Evaluation of ConnectEd's California Linked Learning District Initiative

SRI International
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EXHIBITS

DESIGN OVERVIEW

Evaluation Goal

To conduct a rigorous evaluation of ConnectEd's California Linked Learning District Initiative.

Evaluation Objectives

1. Assess the implementation of a districtwide system of Linked Learning pathways.
2. Assess district support for the implementation of selected pathways.
3. Assess the effects of Linked Learning on student experiences and outcomes.
4. Provide the Foundation, ConnectEd, and participating districts with data and information that support ongoing program improvement, including the following:
   - Annual reports to the Foundation and ConnectEd
   - Annual memos for each participating district
   - Periodic briefings for staff of the Foundation and ConnectEd
   - Presentations and facilitated discussion among districts at select meetings or convenings

Evaluation Design Summary

SRI International has designed a rigorous evaluation of the California Linked Learning District Initiative, an initiative that is administered by ConnectEd: The California Center for College and Career and supported by the James Irvine Foundation. This document summarizes our general approach to the evaluation, and includes the logic model and research questions that guide our design. Following the general approach, we present a work plan that details the data collection, analysis, and reporting activities to be conducted during the 3.5 years of the evaluation—June 2009 through January 2013. We also describe our preliminary plans for research activities to be conducted in a second phase of work that would take place after the current evaluation time period ends. Our mixed-methods approach to conducting the evaluation includes site visits to participating districts, student surveys, and analyses of extant student outcome data. Our use of various forms of formative and summative reporting provides the Foundation, ConnectEd, and participating districts with data and information that supports ongoing program improvement and generates new knowledge for the broader education community.

I. INTRODUCTION

SRI International (SRI) has designed a rigorous evaluation for the California Linked Learning District Initiative (the Initiative), which is administered by ConnectEd: The California Center for College and Career and supported by the James Irvine Foundation (the Foundation).[1] SRI's Center for Education Policy shares the Foundation's interest in improving secondary and postsecondary education outcomes for low-income youth in California and throughout the nation. Our core work focuses on the improvement of P-16 education, with particular emphasis on enhancing seamless transitions between what are traditionally thought of as the "levels" of our education system (e.g., middle school to high school, secondary to postsecondary). We specialize in evaluating programs with the same goals as those of the Initiative—providing rigorous and relevant education for all high school students and assisting them in making a successful transition to the next stages of their lives.

Our team for this evaluation includes leading experts in the study of the Linked Learning approach and transitions from school to college and career, high school reform in California, and innovative quantitative and qualitative methods. The Principal Investigator, Dr. Adelman, has distinguished herself as a pioneer in the study of school-to-career initiatives, including her recent work on Early College initiatives nationwide and high school reform in Texas. Ms. Guha, the Project Director, is a recognized expert on education policy in California, including her direction of the Teaching and California's Future annual reports. Dr. Lopez-Torkos, who is directing the student outcomes analysis, has established herself as a leading quantitative methodologist, as exemplified by her work on the acclaimed study of KIPP (Knowledge is Power Program) schools in the San Francisco Bay Area.

SRI brings the content knowledge and methodological expertise needed to design and conduct the evaluation for such a complex initiative. For two decades, SRI has built a program of research and evaluation around secondary school reform—beginning with standards-based reforms of curriculum and instruction, moving through the school-to-work initiatives of the 1990s, and continuing in the first decade of the 21st century as scrutiny of the deficiencies of high schools intensifies. Currently, SRI is evaluating the Texas Education Agency's Texas High School Project and the Bill & Melinda Gates Foundation's Early College High School Initiative, and has just finished work on comprehensive high school reform in Chicago (also supported by the Bill & Melinda Gates Foundation). Recently, SRI completed a national evaluation of the Carnegie Corporation's Schools for a New Society Initiative, which supported systemic districtwide high school reform in seven U.S. cities, including Sacramento and San Diego, which are 2 of the 10 districts that have received grants through the Initiative. SRI's 10-year examination of the California teacher workforce and teacher development policy for the Center for the Future of Teaching and Learning, with its recent focus on high school reform, also provides a solid foundation for the evaluation.

Moreover, we are committed to ongoing improvement of the Initiative. Accordingly, along with annual summative reports, we are preparing formative memos and conducting periodic briefings for the Foundation and ConnectEd after major data collection activities each year. This frequent feedback facilitates midcourse corrections and keeps the Foundation—as an active partner—fully informed of preliminary findings in real time. We thus avoid the typical pattern of assessing an initiative after it is too late to improve it.

[1] Linked Learning is the new name for the educational approach formerly known in California as "multiple pathways."

Context for the Evaluation

The urgent need for this work is well documented. By any measure, both California and the nation are failing to prepare the majority of youth for the demands of the 21st century. Between 1982 and 2002, the graduation rate in this country declined from 75 percent to 68 percent nationally (Southern Regional Education Board, 2005). Recent data from the California Department of Education (CDE) show a somewhat improved picture overall, but still indicate persistently low graduation rates for African-American and Latino students: 81 percent of students who started high school in 2004 graduated with a standard diploma in 2007-08, with figures ranging from 67 percent of African-American students and 76 percent of Latino students to 88 percent and 92 percent of white and Asian students, respectively (CDE, 2009). Equally alarming is that only 23 percent of U.S. high school graduates in 2009 who took the ACT met overall benchmarks for college or work readiness skills (ACT, 2009). A report on the Bill & Melinda Gates Foundation's alternative pathways project (Hoye & Sturgis, 2005) provided the following statistics for the 3.9 million 9th grade students enrolled in the 2001-02 school year:

- 1.2 million dropped out before graduation.
- 1.5 million graduated without college- or work-readiness skills.
- 1.2 million graduated ready for college.

These sobering statistics make it clear that American high schools are serving nearly 70 percent of their students poorly or not at all and that a new approach is needed.

Early research on Linked Learning points to some promise and a potential to turn around the dismal outcomes of the current system. As such, the Initiative seeks to scale up strategies that typically have been implemented in limited ways. Instead of providing one or two pathways that serve only a few students and operate as small schools or schools within a school in districts where the vast majority of students attend large, comprehensive high schools, the Initiative aims to expand the number of available pathways and therefore the proportion of high school students involved. Such an approach will inevitably run counter to well-established traditions and to the expectations of many stakeholders—including teachers, parents, and students.

The Initiative is benefitting from SRI's experience, and that of others, with high school reform. Lessons learned, which are reflected in our design, include the following:

- Planning a new initiative is time-consuming, typically takes place in a context of political urgency, and is frequently undertaken without adequate resources. The rush to achieve solutions quickly often undermines effective implementation. As a result, evaluation efforts are most helpful when they are front-loaded and concentrate on early planning efforts.
- Once begun, new initiatives take time to put in place. Many reforms fail not because of poor motivation or weak designs, but because they lack the infrastructure and staffing to incorporate them in existing practice. Consequently, it is imperative that evaluations begin with a focus on the early implementation of change efforts.
- Because improvements in student achievement take place over time, rather than immediately, an evaluation needs to measure short- and medium-term impacts at appropriate times, as well as long-term impacts. Consequently, the evaluation team will continue to discuss with the Foundation and ConnectEd appropriate long-term outcomes of the Initiative and how to ensure that data concerning those outcomes will be available after the funded evaluation ends.

- Acquiring the desired indicator data requires district-by-district plans and technical assistance geared to differences in districts' data information systems and research staff. Such capabilities differ, even though all districts participating in the Initiative are in California and thus have to meet state accountability requirements.

Goals of the Evaluation

Our evaluation of the Initiative builds on the lessons from previous research outlined above and thus employs a mixed-methods research approach, described in detail in the Work Plan. Our data collection approach, which combines data from quantifiable indicators, surveys, interviews with representatives of key interest groups, and focus groups provides the Foundation, ConnectEd, and participating districts (the major stakeholders) with:

- **A formative evaluation.** Feedback mechanisms ensure that our data collection and analysis provide the major stakeholders with the information they needed on a timely basis to adjust their work to make it more effective.
- **A framework and tools for conducting a summative evaluation.** The evaluation is assessing the Initiative's effect on the hypothesized outcomes, including improved student achievement and preparation for a range of postsecondary opportunities. Although we will report preliminary summative findings at the end of the evaluation period, the evaluation team will not be able to arrive at a final assessment on Initiative effectiveness; such a determination will require many years to complete as graduates move into further education and into careers. Consequently, we intend to help the major stakeholders identify tools and strategies that will help them continue to assess the value of a pathway education over time.
- **A process for standardizing indicators and reporting procedures across districts.** During the early years of the Initiative, we have been developing evaluation tools (e.g., data collection instruments) and data management and analysis systems. Together, these provide an evaluation model for use in standardizing indicators and reporting procedures across sites, thus creating the conditions necessary for a strong, overarching evaluation of the Initiative.

Our approach reflects our understanding of the key objectives of the evaluation: (1) to assess the implementation of a districtwide system of Linked Learning pathways, (2) to assess district support for the implementation of selected pathways, (3) to assess the effects of Linked Learning on student experiences and outcomes, and (4) to provide the Foundation, ConnectEd, and participating districts with data and information that supports ongoing program improvement.

Our formative and summative reporting serves the multiple purposes of the evaluation, including ongoing program improvement and knowledge generation, and is designed to meet the needs and interests of the key audiences (the Foundation, Connect Ed, and participating districts, as well as education policymakers and the broader education community).

The next two sections—the General Approach and the descriptions of activities by task in the Work Plan—discuss evaluation requirements and procedures. The last section indicates deliverables and sets forth the evaluation schedule. Appendix B discusses options for additional analyses of student data, and Appendix C presents brief professional biographies of SRI's key evaluation staff.

II. GENERAL APPROACH

The California Linked Learning District Initiative, which is led by ConnectEd and supported financially by the James Irvine Foundation, supports districts in developing a system of Linked Learning pathways that offers students a choice of numerous industry-themed programs of study. In November 2008, ConnectEd awarded planning grants to 10 California districts to support their planning for pathway expansion. After reviewing the districts' implementation plans and considering the foundation and leadership structures in place in each to develop, support, and sustain a Linked Learning system, ConnectEd awarded 2-year implementation grants in June 2009 of more than $1 million each to six of the districts—Antioch Unified, Long Beach Unified, Pasadena Unified, Porterville Unified, Sacramento City Unified, and West Contra Costa Unified ("Cohort 1 districts"). ConnectEd also awarded smaller grants of $125,000 to the remaining four districts—Los Angeles Unified Local District 4, Montebello Unified, San Diego Unified, and Stockton Unified—to continue the planning process. In addition, ConnectEd provided coaching and assistance for one other district, Oakland Unified, to support its development of a system of pathways. By March 2010, ConnectEd had awarded 2-year implementation grants of at least $1million each to Los Angeles Unified Local District 4, Montebello Unified, and Oakland Unified ("Cohort 2 districts") to implement systems of Linked Learning.

The implementation grants are supporting the nine funded districts in the development and improvement of approximately four pathways to a certified level during their 2-year grant period, with the longer term goal of developing six to eight pathways to a certified level over the next 3 to 5 years. ConnectEd has developed a pathway certification tool, which it is currently piloting with pathways in the nine districts. The tool is being used to assess the quality of individual pathways along several dimensions—pathway design, engaged learning, system support, and evaluation and accountability.

SRI's evaluation of the Initiative is documenting the implementation of districtwide systems of Linked Learning in the nine funded districts and assessing district support for selected pathways. In addition, SRI will analyze key student outcomes (e.g., attendance, course completion, grade progression, completion of work-based learning experience, industry certification, and student achievement) associated with district participation in the Initiative. Finally, SRI will continue to assess outcomes in the nine districts by tracking the availability of a range of pathway options for all students in each district and the district policies, leadership, and infrastructure that are in place to support and sustain effective pathways systems. This section describes the Linked Learning approach as conceived by the Foundation and ConnectEd. We then present a logic model for the evaluation, which we will continue to refine in collaboration with the Foundation and ConnectEd as the Initiative matures. The section concludes with the key research questions that guide the evaluation.

The Core Features of the Linked Learning Approach

ConnectEd has developed a definition of "Linked Learning" that drives programming both for its demonstration network of individual schools and the newer district Initiative supported by the Foundation.[2] A Linked Learning pathway is any comprehensive program of high school study that

[2] "Linked Learning" was previously known as "multiple pathways." The change in terminology was made in part to reduce confusion with other definitions of "multiple pathways," for example, as used by the New York City

integrates academic and career technical curriculum and field-based learning, and is aligned with one of California's 15 major industry sectors. Pathways include four "essential components"—a challenging academic component, a demanding technical component, a work-based learning component, and supplemental support services—and adhere to the following four "organizing principles" as follows:

- Prepare students for postsecondary education and careers.
- Connect academics to real-world applications.
- Lead to a full range of postsecondary opportunities.
- Improve student achievement.

Consistent with recent literature on high school reform, the Linked Learning approach supports the notion that pathways should prepare all students for both college and a career, and should not lead to new forms of vocational and academic tracking (e.g., see Association for Career and Technical Education, 2006; Bottoms & Young, 2008; Brand, 2003; Kazis, Pennington, & Conklin, 2003; Saunders & Chrisman, 2008; Southern Regional Education Board 2005). In *Multiple Perspectives on Multiple Pathways: Preparing California's Youth for College, Careers, and Civic Responsibility*, Oakes and Saunders (2006) identify the following as the fundamental changes to core features of high schools entailed in a pathways approach:

- New structural arrangements (learning in multiple settings, including small learning communities [SLCs] and off campus; restructured coursework; and flexible time and support)
- Integrated academic and career/technical curricula and instruction
- Altered student placement processes
- More optimistic assumptions about what students can accomplish both within school and after completing school

The Linked Learning approach also incorporates many high school reform strategies that research has shown to be effective and, as a result, offers promise for increasing high school graduation rates and increasing the college and career readiness of students who participate in pathways. These shared features include the following:

- High academic standards transparently linked to future learning and work opportunities (Bottoms & Young, 2008; Stern & Stearns, 2006)
- Strong relationships with adults and peers in the school, as well as counseling and support services to ensure student engagement and motivation to learn and achieve (Herlihy & Quint, 2006; Kahne, Sporte, de la Torre, & Easton, 2006; Mehan, 2007; Smerdon et al., 2006)
- Integrated academic and technical curriculum and instruction, including problem-based, work-based, and other authentic learning activities linked to real-world applications (Castellano, Stone, Stringfield, Farley, & Wayman, 2003; Herlihy & Quint, 2006; Kazis, 2005; Plank, 2001)

Department of Education, the U.S. Department of Labor, and the Annie E. Casey Foundation, among others, to describe programs that provide students at high risk of dropping out with alternative education options for high school completion or earning a GED (e.g., see Brinson, Hassel, & Rosch, 2008).

- Personalized and flexible programs that encourage all students to stay on track for high school graduation and college and career success (Allensworth & Easton, 2007; Bottoms, Young, & Uhn, 2006; Cahill, Lynch, & Hamilton, 2006)

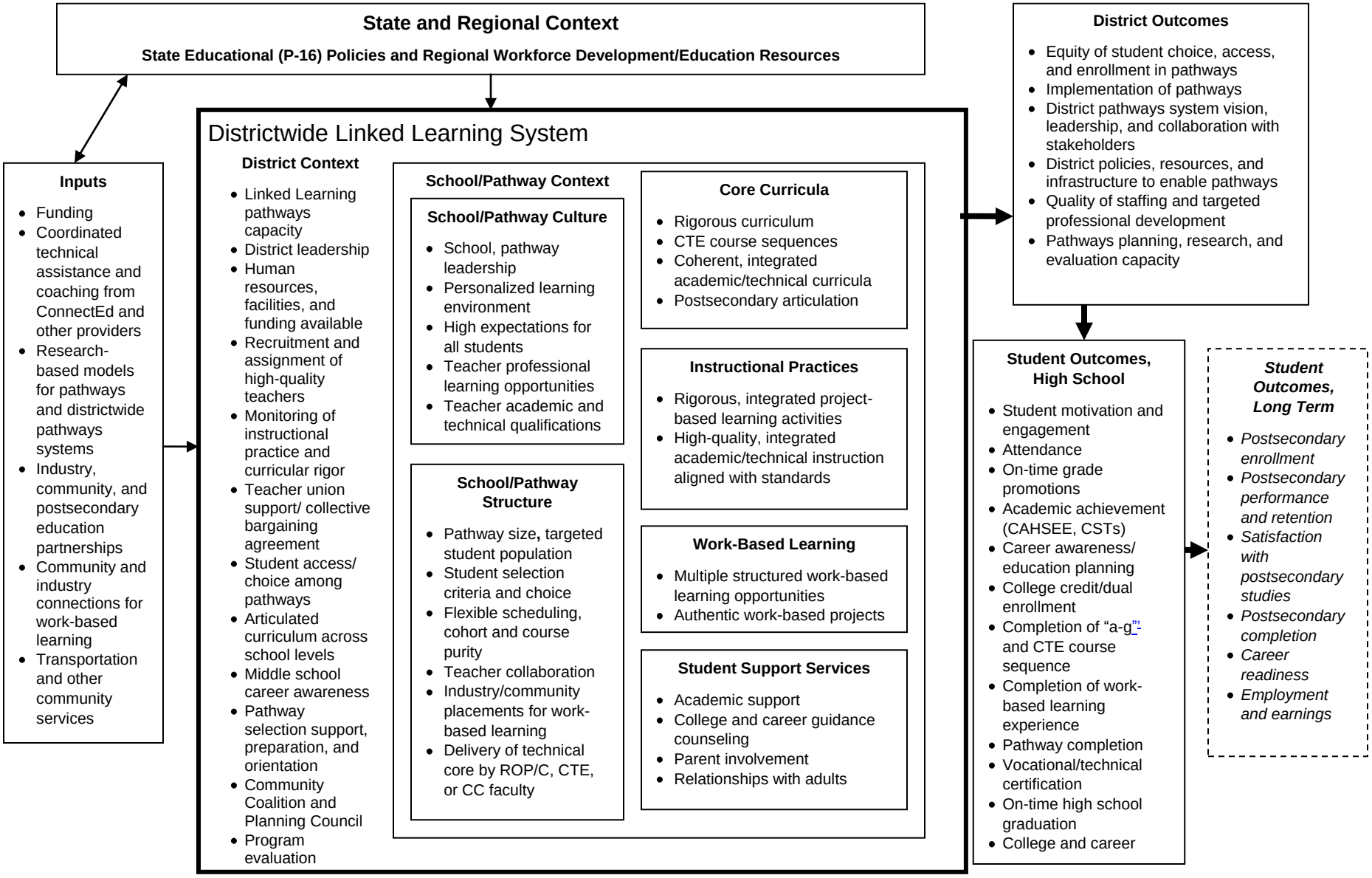
The combination of academic rigor, relevance to college and career readiness, and a highly personalized learning environment built into the Linked Learning approach has been shown to be particularly important for improving graduation rates for the students most disadvantaged by the current system: minorities, new immigrants, and youth from low-income families (Cahill, Lynch, & Hamilton, 2006; Gándara, 2006; Oakes & Saunders, 2006). For disadvantaged students, early career awareness and the opportunity to integrate academic and technical learning in preparation for pursuit of career goals chosen by the students themselves—with the support and involvement of their parents and other caring adults—can be strong motivations to remain in school and to actively engage in academic studies. For these reasons, allowing students to choose among pathways is a central objective of the Initiative.

To accomplish the key evaluation objectives, we have developed a logic model to guide the documentation and evaluation of implementing districtwide systems of pathways, district support for implementation of selected pathways, and the experiences of and outcomes for students enrolled in pathways. In the next section, we present the current version of our theory-of-change logic model that serves as the foundation for our evaluation design plan. The logic model incorporates findings from our review of the literature, synthesis of information from district implementation plans, and ongoing consultation with the Foundation and ConnectEd. We will continue to refine the logic model as we gather information from the nine funded districts throughout the course of the evaluation.

A Districtwide Linked Learning Systems Logic Model

Our starting points for development of a districtwide Linked Learning systems logic model are ConnectEd's Multiple Pathways Assessment Rubric and its Logic Model for Multiple Pathways Demonstration Sites. Because the ConnectEd rubric and logic model were developed to evaluate individual pathways, to evaluate the Initiative, we have extended that model by adding features that pertain to districtwide Linked Learning systems. Therefore, at the center of our logic model (Exhibit 1) are descriptions of components of districtwide Linked Learning systems. The central elements of our model include features of the district context, as well as features of the individual pathways within schools in a district.

Exhibit 1
Logic Model for a Districtwide Linked Learning System



Since this is a *district* initiative, the key issue is the capacity of the participating districts to plan, develop, and sustain a districtwide system of pathways. Each of the nine funded districts met selection criteria of districtwide high school enrollments of 5,000 or more, with 30 percent or more of the total enrollment eligible for free or reduced-price lunches. District capacity to develop a pathways system also includes experience in integrating core academic curricula and career pathways. That experience can take the form of existing programs such as California Partnership Academies, career academies, industry-themed high schools, and/or Regional Occupational Programs/Centers (ROPs/ROCs). Other pertinent district features include district leaders' support for expanded pathways, and the human resources, funding, and facilities needed to expand the pathway options available to students. Instruction of students in pathway courses requires teachers with special knowledge, skills, and experience. Thus, districts need to be able to recruit teachers with the needed qualifications and to assign high-quality teachers to academic and technical courses in pathways. Districts also need systems in place to monitor the quality of classroom instruction and to assess the rigor of curricula (including integrated projects) developed as part of the pathway program of study. District leadership need buy-in from teachers and from the teachers' union, as well as a collective bargaining agreement that allows for the flexibility in teacher assignments and responsibilities needed to implement a pathways system. The nine funded districts vary considerably in their starting status for developing pathways options.

Another feature described in the logic model is student access to and choice among pathways at any school in the district. Students should have a number of different career pathways to choose from—each aligned with one of the 15 California industry sectors included in the Linked Learning framework. Offering students numerous pathway options throughout a district requires procedures and criteria for districtwide pathway selection, counseling support to assist students in choosing the pathway best suited to their career interests, and, in some cases, transportation to the school and pathway students choose.

Ideally, students should begin exploring career options and charting a course of study that will prepare them for college and/or for a career in one or more industry sectors of interest before they enter high school. For this reason, articulation both of curriculum and career and academic counseling across school levels is an additional important feature of pathways systems. If a pathway is to be selected in 9th grade, the middle school curriculum and middle school counseling should be structured so that all students are aware of career pathway options and are academically ready to enter their chosen pathway in high school. Even if pathway selection is deferred to 10th or 11th grade, a district would be well advised to offer middle school career exploration programs, summer orientations, and other services to facilitate a smooth transition from middle school to high school. Districts must have the capacity to provide all students with support in making an informed choice among high school pathway options and to ensure that all students are adequately oriented and prepared to succeed in the pathway they choose.

To be successful in designing and implementing an effective pathways system, districts need support from a wide range of community stakeholders, including representatives of local industry, government, postsecondary institutions, community-based organizations, youth-serving organizations, parents, and students. The districts that received planning grants from ConnectEd were required to establish a Community Coalition to facilitate broad-based participation of community in the development and implementation of the district's pathways system. District connections to the local business community, for example, are important for effective planning and implementation of pathways in a number of ways including the need to establish a wide range of opportunities for work-based learning for students in the pathways.

Our logic model also describes district capacity for program evaluation and shared accountability. Success in designing, implementing, and continuously improving districtwide pathways systems requires capacity (either internal to the district or provided by an outside consultant) to collect and interpret data on pathway quality. District evaluation capacity should include procedures for longitudinal tracking of student educational and employment outcomes after high school graduation. In addition, accountability for pathway quality should be distributed among and shared by district and school/pathway staff.

School/Pathway Context

Within the district context for a Linked Learning pathways system, individual pathways are developed within the school context. In Exhibit 1, we label this the "School/Pathway Context." The features noted at this level derive from ConnectEd's Multiple Pathways Program Assessment Rubric, from discussions with Foundation and ConnectEd staff, and from SRI's previous work in evaluating high school reform efforts. For example, we have added high expectations for all students, professional learning opportunities for teachers, and teacher academic and technical qualifications as features of the school/pathway culture that we expect to be critical supports for effective pathway operation. We have also added the delivery of technical courses by ROPs/ROCs or by faculty from community colleges (CCs) or other career technical education institutions to reflect that well-designed pathways often collaborate with such providers in offering the technical core of pathways. Moreover, we have separated curriculum and instruction, because in our experience curriculum can be (and usually is) dictated by policy entities above the school level, but instruction is almost always controlled at the classroom level. Both curriculum and instruction are important implementation levers for pathways, but their effects should be examined separately. Another feature that is crucial in developing a successful Linked Learning system at the school level is adequate student support services. For example, schools vary considerably in terms of their counselor-to-student ratios and their involvement with student support programs such as Advancement Via Individual Determination (AVID). Factors such as those enumerated above can play critical roles in the successful implementation of high school reform efforts.

State and Regional Context and Inputs

Our logic model (Exhibit 1) takes into account that state and regional contexts also influence how districtwide Linked Learning pathways systems develop. Districts often, for example, partner with county school districts or ROCs as they develop plans for the choices of career pathways available to students. Working together, these multiple levels of the education system may ultimately offer a broader array of opportunities than a single level can on its own. The state, with its complex and comprehensive education code, has the potential both to enhance and constrain the development of pathways because of existing policies. For example, California's dual-enrollment policies could allow districts to consider including college courses in their pathways plans, but districts would almost certainly be wary of any plan that deprives them of state revenue based on the full-time enrollment status of high school students. Further, it appears that the state's current fiscal crisis may result in reduced numbers of available CC courses overall, which could further constrain high school students' use of dual-enrollment options. Understanding how state educational policies and the availability of regional educational and workforce development and training resources shape the contexts in which districts plan and implement pathways systems is an important part of our evaluation design.

To determine district capacity to implement a Linked Learning system, we also need to consider how various inputs affect that capacity. These inputs include the funding available from the Foundation and from other sources to support planning and implementation of pathways systems. Key inputs also include ongoing coaching and professional development from ConnectEd and other technical assistance providers and collaboration among these organizations to provide coordinated support and services; application of lessons learned and findings from research on pathways and related high school reform models; and partnerships with local industries, community-based organizations, and institutions of higher education (IHEs). Industry and community connections are particularly important in planning pathways that are relevant to student career goals and for providing students in pathways with relevant work-based learning opportunities. Public transportation and other community resources may be needed to permit unlimited choice and access to pathway options for students in a district.

District Outcomes

The current logic model (Exhibit 1) indicates the district and student outcomes that the Initiative hopes to achieve. A key district outcome is increasing the number of high-quality pathways available to all students. ConnectEd has developed a pathway certification tool and review process that it is piloting with pathways in the nine funded districts (as well as selected pathways in the ConnectEd School Network). In each district, the goal is been to have 3 to 4 pathways initially go through the certification process. Across seven of the funded districts, 21 pathways have gone through or have plans to go through the certification process during the 2010-11 school year, with several more on the certification schedule for the 2011-12 school year. Eventually, districts will expand the number of certified pathways available (approximately 6 to 8 high-quality pathway options in 3 to 5 years).

For districts to be successful in expanding the number of pathway options available, they need to establish high-level awareness and strong support among district leaders. Evidence of such a supportive culture and strong leadership includes a common vision, formal structures for ongoing communication, and collaboration among district leaders and community, industry, and postsecondary education partners and stakeholders. Another key outcome at the district level is the development of policies and infrastructure to support effective operation of the Linked Learning system. We are looking for evidence that the district has instituted the policies and has the resources and organizational structures needed to implement all core pathway features, including adequate facilities and materials, flexible scheduling, integrated academic and technical curricula, work-based learning, and student counseling and support systems.

One of the most important district outcomes is the creation of systems to ensure expanded choice and equity of access to a range of pathway options for all students. Evidence of such choice and access includes the percentage of students participating in pathways, as well as the range of students served (in terms of prior achievement, socioeconomic status, gender, race/ethnicity, etc.), the absence of "tracking by pathway" or the clustering of students with low prior achievement in one set of pathways and students with high prior achievement in others, and access to pathways for students with special needs such as special education students and English language learners.

Another important district outcome is human resource development. Evidence of district progress in this area includes effective recruitment and assignment of qualified instructors, counselors, and administrators, as well as professional development opportunities for district staff who aim to improve operations and student outcomes in pathways. Finally, we are looking for evidence that districts have enhanced their capacity to gather and use data for pathway system planning, research, and evaluation.

The evaluation team has elaborated these district outcome definitions and metrics into a districtwide Linked Learning system assessment rubric to complement and extend ConnectEd's program-level Multiple Pathways Program Assessment Rubric and Pathway Certification Tool.

Student Outcomes

To prepare all students for postsecondary education and careers in the 21st-century economy, district-level multiple pathway systems need to support a variety of intermediate and longer-term student outcomes, including raising student achievement, increasing high school completion rates, facilitating transitions to postsecondary education and training, and increasing students' earning power after high school. Our logic model includes both intermediate student outcomes (up to and including high school completion) and longer-term student outcomes (after high school completion).

The intermediate (high school) student outcomes in our logic model include the following indicators of student success: attendance, on-time grade-to-grade transitions, California Standards Tests (CST) scores, California High School Exit Examination (CAHSEE) pass rates, completion of "a-g" course requirements (for entrance to California's 4-year public universities), and on-time high school completion. The logic model also includes intermediate student outcomes that research has shown to be important indicators of college and career readiness—high levels of motivation and academic engagement, early career awareness and educational planning, the earning of college credits while in high school, successful completion of work-based learning experiences, pathway completion, the earning of vocational or technical certifications, and work experience while in high school.

Despite broad agreement about the sorts of skills students need to acquire to be successful in the 21st-century workplace (Lippman, Atienza, Rivers, & Keith, 2008), assessment and evaluation of college and career readiness are still relatively new and challenging endeavors. Recent efforts to develop measures of 21st-century skills have treated college and career readiness as a unified construct because they have assumed that most viable 21st-century career pathways will require some postsecondary education for career readiness (Achieve, Inc. & The Education Trust, 2008; Conley, 2007).[3] On the other hand, career readiness (as commonly understood) is a broader construct than academic readiness; it includes nonacademic knowledge, skills, abilities, and "habits of mind" such as persistence, cooperation, and teamwork. Existing college and career readiness assessments do not measure these nonacademic readiness skills adequately (Tanner, 2009). In the absence of viable tests to measure key nonacademic readiness skills, the evaluation will rely on the following types of measures of career readiness:

- Student completion of pathway courses (parallel to data on student completion of a-g course requirements)
- Student completion and grades in Career Technical Education (CTE) courses (or student completion and grades in CTE courses that align with a-g requirements)
- Student certification in specific occupations (available only for certain skills and for certain industries)

[3] One of the more recent and influential constructs of 21st-century skills was developed by the Partnership for 21st-Century Skills, which identifies the following key elements in its framework: core academic subjects; learning and innovation skills; information, media, and technology skills; and life and career skills. For more information, go to http://www.21stcenturyskills.org/index.php

- Demonstrated student proficiency through industry-sponsored competitions hosted by organizations such as Health Occupations Students of American (HOSA) and Delta Epsilon Chi (DECA).

Data for these indicators of student persistence, engagement, and technical achievement, as well as the other indicators of student success noted, will come from a combination of district data systems (as available), student surveys, student focus groups, and interviews with school and pathway staff. Moreover, some of these intermediate student outcomes, such as student motivation and engagement, attendance, and grade-to-grade progression, can be documented in each year of the evaluation; others, such as completion of the a-g requirements, completion of work-based learning and CTE course sequences, college credit earned in high school, pathway completion, vocational or technical certifications, and high school graduation cannot be assessed until the end of a cohort of students' senior year.

The long-term student outcomes, shown at the right of Exhibit 1, will occur after the completion of this evaluation as graduates move beyond secondary school. We have included these outcomes on the far right side of our conceptual framework. With additional resources, we would be interested in helping the participating school districts establish reasonable means for tracking student progress into postsecondary education and/or the world of work (see Appendix B for various options for conducting postsecondary data collection and analysis).

Research Questions

We view the following research questions, which are aligned with the logic model in Exhibit 1, as key to meeting the overarching goals of the evaluation—assessing participating districts' progress in creating and supporting both individual pathways and a system of Linked Learning pathways, and analyzing outcomes for students enrolled in the pathways:

1. What structures, policies, and supports facilitate the implementation and institutionalization of a districtwide system of high-quality Linked Learning pathways, and what challenges do districts face in implementing such systems?
2. How do districts support the implementation of pathways, and what challenges do pathways face in implementation?
3. What are the educational experiences and outcomes for students participating in Linked Learning pathways?

In addressing first question, we are focusing on district-level implementation of a system of pathways, including the extent to which the nine districts have expanded student choice of and access to pathways, created a community coalition of partners (including industry, IHEs, and the community), and developed the capacity to leverage existing and new resources to implement, improve, and build on the Initiative and to track student outcomes. We are also assessing the role of the Initiative, including support from ConnectEd, in developing districts' capacity to sustain a system of pathways in the long term. In answering this question, we will address the feasibility of bringing a district-level pathways approach to scale and the associated opportunities and barriers of doing so.

The second question focuses on district support for the implementation of individual pathways. Whereas ConnectEd's pathway certification process is gauging the level and quality of implementation of the pathways, we are assessing the factors that contribute to pathway success and

the challenges associated with pathway implementation, including district support for pathways to implement the four key components of the Linked Learning approach and the role of ConnectEd's technical assistance.

Finally, one of the most important questions is how the pathway approach affects student participants. To address the third question, we are studying (1) the experiences and attitudes of students in pathways, including their academic motivation and engagement, their experience in work-based learning, and their aspirations and plans for postsecondary learning and careers; and (2) students' academic and other outcomes, such as achievement on standardized tests, attendance, course completion, grade progression, high school graduation, completion of work-based learning experience, and vocational/technical certification.

We are using a multimethod set of data collection activities to answer the core research questions for the evaluation. These data collection activities include site visits to a subset of pathways across the participating districts, student surveys, and the collection of extant student outcome data. During the site visits, we are interviewing representatives of key stakeholder groups (including business, community, and higher education partners); school board members and teacher union leaders; district, school, and pathway leaders; guidance counselors; and teachers providing instruction in academic and/or technical courses. Our site visits to selected pathways also include classroom walkthroughs and informal observations of classroom instruction, as well as focus groups with students; we are using the information obtained in these activities to describe the central features of a sample of Linked Learning pathways in each district. More importantly, we are assessing implementation of a system of pathways at the district level through a rubric (similar to the program-level rubric ConnectEd has developed) that captures both the level and quality of implementation.

Our second data source is the surveys of students participating in pathways to gauge intermediate student outcomes, such as academic motivation and engagement and postsecondary attitudes, aspirations, and plans. Finally, we are gathering extant student outcome data to assess whether outcomes for students who attend pathways differ from those for students who do not do so. For students in pathways, we are collecting data, as available, on outcomes associated with career readiness, such as completion of a technical course sequence, work-based learning experience, and industry certification.[4] Exhibit 2 provides an overview of the research questions we are addressing through the data collection activities.

[4] If possible, we will collect student-level data on career-readiness indicators through district data systems. If districts do not maintain such data, we will gather this information through our qualitative research, including interviews with pathway leaders and teacher and student self-reports obtained in focus groups and surveys.

Exhibit 2
Research Questions by Data Source

Research Questions	Data Sources: Site Visits	Data Sources: Student Survey	Data Sources: Extant Student Data
What structures, policies, and supports facilitate the implementation and institutionalization of a districtwide system of high-quality Linked Learning pathways, and what challenges do districts face in implementing such systems?	✓		
How do districts support the implementation of pathways, and what challenges do pathways face in implementation?	✓		
What are the educational experiences and outcomes for students participating in Linked Learning pathways?	✓	✓	✓

Note: Site visits include interviews, focus groups, classroom walkthroughs, and document collection.

The logic model presented in Exhibit 1 and the research questions serve as starting points for assessing the success of the Initiative. Next, we detail our work plan for conducting the evaluation, with a description of the primary data collection, data analysis, and reporting strategies for the full evaluation period, as well as our preliminary plans for work that would take place beyond the currently funded evaluation timeframe. That discussion is followed by our timeline and staffing plan, which are based on implementation of the activities described in the work plan.

III. WORK PLAN

The data collection and analysis activities described here are enabling us to document the key features of the Linked Learning systems implemented by each of the nine funded districts that received 2-year implementation grants from ConnectEd. Through our evaluation, we are assessing district-level implementation of a system of Linked Learning pathways and district outcomes associated with participation in the Initiative. As a part of this assessment, we are investigating district support for implementation of a subset of pathways. In addition, using focus groups, surveys, and extant student data, we are evaluating the effects of the Linked Learning approach on student experiences and outcomes. The evaluation includes the six districts that received initial implementation grants from ConnectEd in June 2009 ("Cohort 1 districts"), as well as the three districts that received subsequent implementation grants from ConnectEd in March 2010 ("Cohort 2 districts"). We integrated the three Cohort 2 districts into the evaluation during Year 2 of the study.

To study implementation, as well as intermediate student outcomes (e.g., academic engagement and motivation, college and career awareness), we are collecting and analyzing qualitative data, gathered through phone interviews and site visits, and student survey data from across the nine funded districts. Given the key focus on the effects of systems of Linked Learning pathways on student success, we also will collect and analyze extant student outcomes data from four of the districts, which will be selected in consultation with the Foundation and ConnectEd staff during Year 2 of the evaluation. The four districts chosen will be those that are farther along in the pathway development process and have data systems that can provide the necessary data (e.g., the ability to identify student participants in specific pathways). Data collection and analysis of extant student outcome data will take place in Year 3.

Our work plan, which consists of the five tasks set forth below, addresses data collection, analysis, and reporting during the 3.5 years of the evaluation, June 2009 through January 2013. We consider this time frame to be the first phase of the evaluation as it allows us to follow intermediate outcomes for two cohorts of students, but not end-of-high school measures or postsecondary outcomes for these cohorts. Under each of the primary data collection and analysis tasks, we include a brief description of our preliminary plans for research to be conducted in a second phase of work that would take place after the current evaluation time period ends. In describing these plans, we assume that the evaluation would be funded for at least an additional 2 years. Extending the evaluation time frame would allow us to track at least two cohorts of students to the end of high school through surveys and extant data and to continue to follow the implementation of Linked Learning district systems. We would also be able to track postsecondary outcomes for one of the cohorts.

Task 1: Collect and Analyze Qualitative Data

To understand the intricacies of Linked Learning implementation and the reasons why variations in both implementation and student outcomes may be occurring, we are collecting qualitative data through phone interviews and annual site visits to the nine districts. The phone interviews and site visits enable us to assess implementation fidelity to the planned Linked Learning approaches across districts and pathways, and help us identify implementation challenges, which contribute to our formative feedback to the Foundation, ConnectEd, and the districts.

Site visits include a combination of in-person interviews, student focus groups, classroom walkthroughs, and document reviews. We have and will continue to observe ConnectEd's summer institutes for participating districts, residencies for district and school leaders, as well as other major events, throughout the course of the evaluation. In addition, during Year 2 of the evaluation, we incorporated the three Cohort 2 districts into our qualitative data collection, conducting phone interviews and site visits in those districts concurrently with the Cohort 1 districts.

Below we describe the purpose and scope of each of these activities.

Sampling Schools and Pathways

At the core of the districtwide Linked Learning systems logic model are features of the district context as well as features of the individual pathways in schools. Reviews of implementation grants for the nine funded districts, discussions with district staff, and our ongoing data collection and analysis indicate considerable variation from district to district and from school to school. At the beginning of the evaluation, some of the districts were just beginning to develop plans for creating Linked Learning pathways, whereas others were building on well-established programs and relationships with community and industry groups. These variations also extend to the number of schools that are involved in the Initiative in each district, the range of district leadership involved in the planning and management of the system of pathways, the connections among the district and postsecondary institutions and other regional entities providing CTE and work-based learning opportunities, the articulation of curriculum across school levels, the integration of academic and technical curricula, and the range and level of student supports provided. Both within and across districts, the school structures in which pathways operate (e.g., SLCs, career academies, magnet schools, large comprehensive high schools) vary, as do the grade levels involved, and the number of pathways. We have kept these types of variations in mind in building a sample for the evaluation that represents the diversity of the schools and pathways participating in the Initiative.

Annual site visits include the nine funded districts, as well as a subset of pathways in each district. Because the evaluation has been designed to capture implementation of a system of high-quality pathways, we are visiting pathways that each district has selected to go through the certification process. In each of the nine districts, during each year of the study, we are visiting up to four pathways that our discussions with district staff have indicated may be chosen to go through the certification process, for a total of 36 pathways.[5] We will visit the same set of pathways (and their respective schools) for 2 to 3 years to understand the evolution of pathway implementation within the same school context.

Instrument Development

We have developed instruments for our qualitative data collection interviews and focus group. The instruments were developed in alignment with the key research questions for the study and the logic model. We also developed a district implementation rubric and student surveys, and we tailored agreements and standard confidentiality statements to fit the specifics of the Initiative. Before each data collection period, we have revised and refined the instruments as we have learned more about implementation in the nine funded districts.

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[5] If during the course of the evaluation a district increases the number of pathway programs to be certified, we will consider adding those pathways to the case study sample.

One of the most challenging aspects of full implementation of pathways is aligning, if not fully integrating, the curricula of academic and of career/technical classes. Documenting how districts, schools, and teachers are handling this task is an important aspect of the evaluation. Because the pathway certification process is focusing on the quality of instruction in terms of a challenging academic component and a demanding technical component, our data collection instruments emphasize the supports provided to teachers to help them successfully integrate and implement these components, as well as the challenges they face in doing so. Similarly, we are investigating the range of work-based learning opportunities offered to students and how they are aligned with instructional components and the supports provided to help students make the most of both academic and work-based opportunities.

Before we conduct the phone interviews and site visits, we have been holding trainings for site visitors. The senior research team uses these trainings to provide an overview of the study's logic model and the various data collection activities, and to review the interview and focus group protocols.

Collection of Qualitative Data

As noted, we are visiting the nine funded districts annually. In summer 2009, we made our first telephone contacts with districts to discuss the pathways to be certified and to ascertain districts' capacity to flag student participants by individual pathways. We also established district contacts for evaluation-related activities (i.e., a person at the district level with whom SRI researchers work with to facilitate data collection activities and coordinate feedback activities regarding evaluation findings). To maximize communication, we have assigned a senior staff member to each participating district to be responsible for overseeing evaluation-related activities. This person is serving as a stable single point of contact throughout the evaluation for all issues related to data collection or feedback at that site. Additionally, project staff are obtaining supporting materials describing district pathways (e.g., implementation plans, plans for certification, course descriptions, work-based learning opportunities, staffing, entry requirements), relevant district policies and related programs (e.g., high school reform initiatives, articulation agreements, student support services and programs), contact information for Broad-Based Community Coalition members, and materials that describe the district's capacity to provide data on student characteristics and outcome data. At ConnectEd's first summer institute for participating districts in June 2009, we presented an overview of the evaluation and became acquainted with participants and ConnectEd coaches. We have sent each district a summary of the design and are available by telephone to address questions or concerns district staff have about meeting the evaluation's data collection expectations.

As we describe below, we are conducting phone interviews in the early fall of each year and annual site visits to the nine districts in late winter/early spring. The size of the research teams for the spring site visits depends on the number of pathways to be visited and includes from two to four researchers. Using multiperson teams allows for simultaneous interviews with staff and maximizes flexibility for the other activities cited. It also allows for initial analysis to begin immediately as the site team members debrief each other at the end of each day. Site visitors work with district and school staff to identify an appropriate time frame in which to conduct the site visits.

Respondents. The site visits to each district include interviews with representatives from key stakeholder groups, including district leaders, pathway directors, business and community-based partners (including work-based learning employers), school principals, guidance counselors, lead teachers, and classroom teachers, as well as ConnectEd coaches assigned to provide technical assistance in pathway development. We are also conducting focus groups with students. In addition,

in Year 2, we are interviewing school board members and teacher union leaders to ascertain their knowledge of and support for the Initiative.

At the district level, we are interviewing key personnel (e.g., pathway directors, liaisons with the superintendent's and high school offices, CTE directors) both in the fall and the spring of each year. In Year 1, we conducted interviews with these contacts by telephone (in the fall) and in person as part of our spring site visit. Because we believe that interviews with key district personnel are advisable before each site visit, we are interviewing key district staff in the fall and spring, but primarily by telephone in Years 2 and 3. District-level interviews focus on efforts to achieve buy-in for the district's vision for Linked Learning and to develop a coherent set of strategies to implement that vision, staff capacity building, ongoing data collection and analysis, funding and resources to support implementation and growth (including the quality of the technical assistance ConnectEd and others provide), and the sustainability of the Initiative once grant funding ends. We are also interviewing ConnectEd coaches twice a year by telephone for the 3.5 years of the study.

We are conducting interviews with business, IHEs, and community-based partners annually—in person in Year 1 and by telephone in Years 2 and 3. We are attending, when possible, selected meetings of the Community Coalition, which has been established as a condition for district funding. By attending these meetings, we are able to assess a key indicator of the success of the Initiative: the range and level of participation of community stakeholders, including business and industry groups, postsecondary institutions, and community-based organizations.

The number of pathways we visit each year depends on the number proposed for certification. The number of schools visited depends on the location of the certified pathways. During the yearly spring school site visits to all certified pathways, we are interviewing the principal, pathway director, and/or lead teachers, as well as a selected number of classroom teachers, including both academic and CTE. We are also interviewing the principal by phone at the beginning of each school year. School-level interviews focus on the core attributes of the pathways, perceived changes in intermediate student outcomes, support from district leadership community stakeholders, and successes and challenges to pathway implementation.

Discussions with Foundation, ConnectEd, and advisory group members have indicated that some of the most important intermediate outcomes desired for the Initiative include enhanced student motivation and engagement, career awareness, and education planning. Consequently, to obtain student perspectives on the pathways approach, we are conducting student focus groups during each of our visits to the pathways selected for study. Optimally, each focus group consists of an approximately 45-minute interview with a group of six to eight students participating in the certified pathways selected for study. We conducted student focus groups with 9th- and 10th-graders in Year 1 of the evaluation and are conducting focus groups with 11th- and 12th-graders in Years 2 and 3.[6] In Year 2, in addition to focus groups, we administered a student survey to a subset of incoming students (9th- or 10th-graders) in certified pathways and to a comparison sample of students; we will be conducting a follow-up survey with these students in Year 3 (when they are in the 10th or 11th grade). (Task 2 describes both surveys.)

Holding focus groups and surveying students in various grade levels facilitates our understanding of their experiences in pathways at different points in time, their reasons for choice of pathways, their academic motivations and engagement, their assessments of the quality of their academic and work-

[6] In the Cohort 2 districts, we conducted student focus groups with 9th- and 10th-graders in Year 2 and will conduct focus groups with 11th- and 12th-graders in these districts in Year 3.

based experiences, their participation in student-focused industry organizations (e.g., HOSA, DECA), and their career awareness and aspirations. We have assumed that any contact with high school students requires passive consent from parents and active assent from students.

The focus groups and student surveys focus on key issues that may be more salient at some grade levels than at others. For example, during Year 1, the focus groups targeted students as they first entered a pathway (grades 9 or 10), emphasizing issues of pathway selection and assessing initial attitudes about the high school experience. In Years 2 and 3, the emphasis of the focus groups on students in grades 11 and 12 shifts to career awareness and postsecondary planning and their perceptions about the quality of their educational experience.[7] Given interest expressed by Foundation staff and the evaluation's advisory group in learning about why students leave pathways, we will include questions about pathway attrition during our Year 3 fall phone interviews with district and school leaders. If respondents identify pathway attrition as a salient issue, we will work with school site liaisons to identify those students who have left pathways and, if possible, conduct focus groups with these students during Year 3 spring site visits.

During site visits, we have been conducting classroom walkthroughs with informal classroom observations to supplement our impressions of the schools and pathways. Researchers complete a walkthrough form that assesses overall school and pathway climate, as well as classroom instruction and student engagement. During the walkthroughs, we also collect lesson plans and ask teachers for examples of student work for use in assessing the extent to which teachers are implementing the curriculum as designed (e.g., providing standards-aligned instruction that integrates academic and technical content, offering students opportunities to engage in interdisciplinary, project-based learning).

In conjunction with each site visit, we review and analyze relevant documents from each district. In addition to those mentioned above, we also review informational materials/videos for families, application forms, daily school schedules, and annual calendars. Documents such as these assist us in understanding the process by which students choose or are assigned to pathways, and the courses and daily activities in which they participate. Exhibit 4 provides a summary of the evaluation's qualitative data collection activities.

Confidentiality. SRI is dedicated to maintaining the confidentiality of participant information and the protection of human subjects. Our Institutional Review Board (IRB) reviews our data collection instruments (including interview, observation, and focus group protocols, as well as surveys) and confidentiality forms for approval. We have provided the IRB with information on the nature of the research and its purpose, the subjects involved, and the possible risks and benefits to participation in the study. In addition, a set of standards and procedures has been established for SRI staff to safeguard the privacy of participants and the security of data as they are collected, processed, stored, and reported.

[7] The sampling strategy for student focus groups and surveys also will allow us to follow some student cohorts over time, as well as provide some overlap with cohorts in the achievement analysis.

Exhibit 3
Sample and Periodicity of Qualitative Data Collection, by Data Source

Data Source	Sample	Periodicity of Data Collection
Interviews with key district administrators involved	2–3 individuals in each district	Fall 2009,* 2010,* 2011* Spring 2010, 2011,* 2012*
Interviews with business, IHE, and community-based partners	3–4 individuals from key partner organizations working with each district, including work-based learning employers	Spring 2010, 2011,* 2012*
Interviews with ConnectEd coaches	All coaches providing technical assistance in each district	Fall 2009,* 2010,* 2011* Spring 2010,* 2011,* 2012*
Interviews with school principals	1 per school with a case study pathway	Fall 2009,* 2010,* 2011* Spring 2010, 2011, 2012
Interviews with pathway directors	1 per case study pathway	Fall 2009,* 2010,* 2011* Spring 2010, 2011, 2012
Interviews with guidance counselors	1 per certified pathway	Spring 2010, 2011, 2012
Interviews with classroom teachers (including a lead teacher)	2–4 per certified pathway	Spring 2010, 2011, 2012
Student focus groups	9th- & 10th-graders per certified pathway in Year 1 11th- & 12th-graders per certified pathway in Year 2 11th- & 12th-graders per certified pathway in Year 3	Spring 2010, 2011, 2012
Observations of Community Coalition meetings	Any that coincide with spring site visits each year	Spring 2010, 2011, 2012
Document review	All districts and sample schools and pathways	Annually
Observation of ConnectEd events	Summer institute and leadership trainings for district, school, & pathway leaders	Summer 2009; ongoing as scheduled

*Phone interviews.

Analysis of Qualitative Data

Our analysis of qualitative data is iterative, beginning before each site visit with materials that can be collected in advance, continuing on-site through site team debriefings and proceeding through the drafting of internal case study reports for cross-site analysis. Using the documents we collect before the site visits, we initially outline the Linked Learning systems for each district. We review these documents to capture specific information such as the range of pathways, the length of time that pathway offerings have existed, the degree to which the curriculum is articulated across school levels, and school context variables.

As noted, analysis also takes place during the site visits. Two- to four-person teams conduct each site visit, and throughout the visit the team members informally discuss their initial impressions about key features of the logic model and the degree to which the emerging findings match study hypotheses. The site visitors also meet each day of the visit to review the case study debriefing form and formulate preliminary responses. For example, if the debriefing form calls for characterization of student support activities, site visitors discuss what they have learned in the interviews and, if necessary, seek to fill in any gaps and examine initial hypotheses in subsequent interviews. In addition, the site visitors discuss emerging themes that had not been anticipated when the data collection protocols were developed. Undertaking this analysis on-site serves to tailor and refine data collection to capture the key features and practices of the Linked Learning systems. It also allows researchers to generate and test hypotheses while still in the field.

Once each visit is completed, site visitors draft case study reports by using their field notes to produce descriptive prose structured as a formal debriefing. To do so, all the data collected at each site (interviews, observations, and document reviews) is sorted by the topic areas on the debriefing form. In each section—or major topic area—the researchers code for information on specific subtopics (e.g., school leadership). The researchers then use the sorted data to draft each section of the case study report. Because a variety of respondents (e.g., principals, teachers, students) provide information, the researchers use the case study report to synthesize findings and note apparent contradictions. As they translate their field notes into the case study report, researchers use specific examples and quotes to support assertions. Distilling field notes into a case study report thus serves three purposes: (1) it significantly reduces the amount of data we must manage for further analysis, (2) it establishes a constant within-case analytic process across sites, and (3) it supports cross-site analysis by ensuring that researchers address the topics we expect to focus on as we look across sites.

The case study reports facilitate formal cross-site analysis that compares, contrasts, and synthesizes findings and propositions from the single cases to draw conclusions about the group of districts involved in the Initiative. We begin the cross-site analysis with a series of debriefing meetings, which are an efficient means of developing themes. Individual researchers assigned to specific topics then conduct more fine-grained analysis and report back to the larger group before we begin integrating findings across data sources.[8]

Because a key feature of the Initiative is enabling participating districts to implement systems change to support Linked Learning, we are focusing the analysis on this issue. To assess changes in districts

[8] Cross-case analysis is facilitated by the use of a qualitative data analysis software program (we use ATLAS.ti) that allows researchers to code the information in the debriefing reports and then query the database using the codes to pull up information across reports to address specific issues.

planning a Linked Learning System, we have developed a set of district-level implementation indicators and a rubric, using as starting points ConnectEd's program-level Multiple Pathways Program Assessment Rubric, Pathway Certification Tool, and Capacity and Needs Assessment Tool. We drew on our experience in developing implementation indices for Schools for a New Society, the Texas High School Project, and the Early College High School Initiative. Additionally, we relied on Carnegie Corporation (2006) findings about system reform indicators, as well as key factors identified in our evaluation of district leadership in the Texas High School Project.

Plans for Future Data Collection and Analysis

If the evaluation time frame is extended, we would continue to examine the implementation of Linked Learning systems in the nine funded districts. Given that the focus of the evaluation during the second phase will be on students' end-of-high school and postsecondary outcomes, we anticipate that qualitative data collection and analysis will be more limited than in the current phase of work. We would conduct annual telephone interviews with selected district- and school-level respondents (e.g., pathway leads from certified pathways) to document progress in and challenges to implementation. In addition, we would continue to conduct biannual telephone interviews with district and pathway coaches. Findings from these interviews would be incorporated into any memos and reports provided to the Foundation and ConnectEd either separately or in conjunction with findings from our analyses of student outcomes.

Task 2: Collect and Analyze Student Survey Data

As part of the evaluation, we are surveying students in pathways going for certification in each district in order to increase student "voice," to account for other student outcomes besides academic achievement, and to lay the foundation for assessing change over time in their experience and outcomes, in comparison with students who are not in pathways. Our original design called for a survey of incoming pathway participants (and a comparison group of nonparticipants) in fall 2010 and a survey of upper grade students in spring 2012. Based on recommendations from the evaluation's external advisory group during August 2010, we will no longer be conducting the upper grade student survey.[9] Instead, we will build on the baseline survey of incoming pathway participants conducted in fall 2010 and conduct a follow-up survey with the same students in spring 2012. In the three Cohort 2 districts, we will conduct the baseline survey of incoming pathway students in fall 2011. Although the three Cohort 2 districts will be on a different survey administration schedule than the Cohort 1 districts, this approach will allow us to provide updated information on the experiences of incoming students in our Year 3 annual report.

The original plan called for the survey to be administered in October 2010, as close to the start of the school year as possible. Because of the decision to track students longitudinally, the survey launch was delayed until November 2010 to allow the research team time to work with the districts to set up the necessary tracking systems. The survey is intended to gather "baseline" information on college and career readiness indicators beyond academic achievement, such as motivation and engagement and aspirations for postsecondary education and careers. In addition, for participants,

[9] The advisory group recommended dropping the upper grade survey because the students (11th- or 12th-graders in spring 2012) would have less time in a certified pathway, thus would not have received the full pathway "treatment" considering that pathways did not begin to go through the certification process until the 2010-11 school year. Also, the findings would have limited use given the lack of a comparison group. Rather, the decision was made to use the resources to track current incoming pathway students and comparison students over time.

we asked about pathway choice and access and their rationales for pathway participation. When we survey this cohort again in spring 2012, these baseline data will allow us to report changes over time in college and career readiness expectations, and to make comparisons between pathway participants and nonparticipants.

Survey Sample

In each of the six Cohort 1 districts, we administered the baseline survey in fall 2010 to all incoming students for each of the pathways identified to go through the certification process during the school year. The incoming student survey was conducted with the Class of 2013 for pathways that begin in 10th grade and with the Class of 2014 for pathways that begin in 9th grade. We also surveyed a sample of comparison students. We worked with pathway staff to determine the distribution of the incoming students in English language arts (ELA) courses. Students in ELA classes were chosen because this subject is assumed to be taken during all four grades (9 through 12) in high school and one for which we were likely to have purer pathway student cohorts (in the case of participating students).

To identify comparison students to survey, we sampled nonparticipants in each district who mirror the diversity of pathway participants in terms of academic achievement. Comparison students were those participating in a pathway that was not up for certification in 2010-11(in cases where all students in a district are in a pathway) or did not participate in a pathway at all. Whenever possible, we identified classrooms for comparison that were in the same schools as the pathway students; when this was not possible, we identified high schools with a similar demographic makeup in the same district to serve as the comparison. Within comparison schools, classes of students were selected in such a way that the proportion of students in advanced and regular ELA courses was similar in both the pathway and comparison groups. By surveying whole classrooms, we were able to keep the evaluation costs manageable. In the end, we surveyed a sample of approximately 2,300 pathway students and 1,400 comparison students from across 23 high schools in the six Cohort 1 districts. The pathways students represented 25 different pathways.

Instrument Development

The surveys were developed during Year 1 and drew on relevant items and scales from surveys we have conducted for the Texas High Schools Project, high school reform in Chicago, the Gates Foundation's small high school initiative, and the Early College High School Initiative (see Appendix A for the baseline survey instrument). Although the surveys were tailored to Initiative, using existing items and scales allows for placing our findings in context with those from other high school reform initiatives with similar goals. In developing the surveys, we took into account student survey efforts under way in districts participating in the Initiative. Topics for the baseline survey questions include the following:

- Reasons for attending the school and pathway
- Academic motivation and engagement, self-efficacy
- Perception of the relevance of school work for future endeavors
- Aspirations and plans for postsecondary learning and career

For the follow-up survey, the survey also will ask questions about the following:

- Motivations for, and demands of, participating in a pathway
- Experience with, and rating of, the integration of academic and career/technical studies

- Experience with, and quality of, work-based learning experiences
- Active participation in plans for activities after high school (e.g., college entrance or placement tests, college and financial aid applications, job or trade school applications)
- Participation in industry-sponsored student organizations and competitions (e.g., HOSA, DECA)

Survey Administration

In the six Cohort 1 districts, we administered the survey to students entering pathways in fall 2010 as well as to the sample of comparison, nonparticipating students in each district. Surveys were administered by paper, typically in ELA classes. A member of the evaluation team, with responsibility for coordinating survey planning and follow-up with schools and pathways, worked closely with an identified point person at each district, school, or pathway to develop a survey administration plan that minimized the burden on schools, pathways, and students.

We also identified district- or school-level liaisons to assist in survey administration. In some districts, liaisons followed our administration instructions closely; surveys were completed and returned to us in a timely manner. In others districts, we did not receive the support and assistance we anticipated in survey administration and/or follow up. Consequently, in Year 3, when we conduct the baseline survey in the Cohort 2 districts and the follow-up survey in the Cohort 1 districts, we will consider sending a team of two researchers to each site to administer the survey. With the follow-up survey, in particular, we will need to work with the site liaisons to locate the individual students we are following from the baseline survey as the students may no longer be in intact classrooms.

To facilitate the administration of the student surveys in these schools, we are providing an incentive of $100 to $200 for each school liaison (depending on number of classes/students included in the sample); the liaison's responsibilities include making arrangements with teachers whose classes are to be sampled to take part in the survey, collecting completed paper-surveys, reporting response rates to the evaluation team, and supporting follow-up efforts with nonrespondents. In addition, in these schools, we are offering a classroom-level incentive for participation in the survey. For example, for each classroom survey administration, we are offering each classroom a gift card of $100.

We are using a database to track completed surveys and to guide follow-up efforts with nonrespondents (e.g., those absent on the day of survey administration). Follow-up has included providing paper reminders for schools to distribute to students and phone calls to pathway staff and liaisons to assist in reminding students to complete the survey. We have targeted a response rate of at least 80 percent on each survey. We will achieve this in some districts, but in others this response rate may be lower because of unanticipated challenges we have faced in administering the survey.

The decision to track the same students across 2 years required that districts and/or schools provide SRI with student identification numbers that can be tracked across school years (and survey administrations). Where student IDs were utilized specifically for this evaluation, districts will need to keep records of how these IDs maps to the student IDs used in the larger district student records system. In spring 2012, the follow-up survey will be administered at the student-level rather than with intact classrooms of students. For privacy reasons, SRI will not plan to maintain student names and mailing addresses, so districts (or school/pathways) will need to play a significant role in the distribution of surveys as well as in follow-up with nonrespondents (particularly students in the comparison groups) in order to achieve an acceptable response rate.

Analysis

The surveys will enable us to broaden the student "voice" in the evaluation, allowing more student perspectives and experiences in the pathways to be included in the study than we could capture through student focus groups alone. The survey of incoming students will provide information about participants' and nonparticipants' aspirations for postsecondary education and careers, baseline levels of motivation and engagement in learning, and experiences with school/program choice and access in the district. The follow-up survey of students during Year 3 will allow us to address questions about change over time in nonachievement-related college and career readiness outcomes for participants and nonparticipants.

We will conduct district-level descriptive analyses of data from each of the student surveys and triangulate findings with those from our qualitative work. We will test for statistically significant differences between participants' and nonparticipants' survey responses. We will also consider whether it makes sense to report participants' survey responses by specific student characteristics, pathway structure (e.g., small school, SLCs within a larger comprehensive high school), or pathway status (e.g., new, emerging, established). We will also seek to determine why some districts may be more successful than others at readying students for postsecondary learning and careers.

Plans for Future Data Collection and Analysis

During the current evaluation time frame, we are conducting a baseline survey of students in the Class of 2013 and Class of 2014 and will follow up with these students in spring 2012, when they are in the 11th and 10th grades respectively. In addition, in Cohort 2 districts, we will conduct a baseline survey of their incoming pathway students (the Class of 2014 and the Class of 2015) in fall 2011.

If the evaluation time frame were to be extended, we would plan to conduct follow-up surveys with students in the Class of 2013 in spring 2013 and with the Class of 2014 in spring 2014. Such a survey would allow us to gather information from the students in these cohorts on their postsecondary plans. The major challenge we will face in administering these longitudinal surveys is attrition of pathway and nonpathway students from pathways and schools. If we do not have sufficient numbers of students in the treatment groups, we may not have enough statistical power to make the types of comparisons between pathway and nonpathway students that are of interest to the Foundation, ConnectEd, and the broader education community.[10]

Task 3: Collect and Analyze Extant Student Outcomes Data

In four of the nine districts, we will use extant data to study the extent to which pathway participants' academic outcomes differ from those of similar students not enrolled in pathways.[11] We

[10] At this point we are not planning for a follow-up survey with students in the Class of 2015 because we would have only baseline data on these students from the three Cohort 2 districts.

[11] We recognize the Foundation's interest in student outcomes, as well as implementation of the Linked Learning approach, across all nine districts funded by the Initiative. To answer the research questions, our design includes a quasi-experimental analysis of extant student outcomes data in the four districts in which we are most likely to be able to detect any possible impact of the Initiative on student success. Over time, as the other funded districts gain more experience in implementing the Linked Learning approach and further developing their pathways, we could implement this same type of quasi-experimental analysis with them (with additional resources). We will consider the three Cohort 2 districts in the pool of districts eligible for inclusion in our student outcome analysis on the hypothesis that the four most robust data systems may be found among these districts and that all will have demonstrated some level of implementation capacity since they were working toward a system of pathways even before receiving the implementation grants.

will focus this quasi-experimental analysis on the four districts identified to have the greatest existing capacity to implement the Linked Learning approach, that appear to be the furthest along in this process, and that have systems capable of providing the necessary student-level data for this analysis. It is in these districts that we expect to see the earliest signs that the Initiative is positively affecting student academic success. Ideally, this subset of districts will differ in size, geography, and urbanicity.

Our plans for extant data collection and analysis are based on information gathered during the first 2 years of the evaluation about district data systems. We understand that the nine funded districts are in the process of developing their capacity to track student participation in pathways and most or all have the ability to link those data with other student-level data for use in the study. One issue that we continue to work on with the Foundation and ConnectEd is how to define student "participation" in a pathway (i.e., which students constitute the "treatment" group vs. the "comparison") since students are receiving varying levels of the pathway treatment. For example, some students are in pathways that are or will be certified during the evaluation period, while other students are in pathways that may not go through the certification process during the evaluation period. As we are learning about how the Initiative is being implemented, we are seeking to understand what it means to be a student participant in a pathway and whether individual students can readily be identified as participants or nonparticipants in district data systems. Our approach to the extant student outcomes analysis, plans for data collection, and the success indicators and student cohorts of focus are described below.

Approach to Analysis of Extant Student Outcomes

Because the evaluation centers on the district as the unit of analysis, we will examine student performance with a district-level focus. Although we recognize that the pathways differ in their content, structure, and rigor, our objective is to make sense of how effective districts are at producing academically successful students prepared for postsecondary learning and training as evidenced by their academic achievement and by end-of-high-school measures.

To study the impact of the pathways on student achievement, we need to estimate how participating students would have performed in the absence of those pathways; such estimates generally require examining outcomes for similar students who were not exposed to the same experiences. Because students are able to choose among various pathways, it is imperative that this type of analysis control for selection bias—that is, that students who chose to attend certain pathways are likely to differ in important ways (such as prior achievement and background characteristics) from students who did not choose to participate. If such selection bias is not sufficiently accounted for, the estimated reform effect on student academic success may be confounded by the effects of these other variables.

Researchers attempt to control for selection bias by using experimental or quasi-experimental designs. An experimental design is considered the gold standard for evaluations because it ensures that the treatment and control groups are similar in every way, except in their exposure to the treatment itself (in this case, the treatment is participation in a pathway). However, given that it is impossible to randomly assign students to pathways on a large scale, we will rely on a rigorous quasi-experimental design to study the effects of pathways in a comprehensive way.

In analyzing student academic success we will account for selection bias by identifying comparison groups of students similar to the students participating in the pathways. We plan to use the statistical technique called propensity score stratification (Rosenbaum & Rubin, 1983), which will take account of many achievement-related characteristics to estimate a student's propensity for participating in the

pathways in the district and then place the students into propensity score strata, which are typically quintiles. By comparing the outcomes of participants and nonparticipants within the same strata (i.e., comparing participants with those nonparticipants who were most like them before their participation in the pathway), we will simulate randomized assignment and be able to obtain as unbiased estimates of pathway effects as possible, given the data available on prior student achievement and background characteristics. Propensity score stratification is a viable approach if comprehensive data on student characteristics are available. Accordingly, we will collect a large set of data on student demographic characteristics—the observables—along with information on past academic achievement. Both these types of information may also help account for unobservable student factors, such as their awareness of and motivation to enroll in specialized education programs in the district.

Drawing on this comprehensive set of data about student characteristics, the propensity score model will address the following question: What kinds of students are more likely to participate in a pathway in each district? The estimated effects of student variables on pathway participation will give us a general idea of the kinds of students participating in the pathways and how those students compare with nonparticipating students in the same district. In addition to estimating a general pathway effect, propensity score stratification will enable us to examine whether the effect differs for students with different propensities to participate in the pathways.

After we identify a comparison group of students for each district's pathway participants using propensity score stratification, we will analyze whether outcomes differ for participants and nonparticipants. For this analysis, we will need to account for a lack of independence among outcomes for students sharing similar educational circumstances (e.g., school or district contexts). In other words, some variation in student outcomes may be accounted for by school- and district-level characteristics, which all the students in the same school and district share. We plan to use hierarchical linear modeling (HLM) (Raudenbush & Bryk, 2002) to account for the clustering of students by school and by district. We will apply a three-level HLM—student, school, and district levels—to study the impact of the pathways on students' academic success outcomes, while adjusting for student, school, and district characteristics. If outcomes are not comparable among districts, we will conduct the analysis separately for each district using a two-level HLM with only student and school levels. This analysis will allow us to draw conclusions about the overall impact of the Initiative across the four districts, as well as any effect within each district. We will also summarize outcomes descriptively for students in pathways undergoing certification and students in pathways not undergoing certification, for each district, to delineate possible differences in outcomes across these two groups of pathway participants.

Our initial examination of the impact of the Initiative on students' academic outcomes will include participants from across the pathways in each of four districts, regardless of pathway certification status. The Initiative intends to build district capacity to support Linked Learning, and thus we expect that pathways not initially undergoing certification will still be affected by the ConnectEd grants (i.e., we consider them to be receiving treatment through the Initiative). To the extent that student participation levels in pathways are large enough to permit the statistical analysis needed to gauge the Initiative's impact, we will also compare the outcomes of students in pathways undergoing certification with those of nonparticipating students. This narrower analysis will be important, for example, if the qualitative data collected reveal that the treatment is relevant only for the subset of pathways undergoing certification because only they are receiving implementation support.

For districts that host wall-to-wall SLCs or pathway-like programs (i.e., Long Beach and Sacramento), we have been learning about the range and types of programs and SLCs in these

districts through our qualitative data collection.[12] Working with district staff, we will determine which students will comprise the comparison groups in our outcomes analysis and, if necessary, exclude some students from the comparison groups if they participate in programs or SLCs known to be similar to the pathways in content, structure, and/or objectives.

Collection of Extant Student Outcomes Data

To access outcomes data from districts on pathway participants and nonparticipants, we have been working with district staff to learn about their data systems. We have been communicating with districts about the information needed for the evaluation, including information on pathway participation and persistence, student demographics and achievement, grade progression, attendance, CAHSEE performance, completion of a-g requirements, and high school graduation. Although we are also interested in analyzing outcomes associated with career readiness and the acquisition of 21st-century skills, such as completion of a technical course sequence, work-based learning, and industry certification, our conversations with staff from the funded districts and with ConnectEd suggest that districts do not systematically collect these data.

As our other evaluations have found, the student-level information available from the funded school districts varies. For example, some districts' student data systems are limited in capacity, some have lost historical data as they have switched data management systems, and/or they have insufficient technical staff to respond to data requests. From our previous experience, we are aware that the data files that districts provide can be messy, have confusing content, or provide insufficient technical documentation to support the use of the data. In such situations, our statistical programmer will make sure the data files are cleaned and data points labeled, and that we clearly understand the content of the files and have all the information needed for the study; our evaluation team will work closely with district staff to carry out this work. Often, we also work in tandem with districts to ensure that the student identification numbers (not student names) can be used throughout the life of the evaluation (i.e., either using the same student identifiers [IDs] that the district uses, or if student IDs are generated specifically for the study, having the district document how student IDs for the study map to the student IDs the district uses). As each additional year of student data become available, we must be able to merge the new data with our existing data files using student IDs.

Our preliminary conversations with key staff from the nine districts indicate that some have the required data and can share them readily, but others will require more assistance from us; we will work with the latter districts to gather the data needed to examine the impact of pathways on students. We have begun to assess the capacity of each district's data system to determine whether it can provide the student-level needed data to conduct our analyses. Once we have selected the four districts in consultation with the Foundation and ConnectEd, we will develop plans, tailored to the data systems and the technical staff each district has in place, for collecting extant student data. The plans will be developed in summer 2011 so that we can begin acquiring student-level data in fall 2011. We will work with ConnectEd (and other Linked Leaning partners) to coordinate requests for student-level data and to develop a joint Memorandum of Understanding with the districts for data access. If needed, we will send a member of our evaluation team to work on-site with district staff to build data files for use in the study. We are mindful that budget cuts in districts have reduced the capacity of district research offices to handle data requests so we will work to ensure our requests

[12] By "wall-to-wall" we mean districts in which all high school students are in a SLC or small school, including pathways.

are as minimally burdensome as possible (e.g., extractions of raw, uncleaned student-level data) Given Initiative funding for districts' participation, we anticipate their support for our evaluation team.

We expect that in some cases we will need to redefine or create new variables from existing data to ensure comparability across districts. Our statistical programmer will facilitate the creation and technical documentation for the large evaluation data system, thereby streamlining the analysis process.

Success Indicators and Student Cohorts of Focus in the Analysis

In our original design plan, dated October 2009, we had proposed to collect and analyze extant student data during Year 2 of the study. This plan would have allowed us to follow two cohorts of students, including one cohort through the end of high school in 2012. In consultation with our evaluation advisory group and Foundation staff during summer 2010, we jointly decided to delay extant student data collection and analysis until Year 3 to allow more time for pathway implementation, thereby increasing the likelihood of detecting a treatment effect. Our data collection in Year 1 suggested that the original cohorts we planned to follow were not yet receiving the full Linked Learning treatment as the pathways still had not yet undergone the certification process.

Given the delay in this task, we will no longer be able to follow any cohort through the end of high school during the current evaluation time frame. Exhibit 4 identifies the student cohorts for which we will now collect and analyze extant outcomes (and prior achievement) data, their academic years, the grades of interest, and planned timing of data access and reporting. We will be following students that will be part of the graduating class of 2013 (i.e., students who started 9th grade in 2009) and students that will be part of the graduating class of 2014 (i.e., students who started 9th grade in 2010). These are the first two cohorts of students to participate in pathways that have gone or will go through the early certification process.

To examine academic success indicators in the four districts, we will compare pathway participants with similar nonparticipants in the same district to examine whether the pathways have an impact within their district context. More specifically, we will examine whether pathway participation affects academic achievement on the CST, grade progression, high school attendance, and CAHSEE performance. To the extent that other student data related to academic success (e.g., grade point average, credit accumulation, Early Assessment Program results) are available, we will examine them as well. For participants in pathways, we also will summarize persistence rates (i.e., continued enrollment in pathways in grades 10 and 11). Some of these measures will be available during the evaluation timeline (e.g., attendance and CST performance) while others, such as high school graduation (and conversely, dropping out) and a-g completion for the two cohorts will be collected and analyzed during Phase 2 (described below).[13]

We will request data on all CSTs, although we plan to identify several tests to focus on in the evaluation.[14] Some CSTs are end-of-course exams (e.g., in science, mathematics, history) that students take at different grade levels, whereas others are offered at every grade (e.g., English

[13] Any reference to Phase 2 presumes that the evaluation would be funded for an additional 2 years at a level required to complete the work.

[14] The final determination of CST subjects to focus on in the evaluation will be made in consultation with Foundation and ConnectEd staff. At a minimum, we plan to study ELA because this subject is taught and tested each year of high school and seems to maintain "cohort purity" in the pathways (given what we are learning about the implementation of pathways at the ConnectEd demonstration sites).

language arts—ELA). In each selected subject area, we plan to examine students' scale scores and performance levels (e.g., basic, proficient, advanced).

Exhibit 4
Student Cohorts for Outcomes Analysis, by Academic Year and Grade

Academic Year	Academic Achievement				Planned Data Access	Anticipated Report Date
	Grade 8	Grade 9	Grade 10	Grade 11		
2008-09	Class of 2013					
2009-10	Class of 2014	Class of 2013				
2010-11		Class of 2014 (where relevant)	Class of 2013		Fall 2011	August 2012 (Annual Report)
2011-12			Class of 2014	Class of 2013	Fall 2012	January 2013 (Final Report)

The grey shading in the exhibit indicates the school years and grades for which we plan to access prior student achievement data on the CSTs. In the case of ELA, because students take the CST each year through grade 11, prior achievement in grades 8 and 9 (where relevant) will be considered to the extent the data are available. In other subjects, such as mathematics and science, all students take the CST in grade 8, and then end-of-course exams are implemented (e.g., algebra II, biology/life science) through grade 11; to account for prior achievement in these subjects, we will rely on 8th-grade scores as available.

Accessing data from districts in summer and fall 2011, we will begin the quasi-experimental outcomes analysis in Year 3. This timeline relies on districts' ability to identify pathway participants in their student data systems (including the specific pathway in which the student participates). We will examine student outcomes in 9th through 11th grade for the Class of 2013, and in 9th and 10th grade for the Class of 2014.

We will not conduct quasi-experimental analysis of student outcomes at the pathway level because constructing and studying separate comparison groups of students for each pathway would be prohibitively expensive. Given the limitations of the observable data we expect to access, we do not propose to create separate propensity score models to predict participation in individual pathways, which would be necessary to draw conclusions about the effects of specific pathways on student outcomes.

Plans for Future Data Collection and Analysis

As described above, the current evaluation time frame will not allow us to assess differences between pathway and nonpathway students along critical measures, such as a-g completion and high school graduation, nor does it allow for the study of students' postsecondary outcomes. An understanding of how students fare once they graduate from high school would contribute to conclusions about the effectiveness of the Initiative. If the evaluation timeline were to be extended

by 2 years through January 2015 and additional resources committed, we would be able to follow the Class of 2013 through the end of graduation in 2013 and 1 year beyond. We would also be able to follow the Class of 2014 through the end of graduation in 2014. Data on end-of-high school measures will be available each fall for analysis.

With respect to postsecondary outcomes, we are interested in examining pathway participants' rates of enrollment and reenrollment in college and postsecondary training, job attainment, earnings, and so on; this type of analysis would be facilitated if the participating districts were to develop systems for tracking students beyond high school. We will also continue to explore a range of avenues for postsecondary tracking, as various organizations at the state and federal levels work together to merge K-12, postsecondary, and employment datasets (see Appendix B for current options for conducting postsecondary data collection and analysis).

Task 4: Perform Integrated Analysis and Reporting

The major data collection and analytic components described will provide a wide array of qualitative and quantitative data. Although we present our evaluation plans separately for each data collection activity, our analytic approach and reporting will be highly integrated so that qualitative and quantitative analyses will inform each other and serve to answer the research questions for the evaluation. Below, we provide examples of how we plan to integrate analysis of site visit data, survey data, and extant student outcomes data, and we provide an overview of our reporting strategy.

Integrated Analysis

When we analyze data from site visits, student survey, and extant student outcomes data, we will triangulate findings whenever possible. For example, when we synthesize site visit data for a topic on which we also surveyed students, we will weave survey results into the discussion; similarly, when we write about findings from the survey, we will consider whether related site visit data exist that offer context or possible explanations. When we examine extant student outcomes data, we will also put the results in context with findings from the site visit and survey data (e.g., by systematically incorporating ratings of district-level implementation of Linked Learning from the district implementation rubric into analyses of student success indicators).

In consultation with Foundation and ConnectEd and drawing on their tools noted above, we have developed a district-level rubric to assess the level and quality of implementation of Linked Learning for a range of key measures—leadership, academic and technical core, work-based learning, support services, and articulation with middle school and postsecondary education/training. In Year 1, we coded the case study reports, which synthesize data collected from interviews, focus groups, classroom walkthroughs, and document review, using the constructs in the rubric. In Years 2 and 3, we will also consider incorporating data from the student surveys as relevant. By coding district-level practices and characteristics, we have been able to assess where each district falls along the continuum of implementation on each construct.

Additionally, in the third year of the evaluation, we will link the implementation data with our analyses of student outcomes. One approach to linking implementation and outcomes data is to identify "successful" districts on the basis of ratings for specific areas of district-level implementation (e.g., leadership, academic and technical core, support services), followed by examination of whether these groupings align with student outcome findings. Another strategy that allows us to draw on many, different data sources is identifying those districts that have made the greatest progress toward preparing all students for college and careers, as indicated by levels and

trends for intermediate student outcomes identified in the logic model, and then examining whether those districts share features that may relate to these indicators of student success. By using these types of integrated analysis strategies, we expect to gain a broad understanding of relationships between district features and student success. The overarching objective of our integrated analysis is to identify the features of districts that most closely relate to the effectiveness of the district-level Linked Learning system in supporting positive changes in indicators of student college and career readiness.

Reporting

We are synthesizing the findings from our various analyses in a series of reports, each tailored for a particular audience and purpose. We have planned for four basic types of reports on our evaluation findings: (1) annual reports and a summative final report; (2) memos for the participating districts (concerning their own data); (3) periodic briefings for Foundation and ConnectEd staff; and (4) formative memos after each major data collection to draw the Foundation's and ConnectEd's attention to issues associated with implementing the Initiative in a more timely manner than the annual reports can, thus allowing midcourse corrections to forestall implementation problems. This latter strategy has worked well in our evaluations of other reform initiatives.

We will publish three annual reports and one final, summative report over the 3.5 years of the study. These reports will synthesize our findings from the major data collection activities each year. They will inform interested parties, specifically the Foundation and ConnectEd, about the implementation and effects of Linked Learning systems in the participating districts. Each report will contain an executive summary with high-level findings. We plan to release annual reports in August of each year, with a draft available in July for review by the Foundation, ConnectEd, and the evaluation advisory group. The final report for the evaluation, which will synthesize our findings for the full study, will be issued in January 2013, with a draft available the preceding December.

In addition to providing summative data on the Initiative as a whole, we will provide short memos each year to each district; the memos will summarize within-district findings from each year's qualitative data collection activities (site visits, interviews, and focus groups). As appropriate, the memos also will include key findings from our analysis of extant student outcome data. The memos, which should be considered formative, will concentrate on indicators of district ability to encourage and support the development of pathways (in accordance with the district implementation rubric developed as part of the evaluation); the observed successes of the pathways sampled in the district; and the challenges to implementation that remain at the district, school, and pathway levels. We will abide by the confidentiality agreements in place with individual respondents to ensure that participants in the evaluation are not personally identifiable. We will conduct teleconferences with the appropriate representatives from each district to review the findings, and we will present findings and facilitate discussion among districts at meetings ConnectEd convenes for the participating sites. The memos will be made available in September of each year after the annual reports are completed. Districts can, of course, share these memos with schools, pathways, and advisory bodies.

Last, after each major data collection period in the fall and spring, we will prepare formative memos for the Foundation and ConnectEd. These formative memos, which will be issued in November and April/May of each year of the evaluation in advance of our briefing of the Foundation and ConnectEd to discuss findings, will provide on-going information about the sites, including key challenges and issues that must be addressed at the pathway, school, or district levels. These formative memos will also discuss the adequacy, quality, and value of the technical assistance and support ConnectEd coaches are providing and will be designed to inform ConnectEd's planning of

professional development activities around the Linked Learning approach. In other work with foundation clients and an intermediary, we have found it that ongoing communication through the use of these types of formative memos, along with periodic briefings and regular meetings (discussed under Task 5), is critical for project success.

Task 5: Collaborate and Communicate with the Foundation and ConnectEd

Collaboration between evaluator and client is a key ingredient for a successful evaluation. Although the credibility of the evaluation depends on the researchers' independence and objectivity in its conduct, ongoing discussions with Foundation and ConnectEd staff will help provide confidence that the evaluation is answering the most pressing questions and is informative for the two organizations, the participating districts, and the broader education and policy community.

We will thus continue to seek the Foundation's and ConnectEd's input to the study design and instrumentation throughout the evaluation period, and meet with them regularly to keep both organizations abreast of developments. In addition to the formative memos, we have participated in 1-hour monthly meetings with Foundation staff, with involvement from ConnectEd staff as needed. SRI plans the agenda for these meetings, which focus on the research activities, progress to date, assistance needed from either ConnectEd or the Foundation, and issues of concern that need to be addressed. We have been working with the Foundation to schedule the meetings and to establish a process for reviewing documents and reports to ensure that the study remains on schedule (see Section IV, Key Deliverables and Timeline, for the reporting schedule).

For external audiences to view the evaluation results as credible, the evaluation team must maintain the final authority over all design, data collection, and reporting. To ensure that our research results withstand rigorous scrutiny, our senior research team has been working with a small group of advisors who are nationally recognized for their methodological and substantive expertise. This group has been providing an outside perspective of the design and implementation of the evaluation, as well as feedback about the draft evaluation findings. We are meeting with this group at least once a year during the evaluation, with the meetings timed to precede the delivery of the annual reports.

We will also work with the communication specialist hired by the Foundation in developing public products based on our technical reports. In this regard, we will be able to draw on our experience in other projects in which we helped create products and messages that were useful for a broad policy audience yet accurately reflected the findings of our evaluations.

IV. KEY DELIVERABLES AND TIMELINE

For the project to remain on schedule and on budget, we are following a strict timeline for reviewing and finalizing deliverables. Each year, we are submitting two formative memos, each of which is followed by a debriefing meeting with the Foundation and ConnectEd; an annual report; and memos for each participating district. In addition, we will provide an interim memo on findings from our analysis of extant student data. We will provide a final, summative report at the end of the evaluation period. We are following the schedule below for these deliverables, with meeting dates to be determined in conjunction with the Foundation and ConnectEd:

- Formative memos: November 30 and April 30[15]
- District Memos: May 31[16]
- Briefings for Foundation and ConnectEd staff: December and June (dates TBD)
- Draft annual report for review: July 15
- Meeting with the Advisory Group: July (dates to TBD)
- Feedback from the Foundation, ConnectEd, and Advisory Group: August 1
- Final annual report: August 31
- Interim memo on student outcomes: March 1, 2012
- Draft summative report for review: December 1, 2012
- Feedback from Foundation, ConnectEd, and Advisory Group: December 15, 2012
- Final summative report: January 31, 2013

Exhibit 5 summarizes our timeline for conducting the major data collection, analysis, and reporting activities described in the Work Plan.

[15] In Year 1, we submitted the spring formative memo at the end of May. In order to better inform planning for ConnectEd's summer institute, we have pushed up the timeline to complete the formative memo by the end of April.

[16] In order to provide more timely feedback to districts based on our spring data collection findings, we have pushed up the deadline for the district one-page memos from September 30 to May 31.

Exhibit 5
Timeline of Key Research Activities

	Year 1				Year 2				Year 3				Year 4		
	2009		2010		2010		2011		2011		2012		2012		2013
Task/Activity	**S**	**F**	**W**	**Sp**	**S**	**F**	**W**	**Sp**	**S**	**F**	**W**	**Sp**	**S**	**F**	**W**
Task 1. Collect & Analyze Qualitative Data															
Conduct phone interviews		△				△		△		△		△			
Conduct site visits			△→	→			△→	→			△→	→			
Observe ConnectEd events	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - - →
Analyze qualitative data		△		△→	→	△		△→	→	△		△→	→		
Task 2. Collect & Analyze Student Survey Data															
Develop survey instrument			△→	→					△						
Select sample/construct database					△				△						
Administer baseline survey						△→	→			△→	→				
Administer follow-up survey											△→	→			
Analyze survey data								△				△→	→		
Task 3. Collect & Analyze Extant Student Outcomes Data															
Access student-level data from districts										△				△	
Analyze student-level data from districts										△→	→	→		△→	→
Task 4. Perform Integrated Analysis & Reporting															
Produce formative memos		▮		▮		▮		▮		▮		▮		▮	
Conduct briefings for ConnectEd and Irvine		△		△		△		△		△		△		△	
Produce annual reports					▮				▮				▮		
Produce district-level memos						▮				▮				▮	
Produce interim memo on student outomes											▮				
Produce final summative report															▮
Task 5: Collaboration & Communication															
Participate in regular meetings with Foundation	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - - →
Meet with advisory group					△				△				△		
Engage in report dissemination activities					- - - →				- - - →				- - - →		

Legend
Study Event/Activity →
Ongoing Activity △
Intermittent Activity - - - →
Final Deliverable ▮

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APPENDIX A—SURVEY OF STUDENTS IN LINKED LEARNING DISTRICTS (FALL 2010)

Survey of Students in Linked Learning Districts
Fall 2010

Important note:
Please use a BLACK pen. Blue or red pens and pencil cannot be read by our scanners.
When asked mar boxes, mark an "X" through the box.
Sample: ☒ Right ☑ Wrong
Use block printing when you complete any text or numeric responses.
If you wish to change a response, please mark the correct response and CIRCLE it. ⊠

_____
Name

_____
Student ID (if known)

Today's Date: ☐☐ / ☐☐ / ☐☐☐☐
month day year

CHOOSING A HIGH SCHOOL AND PROGRAM OF STUDY

1. How important to you were each of the following reasons for attending this school?

Mark (X) one box for each row.	Not at all important	Somewhat important	Very important
a. It is close to my home.	☐	☐	☐
b. It is easy to get to this school from where I live.	☐	☐	☐
c. It is a safe school.	☐	☐	☐
d. It has a special theme/focus that interested me.	☐	☐	☐
e. It has a good athletic program.	☐	☐	☐
f. It has a strong academic reputation.	☐	☐	☐
g. It offers a job training program.	☐	☐	☐
h. It was recommended by a counselor or teacher in my elementary or middle school.	☐	☐	☐
i. My friends and family members attend(ed) this high school.	☐	☐	☐
j. My parents like this school.	☐	☐	☐

2. How did you come to attend this school? *Mark (X) only one box.*

☐ I chose which school to attend, and this was my first choice.

☐ I chose which school to attend, and this was NOT my first choice.

☐ My parents decided I would attend this school.

☐ I was assigned this school by the school district.

3. Did you or your parents participate in any of the following activities to get ready to attend this school? You may have participated in all, some, or none of these activities. *Mark (X) ALL that apply.*

☐ Met with a counselor LAST YEAR to discuss my schedule for this year

☐ Met with a counselor THIS YEAR to discuss my schedule for this year

☐ Met with a counselor this year to discuss a FOUR-YEAR COURSE OF STUDY

☐ Summer school or summer bridge activities

☐ School orientation for students

☐ School orientation for parents

4. Are the classes you attend part of a pathway, academy, or small learning community?

☐ No ▶ SKIP to Question 7

☐ Yes

5. How did you come to participate in this academy, pathway, or small learning community? *Mark (X) only one box.*

☐ I chose to participate in an academy, pathway, or small learning community, and this was my first choice.

☐ I chose to participate in an academy, pathway, or small learning community, and this was NOT my first choice.

☐ My parents selected this academy, pathway, or small learning community.

☐ I was assigned this academy, pathway, or small learning community by the school or district.

6. How did you <u>first</u> learn about this pathway, academy or small learning community? *Mark (X) only one box.*

☐ Sibling

☐ Friend

☐ Teacher or counselor at my previous school

☐ Presentation at my previous school by students or staff in the academy/small learning community
Information sent home from the school district or high school

☐ Parents

☐ At this high school, after this school year began

☐ Other (please specify):

or

☐ Don't recall

7. Which of the following programs or activities do you plan to participate in during high school? *Mark (X) ALL that apply.*

☐ Advanced Placement (AP) courses

☐ International Baccalaureate (IB) courses

☐ Technical courses (e.g., Career and Technical Education classes, Regional Occupational Program classes, or other classes related to an academy or pathway)

☐ Work-based learning experiences (e.g., jobs, internships, apprenticeships, or other career-related opportunities that are part of your high school coursework)

ACADEMIC AND LIFE SKILLS

8. How often do you do the following? *Mark (X) one box for each row.*

	Never	Rarely	Sometimes	Most of the time	Always
a. Set aside time to do my homework and study	☐	☐	☐	☐	☐
b. Give extra effort to challenging assignments	☐	☐	☐	☐	☐
c. Try to do well on my schoolwork even when it isn't interesting to me	☐	☐	☐	☐	☐
d. Find a way to get help when my schoolwork becomes difficult	☐	☐	☐	☐	☐
e. Work hard in school	☐	☐	☐	☐	☐

9. To what extent do you agree with the following statements? *Mark (X) one box for each row.*

	Strongly disagree	Disagree	Agree	Strongly agree
a. I believe it is important to do well in school.	☐	☐	☐	☐
b. I believe I am responsible for what happens in my future.	☐	☐	☐	☐
c. I believe it is important to work hard in high school because it matters for success in college.	☐	☐	☐	☐
d. I believe it is important to work hard in high school because it matters for success in future employment.	☐	☐	☐	☐
e. I believe experiences in high school will help me know whether I want to continue my education or training beyond high school.	☐	☐	☐	☐

10. To what extent do you think high school will help you improve the following skills? *Mark (X) one box for each row.*

	Not at all	A little	Somewhat	A lot	Don't know
a. Speaking and listening	☐	☐	☐	☐	☐ DK
b. Using information and communication technology (e.g., computers or the Internet)	☐	☐	☐	☐	☐ DK
c. Working with tools, machines, or my hands	☐	☐	☐	☐	☐ DK
d. Making a public presentation or performing in front of an audience	☐	☐	☐	☐	☐ DK
e. Making decisions	☐	☐	☐	☐	☐ DK
f. Solving problems	☐	☐	☐	☐	☐ DK
g. Getting along with people from different backgrounds	☐	☐	☐	☐	☐ DK
h. Working with adults	☐	☐	☐	☐	☐ DK
i. Working with others my own age	☐	☐	☐	☐	☐ DK
j. Dealing with people (e.g., customers, clients)	☐	☐	☐	☐	☐ DK
k. Working in a team to accomplish a shared goal or objective	☐	☐	☐	☐	☐ DK
l. Accepting responsibility for the quality of my work	☐	☐	☐	☐	☐ DK
m. Knowing expectations for behavior at work	☐	☐	☐	☐	☐ DK

11. For which of the following activities do you think high school will prepare you?
Mark (X) ALL that apply.

☐ College

☐ Job or career of my choice

☐ Parenthood

☐ Citizenship in the community

☐ Military

☐ Other (please specify): _____

12. By the end of high school, do you think you will meet the college entrance requirements for the University of California and California State University systems?

☐ No ☐ Yes ☐ Don't know

PLANS AFTER HIGH SCHOOL

13. What level(s) of education do you think you will complete? *Mark (X) ALL that apply.*

- ☐ Less than high school
- ☐ High school graduate
- ☐ Some college
- ☐ Technical/trade school
- ☐ Degree from a 2-year community college (e.g., Associate's degree)
- ☐ Degree from a 4-year college (e.g., Bachelor's degree)
- ☐ Graduate degree (e.g., Master's degree, Doctoral degree, law degree, medical degree)

14. What do your parent(s)/guardian(s) expect you to do after you graduate from high school? *Mark (X) ALL that apply.*

- ☐ Attend college
- ☐ Attend technical/trade school
- ☐ Obtain a job
- ☐ Pursue a career that I enjoy
- ☐ Other (please specify): _____

15. Which of the following do you plan to do <u>immediately</u> after high school? *Mark (X) ALL that apply.*

- ☐ Work full-time (40 hours or more per week)
- ☐ Work part-time (less than 40 hours per week)
- ☐ Attend a 2-year community college
- ☐ Attend a 4-year college
- ☐ Attend a technical/trade school
- ☐ Enlist in the military
- ☐ Other (please specify): _____

or

- ☐ None of the above

16. Do you know what job or career you want to have in the future?

- ☐ No ▶ SKIP to Question 19
- ☐ Yes

17. Is the job or career of your choice related to the pathway, academy, or small learning community in which you participate? If you do not participate in a pathway, academy, or small learning community, please mark the third box below.

☐ Yes

☐ No

☐ I DO NOT participate in a pathway, academy, or small learning community.

18. In order to be successful in the job or career of your choice, which of the following will you need to complete? *Mark (X) ALL that apply.*

☐ High school

☐ Technical/trade school

☐ 2-year community college

☐ 4-year college

☐ Graduate school (to earn a MD, MA, PhD, MBA, or JD degree)

DEMOGRAPHICS

19. What grade are you in*? Mark (X) only one box.*

☐ Grade 9 ☐ Grade 10

20. In what grade did you first enroll at your current high school? *Mark (X) only one box.*

☐ Grade 9 ☐ Grade 10

21. Are you female or male?

☐ Female ☐ Male

22. What is your race/ethnicity? *Mark (X) ALL that apply.*

☐ Filipino

☐ Pacific Islander

☐ Asian Latino or Hispanic

☐ African American or Black

☐ American Indian

☐ White

☐ Other (please specify): _____

23. What year and month were you born?

Year ☐☐☐☐

☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec

24. What is the highest level of schooling your mother/female guardian completed?
Mark (X) one box only.

- ☐ Did not graduate from high school
- ☐ Graduated from high school
- ☐ Went to college, but did not graduate
- ☐ Graduated from a 2-year college or technical/trade school
- ☐ Graduated from a 4-year college
- ☐ Earned graduate degree (e.g., MD, MA, PhD, MBA, JD)
- ☐ Don't know

25. What is the highest level of schooling your father/male guardian completed?
Mark (X) one box only.

- ☐ Did not graduate from high school
- ☐ Graduated from high school
- ☐ Went to college, but did not graduate
- ☐ Graduated from a 2-year college or technical/trade school
- ☐ Graduated from a 4-year college
- ☐ Earned graduate degree (e.g., MD, MA, PhD, MBA, JD)
- ☐ Don't know

THANK YOU VERY MUCH FOR COMPLETING THIS SURVEY.

APPENDIX B—ADDITIONAL ANALYSES OF EXTANT STUDENT DATA (JUNE 2009)

In an evaluation of an initiative like the California Linked Learning District Initiative, there is always an interest in conducting more analyses of extant student outcomes than budget or time permit. For example, the Foundation expressed interest in the analysis of student transcripts as a way of examining student grades in academic and technical coursework. Although we jointly determined not to pursue that line of analysis, we outline our proposed approach here should the Foundation decide during the evaluation that transcript analyses would provide valuable student outcomes data not readily attainable from another source. Likewise, the Foundation has expressed a strong interest in following postsecondary outcomes (both college and career) for student participants in the Initiative. This also is an area that we have agreed not to pursue, given the current evaluation time frame and budget, but would be interested in considering if the evaluation is expanded. Below, we present our thinking about possible options for collecting and analyzing postsecondary outcomes data, along with the limitations of each. As the evaluation proceeds, we will continue to explore other avenues for tracking postsecondary outcomes that may become available over the next couple years.

Transcript Evaluation

During the design phase of the evaluation, the Foundation and ConnectEd expressed interest in examining student transcripts to acquire data on grades for academic and technical coursework, overall grade point average (GPA), credit accumulation, and whether students are on track to graduation in a standard 4-year time frame. To that end, we explored evaluating transcripts in one of the participating districts to assess the value of doing so for the overall evaluation. We held discussions with representatives of the University of California Office of the President (UCOP) Transcript Evaluation Service (TES), which develops Memoranda of Understanding (MOUs) with districts and also works directly with families and students to determine whether students are on track in their preparation for entry to the University of California or California State University systems. This office estimated that its basic transcript analysis services cost $6,000 per comprehensive high school. We learned that our evaluation team would not be able to work directly with TES to specify analyses, but would need to work through the six funded districts to request specialized analyses not included in basic TES reports.

The question then arose about which indicators of interest to the Foundation and ConnectEd could be derived from transcript analysis as opposed to other sources of data (e.g., data available through the California Partnership for Achieving Student Success [Cal-PASS] data system [see below]). Given the interest in GPAs and grades, we suggested that these data might be collected as part of the Task 1 transfer of data regarding student outcomes (thus not requiring direct analyses of transcripts).

Furthermore, SRI's experience with transcript analyses on a national scale (e.g., transcript studies of students participating in the National Assessment of Education Progress [NAEP]) found them to be expensive, labor-intensive efforts. For example, the NAEP study required backtracking to the schools attended in the NAEP student sample, acquiring schools' course catalogs or lists, pulling or arranging electronic transfer of students' permanent records, creating unique identifiers that

preserved student privacy, amassing a database, coding transcripts from across the country with a common coding system, and finally conducting analyses.

Although a transcript analysis for this evaluation may be considerably more circumscribed than the effort required in the NAEP study, given limited resources and a lack of clarity about the added value of transcript analysis in supporting the broader objectives of the Initiative and the evaluation, we jointly agreed to exclude a transcript analysis (or other analyses of student grades and GPA) from our current design; including such analyses would require a trade-off in scope and possibly an elimination of an activity in its entirety. If the Foundation and ConnectEd wish to reconsider this option, we suggest initially working with one district to determine the value that it and its schools derive from the UCOP transcript evaluation services and how that value could be scaled up to other districts to serve the evaluation and Initiative goals. We know that Sacramento City Unified School District (SCUSD) has an MOU with TES.[17] We would be willing to work with a district like SCUSD to determine the types of analyses we might conduct using its student transcripts (beyond what is currently being done by TES), to determine whether the district could conduct those analyses directly using its management information system or through TES, to develop a plan for acquiring the necessary data from the transcripts, and to synthesize and analyze the data.

Options for Assessing Postsecondary Outcomes

Whereas transcript analysis might support an assessment of intermediate student outcomes, the goal of the Initiative is to improve long-term student outcomes. Understanding how students fare once they graduate from high school will significantly contribute to conclusions made about the effectiveness of the Initiative. However, the 3.5-year time frame for the evaluation restricts our ability to collect and analyze postsecondary outcome data (e.g., college enrollment, persistence, completion; labor market entry and earnings). If the evaluation were extended, accompanied by additional resources and data, we could consider adding an analysis of postsecondary outcomes for students in the Class of 2013, which would have 3 years of the treatment prior to graduation (see Exhibit 3).

In addition to the evaluation timeframe, we must consider the feasibility of attaining postsecondary education and employment data, the benefits and limitations of those data, and the financial costs associated with acquiring the data. During the design phase, our investigation of options for collecting and analyzing postsecondary data indicated at least two organizations that link student data from K-12 systems with IHEs— Cal-PASS, which maintains California-specific data from member institutions; and the National Student Clearinghouse (NSC), which has enrollment, diploma, and degree information from participating districts and IHEs across the nation. Below, we describe the potential uses of both of these data sources as well as their limitations.

Although Cal-PASS or NSC might allow us to conduct limited analyses of student enrollment and completion in participating IHEs, we are unaware of any state or national data systems that would allow us to track individual students into the workforce to determine employment outcomes and earnings for participants in the Initiative. Our review of research that tracked students longitudinally to assess postsecondary outcomes indicated that the most feasible approach for acquiring data on college and career outcomes would be to develop districts' own capacity to longitudinally track students. In other evaluations, that has been done primarily through regular surveys of graduates. In

[17] According to the planning proposal submitted by SCUSD, Hiram Johnson and Luther Burbank high schools are piloting UCOP's transcript evaluation service.

the last section in this appendix, we describe how these follow-up surveys have been conducted in other evaluations and the benefits and limitations of this approach.

Cal-PASS

Cal-PASS maintains student-level data for more than 6,800 partner K-12 schools and IHEs in California. The Cal-PASS data systems allow for limited longitudinal tracking of students from high schools into postsecondary institutions that are Cal-PASS members. The system tracks student progress from the K-12 system into higher education to support curriculum alignment and articulation through data sharing among K-12 schools, community colleges, and universities (typically as part of a regional consortium). Student transcripts are used to provide course and grade information. Participation in the system is voluntary—9 of the 10 districts that received planning grants from ConnectEd are members of Cal-PASS, as are some of their local IHEs. A full list of members is available at http://www.cal-pass.org/Consortia/MembersByCounty.aspx.

To acquire data through the Cal-PASS system and be added to their "share list," SRI would have to work with each participating district and each IHE in which their students enroll. Each institution sets up a share list of individuals and organizations with which they are willing to share data. Members access their data by logging onto the Cal-PASS website; SRI's access would be limited to the institutions that give us permission to access their data.

Districts upload their data to the Cal-PASS Web site annually in November for students who attended in the prior academic year. Cal-PASS requires 1 to 2 months to clean and verify the data (e.g., data for the 2009-10 school year would be uploaded in November 2010 and available in January 2011). Community college data are uploaded twice yearly, April for the prior summer and fall and September for the prior winter and spring. Thus, data from summer and fall 2009 would be uploaded in April 2010 and available in May 2010, and data from winter and spring 2010 would be uploaded in September 2010 and available in October 2010.

The primary benefit of working with Cal-PASS to acquire postsecondary data would be that it might allow us to determine the rates at which pathway participants enter 2-year and 4-year colleges and universities. If we are able to link participation information with Cal-PASS data, we could summarize overall enrollment rates and enrollment in 2-year versus 4-year institutions for participants and nonparticipants. Over the longer term (beyond the current evaluation timeline), we might also be able obtain data about whether students persist and graduate from a postsecondary institution.

However, several challenges and limitations are associated with obtaining and analyzing Cal-PASS data. First, as noted, we would need to get permission from every district and IHE for which we wanted access to student-level data. We do not know how time-consuming or burdensome obtaining that permission might be. We could consider limiting the analysis to those IHEs in which a large number of students from participating districts enroll. Second, we would have to entrust Cal-PASS with matching the district and IHE data and providing us clean data files for analysis. Although we do not know how much it would cost to match and clean the data, we understand from Cal-PASS that doing so may be labor-intensive. In addition, we would have to work with each district to identify student participants in the data files. Finally, analysis of postsecondary outcomes would be limited to those institutions that currently participate in the Cal-PASS system. We would not have postsecondary data for students who attend IHEs that are not Cal-PASS members. As a result, we might underestimate postsecondary enrollment, which may be an issue particularly for

some students of color (e.g., African-American students who attend historically black colleges would not be included in our analysis).

Because the Cal-PASS system was not designed for longitudinal tracking of student-level postsecondary outcomes, we believe the most cost-effective and prudent approach would be to select one district that is already a Cal-PASS member as a pilot site for conducting initial postsecondary outcomes analysis on the cohort of students that graduates from high school in 2011. Ideally, this district would have some local IHEs that are also Cal-PASS members and that a large number of students attend. We could then work with this pilot district and its local IHEs to obtain the appropriate permissions and to flag participants and nonparticipants, and arrange for Cal-PASS to match their data with data from the pilot district.

NSC

NSC, a nonprofit organization that began in 1993 with support from the U.S. Department of Education (ED), is another potential source for postsecondary enrollment and diploma data. NSC, which provides enrollment and degree verification for ED, colleges and universities, and employers, has 3,300 member colleges and universities, which enroll 92 percent of college students nationwide. Participation in NSC is voluntary. NSC can provide information on enrollment if provided with a student's name, Social Security number, and date of birth.

In a recent longitudinal study of high school graduates in the Denver Public Schools (DPS), researchers used NSC data to track college enrollment, persistence, and graduation for 18,000 DPS students who graduated between 2002 and 2007 (Buckley & Muraskin, 2009). The study followed six cohorts of students and included 6 years of college enrollment data for the earliest graduating class (2002). For the external research team to link secondary data from DPS with postsecondary data from NSC, DPS had to provide access to student-level records and had to request student-level postsecondary data (e.g., college enrollment and completion records) from the NSC for the student cohorts that were a part of the study. The researchers noted several limitations to the NSC database (similar to the limitations of Cal-PASS). The primary limitation is that not all IHEs participate (nonparticipants account for the enrollment of about 8 percent of college students). The study researchers also expressed concern about the completeness of NSC data for 2-year colleges and institutions; they found that the rates at which DPS graduates received certificates and 2-year degrees appeared low relative to the rates reported for bachelor's degrees. Finally, students must give permission for their academic information to be released, and we do not know if the characteristics of students who do release their data differ from those who do not.

Similarly, in a study by Mathematica of postsecondary outcomes for student participants in the Upward Bound program, researchers also noted that the primary limitation of NSC is that not all postsecondary institutions participate (Seftor, Mamun, & Schirm, 2009). For example, Mathematica submitted identifying information for all the members of its treatment and control groups (n = 2,844) and received enrollment information from NSC on 1,752 students or 62 percent of the unweighted sample. This was lower than the 82 percent postsecondary enrollment rate they obtained through a follow-up survey of participants. One reason they identified for the lower enrollment rate using NSC data was that the coverage rate for non-4-year institutions is lower (covering approximately 87 percent of students enrolled in 2-year institutions and probably lower for vocational institutions) than the overall IHE coverage rate. The study authors noted that this lower coverage in 2-year and vocational institutions may have resulted in reduced enrollment rates for their eligible sample (using the NSC data), given the proportions of students in their sample who attend 2-year and vocational schools (based on their survey data).

These studies indicate that one possible advantage of NSC over Cal-PASS for analyzing postsecondary outcomes is NSC's greater coverage of IHEs across the nation. As with the Cal-PASS option, we might consider selecting one district for a pilot study of postsecondary outcomes using the NSC data.

Longitudinal Tracking of Graduates

Given the limitations of both Cal-PASS and NSC, and the lack of a database that would allow us to track program participants into the labor market, we offer a third option. It would entail working with one or more of the participating districts to set up a longitudinal tracking system that followed graduates into either postsecondary institutions or the workforce. Such a system would be likely to involve annual surveys of graduates, much like those conducted by MDRC for a longitudinal study of career academies (Kemple & Willner, 2008a, 2008b). In that study, MDRC partnered with a another firm that tracked students posthigh school and conducted phone (or in-person) surveys at three points after scheduled high school graduation—1, 4, and 8 years. The surveys asked students about their postsecondary school education enrollment and completion, as well as employment and earnings. In the 8-year post-high school follow-up survey, the study obtained responses from 1,428 students, or 81 percent of the full study sample (82 percent of the academy group and 80 percent of the nonacademy group). As the study noted, the overall response rate and the similarity of the response rates between the treatment and comparison groups was high by survey research standards.

Longitudinal tracking through graduate surveys has its own limitations. For example, as the authors of the career academies study note, young men and high-risk students were somewhat underrepresented in the respondent sample, and young women and low-risk students were slightly overrepresented. In addition, significant resources would need to be dedicated to following up students to ensure a high response rate, especially over time. The study authors estimated that it cost approximately $300 per respondent per round of data collection to get students to complete the surveys; that amount included cash incentives offered for completing the surveys.[18] Moreover, the full sample had fewer than 1,800 students, a much smaller number than in most high schools participating in the Initiative.

If the Foundation and ConnectEd were interested in this option, we would recommend starting with one district that has the technical capacity to implement such a tracking system. In our review of district implementation plans, we found that at least one district, SCUSD, already plans to track graduates. We would be willing to work with a district to support it in establishing such a database, connect it with survey management firms with expertise and experience in tracking students, collaborate with it on the development of a graduate survey, and conduct analyses of postsecondary outcomes of participants and nonparticipants. Among the three options—use of Cal-PASS, use of NSC, and longitudinal tracking—we believe the third option holds the greatest promise for postsecondary analyses of career and college outcomes for the largest number of graduates.

[18] Information collected through personal communication with study authors.

APPENDIX C—BIOS OF KEY PROJECT PERSONNEL

Dr. Nancy Adelman, Ed.D., Principal Investigator for the evaluation of the California Linked Learning District Initiative, is an Associate Director of SRI's Center for Education Policy and a Senior Research Associate. She has more than 20 years of experience in contract research and evaluation. Before her work in the contracting sector, she conducted research as an independent consultant and for the Carnegie Foundation for the Advancement of Teaching and the National Research Council of the National Academy of Sciences. She has also worked as an adjunct instructor in preservice teacher education and has taught in elementary and middle schools in several states. She earned her doctorate from Teachers College, Columbia University, where her studies focused on change in educational organizations.

Dr. Adelman's research, evaluation, and policy interests are broad, covering the full range of current reform and restructuring issues confronting American education, with emphasis on secondary school reform, successful youth transitions from high school to college or the workplace, youth development, and school choice programs. She is currently the Principal Investigator on the national evaluation of the Bill & Melinda Gates Foundation's Early College High School Initiative (ECHSI), and co-Principal Investigator on the evaluation of the Texas High School Project (THSP). From 2002 to 2007, Dr. Adelman directed the evaluation of the Carnegie Corporation's Schools for a New Society Initiative. In addition, Dr. Adelman directed Bridging the Divide, a study of state and local dual-enrollment policies conducted for the U.S. Department of Education's (ED's) Office of Vocational and Adult Education (OVAE).

In the 1990s, Dr. Adelman served as Principal Investigator on the ED-sponsored evaluation of the Public Charter School Program and led studies on youth apprenticeship and school-to-career programs for multiple clients, including the U.S. Department of Labor and the Council of Chief State School Officers. Currently, as part of a broader research partnership between the Commonwealth of Virginia and SRI, Dr. Adelman is supervising a new initiative in the Shenandoah Valley to transform and align regional education and training systems for youth and young adults with regional workplace and economic development needs.

Ms. Roneeta Guha, Project Director for this evaluation, is SRI's Education Policy Analyst in the Center for Education Policy. Ms. Guha's work focuses on K-12 school reform and teacher development. She co-leads the Teaching and California's Future project, an ongoing study of the teaching profession in California; during 2008-09, she oversaw data collection and analysis focused on the implications of various high school reform efforts, including SLCs, Early College, and multiple pathways, on teacher preparation and professional development. She managed the case studies, including the selection of school sites, the development of protocols, and the analysis of interview data; coordinated the design, administration, and analysis of statewide principal and teacher surveys; supervised the analysis of secondary data collected by the California Department of Education and the California Commission on Teacher Credentialing; and analyzed state policy and budget information related to K-12 education. Ms. Guha also serves as a core team member on an ongoing evaluation of the Gates Foundation's Early College High School Initiative, which blends elements of the small-schools and dual-enrollment reform movements to increase the number of first-generation, low-income, and minority students who earn a college degree. Recently, she led a study of teacher capacity in the arts to document the extent to which teachers in California have the skills and knowledge to teach to the state's visual and performing arts standards.

Ms. Guha's past project work includes a study of the implementation and impact of the KIPP model in five Bay Area KIPP schools, a study of the status of arts education in California, a national evaluation of the Carnegie Corporation's Schools for a New Society Initiative, a national evaluation of the federal Title I program, and a formative evaluation of the Bay Area School Reform Collaborative. She is experienced in qualitative and quantitative data collection methods and analysis, the analysis of state and federal education policies, and program evaluation.

Before joining SRI, Ms. Guha worked for the Community Foundation Silicon Valley, which supports art, education, neighborhood, and other community-based programs in the region. She also worked for 2 years as an admissions counselor at Occidental College, a private liberal arts institution in Los Angeles. Ms. Guha holds an Ed.M. in international education policy from Harvard University. She earned her A.B. in public policy from Stanford University.

Dr. Alejandra Lopez-Torkos, lead on the student outcomes analysis, is a Senior Social Scientist in SRI's Center for Education Policy. With a background in social research methodology and more than 10 years of experience conducting education research, Dr. Lopez-Torkos has expertise in evaluation design; managing data collection and analysis; developing surveys and protocols for use in interviews, focus groups, and observations; conducting site visits; collaborating with school districts to access student-level data; and analyzing primary and secondary data. She currently lends design expertise to a study of a curriculum targeting content-rich vocabulary development among struggling adolescent readers. She is also a member of the leadership team for SRI's national evaluation of ED's Teacher Incentive Fund Program, examining implementation and impact in 34 sites across the country; she will lead the survey component of the study. Dr. Lopez-Torkos recently worked on a 3-year study of the Bay Area KIPP schools, focused on the implementation of the KIPP model and the program's effects on teachers and students. For this evaluation, she led the analysis of student achievement, using a quasi-experimental research design to examine KIPP student performance compared with that of similar students in the same district; she also led the development of the student survey and participated in all aspects of qualitative data collection. As part of an evaluation of the California Subject Matter Projects (CSMP), she led an assessment of the effect of teacher participation in CSMP professional development on student achievement. Other project work includes a study of the status of arts education in California, a national evaluation of elementary mathematics curricula, and a national study of Title I accountability systems and school improvement efforts.

Before coming to SRI, Dr. Lopez-Torkos taught social research methods and design and worked on projects focused on educational access, equity, and community identity-building, including an evaluation of charter schools in California and a study of the long-term impact of school desegregation and integration. Dr. Lopez-Torkos earned her Ph.D. and M.A. in education, social research methodology, from the University of California, Los Angeles. She holds a B.A. in psychology from Stanford University.

Ms. Christine Padilla is a Program Manager in SRI's Center for Education Policy and a Senior Policy Analyst with more than 30 years of experience in contract research. During this period, she has worked on a broad set of projects addressing education reform topics, including the implementation of school-level reforms, programs serving at-risk populations, secondary and postsecondary education, and school-to-work programs. Currently she is the Principal Investigator of the evaluation of California's District Intervention and Capacity Building Project and the task leader of the evaluation of district leadership development initiatives for the Texas High School Project. For the latter, she conducted a literature review of effective district leadership practices that lead to higher performing districts. Previously, Ms. Padilla served as a team member on the Gates

Foundation's Early College High School Initiative, an evaluation of 20 projects funded by ED's OVAE to integrate vocational and academic learning, and an evaluation of Milwaukee's School To Work initiative that encompassed a systematic approach to improve the academic, workplace, and social outcomes for students. These projects employed a wide range of methodological (e.g., case studies, surveys, focus groups, classroom observations, student assessments) and analytic techniques.

Ms. Padilla also has extensive experience helping policymakers use research to improve programs at the national, state, and local levels through publications and hands-on technical assistance activities. For example, she recently completed directing a project for ED to inform the development of technical assistance activities to support data-informed decisionmaking activities to enhance instructional practice. She brings training in both education and business to support her field-based experience, having earned an M.Ed. from the University of California, Los Angeles, and an M.B.A. from Santa Clara University. Before coming to SRI, Ms. Padilla held a secondary teaching credential and taught middle school in California.

Dr. Regie Stites is a Program Manager and Senior Educational Researcher in SRI's Center for Education Policy. He has worked in the field of educational research and evaluation for more than 18 years. Since 1997, he has directed projects at SRI funded by ED, the National Institute for Literacy, state education and workforce development agencies, and private clients. Before coming to SRI, Dr. Stites was a senior researcher at the National Center on Adult Literacy at the Graduate School of Education, University of Pennsylvania, and a research associate at the National Center for Research on Evaluation, Standards, and Student Testing at UCLA. Dr. Stites recently served as expert consultant on an ED project to assist states in the development of adult education content standards. He currently directs SRI's evaluation of the Content Rich Vocabulary Project, a middle school supplemental vocabulary curriculum for struggling readers funded by the federal Institute for Education Sciences. Dr. Stites also directed work on the development of the National Work Readiness Credential to develop and validate an online battery of assessments of work-related reading, mathematics, oral language (speaking and listening), and situational judgment skills to be used as the basis for a credential certifying readiness for entry-level employment. His recent publications include a review of large-scale assessments in K-12 visual and performing arts education as part of SRI's Study of Arts Education in California funded by the William and Flora Hewlett Foundation. Dr. Stites received a Ph.D. in education from the UCLA Graduate School of Education and has experience as an adult ESL instructor and teacher trainer in the United States and in the People's Republic of China. He currently serves as a member of a TESOL expert panel advising the U.S. Office of Citizenship on the redesign of the naturalization test.