PolicyReport

Costs of California Multiple Pathway Programs

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"This program is my life."

Coordinating teacher who has worked more than 20 years in a California Partnership Academy, interviewed April 28, 2009.

Executive Summary

There is widespread agreement that many of California's high schools are doing a poor job of preparing their students for college and careers. The James Irvine Foundation is sponsoring a major initiative to develop "Multiple Pathways" — now called the Linked Learning approach — as a strategy for improving the performance of California high schools. To inform this effort, the Foundation asked PACE to gather evidence on the cost of linked learning programs. This report presents the results.

How much does a good high school education cost? This is a hard question to answer, because we do not know whether traditional high schools are using their resources in the best possible ways. We know how much school districts spend on their high schools to achieve their current level of performance, but we do not know to what extent achieving better results could be accomplished by using current resources better or whether improved performance would require additional resources. This makes judgments about whether reform strategies like Linked Learning cost more than, less than, or the same as traditional high school programs difficult, because we do not have a clear baseline against which to compare costs.

[1] This report was made possible by a grant from the James Irvine Foundation. We thank Anne Stanton for commissioning and supporting this study. We are grateful to Kathy Harris, Roman Stearns, Rob Atterbury, Kenneth Jones, and Rob Kessler for helping us refine the study questions and strategy, and for facilitating access to the study sites. We also received helpful comments on an earlier draft from Norton Grubb, Rob Kessler, and Henry Levin. Last, and most of all, we wish to thank the teachers, counselors, and administrators who took time to answer our questions, and whose dedication to improving high school students' experience is a continuing inspiration for us.

In measuring the cost of Linked Learning programs, it is important to keep in mind that the cost of education is not the same as the amount of money we spend on schools. The cost of education is the value of the resources (mainly the time of teachers and other staff, but also other things) that are used to support a given educational program. Some of these resources may be paid for with money from the school budget, but others may be contributed by teachers who work extra hours or by employers who provide staff time or equipment to local schools. This means that the cost of reform strategies like Linked Learning can be "paid" in three different ways:

1) by reallocating resources from other activities to activities that are part of Linked Learning;

2) by inspiring teachers, employers, and others to contribute unpaid time and other resources to support innovative or effective programs; or

3) by obtaining additional funds from taxpayers, philanthropies, or other donors to support new programs.

Facing an unprecedented fiscal crisis, many school districts in California are nevertheless moving forward with the implementation of Linked Learning programs, relying on a mix of these approaches to obtain the necessary resources. For example, the Long Beach Unified School District has put Linked Learning at the center of their strategy for improvement, and reallocated resources from a variety of other activities to support Linked Learning programs. The district has also benefited from contributions of unpaid time from staff and community members who have participated in program planning and curriculum development, and similar unpaid contributions from business partners who spend time mentoring program participants and supervising internships. LBUSD has also obtained financial support for Linked Learning programs from the community, including bond support for facilities and equipment and donations from both individuals and local foundations. According to the Superintendent of LBUSD, these reallocations of district funds, donations of money, and contributions of unpaid time will keep the additional budgetary cost to the district for operating Linked Learning programs to less than $100 per student, excluding start-up costs.

Antioch USD has similarly relied on a mix of approaches to keep the ongoing cost of implementing Linked Learning programs in line with district spending norms. AUSD has funded the start-up costs of Linked Learning with a variety of one-time funds including federal and foundation grants. Antioch also receives essential support for specific programs from local occupational and industrial partners. Local doctors and hospitals have made substantial contributions both in cash and in kind to the Dozier-Libby medical high school, while the Law program has received support from lawyers, judges, and the County Bar Association. The Performing Arts High School offers three hours of after-school activity every day, which is supported by contributions of money and time from parents and other community members. Engineering and Design for a Green Environment (EDGE) has received financial support from Chevron and other sources.

Pasadena USD has relied on grants from the Irvine Foundation, the Pasadena Community Foundation and other partners to finance the planning and coordination required for the implementation of Linked Learning programs. Like Antioch and Long Beach, the district has also reallocated categorical funding that was previously committed to other uses and focused these resources on the Linked Learning initiative. In-kind contributions from local businesses have increased substantially as the district has moved forward with Linked Learning implementation. To ensure the sustainability of these new programs the district is counting on "community coalitions" at the school site to work together to obtain the resources and nourish the relationships that are necessary to the long-term success of Linked Learning programs. According to the Superintendent, the district's budgetary cost for managing these coalitions and coordinating the complicated set of staff and community contributions to Linked Learning programs is likely to be about $725 for each student in the program.

The Porterville USD is currently engaged in an intensive planning process in preparation for the implementation of six new Linked Learning programs. The first phase of this work required complex negotiations with the local teachers union, which resulted in the adoption of a seven-period day in exchange for a shorter school year. It also relied on large contributions of time from district staff and others to ensure that teachers, parents, and community members were fully informed about the district's Linked Learning initiatives and how they fit with the district's educational goals. These activities have also been supported in part by grants from the Irvine Foundation and others. Like the other districts, Porterville has also focused their categorical funding from both state and federal sources on the implementation of their Linked Learning initiatives.

To estimate the cost of implementing Linked Learning for this study, we (1) attempted to measure actual resources used, rather than relying on budgets; (2) focused on incremental rather than total costs; and (3) distinguished between start-up and ongoing costs.

Incremental cost is the amount of additional resources required to run a Linked Learning pathway, compared to a traditional high school program. Examples of incremental cost are the additional time required for school staff to provide work-based learning opportunities for students, or the additional cost of special equipment or facilities needed at the school to teach the pathway theme (e.g. health professions, performing arts, or manufacturing technology).

We obtained estimates of these costs by interviewing teachers, administrators, and counselors in 10 pathway sites. The sites included four career academies; three self-contained, stand-alone high schools; and three semi-autonomous high schools that shared a campus with other semi-autonomous schools.

Excluding start-up costs, the additional resources required to operate linked learning programs ranged from $505 to $1,937 per student per year in the 10 program sites. The extra time that teachers spent on pathway activities during the school year was the largest component of additional cost at all but one of the sites. Staff time spent during the summer was the next largest additional cost.

For the seven sites where we could estimate start-up costs, the total cost per student ranged from $1,111 to $2,436. Because these are the most recent start-ups, they also have relatively high ongoing costs, which tend to decrease in older programs. It seems fair to say that the resources required at the site level, including both start-up and ongoing costs, would be around $1,500 per student once programs are past the steep part of their learning curve.

Some districts have been able to expand Linked Learning pathways without increasing their total budgets. They have accomplished this by reallocating resources from other uses or by taking advantage of resources contributed by teachers and others. Other districts may be able to do so as well. But ensuring access to Linked Learning for large numbers of students throughout the state would most likely require some increase in funding, to compensate teachers and other school staff for the additional time required by pathway activities.

This report deals only with costs, not with benefits of Linked Learning programs. Other studies have found that investment in Linked Learning would result in benefits to taxpayers that far exceed the cost.

Costs of California Multiple Pathway Programs

Background and introduction

The James Irvine Foundation is sponsoring a major initiative to develop "Multiple Pathways" in California high schools.[2] To inform this effort, the Foundation asked PACE to gather evidence on the cost of multiple pathway programs. This report presents the results. To put this report in context, we note that it deals only with costs, not with benefits of these programs. Also, the word "cost" does not necessarily imply an increase in school budgets or additional burden on taxpayers; some or all of the resources required for these programs can be, and sometimes have been, obtained by reallocating resources that schools would have used for other purposes.

The goal of the multiple pathways initiative is "to engage youth in the serious learning needed to graduate high school prepared for success in college and career."[3] "Students in Linked Learning programs follow a pathway, a comprehensive program of study that connects learning in the classroom with real-world applications outside of school. They integrate rigorous academic instruction with a demanding technical curriculum and field-based learning — all set in the context of one of California's 15 major industry sectors. Students pursue a pathway from grades nine to 12 and graduate prepared for the full range of post-graduation options — whether that means a two- or four-year college, an apprenticeship or formal job training. The Linked Learning approach challenges and inspires students to learn, and creates well-rounded, highly skilled individuals with the foundation for lifelong success.

"The Linked Learning approach includes the following four elements:

Challenging academics — A core academic component of college-preparatory instruction in essential subjects, including English, math, science, social studies, foreign language and visual and performing arts.

Technical skills and knowledge — A demanding technical component, emphasizing the practical application of academic learning and preparing youth for high-skill, high-wage employment.

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[2] Since this report was drafted, this approach has been renamed "Linked Learning." In this report, "multiple pathways" should be taken to mean the "linked learning approach."

[3] Irvine Quarterly, Summer 2009. http://www.irvine.org/ndex.php?option=com_content&view=article&id=1012&Itemid=679

Work-based learning — A work-based learning component that offers opportunities to learn through real-world experiences, such as internships, apprenticeships and school-based enterprises.

Support services — Supplemental services, such as counseling and additional instruction in reading, writing and mathematics."[4]

In 2006 the Irvine Foundation launched ConnectEd: The California Center for College and Careers, to advance multiple pathways in California.[5] ConnectEd's activities have included formation of a network of schools that exemplify elements of multiple pathways, development of integrated curriculum suitable for pathway programs, and creation of a broad coalition to support expansion of multiple pathways in California. In June 2009 the Irvine Foundation and ConnectEd announced grants totaling $11.3 million to 10 school districts to develop district systems of multiple pathways. The two-year implementation grants will enable each district to develop and improve four pathway programs to a certified level of quality, and to progress toward developing six to eight certified pathways. The goal is to give students a choice of several industry-themed programs within each district.[6]

The Irvine Foundation's district initiative is part of a growing movement to expand multiple pathways in California. The California legislature in 2008 passed AB2648, which requires the state to study the feasibility of establishing multiple pathways throughout California. The state legislature that year also provided funding to increase the number of California Partnership Academies, bringing the total number to about 500. Career academies, such as the state-funded Partnership Academies in California, are one of the earliest and most prevalent forms of multiple pathway programs.

The Irvine Foundation and the California legislature are increasing their investment in career academies and other multiple pathway programs because

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[4] James Irvine Foundation web site, http://www.irvine.org/grantmaking/our-programs/youth/linked-learning

[5] http://www.connectedcalifornia.org/about/index.php

[6] http://www.irvine.org/images/stories/pdf/news/district%20initiative%20release.pdf

evaluations of these programs have found positive results for students.[7] In many of these studies it is difficult to separate the impact of the program from the effect of how students were selected to participate. However, a major study by MDRC, in which students applying to career academies were randomly assigned either to the academy or to the regular high school program, did find substantial gains in earnings for the academy students eight years after high school, with no reduction in their postsecondary educational attainment.[8]

If expanding the availability of multiple pathways in California can improve student achievement, reduce the dropout rate, increase postsecondary educational attainment and economic self-sufficiency, enable more young people to become responsible adults and prepare them to participate in civic life, the benefits to California will be substantial.

What will it cost to produce these benefits? The definition of multiple pathways includes a combination of features that are not ordinarily available to all high school students. The career academies and other programs that have been evaluated and found to deliver positive results for students have used various kinds of additional resources. However, program evaluations have focused mainly on measuring outcomes for students, and have seldom tried to estimate program costs.[9] Therefore, we have very little information about the additional resources required to start and operate academies or other multiple pathway programs. This study is intended to provide some of the missing information about costs.

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[7] Some of the evidence is summarized on the ConnectEd web site at http://www.connectedcalifornia.org/pathways/evidence.php. Another recent review of the evidence is in David Stern and Roman Stearns, "Evidence and Challenges: Will Multiple Pathways Improve Students' Outcomes?" In Jeannie Oakes and Marisa Saunders (eds.): *Beyond Tracking: Multiple Pathways to College, Career, and Civic Participation*, pp. 37-54 (Cambridge: Harvard Education Press, 2008).

[8] James J. Kemple, *Career Academies: Long-Term Impacts on Labor Market Outcomes, Educational Attainment, and Transitions to Adulthood* (New York: MDRC, 2008).

[9] One previous study that attempted to measure some costs of career academies was by David Stern, Charles Dayton, Il-Woo Paik, and Alan Weisberg, "Benefits and Costs of Dropout Prevention in a High School Program Combining Academic and Vocational Education: Third-Year Results from Replications of the California Peninsula Academies." *Educational Evaluation and Policy Analysis*, 11(4): 405-416, Winter 1990.

Method for measuring costs

To estimate costs, we (1) attempted to measure actual resources used, rather than relying on budgets; (2) focused on incremental rather than total costs; and (3) distinguished between start-up and ongoing costs.

In this analysis we are concerned with economic rather than financial costs. We seek to identify and measure the real resources that must be used to produce a given result. In schools, the main resource and therefore the main cost of producing student learning is adults' time, including the time of teachers, principals, counselors, and others. In schools offering multiple pathways programs, the time of work-based learning partners represents a further cost. Much of this time is of course budgeted and paid for, but in many schools a significant share may be donated, both by teachers working additional hours and by external partners who are not compensated for the time they spend working with students. The time contributed by teachers and partners in multiple pathways programs does not appear on school district budgets, but it nevertheless represents a real cost of these programs.

To determine what a program really costs, therefore, we cannot rely on budget documents. Such documents often are not available for particular programs within a school, or even for particular school sites within a district.

Even if budgets were available, though, we could not rely on them to tell us what resources are actually used. For example, suppose a state-funded California Partnership Academy submits a budget to account for how the state funds will be spent, and one of the line items is $10,000 to buy 20 percent release time for a teacher whose annual salary is $50,000. This does not necessarily mean that the teacher actually spends 20 percent time on tasks related to coordinating the academy. The teacher actually may spend considerably more than 20 percent, or considerably less than 20 percent of her time on academy coordination, depending on the teacher and the circumstances. The $10,000 allocation is what economists call an accounting cost estimate. It represents a claim on the teacher's time, but not necessarily the amount of time actually spent. The true resource cost is the actual amount of the teacher's time spent on the program. Once the amount of time is known, its monetary value can be calculated using the teacher's rate of pay. For instance, if we have an estimate of how many hours the teacher spends on the program over the course of a year, we can multiply this by the teacher's hourly wage to calculate the cost in dollars. This is what Henry Levin has

called the "ingredients" method for determining program cost.[10]

Our study estimates the amounts of additional resources used, but does not attempt to analyze who currently pays for these resources. For instance, if a teacher spends additional time on a program we do not determine whether the teacher has release time paid by special funds, or whether the teacher has to reallocate time away from other school-related activities[11], or whether the teacher puts in a longer than normal work week -- in effect subsidizing the program. In many instances, teachers and other school staff do subsidize the program by working extra hours, but as a public policy this is probably not a sustainable strategy. We will return to this issue in the concluding section.

We also focused on incremental cost, not total cost. The incremental cost is the amount of additional resources required to run a multiple pathways program, compared to a traditional high school program. Examples of incremental cost are the additional time required for school staff to provide work-based learning opportunities for students, or the additional cost of special equipment or facilities needed at the school to teach the pathway theme (e.g. health professions, performing arts, or manufacturing technology). The incremental cost is most relevant for policy makers, because it indicates the amount of additional resources that would be required in order to support expansion of multiple pathways. In measuring incremental cost, we have also tried to account for any cost savings that may accrue in a pathways program, compared to a traditional high school program. For example, if teachers in pathways have to spend less time writing referrals for misbehaving students, that would be a real saving. The bottom line of our analysis will be the estimated additional cost per student in a multiple pathway program compared to a traditional high school. The estimated cost of expanding the number of students in multiple pathways can then be calculated simply by multiplying the per-student cost by the desired number of students.

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[10] Henry M. Levin and Patrick J. McEwan, *Cost-Effectiveness Analysis: Methods and Applications* (Thousand Oaks, CA: Sage Publications, second edition, 2001). See also Jay G. Chambers, *Resources in Education: From Accounting to the Resource Cost Model Approach* (Washington, DC: U.S. Department of Education, National Center for Educational Statistics, 1999; Working Paper 1999-16).

[11] Another example of reallocation would be adding a class period to the school day to permit students to take the full set of pathway courses, and at the same time reducing the number of days in the school year so that teachers' total work time remains the same.

We distinguished two main kinds of incremental cost: start-up and ongoing. Start-up costs include planning time, program development, equipment purchases, and cost of new or remodeled facilities, if any. Ongoing additional cost includes mainly the time of teachers, administrators, and others to provide the programmatic elements particular to multiple pathways. Ongoing costs recur every year, and are computed on an annual basis. We convert start-up costs to an annual basis by assuming that facilities last 30 years, equipment lasts 5 years, and the results of initial planning and program development also last 5 years.

All information was collected through in-person interviews, which were recorded and transcribed in order to retain explanations and descriptions of activities to supplement the raw numbers. Appendix I contains the interview questions for reporting additional time spent by teachers to operate the program, additional time spent by site administrators or counselors, additional time spent by community partners who provided work-based learning opportunities for students, and program start-up costs.

Study sites

We obtained cost information from three kinds of multiple pathway sites: (1) career academies, (2) self-contained, stand-alone high schools, and (3) semi-autonomous high schools sharing a campus with others. All are operated by local school districts; none is a charter school.

A career academy is a small learning community within a larger high school. The curriculum is intended to prepare students for both college and careers. Students at each grade level take several classes together, including core academic classes and a technical class related to the academy's theme. Common academy themes are health professions, business and finance, architecture and construction, media and communications, environmental science, engineering, and information technology.

Academy students typically take about half of their classes in the academy, and the other half (such as languages other than English, advanced science or math, physical education, and various electives) outside the academy. More precisely, a previous study analyzed student transcripts and found that academy courses typically comprised 45 percent of all courses taken by academy students. For that reason, when we calculate cost per student in an academy, we multiply the number of academy students by 0.45 to convert to full-time equivalents. That is, if an academy enrolls 200 students, the total number of academy classes that need to be taught is equivalent to the total

number of classes taken by 90 full-time students.[12]

Academies may span grades 9-12, 10-12, or 11-12. A team of teachers work with academy students over this period of years, so students and teachers get to know one another better than in a typical comprehensive high school. In addition to academic and technical classes, the academy offers students a range of experiences outside of school, including field trips to work sites related to the academy theme, job shadowing, internships, and adult mentors who work in the academy field. Partnerships with local employers make these experiences possible. An academy advisory board includes representatives of local employers, as well as postsecondary education and community agencies.

In California, the state provides funding for about 500 career academies, called California Partnership Academies.[13] An unknown number of additional career academies, possibly several hundred, also operate in California high schools without state funding. Nationwide, the estimated number of career academies is more than 5,000. The National Academy Foundation (NAF) supports a network of about 500 academies in 41 states, specializing in the fields of finance, information technology, hospitality & tourism, and engineering.[14] Some California Partnership Academies are also affiliated with NAF.

Our study included four career academies:

- Academy of Construction, Manufacturing, and Engineering (ACME) at Mount Diablo High School in Concord
- Academy of Information Technology (AOIT) at Hoover High School in San Diego
- Future Leaders for Social Change (Futures) Academy at Arroyo High School in San Lorenzo
- Manufacturing Production and Technology Academy (MPTA) at Laguna Creek High School in Elk Grove.

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[12] The earlier study is described in David Stern, Charles Dayton, Christopher Wu, and Andrew Maul, "Learning by Doing Career Academies." In David Neumark (ed.): *Improving School to Work Transitions*, pp. 134-168 (New York: Russell Sage, 2007).

[13] See http://www.cde.ca.gov/ci/gs/hs/cpagen.asp

[14] See http://naf.org/statistics-and-research

All four are California Partnership Academies. AOIT at Hoover High School also is affiliated with NAF. MPTA at Laguna Creek is a ConnectEd demonstration site. Table 1 summarizes contextual data for the four career academies.

The second kind of multiple pathways program we studied is what we call a self-contained, stand-alone high school. Self-contained means that students ordinarily take all their classes at this high school, in contrast to a career academy where students take only about half their classes in the academy. Stand-alone means that the school occupies its own physical space, and is the only school on that campus – in contrast to semi-autonomous high schools that share a campus. The three self-contained, stand-alone high schools we studied can be described simply as small high schools with career-related themes. They are:

- Dozier-Libbey Medical Magnet High School in Antioch
- Health Professions High School (HPHS) in Sacramento
- Los Angeles High School of the Arts (LAHSA) in Los Angeles District 4.

These three high schools are attempting to include all the features of multiple pathways as defined by the Irvine Foundation and ConnectEd. HPHS is a ConnectEd demonstration site. Antioch Unified School District is one of six districts receiving implementation grants as part of the Irvine Foundation's district initiative, and Dozier-Libbey High School is one of the pathway programs on which it is building its system of multiple pathways. Similarly, Los Angeles USD District 4 is one of four districts receiving grants to continue planning a system of multiple pathways, and LAHSA is one of the programs on which it is building. Table 2 summarizes contextual information for these three high schools.

The third type of program is more separate than a career academy but less free-standing than a self-contained, stand-alone high school. We call it a semi-autonomous high school sharing a campus with other semi-autonomous high schools. The cluster of high schools on the same campus also may share certain programs and functions such as custodial services, security, physical education and sports, and may jointly use facilities such as the library, gym, auditorium, and cafeteria. Our three examples of this kind of program are:

- School of International Business (SIB), part of the Kearny High Educational Complex in San Diego
- School of Science, Connections and Technology (SCT), also part of the same Kearny Educational Complex
- Media College Prep, part of the Fremont Federation of Schools in Oakland.

SIB and SCT share the Kearny campus with two other schools. San Diego Unified is one of four districts that received a planning grant in June 2009 as part of the Irvine/ConnectEd district initiative, and the cluster of four pathways programs at the Kearny complex are part of the multiple pathways system the district is creating. Media College Prep, formerly the Media Academy at Fremont High School, was one of the first California Partnership Academies when it started in 1986. It has kept its state academies grant since Fremont was divided into four semi-autonomous schools in 2003.

Table 1

Contextual Data for Four Career Academies

	ACME Mt. Diablo HS	AOIT Hoover HS	Futures Arroyo HS	MPTA Laguna Creek HS
Theme	Construction	Information technology	Education and community service	Mfg. technology
Year started	2007	2003	2000	1995
Enrollment 2008-09				
Grade 9	60	0	90	65
Grade 10	30		90	45
Grade 11	0		75	35
Grade 12	0		35	33
Total	90	360[15]	290	178
% of current 12th graders who have or had internships	Not applicable	55	100	30
% of 2008 grads who completed a-g	Not applicable	25	78	100
Number extra courses beyond district req.	0	12	0	0
Staff (FTE)				
Teachers	2.4	9	8.33	4.0
Counselors	0	1	0	1
Administrators	0	0	0.13	0

[15] Separate numbers not available for grades 10-12

Table 2

Contextual Data for Three Self-Contained, Stand-Alone High Schools

	Dozier-Libbey HS	Health Professions HS	Los Angeles HS of the Arts
Theme	Medical professions	Health professions	Arts, media, entertainment
Year started	2008	2005	2007
Enrollment 2008-09			
Grade 9	212	133	
Grade 10	0	113	
Grade 11	0	90	
Grade 12	0	100	
Total	212	436	400[16]
% of current 12th graders who have or had internships	NA	35	5
% of 2008 grads who completed a-g	NA	54	
Number extra courses beyond district req.	8.5	2	2
Staff (FTE)			
Teachers	12.8	20	19
Counselors	1	2	1
Administrators	1	4.7	1

[16] Separate numbers for grades 9-12 not available

Table 3

Contextual Data for Three Semi-Autonomous High Schools

	Kearny SCT	Kearny SIB	Media College Prep
Theme	Science and Technology	Business	Communications media
Year started	2003	2003	1986 as academy 2003 as separate hs sharing campus
Enrollment 2008-09			
Grade 9		150	
Grade 10		125	
Grade 11		110	
Grade 12		90	
Total	509[17]	475	325[18]
% of current 12th graders who have or had internships	3	50	0
% of 2008 grads who completed a-g	97	64	50
Number extra courses beyond district req.	4	2	0
Staff (FTE)			
Teachers	23	21	18
Counselors	2	2	4
Administrators	1	1	3

[17] Separate numbers for grades 9-12 not available

[18] Separate numbers for grades 9-12 not available

In addition to obtaining resource cost estimates from these 10 pathway program sites, we also analyzed start-up activities at five of the districts that submitted proposals to participate in the Irvine/ConnectEd district initiative. We itemize and summarize the district start-up activities in Appendix II, but we did not attempt to estimate the cost of these activities in dollars. Our quantitative analysis of cost is limited to the 10 program sites we visited.

Additional ongoing costs of multiple pathways at program sites

In this section we present the data on additional annual costs of operating multiple pathway programs, which we collected in all 10 of our study sites. In the next section we present data on start-up costs, for seven programs that started recently (2003 or later). These sections will explain in some detail how we computed our cost estimates.

The main additional resource required to operate pathway programs is time of school staff. We asked teachers, counselors, and principals how much additional time, if any, they spent on a series of specific activities related to pathway programs, compared to what they would do in a traditional high school. We also asked principals how much time community partners spent providing work-based learning opportunities for students. The interview questions are in Appendix I.

For each respondent, we added up the extra hours per week they said they spent on pathway-related activities during the school year, subtracted the number of hours per week they said they saved as a result of being in the pathway program, and divided the resulting net additional hours by 40 to express the extra time as a fraction of a full-time equivalent (FTE) person. Table 4 shows the resulting estimate for the principal and a counselor at each site, as well as for work-based learning partners (as reported by principals).

At some sites we were not able to interview a counselor, even though there was a counselor on the program staff. At these sites we imputed the additional FTE for the counselor by calculating the additional fraction of a counselor FTE per student at sites of the same kind (academy, self-contained high school, or semi-autonomous school sharing a campus) where we did have data, then multiplying that by the number of students at the site where data was missing. We followed a similar procedure in sites where we were missing data for work-based learning partners, and in one site where we were missing data for teachers. In Table 4 below, imputed values are shown in italics.

For teachers, we had to distinguish between lead teachers, who had extra responsibilities for coordinating the pathway program, and non-lead teachers. We interviewed one lead teacher and one non-lead teacher at each site. We multiplied the additional time (fraction of FTE) reportedly spent by the non-lead teacher, by the number of non-lead teachers in the program, to estimate the total additional FTE spent by non-lead teachers. We added that to the additional time (fraction of FTE) spent by the lead teacher, to calculate the total additional teacher FTEs required to operate the program during the school year. Table 4 shows the resulting estimate for teachers at each site.

Table 4

Additional Time Required for Pathway Programs during School Year,

In Full-Time Equivalents (capped)

Imputed values are in italics

Site	Teachers	Principal	Counselor	Work-Based Learning Partners
Career Academies				
ACME, Mt. Diablo HS	.51	*.04*	0	*.25*
AOIT, Hoover HS	1.9	.31	*.14*	*1.0*
Futures, Arroyo HS	1.1	.01	0	*.81*
MPTA, Laguna Creek HS	.3	.03	.16	.49
Stand-Alone, Self-Contained				
Dozier-Libbey	3.26	.09	*.27*	.25
HPHS	*6.3*	.50	*.50*	*1.3*
LAHSA	6.57	.50	.50	*.47*
Semi-Autonomous, Sharing A Campus				
Kearny SCT	2.83	.50	.31	1.13
Kearny SIB	3.76	.50	*.40*	1.69
Media College Prep	3.41	.08	.39	*.93*

Lead teachers usually had some time released from teaching, in order to perform additional duties related to the pathway program. We did not subtract released time

from the total FTE required to operate the program, because the students or classes not taught by the lead teacher would still have to be taught by someone else. Released time for the lead teacher does not reduce the total amount of work for teachers, and is therefore not a reduction in resources required.

For a few respondents, the total additional time reportedly spent on the pathway program amounted to more than 20 hours per week, or half an FTE. We reviewed transcripts of these interviews to check that we had not misunderstood, and in two cases contacted the respondents by phone to verify that they really meant additional time, not total time, for each of the activities we asked about. If the reported extra time demands still added up to more than 20 hours per week, we capped the number at 20 to avoid possible overestimation. Table 4 uses these capped estimates. We did not cap the estimates for lead teachers, because they might well spend more than 20 hours a week on additional pathway tasks.

The numbers in Table 4 are not amounts per student, so they tend to be bigger in the programs that have more students. Table 5 adjusts for differences in program size by expressing additional costs in dollars per student.

To calculate additional costs in dollars, we multiplied the FTE for teachers, principals, and counselors by the average salary paid to each of those positions in California. For lead teachers, we used the average salary for teachers with more seniority, and for work-based learning partners we used the state overall average wage. We used California averages rather than the actual compensation paid to individuals in our study sites because the purpose of this study is to inform state policy makers about the cost of expanding multiple pathways in California. For making those projections, state average salaries are more relevant than the salaries that happen to be paid to certain individuals in these particular sites.[19]

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[19] The average salaries for teachers were from the 2007-08 J90 reports submitted by districts to the California Department of Education and summarized at http://www.cde.ca.gov/ds/fd/cs/index.asp. The overall average salary for teachers was $65,808. For lead teachers, we used the state average of the "highest schedule salary offered," which was $78,925. Salaries for high school principals in 2006-07 were obtained from the California Department of Education 2008 Fact Book at http://www.cde.ca.gov/RE/pn/fb/documents/factbook2008.pdf. The average salary for principals at the high school level was $110,020. The average counselor salary was $69,682, according to Association of California School Administrators, *Salaries and Wages in California Public Schools 2008-09*. The average hourly wage for civilian full-time workers, used to calculate the cost of work-based learning partners' time, was $20.44, from the 2008 National

The additional cost includes time spent during the summer as well as during the school year. Teachers in California are typically paid for a school year of 180 days, and school administrators are typically paid for 210, though these numbers vary among districts. To calculate the dollar cost of time spent by teachers during the summer, we multiplied their reported number of summer hours spent on pathway activities by the average hourly wage of California teachers. We used the same procedure for principals and counselors. To calculate total cost, we added the dollar value of summer hours to the value of additional time spent during the school year. Finally, we divided the total by the number of students at each site to obtain cost per student.

Table 5 shows the value of work-based learning partners' time, which is a real resource cost. But since work-based learning partners' time is donated, and is not a cost to taxpayers, the last column of Table 5 excludes it. For the rest of our discussion, we will focus on cost to taxpayers, because that is most relevant to state policy makers.

The last column of Table 5 shows that the annual additional cost of operating pathway programs, excluding the cost of work-based learning partners' time, ranges from $505 to $1,937 per student in these 10 program sites. Teachers' extra time spent on pathway activities is the largest component of additional cost at all sites except Kearny SCT. Staff time spent during the summer is the next largest additional cost.

The three self-contained high schools had the highest additional cost – and this estimate does not yet include the cost of additional facilities. The three semi-autonomous high schools on shared campuses had lower additional costs per student than the self-contained high schools. Two career academies had higher costs per student than the semi-autonomous high schools, and two had lower costs. As we have explained, each academy student is counted as less than half a full-time student; if each student enrolled in an academy were counted as a whole student, the computed costs per student in the academies would be less than half the amounts shown in Table 5.

Compensation Survey, http://www.bls.gov/ncs/ocs/sp/nctb0161.txt. These salaries and wages do not include fringe benefits.

Table 5

Additional Cost of Operating Pathway Programs,

School Year and Summer, in Dollars per Student

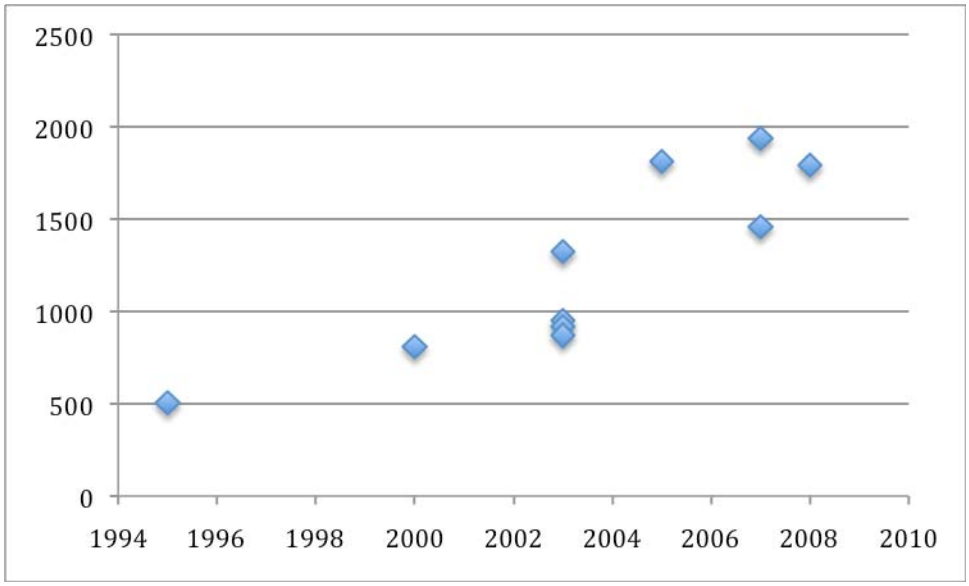
Site	Teachers during school year	Principal during school year	Counselor during school year	Work-based learning (WBL) partners	Staff time during summer	Total	Total without WBL partners
Career Academies[20]							
ACME, Mt. Diablo HS	986	101	0	202	371	1,660	1,458
AOIT, Hoover HS	809	212	62	202	241	1,526	1,324
Futures, Arroyo HS	565	6	0	202	238	1,011	809
MPTA, Laguna Creek HS	261	43	138	202	63	707	505
Stand-Alone, Self-Contained							
Dozier-Libbey	1,013	45	87	39	647	1,831	1,792
HPHS	951	126	80	39	655	1,851	1,812
LAHSA	1,113	138	87	39	599	1,976	1,937
Semi-Autonomous, Sharing a Campus							

[20] Each academy student is counted as 0.45 of a full-time student. See text.

Kearny SCT	371	108	41	72	431	1,023	951
Kearny SIB	551	116	58	116	193	1,034	918
Media College Prep	711	25	83	93	51	963	870

Figure 1

Additional Operating Cost per Student, by Starting Year of Program



Among these 10 programs, the additional operating cost per student also is related to the year the program started, as Figure 1 shows. The four programs that started after 2003 have the highest estimated additional cost per student. The two programs that started before 2003 have the lowest cost. It appears that as staff get more experience with the pathway program, they spend less additional time on curriculum, professional development, and writing proposals related to the program. Annual routines such as recruiting students and constructing the master schedule also become more streamlined after the program has operated for a few years.[21]

[21] One reviewer suggested that new programs may be somewhat over-staffed, and older programs have more students per teacher. However, we computed student-teacher ratios in

the 10 sites, and they do not have a consistent relationship with how long the program has been in operation.

Start-up costs

For seven programs that started recently, we were able to obtain retrospective reports on the resources required for start-up (see interview questions in Appendix I). We can group these resources into three categories:

1. Time of teachers, administrators, and other staff for planning and design. Where stakeholders other than school staff also participated, we also included their time. To calculate the dollar value of time spent by teachers, we multiplied the amount of time in FTE by the California average annual salary for teachers. We did the same for administrators and others.
2. Purchases of equipment, curriculum, instructional materials, software, technical assistance, or professional development specifically required for the pathway program. We did not count spending on general-purpose materials or equipment such as desks and chairs.
3. Spending on facilities or remodeling specifically related to the pathway program. We did not count spending on general-purpose facilities such as classrooms, cafeteria, parking lots, etc.

Two programs, ACME and Dozier-Libbey, had not yet reached their target enrollments. In calculating start-up costs per student, we divided by the total enrollment they eventually expected to reach, not by the smaller number of students actually enrolled in 2008-09. (As in all computations of cost per student for academies, the total number of expected students at ACME was multiplied by 0.45.)

In order to compute the total cost of a program, start-up costs have to be added to ongoing cost. Since ongoing costs are on an annual basis, start-up costs have to be converted to an annual number. Instead of assuming that initial costs are going to be paid in full when they occur, we assume that they would be spread out over time. This is realistic if initial investments are financed by bonds or other long-term borrowing. Financing would be most likely for new or remodeled facilities, but might also be available for equipment and other initial costs. (We do not attempt to include interest payments in our cost estimates, however.)

We used the simplest procedure for annualization: dividing each category of start-up spending by the number of years the object of that spending would be useful. We used 30 years as the expected useful life of new or remodeled facilities, so we simply divided initial spending on facilities by 30 to convert this cost to an annual basis. We used 5 years as the expected life of the other two categories of start-up cost.

Table 6 shows start-up costs per student for the seven programs. On an annualized basis, the range was from $36 to $624. Two sites had large expenditures on new facilities or equipment. In the other five sites, annualized start-up cost per pupil was under $200.

Total cost of pathway programs: start-up plus ongoing operation

Table 7 combines results from Tables 5 and 6 to give an estimate of total cost per student at pathway sites. For the seven sites where we could estimate start-up costs, the total cost per student ranged from $1,111 to $2,436 – but because these are the most recent start-ups, they also have relatively high ongoing costs as we have already observed (Figure 1).

It is clear from Table 7 that the ongoing cost of operating these pathway programs far exceeds the annualized start-up cost. Ongoing cost ranges from a low of 72 percent of total cost at ACME to a high of 98 percent at LAHSA.

Table 6

Start-up Cost of Pathway Programs, in Dollars per Student

Site	Teacher time	Admin. time	Other staff time	Equip-ment, etc.	Facili-ties	Total	Annual-ized
Career Academies							
ACME, Mt. Diablo HS	195	326	0	2,252	119	2,892	559
AOIT, Hoover HS	406	136	54	309	0	904	181
Stand-Alone, Self-Contained							
Dozier-Libbey	155	367	0	12	0	534	107
HPHS	91	505	368	1,009	6,881	8,854	624
LAHSA	140	0	29	0	50	219	36
Semi-Autonomous, Sharing a Campus							
Kearny SCT	44	216	18	589	196	1,063	181
Kearny SIB	47	232	20	632	211	1,142	193

Table 7

Total Additional Yearly Cost of Pathway Programs, in Dollars per Student

Site	Start-up, annualized	Ongoing	Total
Career Academies			
ACME, Mt. Diablo HS	559	1,458	2,017
AOIT, Hoover HS	181	1,324	1,505
Futures, Arroyo HS	NA	809	NA
MPTA, Laguna Creek HS	NA	505	NA
Stand-Alone, Self-Contained			
Dozier-Libbey	107	1,792	1,899
HPHS	624	1,812	2,436
LAHSA	36	1,937	1,973
Semi-Autonomous, Sharing a Campus			
Kearny SCT	181	951	1,132
Kearny SIB	193	918	1,111
Media College Prep	NA	870	NA

Conclusions and cautions

Before considering implications of these cost estimates, we must repeat the limitations of this study.

First, this study defined costs in terms of time and other real resources used, but did not attempt to identify how these were paid for. Some of these resources may have been reallocated from other purposes, and some may have been donated without compensation. Therefore, additional "cost" does not necessarily mean additional money in school budgets, or additional burden on taxpayers.

Second, this study was not designed to measure benefits of pathway programs, which may far exceed the cost. Pathway programs may cause more students to complete high school, attend postsecondary education, and eventually find more stable and well-paid employment. If so, the additional taxes they pay, and the public costs they do not incur for crime, illness, and welfare, could substantially exceed the cost of the program. Clive Belfield and Henry Levin computed benefit-cost ratios for California taxpayers of 6 programs that have been demonstrated to reduce high school dropout rates, and another 8 programs that showed promising evidence of dropout reduction. Belfield and Levin classified career academies in the latter category, and found that academies had the second-highest benefit-cost ratio among all 14 of the programs they considered.[22] If these benefits occur when larger numbers of students enroll in career academies and other forms of multiple pathway programs, the cost to California taxpayers will be more than fully repaid.

If expanding multiple pathways enrollment does cause some students to stay in school longer and complete their diplomas, or if it improves student attendance, school districts will report higher Average Daily Attendance and will therefore receive more money from the state. However, this in itself will not be a net benefit for California taxpayers, because the increased revenues to districts will be exactly offset by increased cost to the state. The benefit to taxpayers would occur later, as a result of students' eventual higher earnings and foregone public costs of crime, illness, and welfare.

Another limitation of this study is that the cost estimates are only

[22] Clive R. Belfield and Henry M. Levin, *The Return on Investment for Improving California's High School Graduation Rate* (UC Santa Barbara: California Dropout Research Project, Report #2, August 2007).

approximations, subject to measurement error and possible unknown bias. It is possible that the way we attempted to measure additional time demands – by asking respondents how much time they spent on various activities compared to the amount of time they would spend on those activities in a traditional high school program[23] – caused an overestimate of the extra time required, because respondents may have underestimated how much time they would spend on those activities in a traditional setting. We tried to avoid this overestimation by repeating during the interviews that we wanted only the additional amounts of time spent. We also capped reported additional time demands at 0.5 FTE for any respondent except lead teachers.

Because career academy students take a little less than half their classes in the academy, we counted each academy student as only 0.45 of a full-time student, thus more than doubling estimated per-student costs for academies. On the other hand, we computed start-up cost per student at ACME and Dozier-Libbey using the number of students they eventually expect to enroll rather than the number enrolled in 2008-09 – this reduced estimated cost per student at those programs.

Finally, we omitted district-level costs, which may be substantial. Appendix II contains long lists of planning and design activities in districts that applied for grants from the Irvine Foundation to implement systems of multiple pathways, but we did not attempt to estimate the cost of these activities in dollars. Implementing systems of multiple pathways would also require districts to incur ongoing costs for managing the student assignment process, transportation, and other centralized functions; but we could not estimate those costs.

With these caveats, we think the numbers in our tables offer reasonable approximations to the site-level cost of starting and operating multiple pathway programs. The median additional ongoing cost per student is $1,138 among the 10 programs we studied. Among the seven more recent start-ups, the median yearly cost including annualized start-up cost is $1,899 – but recent start-ups also have higher ongoing costs, as Chart 1 shows. It seems fair to say that the typical annual cost at the

[23] Implicitly, this meant a large, comprehensive high school. However, in many districts large high schools are being replaced by smaller ones, or are being divided into smaller learning communities. The pathway programs we studied are all examples of small schools or small learning communities within large schools. The study did not distinguish between extra resources required to operate smaller schools and the extra resources associated with the other features of pathway programs, such as integrated curriculum and work-based learning.

site level, including both start-up and ongoing costs, would be around $1,500 per student once programs are past the steep part of their learning curve.

The incremental cost of implementing multiple pathways can be compared with current per pupil expenditures in California's K-12 school system. In 2006-07, these expenditures amounted to about $9000 per pupil.[24] Our estimates thus suggest that implementing multiple pathways programs would increase expenditures by 15 to 20 percent for students who enroll in these programs.

It is also relevant to compare our estimate of additional per-pupil cost with the amount the state gives districts to pay the additional costs of California Partnership Academies, currently about $800 per student. If we consider each academy student as 0.45 of a full-time student, this translates to $1,778 per full-time equivalent student – not far from our $1,500 estimate of the typical additional cost.

Using this $1,500 figure, we can easily compute the cost of expanding enrollments in multiple pathway programs. When all the newly funded California Partnership Academies are fully enrolled, the number of students in state-funded academies will be approximately 60,000. Enrolling an additional 60,000 students in academies or other pathway programs – thus roughly doubling the current number of students in multiple pathways -- would require an additional $90 million worth of resources per year, at $1,500 per student. Enrolling an additional 600,000 students – bringing the total enrollment in multiple pathways to roughly 1/3 of all students in grades 9-12 – would require an additional $900 million worth of resources per year. Again, this study did not determine how much of this could be obtained by reallocating resources away from other activities in schools or districts. Some districts have been able to expand multiple pathways without increasing their total budgets.

But ensuring access to multiple pathways for much larger numbers of students throughout the state would most likely require some increase in state funding. A career academy or other multiple pathway program does require teachers, administrators, counselors and other school staff to perform tasks beyond those required in a traditional high school program. The major cost of multiple pathways is the extra staff time required during the school year or summer. In the 10 programs we studied, some

[24] See http://www.census.gov/govs/school, *Public Education Finances, 2007*, Table 11 (Washington, DC: US Census Bureau, 2009). With recent reductions in state appropriations for K-12 education, current per pupil expenditure is now significantly lower.

of this extra time was compensated – by state grants to California Partnership Academies, or by other grants raised by the program staff (writing grant proposals is an additional task in itself). However, some of the extra time was not compensated. Students in these programs are fortunate to have teachers, administrators, and counselors who are willing to put in extra time without extra pay. New programs tend to attract staff who are committed to improving students' experience and outcomes, and who do not insist on being paid for additional effort. The structure and culture of the programs themselves also may help generate and sustain this commitment. But relying on dedicated professionals to donate their time is not a viable long-run solution. People burn out, and finding new people becomes increasingly difficult as the number of new programs grows. If California is going to substantially expand multiple pathways, the desired benefits are unlikely to occur unless school staff are paid for the time they must spend to make these programs work.

APPENDIX I

INTERVIEW QUESTIONS

Questions for teachers about ongoing costs at the site level

Teacher name _____

Are you the lead teacher (or co-lead) for this program? _____yes _____no

COMPARED TO WHAT YOU WOULD DO AS A TEACHER IN A TRADITIONAL HIGH SCHOOL PROGRAM, HOW MUCH **ADDITIONAL** TIME (IF ANY) DO YOU SPEND ON EACH OF THE FOLLOWING:

1. Recruiting or selecting new students for the program?

   _____ total hours per school year

2. Participating in professional development specifically related to this program?

   _____ total hours during summer

   _____ average hours per week during the school year

3. Working with other teachers, or on your own, to plan or design curriculum and instructional activities?

   _____ total hours during summer

   _____ average hours per week during the school year

4. Working on the master schedule?

   _____ total hours during summer

   _____ average hours per week during the school year

5. Providing extra academic support, personal support, or guidance to students outside of class?

   _____ total hours during summer

   _____ average hours per week during the school year

6. Planning, monitoring, or evaluating students' work-based learning?

   _____ total hours during summer

   _____ average hours per week during the school year

7. Interacting with employers or other community partners about the program?

   _____ total hours during summer

   _____ average hours per week during the school year

8. Interacting with students' families about the program or about their students?

   _____ total hours during summer

   _____ average hours per week during the school year

9. Purchasing curriculum, materials, equipment, or software?

   _____ total hours during summer

   _____ average hours per week during the school year

10. Writing proposals for additional funding for the program?

    _____ total hours during summer

    _____ average hours per week during the school year

11. Compiling, recording, analyzing, or reporting data about the program?

    _____ total hours during summer

    _____ average hours per week during the school year

12. Talking with other teachers or school staff about particular students?

    _____ average hours per week during the school year

13. Supervising student activities after school?

_____ average hours per week during the school year

ARE THERE ANY OTHER ACTIVITIES ON WHICH YOU SPEND **ADDITIONAL** TIME IN THIS PROGRAM, COMPARED TO WHAT YOU WOULD DO AS A TEACHER IN A TRADITIONAL HIGH SCHOOL PROGRAM? _____yes _____no

If yes, what are those activities? _____

How much additional time do you spend on these?

_____ total hours during summer

_____ average hours per week during the school year

ARE THERE ANY ACTIVITIES ON WHICH YOU SPEND **LESS** TIME IN THIS PROGRAM, COMPARED TO WHAT YOU WOULD DO AS A TEACHER IN A TRADITIONAL HIGH SCHOOL PROGRAM? _____yes _____no

If yes, what are those activities? _____

How much time do you save as a result?

_____ total hours during summer

_____ average hours per week during the school year

ABOUT HOW MANY HOURS PER WEEK DURING THE SCHOOL YEAR DO YOU SPEND ON WORK RELATED TO THIS PROGRAM? _____

HOW MANY YEARS HAVE YOU BEEN A TEACHER?

In this program _____ In total _____

HAVE YOU EVER TAUGHT IN A TRADITIONAL COMPREHENSIVE HIGH SCHOOL PROGRAM? _____yes _____no

Questions for site administrators or counselors about ongoing costs, at the site level

Name _____

What is your job title? (Please check one)

____ principal

____ assistant principal or vice principal

____ counselor

____ other (please specify) _____

COMPARED TO WHAT YOU WOULD DO AS PART OF THIS JOB IN A TRADITIONAL HIGH SCHOOL PROGRAM, HOW MUCH **ADDITIONAL** TIME (IF ANY) DO YOU SPEND ON EACH OF THE FOLLOWING:

1. Recruiting or selecting new students for the program?

   _____ total hours per school year

2. Participating in professional development specifically related to this program?

   _____ total hours during summer

   _____ average hours per week during the school year

3. Supporting teachers who work in the program?

   _____ total hours during summer

   _____ average hours per week during the school year

4. Working with teachers, or on your own, to plan or design curriculum and instructional activities?

   _____ total hours during summer

   _____ average hours per week during the school year

5. Working on the master schedule?

   _____ total hours during summer

   _____ average hours per week during the school year

6. Providing academic support, personal support, or guidance to students?

   _____ total hours during summer

   _____ average hours per week during the school year

7. Planning, monitoring, or evaluating students' work-based learning?

   _____ total hours during summer

   _____ average hours per week during the school year

8. Interacting with employers or other community partners about the program?

   _____ total hours during summer

   _____ average hours per week during the school year

9. Interacting with students' families about the program or their students?

   _____ total hours during summer

   _____ average hours per week during the school year

10. Purchasing curriculum, materials, equipment, software?

    _____ total hours during summer

    _____ average hours per week during the school year

11. Writing proposals for additional funding for the program?

_____ total hours during summer

_____ average hours per week during the school year

12. Managing subcontractors who provide support to students or teachers, or provide other services for the program?

    _____ total hours during summer

    _____ average hours per week during the school year

13. Compiling, recording, analyzing, or reporting data about the program?

    _____ total hours during summer

    _____ average hours per week during the school year

ARE THERE ANY OTHER ACTIVITIES ON WHICH YOU SPEND **ADDITIONAL** TIME IN THIS PROGRAM, COMPARED TO WHAT YOU WOULD DO AS PART OF THIS JOB IN A TRADITIONAL HIGH SCHOOL PROGRAM? _____yes _____no

If yes, what are those activities?

_____
_____
_____

How much additional time do you spend on these activities?

_____ total hours during summer

_____ average hours per week during the school year

ARE THERE ANY ACTIVITIES ON WHICH YOU SPEND **LESS** TIME IN THIS PROGRAM, COMPARED TO WHAT YOU WOULD DO AS PART OF THIS JOB IN A TRADITIONAL HIGH SCHOOL PROGRAM? _____yes _____no

If yes, what are those activities?

_____

_____

_____

How much time do you save as a result?

_____ total hours during summer

_____ average hours per week during the school year

IS SOMEONE ON THE SCHOOL STAFF RESPONSIBLE FOR COORDINATING STUDENTS' CAREER EXPLORATION, GUIDANCE, AND COLLEGE COUNSELING?

(If that person is not interviewed directly,) IS THAT PERSON A CERTIFICATED TEACHER OR COUNSELOR? HOW MUCH TIME DOES THAT PERSON SPEND CARRYING OUT THAT RESPONSIBILITY?

_____ total hours during summer

_____ average hours per week during the school year

IS SOMEONE ON THE SCHOOL STAFF RESPONSIBLE FOR COORDINATING STUDENTS' WORK-BASED LEARNING EXPERIENCES (INCLUDES RECRUITING EMPLOYERS, ARRANGING PLACEMENTS, MONITORING AND EVALUATING)?

(If that person is not interviewed directly,) IS THAT PERSON A CERTIFICATED TEACHER OR COUNSELOR? HOW MUCH TIME DOES THAT PERSON SPEND CARRYING OUT THAT RESPONSIBILITY?

_____ total hours during summer

_____ average hours per week during the school year

HOW MANY INDIVIDUALS REPRESENTING EMPLOYERS AND OTHER LOCAL PARTNERS ARE INVOLVED IN SUPPORTING THIS PROGRAM?

ON AVERAGE, HOW MUCH TIME DOES EACH OF THOSE INDIVIDUALS SPEND ON ACTIVITIES INCLUDING PROGRAM PLANNING, SPEAKING TO CLASSES, COORDINATING STUDENT FIELD TRIPS, MENTORING STUDENTS, ARRANGING WORK-BASED LEARNING PLACEMENTS, AND SUPERVISING STUDENTS AT WORK SITES? (If some people spend more time than others, please estimate amounts of time separately, and indicate how many individuals spend that amount of time.)

_____ total hours during summer

_____ average hours per week during the school year

WHAT IS THE TOTAL ANNUAL COST OF TRANSPORTATION FOR STUDENTS PARTICIPATING IN WORK-BASED LEARNING AS PART OF THIS PROGRAM?

ABOUT HOW MANY HOURS PER WEEK DURING THE SCHOOL YEAR DO YOU SPEND ON WORK RELATED TO THIS PROGRAM? _____

HAVE YOU EVER HELD A SIMILAR POSITION IN A TRADITIONAL COMPREHENSIVE HIGH SCHOOL PROGRAM?

_____yes _____no

Start-up costs, at the site level

Name _____ Position _____

1. In what year did planning for this program begin?

2. How many site administrators, counselors, and teachers were involved in the planning?

3. How much time did each site administrator, counselor, and teacher spend on planning activities such as writing proposals for funding, designing the program, building support among stakeholders (teachers, parents, district staff, local employers), recruiting or reassigning teachers, recruiting and hiring specialized staff, identifying and hiring subcontractors, organizing professional development, publicizing the new program, creating new systems for assigning students, creating new systems for recording data?

   (Estimate percent of time for each administrator, over a period of how many months or years.)

4. How much money, if any, was spent on purchasing new curriculum, instructional materials, equipment, software, technical assistance, or professional development for this program?

5. Were any building facilities remodeled, or new facilities constructed for this program? If so, how many square feet? What special features were included, related to the industry or career theme of the program? What was the total cost of remodeling or new construction?

APPENDIX II

START-UP ACTIVITIES IN FIVE DISTRICTS

To illustrate the kinds of district-level cost involved in starting a districtwide system of multiple pathways, we analyzed proposals for implementation grants submitted to ConnectEd by five school districts: Antioch, Long Beach, Los Angeles District 4, Porterville, and San Diego.[25] We did not attempt to quantify the amount of time required for the activities described in these proposals, or to estimate the cost in dollars. Districts receiving implementation grants from the Irvine Foundation would use those grants to offset these start-up costs.

Activities that were common to most of the districts included:

- Visiting existing multiple pathway programs and doing external research on implementing an effective pathway system,
- Assessing community needs and resources,
- Designing dual enrollment programs with post-secondary partners so that students have access to more courses,
- Creating curriculum and aligning courses at schools with a-g standards,
- Facilities planning, and
- Ensuring access to pathways by special needs populations.

The pathway initiative requires additional funds to get programs running. Costs include renovating facilities, buying new equipment, and providing professional development. In order to make these necessary initial investments and sustain the program in the long term, the five districts analyzed committed to reallocating resources within the district. At the same time, districts acknowledged in their proposals that reallocation alone would not be enough to cover higher incremental start-up or ongoing costs. Districts also commit to dedicating staff time to identifying new resources through federal grants (e.g., small learning communities, Perkins), state funding for Regional Occupational Centers and Programs, and other grants. The staff time to identify and apply for new funding is a real cost at the district level.

Planning and implementing this initiative requires involvement of various stakeholders for some reasons that would apply to any reform effort, and other reasons specific to the needs of multiple pathways. Gathering support for any reform initiative requires engagement of teachers' unions, school board members, school and district employees, and parents. More specific to the needs of implementing multiple pathways,

[25] Some districts also may have undertaken additional activities that were not described in the proposals we analyzed.

work-based learning and fidelity to industry standards in teaching will require broader involvement of community and business partners in advising schools. Finally, a commitment to prepare students for success in college and career will require stronger partnerships between school districts and their post-secondary partners.

While outside stakeholders' time is not included in a district budget, it is nevertheless a real cost. Various partners would be expected to spend more time in the operation of a pathway school than in a traditional comprehensive high school. Districts presented plans to engage outside stakeholders through activities such as:

- Creating large coalitions at the start up stage to involve parents, community partners, higher education partners, and others;
- Including community and post-secondary partners in on-going planning through advisory councils;
- Extending partnerships with higher educational institutions through the creation of more post-secondary articulation agreements;
- Engaging district and school employees in the short and long term planning for pathways through specific subcommittees.

During start-up, district staff may have to invest more time in these activities. As most of the districts analyzed have budgeted for a full time multiple pathways coordinator, much of this individual's time initially seems to be spent in engaging stakeholders in supporting this initiative.

Hiring teachers, counselors, administrators, and subcontractors was not extensively discussed in the district proposals. Since the incremental time costs at these schools is not insignificant, recruiting teachers, counselors, and others to work in pathway schools may require efforts by the district to recruit and reassign staff. In the long term, ideas posed by the SDUSD proposal of hiring industry specialists as teachers and working with post-secondary partners to create specific pathway credentials for teachers may warrant greater attention.

Instead of planning to hire new staff to run pathway schools, districts put a great deal of emphasis on professional development for present staff. Districts identified several areas where professional development would be needed in order to implement a district-wide pathway system: collaborative and interdisciplinary teaching methods; use of joint planning time; understanding technical content; implementing work-based learning; scaling up student advising; and using data in new ways to support pathway goals. Other areas where there was less consensus about the need for professional development were providing services to special needs populations, developing curriculum, and providing teacher externships.

Some investment in transportation will be require to provide all students with access to a districtwide array of pathway programs. The school district may have to directly fund or create a partnership with local transportation authorities to transport students from one part of the district to another. Ongoing transportation costs may diminish over time as more pathway schools are opened at various locations in the district. Nevertheless, additional transportation costs will still be required to fund work-based learning and other experiences outside the school.

Publicizing the pathway initiative and the range of career options to students will entail initial and ongoing costs. Initially, districts have made plans to run town hall meetings, open houses, or community fairs to get the word out to parents and students about multiple pathways. Three of the five district plans we analyzed included planned efforts intended to dispel public misconceptions about career and technical education. Once the system is fully running, districts have plans to provide middle school students with field trips to high schools, train middle school counselors to effectively advise students, and conduct other outreach activities. Other on-going costs to continue to keep students and parents aware of their various options include printing brochures as well as providing middle schools students with targeted advising.

The district implementation proposals placed a strong emphasis on pathways using data in new and different ways. A demand for data was identified by most districts to assess the quality of work-based learning experiences, evaluate student progress through more indicators, conduct surveys of stakeholders, and evaluate the quality of programs. On a start up level, this might mean creating new systems to record data. Several of the districts indicated that their present data systems could be enhanced to handle the new demands. Beyond having a system to record data, additional incremental time will be needed at the site and district level to analyze the new data that will be gathered.

The following tables indicate which activities were undertaken in each district.

Fundraising

District	Identifying Needs/Creating Budgets	Fund Facilities	Fund Equipment	Realign District Budget	General Fundraising	Create Pathway Specific Fundraising Committee
San Diego	X	X	X	X	X	
Antioch	X			X	X	
LA 4	X			X	X	X
Long Beach	X		X	X	X	
Porterville	X	X	X	X	X	

Recruiting or Reassigning Teachers

District	Specific identified plan to recruit and hire teachers	Work with post-secondary partners on new credentials	Explore hiring industry specialists as teachers
San Diego	X	X	X
Antioch	X	Will review others for feasibility	Will review others for feasibility
Long Beach		X	
Porterville	X		

Hiring Counselors, Administrators, and Other Staff

District	Administrators	Counselors	Employer Outreach Specialists	Multiple Pathways Project Director
San Diego				X
Antioch		X	X	
LA 4				X
Long Beach				X
Porterville		X	X	X

Engaging Stakeholders

District	Parent	Community	Business	Higher Ed	District Employees	School Employees	Students	Board of Ed	Teacher's Union	SSCs
San Diego	CM	CM	CM, AC, EOS, MA, SS	CM, PAA, SS	SS	SS		CM	CM	
Antioch	P		CM, WCS,	PAA, W		W		BP		P
LA 4	TH	CM, TH, SS, RO, L	TH, SS, RO, L	TH, PAA	TH, SS	TH, SS	TH	TH	TH	TH
Long Beach	MA, AC, TH	AC, CM, TH	AC, CM, SS	PAA, CO, RO, CC	W, CM, SS	W, CM, SS				
Portervil le										

- Create an advisory councils-AC
- Create board policies-BP
- Create opportunities for collaboration-COC
- Conduct Larger Coalition meetings-CM
- Elevate voice-Raise stakeholders voices in decision making structure- EV
- Create a liaison position-L
- Conduct Regular Meetings-M
- Marketing-MA
- Outreach and making the case what's in it for me. This can be done through employment outreach specialists.-O
- Make Presentations-P
- Create Post-Secondary Articulation agreements-PAA
- Engage industry partners to reach out on behalf of pathways to other stakeholders-RO
- Specified Subcommittees-SS
- Conduct Town Hall meetings-TH
- Conduct Workshops-W
- Obtain written commitment of support-WCS

Identifying and Hiring Subcontractors

District	Subcontractor roles
San Diego	Curriculum development, vocational rehabilitation, professional development and coaching, data analysis, post secondary college advisors
Antioch	Administrative coach, tutoring
LA 4	Support service staff and possibly distance learning and tutoring
Long Beach	Support providers, coaches, and consultants
Porterville	WestEd to support data analysis at the district

Creating System to Assign and Transport Students

District	Plan to assign students	Plan to transport students
San Diego	Through surveys and District MyDream Program	Relationship with district and transportation department
Antioch		
LA 4		Work with Metropolitan Transportation Authority to provide free or deeply discounted transportation passes
Long Beach	Explore creating system to place students	
Porterville		Will explore new plans to transport students if necessary.

Creating New Data Systems

District	WBL Evaluation	Transcript Evaluation Service	Advanced Student Performance Data Analysis Systems	Surveys of Stakeholders	Program Assessment/ Evaluation	Needs Assessment for Creation of New Pathways	Staff to Analyze Data	a-g data reports
San Diego			X	X	X		X	
Antioch	X	X	X	X		X	X	
LA 4	X		X		X		X	X
Long Beach	X		X	X	X	X	X	
Porterville	X		X	X	X		X	

Publicizing the Program

District	Large Events (Town Halls, Open Houses, Community Fairs)	Middle School Outreach (field trips, advising)	Publicity to change misconceptions on CTE	Direct Outreach to Students and Families (mail, phone, community canvassing, brochures)	Career Fairs and Job Shadows	Marketing to Companies	Exploratory Curriculum for Elementary	Online programs to explore careers
San Diego	X			X		X		
Antioch		X		X				
LA 4	X	X	X	x	X		X	
Long Beach	X	X	X	X	X	X		X
Porterville	X	X	X		X		X	X

Organizing Professional Development

	San Diego	Antioch	LA 4	Long Beach	Porterville
Collaborative Teaching	X	X	X	X	X
Multidisciplinary/Integrated Teaching	X	X	X	X	X
Utilization of Joint Planning Time	X		X	X	
Tech content	X	X	X	X	X
Parents and Students training		X		X	
Training WBL partners	X			X	
ROP Coordinators	X				
Using Student Assessment to Make Decisions/Tracking Data	X	X	X	X	X
WBL/ PBL	X	X	X	X	X
Providing Additional Support/Counselor Training	X	X	X	X	X
Master Schedule		X		X	
A-G training	X			X	
Seminars/Institutes	X		X	X	X
Teacher externships	X			X	X
District professional development facilities and equipment			X	X	
Developing curriculum			X	X	X
Block Scheduling			X	X	
Addressing needs of special needs populations				X	

Designing the Program

	San Diego	Antioch	LA 4	Long Beach	Porterville
Assessing resources, interests, and needs in starting pathways	X		X	X	
Designing mechanisms to evaluate program success and challenges	X		X	X	
Conduct site visits and do external research	X	X	X	X	X
Designing counseling and support services			X		X
Ensuring accessibility for special needs & diverse populations	X		X	X	
Streamline transitions for students in and out of pathways		X	X	X	X
Designing data systems			X		X
Designing dual enrollment programs/online courses		X	X	X	X
Design sequential process for the creation of new pathways		X			X
Align CTE and ROP		X		X	
Create curriculum/Align courses	X	X		X	X
Plan sustainability once funds run out		X		X	X
Create facilities plan	X	X		X	X
Plan WBL with regards to access and transportation issues	X			X	X
Ensure a-g compliance in all courses	X			X	X
Include new incentives for student success	X				

Capacity Building

	San Diego	Antioch	LA 4	Long Beach	Porterville
Reorganize and/or integrate district divisions to support pathways	X	X	X	X	X
Plan to reallocate district resources			X	X	X
Expand the role of a present unit	X			X	
Using existing technology for new purposes	X			X	X
Expand or adjust present external partnerships	X	X	X	X	X
Begin orienting students to pathways in elementary and middle school	X		X	X	
Redefine role of employment outreach specialists	X				

Other Activities

	San Diego	Antioch	LA 4	Long Beach	Porterville
District staff receiving general professional development	X	X	X	X	X
Providing technical assistance	X		X		X
Making site visits/monitoring		X	X	X	
Hiring district staff	X			X	X
Insurance and liability issues		X			
Changing existing district policies	X		X	X	X