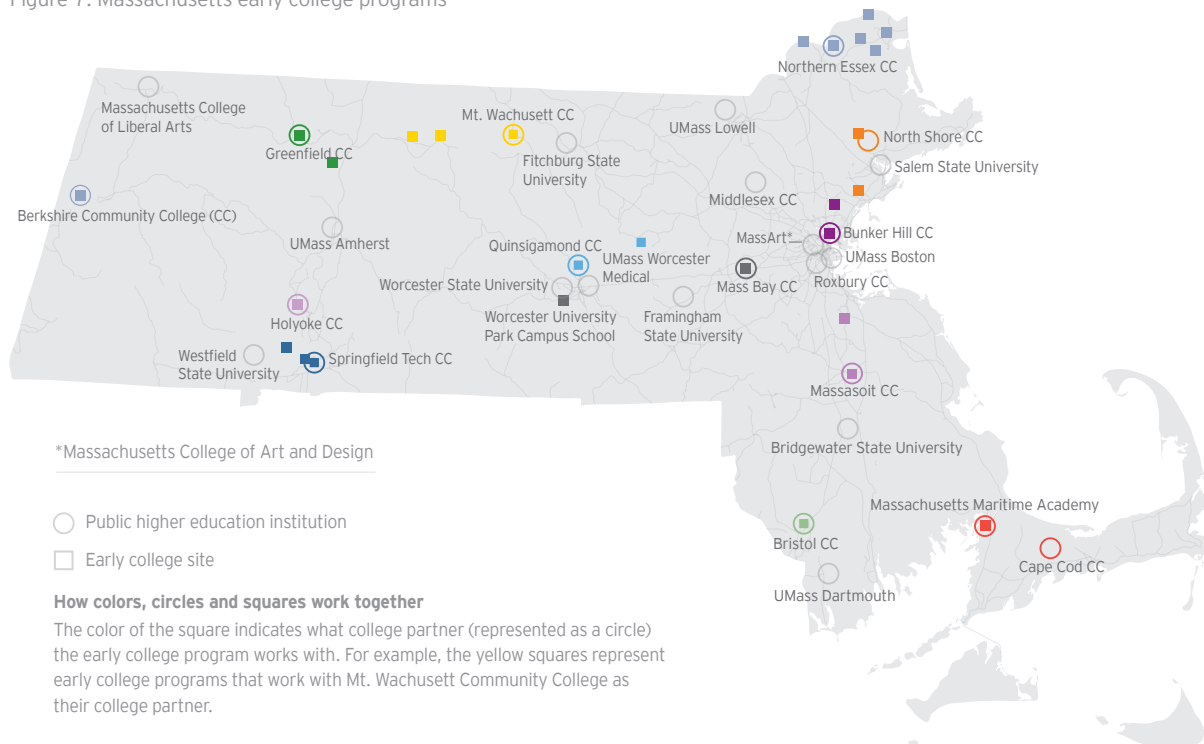
significant college credit simultaneously. There is also a national Gateway to College network, which supports the Gateway programs with information sharing and training.

- **Local district and school efforts:** Throughout the Commonwealth, districts and individual schools have established early college programs for their students, largely as a result of robust relationships and partnerships between superintendents, principals, and college leadership. These programs run the gamut in terms of how they are designed, with some taking place on the college campus and others taking place predominantly on the high school campus. All of these programs enable students to earn college credit, and all represent a sustained partnership between a college and a K-12 institution.

Today, there are approximately 27 early college programs in Massachusetts. These programs are spread throughout the Commonwealth, touching all 15 community colleges, as well as several state universities, as illustrated in Figure 7.

Collectively, these early college programs serve approximately 2,400 students, of whom 55% are low income versus the state average of 38%. They also tend to serve students across a wide range of academic abilities.^{xi} Explains one Program Director: *“This program serves students that reflect the school. We have high performing kids, kids who have been performing at a lower level, and kids in the middle. And frankly, this program is more for the latter two groups, because it can raise their level of performance.”*

Figure 7: Massachusetts early college programs



Source: Survey of Massachusetts Community Colleges, May 2016, EY-Parthenon.

Early college programs

Note: Many familiar with the early college landscape would also include the partnership among Newburyport, Pentucket, Triton, and Whittier High Schools (who partnered with Northern Essex) on this list. However, this program, which used to enroll 80 students, did not reopen in the Fall of 2016.

Program	Model type	Approx. enrollment	
Amesbury HS Early College	Local Early College	60	Northern Essex CC
Athol HS Early College	Local Early College	10	Mt. Wachusett CC
Bourne HS Early College	Local Early College	10	Cape Cod CC
Bristol Gateway to College	Gateway to College	60	Bristol CC
Brockton High School	Youth Career Connect	150	Massasoit CC
Chelsea High School	Local Early College	150	Bunker Hill CC
Chicopee HS Early College	Local Early College	80	Holyoke CC
C-Town Tech (Charlestown HS)	Pathways to Prosperity	45	Bunker Hill CC
NSCC Early College at Essex Tech	Local Early College	70	North Shore CC
Haverhill Early College	Local Early College	25	Northern Essex CC
Holyoke Gateway to College	Gateway to College	90	Holyoke CC
Malden HS Early College	Local Early College	5	Bunker Hill CC
Marlborough HS STEM Early College	Youth Career Connect	250	Quinsigamond CC
Mass Bay 100 Males to College	Local Early College	70	Mass Bay CC
Massasoit Gateway to College	Gateway to College	100	Massasoit CC
Mt. Wachusett Gateway to College	Gateway to College	115	Mt. Wachusett CC
New Heights Charter	Charter School (Local Early College)	300	Massasoit CC
NSCC Early College at Lynn	Local Early College	210	North Shore CC
Pathways Early College Innovation High School - Mahar HS	Local Early College	40	Mt. Wachusett CC
Paulo Freire HS	Local Early College	40	Holyoke CC
Positive Options - Pittsfield Public Schools	Local Early College	20	Berkshire CC
Quinsigamond Gateway to College	Gateway to College	100	Quinsigamond CC
Springfield Tech 100 Males to College	Local Early College	50	Springfield Tech CC
Springfield Tech Gateway to College	Gateway to College	30	Springfield Tech CC
West Springfield High School	Youth Career Connect	90	Springfield Tech CC
Turners Falls and Greenfield HS	Local Early College	30	Greenfield CC
University Park Campus School	Local Early College	230	Clark University
Total	27 programs	~2,400 students	

Dual and concurrent enrollment programs

Note: Dual enrollment occurs in various forms around the state. The programs represented below are the ones that have some form of programmatic relationship between the high school and higher education partner (i.e., memorandum of understanding (MOU)) that results in a significant amount of students taking courses, rather than a student choosing on their own to engage in dual enrollment.

Program	Model type	Approx. enrollment	College affiliation
Amherst High School Concurrent Enrollment	Concurrent enrollment	20	Greenfield CC
Blue Hills HS and South Shore Voc. Tech. HS Concurrent Enrollment	Concurrent enrollment	15	Massasoit CC
Brockton High School Concurrent Enrollment	Concurrent enrollment	50	Massasoit CC
Cape Cod CC Online Concurrent Enrollment Program (7 HS partners)	Online concurrent enrollment	40	Cape Cod CC
Cohort Based Dual Enrollment (Natick HS and Keefe Tech HS)	Dual enrollment	15	Mass Bay CC
Everett HS Satellite Campus	Satellite campus	80	Bunker Hill CC
Florence Public Schools Concurrent Enrollment	Concurrent enrollment	10	Greenfield CC
Future Steps Program (Hudson HS and Assabet Valley HS)	Online concurrent enrollment	15	Quinsigamond CC
Greater Lawrence Technical HS Concurrent Enrollment Partnership	Concurrent enrollment	40	Northern Essex CC
Malden HS Satellite Campus	Satellite campus	195	Bunker Hill CC
Maynard HS Satellite Campus	Satellite campus	30	Mass Bay CC
Middlesex CC Dual Enrollment Academies (8 HS partners)	Concurrent enrollment	655	Middlesex CC
Mt. Wachusett CC Concurrent Enrollment Program (6 HS partners)	Concurrent enrollment	140	Mt. Wachusett CC
Natick HS Concurrent Enrollment	Concurrent enrollment	85	Mass Bay CC
Norfolk Agricultural HS Vet Tech Program	Concurrent enrollment	40	Massasoit CC
Pittsfield Public Schools Concurrent Enrollment	Concurrent enrollment	150	Berkshire CC
Swampscott HS Concurrent Enrollment Partnership	Dual enrollment	20	North Shore CC
Total	17 programs	~1,600 Students	

All this activity presents a promising base to build upon:

- ▶ Robust dual and concurrent enrollment policies and student participation rates
- ▶ **11** colleges that already partner with high schools and engage in excess of 100 students per college in dual or concurrent enrollment courses
- ▶ **22** high schools with more than 30 students per high school enrolled in either dual or concurrent enrollment courses
- ▶ **27** high schools, colleges, or districts implementing the more programmatic, cohort-based early college models with student support

The range and geographic spread of these activities signifies that K-12 districts and colleges in Massachusetts have already begun to work together and build the beginnings of deep partnerships – a meaningful foundation for the early college effort. Many of the existing activities and programs are ripe for expansion. With some refinements, these programs could quickly come to reflect the broad design principles put forward by the Working Group and described in greater detail in the next section.

Although many of these programs are eager to expand, they have encountered various challenges along the way. Interviews with program directors around the Commonwealth revealed several common barriers:

- ▶ **Awareness:** Most programs reported that there was relatively low awareness among parents, families, and the broader public of what early college is and what it



could do for students. In speaking with officials in Texas and North Carolina, it became clear that a growing level of awareness is what helps to build demand and provides an incentive for scaling early college. This doesn't seem to exist quite yet in the Commonwealth.

- ▶ **Community of practice:** These efforts reflect the entrepreneurial nature of local district, school, and college leaders, but could benefit from sharing information about leading practices, what works, what has not worked, how to establish effective partnerships and MOUs. Many program directors reported that they felt like they were constantly “recreating the wheel,” because they were unaware of other early college programs to turn to for advice.
- ▶ **Alignment of high school curricula to existing postsecondary pathways:** Given the high rates of remediation in the Commonwealth, it is evident that there is often a gap between what students learn in high school and what they need for postsecondary success. Many early college programs note that it is challenging (and expensive) to prepare students to succeed at the postsecondary level early. Although many programs have worked one-on-one with college partners to build pathways, some colleges (notably Bunker Hill Community College) have begun to leverage the already existing MassTransfer pathways.^{xii} The 17 MassTransfer pathways are academic pathways of courses in particular disciplines that can be transferred among all Massachusetts community colleges and public four-year universities in the Commonwealth. In building these pathways, faculty from both sides came to an agreement on content areas that should be covered in the courses. These outlines can prove valuable in helping to align high school curricula to the existing pathways.
- ▶ **Teaching force:** One of the biggest challenges of early college programs is finding the appropriate staffing. Community colleges are sometimes able to take on additional students in existing classes, but likely only

during periods of lower enrollment. Additionally, this only works for high schools that are in close proximity to their early college partners. For schools choosing to utilize a concurrent enrollment model (where a credentialed high school teacher teaches the course), there are other constraints – namely, that teachers must meet the criteria necessary to be hired as an adjunct professor at the college partner (often a master's degree in the applicable field). Many schools have only a few teachers that meet the necessary criteria.

- ▶ **Funding arrangements:** Most of the existing early college programs are funded either through grant funding, through already existing district funds, or through in-kind donations by college partners (and often some combination of the three). Commonwealth dual enrollment funds are also available for use at community colleges throughout the state. Other grant funding from external resources is often viewed as fairly unsustainable, forcing programs to come up with other long-term plans. Many district and college partners have come up with ways to share per-pupil spending through MOUs (which define who does what and who pays for what), but because these programs are working within the existing funding envelope, they become difficult to scale. Ironically, it is the *process* of scaling that is so difficult – once at scale, districts might be able to reduce some costs, making these programs more sustainable. But at sub-scale, and when scaling up, districts have to shift funding to community colleges without equivalent cost cutting, creating budgetary difficulties. On the community college side, many colleges find themselves donating a significant amount of in-kind resources, such as free classes, which is only sustainable for so long – and often not at a large scale. Ultimately, there is an opportunity for cost-sharing between entities via an MOU that could ultimately yield better outcomes for the state, but doing so requires significant cooperation and likely some additional funding.

Part 3:

Defining quality



The compelling “base to build upon” for early college in Massachusetts offers much to be optimistic about. However, many of the existing programs within the state are quite nascent and are still developing both in terms of scale and program offering. As existing programs grow and new programs emerge, it is important to keep in mind what elements a high quality early college program in the Commonwealth can and should incorporate.

To better define high-quality early college in Massachusetts, the Working Group established for the purposes of this

project – key leaders from the Department of Elementary and Secondary Education, the Department of Higher Education, the Executive Office of Education, the STEM Advisory Council, and both district and community college practitioners – arrived at a consensus that early college school models can be a critical piece of achieving the state’s overall educational aspirations if they are aligned to five high quality design principles. These design principles reflect the thinking of the Working Group, and were similarly supported by the Steering Committee.

Five design principles

Precondition:

Free to all students and provide open access to all students, regardless of academic performance

- 1 Equity access
- 2 Guided academic pathway
- 3 Enhanced student support
- 4 Relevant connection to career
- 5 Deep partnerships

1 Equitable access

There needs to be multiple formalized “on-ramps” or entry points for students to access early college (e.g., not just limited to ninth-grade students or those who are higher achievers). Academic and non-academic

supports should be provided along the way to guide students of all academic backgrounds and prepare them for the academic rigor of college courses and to succeed in a potentially new environment (college campus).

Program spotlight (Marlborough STEM)

Marlborough High School's STEM Early College program allows students to engage in a curriculum based on “exploratory and project based learning,” with mentorship, internships, and the opportunity to take up to 12-24 college credits offered along the way. After experimenting with several different models for providing early college to its students, Marlborough has also recently begun to prepare students for the experience as early as middle school. While middle school students do not take college credits, they do engage in interdisciplinary project-based learning, which helps prepare them for college-level courses in later years. Marlborough Program Director Dan Riley comments that:

“ The investment in the earlier years makes a difference in how successful the students will be when they take college classes as juniors and seniors.”

Dan Riley, Program Director, Marlborough High School

But even if students miss out on the early preparation, Marlborough allows them to enroll in the program at any time, without any grade or testing requirement. This has resulted in Marlborough's program being a “turnaround point” for many students. Of the 75% incoming freshmen who entered the program and were designated as “non-honors” students, 78% of those same students were placed into honors, AP, or college-level courses two years later, upon entering their junior year.

2 Guided academic pathway

High schools and their higher education partners should jointly develop an integrated academic program so that all students in the program have the opportunity to earn, at a minimum, 12 credits of transferable college

credit over the duration of the program. The academic program is designed for a full cohort of students to progress towards a credential with meaningful labor market value.

Program spotlight (C-Town Tech)

Charlestown High School's grant-funded early college program partners with SAP, a technology company, and focuses on developing students for a career in technology. Dubbed "C-Town Tech," the program begins with ninth-graders taking a year-long introductory course on the Charlestown campus for three college credits. From there, students take Python programming in the tenth grade, and then head to the Bunker Hill Community College campus in eleventh and twelfth grades to take both general education credits and more advanced IT classes in place of what would otherwise be school-based electives. Throughout the program, students engage in internships and job shadowing, and are provided mentors from SAP. This "guided academic pathway" is geared toward students graduating with up to 30 college credits, and putting the students well on their way to a recognized IT-credential. However, both Bunker Hill and Charlestown are committed to helping students stay on a pathway to earning college credit even if they find they do not enjoy the IT focus. Nuri Chandler-Smith, Bunker Hill's Dean of Academic Support and College Pathway Programs, explains that:

“ Students may try IT for a couple of years and find they like a specific area. There are other students who try it and realize it's not for them. We want to offer all students a pathway. This is why the 9th and 10th grade courses are introductory. In 11th and 12th grade, the students can take both general education courses and the next level IT course. If they find they need to choose a different pathway, they can still come to us for a few classes a semester and we will help them to identify alternate paths. ”

Nuri Chandler-Smith, BHCC's Dean of Academic Support and College Pathway Programs

3 Enhanced student support

Appropriate student supports should be fully incorporated as part of program design. At a minimum, this includes personalized academic advising and tutoring oriented around the pathway to postsecondary completion, and takes into account needs of English language learner

(ELL) students and students with disabilities. Programs will also likely need to include non-academic supports such as guidance counseling, social-emotional supports, and financial literacy.

Program spotlight (Bristol Community College Gateway to College)

Bristol Community College's Gateway to College program, started in 2011, has a service area that serves high concentrations of poverty. More importantly, this program is focused on serving students who are at risk of dropping out, or who have already dropped out. Bristol's program must find a way to motivate and re-energize these students, pushing them toward a high school diploma and significant college credit. Bristol's program does this by providing significant student support, in the form of a resource specialist and program director, as well as tutors. As Program Director Erik Baumann notes, these supports become crucial to individualizing the program for each student and making it something they want to engage in:

“ This is an alternative pathway, and so we need it to look different from the traditional high school pathway that was not working for this group of students. We need to create the buy-in that this is something different, something special. We need to create that sense of empowerment, and have students be in control of their own destiny. So we work with as many of the students as possible to try to think about what they want to achieve and how to do it. ”

Erik Baumann, Program Director, Bristol Community College

Bristol also cites its cohort model as an important source of support, noting that the peer community also helps to motivate students. While providing this level of support can be costly (especially since Bristol also covers student textbook fees and other costs), Bristol's 70% graduation rate (for students who would have otherwise dropped out) provides evidence that the investment can be worthwhile. As Baumann notes, “If this works for the highest risk students, imagine what it could do for everyone else.”

4 Relevant connection to career

The early college model should also provide students with relevant workforce skills, exposure to career paths, and career counseling. General skills include: teamwork, communication, and interview preparation. Strong career preparation can be achieved through various forms of experiential learning and workplace learning (including internships, job shadowing, and

mentorship). This will assist students in informed career decision-making, but it does not imply a narrowly defined vocational track or a credential awarded by a specific company, although this is certainly one of the options on a much broader career preparation spectrum that schools could pursue.

Program spotlight (Brockton High School)

Brockton is one of several state programs funded by the \$4.9 million Youth Career Connect federal grant received by Jobs for the Future. The key features of this program include a focus on high-demand STEM careers, robust employer engagement and project and working-based learning, and integration with postsecondary education at Massasoit Community College. In order to provide these experiences for students, Brockton High School works in close collaboration with the Brockton Area Workforce Investment Board, local businesses, Massasoit, and Jobs for the Future. In grades 9 and 10, students explore a variety of STEM careers through the YCC Career Speakers Bureau, job shadowing, company tours, and mentorships. They also take STEM-based elective courses at the high school. In grades 11 and 12, students participate in an internship, which allows them to gain firsthand exposure to the workforce. Students also participate in dual enrollment courses at Massasoit Community College, and can earn 12 transferable college credits through the program.

“ The Youth Career Connect Initiative has allowed our students the extraordinary opportunity to experience college life and culture, as well as career oriented experiences that can teach valuable life skills, while still actively engaged in their high school studies. This pilot has provided the District with invaluable information and strategies on how to expand this vision to include more youth in such programming. We are extremely fortunate to be involved in this initiative with our myriad of partners. ”

Laurie Silva, Director of Community Schools at Brockton Public Schools

5 Deep partnerships

There should exist a deep and sustained partnership between the K-12 district or school and the higher education partner, as well as the potential industry partner (if the model envisions an industry partner).

The partners work together to align curricula, structure responsibilities and financial arrangements via MOUs, are equally invested in student success, and hold each other accountable for student results.

Program spotlight (Mount Wachusett Community College)

Over the past decade, Mount Wachusett Community College (MWCC) has emerged as a recognized leader in the early college space in Massachusetts. Home to the oldest Gateway to College program in the Commonwealth, MWCC has also begun offering a robust dual enrollment program, as well as the “Early College Experience” and “Pathways Early College Innovation School” programs, which allow higher achieving students to earn both their high school diploma, and a full associate's degree. All of these programs require deep, sustained partnerships with many of the districts that surround MWCC. MWCC actually relies on these surrounding districts to help them serve students from around the Commonwealth. For example, the Pathways Early College Innovation School is open to any student within MA, who then “school-choices” into the Mahar Regional School District. While participating students take all of their courses at MWCC, Mahar’s high school still takes on the administrative tasks of providing the students with a high school diploma. MWCC’s staff has also learned to work with local employers who often employ their students part time. They help the students find shifts that will fit with their college schedules, and work with employers to make this possible. Ultimately, MWCC believes these partnerships have been critical to the program’s success:

“ There have to be deep partnerships grounded in trust between local school districts and community colleges. At MWCC, we work closely with superintendents, principals and faculty. There is a great deal of give and take. It has to be about the partnership, and there have to be incentives to motivate all to pursue and grow the partnerships, so that students benefit.”

Lea Ann Scales MWCC, VP of External Affairs, Communications, and K-12 Partnerships



Part 4:

What it takes



As described in “Part 1: The opportunity for Massachusetts,” early college programs have the potential to become a critical piece of achieving the state’s overall educational aspirations, but attaining this level of scale and performance will require work that is far-reaching and exceeds existing levels of funding. Programs in Massachusetts have been creative in securing funding from grants, donors, and various forms of cost savings, but it likely is not reasonable to expect that a truly effective early college program could be executed without additional intentional investment in the right resources. Many existing programs in Massachusetts face existential dilemmas in the absence of a secure funding path.

One way of bringing early college programs in Massachusetts to a more effective scale might be to establish a Massachusetts Early College Initiative that confers a formal designation on early college schools. Below, we offer four broad parameters – discussed by both the Working Group and the Steering Committee – that could serve as the framework for the Commonwealth’s work in this area.

- **The state could create a formal early college designation:** One takeaway of our work is that the label of “early college” can mean different things to different people – even as those most experienced in the field have begun to align on a core set of design principles that denote quality. If Massachusetts is to support the expansion of early college schools, it should ensure that those schools are aligned with high standards of quality, without making those standards so specific that they restrain local innovation and variety. Creating a formal designation could serve as a signal to districts and higher education institutions of the state’s support, and help the field to further coalesce around key design elements.

- **Funding could be linked to outcomes:** Our research indicates that to support a high-quality early college high school at scale requires modestly higher per pupil funding than the current MA average (more on this further below). New or expanding programs may also benefit from temporary resources, such as planning grants and technical assistance. In a time of limited resources, one benefit of an investment in early college high schools is the ability to relatively directly assess the return on that investment by looking at leading indicators such as college credit accumulation during the HS years, college matriculation, and persistence. Funding structures such as challenge grants and performance contracts could be an effective means of balancing the risk of higher state spending, provided that the term of those contracts gives schools the confidence to make the multi-year investments required to build capacity and ensure quality.
- **Clear goals for scale could focus energy and resources:** In thinking through the path forward for early colleges in Massachusetts, one challenge for state leaders is to be confident that this initiative can be significant enough in its scale to yield a meaningful impact on statewide outcomes, without growing so quickly that it becomes hard to gather evidence and respond to lessons learned. In some of the analysis for this report, we worked with a rough target that high-quality early colleges could enroll up to 4,000 low-income students in each high school class cohort – equivalent to 4% of all low-income high school students statewide. Whether or not this exact target is appropriate for the state, it is noteworthy that our estimates suggest that this level of scale could lead to dramatic progress in key student outcomes. Setting a long-term goal for scale can help encourage stakeholders to devote the time, energy, and resources required to succeed.

► **The invitation could engage a broad community of educators:** An initiative to expand high-quality early colleges is one that can engage all parts of the public education landscape in Massachusetts. In the potential process laid out in this report, there are multiple entry points for participation: existing programs could apply to improve and expand; schools with no current early college programs (e.g., traditional comprehensive high schools, somecareer/vocational technical education schools, and charter schools) could apply and align to the quality design principles; finally, model new schools could be launched emerging from new partnerships

► between K-12, higher education and, potentially, employers as well.

It is important to note that moving forward with the framework proposed above would not prevent other dual enrollment efforts in the Commonwealth from continuing where they make sense beyond the parameters of the programs that would fit the criteria for early college designation. In fact, this framework allows for multiple types of programs to flourish in the Commonwealth, with a heightened focus on programs that meet a threshold of quality that we believe will truly benefit students.

Additional funding detail

In order to determine the funding needs that would support the vision laid out in the report, we engaged in conversations with existing early college programs in the Commonwealth, as well as in other states. These conversations indicated that two broad types of resource needs, and the overall vision described above, will be key to making these programs work for students:



School/college-level ongoing resource needs

There are four distinct categories of resources that might qualify for this incremental funding:

- Instructional
- Student supports
- Transportation and textbook supports
- Career-related supports



System-level ongoing resource needs

These investments might include planning grants and start-ups for individual schools/colleges, field-building activities (such as establishment of communities of practice, awareness building, and performance monitoring), and additional staff at the departments to assist with the new activities.

To qualify for additional funding support, K-12 and higher education partners would need to stay true – when formulating their vision and implementation plans – to the broad guiding principles articulated by the Working Group and Steering Committee in Part 3: Defining quality, when designing their models. There would, however, be substantial room for flexibility in terms of how these principles are executed locally on-the-ground.



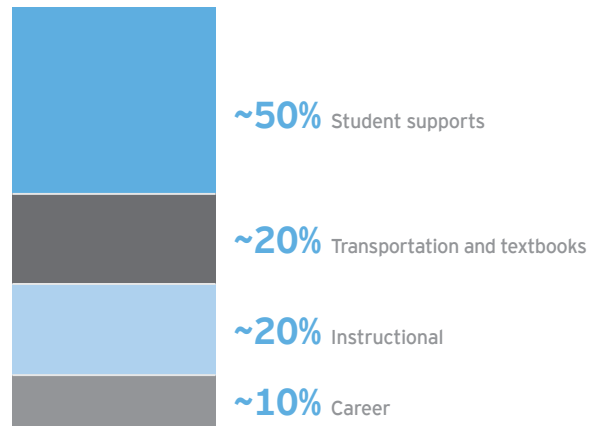
School-level supports

An ongoing investment would likely necessitate a range of an additional \$700-\$900 per student per year² to provide an early college program that allows students to earn a minimum of 12 college credits by high school graduation. This represents an increase of approximately 5% over the existing per pupil funding amount, and in steady state – when early college seats reach the goal of 16,000 across the state of Massachusetts – might amount to an annual investment of close to \$15m. Every program will have slightly different needs and will spend money differently, depending on its individual context. For instance, programs that are lucky enough to be very close to a college campus may opt to spend more money on student support or on deeper experiential learning opportunities. Similarly, programs that are very far away from college campuses may choose to credential high school teachers rather than cover high transportation costs for students to travel to a college campus. For the sake of illustration, Figure 8 shows a scenario for how the additional funding might be utilized at a sample school in Massachusetts:

- **Student support personnel (at the high school and college levels):** Effective early college programs provide a significant amount of extra support to their students, both to prepare students to access an onramp to the early college program and also to succeed in the selected pathway once enrolled in the program. This student support can come in many forms, but most frequently takes the form of program directors, resource specialists, guidance counselors, tutors, or teachers who provide extra support for college-level classes. Regardless of the precise distribution of roles and responsibilities, most effective early college

Figure 8: Breakdown of costs (per student, per year) for a sample early college program

\$700 - \$900



Source: Program directors of Massachusetts early colleges, interviewed by EY-Parthenon, May 2015.

- programs dedicate these additional student support positions almost exclusively to the program. This allows early college students to build a trusting relationship with the adults in the program. The early college professionals not only help shepherd students through the program, but also point them in the direction of additional support when needed. Notably, early college programs often have dedicated staff members at *both* the college and the high school, which not only helps to facilitate the trajectory of the students, but also deepens the partnership and collaboration between the district and college.
- **Support for additional costs (transportation/textbooks):** Even when college tuition and fees are covered, students are likely to encounter other costs, which could be prohibitive for many families: consistent transportation to get to and from campus, and textbooks and materials

² This figure is based on the standard program described above, based on the experience of similar programs in Massachusetts and around the country. Alternative or innovative approaches to delivery of education or student supports could lower the estimated incremental cost of implementing early college high school.

- for virtually every course. An early college program that does not cover these costs is unlikely to attract and retain low-income, underserved students. The range of costs in this category could vary widely, however, depending on the proximity of the high school to the college campus, whether the early college program relies on public transportation vs. adding a bus route to the high school's existing bus schedule, and whether the course relies on physical textbooks vs. online materials available for low or no cost to students (regardless, if the program uses physical textbooks, they would generally need to be provided for free to students). For illustrative purposes, the model above assumes that a high school provides public transportation passes.

- **Instructional costs:** The cornerstone of any early college program is the provision of free college credits for participating high school students. While this can take many forms (e.g., compensating college faculty for teaching courses either on the college campus or the high school campus, or credentialing high school teachers to teach college credit-bearing courses on the high school campus), free college credit can serve as a significant motivator to bring students into the program, and the course can be a sufficiently satisfying experience to engage and motivate students, and keep them on the path to seamlessly enrolling in and continuing in a postsecondary option after graduation from high school. While not all students in an early college program will take college credit, others may take a significant number of courses while in high school.

In addition, in order for early college programs to be effective in enabling their students to achieve this goal, the programs need to leverage the deep partnership between the K-12 and higher education partner and align high school and college courses. This will make it possible to establish a true, guided,

seamless academic pathway from high school through postsecondary. To do this, college faculty work with high school teachers and program directors to determine what must be covered in order to effectively prepare students for college courses later on. Additionally, college faculty might engage in significant professional development activities with high school teachers who are becoming credentialed to teach college-credit bearing courses at the high school. All individuals participating in these kinds of professional development opportunities generally receive a stipend for the amount of time spent on course planning and alignment, as this represents time outside of their normal job duties.

It is important to note that, ultimately, students would not be taking more courses overall. Instead, early college courses would substitute for traditional high school courses. Because of this, while there are upfront costs to smoothly develop the seamless academic pathway, one could envision that additional instructional costs could be kept quite low on an ongoing basis.

- **Career supports:** Early college programs are often made even more effective with the addition of experiential learning or workplace learning for students. Although schools might struggle to find these opportunities on their own, several early college programs in the Commonwealth have leveraged relationships with local workforce investment boards to engage employers and develop programs that provide students with exposure to a wide range of careers. Some programs even work full-time with WIB employees to ensure that all students have access to internships, mentorships, job shadowing, and other experiences.



System-level investments

The effort to get the Massachusetts Early College Initiative off the ground smoothly will likely require the following types of system-level investments:

- Planning grants to K-12/higher education partners to assist them in developing rigorous implementation plans
- “Start-up” funding to K-12/higher education partners to build a support baseline before a significant number of students are enrolled
- Funding for additional staff at the department level (Department of Elementary and Secondary Education or Department of Higher Education) to develop and support “field-building” activities:
 - Supports to K-12/higher education partners in establishing early college models (e.g., MOU templates) and in refining these models over time
 - Creation and maintenance of a learning community of practice (comprised of all partners participating in the early college effort)
 - Awareness building (e.g., with parents and the broader public)
 - Performance monitoring, evaluation studies, and dissemination of results and learnings

Total likely investment needed

The Massachusetts Early College Initiative is likely to **require a total investment in the range of \$17m-\$21m annually at steady state.**

Conclusion: A worthwhile investment

Based on evidence of strong student impact, supported by national research, investment in an early college initiative is likely to result in substantial benefits to students, families, and the Commonwealth:

- **Greater affordability** of postsecondary options for students and families and therefore greater access to these options
- **Higher levels of preparation**, resulting in reduced remediation rates for underserved students and lower overall cost of remediation
- **Higher overall enrollment** in postsecondary options and increased diversity of the student body
- **Stronger overall alignment** between the education sector and employer demand for talent in the Commonwealth
- **Improved job prospects** for underserved students, resulting in significant improvements to individual financial circumstances, as well as an increased tax base for the Commonwealth

While this research presents a potential rationale for supporting early college high schools as a means of improving postsecondary success in Massachusetts, it is now the role of state leadership and the public at large to consider the policy and implementation questions of how to capture the opportunity for students.

At a time when increasing postsecondary success is more critical than ever – for students and for the Commonwealth overall – the silos between K-12 and higher education that can impede progress must be confronted. Early college schools are not a panacea, but the data suggest they can be a powerful step for the Commonwealth. We hope the data presented here, and the ideas the research has inspired, help to spark fruitful conversations across the education community about the path forward.

Steering Committee and Working Group membership

Steering Committee

- ▶ **Mitchell Chester**, Commissioner, Department of Elementary and Secondary Education
- ▶ **Chris Gabrieli**, Chair, Board of Higher Education
- ▶ **Jim Peyser**, Secretary of Education
- ▶ **Paul Sagan**, Chair, Board of Elementary and Secondary Education
- ▶ **Carlos Santiago**, Commissioner, Department of Higher Education
- ▶ **Leah Hamilton**, Education Program Director, Barr Foundation

Working Group

- ▶ **Blair Brown**, Legislative Director of the Executive Office of Education and staff director of the STEM Advisory Council
- ▶ **David Cedrone**, Associate Commissioner for Economic and Workforce Development, Department of Higher Education
- ▶ **JD Chesloff**, Executive Director, MA Roundtable and Chair, STEM Council Executive Committee Member
- ▶ **Cliff Chuang**, Senior Associate Commissioner for Educational Options, Department of Elementary and Secondary Education
- ▶ **Jenny Curtin**, Senior Program Officer (Education), The Barr Foundation
- ▶ **Dianne Kelly**, Superintendent, Revere Public Schools
- ▶ **Karen Hynick**, Vice President of Academic Affairs, North Shore Community College
 - ▶ Co-Chair, Dual and Concurrent Enrollment Advisory Group
- ▶ **Patricia A. Marshall**, Deputy Commissioner for Academic Affairs and Student Success, Department of Higher Education, and Member of Dual and Concurrent Enrollment Advisory Group
- ▶ **Philip Sisson**, Provost and Vice President of Academic and Student Affairs, Middlesex Community College
- ▶ **Keith Westrich**, Acting Associate Commissioner, Center for College, Career, and Technical Education, Department of Elementary and Secondary Education. Co-Author of Massachusetts Early College Landscape Report. Member of Advisory Group on Six-Year Career Plans

Endnotes

- ⁱ These estimates are based on calculations by the Center for American Progress (\$20m, <https://cdn.americanprogress.org/wp-content/uploads/2016/09/12082503/CostOfCatchingUp-report.pdf>), the Massachusetts Department of Higher Education (\$45m-\$50m, internal calculation), and the Massachusetts Business Alliance for Education (\$57m, <http://www.mbae.org/time-for-truth-in-assessing-college-and-career-readiness/>).
- ⁱⁱ Internal analysis based on data collected from the Massachusetts Department of Elementary and Secondary Education, Fall 2015.
- ⁱⁱⁱ DESE DART Database.
- ^{iv} "Early College Designs," *Jobs for the Future* website, www.jff.org/initiatives/early-college-designs, accessed 16 November 2016.
- ^v "Early College Designs," *Jobs for the Future* website, www.jff.org/initiatives/early-college-designs, accessed 16 November 2016.
- ^{vi} American Institutes for Research, *Early College, Continued Success, Early College High School Initiative Impact Study*, January 2014; J.A. Edmunds, F. Unlu, E. Glennie, L. Bernstein, L. Fesler, J. Furey, N. Ashavsky, Smoothing the Transition to Postsecondary Education: The Impact of the Early College Model. *Journal of Research on Educational Effectiveness* (forthcoming).
- ^{vii} American Institutes for Research, *Early College, Continued Success, Early College High School Initiative Impact Study*, January 2014
- ^{viii} "Gateway to College Data," *Internal Gateway to College Data* Report, May 2015; "Marlborough High School Early College," Presentation at Harvard MEI Breakfast (15 June, 2016).
- ^{ix} "Commonwealth Dual Enrollment Partnership," *Massachusetts Department of Higher Education*, http://www.mass.edu/strategic/read_cdep.asp, accessed 16 November 2016.
- ^x *Survey of Massachusetts Community Colleges*, May 2016, EY-Parthenon.
- ^{xi} Program Directors of Massachusetts Early Colleges, interviewed by EY-Parthenon, May 2015.
- ^{xii} "MassTransfer Pathways," *Massachusetts Department of Higher Education*, http://www.mass.edu/strategic/comp_transferpathways.asp, accessed 16 November 2016.

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