Oakland Health Career Pathways: Resource Study

Prepared for

SRI International

By

APA Consulting

November 2019

Background on APA and Prior Study of Linked Learning Pathways

Augenblick, Palaich and Associates (APA) is a Denver-based consulting firm that focuses on education policy at the national, state, and local levels. For the past 36 years, APA has worked with policymakers to create effective systems that facilitate increased student learning. The company's history has included successful completion of projects in every state and the District of Columbia.

APA has substantial experience that made it uniquely qualified to complete the cost study of the Oakland Health Pathways Project. APA has a history of working closely with policymakers, practitioners, and stakeholders to estimate the cost of programs or policies, including completing state school finance cost studies in more than 25 states. APA examines all aspects of programs and policies to guide the creation of a cost estimate for meeting the desired outcomes. The results are often used by policymakers and stakeholders to design policies that help ensure success. Examples of this work include costing out specific legislation, such as P-20 alignment and educator effectiveness policies in Colorado, and programs, including early childhood, early college high schools, teacher preparation, and teacher mentoring programs.

Further, APA has previously examined the cost implications of the Linked Learning approach in California school districts for The James Irvine Foundation. Starting in 2012, this multiyear cost study of Linked Learning began by determining the cost components and structures associated with Linked Learning, from the perspective of both optimal implementation and actual implementation in existing Linked Learning districts. Although some of the health career pathways in Oakland Unified School District (OUSD) were implemented many years ago, before the Linked Learning initiative, all the career pathways in OUSD are now part of the Linked Learning approach.

Executive Summary

SRI International contracted with Augenblick, Palaich and Associates, Inc. (APA) to examine the costs of implementing health career pathways in Oakland Unified School District (OUSD) as part of SRI's larger study of health pathway implementation and outcomes. The Oakland Health Pathways Project (OHPP) is a joint initiative of OUSD, the Alameda Health System, and the Alameda County Health Care Services Agency. The initiative is designed to improve educational and long-term employment outcomes for youth of color in Oakland (Alameda County), California, while expanding and diversifying the local health care workforce. OHPP began in 2014 with funding from The Atlantic Philanthropies, a limited-life foundation. There are seven OHPP heath pathways in OUSD.

The OHPP applies the district's existing Linked Learning approach to its health career pathways. The Linked Learning approach was first implemented in OUSD in 2009. At the time, The James Irvine Foundation funded the California Linked Learning District Initiative in nine districts, including OUSD. The Linked Learning approach combines rigorous academics, career and technical education courses in sequence, integrated real-world experience, and comprehensive student supports to meet the needs of all students to ensure equity of access and opportunity.[1] Additionally, cohorts of pathway students move through their course sequences together, allowing for integrated, cross-discipline projects and work-based learning experiences specific to the industry theme of the pathway.

Cost Study and Data Collection Overview

The primary purpose of this cost study was to determine the resources necessary to implement health career pathways in OUSD at the school and district levels. This cost study was focused on costs incurred by OUSD and did not capture any costs incurred by industry partners or any in-kind resources they provide to the district. The secondary goals of this cost study were to determine how these pathways are currently sustained, how they will be sustained in the future, and what funds are used to help implement these pathways. Further, this report is intended to help other communities better understand the potential costs of implementing health career pathways. It is designed not to be a how-to guide, but instead to help school districts plan for the associated costs. APA interviewed district staff members who support health pathways and key staff members at four OUSD high schools that have health pathways to understand the resources—personnel and non-personnel—needed for implementing specific program tasks. Once the personnel resources required to complete implementation tasks were identified, APA then applied OUSD salaries and benefits to the personnel figures. These personnel costs were then combined with non-personnel costs to produce total implementation costs for each school and the district.

[1] https://connectednational.org/learn/about/what-is-linked-learning/

Contextual Background on OUSD

OUSD is a large urban school district that enrolled 36,286 students in district-run schools in 2018-19. Approximately three-quarters (73.5%) of the students were eligible for free or reduced-price lunch, and 33% of the students were English learners. There were 5,684 students in OUSD's 32 pathways (about 80 percent of all 10-12 grade students), and of these 1,168 students were in the seven health pathways. At the time of this study, OUSD was transitioning to wall-to-wall pathways, meaning they were moving toward having all high school students enrolled in a career-themed pathway.

Student Need

Student need—defined on the basis of academic risk factors such as low income or language needs—often has an impact on costs. Studying the impact of student need on resources for health pathways was beyond the scope of this study. However, it is likely that the additional resources needed to offer health pathways in OUSD are higher than they would be in other communities with less student need.

Opportunities Due to Urban Location

OUSD benefits from its urban location given the availability of industry partners, nearby postsecondary institutions, and access to public transportation. Access to these outside-of-district benefits may not be as readily accessible in smaller or more rural communities.

Available Funding Sources and Sustainability

Adequate, sustainable funding is essential to effective implementation of health pathways. OUSD has been fortunate to have had access to a number of funding sources for pathways over time to expand, improve, and maintain all pathways in the district, including the health pathways. These funding sources have been The Atlantic Philanthropies; Measure N, a local parcel tax; The James Irvine Foundation (Linked Learning); California Technical Education Incentive Grant Program; California Partnership Academy grants; California Career Pathways Trust; the federal Perkins grant, and Supplemental and Concentration funds through the state's Local Control Funding Formula. Even though some of these funding streams are no longer available, OUSD believes it will be able to sustain and even expand pathways, including health pathways, as part of its long-term strategic plan.

Resource Findings from OUSD and Case Study Schools

Ongoing District-Level Resources and Costs

This section describes ongoing district-level resources and costs identified for coordinating the implementation of health pathways across the district. The study team first describes **resources**, which are the personnel and non-personnel items needed to implement a program, and then describes **costs**, which are the total and per-student dollar amounts required to purchase those resources.

To implement career pathways, district personnel at OUSD are responsible for a number of tasks:

- district-level coordination;

- assembling partners;
- providing professional development to school staff (including on technology integration);
- assisting staff in obtaining industry certification;
- tracking student data and industry trends;
- coordinating work-based learning at the district level;
- facilitating communication internally and externally;
- facilitating student internships (including coordinating stipends, health clearances, and transportation passes and providing supervision);
- purchasing, maintaining, and replacing supplies, materials, technology, and equipment; and
- setting the schedule at each school to allow for student internships, collaboration between teachers, cohort progression in a pathway, remediation opportunities, and to allow students enrolled in CTE courses to still take additional electives in other areas (referred to as master scheduling).

These personnel resources, as well as non-personnel costs, are summarized in Table ES-1.

Table ES-1: District-Level Costs, 2018–19

Personnel		
Cost Component	**Percent Time on Health Pathway Work**	**Costs ($) Attributable to Health Pathways**
Linked Learning director	21.9	37,808
Work-based learning coordinator	21.9	35,103
Work-based learning liaison	100	88,927
Industry engagement coordinator	21.9	33,912
Data analyst	5.5	7,399
District-level health pathways coach	100	129,482
Master scheduler	21.9	21,900
Four certificated Internship supervisors *(total cost shown)*	N/A	44,000
Total Personnel Costs		**$398,531**
Personnel Costs per Student		**$341**
Non-personnel		
Professional development		47,326
Industry certifications		7,500
Student internships (stipends, transportation)		17,400
Supplies, materials, equipment, technology		15,000
Total Non-personnel Costs		**$87,226**
Non-personnel Costs per Student		**$75**
Total District-Level Costs		**$485,757**
District-Level Costs per Student		**$416**

District-level costs in OUSD in 2018–19 were $485,757 spread across all 1,168 students enrolled in the seven health pathways. District-level personnel costs per student were $341 and non-personnel costs

were $75, for a total of $416 per student to implement health career pathways at the district level. This does not include school-level costs or start-up costs.

Ongoing School-Level Resources and Costs

This section describes ongoing school-level personnel and non-personnel resources for implementing health pathways across the four OUSD schools that participated in this study. The study team found both similarities and differences in the resources used at each case study school to implement health pathways. The case study schools in OUSD all undertook the following tasks to implement health pathways in their school:

- coordinating pathways at the school level;
- offering more class periods in a day to deliver pathway specific courses with sequenced cohort progression, as well as teacher collaboration opportunities;
- facilitating work-based learning opportunities and providing internship supervision;
- providing release time (non-teaching period) for pathway leads; and
- providing student support.

Each school also consistently had non-personnel resources for administration, professional development, student opportunities, outreach and supplies, and materials and equipment. These non-personnel resources can include staff stipends in addition to material costs. However, the type and number of personnel needed at each school to accomplish the tasks listed above and the specific dollar figures associated with non-personnel areas varied.

Table ES-2 summarizes the ongoing marginal costs for each case study school that are associated with implementing health pathways, including personnel and non-personnel costs; these costs are above and beyond those costs incurred in a traditional high school without pathways.[2]

Table ES-2: Ongoing School-Level Costs, 2018–19

	School A	School B	School C	School D
Personnel ($)				
Site work-based learning liaison	17,419	17,419	21,773	87,094
Pathway coach	29,050	29,050	36,313	43,575
Additional pathway teachers	214,159	133,850	178,466	142,773
Pathway lead teacher release period	13,368	35,649	14,367	17,824
Counselors	42,273			
Assistant principals	59,759			
Student support specialist		43,440		
Time for teachers for coordination/supervision	12,793	17,847	7,196	

[2] It should also be noted that each school was also implementing pathways "wall-to-wall" meaning all students grades 10-12 were enrolled in a rigorous, structured pathway program with all staff aligned to the pathway purpose and with additional support services provided.

Extra collaboration period			38,243	
Total Personnel Costs	**$391,496**	**$281,352**	**$297,269**	**$291,266**
Personnel Costs per Student	**$2,028**	**$1,202**	**$1,893**	**$1,855**
Table ES-2: Ongoing School-Level Costs, 2018–19				
	School A	**School B**	**School C**	**School D**
Non-personnel ($)				
Administrative		2,000	100	
Professional development	11,590	11,800	3,000	
Outreach/marketing	3,965	70	1,813	
Student opportunities, including internships	23,050	27,500	23,250	40,150
Supplies, materials, technology, and equipment for each health pathway	2,000	22,500	$52,000	5,000
Total Non-personnel Costs	**$40,605**	**$83,870**	**$80,163**	**$45,150**
Non-personnel Costs per Student	**$210**	**$358**	**$511**	**$288**
Total School-Level Costs	**$432,101**	**$365,222**	**$377,432**	**$336,416**
School-Level Costs per Student	**$2,238**	**$1,560**	**$2,404**	**$2,353**

Baseline School-Level Resources Needed to Implement Health Pathways

As shown in Table ES-2, each case study school varied in its approach to implementing its health pathway. However, common resources were observed that could be considered to be a minimum, or baseline, for implementing a new health pathway in a manner similar to that of OUSD where the intention is that all students in grades 10-12 in a school are eventually enrolled in a pathway. More specifically, the following common staffing resources were observed across multiple school sites:

- a partial FTE work-based learning coordinator (at least 0.2 FTE);
- a partial FTE pathway coach (at least 0.2 FTE);
- additional pathway teachers to offer courses in an eight-period or block schedule (about 1.0 FTE per 100 students);
- release period for pathway lead; and
- additional time for teacher to provide coordination or supervising internships (often paid as a stipend).

APA suggests that these are the *baseline staffing resources* needed to implement a health pathway based on the experience of OUSD schools. All sites also indicated the need for support from administration, counselors, or other student support personnel, as well as time for collaboration among pathway staff members. The level of support needed was not consistent across sites, however, and may represent either differing levels of existing available resources or differing implementation models. If these functions did not already exist in a school at the appropriate level, additional staffing would be required to support a new health pathway.

Additionally, all four schools incurred resources and costs to provide student opportunities related to health pathways—such as internships, field trips, or mentoring programs—and for supplies, materials, equipment, and technology for health pathways. Across all four schools, average school-level expenditures for non-personnel resources were about $60,000.

Adding the average expenditure for non-personnel resources to the baseline staffing resources above would be about **$315,000 for a pathway on an annual, ongoing basis**. If that pathway served 200 students, the school-level baseline cost would be about $1,575 per student annually.

Total Ongoing District- and School-Level Costs

In summary, the baseline school-level cost of about $1,575 per student[3] combined with the district per student figure of $416 suggests **a total baseline cost of about $2,000 per student**. This figure would vary based on the unique circumstances of another school or district, such as cost of living, ability to have economies of scale due to the size of the district or number and size of pathways, or underlying level of resources and existing staffing. For example, one of the primary cost drivers was the additional pathway teachers needed to staff the move to an eight-period day—a key implementation component of OUSD's pathways approach—so a school or district that was already structured in that way would require less additional resources to implement a health pathway.

Districts and schools implementing health pathways would also incur one-time start-up costs during the planning phase to establish necessary facilities, discussed in the next section.

One-Time District- and School-Level Resources

In addition to the ongoing costs associated with health pathways in OUSD were the one-time start-up costs. However, APA was not able to collect information on most of the one-time start-up costs at the district and school levels that OUSD incurred because of the amount of time that had passed since the health pathways were first implemented. Although most one-time start-up costs could not be captured, data from the case study schools did identify a cost for setting up facilities that would total $369 per health pathway student.

Additional Resource Lessons Shared by OUSD Pathway Staff

The personnel and non-personnel resources identified in this study could be organized and used in a number of ways to accomplish the tasks associated with implementing health pathways. OUSD focuses on organizing resources to provide "enabling conditions" for pathway success. OUSD staff interviewed as part of this study offered the following recommendations to other districts considering implementing health pathways in their schools:

[3] Assuming 200 students in the pathway in a school with multiple pathways.

1. District and school leadership need to fully support pathways. This includes making pathway opportunities for all students a key component of the district's long-term strategic vision.
2. Schools need to be structured in an eight-period day (or similarly staffed block schedule) that includes student cohort course progression, credit recovery, internship opportunities, and teacher collaboration.
3. Staff members need to be aligned, and specific when feasible, to each pathway.
4. Work-based learning opportunities need to be integrated into and aligned with each pathway.
5. Equipped facilities need to be provided for each pathway, and when feasible space should be contiguous to support teacher collaboration and intentional culture building by creating a small learning community.

Summary

OUSD has a long history of implementing career pathways in its schools and in recent years has been able to expand the number of pathways offered across the district as a result of additional funding. Although the context of OUSD and its schools may be unique given their demographics, setting, and access to certain funding sources, the OUSD case studies offered insight into the minimum, or baseline resources, needed to implement health pathways, strategies for resource organization, and approximate costs that can be helpful for a district considering implementing health pathways.

Contents

I. Introduction

SRI International contracted with Augenblick, Palaich and Associates, Inc. (APA) to examine the costs of implementing health career pathways in Oakland Unified School District (OUSD) as part of SRI's larger study of health pathway implementation and outcomes. The Oakland Health Pathways Project (OHPP) is a joint initiative of OUSD, the Alameda Health System, and the Alameda County Health Care Services Agency. The initiative is designed to improve educational and long-term employment outcomes for youth of color in Oakland (Alameda County), California, while expanding and diversifying the local health care workforce. OHPP began in 2014 with funding from The Atlantic Philanthropies, a limited-life foundation.

The OHPP applies the district's existing Linked Learning approach to its health career pathways. The Linked Learning approach was first implemented in OUSD in 2009. At the time, The James Irvine Foundation funded the California Linked Learning District Initiative in nine districts, including OUSD. The Linked Learning approach combines rigorous academics, sequenced career and technical education courses, integrated real-world experience, and comprehensive student supports to ensure equity of access and opportunity for all students.[4] Additionally, cohorts of pathway students move through their course sequences together, allowing for integrated, cross-discipline projects and work-based learning experiences specific to the industry theme of the pathway.

In OUSD, there are currently a total of 32 career pathways—open to all students—with at least one career pathway in each high school. In 2018-19, there were seven health pathways, with five pathways embedded in traditional high school settings and two integrated into an alternative (continuation) high schools.

Cost Study Overview

The primary purpose of this study was to determine the resources necessary to implement health career pathways in OUSD at the school and district levels. This did not include any costs incurred or in-kind resources provided by any industry partners. The secondary goals of this study were to determine how these pathways are currently sustained, how they will be sustained in the future, and what funds are used to help implement these pathways. Further, this report is intended to help other communities better understand the potential costs of implementing health career pathways. It is designed not to be a how-to guide, but instead to help school districts plan for the associated costs.

APA interviewed district staff members who support health pathways and key staff members at four OUSD high schools that have health pathways to understand the resources—personnel and non-personnel—needed for implementing specific program tasks, such as coordination, offering pathway courses and work-based learning opportunities, and providing student support.

[4] https://connectednational.org/learn/about/what-is-linked-learning/

This study did not address the quality of implementation, but instead focused on the resources necessary to implement health pathways in OUSD at the existing level of implementation. SRI International is conducting a separate ongoing evaluation of OUSD health pathways that presents data on the quality of implementation and associated outcomes. An available brief can be found at:

How Education and Industry Partner on Work-Based Learning: Lessons Learned from an Evaluation of Oakland Health Pathways[5]

Methodology

This section outlines the data collection and analysis methodology used to generate the cost findings. In this study, APA's approach to determine the costs of implementing health pathways entailed developing a data collection instrument, interviewing school and district staff members to identify implementation resources, and then calculating associated costs.

Data Collection Instrument

To determine the costs of implementing health pathways, APA developed an interview protocol that identified the tasks associated with implementation and then asked about the resources needed to accomplish the tasks. To develop the protocols, APA first reviewed the list of pathway implementation tasks identified and refined in its prior work with Linked Learning and then added or modified the tasks to tailor the current study to health career pathways specifically. Tasks schools and districts need to undertake to implement pathway programs, include:

- coordinating the pathways at the district and school levels;
- hiring and/or developing teachers with industry specific knowledge and experience;
- offering industry-specific courses and integrating the pathway theme into all subjects;
- developing work-based learning opportunities for students; and
- providing facilities and materials for practical, hands-on instruction related to a given field.

APA disaggregated all tasks between the district and school levels and between ongoing tasks and one-time costs associated with starting a pathway. Organizing data collection around this complete list of tasks ensured that APA captured all personnel, resource, and facility costs associated with each aspect of administering the pathways program. Note that many of the tasks could be addressed at the school level or district level (or at both levels), so some tasks appear in both task lists. The full list of tasks discussed as part of the data collection interview instrument (spreadsheet) are in Appendix A.

For each district- and school-level task, APA asked the same set of questions:

1. To what degree does your school or district complete this task?
2. What existing resources does your school or district use to complete this task?

[5] https://www.sri.com/sites/default/files/publications/ll-oaklandhealthpathways-2019mar12.pdf

3. What additional resources were necessary for your school or district to complete this task, beyond what your school/district would have without this pathway?
4. How were the additional resources for the health pathway(s) different from non-health pathway(s), if at all?

Interviews

APA collected resource information through interviews with a representative from the district and key personnel from four of the seven schools in OUSD that have a health career pathway. APA did not interview staff from the three other schools for the following reasons:

- One school had a brand-new pathway that was too early in the design stage to discuss resources.
- One is a small school that enrolls all students in a single health pathway and had resources that are not typically available to most schools.
- One school had recent changes in leadership that created a lack of historical knowledge that would have hindered data collection.

As this study was intended to provide generalizable information and was not an audit of any particular school program, the report does not reference schools by name and makes every attempt to present resource results collectively.

APA interviewed the OUSD Linked Learning director via a web conference and then visited three of the high schools with health career pathways in the district and facilitated in-person data collection meetings with the principal or assistant principal and relevant pathway leads. Staff members at one high school were unable to meet during APA's visit to OUSD, so APA collected data from the principal and pathway lead during a web conference several weeks later. In addition, APA exchanged follow-up emails with the OUSD Linked Learning director. Finally, APA conducted a phone call with the Oakland High School Network superintendent to discuss additional resources that other staff members may not have been aware of. The data collected during this process were used to estimate resources and costs of health pathways in OUSD.

Costing Out Identified Resources

Once staff resources to complete implementation tasks were identified, APA applied OUSD salaries and benefits to personnel figures. Personnel costs were then combined with non-personnel costs to produce total implementation costs for each school and the district. Appendix B provides detail about the specific salary and benefit information used.

Report Structure

The remainder of this report is structured as follows: Chapter II provides a detailed description of the context of the school district and the case study schools. This includes an overview of OUSD demographics and performance, a brief history of health pathways in the district, and a discussion of the

funding used to implement health pathways in OUSD and the sustainability of these sources. Chapter III presents resource findings, including the district-level resources needed to implement health pathways in OUSD and school-level resource information collected from the four case study schools. Chapter IV offers additional resource lessons learned that were shared by OUSD pathway staff that may be beneficial to other districts considering implementing or expanding health career pathways. Chapter V offers a short concluding summary of the study.

II. Context for Oakland Unified School District and Case Study Schools

This section provides detailed context of the school district and the case study schools. This contextual information is essential in understanding the generalizability of the cost findings from these case study schools.

Oakland Unified School District (OUSD)

Size and Location

OUSD is a large urban school district that enrolled 36,286 students in district-run schools in 2018-19. OUSD benefits from its urban location given the availability of industry partners, nearby postsecondary institutions, and access to public transportation.

Demographics

Both the community and the school district are racially diverse. The school district in 2018-19 had a student population that was 13% Asian, 24% Black/African American, 42% Hispanic/Latino, and 12% White.[6] Approximately three-quarters (73.5 percent) of the students were eligible for free or reduced-price lunch, and 33% of the students were English learners.[7]

Performance

Academic performance in OUSD is lower than the state's overall performance, most likely because of the higher need student population served in the district. In 2017–18, 35% of OUSD students met or exceeded grade 11 state standards in English language arts and 18% met or exceeded grade 11 standards in math.[8] These numbers compared with 56% of students statewide meeting or exceeding the grade 11 standard in English language arts and 31% in math.[9] Other student performance measures for the district were also lower than the state average, including average ACT scores, Advanced Placement test performance, and cohort graduation rates.[10] OUSD's implementation of Linked Learning pathways is one strategy to raise student achievement and provide meaningful opportunities for students to examine career options.

Brief History of Health Pathways in OUSD

High school career pathways are not new to OUSD. One OUSD high school has had a health academy since 1984–85. Another OUSD school opened its doors in 2001 with a schoolwide pathway focus on

---

[6] *Id.*

[7] *Id.*

[8] https://www.ed-data.org/district/Alameda/Oakland-Unified

[9] https://www.ed-data.org/state/CA

[10] https://www.ed-data.org/district/Alameda/Oakland-Unified, https://www.ed-data.org/state/CA

health and bioscience. In 2009, The James Irvine Foundation funded the California Linked Learning District Initiative in nine districts, including OUSD. OUSD built on its history with career-focused small learning communities to implement additional pathways under the Linked Learning approach. Currently, OUSD has a total of 32 career pathways, with at least one career pathway in each high school.

In 2014, the district implemented the Oakland Health Pathways Project (OHPP) with funding from The Atlantic Philanthropies, a limited-life foundation. OHPP is a joint initiative of OUSD, the Alameda Health System, and the Alameda County Health Care Services Agency intended to improve educational and long-term employment outcomes for youth of color in Oakland (Alameda County), California, while expanding and diversifying the local health care workforce.

There are 5,684 students enrolled in the 32 pathways in the district. Seven of these 32 pathways are organized around a type of health industry focus and enroll a total of 1,168 students, mostly in grades 10–12.[11] These seven health pathways are:

- community health and equity;
- education and community health;
- health;
- health and bioscience;
- health and fitness;
- health and technology;[12] and
- public health.

Each of these health pathways operates at different schools. The seven health pathways vary in enrollment from 117 to 234 students, with an average of 168 students.

Funding and Sustainability for Health Pathways in OUSD

Adequate, sustainable funding is essential to effectively implement health pathways. OUSD has been fortunate to have accessed a number of funding sources for pathways over time to expand, improve, and maintain all pathways- including health pathways- in the district. These funding sources are:

1. **The Atlantic Philanthropies.** In 2014, The Atlantic Philanthropies awarded OUSD a grant of $11 million for the Oakland Health Career Pathways Project to improve student outcomes, diversify the health care work force, and provide college and career readiness support for health care careers for OUSD students. The district itself received $8.8 million and used this funding for coaching, student internship stipends, and improvement and expansion of health pathways. Some of this funding was also used for capital improvements. Atlantic made its last grant commitments in 2016 and will close in 2020. However, OUSD has been able to sustain pathways through other funding sources.

[11] Note that most enrollment data is from OUSD's data dashboard, however for the education and community health pathway, the study team relied on self-reported data from district staff regarding how many of the students were in the health strand. https://dashboards.ousd.org/views/PathwayEnrollment_1/Comparison?:embed=y&:display_count=no&:render=false

[12] Since 2018-19, this school as refined its pathway design to focus on mental health

2. **Measure N.** Also in 2014, Oakland voters approved a parcel tax called Measure N that supplies about $12 million per year to implement health career pathways.[13] School staff members frequently cited this as critical to improving, expanding, and sustaining career pathways. Measure N will provide sustained funding for a total of 10 years.

3. **The James Irvine Foundation (Linked Learning).[14]** Between 2010 and 2016, The James Irvine Foundation awarded $19.2 million to ConnectEd, which then provided subgrants to nine districts, including OUSD, as part of the Linked Learning District Initiative. Further, the Irvine Foundation donated $1.8 million to the Oakland Community Organization to help implement Linked Learning pathways in the East Bay region that includes Oakland. This grant did not go exclusively to serve either the City of Oakland or OUSD, but a portion of it was used to improve and expand pathways, including health pathways in OUSD.

4. **California Technical Education Incentive Grant Program.** Another significant source of funding is the California Technical Education Incentive Grant Program, which recently awarded OUSD a grant of $500,000 for coaching, teaching, and expansion/improvement of pathways.

5. **California Partnership Academy grants.** All three of the comprehensive schools with health pathways that participated in this study are receiving grants of approximately $75,000 per year from the state to implement California Partnership Academy models. Two of these schools have a grant specifically devoted to the health pathway. The other school has a grant for the Education Academy, which is part of the education and community health dual-strand pathway.

6. **California Career Pathways Trust.** OUSD received two rounds of CCPT totaling about $1.2 million for career pathways in the district.

7. **Perkins grant.** At the time of the study team's data collection, one of the high schools also receives $10,000 annually through the federal Perkins grant that is designed to support career and technical education in schools. Since then, OUSD has focused on technical support to pathways to allow them to be eligible for Perkins funding; now four health pathways receive these funds.

8. **Supplemental and Concentration funds through the state's Local Control Funding Formula.** OUSD benefits from having supplemental and concentration funds as a part of its state local control funding formula. Funding is provided based upon the number of low Income, English Learners, and foster youth; it is a significant, ongoing funding source for the district.

[13] https://www.ousd.org/domain/5444

[14] https://www.irvine.org/grants?utf8=%E2%9C%93&q%5Bproject_title_or_legal_name_or_primary_address_city_contains%5D=linked+learning&q%5Bprogram_area_eq%5D=&q%5Bapproval_year_eq%5D=2016&q%5Bgeographic_area_served_contains%5D=Bay+Area&q%5Badjusted_amount_dollars_gt%5D=&q%5Badjusted_amount_dollars_lt%5D=&commit=Search

Most of the funding identified above went directly to OUSD. In addition to this funding, the Irvine Foundation, The Atlantic Philanthropies, and others have contributed to OUSD's pathway partners who then helped the district initiate work-based learning and provided critical infrastructure and support.

The district believes it will be able to expand pathways to all high school students and that it will be able to sustain pathways, including health pathways, as part of its long-term strategic plan. School perspectives on the question of sustainability were more mixed, with some representatives feeling their school had fully integrated pathways as "business as usual" and therefore would be sustainable, whereas other representatives expressed varying degrees of concern.

Case Study Schools

This section describes the four OUSD high schools with health pathways that served as case studies.

Demographics and Performance[15]

Of the four schools that participated in this study, three are comprehensive schools that have an embedded health pathway and enroll a total of about 1,500 to 2,000 students, while the fourth is a small continuation high school of 229 students that offers an alternative diploma program for students age 16 and up who are at risk of not graduating from high school.

Table 1 presents characteristics of each school for the 2018-19 school year.[16]

Table 1: Case Study School Characteristics

Characteristic	School A	School B	School C	School D
School enrollment	1,642	2,016	1,592	229
Pathway enrollment	193	234	157	143
Percent free & reduced-price lunch	87	49	74	89
Percent English learners	26	6	14	22
Percent Asian	33	20	12	10
Percent Black/African American	27	29	31	37
Percent Hispanic/Latino	33	16	40	45
Percent White	2	24	7	1

Average health pathway enrollment was 182 students. An average of 75% of students at these four high schools were eligible for free or reduced-price lunch, and 17% were English learners. Students of color represented an average of 91% of the student body across the schools. School D was much smaller than

[15] While it is impossible to provide full confidentiality to participating schools given the limited number of schools in the district and the specificity of information about the pathways at the school, the intent of this report is to provide general information on pathway costs, not to highlight schools specifically.

[16] https://dashboards.ousd.org/views/Enrollment/Snapshot?:embed=y&:showShareOptions=true&:display_count=no&:showVizHome=no&:render=false#7

the other schools overall and had the smallest pathway. School B differed from the other schools in having the largest total enrollment, the largest health pathway enrollment, and lower proportions of students eligible for free and reduced-price lunch, English learners, and students of color.

In the three comprehensive schools in the study, an average of 37% of students met or exceeded the grade 11 English language arts standard and an average of 19% of students met or exceeded the math standard.[17] These rates varied substantially between the three schools, with a range on both the English language arts and math standards of 16 percentage points between the highest performing and lowest performing schools. The average cohort graduation rate for these three schools was 83%, with a range from 81 to 89%. Average ACT scores across content areas in 2016–17 varied from 18.5 to 24.5.

Performance results were lower for the continuation high school, with 10% meeting or exceeding the grade 11 English language arts standard, approximately none meeting or exceeding the math standard, and a cohort graduation rate below 50%. These indicators are not unexpected, as the school intentionally serves a population of students who are at risk of not graduating.

Pathways in Case Study Schools

Table 2 provides a brief description of each school's health pathway.

Table 2: Description of Pathways in Case Study Schools	
School A	School A implemented its public health pathway in 2011. This pathway focuses on health equity rather than clinical practice. It enrolls 193 students in grades 10–12 and is one of five pathways at the school.
School B	School B implemented its health pathway in 1984–85. In contrast to the other health pathways in Oakland, this one has a clinical focus. The pathway enrolls 234 students in grades 10–12. This school has a total of five pathways including the health pathway.
School C	School C has an education and community health pathway that has been in place since 2012. It enrolls 272 students of whom 157 are in the *health* strand. The health strand has a focus on community health. Some of the health strand coursework overlaps with the education strand coursework. Including this one combined education and health pathway, School C has four pathways. Like the others in this study, this health pathway enrolls students in grades 10–12.
School D	School D is a continuation school that enrolls only 10th- to 12th-graders who are at risk of not graduating. Of the 229 students at the school, 143 are enrolled in the only pathway in the school, a health and fitness pathway. This is the most recently implemented health pathway among the participating schools, with implementation in 2015–16.

[17] https://www.ed-data.org/

III. Resource Findings in OUSD and Case Study Schools

This section presents the resource and cost findings from the cost collection and analysis process. The study team first describes the resources, which are the personnel and non-personnel items needed to implement a program, and then describes the costs, which are the total and per- student dollar amounts to purchase those resources. The end goal of this process was to identify the resources necessary for the district and school to implement the health pathway. Therefore,

- Figures are presented as annual ongoing costs incurred at the school and district levels. Costs incurred by industry partners were not captured.
- Costs represent the marginal cost of administering health pathways, meaning the additional costs that a school or district incurs to have health pathways beyond what they would incur to offer a high school setting without pathways. Thus, an existing staff person who took on additional responsibility within the scope of their job to help implement health pathways was not considered an additional resource but an existing one. This means that opportunity costs were not factored in, despite the fact that personnel time is valuable and often in short supply. If, however, the staff person received a stipend, received professional development to improve implementation of health pathways, or received extra release time to implement health pathways, this was considered an additional resource and cost.
- As OUSD offers pathways in both health and non-health fields, it was necessary to determine the proportion of the district-level resources that were specific to health pathways.
- School-level resources and costs are presented for the four schools with health pathways participating in this study. In an effort to provide generalizable information rather than focusing on specific OUSD schools, school resources and costs are presented for the four schools in the study in aggregate and the report concludes with the common resources seen across the school sites.

This chapter first addresses ongoing district-level resources and costs, then describes the school-level resources and costs, and concludes with a discussion of start-up costs.

Ongoing District-Level Resources and Costs

This section describes ongoing district-level personnel and non-personnel resources, as well as ongoing district-level costs, identified for coordinating the implementation of health pathways across the district.

Ongoing District-Level Personnel Resources

To implement career pathways, district personnel at OUSD are responsible for a number of tasks:

- district-level coordination;
- assembling of partners;
- providing professional development to school staff (including technology integration);

- assisting staff in obtaining industry certification;
- tracking student data and industry trends;
- coordinating work-based learning at the district level;
- facilitating communication internally and externally;
- facilitating student internships (including coordinating stipends, health clearances, and transportation passes and providing supervision);
- purchasing, maintaining, and replacing supplies, materials, technology, and equipment; and
- setting the schedule at each school to allow for student internships, collaboration between teachers, cohort progression in a pathway, and remediation opportunities (referred to as master scheduling).

District staff members work together to implement these health pathway tasks. The following district-level personnel spend all or part of their time implementing OUSD health pathways:

- Linked Learning director;
- work-based learning coordinator;
- work-based learning liaison;
- industry engagement coordinator;
- data analyst;
- district-level health pathways coach;
- four teachers to supervise internships; and
- master scheduler.

The district-level health pathways coach and work-based learning liaison are specific to *health* pathways. The Linked Learning director, work-based learning coordinator, industry engagement coordinator, data analyst, teachers on special assignment, and master scheduler each devote their time to *all pathways*, not solely to health pathways.

OUSD supports 32 pathways, seven of which are health pathways, so this analysis assumed that the time of staff who work with all pathways (not health pathways specifically) was evenly allocated to each pathway; thus, 21.9% of their time (7/32) was attributable to health pathways. In addition, the data analyst spent only 25% time on duties related to pathways, and the calculation of the analyst's costs included that factor.

Ongoing District-Level Non-personnel Resources

Besides staffing, the district spends additional dollars for professional development, including school-level professional development workshops, teacher stipends, travel, substitutes, and curriculum integration related specifically to health pathways. OUSD also provided funding for three teachers to obtain industry certifications in health fields and for stipends and transportation passes for students to commute to internships. Finally, the district also purchased health-specific textbooks for certain courses and provided funding to replace technology and equipment in health pathways.

Ongoing District-level Costs

Table 3 presents the costs associated with the personnel and non-personnel resources identified above. APA calculated total personnel costs by multiplying compensation for each position by the portion of each person's FTE (full-time equivalent) devoted to health pathways and then aggregated across positions. This personnel aggregate was then added to the non-personnel total costs.

Table 3: District-Level Costs, 2018–19		
Personnel		
Cost Component	**Percent Time on Health Pathway Work**	**Costs ($) Attributable to Health Pathways**
Linked Learning director	21.9	37,808
Work-based learning coordinator	21.9	35,103
Work-based learning liaison	100	88,927
Industry engagement coordinator	21.9	33,912
Data analyst	5.5	7,399
District-level health pathways coach	100	129,482
Master scheduler	21.9	21,900
Four certificated internship supervisors *(total cost shown)*	N/A	44,000
Total Personnel Costs		**$398,531**
Personnel Costs per Student		**$341**
Non-personnel		
Professional development		47,326
Industry certifications		7,500
Student internships (stipends, transportation)		17,400
Supplies, materials, equipment, technology		15,000
Total Non-personnel Costs		**$87,226**
Non-personnel Costs per Student		**$75**
Total District-Level Costs		**$485,757**
District-Level Costs per Student		**$416**

District-level costs in OUSD in 2018-19 totaled $485,757 spread across all 1,168 students enrolled in the seven health pathways. District-level personnel costs per student were $341 and non-personnel costs were $75, for a total of $416 per student to implement health career pathways at the district level. This does not include school-level costs or start-up costs.

Ongoing School-Level Resources and Costs

This section describes ongoing school-level personnel and non-personnel resources for implementing health pathways across the four OUSD schools that participated in this study. The study team found both similarities and differences in the resources used at each case study school to implement health pathways.

Similarly, the case study schools in OUSD all undertook the following tasks to implement health pathways in their school:

- coordinating pathways at the school level;
- offering more class periods in a day to deliver pathway specific courses with sequenced cohort progression, as well as teacher collaboration opportunities;
- facilitating work-based learning opportunities and providing internship supervision;
- providing release time (non-teaching period) for pathway leads; and
- providing student support.

In addition to personnel, each school had non-personnel resources for administration, professional development, student opportunities, outreach and supplies, and materials and equipment.

However, as noted there was variation in the type and number of personnel needed at each school to accomplish the tasks listed above, as well as the specific dollar figures associated with non-personnel areas. From the interviews with case study school personnel, there were a number of possible reasons for the variations observed. First, schools make different implementation decisions to best suit the context of their schools. One school chose to provide student support via existing counselors, while another chose to hire school alumni to serve as mentors and provide additional student support. Second, each school has a different level of existing resources available. While more than one school was able to redirect counseling or administrative staff time to address a health pathways task, one of the schools needed to supplement with additional personnel to accomplish the same task. Third, resource needs vary based on the number of pathways a school has; the school with only one pathway has reduced economies of scale compared with schools with multiple pathways that can easily share staff positions across pathways. Fourth, the different health pathways and clinical health pathways have varying costs for supplies, materials, and equipment. Finally, while all case study schools have benefited from having funding via the OHPP, which has enabled them to both implement health pathways and supplement any resource deficiencies, not every school had the resources to implement the pathway to the level that they would have liked to, such as being able to purchase needed supplies and materials.

The next section first presents the resource findings for each of the four case study schools. Then, given the variation observed in resource use from the limited number of case study schools, the study team offers a set of baseline resources common across schools that represent the minimum level needed to implement health pathways in a manner consistent with the case study schools.

Ongoing School-Level Personnel Resources

Table 4 presents the number of additional FTE staff members each participating school used to implement the health pathway at its site. An FTE of 1.0 means that the school employed a full-time staff member for the listed position. Further, these figures represent the total additional FTE needed, in addition to the staff the schools would have had if they had been more traditional high schools without pathways.

Table 4: School-Level Staffing Resources (as FTE)				
Position	**School A**	**School B**	**School C**	**School D**
Site work-based learning liaison	0.20	0.20	0.25	1.00
Pathway coach	0.20	0.20	0.25	0.30
Additional pathway teachers	2.40	1.50	2.0	1.60
Pathway lead teacher release period	0.15	0.33	0.14	0.17
Additional counselors	0.40			
Additional assistant principals	0.40			
Student support specialist		1.00		
Time for teachers for coordinator/supervision *(shown as FTE)*	0.07	0.45	0.08	
Extra collaboration period			0.43	

All four schools implemented pathways using at least some additional staffing for a site work-based learning liaison, pathway coach, additional pathway teachers, and release time (non-teaching period) for the pathway lead teacher. Other schools added staff, including counselors, assistant principals, and a student support specialist.

The site work-based learning liaison works with the district work-based learning coordinator to identify and facilitate internships and other work-related opportunities such as field trips and job shadowing. The pathway coaches work with teachers to improve the implementation of health content, including coordinating and providing professional development, helping coordinate industry certification, and sometimes participating in outreach to potential partners or postsecondary institutions. Pathway teachers provide industry knowledge and skills to students, and the additional FTE noted above were needed to provide a full schedule of pathway courses in an eight-period day. Release time is a need for pathway lead teachers to help coordinate instruction and facilitate collaboration in the pathway.

Within these core staffing areas were a couple of key variations among schools. The school that operates only a single pathway does not have the same opportunity to share resources across pathways as the three schools that operate at least four pathways. This single-pathway school had a full-time work-based learning liaison (instead of a partial FTE) but was able to share a pathway coach position with two other district schools and realize some economies of scale with that position.

The other three schools all had additional staffing beyond these four positions. All four schools used counselors and assistant principals to help administer pathways, although only one school had additional counselor and additional assistant principal staffing that it reported were specific to the pathways. Counselors help advise students about pathways before application and after pathway selection. Assistant principals provide leadership and problem solving, assist with pathway-specific

student interventions, liaise with District and other departments, and support teams of pathway teachers in refining and growing their program.

Three schools had teachers on special assignment to address a variety of tasks including helping coordinate the pathway, supervising internships during the school year and summer, and communicating with families. One school also had a full-time support specialist (an alumni of the pathway) to provide pathway students support and mentoring, while another school had an extra collaboration period for pathway teachers three times per week.

Ongoing School-Level Non-personnel Resources

This section describes the additional ongoing non-personnel resources for implementing health pathways at each school, consolidated into the following five categories:

- **Administration and coordination**. Most health pathway tasks for administration and coordination were included in personnel costs. The non-personnel resources were for rent or to provide meeting space and food for advisory board and community members.
- **Professional development**. Professional development resources included stipends for staff, a teacher retreat, project-based learning training, and substitute costs.
- **Student outreach and marketing**. The level and range of outreach the schools conducted varied significantly. Two of the three schools with more additional resources in this area hosted a pathway fair, attended middle school expos, and printed promotional materials for prospective students, such as a brochure. The school with lower costs in this area spent money on food for a family night fair.
- **Student opportunities, including Internships.** Student opportunities included internships, showcase events such as project expos, field trips, and mentoring programs. Non-personnel resources for internships included the school contribution to student internship stipends and transportation passes for students to commute to their internships. Only two of the schools provided transportation assistance. The resources for coordinating and supervising internships were included under personnel costs and were not factored in here. One school also offered a mentoring program for students.
- **Supplies, materials, technology, and equipment**. This resource category included textbooks, consumable materials, lab equipment, and materials and technology, all of which need to be maintained regularly and/or replaced and updated every 4–6 years.

Ongoing School-Level Costs

The ongoing, marginal costs for each case study school that were associated with implementing health pathways, including personnel and non-personnel costs, are summarized in Table 5; these costs are above and beyond those costs incurred in a traditional high school without pathways.

Table 5: Ongoing School-Level Costs, 2018–19				
	School A	**School B**	**School C**	**School D**
Personnel ($)				
Site work-based learning liaison	17,419	17,419	21,773	87,094
Pathway coach	29,050	29,050	36,313	43,575
Additional pathway teachers	214,159	133,850	178,466	142,773
Pathway lead teacher release period	13,368	35,649	14,367	17,824
Counselors	42,273			
Assistant principals	59,759			
Student support specialist		43,440		
Time for teachers for coordination/supervision	12,793	17,847	7,196	
Extra collaboration period			38,243	
Total Personnel Costs	**$391,496**	**$281,352**	**$297,269**	**$291,266**
Personnel Costs per Student	**$2,028**	**$1,202**	**$1,893**	**$1,855**
Non-personnel ($)				
Administrative		2,000	100	
Professional development	11,590	11,800	3,000	
Outreach/marketing	3,965	70	1,813	
Student opportunities, including internships	23,050	27,500	23,250	40,150
Supplies, materials, technology, and equipment for each health pathway	2,000	22,500	$52,000	5,000
Total Non-personnel Costs	**$40,605**	**$83,870**	**$80,163**	**$45,150**
Non-personnel Costs per Student	**$210**	**$358**	**$511**	**$288**
Total School-Level Costs	**$432,101**	**$365,222**	**$377,432**	**$336,416**
School-Level Costs per Student	**$2,238**	**$1,560**	**$2,404**	**$2,353**

On the personnel side, the largest singular cost was employing sufficient numbers of pathway teachers, while the two most significant areas of non-personnel costs were for student opportunities and supplies, materials, technology, and equipment.

Total pathway costs ranged from about $335,000 to $432,000 and do not appear to be related to size of pathway. Costs per pathway student varied from about $1,500 in the school with a pathway of more than 200 students to about $2,400 in the schools with the pathways of around 150 students. This negative linear relationship- where per pathway student costs decrease as size of pathways increased- further suggests that the resources associated with a pathway are somewhat fixed and not dependent on the number of students. Some key areas of cost difference were the following:

- The school that attributed additional counselors and assistant principals to implementing pathways had the highest cost for personnel staffing. Another school of similar size had the

same number of counselors and assistant principals but did not consider any of those positions to be additional related to having pathways; this school felt it would need these positions even if it did not have pathways. For the first school, counselor and assistant principal staffing was just over $500 a student, so costs for this school would have decreased dramatically if these resources had existed before pathways.

- The school with only one pathway incurred the cost of a full-time site work-based learning liaison. Compared with schools with multiple pathways, the cost for work-based learning support was four to five times higher.
- One school employed a student support specialist, and another added an extra collaboration period, both at an additional cost of about $40,000 compared with other schools.
- For student opportunities, costs varied by school based on the number of students who received stipends (from 20 to 40 students) and if the school provided transportation assistance (only two schools did). Additionally, the school with the highest expenditure in this category also offered a mentoring in medicine program to support students of color to enter the medical field.
- Supplies, materials, and equipment costs also varied, both with type of program and the level of resources available. For example, while one school reported spending $5,000 that year for supplies and materials, it felt $50,000 would be a more appropriate representation of the cost to properly equip the program.

The next section offers a set of baseline resources that reduce this variation and instead focus on the common resources identified as necessary. Although some schools may have the resources or desire to expend extra resources on implementing health pathways, the baseline resources identified in this report include only the minimum resources necessary.

Baseline School-Level Resources Needed to Provide Health Pathways

As shown in Table 5, each case study school varied in its approach to implementing its health pathway. However, common resources were observed that could be considered to be a minimum, or baseline, for implementing a new health pathway in a manner similar to that of OUSD where where the intention is that all students in grades 10-12 in a school are eventually enrolled in a pathway. More specifically, the following common staffing resources were observed across multiple school sites:

- a partial FTE work-based learning coordinator (at least 0.2 FTE);
- a partial FTE pathway coach (at least 0.2 FTE);
- additional pathway teachers to offer courses in an eight-period or block schedule (about 1.0 FTE per 100 students);
- release (non-teaching) period for pathway lead; and
- additional time for teacher to provide coordination or supervising internships (often paid as a stipend).

APA suggests that these are the *baseline staffing resources* needed to implement a health pathway based on the experience of OUSD schools. All sites also indicated the need for support from administration, counselors, or other student support personnel, as well as time for collaboration among pathway staff members. These elements were not consistent across sites, however, and may represent either differing levels of existing available resources or differing implementation models. If these functions did not already exist in a school at the appropriate level, additional staffing would be required to support a new health pathway.

Additionally, all four schools incurred resources and costs to provide student opportunities related to health pathways, and all four schools provided stipends for student internships and internship transportation and for supplies, materials, equipment, and technology for health pathways. Across all four schools, average school-level expenditures for non-personnel resources were about $60,000.

Adding the average expenditure for non-personnel resources to the baseline staffing resources above would be about **$315,000 for a pathway on an annual, ongoing basis**. If that pathway served 200 students, the school-level baseline cost would be about $1,575 per student annually.

Total Ongoing District- and School-Level Costs

In summary, the baseline school-level cost of $1,575 per student[18] combined with the district per student figure of $416 suggests **a total baseline cost of about $2,000 per student**. This figure would vary based on the unique circumstances of another school or district, such as cost of living, ability to have economies of scale due to the size of the district or number and size of pathways, or underlying level of resources and existing staffing. For example, one of the primary cost drivers was the additional pathway teachers needed to move to an eight-period day, so a school or district that was already structured in that way would require less additional resources to implement a health pathway.

Districts and schools would also incur start-up costs during the planning phase and other one-time costs to establish necessary facilities, discussed in the next section.

One-Time District- and School-Level Resources and Associated Costs

One-Time District-Level Resources and Associated Costs

OUSD has been implementing one high school health pathway for more than 30 years and another for 17 years. When funding from Linked Learning, The Atlantic Philanthropies, and other sources became available, OUSD was able to improve and expand its health pathways. However, district staff had difficulty accurately recalling the resources and costs associated with a health pathway more than a year or two in the past. District administrators also change over time, which further limits the historical knowledge about resources and costs.

[18] Assuming 200 students in the pathway in a school with multiple pathways.

While APA could not collect new information on start-up tasks at the district level, APA's background with Linked Learning offered some relevant information about the types of start-up district-level tasks associated with implementing pathways. The tasks that should be considered are the following:

- planning for the implementation of pathways/Linked Learning (needs assessments, implementation plan, developing course sequences, designing curriculum, and budgeting);
- providing initial professional development to district and school staff, including getting buy-in;
- creating a community coalition to advise and support the pathways;
- setting up work-based learning;
- designing and creating systems to track student data and industry trends; and
- facilitating internal and external communication about pathways.

One-Time School-Level Resources and Associated Costs

Similarly, given the amount of time since OUSD implemented its first health pathway, it was not possible to collect accurate data on start-up costs from the schools, as most staff members had not been present at the time of implementation.

Based on APA's prior experience with Linked Learning, additional school-level start-up tasks are:

- assessing the needs for pathways;
- securing teacher buy-in;
- modifying the schedule;
- creating and implementing pathway curriculum; and
- assembling and hosting advisory board meetings.

Although APA could not gather information about all these tasks from the OUSD schools, the study team was able to discuss some large one-time tasks that OUSD staff did recall doing to implement health pathways. One of the four schools added extra periods to the school day, and another school wanted to move to block scheduling to improve pathway instruction. All the schools provided release time for pathway leads and additional time for teachers to collaborate for the purpose of aligning pathway instruction. Two of the schools participated in one-time curriculum development to enable them to better integrate the laboratory into instruction. The decision to modify the schedule therefore had an impact on ongoing costs but should not be considered a one-time cost.

Three of the four OUSD high schools participating in this study were able to provide a cost figure for installing a health lab, at an average cost of $62,000.[19] The school with the health and fitness pathway installed a small gymnasium in the school at a cost of $6,500. On average, the per-student cost for setting up facilities would be $369 per health pathway student.

[19] One school did not provide a cost estimate for the laboratory, so this is an average across three schools.

IV. Additional Resource Lessons Shared by OUSD Staff

The personnel and non-personnel resources identified in this study could be organized and used in a number of ways to accomplish the tasks associated with implementing health pathways. OUSD focuses on organizing resources to provide "enabling conditions" for pathway success. OUSD staff members interviewed as part of this study suggested the following recommendations to other districts considering implementing health pathways in their schools:

District and school leadership need to fully support pathways. The most important enabling condition is having school leadership that is behind the pathway and working toward its success. This includes the school's primary leader and additional assistant principal staff. While a principal would be an existing resource, providing the district-level opportunities for school leaders to engage and buy in to the pathway model is important, as is having a sufficient assistant principal staff if it does not already exist at the school. Further, district-level staff provide the oversight and strategic vision necessary for pathway implementation. OUSD's including pathway opportunities for all students as part of its long-term strategic vision is a factor that the study team believes is crucial to the sustainability of pathways in the district.

Schools need to be structured to offer an eight-period day that includes student cohort course progression, credit recovery, internship opportunities, and teacher collaboration. First, schools need to be on an eight-period day (or a similarly staffed block schedule) for necessary pathway courses to be offered, which requires additional teacher staffing. Second, a master scheduler is recommended at the district level to handle scheduling for all schools. Master scheduling allows time for critical program components during the school day, including internships with industry partners, teacher collaboration and planning, opportunities for credit deficient students, and cohorting of students, an evidence-based practice that supports student success. OUSD has found that handling scheduling at the district level is most successful for consistency at school sites.

Staff members need to be aligned, and specific when feasible, to each pathway. As much as possible, all staff members need to be aligned with the pathway so that they are focused on pathway students and the goals of the pathway. This means that personnel need to be well trained and knowledgeable about the pathway and related careers and, when possible, serve only students within a given pathway. This includes teachers, counselors, and administrators to ensure that instruction, advisement, discipline, student data and tracking, and parent engagement are all pathway specific. Ideally, even special education teachers and English learner teachers should be aligned with a specific pathway. This also involves providing pathway-specific professional development and industry certification for staff. Coaching from both site-based and district-based staff was also seen as critical.

Work-based learning opportunities need to be integrated into and aligned with each pathway. These opportunities need to be embedded in the pathway to help students make sense of the academic

content and apply it to the real world. Further, work-based learning also needs to be oriented to the pathway to ensure all the learning opportunities are meaningful and applicable to achieving the goals of the pathway. This requires work-based learning coordination at the district and school levels to develop industry partnerships and identify student opportunities, as well staff to provide supervision and stipends for students to support participation.

Equipped facilities need to be provided for each pathway, and when feasible space should be contiguous. Lab and facility space, including necessary materials and equipment, is essential for embedded industry instruction. Additionally, having schools set up in a manner that allows for pathway classes to be near each other allows for greater pathway ownership, identity, and collegiality by supporting teacher collaboration and intentional culture building through creating a small learning community. This sometimes requires a reconfiguration of space, which can be costly, and also requires upgraded equipment and technology. On an ongoing basis, having the resources to maintain equipment and replenish supplies and materials is necessary.

V. Conclusion

OUSD has a long history of implementing career pathways in its schools and in recent years has been able to expand the number of pathways offered across the district as a result of additional funding. APA's cost study of the OUSD health pathways that are a part of the Oakland Health Pathways Project included interviewing district staff members and conducting case studies of four Oakland high schools with health pathways to understand the resources (personnel and non-personnel) and costs associated with implementing health pathways.

Although the context of OUSD and its schools may be unique given their demographics, setting, and access to certain funding sources, the case studies in OUSD offered insight into the minimum, or baseline resources, needed to implement health pathways, strategies for resource organization, and approximate costs that can be helpful for a district considering implementing health pathways to support student success. The cost study found a baseline school-level cost of $1,575 per student combined with the district per student figure of $416, for a total baseline ongoing cost of about $2,000 per student per year. This figure would vary based on the unique circumstances of another school or district, such as cost of living, ability to have economies of scale due to the size of the district or number of pathways, or underlying level of resources and existing staffing. Additional one-time and start-up costs—at both the district and school levels—would also be incurred by a district beginning health pathways.

OUSD pathway staff also provided the following additional recommendations on implementation as lessons learned for districts new to pathways: district and school leadership need to fully support pathways; schools need to be structured to offer an eight-period day (or similarly staffed block schedule) that includes student cohort course progression, credit recovery, internship opportunities, and teacher collaboration; staff need to be aligned, and specific when feasible, to each pathway; work-based learning opportunities need to be integrated into and aligned with each pathway; and equipped facilities need to be provided for each pathway, and when feasible space should be contiguous.

Appendix A - Interview Protocol, Tasks

During interviews, participants were asked to identify resources, if used, about a specific set of ongoing and start-up tasks at the school and district levels. The following tables present these task items:

1. District-level ongoing tasks
2. School-level ongoing tasks
3. District-level start-up tasks
4. School-level start-up tasks

District-Level Ongoing Tasks
1) Provide district-level coordination of health pathways.
2) Create broad community coalition to support and inform the pathways. This includes assembling local partners such as nonprofits, businesses etc.
3) Provide professional development (internal and/or external) specific to health pathways for district staff.
4) Provide professional development specific to health pathways for school staff.
5) Help staff understand and integrate health pathway-specific technology into their instruction and into student projects.
6) Develop and maintain curriculum with teacher preparation institutions that prepare teacher candidates for project-based instruction and industry certifications.
7) Maintain and refine systems to track and report on industry trends as well as on student data.
8) Facilitate true open enrollment across the district. This includes creation and maintenance of a database program to manage applications, registration and enrollment.
9) Coordinate work-based learning at the district level. This includes developing industry relationships and developing district-wide systems that help coordinate site work-based learning and reduce redundant contacts.
10) Facilitate internal and external communication about health pathways. This includes website improvements, as well as managing partners, and meeting with the Chamber of Commerce.
11) Provide stipends for students to participate in internships.
12) Provide transportation for students to internships.
13) Provide supervision of students during internships.
14) Coordinate student health clearances to enable them to participate in internships in health environments.
15) Purchase, maintain, and replace relevant supplies, materials, technology, and equipment for each health pathway.
16) Master scheduling.

School-level Ongoing Tasks	
1.	Coordinate health pathways at the school site.
2.	Assemble and host advisory board meetings.
3.	Provide additional teaching FTE to cover any gaps necessary to meet graduation or health pathway course requirements.
4.	Provide release time for health pathway lead.
5.	Provide clerical support to health pathways.
6.	Provide pathway-specific advisement to potential and existing health pathway students.
7.	Provide ongoing professional development (including coaching and summer institute) specific to health pathways, for teachers.
8.	Reach out to middle schools to educate students about health pathway opportunities. This includes visits to middle schools and the creation of promotional materials such as videos and brochures.
9.	Offer summer bridge events for incoming pathway students. This includes orientation as well as cross- curricular projects to prepare students for health pathway instruction.
10.	Offer evening recruitment, showcase and recognition programs to showcase the health pathways and provide time for students to demonstrate their work and receive recognition for it.
11.	Provide opportunities for health pathway students to participate in field trips that relate specifically to the health pathway.
12.	Provide stipends for students to participate in internships.
13.	Coordinate health-related internships at the school-level. This includes developing industry relationships and systems that help coordinate site work-based learning and reduce redundant contacts.
14.	Provide transportation for students to internships.
15.	Provide supervision of students during internships.
16.	Purchase, maintain, and replace relevant supplies, materials, and equipment for each health pathway.
17.	Purchase, maintain, and replace relevant technology for each health pathway.

District-level Startup Tasks
1. Planning instructional support systems
2. Planning implementation of Linked Learning at the district level:
a. *Assessing district needs for Linked Learning (student population, existing pathways, existing staff expertise, facilities, etc.)*
b. *Securing district leadership buy-in for Linked Learning*
c. *Securing school leadership buy-in for Linked Learning*
d. *Developing district implementation plan for Linked Learning*
e. *Providing vision and guidance to school leaders on how to effectively implement Linked Learning*
f. *Designing course sequence/graduation requirements for Linked Learning*
g. *Designing Linked Learning-specific curriculum*
h. *Planning for and managing the budget*
3. Creating a community coalition/advisory board to support/inform the pathways.
4. Managing and using Linked Learning data
a. *Designing and creating systems to track and report on industry trends and on student data.*
5. Planning work-based learning
6. Coordinating work-based learning at the district level
a. *Developing industry relationships and developing district-wide systems to help coordinate site work-based learning and reduce redundant contacts.*
7. Providing initial professional development for Linked Learning
8. Providing initial Linked Learning professional development for district staff
9. Providing initial Linked Learning professional development for school staff
10. Providing opportunities for staff to attend external conferences and training related to Linked Learning, such as the Linked Learning Summer Institute

School-level One-time Tasks
1. Plan for implementation of health pathways by:
a. *Assessing school needs for health pathways (student population, existing pathways, existing staff expertise, facilities, etc.)*
b. *Securing teacher buy-in for health pathways*
c. *Designing/modifying schedule to ensure all core classes can be taken exclusively with students in the same health pathway*
d. *Creating curriculum health pathways.*
2. Assemble and host initial advisory board meetings
3. Set-up Needed Facilities

Appendix B - Salaries and Benefits for Cost Calculations

Salaries

APA combined data about staff time allocations to pathways with several sources of data on compensation in order to calculate the personnel costs of pathway administration.

District-Level Salaries

First, the district provided 2018–19 compensation information for nearly all district-level staff involved with the implementation of health career pathways. This included compensation for the Linked Learning director, the health pathways coach, the work-based learning coordinator, the work-based learning liaison, the industry engagement coordinator, two pathway coaches, and four district-level teachers on special assignment. APA used this district-provided compensation information for all these personnel cost calculations. Compensation information for the district-level data analyst who devotes some time to health pathways was not provided by the district and thus was calculated separately, as described for school-level staff below.

School-Level Salaries

OUSD did not provide salary information for school-level staff, and the California Department of Education does not collect information by district on the salary and benefits associated with most school and district positions. The exception is teacher salaries. In 2017–18, the average teacher salary in OUSD was $63,149.

For nonteaching positions (including the district data analyst position and other school-level staff), APA used data collected by Transparent California. Transparent California is a database of California public employees that is compiled by the Nevada Public Research Institute. The database provides salary information for school and district employees by name or position.

Salaries for the following positions were collected from the Transparent California database:

- district-level data analyst (looked up by name);
- site work-based learning liaison (using the OUSD site average salary for this position);
- pathway leads (using the OUSD average salary for department head);
- college career pathways coaches (using the OUSD average salary for this position);
- counselor (using the OUSD average salary for this position); and
- assistant principal (using the OUSD average salary for a high school assistant principal).

The Transparent California database does not include information about whether a listed salary amount is for a full- or part-time position. Thus, APA excluded any salary amounts that appeared to be for a partial FTE, using minimum salary schedule figures to exclude any amount below those levels.

Salary information from the state and Transparent California were adjusted for inflation as needed to translate into 2018–19 dollars.[20]

Benefit Rate Calculation

Staff compensation includes both salary amount and fringe benefits. To calculate total compensation for teachers and other school-level staff positions, APA used 2017–18 expenditure data (the most recent year available) for OUSD collected by the state to calculate a salary-to-benefit ratio. Specifically, APA aggregated state total certificated staff benefits for the following[21]:

- State Teachers' Retirement System;
- Public Employees Retirement System;
- OASDI/Medicare/Alternative Retirement System;
- health and welfare benefits;
- State Unemployment Insurance;
- Worker's Compensation;
- OPEB Retirement for Active Employees; and
- other benefits.

The total expenditure in OUSD for these certificated staff benefits in 2017–18 was $54,529,715. To calculate the benefit rate, APA divided this benefit total by the district's 2017–18 expenditure for certificated staff salaries ($153,700,801). APA then applied the resulting benefit rate of 35.48% to collected salary information. For example, as noted, the average 2017–18 teacher salary for OUSD was $63,149. Applying the benefit rate of 35.5% resulted in an average benefit amount of $19,464 per teacher and average total compensation (salary + benefits) of $85,554, or $89,233 inflated to 2018–19 dollars.[22]

[20] The most recent year of compensation data provided by Transparent California at the time of study was from 2016–17, and the data from the state for teacher salaries was from 2017–18. Therefore, salaries from these two data sources needed to be adjusted for inflation. APA used Consumer Price Index (CPI) information for the San Francisco-Oakland-Hayward area produced by the U.S. Department of Labor's Bureau of Labor Statistics. On the basis of this information, APA adjusted the 2016–17 Transparent California data by 7.4% and the 2017-18 CDE teacher salary data by 4.3% to inflate to 2018–19 dollars.

[21] General Fund Expenditures by Object Code, 2017–18, California Department of Education. http://www.ed-data.org/state/CA

[22] Benefit costs in California have increased significantly statewide since 2013–14. At the time of APA's prior Linked Learning study, which used the same information sources for salary and benefit information from that year, the benefit rate was 27.5% and for 2017–18 it was nearly 41%. This is an important consideration for the generalizability of this study's cost information to other states that may not be experiencing such dramatic increases in benefit costs.