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Funding Guided Pathways

A Guide for Community College Leaders

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The Community College Research Center (CCRC), Teachers College, Columbia University, has been a leader in the field of community college research and reform for over 20 years. Our work provides a foundation for innovations in policy and practice that help give every community college student the best chance of success.

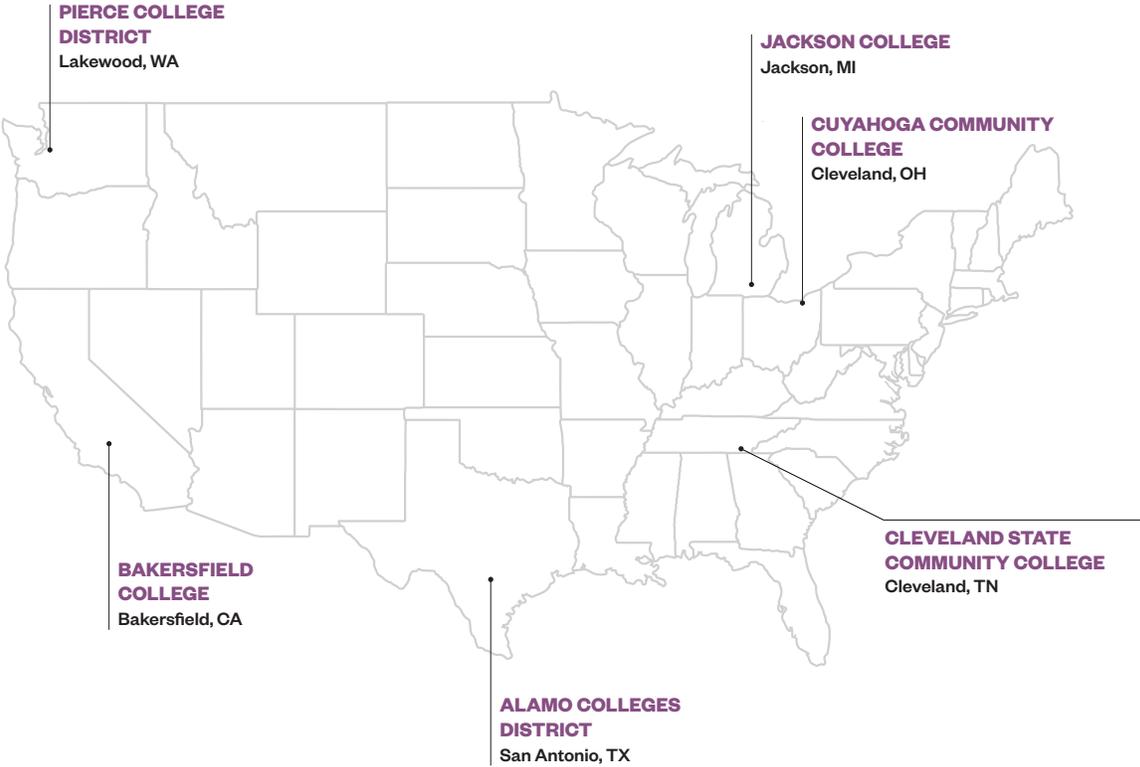
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Six Case Study Institutions



Inside This Report

This guide is intended to help community college leaders understand the costs involved in implementing guided pathways reforms and develop plans for funding and sustaining them. It is based on research at six institutions that have implemented large-scale changes based on the guided pathways model, which focuses on supporting students to enter and complete programs of study that lead to good jobs and transfer to four-year college programs.

The six case study institutions, all of which participated in the American Association of Community Colleges' Pathways 1.0 Project, were selected to represent a range of institutions, from a small rural college to a large urban one and two multicollege districts. All are in different states, each with a distinctive model for funding community colleges. We interviewed chief executive officers, chief financial officers, and others involved in planning and implementing guided pathways to explore the following questions:

1. What are the up-front and recurring costs of guided pathways reforms?
2. How are colleges funding these costs?
3. How are colleges sustaining support for guided pathways practices?
4. How can college leaders contemplating guided pathways reforms estimate the costs involved and develop a viable plan for funding and sustaining the reforms?

In making the major changes in personnel, processes, and systems needed to implement guided pathways, all six case study institutions incurred costs above and beyond the status quo. The largest start-up costs for most of the colleges were associated with purchasing or upgrading information systems to support websites with user-friendly program maps, educational planning, case-management advising, and class scheduling. Other major start-up costs for most colleges included staff to coordinate planning, implementation, and communication related to the reforms; faculty stipends for program mapping; all-college convenings, institutes, and workshops; and training and professional development. The largest recurring cost (and by far the largest new cost across all the institutions) was to support the hiring and training of additional advisors to enable case-management advising of students by program area.

All six institutions raised at least some grant funds to support start-up and other capacity-building activities. Reflecting the common reliance of California community colleges on categorical state funding to fund innovations, Bakersfield College used multiple categorical funding sources to fund start-up and recurring guided pathways costs. Jackson College raised tuition to hire enough "student success navigators" to allow for a case-management approach to advising. The other institutions relied more on reorganization, reassignment, and reallocation of staff and resources than on raising new income to cover most of the ongoing costs of guided pathways reforms.

While all six institutions hired additional advisors or counselors to allow for case-management advising, they also retrained and redeployed existing advising staff.

All six moved from a model where generalist advisors meet with students on a drop-in basis to one in which advisors are responsible for particular students and specialize in a program area (or meta-major). This model enables advisors to develop detailed knowledge of program requirements and transfer and employment opportunities in a given field and to work more closely with faculty to recruit, advise, and support students in their programs.

In every case, college leaders stressed that guided pathways helped them move from engaging in small, often disconnected student success efforts to investing in large-scale changes in roles, practices, and systems to serve all students. By shifting resources from disconnected reforms to strategic, whole-college redesign, colleges were able to free up considerable resources to support the implementation of guided pathways.

All six institutions are sustaining and building on their guided pathways reforms because, according to their leaders, the reforms have led to improved outcomes for students and benefited the colleges as businesses. All six institutions reported evidence of increased early credit momentum for first-year students, and four colleges reported increased Integrated Postsecondary Education Data System (IPEDS) retention and graduation rates and reductions in non-degree-applicable credits. All four institutions in states with performance funding achieved substantial gains from those policies. Moreover, leaders at every college indicated that they were better positioned to respond to the COVID-19 crisis because of changes they made as part of their pathways reforms.

In sustaining support for these reforms, the leaders of these institutions are, in effect, adopting a new community college business model. In the conventional model, colleges generate enrollment and revenue by offering a diversified set of courses and programs at a low cost. In the new business model exemplified by the six case study colleges, colleges attract and retain students (and thereby increase tuition and state subsidies, including performance funding) by offering affordable programs and student supports that have clear value, as they are designed to enable students to complete programs that prepare them for good jobs or transfer in a major field of interest in a reasonable timeframe and without unneeded credits.

This guide outlines steps that college leaders can take to estimate the costs involved in implementing guided pathways and develop a plan for funding and sustaining pathways reforms. A companion technical paper presents findings from an analysis that used interview data and publicly available data on college costs to estimate the overall costs of implementing guided pathways for small, medium, and large colleges (Belfield, 2020).

Introduction

Over the past several years, community colleges across the country have been rethinking their education models in response to several economic trends that have intensified since the Great Recession.

First, students are paying more to attend college than they did in the past. Nationally, community colleges have raised tuition and fees to offset cuts in state funding, which in most states has not returned to its pre–Great Recession levels (Jenkins et al., 2020). As a result, students and their families are bearing more of the cost of a community college education.

Second, performance funding policies have changed the state funding landscape. Even as states are providing less funding for community colleges than in the past, policymakers in at least 30 states have tied funding to colleges’ completion rates and other outcomes rather than enrollment alone (Boelscher & Snyder, 2019).

Finally, community colleges in many states have lost market share for traditional-aged college students to four-year institutions. With the populations of such students declining in many parts of the country, many regional public universities are enrolling students who in the past would have started at a community college, private nonprofit institutions are discounting their tuition, and online institutions are investing heavily in marketing to students traditionally served by community colleges. Many community colleges have sought to offset declines in enrollments among both traditional-aged and older students (whose numbers have declined in part because of strong labor markets pre-COVID) by enrolling large numbers of high school dual enrollment students, but colleges often receive only a portion of the income from enrolling these students that they do from enrolling regular students (Jenkins & Fink, 2020).

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Moving Beyond College Access

In the past, community colleges sought to increase access to higher education by offering a broad range of low-cost courses for students intending to transfer to universities or enter the workforce. Today, there is growing recognition among college leaders that this “cafeteria college” model is not well suited to an environment in which students and their families are paying more for college and therefore want a higher return on their investment, policymakers are increasingly demanding improved outcomes, and competition from other education providers for the same students has intensified. Research on community colleges has highlighted several flaws with the cafeteria college model:

- **Paths to student end goals are unclear.** “General education” programs often lead community college students to take courses that will not apply toward a bachelor’s degree in their major field of interest (Fink et al., 2018), and many

community college career-technical programs are not clearly connected to well-paying jobs (Lin et al., 2020).

- **Students receive little help in exploring their interests and developing a plan.** New students are not systematically helped to explore career and academic options; engage with faculty, students, and others with similar interests; and develop an educational plan (Grubb, 2006; Kalamkarian et al., 2018; Karp, 2013).
- **Students are left to navigate college on their own.** Advising and career and transfer counseling services are available to students who seek them out, but those who need them most often do not (Karp et al., 2008). Colleges generally do not monitor students' progress in programs and often fail to schedule the courses students need when they need them.
- **Colleges offer too little active and experiential learning.** Too few students experience engaging teaching and learning (Wang, 2020). Many entering students are placed in prerequisite remedial courses that provide no credit toward a degree, are of questionable value in building their skills for college, and prevent them from taking courses on topics that interest them (Jaggars & Stacey, 2014). Furthermore, most students do not have internships, clinical experiences, or other experiential learning opportunities in their programs (Hora et al., 2017), even though such experiences are increasingly required to secure well-paying, career-path jobs.

As a result of these issues, too few students who start at community colleges succeed. Some studies have found that more than a third of community college starters drop out of college by their second year (Crosta, 2014; Lin et al., 2020). Among those who persist, too many meander through their studies, earning credits that do not apply to a degree. Many intend to transfer to a four-year institution and perform well in their community college coursework but do not transfer (Fink et al., 2018). Most students who transfer do so without earning a community college credential (Jenkins & Fink, 2014), and too many cannot apply community college credits toward their major at the four-year institution. Ultimately, only four in 10 community college starters complete any credential within six years, with stark equity gaps by race, income, and age (Shapiro et al., 2019).

A New Education Model for Community Colleges

To attract and retain students in a challenging environment for higher education, community colleges are moving from the cafeteria college model to one focused on helping students choose, plan, and complete programs that enable them to secure good jobs or transfer with junior standing in a major—and to do so at an affordable cost and in a reasonable timeframe. To do this, colleges are redesigning programs, teaching approaches, and student supports following the guided pathways model, which has four main areas of practice:

- **clarifying paths to student end goals** by backward-mapping all programs to ensure they prepare students for direct entry into good jobs and further education needed for career advancement;

- **helping students get on a program path** by redesigning new student onboarding so that all students actively explore their options and interests, take courses and connect with faculty and students in an academic and career community, and develop a full-program educational plan in their first term;
- **keeping students on path** by scheduling classes and monitoring students' progress based on their plans to ensure timely and affordable program completion; and
- **ensuring that students are learning across programs** by strengthening active and experiential learning to build students' confidence as learners and help them develop communication skills, problem-solving skills, and other competencies required to advance to family-sustaining jobs and further education.

CCRC has been studying the implementation of guided pathways reforms at 116 colleges nationally and has published a series of reports about the changes colleges are implementing (Jenkins et al., 2018) and how they are managing the reform process (Jenkins et al., 2019). This research has shown that guided pathways is a complicated reform that requires courageous leadership and takes three to five years to implement at scale. Implementing guided pathways also creates new costs, and to take on these large-scale reforms, college leaders need to understand what the costs are and how to fund them.

This guide is designed to help college leaders seeking to implement guided pathways understand the costs involved and devise strategies for funding and sustaining these reforms. It is based on research at six institutions that have implemented large-scale changes in personnel, processes, and systems based on the guided pathways model. These institutions, all of which participated in the American Association of Community Colleges' Pathways 1.0 Project, were selected to represent a range of college settings, from a small rural college to a large urban one and two multicampus districts. (See Table 1 for details on the six colleges.) These colleges are in six different states, each with a distinctive approach to funding community colleges. We conducted 83 interviews with chief executive officers, chief financial officers, academic and student services administrators, and others involved in planning and implementing guided pathways reforms on their campuses to address the following research questions:

1. What are the up-front and recurring costs of guided pathways reforms?
2. How are colleges funding these costs?
3. How are colleges sustaining support for guided pathways practices?
4. How can college leaders contemplating guided pathways reforms estimate the costs involved and develop a viable plan for funding and sustaining the reforms?

While we asked colleges about the types of costs they incurred and their general magnitude, we did not collect detailed budget information. A companion technical paper presents findings from an analysis that used interview data and publicly available data on college costs to estimate the overall costs of implementing guided pathways for small, medium, and large colleges (Belfield, 2020). That paper uses a larger set of institutions, of which the ones profiled in this guide are a subset.

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Table 1.

Case Study College Characteristics

COLLEGE	FALL HEADCOUNT ENROLLMENT	STUDENT DEMOGRAPHICS					OPERATING BUDGET (FY 2020)	START OF GUIDED PATHWAYS REFORMS
		Asian	Black	Hispanic	White	2+ Races		
Alamo Colleges District San Antonio, TX (5 accredited colleges)	60,818	3%	7%	63%	23%	4%	\$385.2 million	2014
Bakersfield College Bakersfield, CA	24,589	3%	4%	69%	17%	7%	\$163 million	2016
Cleveland State Community College Cleveland, TN	3,264	1%	6%	5%	85%	3%	\$24.9 million	2015
Cuyahoga Community College Cleveland, OH	23,440	3%	25%	7%	54%	11%	\$385.2 million	2014
Jackson College Jackson, MI	5,083	1%	8%	5%	62%	24%	\$47.8 million	2016
Pierce College District Lakewood, WA (2 accredited colleges)	10,520	6%	7%	15%	50%	22%	\$62.8 million	2016

Note. Enrollments and student demographics are based on fall 2018 IPEDS data.

Guided Pathways Reforms at the Case Study Colleges

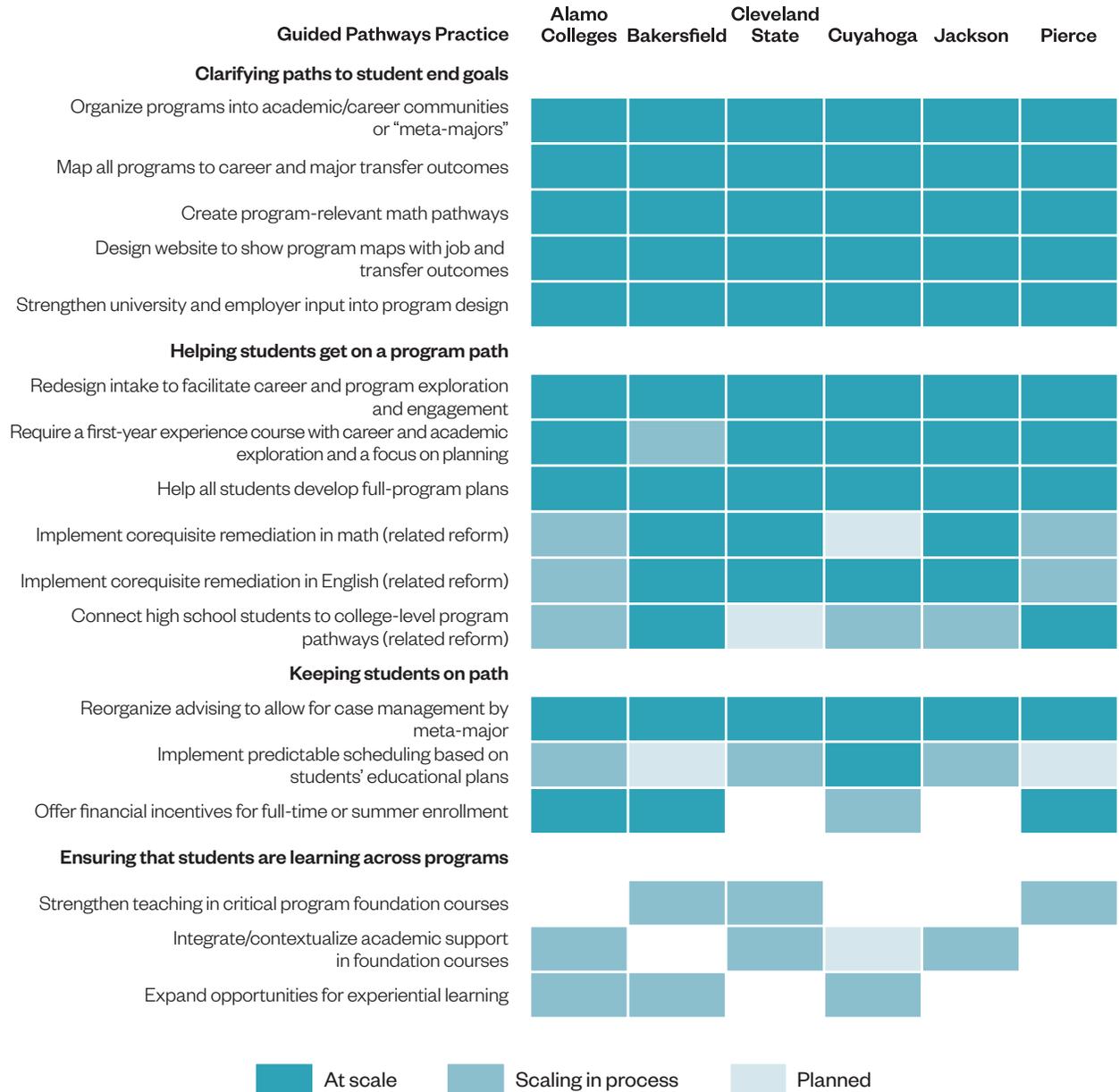
Figure 1 shows the scale at which the case study institutions have implemented guided pathways practices under each of the model's four practice areas. (See Appendix A for one-page summaries of the reforms at each college.) Below, we describe the guided pathways practices that all six institutions have implemented at scale (for all students) and those that are not yet at scale.

The Alamo Colleges and Cuyahoga began the process of planning and implementing guided pathways reforms in 2014, Cleveland State in 2015, and Bakersfield, Jackson, and Pierce in 2016. In other words, it took three to five years for these colleges to make these changes at scale such that they benefit all entering students.

Practices at Scale

The six institutions have implemented at scale a number of practices considered core to the guided pathways model that represent major departures from previous practice. In the past, most students at these colleges (and at many others) were often on their own in exploring their options and interests and navigating and completing a program of study. Now, all incoming students are helped to explore career interests and program

Figure 1.
Scale of Guided Pathways Reforms at Case Study Colleges



options and connect with a program of interest early on. Every student is assigned an advisor who specializes in their field and helps them develop a full-program plan during the first term based on program maps created by faculty and advisors. Students can view their progress on the plans through their online student portals, and advisors use the plans to monitor students' progress and ensure they stay on track.

Meta-majors and Program Maps

All six institutions organized their programs into meta-majors (which they refer to variously as academic focus areas, institutes, career pathways, and academic and career communities) and created program maps that connect to related job and transfer outcomes. Program maps specify a math sequence appropriate for students in particular fields (as opposed to placing most students into an algebra/calculus track by default, as has been conventional in community colleges). Institutions' websites provide user-friendly information on program requirements, course sequences, and related employment and transfer opportunities.

Redesigned Career and College Exploration and Program Onboarding

The six institutions revamped their applications, orientation and advising processes, and first-year experience courses to help entering students explore career and college options, engage with faculty and students in a field of interest, and develop a full-program educational plan by the end of their first term.

Case-Management Advising by Field

The colleges redesigned their advising structures and assigned advisors to meta-majors so they could work more closely with academic departments and develop field-specific knowledge. They also hired additional advisors so that every advisor would have a manageable caseload.

Academic Planning

All colleges implemented or upgraded degree-planning software to help create individualized educational plans for every student, enable students to register for classes based on their plans, and allow students and advisors to monitor students' progress on their plans.

Practices Not Yet at Scale

Predictable Scheduling

Only Cuyahoga has scaled more predictable class scheduling based on students' educational plans, although three other colleges (Alamo Colleges, Cleveland State, and Jackson) are scaling this practice and two others are planning to do so. Scheduling classes based on students' educational plans ensures that students can take the courses they need when they need them to complete their programs in as few semesters as possible.

Momentum Incentives

To encourage students to take more credits and finish their programs faster (and avoid "summer melt"), the Alamo Colleges offered three or six free credits during the summer to students who had taken at least 18 or 24 credits, respectively, during the fall and spring. In 2020, the colleges expanded their summer momentum plan to

offer students six or nine credit hours free during the summer if they take a part-time or full-time course load, respectively, during the preceding spring term. Pierce and other Washington State community colleges have lowered the price per credit for students who take over 10 credits per quarter to incentivize full-time enrollment. For lower division coursework, credits 1–10 cost \$113 each, and credits 11–18 cost \$56 each. Cuyahoga offers a paid summer internship program that provides students with opportunities to gain experience in their major. The college also pays for one summer class for students who participate in the program.

Strengthening Learning Across Programs

None of the institutions have yet brought to scale efforts to coordinate instructional improvement and enhance student learning at the program or meta-major level rather than just in individual courses. Jackson has hired an instructional designer, and Cleveland State and Pierce have hired staff for teaching support centers. Pierce has instituted a professional development program called Targeted Skills Training that supports up to 15 faculty members a year to test instructional innovations designed to close equity gaps. As shown in Figure 1, the Alamo Colleges, Bakersfield, and Cuyahoga have expanded their program-related experiential learning opportunities and are exploring how to offer these to all students.

Related Reforms

Corequisite Remediation

Corequisite remediation is an important reform related to guided pathways because it enables students to take courses in their program sooner. Three of the colleges (Bakersfield, Cleveland State, and Jackson) have implemented math pathways with corequisite support at scale, and the other three are in the process of doing so.

Building Guided Pathways Into High Schools

The Alamo Colleges, Bakersfield, and Pierce have developed maps to associate and bachelor's degrees for high school dual enrollment students. All of the case study colleges are also expanding their efforts to help high school students explore career and college interests and develop full-program plans.

The Costs of Guided Pathways Reforms

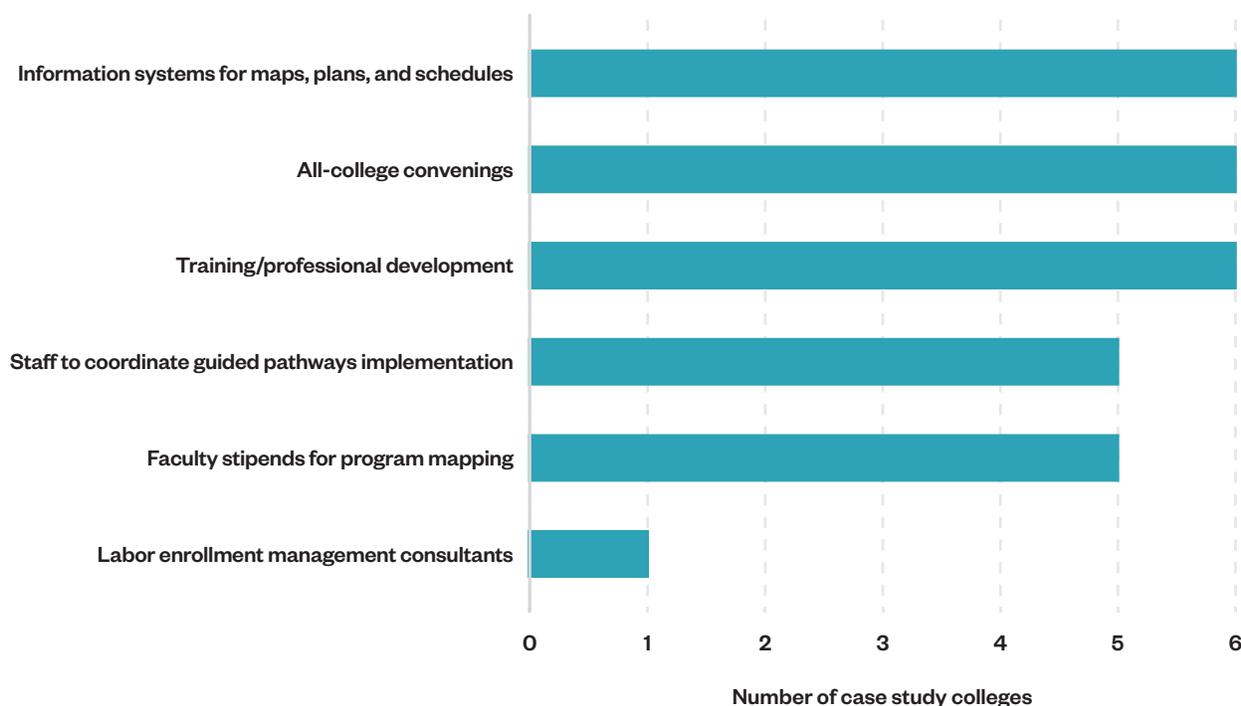
In this section, we enumerate new costs the six case study colleges incurred in implementing guided pathways reforms. By “new costs,” we mean costs over and above the colleges’ business-as-usual operations before they implemented guided pathways. These include both one-time start-up costs and recurring costs. Not every college incurred the same costs, as is clear from the tables in Appendix B, which present detailed lists of costs under each of the four areas of guided pathways practice.

Start-up Costs

All six institutions incurred new costs in launching their guided pathways reforms over a period of three to five years. Figure 2 shows the number of colleges that invested additional resources in particular areas. These costs are described below.

Figure 2.

Types of Initial Costs



Information System Upgrades

All six colleges purchased or upgraded information systems to support guided pathways practices, including:

- redesigned websites with better information on programs and related employment and transfer opportunities (all six institutions);
- online interactive program mapping (Bakersfield) and catalog and course management tools (Cuyahoga);

- academic planning software (all six institutions);
- case-management advising systems (Alamo Colleges, Bakersfield, Cuyahoga, Jackson);
- customer relationship management systems for student recruitment (Alamo Colleges); and
- class scheduling software (Bakersfield, Cleveland State, and Cuyahoga).

For most colleges, these were the largest one-time costs involved in implementing pathways.

In some cases, colleges developed their own software systems, but most commonly, colleges purchased existing packages and customized them. For example, Cuyahoga worked with a local software company to develop its OneRecord case-management communication system; arranged with its enterprise resource planning vendor to customize its academic planning software to allow every student to create a full-program plan; and purchased online course catalog software that, among other functions, provides maps to degrees, jobs, and transfer for both credit and noncredit programs and allows faculty to easily update curricula. College leaders estimated that the cost of purchasing this software was approximately \$2.2 million, plus \$212,000 annually for upgrades and maintenance.

Jackson purchased JetStream educational planning software (its version of Colleague Student Planning), along with a financial aid module that monitors whether students are taking courses on their plans. The college also developed its own communications system for case-management advising and a system to text students and schedule appointments.

Staff to Coordinate Planning, Implementation, and Communication

Five of the institutions (Alamo Colleges, Bakersfield, Cuyahoga, Jackson, and Pierce) hired or provided release time for staff to coordinate the planning and implementation of the reforms and communicate both to leadership and to the college more broadly on progress. Cleveland State coordinated reforms using existing administrators and staff. The guided pathways lead at Bakersfield College, who led a core team of 3–4 people to coordinate the start-up of guided pathways, said that she probably spent 75% of her time on guided pathways in the first two years of the reform. The other members of her team estimated that about 30% of their time was devoted to managing the implementation of guided pathways. In every case, the staff who coordinated the start-up of guided pathways moved on to other duties afterward, so we consider this a one-time cost.

Faculty Stipends for Program Mapping

Five of the colleges (Alamo Colleges, Bakersfield, Cuyahoga, Jackson, and Pierce) paid faculty stipends to create meta-majors and program maps. Leaders at all of these institutions indicated that valuing faculty members' contributions to the process was important to cultivating their sense of ownership of the maps and other guided pathways practices. For example, Cuyahoga provided buyouts of faculty time for their participation in creating meta-majors and program maps through "summer scale-up committees" over two summers. At Pierce, the largest start-up costs were related to release time for faculty to undertake the initial envisioning of the college's guided pathways principles, organize its career pathways (meta-majors), and map academic programs. A senior administrator

at Pierce estimated the cost of release time at \$500,000–\$700,000 per year for two years (or about 1% of Pierce’s annual operating budget, which was \$62.8 million in FY 2020). Cleveland State was able to engage faculty in program mapping at little cost as part of required weeklong in-service meetings in fall 2016 (with revisions during the 2018–19 academic year).

All-College Convenings, Institutes, and Retreats

All six colleges held multiple convenings in which they engaged college faculty and staff in examining data on student outcomes and barriers to student success, learning about the guided pathways model, and planning for guided pathways reforms. For example, Bakersfield, which started its reforms in 2016, held a series of campus-wide institutes through 2018 to engage faculty and staff from across the college. The college estimates that it invested about \$100,000 annually for the institutes during its three-year start-up phase.

All six institutions also participated in the American Association of Community Colleges’ Pathways 1.0 project, which provided education and professional development on guided pathways to teams of five or more personnel from 30 colleges nationally through a series of six institutes between February 2016 and October 2017. Further, all of the colleges participated in institutes and trainings on guided pathways organized by state agencies, college associations, or other groups in their states. In most cases, the colleges covered travel expenses for their staff, although meeting organizers generally paid for meeting costs.

Training and Professional Development

All six colleges provided professional development for faculty and staff involved in guided pathways oversight committees and workgroups. All six also trained faculty and staff to use new software systems for program mapping and catalog management, student academic planning, and progress monitoring and case management.

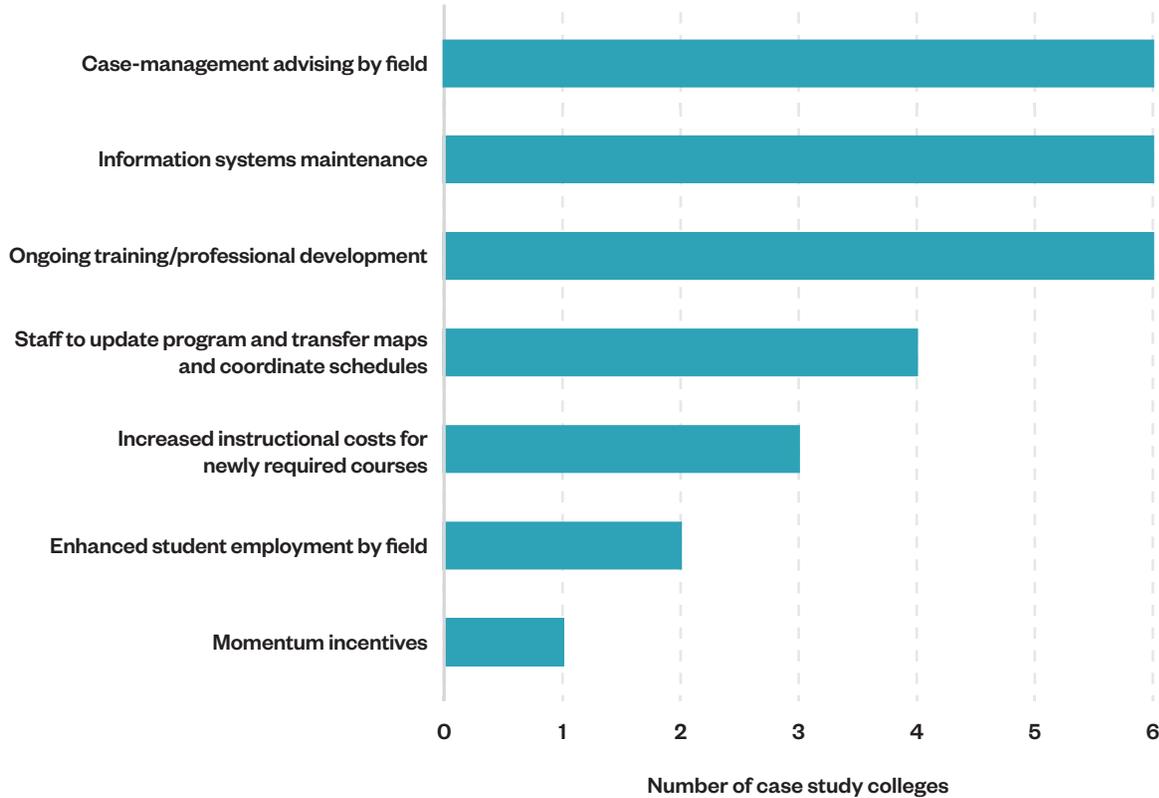
Other Start-up Costs

Other examples of one-time costs include the labor market consultants the Alamo Colleges hired to help align programs to regional workforce needs and the enrollment management consultants it hired to help optimize the deployment of enrollment coaches and other intake staff.

Recurring Costs

The colleges also incurred new recurring costs, as shown in Figure 3 and described in more detail in the following sections.

Figure 3.
Types of Recurring Costs



Advisors to Support Case Management by Meta-major

The largest recurring cost (and by far the largest additional cost across all of the institutions) was to support the hiring and training of advisors to enable case-management advising. For example, Jackson College completely redesigned the roles of its academic advisors to be “student success navigators” who meet with all new students in one-on-one advising appointments before they enroll (replacing new student orientation). Navigators administer a new student intake survey to capture students’ career interests and needs, help them build an educational plan in their first semester, approve registration on an ongoing basis, reach out to students at least three times per semester, and help students change their educational plans as needed. Jackson hired 12 new navigators (for a total of 18) to reduce its advisor–student ratio to around 1:350.

The Alamo Colleges hired 30 new advisors across the district to lower the advisor–student ratio to 1:350 from 1:900 and thereby enable advisors, who are assigned to the colleges’ meta-majors, to work with specific cohorts of students. The hiring of

these advisors, plus 10 enrollment coaches (two per college, some of whom were conversions rather than new hires), added approximately \$15 million annually to the colleges’ operating budget (which was \$385.2 million in FY 2020).

Bakersfield hired about 15 new educational advisors and 10 counselors, some of whom work as part of “completion coaching teams” for the college’s nine meta-majors and for certain student affinity groups. (This brought the number of educational advisors and counselors to 25 each.) As illustrated in Figure 4, the teams include at least one educational advisor; a counselor; a lead faculty member; job developers; and a data coach, who is a staff or faculty member trained to help their community get the data they need to improve programs and supports for their students. The cost of the faculty lead stipends is approximately \$60,000 annually. The college’s 25+ data coaches are paid approximately \$7,000 annually in stipends as a collective.

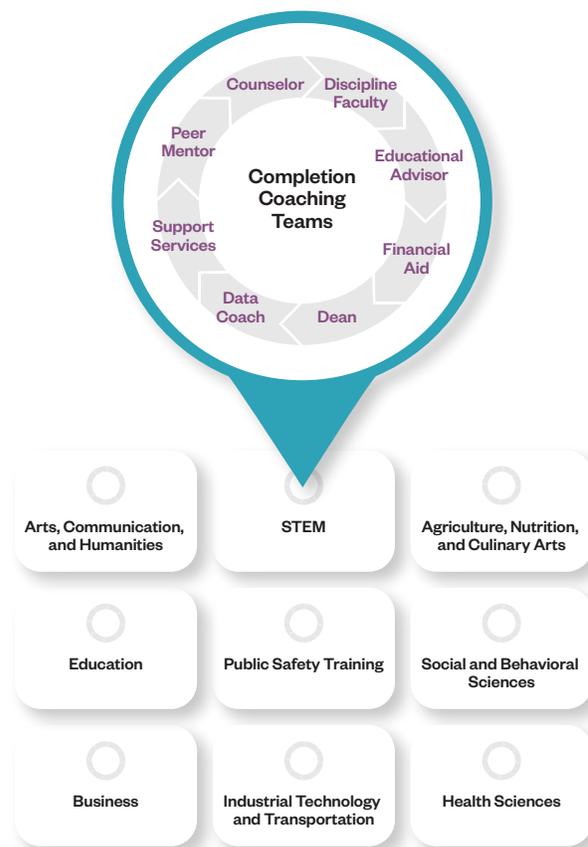
Cleveland State hired four new student success coaches and reassigned four other staff members to this role, for a total of eight, who are now organized by the college’s meta-major career communities. The college also converted a part-time career services role to a full-time role.

Pierce also hired additional advisors to move to a more intensive advising model in which all students receive in-depth intake advising and have both a success coach and a faculty advisor who monitor their progress in their programs. Pierce reassigned and retrained staff who had formerly been referred to as “curriculum advisors” to be “success coaches,” giving them additional responsibilities and increasing their salaries to retain them. Since 2014, Pierce has also hired 8–9 additional full-time equivalent (FTE) success coaches and added a director of advising position.

Maintenance of Software Systems

All of the colleges paid for maintenance and upgrades for at least some of the software systems used for program mapping, online catalogs, academic planning, scheduling, customer relationship management, and enrollment management, among other functions. The Alamo Colleges hired an additional software developer to support the increased workload required to adapt and maintain information systems to support guided pathways practices.

Figure 4. Completion Coaching Teams at Bakersfield College



Note. Adapted with permission from Bakersfield College.

Staff to Update Program and Transfer Maps and Coordinate Scheduling

Four of the colleges (Alamo Colleges, Bakersfield, Cuyahoga, and Jackson) hired or added staff to update program maps (particularly for baccalaureate transfer) and to coordinate scheduling. For example, the Alamo Colleges have five curriculum analysts who work under the vice chancellor for academic success and work with universities to create and update transfer advising guides. Bakersfield provides 0.2 FTE release time to a full-time faculty member (who co-chairs the college's curriculum committee and therefore understands program nuances) to oversee updates to program maps in the college's Program Pathways Mapper system. Cuyahoga created a position in information technology to administer its yearlong academic schedule. Jackson created two new roles, director of transfer and scheduling and university transfer liaison, by filling an unfilled position and eliminating a records and customer service coordinator role.

Increased Instructional Costs for Required Courses

Cuyahoga and Jackson had increased instructional costs when they required all first-time students to take a first-year seminar. Other colleges, including the Alamo Colleges, already had the required first-year experience courses in place and revised them to place more emphasis on career and college exploration.

Cleveland State and Jackson incurred increased instructional costs when they replaced prerequisite development instruction with corequisite courses in math, writing, or reading and added many sections of statistics and quantitative reasoning/math for liberal arts. Jackson uses pairs of teachers to team-teach the regular and corequisite support sections of college math and English courses. This approach is expensive but, according to college leaders, has substantially increased the rate at which entering students take and pass college-level math and English in their first year. Cleveland State uses a lab-based emporium model that its lead STEM faculty member had developed before corequisite remediation was implemented to provide the corequisite support. This approach is less expensive than Jackson's team-teaching but has also produced major improvements in the rates at which students complete college-level math in their first year.

Student Employment Services

Bakersfield College expanded its student employment services, hiring a program director and additional job developers. These staff are assigned to a learning and career pathway meta-major to help students find meaningful paid and unpaid internship experiences on campus and with employer partners. Cleveland State converted a part-time career services role to full-time to better support incoming students who are undecided about their career and academic goals.

Momentum Incentives

As mentioned, in 2019, the Alamo Colleges offered three or six free credits during the summer to students who had taken at least 18 or 24 credits, respectively, during the

fall and spring. The district paid about \$3 million for the roughly 7,400 students who took advantage of this summer momentum offer in 2019 and have since expanded the program. (District and college leaders were pleased that many of these students took additional courses during the summer that they paid for on their own.)

Ongoing Professional Development Related to Pathways

All of the colleges continue to support professional development for faculty and advisors to implement and improve pathways practices. Bakersfield estimates that it spends approximately \$70,000 annually in stipends and travel for professional development related to guided pathways.

Intangible Costs

Guided pathways requires that faculty and staff work in new ways and dedicate significant time to tasks beyond their existing job responsibilities. One faculty member at Cleveland State noted that, while the college did not receive much extra money to implement guided pathways, large investments of extra time were required to implement the reforms. For example, chairs and deans devoted more time to the upkeep of program materials, and faculty took on program mapping and updates and other responsibilities over several years without additional compensation—all of which is hard to quantify. At many colleges, staff have become more involved in helping students with career and academic exploration and planning and have had to create and maintain up-to-date guidance and program materials. While we were unable to include these costs in our study, they are nonetheless important for college leaders and staff to anticipate and understand.

Guided pathways requires that faculty and staff work in new ways and dedicate significant time to tasks beyond their existing job responsibilities.

Strategies for Covering the Costs of Guided Pathways Reforms

The case study institutions used a mix of strategies to fund the added costs from their guided pathways reforms. (See Table 2.) These strategies, which are described in more detail in the following sections, included raising new funds through grants and increased tuition, using categorical state funds earmarked for guided pathways and related reforms, reinvesting savings from efficiency gains and performance funding gains, and reassigning and reallocating staff roles and other resources.

Table 2.

Strategies Used to Fund the Added Costs of Guided Pathways Reforms

FUNDING STRATEGY	ALAMO COLLEGES	BAKERSFIELD	CLEVELAND STATE	CUYAHOGA	JACKSON	PIERCE
Grants and other fundraising	✓	✓	✓	✓	✓	✓
Tuition increases	✓			✓	✓	✓
Earmarked categorical state funds		✓				✓
Reinvested net operating fund balance savings	✓			✓		✓
Reinvested performance funding gains			✓	✓		✓
Reorganized program administration	✓			✓	✓	
Reassigned/reallocated staff roles and other resources	✓	✓	✓	✓	✓	✓

New Funds

All of the colleges raised at least some new funds to support their guided pathways reforms through grants and other fundraising efforts or by raising tuition.

Grants and Other Fundraising

All six colleges raised grant funds to support start-up and other related capacity-building activities. In 2014, Cuyahoga received a one-time grant of \$650,000 from a local foundation, which it used to engage stakeholders across the college and from the community in a strategic visioning and planning effort that highlighted the need for reforms. Through this effort, faculty, staff, and administrators identified a set of priority strategies for improving student success that could be implemented at scale. The college used guided pathways as a framework with which to better integrate and focus these strategies.

Pierce used a five-year, \$500,000 grant from College Spark Washington to finance its initial program mapping efforts, a part-time guided pathways project manager position, and an 18-month position to oversee the implementation of Starfish degree-planning and case-management advising software.

Bakersfield College developed its Program Pathways Mapper software using funding from four large grants. The college used \$200,000 of a larger College Promise

Innovation grant to support early program mapping and collaboration with California State University, Bakersfield; \$900,000 of a larger California Chancellor's Office Innovation Award to create the first fully functional version of the Program Pathways Mapper; a \$396,000 College Futures Foundation grant to support the development of four-year maps (in collaboration with four California State University institutions) and linked community-college-to-university maps; and a recent \$500,000 Learning Lab grant to develop Program Pathways Mapper prototype maps for the University of California system and enhance labor market information.

Cleveland State used a grant to hire four student success coaches, whom it now supports using reallocated funds. Jackson funded the development and coordination of its first-year seminar course using funds from a Title III grant. The grant has now ended, and the coordinator retired and was not replaced. Jackson used another grant to fund the development of educational planning software and related financial aid planning software.

The only example of activities that require ongoing fundraising is from the Alamo Colleges District, which raises funds annually through its foundation to pay for its summer momentum plan.

Tuition Increases

The Alamo Colleges District, Cuyahoga, Jackson, and Pierce raised tuition during the period in which they implemented guided pathways reforms, but only Jackson raised tuition with the express purpose of supporting pathways reforms. To hire 12 additional student success navigators, who were central to Jackson College's guided pathways reforms, the college increased tuition by 12% over three years (FY 2016, 2017, and 2018), with further 3–5% increases each year since then. The college also increased student services fees from \$20 to \$46 per contact hour. At the other colleges, tuition increases were used primarily to offset cuts in state funding.

Categorical State Funds

Two of the case study institutions have benefited from categorical state funds to support guided pathways and related reforms. In 2018, the California legislature appropriated \$150 million over five years to support the implementation of guided pathways by the state's then 114 community colleges. In California, at least 50% of general fund revenue must be spent on instruction. (Bakersfield College spends over 60% on instruction.) This is why Bakersfield, like other California community colleges, uses categorical funds to support innovations. (According to Bakersfield's chief financial officer, of a total FY 2020 operating budget of \$163 million, about \$35 million consists of categorical funds or grants, and \$128 million consists of general operating funds.)

To fund its pathways reforms, Bakersfield has relied on categorical funding not only from the California Guided Pathways Award Program but also from California's Strong Workforce Program and its Student Equity and Achievement Program. For example, the college is using Student Equity and Achievement categorical funds to create an outreach team to help local high school students, including those in rural communities,

explore options and develop plans using the college's Program Pathways Mapper. This student support effort costs \$1.55 million annually, including a director of outreach, counselors, and advisors. While some California colleges use categorical funds to support targeted programs or initiatives, Bakersfield has used these funds to support a whole-college redesign based on the guided pathways model.

As mentioned, Pierce used grant funding to help launch its guided pathways reforms, but it also received funding from 2019 legislation providing \$32 million to support the implementation of guided pathways across all 34 Washington community and technical colleges through FY 2021. Like Bakersfield, Pierce invests its state guided pathways funds strategically to support improvements to policy and practice across the district.

Reinvested Savings and Performance Funding Gains

Four of the colleges were able to cover a substantial portion of the new costs of their guided pathways reforms through funds saved by various means or gained through performance funding.

Reinvestment of Efficiency Gains and Other Savings

At least two colleges reinvested savings from various sources to support their guided pathways reforms. According to a senior leader, the Alamo Colleges District has for many years put 15% of its net operating fund balance annually into a student success fund, which it uses to support major reforms. As a result of the enrollment boom following the Great Recession and through savings from automating certain back-office functions, the district generated a reserve of \$20 million, which it used to hire new advisors, purchase systems software, and cover other costs involved in implementing guided pathways.

Similarly, Cuyahoga sets aside \$1 million per year for unexpected expenses. During the period in which the college scaled up its implementation of guided pathways, it used about \$750,000 of this \$1 million reserve annually to support related student success initiatives. Cuyahoga generated these reserve funds in recent years in multiple ways, including by hiring a company that cut its natural gas expenses by hundreds of thousands of dollars per year and by renegotiating its labor contracts (the savings from which the college invested in faculty development and student success).

Pierce has a parsimonious budgeting system wherein when the college is not facing shortfalls, its budget committee asks each department to review its budgets annually and offer 2% cuts. The college reinvests these savings in guided pathways and other strategic student success reforms.

Performance Funding Gains

Leaders at Cleveland State attribute its excellent performance under the Tennessee Higher Education Commission's performance funding formula to guided pathways. In 2018–19, the college earned an additional \$1.2 million over the previous year's state funding allotment, which it drew from to support further implementation of guided pathways reforms. Pierce earns about \$500,000 annually from Washington

State's Student Achievement Initiative performance funding policy for community and technical colleges. In FY 2020, district leaders invested about \$300,000 in guided pathways and other student success reforms. Cuyahoga has also earned incentive funding from the Ohio Department of Higher Education's performance funding system, and Bakersfield College did well relative to other colleges of similar size under the new performance funding policy for California community colleges.

Reorganization, Reassignment, and Reallocation

All of the colleges reorganized, reassigned, and reallocated resources to support their pathways reforms.

Reorganized Program Administration

The Alamo Colleges, Cuyahoga, and Jackson consolidated their academic and workforce departments around meta-major fields, reducing administration costs and bringing transfer and workforce programs (and in the case of Cuyahoga, credit and noncredit programs) under the same meta-major academic units. Bakersfield and Cleveland State reorganized their deans and departments around meta-majors, but this did not result in consolidation or expansion of responsibilities, so there were no cost savings.

Redefined Roles

While all case study colleges hired additional advisors to support a case-management approach to advising, they also retrained and redeployed existing advisors, moving from a drop-in advising model to one in which advisors are assigned to meta-majors and responsible for specific students in a caseload. This structure enables advisors to develop specialized knowledge of program requirements and transfer and employment opportunities within a field of study and to work more closely with program faculty to advise students. Some colleges also assigned faculty to serve as advisors (Cleveland State), mentors (Cuyahoga), or pathway community leads (Bakersfield) for students in a program of study. This redeployment of advisors by meta-major, together with related reforms—such as building career and academic communities within meta-majors, helping every student develop an individualized educational plan based on program maps, and monitoring students' progress based on their plans—enabled the case study colleges to provide program advising of a quality that would not have been possible if they had simply hired more advisors.

Filling Unfilled Positions

Cleveland State consolidated part-time positions and filled unfilled positions to hire four new success coaches. Jackson created two new roles, director of transfer and scheduling and university transfer liaison, by filling an unfilled position and eliminating a records and customer service position.

Reallocation of Other Resources

The Alamo Colleges and Pierce redeployed software that they already owned but that was underutilized. For example, the Alamo Colleges already owned DegreeWorks but relaunched it as part of guided pathways to enable all students to develop full-program educational plans that they and their advisors can use to monitor their progress and make course corrections. Pierce redirected savings from moving in-person orientation online to fund its college success course, which was redesigned to help students explore their career interests and develop an academic plan.

All of the colleges reallocated professional development funds to support more systemic guided pathways reforms. At Cuyahoga, faculty and staff undertook the redesign and integration of convocation, orientation, and first-year seminars using existing professional development budgets. Similarly, Cleveland State used faculty time during its annual in-service week to engage faculty in program mapping in fall 2016 and to review maps annually thereafter, so the college incurred no new costs for program mapping.

Variation in Overall Funding Strategies Across the Colleges

The six case study colleges varied in the extent to which they relied on different funding strategies, as shown in Table 3. Bakersfield relied heavily on earmarked categorical state funds, which California community colleges typically use to fund innovation on their campuses. Jackson College raised tuition in order to hire enough student success navigators to allow for case-management advising within meta-majors, which was by far the largest cost of guided pathways for Jackson and indeed all of the case study colleges. The other colleges relied more on reorganization, reassignment, and reallocation of staff and resources than on raising new income to cover hiring new advisors and other recurring costs of guided pathways.

Table 3.

Top Three Strategies for Funding the Added Costs of Guided Pathways Reforms at Each College

FUNDING STRATEGY	ALAMO COLLEGES	BAKERSFIELD	CLEVELAND STATE	CUYAHOGA	JACKSON	PIERCE
Grants and other fundraising	3	2	2	3	3	3
Tuition increases					1	
Earmarked categorical state funds		1				
Reinvested savings and gains	1		3	2		2
Reorganized/reassigned/reallocated staff roles and resources	2	3	1	1	2	1

Leaders at all six colleges, including Bakersfield and Jackson, stressed that in terms of both new and reallocated resources, their approach to funding guided pathways differed from their approach to funding previous student success reforms. Rather than support numerous small and often disconnected efforts to improve student outcomes, as they had typically done in the past, the colleges invested in large-scale changes

in roles, processes, and systems to serve all students. Shifting investments from disconnected reforms to strategic whole-college redesigns enabled colleges to free up resources to support guided pathways.

For example, leaders at Cuyahoga said that much of the resources for their guided pathways reforms came from stopping many small-scale, marginally effective student success initiatives and reallocating funds and staff toward large-scale, integrated reforms to programs and student supports. When Cuyahoga started its pathways work in 2014, the college had 90 or so small-scale student success initiatives, which were absorbing a lot of staff time and resources. The college stopped many of these initiatives, reallocated staff and other resources, and invested in a case-management approach to advising reorganized around meta-majors and program maps. In this way, according to the college's president, Cuyahoga was able to reallocate \$5 million per year for pathways and related student success efforts (about 1.2% of the college's annual operating budget of around \$385 million).

Sustaining Support for Guided Pathways

All six of our case study institutions have institutionalized their guided pathways reforms by organizing programs and academic administration around meta-majors and program maps; redesigning the new student experience to help students explore career and academic options; and changing their advising models so that advisors specialize in particular program areas, help a specific caseload of advisees develop full-program plans, and monitor their progress on those plans. While these changes are associated with new ongoing costs, leaders at these institutions indicated that they do not intend to return to old practices—even in response to a crisis of the magnitude of COVID-19—because they believe the changes have led to improved outcomes for students and benefited their colleges as businesses.

Leaders described increases in student momentum, retention, and graduation rates; decreases in excess credits; and, where relevant, gains in performance funding.

Leaders described increases in student momentum, retention, and graduation rates; decreases in excess credits; and, where relevant, gains in performance funding. They also indicated that they were better positioned to respond to the COVID crisis because of changes they had made as part of their pathways reforms. These advantages have led the colleges to embrace guided pathways as a new way of doing business.

Realizing the Benefits of Institutionalizing Guided Pathways

Below, we describe the benefits of guided pathways that college leaders highlighted as especially valuable, some of which are captured by funding or student outcome metrics and others of which are more difficult to account for numerically.

Student Progress and Success

As detailed in Table 4, all six institutions have achieved improvements in measures of student progress and outcomes since 2014.

Table 4.
Improvements in College Performance Metrics Since 2014

	ALAMO COLLEGES	BAKERSFIELD	CLEVELAND STATE	CUYAHOGA	JACKSON	PIERCE
Early momentum among FTEIC students						
College credits earned in Year 1	✓	✓	✓	✓	✓	✓
Passed college math in Year 1		✓	✓		✓	
Retention (fall to spring and fall to fall)	✓		✓	✓		✓
IPEDS graduation rate	✓		✓	✓		✓
Credits to associate degree (reduced non-degree-applicable credits)	✓	✓	ND	ND	✓	✓
Post-transfer bachelor's degree completion	✓	ND	ND	ND	ND	ND
Enrollment (↑/↓ = increase/decrease)	↑	↑	↑	-	↓	-

Note. Improvement status is based on performance data reported by the sample colleges. FTEIC = first-time-ever-in-college. ND = No data.

Increased Program Value

Michael Flores, the chancellor of the Alamo Colleges District, said that in the past, many prospective students, employers, and others in the community did not have a clear idea of what programs the Alamo Colleges offer and what their value is. Guided pathways has helped the colleges market their programs and improve recruitment by helping prospective students see how programs connect to jobs and baccalaureate transfer opportunities. Flores said that students like to see how they can “stack” credentials and thereby progress over time to better jobs on the way to earning a degree. And students in noncredit programs can now see how to earn college credit toward degrees.

Leaders at the Alamo Colleges District credit guided pathways—specifically, improved advising and planning for students based on transfer advising guides, created in partnership with area universities—with the reductions they have seen in average time to degree and credits earned among associate degree graduates. The 2019 graduating class on average took 3.8 years and 82 credits to complete an associate degree, compared with 4.6 years and 94 credits for the 2016 graduating class. (For 2019 associate degree graduates who started college at one of the Alamo Colleges, the average number of credits at graduation is 66.) A recent study the district conducted with the University of Texas at San Antonio, its largest transfer partner, showed that over the past three years, transfer students from the Alamo Colleges have also increased rates of post-transfer bachelor's completion and reduced their time to earn a bachelor's degree from over two years to 1.7 years. A senior district leader said that in conversations with bond rating agencies, agencies indicated that preventing students from taking courses that do not

satisfy program requirements and earning excess credits would increase the colleges' competitiveness and economic value (and indeed, the Alamo Colleges District has improved its bond rating over the past several years).

Chancellor Flores said he believes that the combined efforts by the colleges through guided pathways to clarify the value of programs—and to improve the value of programs by reducing excess credits earned and the time and cost of degrees—have enabled the Alamo Colleges to increase enrollment substantially since 2014, even during a period (pre-COVID) of low unemployment in San Antonio and before the implementation in 2019–20 of the Alamo Promise “free college” program for recent high school graduates.

Performance Funding Gains

Bakersfield College President Sonya Christian similarly believes that it is because of improved program mapping, planning, and advising that the college has reduced the average number of credits earned by associate degree graduates from 85 in 2015 to 75 this past year. She also credits guided pathways with other improvements the college has achieved on California's annual performance scorecard, upon which performance funding is based.

Bill Seymour, president of Cleveland State Community College, said that it took three years for the college's up-front investments in aligning programs to job and transfer outcomes and improving advising through success coaches to pay off in terms of improved enrollment and retention. After declining through 2017–18, enrollment at Cleveland State has increased markedly since then—even as the labor market in the college's service area has been strong and enrollment at other community colleges in the state has been flat. Cleveland State has also performed well on the Tennessee Higher Education Commission's performance funding system, which determines the level of unrestricted state funding Tennessee community colleges receive.

Similarly, leaders at Cuyahoga and Pierce indicated that improved program onboarding and advising have helped to stabilize enrollments in recent years following sharp declines through 2017–18. Because they have been able to improve students' early credit momentum and retention, both colleges have earned state performance funding bonuses that they have invested in sustaining guided pathways reforms.

Stronger Recruitment Pipelines

Jackson College has seen improvements in early student momentum and in students taking the courses they need for their programs, but overall enrollments remain well below their peak in 2011, during the wake of the Great Recession. Jackson has stabilized its enrollment numbers by enrolling more high school students through early college high school and dual enrollment programs, as well as through increased prison program enrollment. College leaders say that Jackson's improved onboarding and program navigation supports have benefited both groups of students. Increasing the value of programs in this way is especially important for attracting dual enrollment students, whom the college needs to actively recruit in an area where the college-age population

has declined sharply. As mentioned, the Alamo Colleges, Bakersfield, Cleveland State, Cuyahoga, and Pierce are all rethinking their approach to dual enrollment and high school recruitment in general, extending their guided pathways practices into high schools to create on-ramps to college and career pathways.

Effective Response to COVID

We have conducted at least brief interviews with leaders at all six institutions since the COVID crisis started. All indicated that their colleges were better positioned to respond to the pandemic because of their guided pathways reforms. The fact that they had established online academic planning, integrated course registration, and case-management advising gave them a huge advantage when they were forced overnight to switch to working with students remotely.

For example, a senior leader at the Alamo Colleges said, “The fact that every student had a plan and now we had to pivot to move [instruction and student supports] online, that didn’t change their plan or their commitment to their plan.” This leader added that because every student had an assigned advisor in their field of study who was monitoring their progress, it was relatively easy for the colleges to reach out to students after the crisis hit. Immediately, the college began a series of campaigns in which it sought to reach out to every student with at least one personalized communication every week. Between the time the Alamo Colleges closed their physical campuses in March and the end of the spring term, college personnel were able to make over 1 million personal communications with students. They and personnel from other colleges also indicated that because students already had plans laying out what courses they needed to take next, registering them for summer and fall courses was no more difficult than usual despite the challenges posed by COVID.

Embracing a New Business Model

In our discussions about the economics of guided pathways, some leaders pointed out that, from the perspective of the conventional community college business model, which is focused on maximizing headcount enrollment in courses, guided pathways can be seen as a revenue loser. Guided pathways and related reforms to developmental education and high school dual enrollment increase value and lower costs for students by reducing remedial and other nondegree credits, improving the alignment of programs with job and baccalaureate major transfer requirements, and encouraging students to take courses in high school that in many states are offered at reduced or no cost. All of these improvements for students, however, decrease the revenue colleges generate through enrollment in courses.

In shifting from a cafeteria college model to a guided pathways model, colleges are in effect moving to a business model in which they attract and retain students (and thereby increase tuition and state subsidies, including performance funding) by offering affordable programs and student supports that have clear value, as they are designed to enable students to complete programs that prepare them for good jobs or transfer in a major field of interest in a reasonable timeframe and without unneeded credits.

The six case study colleges are using guided pathways as a framework for program review, planning, and budgeting. Bakersfield College President Sonya Christian said: “Guided pathways is the infrastructure for how we now do business.” In the past, according to Christian, the vice presidents for academics, student success, and administration developed their budgets separately. Now, they work together, using the guided pathways model’s four areas of practice as a framework to examine student success metrics, discuss what practices will improve student outcomes, and then fund those practices and supporting systems by reallocating existing resources. In doing so, said Christian, “We draw on different buckets. . . . No one area owns particular funds. . . . We use our common funds to invest in college-wide initiatives that will support student success, and guided pathways is the overarching model.” Cleveland State also now conducts its annual budgeting and program review by career community (meta-major). Each community develops budget requests based on data on enrollment trends and targets, coupled with an analysis of local demand for program graduates.



Guided pathways is the infrastructure for how we now do business.



The Alamo Colleges District also engages in strategic budgeting focused on allocating resources to support implementation system-wide of student success strategies that have been proven at its individual campuses. According to Chancellor Michael Flores, the next strategic direction for the college is “smart growth”—increasing revenue by increasing the rate at which graduates from local high schools enroll at the Alamo Colleges and recruiting working adults who have some college but no degree (San Antonio has a high proportion). To support the smart growth strategy, the college’s 2020 budget includes a \$9.5 million investment in student supports—including efforts to extend guided pathways reforms by funding more enrollment coaches and increasing options for program-relevant experiential learning—and another \$9.2 million to retain top talent and position the colleges to attract top-quality candidates and remain competitive in hiring (Alamo Colleges District, n.d.).

Recommendations for College Leaders

Guided pathways represents a new education model for community colleges that seeks to improve student success by organizing programs and student supports to systematically help all students choose, plan, and complete programs in a timely and affordable fashion. Further, programs of study are backward-designed to prepare students to transfer to a bachelor's degree program in a field of interest or secure a family-supporting job. Guided pathways also represents a new business model for community colleges that seeks to increase student retention—and thereby generate more tuition and revenue from state subsidies—by moving from offering low-cost courses to offering affordable programs that have clear value because they are designed to prepare students to pursue further education and advance in the labor market.

Guided pathways represents a new business model for community colleges that seeks to increase student retention and thereby generate more tuition and revenue from state subsidies.

While this model may sound resource-intensive, one of the main ways the colleges in this guide have funded their pathways work is by strategically reorganizing, reallocating, and shifting resources to align with and support their pathways vision. Accordingly, we recommend that colleges not wait until they have raised new money to start pathways redesign work. Instead, colleges can begin to fund changes through reallocation and reorganization of resources, generate momentum around the reform, and then consider how new investments could further support pathways work.

As college leaders develop plans for implementing guided pathways reforms, we recommend they take the following steps to estimate the initial and ongoing costs involved and develop a strategy for covering these costs.

Estimate how much revenue the college could generate by retaining a larger share of the students it currently loses because of college practices.

To do this, colleges should first estimate the number of students in each of the following groups, who tend to have low success rates, often because they are not well served by colleges:

- **Students without an educational plan, particularly part-time students.** If students do not have a clear purpose and plan, they are likely to meander through their studies and take courses that do not add up to a degree. Part-time students, who represent the largest share of enrollments in most community colleges, are particularly at risk of going off-track or dropping out if they do not have a plan. This is likely one reason that only 20% of community college starters who enroll exclusively part-time (5% of starters) and 35% of students whose enrollment is mixed between full- and part-time (54% of starters) complete a college credential within six years, compared with 60% of students who start at a community college and enroll exclusively full-time (Shapiro et al., 2019).
- **Students in low-opportunity programs.** Recent CCRC research shows that in many colleges, too many students are enrolled in general education transfer tracks that fail to prepare them to transfer efficiently to a bachelor's program or that lead

to low-paying jobs with few opportunities for advancement (Lin et al., 2020). One of the key premises of guided pathways is that students are less likely to complete such low-opportunity programs because they do not provide sufficient return on their investment. CCRC recently published a guide and data tool (Fink & Jenkins, 2020) to help colleges quantify how many students are enrolled in high- versus low-opportunity programs and whether certain groups of students are disproportionately and inequitably enrolled in low-opportunity programs.

- Dual enrollment students.** Colleges should calculate the percentage of former dual enrollment students who enroll in their institutions after high school and how many of them complete a degree or earn a substantial number of credits before they transfer to a four-year college. While patterns vary by state, nationally, the majority of students who take dual enrollment courses matriculate at a community college rather than a four-year institution; however, most of those who go on to a four-year college do not complete a community college credential first (Fink et al., 2017). All six case study institutions examined in this guide are taking steps to extend pathways into high schools, starting by helping dual enrollment students (and those in early college high schools) explore career and college interests and develop at least a preliminary college program plan. They are doing this on the assumption that dual enrollment students are more likely to matriculate at a community college after high school and finish more of their lower division coursework there if they and their families can see how community colleges provide low-cost, high-quality routes to degrees in high-opportunity fields.

Community colleges lose most of their students before they earn a substantial number of credits, much less complete a credential. Nationally, only about 30% of students who start at a community college earn a credential from a community college in six years (Shapiro et al., 2019). Even those who persist and transfer to four-year institutions typically do not complete a community college credential first. CCRC research in some states indicates that well over a third of students who start college at a community college drop out altogether by the end of their first year (Crosta, 2014; Lin et al., 2020). Thus, there would seem to be a great deal of potential for community colleges to increase revenue by improving the retention of students who start college with them.

Colleges should work with their chief financial officers to calculate how much revenue from tuition and state subsidies (including performance funding, where applicable) the institution would gain by increasing FTE enrollment annually by 1 percentage point. Looking at recent trends in enrollment and year-to-year retention, colleges can estimate how much they might be able to increase FTE enrollment—and thus how much additional revenue they could generate—by ensuring that students in the groups mentioned above are helped to choose, plan, and complete programs that enable them to pursue further education and advance in the labor market.

There would seem to be a great deal of potential for community colleges to increase revenue by improving the retention of students who start college with them.

Estimate the additional resources needed to provide case-management advising—after redesigning onboarding, advising, and program planning and redeploying existing systems, faculty, and staff.

Before they implemented guided pathways, all six case study institutions had student onboarding and ongoing advising carried out mostly by generalist advisors and counselors who, after the first term, would serve students on a drop-in basis. With guided pathways, all six colleges shifted to an advising model in which every student is helped to explore career and college interests and develop a full-program plan by the end of their first term. Moreover, under guided pathways, students are assigned an advisor (and in some cases, a faculty coach) specific to their field of interest who monitors their progress.

With guided pathways, all six colleges shifted to an advising model in which every student is helped to explore career and college interests and develop a full-program plan by the end of their first term.

To enable this shift, all six institutions hired additional advisors (sometimes called navigators or success coaches) to reduce advisor–student ratios to a level that would permit case-management advising. Hiring advisors was the largest ongoing cost of implementing guided pathways for all six colleges. However, as mentioned, colleges did not just hire new advisors; they completely redesigned advising, assigning advisors to meta-majors so they could work more closely with students and faculty in academic programs; training them in career coaching as well as academic advising; and redesigning student recruitment and onboarding to connect students with programs from the start and facilitate program exploration, choice, and planning. Jackson, which previously had only four advisors for over 6,000 students, raised tuition to substantially increase the number of student success navigators. The other colleges expanded their advising staff mostly by reassigning and retraining existing staff (usually as both career and academic advisors). These colleges hired a smaller number of new advisors to lower their advisor–student ratios to a level that would allow case-management advising (generally around 1:350).

So before college leaders consider their hiring needs, they should decide how to reorganize their advising structures to support onboarding into meta-majors and programs and ongoing case-management advising. Next, they should determine how much of the staffing required by the new design can be covered by reassigning and retraining existing staff. Then, they can estimate the costs of hiring additional advisors to achieve the advisor–student ratio needed for case-management advising.

Similarly, all six institutions purchased or upgraded information systems to facilitate enrollment management, academic planning, improved communication among faculty and advisors, and improved class scheduling. This was the largest start-up cost for most colleges (which, as mentioned, also generated some recurring costs for systems maintenance and upgrades). However, while all the colleges bought some new software, they all also customized existing systems, and some redeployed systems that they had but were underutilizing.

Here again, before making new purchases, colleges should examine how they can use existing systems to support guided pathways redesign. Chief information officers we interviewed at Cuyahoga, Jackson, and other colleges where we have studied guided

pathways reforms strongly recommend that colleges not purchase new information systems before they plan and even begin to implement guided pathways reforms. Instead, colleges should use the information needs of key stakeholders under the guided pathways model as the basis for software specifications.

Seek funding from local philanthropic sources, Title III or V grants, or other sources to fund strategic visioning, campus and community engagement, reform planning, and other start-up costs.

At all six institutions, guided pathways reforms were tied to broader efforts to engage internal and sometimes external stakeholders in examining data on student outcomes, identifying barriers the college creates to student success, and building commitment for large-scale reform. In every case, college leaders said that guided pathways was central to meeting the student success goals set forth in their strategic plan, which were developed through broad engagement and approved by the institution’s board of trustees. Based on research CCRC has done on how colleges have managed the implementation of guided pathways, we think broad engagement in strategic visioning and planning is essential for colleges to lay the groundwork for reform (Jenkins et al., 2019). This college-wide engagement is so important because guided pathways requires not only big changes in practice but also cultural shifts; it requires leaders to appeal to shared values and challenge faculty and staff to rethink their roles and approaches to helping students succeed.

College leaders said that guided pathways was central to meeting the student success goals set forth in their strategic plan.

Bakersfield, Cuyahoga, and Pierce received grants from local or state-focused private foundations to support the strategic visioning and planning processes that enabled them to implement guided pathways. The Alamo Colleges District undertook a similar process with the leadership of its board of trustees, though without philanthropic support. Cleveland State did so with support from a statewide initiative led by the Tennessee Board of Regents, which received some support from national foundations, including the Bill & Melinda Gates Foundation and Lumina Foundation. Local foundations in particular may be interested in providing one-time funding to support strategic engagement, planning, and initial coordination to catalyze a major redesign in a college’s approach to serving students.

As mentioned, legislatures in California and Washington appropriated limited-term categorical funds to support the adoption of guided pathways practices across the community and technical colleges in their states. Jackson used funds from a Title III Strengthening Institutions grant to redesign its first-year seminar course, which is a critical part of its guided pathways design. Grants from the Title III and Title V Hispanic-Serving Institutions programs are excellent sources of funding for planning, initial coordination, and capacity building for guided pathways because both programs are focused on strengthening institutional capacity to support student success. In FY 2019, 33 of the grant awards to community colleges made under Title III and Title V had “guided pathways” in the project title or abstract.

Budget collaboratively, making allocation decisions with a view to improving the recruitment and completion of students in programs connected to efficient transfer and good jobs.

Guided pathways reforms are intended to bring about greater alignment and integration of academics and student services across students' experience at the college and to strengthen programs, which typically involve multiple academic departments. Therefore, organizing planning and budgeting processes by division and academic department, as is typical at many colleges, is likely not an effective strategy for allocating resources for guided pathways. Budgeting for guided pathways is best done in a more coordinated, strategic way, with collaboration across divisions to decide what resources are needed to support student success and allocate resources accordingly. Alamo Colleges, Bakersfield, and Cleveland State now conduct program budgeting at the meta-major level (as described on p. 26) to ensure that programs that enable students to achieve their goals for college and careers are well supported. Budgeting by field also helps to elevate the importance of funding for instructional improvement, as it facilitates conversations about students' learning and persistence throughout programs.

Conclusion

Widespread interest in redesigning programs, teaching approaches, and student supports following the guided pathways model is leading more and more community college leaders to ask how much guided pathways reforms cost, how other colleges are funding pathways reforms, and whether guided pathways represents a good value for students and colleges. This study provides insights into those questions based on the experiences of six institutions that have implemented large-scale changes following the guided pathways model.

All of the case study colleges incurred costs above and beyond the status quo, with the largest costs associated with technology upgrades and the move to case-management advising. Notably, however, while all six used grant funding to support start-up activities, they were able to sustain the reforms through a mix of new income and resource reallocation. By shifting from engaging in many smaller reforms to strategic whole-college redesign, colleges were able to free up resources to support whole-college redesign following the guided pathways model.

In moving to the guided pathways education model, the colleges have in effect adopted a new community college business model where they attract and retain students not by offering a wide array of courses but by offering well-structured programs with clear value. Leaders at all six indicated they believe guided pathways reforms have not only benefited students but also benefited their colleges as businesses. They also indicated that they were better positioned to respond to the COVID crisis because of changes they had made as part of their pathways reforms—in particular, online academic planning, integrated course registration, and case-management advising by field.

By shifting from engaging in many smaller reforms to strategic whole-college redesign, colleges were able to free up resources to support whole-college redesign following the guided pathways model.

Our recommendations based on these six colleges' experiences should help other college leaders estimate the initial and ongoing costs involved in guided pathways and develop a strategy to cover them. Importantly, the institutions in our study have been generally successful in implementing, funding, and sustaining many components of the guided pathways model, which shows that it can be done, although not without challenges. These institutions and their leaders have demonstrated a willingness to reallocate resources and to undertake and maintain major, resource-intensive redesigns of college practice.

Questions remain unanswered about costs associated with changes to instruction under the guided pathways model, since most of the colleges in our sample had not yet brought to scale efforts to coordinate instructional improvement at the program or meta-major level.

Further, we do not know how small community colleges that already operate on slim margins will finance and sustain guided pathways reforms amid the fiscal strain of COVID. Nevertheless, the evidence to date suggests that guided pathways has substantial value to students and colleges (and potentially to taxpayers).

The evidence to date suggests that guided pathways has substantial value to students and colleges (and potentially to taxpayers).

In our current moment, colleges are facing budget cuts, ongoing concerns about the health of students and staff, and uncertainty about the future, all while striving to uphold their mission and service in support of their students and communities (Brock, 2020). We hope this study provides useful guidance to colleges on how to invest their scarce resources in ways that enable them to better serve their students and communities while navigating this extremely challenging environment for colleges.

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Appendix A: Summaries of Guided Pathways Reforms at the Six Case Study Institutions

Guided Pathways at Alamo Colleges District

Key Practices Implemented at Scale

Clarifying paths to student end goals

- In fall 2014, the five Alamo community colleges, with leadership from the district, organized their transfer and career-technical education programs into six meta-majors called Alamo Institutes.
- In consultation with area employers and universities, faculty mapped all programs to employment and transfer outcomes. Advisory committees at the district, college, and program levels work with university and employer representatives to ensure that program maps are up-to-date and responsive to employers' needs.
- Students have access to hundreds of frequently updated transfer advising guides that are customized by meta-major and major for several transfer partners.

Helping students get on a program path

- Students are required to choose a meta-major on their application and to attend an orientation organized by meta-major, where they confirm their meta-major and are assigned an advisor.
- In a required first-year seminar course, students write a mission statement describing their education and career goals, meet with their advisor, and develop a full-program educational plan.
- Enrollment coaches help shepherd high school students through enrollment and connect them with a meta-major in a field of interest.

Keeping students on path

- All students are assigned an advisor within their meta-major who monitors their progress

FAST FACTS

District with five separately accredited colleges

Location: San Antonio, TX

Fall 2018 headcount enrollment: 60,818

Race/ethnicity:

Hispanic – 63%	Asian – 3%
Black – 7%	2+ races – 4%
White – 23%	

Collective bargaining: No

FY 2020 operating budget: \$385.2 million

Start of guided pathways reforms: 2014

on their plans and meets with students at 15-, 30-, and 45-credit checkpoints.

- Advisors work closely with academic program chairs and faculty in their meta-major to stay informed about program requirements and student needs.
- Students who take a part-time or full-time course load in the preceding spring can take 6–9 credits free in the summer.

Ensuring that students are learning across programs

- Each Alamo Institute developed learning outcomes based on skills employers are looking for and shared those outcomes with students in an advising syllabus.
- The colleges are rolling out an effort to ensure that all students have at least one experiential learning opportunity before they graduate.

Promising trends in student success

- The time and credits to an associate degree decreased from 4.6 years and 94 credits in 2016 to 3.8 years and 82 credits (66 for students who began at the Alamo Colleges) in 2019.
- The three-year graduation rate increased from 9% for the 2010 cohort to 30% for the 2016 cohort.
- The S&P/Moody's rating improved from AA/Aa2 in 2006 to AAA/AAA in 2018.

Guided Pathways at Bakersfield College

Key Practices Implemented at Scale

Clarifying paths to student end goals

- The college organized both transfer and career-technical education programs into nine learning and career pathways (meta-majors). The “personal and career exploration” community helps undecided students choose a field.
- The college developed interactive software to map program requirements based on its catalog and extended maps to popular bachelor’s programs at local California State and University of California campuses. The college is working with local high schools to map programs from ninth grade to bachelor’s degrees through the college and has created on-ramps to certificate and degree programs for adult basic education and English language learner students.
- The college developed alternative health career paths in public health and health information systems.

Helping students get on a program path

- The college formed “completion coaching teams” for each meta-major and certain student affinity groups. These consist of at least one educational advisor; a counselor; a lead faculty member; a job developer; and a data coach, who is trained to help their community use data to improve student outcomes.
- All students are required to work with their advisors and communities to develop a comprehensive educational plan.
- The college recently created an outreach team of counselors and advisors to help students in area high schools explore their interests and develop program maps.

Keeping students on path

- Students can see their progress on their MyDegreePath degree plan (in Starfish).

FAST FACTS

Location: Bakersfield, CA

Fall 2018 headcount enrollment: 24,589

Race/ethnicity:

Hispanic – 69%	Asian – 3%
Black – 4%	2+ races – 7%
White – 17%	

Collective bargaining: Yes

FY 2020 operating budget: \$163 million

Start of guided pathways reforms: 2016

- Completion coaching teams monitor the progress of every student and intervene when students go off-path or are not making progress.
- Kern Community College District (to which Bakersfield belongs) recently purchased enrollment management software that will use data from students’ plans to schedule the courses students need to progress when they need them.

Ensuring that students are learning across programs

- Bakersfield College hired an employment services program director and additional staff who are connected with meta-majors and help students find meaningful paid and unpaid internships and experiences on campus and with employer partners.
- The college is trying to provide all students with experiential learning opportunities on campus and with local employers.

Promising trends in student success

- The rate at which students earn at least 15 units in their first year increased from 19% for the 2015 cohort to 25% for the 2018 cohort.
- Students taking courses exclusively in their pathway increased from 62% to 78%.
- The college reduced the number of new students in the “personal and career exploration” community by increasing support for career exploration and planning through summer bridge programs, high school outreach, and other activities.

Guided Pathways at Cleveland State Community College

Key Practices Implemented at Scale

Clarifying paths to student end goals

- Cleveland State organized its programs into seven meta-majors called career communities in fall 2017.
- Faculty engaged in program mapping as part of weeklong in-service meetings in fall 2016, with revisions made during the 2018–19 academic year.

Helping students get on a program path

- Students participate in a mandatory orientation, in which they learn about career communities, meet faculty and current students in career communities, and learn about courses in programs of interest. Students also participate in a mandatory first-year experience course to identify their interests and goals and continue to explore careers and programs.
- The college scaled up its Student Success Center and its staff, and success coaches now represent a “one-stop person” for students’ early experiences. Success coaches assigned to each career community support students as they explore program options, complete the application process, build a full-program educational plan, and progress through their first 24 credits.
- The college expanded a career services role to have someone work with incoming students who are undecided about their career and academic goals.
- Cleveland State eliminated prerequisite developmental education and implemented math pathways with corequisite support at scale for underprepared students to enable their progression through their programs.

FAST FACTS

Location: Cleveland, TN

Fall 2018 headcount enrollment: 3,264

Race/ethnicity:

Hispanic – 5%	Asian – 1%
Black – 6%	2+ races – 3%
White – 85%	

Collective bargaining: No

FY 2020 operating budget: \$24.9 million

Start of guided pathways reforms: 2015

Keeping students on path

- Students can see their progress on their educational plan through DegreeWorks.
- Once they settle on a program of study, students are assigned faculty advisors who monitor their progress.
- Cleveland State implemented scheduling changes to facilitate block scheduling, cohorts, and targeted summer course offerings aligned to students’ needs based on their educational plans.

Ensuring that students are learning across programs

- Cleveland State hired a director for the Center for Dynamic Instruction to support student success through innovation in teaching, learning, and student engagement.
- Sixty percent of Cleveland State faculty incorporate service-learning opportunities into at least one of their courses. The college is also increasing work-based learning offerings.

Promising trends in student success

- Students’ first-term and first-year credit momentum have improved. Students who earned 12+ college credits in the first term increased from 21% for the 2014 cohort to 40% for the 2018 cohort. Students who earned 24+ credits in the first year increased from 17% for the 2014 cohort to 29% for the 2018 cohort.
- Cleveland State experienced full-time enrollment growth for four consecutive semesters, with 4.9% full-time enrollment growth from spring 2019 to spring 2020.

Guided Pathways at Cuyahoga Community College

Key Practices Implemented at Scale

Clarifying paths to student end goals

- Starting in the summer of 2015, faculty began mapping all programs, with a focus on ensuring that each map referred students to the appropriate math course. The mapping process took two summers.
- Information technology staff developed an online catalog that unites credit and noncredit programs and shows what embedded certificates students can earn en route to a degree.

Helping students get on a program path

- The college invested in connecting convocation, orientation, and a first-year seminar to create a seamless onboarding experience.
- Cuyahoga brought together 300 counseling and academic faculty to completely revamp and make mandatory its one-credit student success course. The course now focuses on critical thinking, financial management and support services, and connecting students to the institution and to faculty in their program.
- Cuyahoga changed its strategy with dual enrollment students, who make up nearly a quarter of all enrollments, to focus on strengthening the pipeline into the college. Currently, 12% of dual enrollment students matriculate at Cuyahoga. By helping these students engage in more thoughtful academic planning and take courses that move them toward program completion rather than one-off courses, the college hopes to encourage them to enroll at Cuyahoga after high school.

Keeping students on path

- The college adopted a case-management approach to advising. In addition to helping students with educational planning, advisors

FAST FACTS

Location: Cleveland, OH

Fall 2018 headcount enrollment: 23,440

Race/ethnicity:

Hispanic – 7%

Asian – 3%

Black – 25%

2+ races – 11%

White – 54%

Collective bargaining: Yes

FY 2020 operating budget: \$385.2 million

Start of guided pathways reforms: 2014

now address nonacademic issues and financial planning for college.

- Each campus has a care team made up of advisors that helps to address immediate needs—for example, providing cash for textbooks or transportation emergencies.
- Cuyahoga hired one success coach on each of its four campuses. These roles vary by campus but generally focus on retention. Success coaches manage early alerts, reach out to flagged students, and collaborate closely with faculty.
- Cuyahoga offers a yearly schedule based on students' educational plans so that students are able to take the courses they need when they need them.

Ensuring that students are learning across programs

- The college expanded its offerings of experiential learning opportunities and is working to expand them further.

Promising trends in student success

- The three-year graduation rate rose from 7% for the 2013 cohort to 21% for the 2019 cohort.
- As a result of efforts to break down divisions between for-credit and noncredit programs, students in noncredit programs are crossing over into for-credit programs. Student enrollments are declining overall, but the college's workforce student population grew from 10,000 to 17,000 enrollments from 2014 to 2019.

Guided Pathways at Jackson College

Key Practices Implemented at Scale

Clarifying paths to student end goals

- Jackson consolidated its academic and workforce departments around meta-major fields called pathways, with faculty creating six meta-majors and mapping all programs of study.
- The college also created two new roles, director of transfer and scheduling and university transfer liaison, to support map upkeep and develop and maintain transfer articulation agreements.

Helping students get on a program path

- Jackson redesigned the roles of its academic advisors to be “student success navigators.” Navigators meet with all new students in one-on-one advising appointments before enrollment (with these meetings replacing new student orientation). They also administer a new student intake survey to capture career interests and student needs; help students build an educational plan in their first semester; approve registration on an ongoing basis; reach out to students at least three times per semester; and help students change their educational plans as needed.
- The college’s first-year seminar for all first-time students supports career and program exploration and planning. As part of the course, the college holds an afternoon of “showcases” for each of its pathways, during which students learn about programs of interest and meet faculty.
- Jackson eliminated prerequisite developmental instruction, implemented math pathways with corequisite support for underprepared students at scale, and created corequisite support courses in writing and reading. The college uses faculty pairs to team-teach the college-level and corequisite support sections.

FAST FACTS

Location: Jackson, MI

Fall 2018 headcount enrollment: 5,083

Race/ethnicity:

Hispanic – 5%

Asian – 1%

Black – 8%

2+ races – 24%

White – 62%

Collective bargaining: Yes

FY 2020 operating budget: \$47.8 million

Start of guided pathways reforms: 2016

Keeping students on path

- Students can see their progress on their educational plan with JetStream, Jackson’s branding of Colleague Student Planning.
- The college’s 18 student success navigators use a case-management approach to advise students by pathway. Navigators monitor students’ progress on their plans and use a financial aid module to track whether students’ course registrations fulfill program requirements. The college developed its own communications system for case-management advising and a system to text students and schedule appointments.
- Jackson’s director of transfer and scheduling is strengthening the alignment between the college’s schedule and the courses students need to take to progress on their educational plans and is also building a full-year schedule.

Ensuring that students are learning across programs

- Jackson hired an instructional designer to support curricular redesign.

Promising trends in student success

- Jackson has seen improvements in some early credit momentum metrics and in the number of students taking the courses they need for their programs. However, overall enrollments are well below their peak despite having been stabilized through early college high school, dual enrollment, and prison programs.
- The college has increased the rates at which entering students take and pass college-level math and English in their first year.

Guided Pathways at Pierce College District

Key Practices Implemented at Scale

Clarifying paths to student end goals

- Starting in 2014, Pierce faculty organized programs across the district into six career pathways.
- Faculty and advising staff formed committees to map all programs. Maps were designed to align with the top three transfer institutions for each department.
- Faculty created 78 maps to associate and bachelor's degrees for dual enrollment students at 13 feeder high schools and “undecided trees” to guide dual enrollment students who have not yet chosen a program of study.

Helping students get on a program path

- In 2016, the college created a mandatory 3–5 credit college success course called College 110. It is the first course on every program map.
- Pierce implemented a three-phase approach to career exploration: Students use an online tool to assess their career interests during online orientation, followed by further career exploration in their first-year experience course and individual career counseling.
- To create a more comprehensive onboarding experience, the college lengthened intake advising sessions to 45–60 minutes.
- Pierce hired two admissions coaches to help students matriculate by assisting with online orientation, placement testing, and preparation for their first advising appointment.

Keeping students on path

- Pierce hired additional advisors and provided professional development to all advisors. The college moved to a more intensive advising model in which all students have a success coach and a faculty advisor monitoring their progress in their programs.

FAST FACTS

District with two separately accredited colleges

Location: Lakewood, WA

Fall 2018 headcount enrollment: 10,520

Race/ethnicity:

Hispanic – 15%	Asian – 6%
Black – 7%	2+ races – 22%
White – 50%	

Collective bargaining: Yes

FY 2020 operating budget: \$62.8 million

Start of guided pathways reforms: 2016

- Pierce reassigned and retrained its “curriculum advisors” to be “success coaches,” giving them additional responsibilities and increasing salaries to retain them.
- Since 2014, Pierce has hired 8–9 FTE additional success coaches and added a director of advising.

Ensuring that students are learning across programs

- Pierce hired additional staff for its teaching support centers.
- The college instituted a professional development program called Targeted Skills Training, which supports up to 15 faculty members a year to conduct yearlong projects aimed at testing instructional innovations designed to close equity gaps in the classroom.

Promising trends in student success

- One catalyst for beginning the guided pathways reforms at the college was a recognition that the average graduation rate in 2010 was 18.7%. Since then, the graduation rate has increased by 104%, and the college is focusing on closing equity gaps in graduation rates.
- Winter-to-fall retention rates increased from 80.6% in 2010 to 85.5% in 2019. Fall-to-fall retention increased during the same period from 51.4% to 61%.
- The average number of cumulative credits to an associate degree is trending down from about 98 credits in 2013–14 to 94 credits in 2018–19.

Appendix B: Detailed List of New Costs

Table B1.

Reform Management and Infrastructure

PRACTICE	NEW COSTS	TYPE	COLLEGES
Coordinate guided pathways planning and implementation	College-wide convenings and retreats	One-time	Alamo Colleges, Bakersfield, Cuyahoga, Jackson, Pierce
	Staff to coordinate and communicate	One-time	Alamo Colleges, Bakersfield, Cuyahoga, Jackson, Pierce
Create steering committees and workgroups	Professional development	One-time	Alamo Colleges, Bakersfield, Cleveland State, Cuyahoga, Jackson, Pierce
Upgrade or purchase software to support guided pathways	Additional staff software developers	Recurring	Alamo Colleges

Table B2.

Clarifying Paths to Student End Goals

PRACTICE	NEW COSTS	TYPE	COLLEGES
Organize programs into academic/career communities or “meta-majors”	Meta-major administrators	Recurring	Alamo Colleges, Bakersfield, Cleveland State, Cuyahoga, Jackson
	Stipends for success team faculty leads	Recurring	Bakersfield
Map all programs to career and major transfer outcomes	Faculty/staff stipends for mapping	One-time	Alamo Colleges, Bakersfield, Cuyahoga, Jackson, Pierce
	Staff to create and update transfer maps	Recurring	Alamo Colleges, Cuyahoga, Jackson
	Online course catalog	One-time + recurring	Cuyahoga
	Program mapping tool	One-time + recurring	Bakersfield
	Labor market consultant	One-time	Alamo Colleges
Create program-relevant math pathways	Faculty professional development	One-time	Alamo Colleges, Jackson
Design website to show program maps with job and transfer outcomes	Website development/maintenance	Recurring	Alamo Colleges, Bakersfield, Cleveland State, Cuyahoga, Jackson, Pierce
Strengthen university and employer input into program design	Advisory board coordination and meetings	Recurring	Alamo Colleges

Table B3.
Helping Students Get on a Program Path

PRACTICE	NEW COSTS	TYPE	COLLEGES
Redesign intake to facilitate career and program exploration and engagement	Staff time to redesign intake and orientation	One-time	Alamo Colleges, Bakersfield, Cleveland State, Cuyahoga, Jackson, Pierce
	Expanded career services staff	Recurring	Bakersfield, Cleveland State
Require a first-year experience course with career and academic exploration and a focus on planning	Faculty time to develop curriculum	One-time	Alamo Colleges, Cleveland State, Cuyahoga, Jackson, Pierce
	Faculty training	One-time	Alamo Colleges, Cleveland State, Cuyahoga, Jackson, Pierce
Help all students develop full-program plans	Purchase/maintenance of planning software	One-time + recurring	Alamo Colleges, Bakersfield, Cleveland State, Cuyahoga, Jackson, Pierce
	Training for advisors and faculty on using software	One-time	Alamo Colleges, Bakersfield, Cleveland State, Cuyahoga, Jackson, Pierce
	Consultant to oversee implementation	One-time	Bakersfield, Pierce
Implement corequisite remediation in math (related reform)	Stipends for faculty to redesign courses	One-time	Bakersfield, Cleveland State, Cuyahoga, Jackson
	Additional part-time instructors for added sections	Recurring	Cleveland State
	Pay for paired corequisite class instructors	Recurring	Jackson
Implement corequisite remediation in English (related reform)	Stipends for faculty to redesign courses	One-time	Bakersfield, Cleveland State, Cuyahoga, Jackson
	Paired instructors in corequisite classes	Recurring	Jackson
Connect high school students to college-level program pathways (related reform)	Additional enrollment coaches/advisors	Recurring	Alamo Colleges, Bakersfield
	Training for enrollment coaches/advisors	One-time	Alamo Colleges, Bakersfield
	Enrollment management consultant	One-time	Alamo Colleges
	Purchase/maintenance of customer relationship management software	One-time + recurring	Alamo Colleges
	Customized program maps for high schools	One-time + recurring	Bakersfield, Pierce

Table B4.
Keeping Students on Path

PRACTICE	NEW COSTS	TYPE	COLLEGES
Reorganize advising to allow for case management by meta-major	Additional advisors	Recurring	Alamo Colleges, Bakersfield, Cleveland State, Cuyahoga, Jackson, Pierce
	Advisor training/certification	One-time	Alamo Colleges, Bakersfield, Cleveland State, Cuyahoga, Jackson, Pierce
	Purchase/maintenance of case-management software	One-time + recurring	Alamo Colleges, Bakersfield, Cuyahoga, Jackson
	Purchase/maintenance of texting software	One-time + recurring	Jackson
Implement predictable scheduling based on students' educational plans	Purchase/maintenance of scheduling software	One-time + recurring	Bakersfield, Cleveland State, Cuyahoga
	Additional staff to do scheduling	Recurring	Cuyahoga
Offer financial incentives for full-time or summer enrollment	Summer scholarships	Recurring	Alamo Colleges, Bakersfield, Cuyahoga

Table B5.
Ensuring That Students Are Learning Across Programs

PRACTICE	NEW COSTS	TYPE	COLLEGES
Strengthen teaching in critical program foundation courses	Instructional designer	Recurring	Jackson
	Instructional improvement department director	Recurring	Cleveland State, Pierce
Expand opportunities for experiential learning	Expanded career services staff	Recurring	Alamo Colleges, Bakersfield, Cuyahoga

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