



EXECUTIVE SUMMARY



The world that our students will enter after they graduate is rapidly changing. To thrive in this undefined, but exciting future, students will need a strong foundation of content and technical skills, as well as the critical thinking, communication, and problem-solving skills necessary to become lifelong learners. With these skills in mind, Portland Public Schools developed a Graduate Portrait that defines the attributes of a college and career ready student and presents a vision for the type of system that could produce these graduates.

This ambitious vision is our district's promise to students and families that when students graduate they will have the skills and experience they need to thrive. The College and Career Readiness (CCR) Master Plan summarized here is our district's plan for delivering on that commitment. We believe that this plan, in coordination with implementation of a Guaranteed and Viable Curriculum (GVC), a multi-tiered system of supports (MTSS), and a focus on integrated science, technology, engineering, arts, and math (STEAM), has the potential to transform our educational system. The plan is a commitment to create more personalized, relevant, and engaging learning experiences where every student has access to rigorous college-level coursework, personalized student supports, career and technical education (CTE), and project-based learning. The plan is based on a belief that a more engaging, rigorous, and relevant education will improve attendance, persistence, achievement, completion, and ultimately post-secondary success.

PPS developed the plan by (a) soliciting feedback and input from key stakeholders, including high

school principals, teachers, students, district staff, board members, and an Advisory Council; (b) conducting an in-depth assessment of the district's CTE and CCR programs; and (c) reviewing research on the effectiveness of specific college and career readiness approaches. The outcome of this process of combining community input with evidence-based practice is a proposal to create **thematically-based college and career pathways** in PPS high schools. Although schools' specific pathways would be designed in collaboration with their communities, each of these vertically integrated cohorts would be characterized by the following design principles.

This plan builds on the significant investment PPS has made in facilities and CTE programming over the past decade. Introducing vertically integrated, thematically focused pathways provides a framework for students' individual classes and educational experiences to hang together. Whether industry, STEAM, or humanities-focused, a theme would help students make connections between disciplines, and provide opportunities to engage in authentic, inquiry-driven, interdisciplinary work.

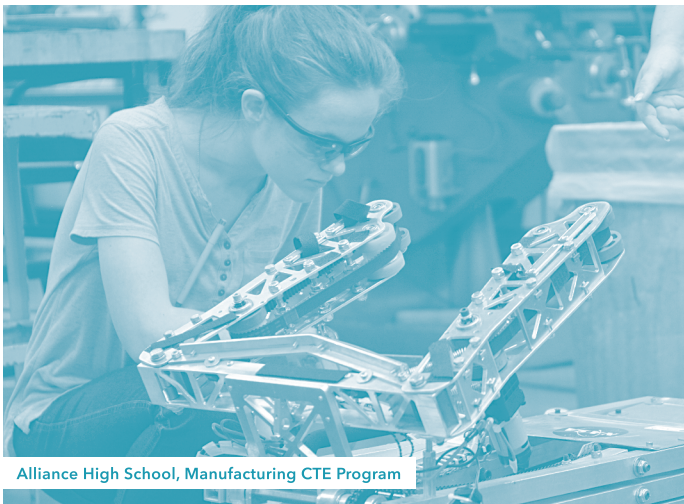
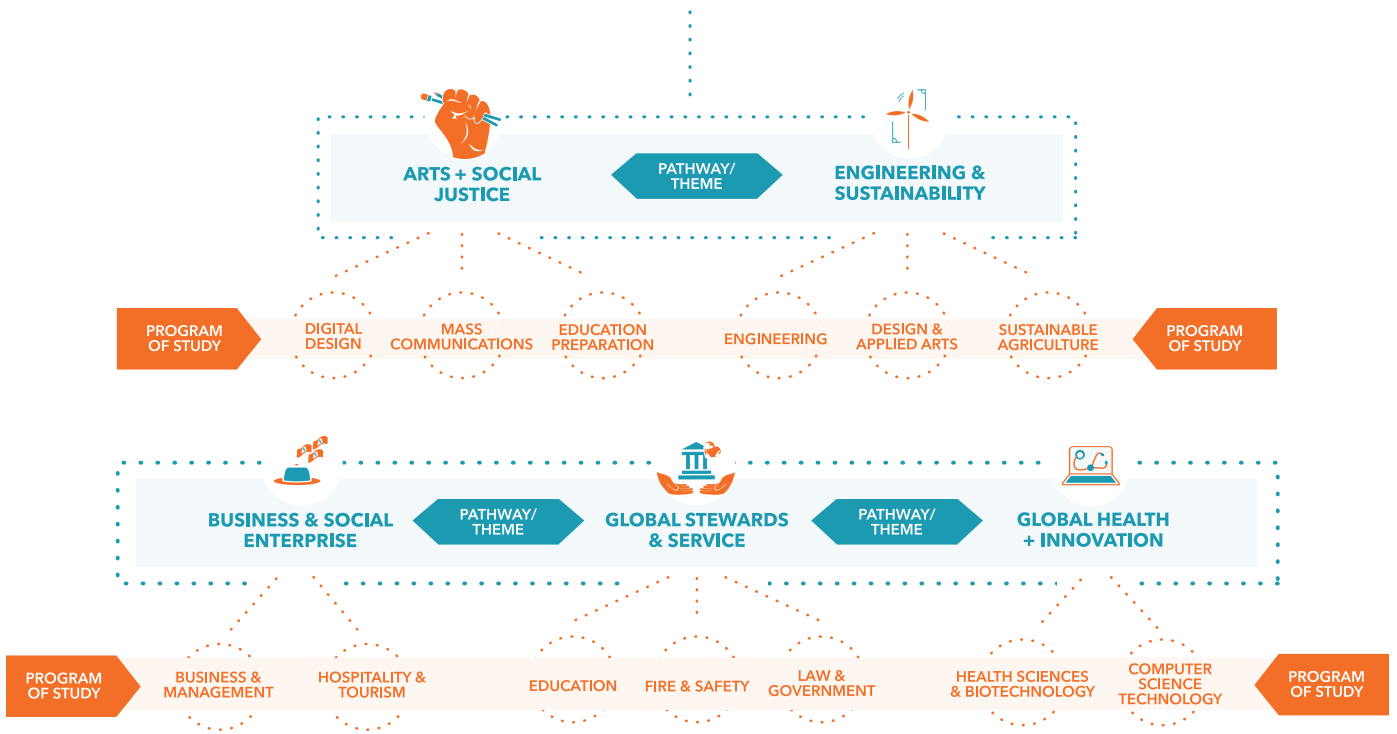
FICTIONAL
HIGH SCHOOL
 OF ABOUT 1800 STUDENTS

ALL 9TH GRADE STUDENTS



ALL 10-12TH GRADE STUDENTS

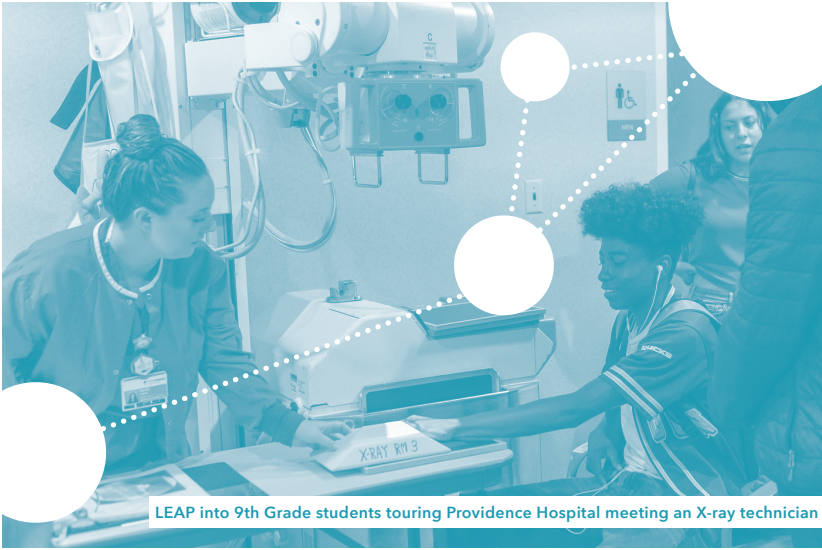
COLLEGE AND CAREER PATHWAYS AND THEMES



Alliance High School, Manufacturing CTE Program



Franklin High School, Video Production CTE Program



LEAP into 9th Grade students touring Providence Hospital meeting an X-ray technician

TEACHING AND LEARNING

Teachers would have common planning time to develop interdisciplinary, project-based curriculum that prioritizes deep inquiry over breadth. Common formative, performance, and portfolio assessments would allow teachers to monitor the effectiveness of their teaching and make adjustments based on student need.

PROJECT-BASED LEARNING EXPERIENCES

Each pathway would offer a continuum of thematically aligned project-based learning that would allow students to apply knowledge and skills from multiple content areas to engaging questions, problems, or challenges. This continuum would also include career awareness, exploration and preparation opportunities such as workplace tours, job shadows, student-based enterprises, and internships.

PERSONALIZED STUDENT SUPPORTS

Small pathways learning communities of 200-400 students would improve the ability of teams of teachers and counselors to monitor student progress and design, track, and adjust interventions. More broadly, pathways would provide a sense of community and improve students' sense of belonging.

CAREER/INDUSTRY/THEMATIC FOCUS

Each comprehensive school would provide 3-6 vertically integrated pathways, depending on school size. Ideally, each pathway would enroll at least 200-300 10th through 12th grade students, and be organized around a theme. These themes could be Humanities and/or STEAM based (e.g. Arts and Social Justice) or connected to a specific career or industry (e.g. Global Health and Innovation).

INTEGRATED CTE AND CORE

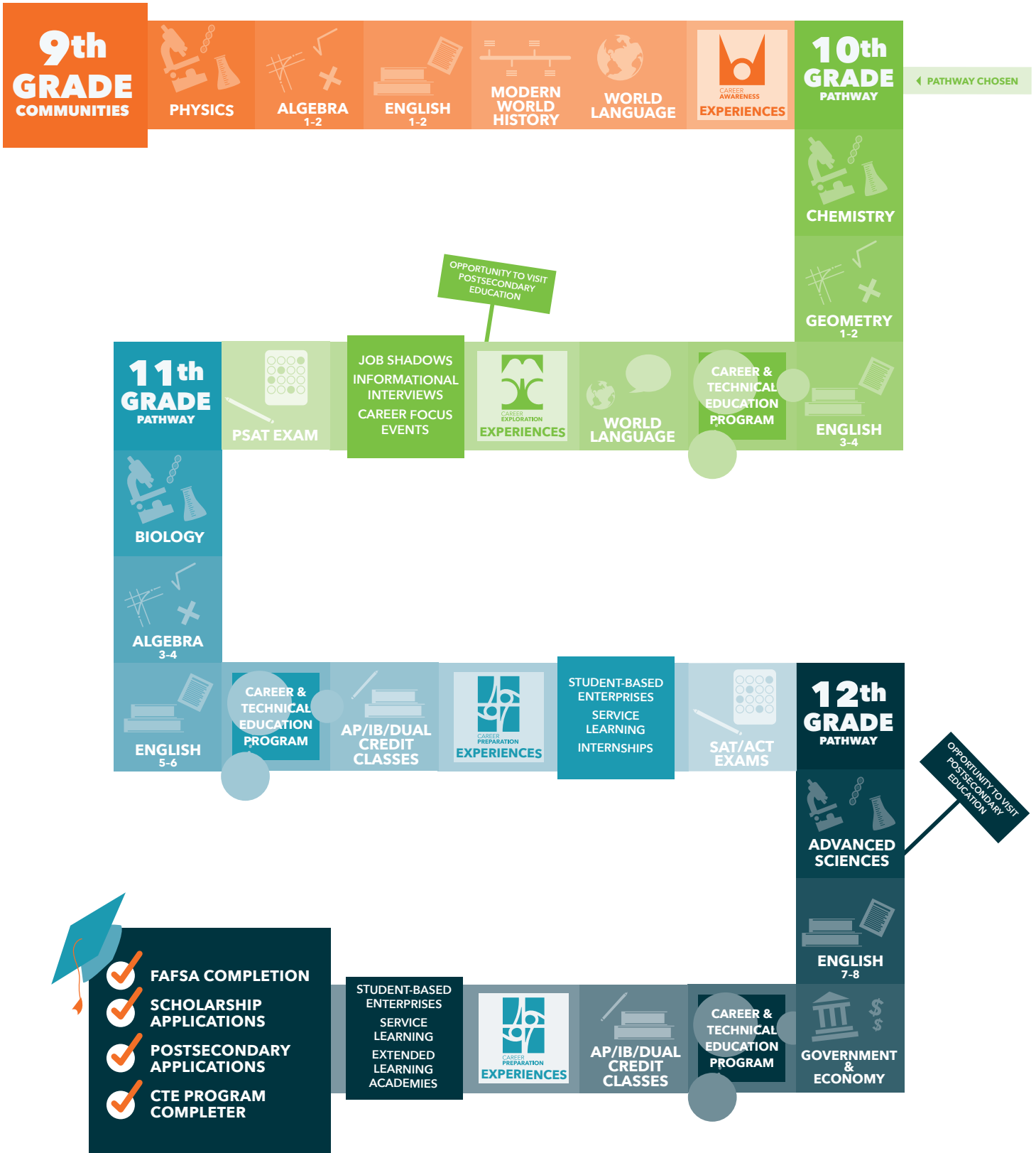
Pathways would include high levels of integration between CTE and core academic classes. To facilitate this, teachers would have common planning time and would be encouraged to earn dual CTE and academic endorsements. CTE coursework would include state-approved programs of study that allow students to earn industry certifications and stackable credentials.

SPECTRUM OF IMPLEMENTATION

These design principles can be implemented in ways that take into account the size, structure, and specialized nature of focus-option, alternative, and charter schools. For example, Benson would continue to be the focus-option CTE high school for students interested in programs offering more in-depth project-based and work-based learning opportunities, and specialized facilities, equipment, and staff. Jefferson, Alliance, Metropolitan Learning Center, and Community Based Organizations would still function as district-wide options for students. Implementation in the districts' alternative education system could leverage and accelerate the federally funded Personalized, Relevant, Engaged for Postsecondary (PREP) Project.

- We are not recommending a system to track and sort students. Each pathway, regardless of theme, must provide equal access to rigorous college-level coursework, and provide equally viable avenues to college and career. Lessons from Portland's prior experience with small learning communities must be used to improve implementation.
- We are not suggesting that the choice of a particular pathway or theme should constrain or determine a student's college or career options. The themes would function as a form of connective tissue for students' experiences, not as a commitment to pursue a particular career path.
- We are not recommending a move away from rigorous disciplinary literacy. Instead, we believe that the world class education we envision for Portland Public Schools can elevate and liberate the mind, while also preparing our community's young people for their future.
- We are not recommending one more thing. Instead, this plan provides an opportunity to operationalize the Graduate Portrait, address the goals of the High School Strategic Plan, build on the GVC, and leverage the success of STEAM, Humanities, and CTE.
- We are not recommending small schools, but rather comprehensive high schools with aligned pathways and a variety of whole school programming to provide focus and choice.

INDIVIDUAL STUDENT ROADMAP





INTRODUCTION

Driverless cars and trucks, retail stores and warehouses with no human employees, supermarkets with no cashiers, robots laying bricks and 3D manufacturing replacing carpenters and other construction workers, therapy and legal advice delivered through artificial intelligence, computer-performed surgery, unmanned planes and ships, digital learning and teaching—this is not the future of work; it is the present. All of these scenarios are here now and growing rapidly. The future portends even more dramatic changes that none of us can predict well, other than to say that they will occur with astonishingly increasing speed. A recent McKinsey report estimated that as much as 30 percent of the hours currently worked globally could be automated by 2030, when today's sixth graders will be 23 years old.¹

Automation does not necessarily mean that there will be fewer jobs. But it does mean that the kinds of jobs will be different and require different skills.

Workers of the future will spend more time on activities that machines are less capable of, such as managing people, applying expertise, and communicating with others. They will spend less time on predictable physical activities and on collecting and processing data, where machines already exceed human performance. The skills and capabilities required will also shift, requiring more social and emotional skills and more advanced cognitive capabilities, such as logical reasoning and creativity.²

In the world of today, let alone tomorrow, will Portland's young people be prepared for lasting success in continuing education, career, and civic life?

This master plan helps answer that question. However, it is much more than that. It is a plan that asks the entire Portland community—students, parents, teachers, administrators, employers, postsecondary institutions, community-based organizations, elected and government officials—to define what school should be?³ How will we ensure that all of our community's young people, especially those furthest from opportunity, will be able “to lead change and improve the world,” as envisioned by Portland Public Schools reimagined—the community's vision for our schools, adopted by the Board of Education in June 2019.⁴

As a community, we have much to do. Last year in 2017-18, only 80 percent of Portland students graduated from high school on time, including 71 percent of African Americans, 72 percent of Latinx, and 57 percent of English language learners. Moreover, of those graduating, many lacked sufficient academic and technical proficiency to pursue some form of postsecondary education without remediation and advance beyond entry-level employment.⁵ In short, in an era of rapidly increasing global competitiveness, where quality of life in the United States depends on the continued development of knowledge and skills well beyond high school, we are relegating too many young people to life on the margins, barely subsisting in an underground economy of low wages. Portland must do better.

To change these outcomes, we must change what we are doing. To be sure, career and technical education (CTE) has an important role to play in revitalizing Portland Public Schools. District data indicate that students completing one or more credits of CTE graduate from high school at much higher rates (95 percent) than students who do not. However, CTE alone, no matter how good we

¹ McKinsey Global Institute. Jobs Lost, Jobs Gained: Workforce Transitions in a Time of Automation. 2017.

² Manyika, J. et al. Jobs lost, jobs gained: What the Future of Work will Mean for Jobs, Skills, and Wages. McKinsey Global Institute, November 2017.

³ Ted Dintersmith. What School Could Be. Princeton University Press. 2018.

⁴ Portland Public Schools. Portland Public Schools reimagined. Portland Public Schools, June 2019.

⁵ Presently, there is not good data on postsecondary remediation for Portland graduates. However, it is likely that the patterns are similar to those reflected in national data. See Xianglei Chen. Remedial Coursetaking at U.S. Public 2- and 4-Year Institutions: Scope, Experiences, and Outcomes. Washington, D.C.: The National Center for Education Statistics. September 2016.

make it, cannot alter the trajectory. Most Portland students do not take more than two or three CTE courses during four years of high school. If we do not do something to improve the rest of their high school experience, we will continue on a course of disengagement, dropping out, under achievement, diminished opportunities, and limited economic and social prospects.

Therefore, this is a plan that seeks, first and foremost, to make CTE an integral part of students' larger educational experience, ending the separation of CTE from core academics and creating a new synergy between them. This plan seeks to bring CTE and core academics together in ways that make math, science, English, social studies, world language, and the arts more relevant and experiential while simultaneously applying core content rigor in CTE and helping CTE contribute directly to students' mastery of the problem solving, communication, and critical thinking skills that will be essential for working and living in our 21st Century world. Through this plan, we seek to connect students (and teachers) to adult professionals working outside classrooms to expand horizons, deepen understanding of the world of work, and help make possible what otherwise seems impossible. We seek to design and implement a district system of "college and career pathways" that prepare all students for succeeding in some form of postsecondary education (including advanced training) and launching a career path and a life plan aligned with their aspirations and aptitudes, while effectively adapting to personal and external changes as they emerge. It is, in short, a plan that helps every student leave Portland Public Schools as an "optimistic future-oriented graduate."⁶

This will not be easy to do. As Portland Public Schools reimagined also underscores, ending the separation of CTE from core academics, transforming learning and teaching so that academic and CTE teachers work together to ensure that all young people leave high school prepared for success, and strongly connecting

the classroom to employers and other resources, expertise, and opportunities in Portland will require challenging "system shifts." These shifts are community-wide changes in organizational priorities, operations, and beliefs—challenging and interrupting entrenched notions about what students need to know and be able to do, how students learn and teachers teach, how schools use time and space, how racial bias and other forms of inequity undermine student achievement and diminish opportunity, and how physical and emotional safety (or the lack of it) affects abilities of both students and adults to learn and work.

At the heart of the proposed plan is a shift in teaching and learning aligned with the district's Graduate Portrait, the High School Strategic Plan, and the STEAM Framework. In order to produce graduates with the academic and social-emotional competencies described in these three core district documents, CTE and work-based learning should be integrated with core academic classes. In an integrated CTE model, students engage in transdisciplinary, inquiry-driven, and project-based learning experiences that provide authentic opportunities to engage with problems and projects of real world significance.⁷ If Portland aspires to graduate "inclusive and collaborative problem solvers," who are "inquisitive critical thinkers" and "resilient and adaptable lifelong learners," students must be provided with opportunities to practice these skills in situations that approximate the demands of college, career, and life. The real world is interdisciplinary, open-ended, project-based, and requires the ability to collaborate and communicate. Our schools should be too.

⁶ McKinsey Global Institute. *Jobs Lost, Jobs Gained: Workforce Transitions in a Time of Automation*. 2017.

⁷ Manyika, J. et al. *Jobs lost, jobs gained: What the Future of Work will Mean for Jobs, Skills, and Wages*. McKinsey Global Institute, November 2017

Through Portland Public Schools reimagined, our community has worked hard to clarify and define what it believes to be a whole and complete education and in what it desires as essential traits in its graduates. The community’s vision is also well aligned with the evolving Oregon State Plan for CTE, which adopts a broad view of college and career readiness as evidenced by earning college credit while in high school, participating in challenging work-based learning experiences, and earning valuable industry credentials. This master plan is an important next step in articulating how we will achieve that vision. At the core of our approach to planning and implementation is the firm belief that our students will best be served when academic and CTE teachers, counselors, and administrators—along with employers, postsecondary partners, and other community stakeholders—work together to develop fully the traits that the Portland community desires for its graduates. We envision bringing the Graduate Portrait to fruition and providing all students with the necessary opportunities to leave Portland Public Schools better prepared for their future.

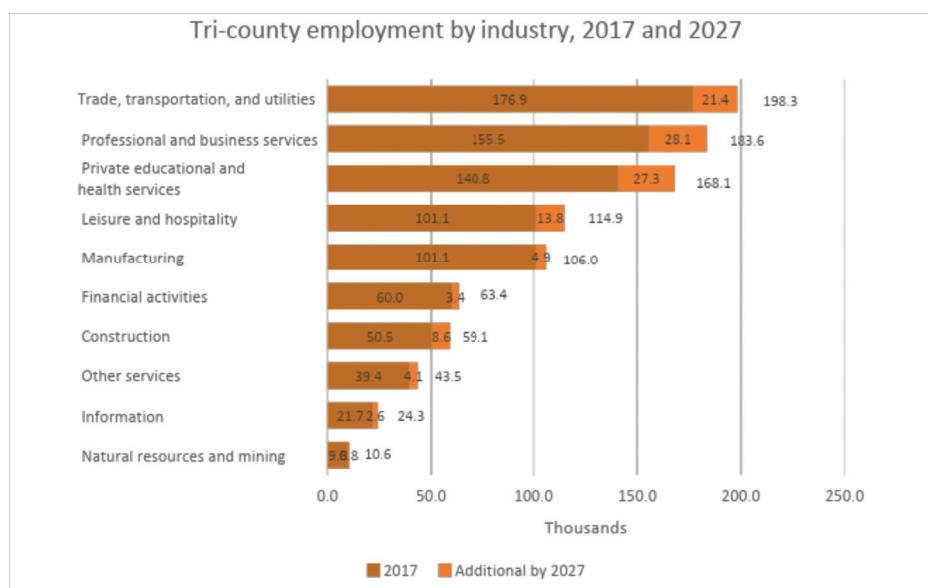
THE PORTLAND METROPOLITAN LABOR MARKET: IMPLICATIONS FOR PLANNING

In planning for career and technical education, it is customary to start with an assessment of current and future labor market conditions, and we do so here. However, we also recognize that it is not sufficient to prepare our students for just the foreseeable workforce. We must also concentrate on producing the learning and teaching that will enable our graduates to learn continuously, adapt to fast changing technological and political-economic conditions, and navigate a world that is interconnected with ever greater complexities. We do not mean to pose this as “either/or” but rather as “both/and,” with attention to achieving a sound balance between understanding the implications of current labor market conditions and ensuring that our young people are prepared

to succeed for the long term in a very different world.

What does the current and near-term labor market look like in the Portland Metropolitan Area? While it is increasingly difficult to project accurately the structure of regional, state, national, and global economies over the mid- to long-term, it is possible to forecast with more certainty over the next decade. By most projections, the Portland Metropolitan Area will continue to enjoy a vibrant and diverse economy. Overall, employment is expected to increase 20 percent from 1 million to 1.2 million workers, with growth rates exceeding 10 percent in most major industries, save manufacturing and finance (**Figure 1**).

FIGURE 1



Source: Oregon Employment Department Data provided by Andrew Dyke, EcoNorthwest

The Oregon Employment Department also projects that job openings will average 130,000 annually, with at least 2,000 openings in every major occupational group except 1) farming, fishing, and forestry, 2) life, physical, and social science, and 3) legal (Figure 2). However, only about 46,500 of these job openings are projected to be in “high wage,” high-demand occupations, jobs that pay wages above the median for the region.⁸ And almost all of these “high wage” openings will require some level of postsecondary education—24 percent postsecondary non-degree (e.g., certificate), 10 percent Associate Degree, 44 percent Bachelor Degree, and 19 percent Advanced Degree (See Appendix A: Figure A1 and Tables A1 and A2).

It is worth noting that national labor market projections are very much in sync with projections for the Portland Metropolitan Area. Nationally, the Bureau of Labor Statistics projects that the greatest job growth will occur in health care and social assistance, followed by education, construction, leisure and hospitality, professional and business services, mining, and transportation and warehousing (See Appendix A, Figure A2). The bureau also projects net declines in job growth in retail and wholesale trade, utilities, and manufacturing.

Additionally, the Bureau of Labor Statistics projects that the ten fastest growing occupations in the United States from 2018 to 2028 will be: solar photovoltaic installers, wind turbine service technicians, home health aides, personal care aides, occupational therapy assistants, information security analysts, physician assistants, statisticians, nurse practitioners, and speech language pathologists. Among these top ten fast growing occupations, the greatest number of jobs will overwhelmingly be for home health aides and personal care aides. Unfortunately, those are the lowest paying occupations with median annual wages of about \$24,000 (See Appendix A, Figure A3). Median annual wages for the other eight occupations range from \$42,680 for a solar voltaic installer to \$108,610 for a physician’s assistant.

FIGURE 2



Source: Oregon Employment Department Data provided by Andrew Dyke, EcoNorthwest

⁸ The Oregon Employment Department defines “high wage” jobs as those paying wages above the median for the region. However, definitions of “high wage” or “living wage” vary widely and also depend on the number of working adults and children within a household. MIT’s Living Wage Calculator, for example, estimates that in the Portland Metropolitan Area, a household with two adults and two children requires an annual income of at least \$60,000 to \$75,000 to live with reasonable comfort above the poverty level. See <http://livingwage.mit.edu/metros/38900>.

Moreover, while some occupationally specific knowledge and skill will certainly be beneficial for obtaining the “high wage” jobs, employers are increasingly vocal that successful applicants will need to demonstrate high levels of proficiency in communication (written, oral, and in some instances, non-verbal), critical thinking, problem solving, teamwork, and cross-cultural understanding. Nor is it only employers calling for differently prepared employees. In Portland Public Schools reimagined, our entire community clearly defined and described a Graduate Portrait—what we want our students to know and be able to do when they leave high school so that they can thrive in their lives and careers:

“Our Graduate Portrait includes attributes needed to prepare students to understand, confront, and change a global social environment that includes racial injustice and systems that perpetuate oppression. The Graduate Portrait inspires and emboldens educators and district staff to adopt innovations that are stimulated by signals about the future and to achieve results by meeting the needs of every student. It enables leaders to align leadership, management, teaching and learning, and resources so that the learning system produces results that deliver on the promise of the Vision.”⁹

The Graduate Portrait is an ambitious description of what our community wants the students of Portland to be able to know, be, and do in order to prepare them to succeed as thriving global citizens. The Graduate Portrait is a promise to our community that the system changes we make will be driven by choices that move student outcomes toward our Graduate Portrait. The nine elements of the Graduate Portrait (see Figure 3) encourage us to reimagine the experiences our students will participate in through their time in Portland Public Schools. As we consider these elements in this plan, we are creating the conditions for students to become optimistic future-oriented graduates that are inspired by their real-world experiences, aware of their career interests, and

earning practical credentials that have immediate value in the adult world. Students’ personal ambitions and interests are encouraged in school so they can evolve into future career possibilities through technical education, internships, work experiences, simulations, and mentorships. Students will know how to use technology to collaborate on teams with diverse peers and will learn how local challenges become part of national and global issues to become influential and informed global stewards.

The Graduate Portrait cannot be realized without a supportive network of adults who model, teach, and create opportunities that students need to succeed. Through the visioning process, the Portland community created a description of essential attributes of educators that can support and cultivate a successful school system. The adults in our system will be knowledgeable and committed to lifelong learning. This will include being proactive about keeping their professional knowledge up to date and participating in trends in their field as well as contributing to innovations and best practices in their schools and departments in order to support diverse learners. They will be community-minded, connected, and collaborative—willing to reach beyond school-based resources to connect with community and business members to find allies and partners to help create positive outcomes for students.

They will be adaptive, resilient, and open to change in order to demonstrate a commitment to continuous improvement by developing skills and persistence to shift the system and structures around them through collaboration and risk taking.

In order to enact the changes in the system that will create the conditions necessary for our graduates to realize the Graduate Portrait and our educators to embody the educator essentials, the Portland community identified a series of 11 shifts. Reimagining the Portland Public Schools system itself will provide enhanced experiences for students and adults that can lead to better

⁹ Portland Public Schools. Portland Public Schools reimagined. Portland Public Schools, June 2019, p. 18.

outcomes for all students. Included in these required shifts is the idea that we must redefine time and place for personalized learning. The purpose of this shift is to reexamine assumptions about time and place to give students greater flexibility as to where and how they learn. This could open a wide variety of possibilities for student learning. In the future this could look like:

“They also work on project-based learning, both inside and outside the classroom, collaborating with community and global partners. Guided learning is available to students outside regular school hours, using a variety of formats and media. Through experiences, students develop agency as learners. They discover strategies and formats that work best for them, and this supports their lifelong learning.”

Additionally, the community called for a transformative curriculum and pedagogy that will be standards-based, respectful of culture, disability, race, gender, and language so every student can develop the foundational requirements of a high-quality education. This shift to a transformative curriculum would allow for teaching and learning to become “transdisciplinary” with students and adults collaborating across subject areas, making connections and bringing multiple perspectives to bear on problems. Work-based learning would be mandatory for graduation and would emphasize real-world, hands-on experiences, such as internships for students, externships for teachers, and additional work-based learning opportunities such as job shadows and simulations.

In addition to being guided by Portland Public Schools Reimagined, our work is also directed by the High School 4-Year Strategic Plan, developed by site and district leaders. That Strategic Plan outlines six key strategies for better ensuring that all Portland students graduate college and career ready:

- Implement teacher-led culturally relevant pedagogy and curriculum
- Improve school climate and reduce chronic absenteeism
- Prepare all students for postsecondary success
- Systemically implement grade-level instructional teams
- Enhance CTE quality and sustain programs
- Improve central office responsiveness

The master plan presented here seeks to advance all of these strategies.

Similarly, The CCR Master Plan aims to support the pioneering work already begun through the PPS STEAM framework, expanding the increased emphasis on project-based learning in the sciences to include all of the disciplines. Moreover, STEAM, which should be a critical feature of every pathway, can benefit from greater thematic focus and from the increased emphasis on work-based learning and engagement of industry professionals in designing authentic projects and helping to assess student work to industry standards.

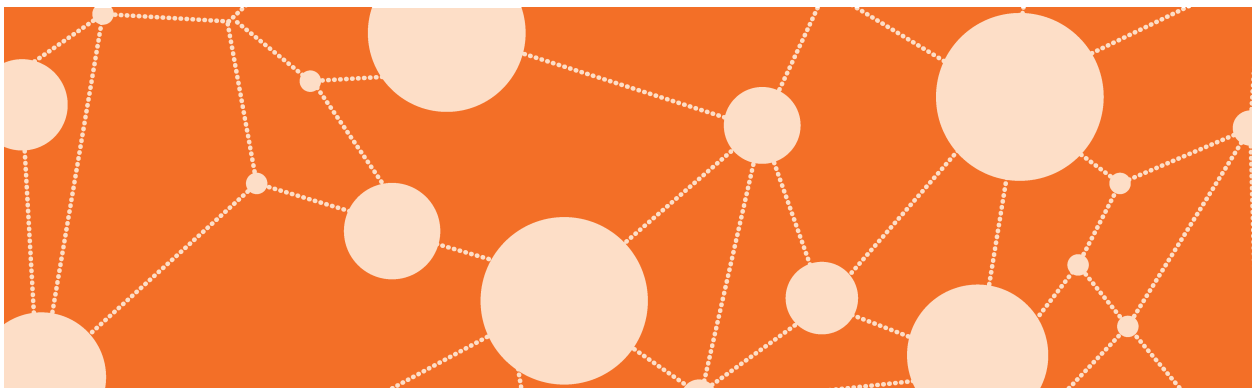
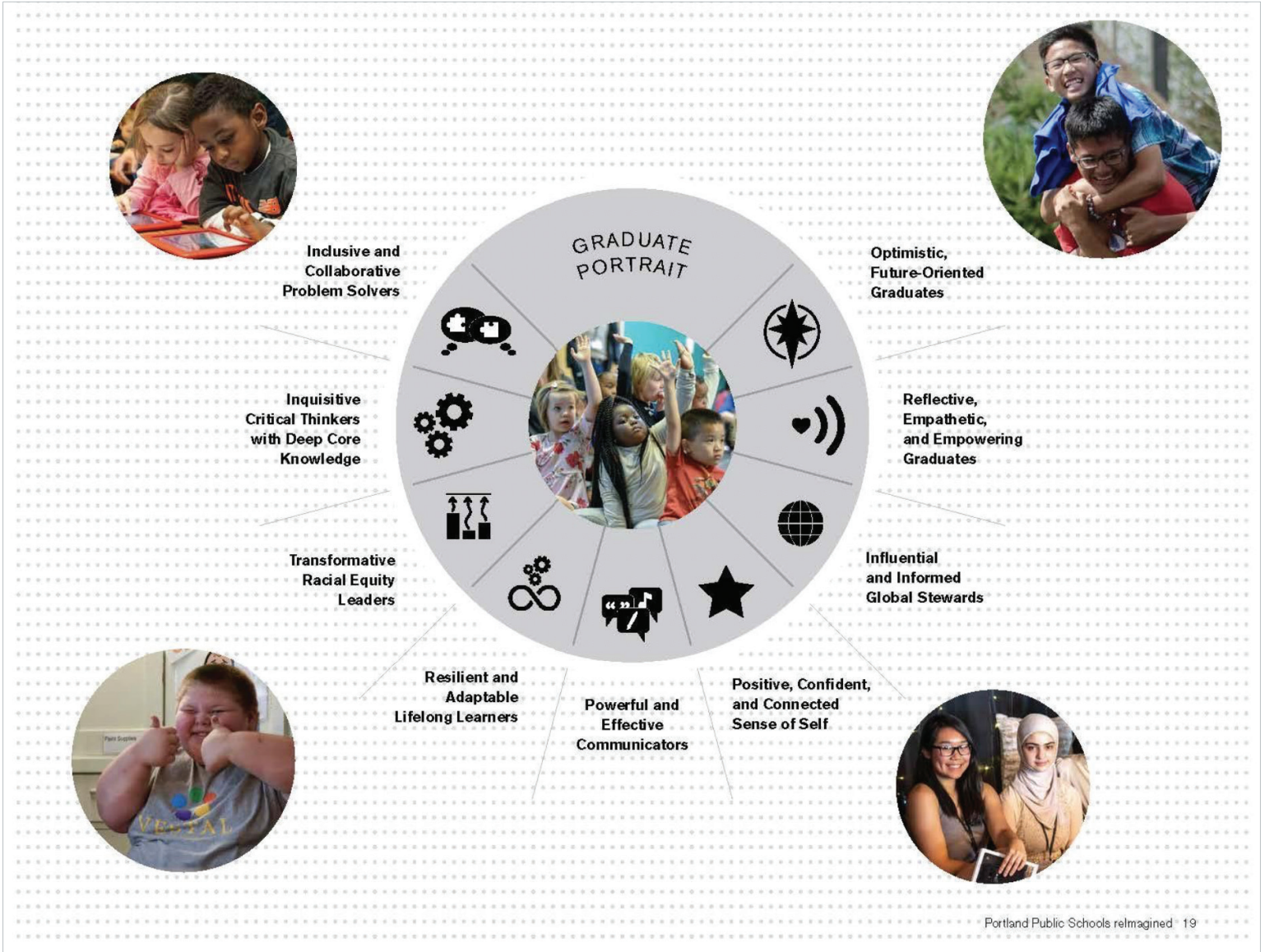


FIGURE 3: THE PORTLAND GRADUATE PORTRAIT



Consequently, as we fashion a master plan for CTE, we need to keep the new Graduate Portrait, Educator Essentials, and System Shifts, as well as the High School 4-Year Strategic Plan and STEAM Framework, squarely in our sights. There is a direct connection between the desires that community expressed for Portland Public Schools and the opportunities presented in this plan. How is CTE, in close collaboration with the rest of our students' educational experience, preparing our young people with the knowledge and skills they will need to thrive in a world that demands the ability to learn continuously, adapt to ever more rapid change, and live and work successfully in a global environment that is increasingly interdependent? Answering that question will require us to let go of some old conceptions of CTE, indeed of school more generally. While it will still be important to assess major industry and occupational trends, it is also important that CTE programs start broadly, teaching core competencies and knowledge that learners must know to be successful within a specific program area. Similarly, while success will still depend on being proficient in the core academic areas of English, mathematics, history, science, and the arts, it will depend even more on being able to apply academic and technical expertise to understand and solve complex, multidisciplinary problems, to combine interdisciplinary

knowledge in innovative and creative ways, and to communicate clearly and persuasively in many different modes.

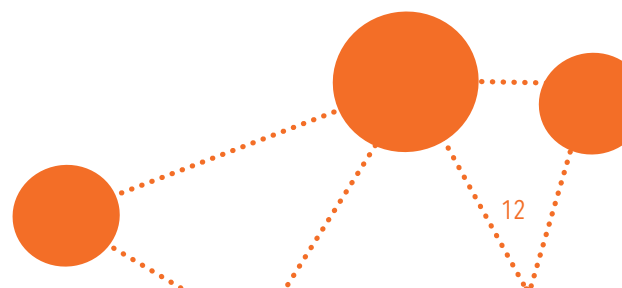
Lastly, it is clear that to earn a living wage, it will be necessary for all students to pursue some form of postsecondary education or training. Very rarely will a student be able to earn a living wage with just a high school diploma. No longer can we allow high school to prepare students for college or career; high school must make it possible for all students to pursue both college and career, not one or the other. "College" in this context means all forms of postsecondary education—four-year, two-year, apprenticeship, formal employment training, and the military.

Certainly, for a variety of reasons, a significant number of high school graduates may not be able to immediately pursue postsecondary education and will go directly into the workforce. However, if they are not equipped to pursue some form of postsecondary education later, they most likely will become stuck in low-paying, dead-end jobs and will be at extremely high risk of being displaced by automation and other technological changes. That many students will not go on to postsecondary right after high school cannot become an excuse for failing to prepare them for postsecondary success when they are ready and able to enroll.

CAREER AND TECHNICAL EDUCATION IN PORTLAND TODAY: A BRIEF OVERVIEW

Until quite recently, career and technical education in Portland Public Schools operated predominantly at Benson Polytechnic High School, founded in 1917 and open to all Portland students (chosen by lottery) seeking both academic and technical training in fields such as automotive technology, architecture, building construction, health professions, information technology, communications, and manufacturing. The school boasts many proud alumni who credit Benson with making possible their professional success.

However, Benson, with an enrollment of about 1,000 students, served fewer than one in 10 of all high school students in Portland, with few or no CTE courses offered in the district's other comprehensive high schools. Consequently, in response to growing community demand, the district began in 2012 to expand CTE programming and add CTE into its other comprehensive high schools and three in-district



alternative schools.¹⁰ The goal was to help students connect their classroom learning with real-world applications, expose them to a variety of career options, and provide programming to prepare them with 21st Century skills.

To accomplish these goals, the district established infrastructure and invested general fund and grant dollars to:

- Assess the current state of CTE programming
- Map alignment of programs to national career clusters
- Research labor market trends
- Cultivate strong partnerships with industry/community, and postsecondary partners
- Expand career learning activities for students
- Provide professional development for teachers
- Enhance existing CTE programs
- Expand programming to ensure CTE offerings at all high schools

2012	2019	2012	2019	2012	2019
Number of CTE programs on 6 high school campuses	Number of CTE programs on 10 high school campuses	Number of high school CTE teachers	Number of high school CTE teachers	Graduation rates for students completing 1 CTE credit	Graduation rates for students completing 1 CTE credit
19	64	26	96	84%	>95%

By the start of the 2019-20 school year, most goals of the 2012 5-year CTE plan had been met. Yet there is still much work to do.

Today, at seven comprehensive high schools there are at least four distinct state-approved CTE programs, and in some cases as many as seven or eight, available to students (Table 1). The alternative schools offer a range of one to four CTE programs. District-wide, in 2018-19, almost 6,000 students were participating in CTE at Benson and these seven other schools, slightly more than 50 percent of all high school students in the district and about a five-fold increase over seven years ago. The percentage of students taking CTE varied from a low of 36 percent at Lincoln to 57 percent at Madison, with Benson, of course, enrolling all of its students in CTE.

¹⁰ Portland Public Schools operates nine large high schools—Benson Polytechnic, a city-wide focus option, and eight other comprehensive neighborhood schools. Among the eight neighborhood schools, Jefferson is unique, operating as a “middle college” school, focused mainly on biomedical science and health. Additionally, the district operates two alternative schools, Alliance and the Metropolitan Learning Center, as well as public charters run by community-based organizations. (CBOs) This Master Plan focuses primarily on Benson and the eight other neighborhood schools, pending decisions about the future location of Meek and how best to offer CTE in the CBOs and Meek).

TABLE 1

CTE ENROLLMENT BY CLUSTER BY SCHOOL AND AS PERCENTAGE OF TOTAL ENROLLMENT: 2018-19

		CTE Enrollment % of Total Enrollment			CTE Enrollment % of Total Enrollment	
Benson		1024	100%	Lincoln	618	36%
Architectural Drafting & Design	104			Business Management	197	
Computer Engineering	106			Computer Science	94	
Construction Technology	43			Design & Applied Arts	118	
Design and Applied Arts	25			Hospitality & Tourism/Culinary	150	
Digital Media	136			Media Studies/Mass Communication	59	
Electrical Technology	141			Madison	663	57%
Engineering	16			Computer Science	74	
Health Sciences	153			Design & Applied Arts	102	
Manufacturing Technology	125			Digital Media	162	
Radio Broadcasting	36			Education Preparation	16	
Transportation Technology	139			Engineering	95	
Cleveland	638	39%		Health Sciences	167	
Computer Science	98			Sustainable Agriculture	47	
Construction Technology	163			Roosevelt	510	51%
Hospitality & Tourism/Culinary	155			Computer Science	85	
Digital Media	222			Construction Technology	120	
Franklin	945	51%		Engineering	124	
Business Management	170			Media Studies/Mass Communication	60	
Computer Science	108			Multi Media/Theatre Production	121	
Construction Technology	157			Wilson	707	46%
Education Preparation	48			Computer Science	86	
Hospitality & Tourism/Culinary	157			Construction Technology	116	
Manufacturing Technology	143			Education Preparation	64	
Video Production	162			Health Sciences	216	
Grant	828	51%		Marketing	178	
Audio Engineering	102			Video Production	47	
Computer Science	122			Alliance	167	84%
Construction Technology	119			Digital Media	43	
Design & Applied Arts	137			Manufacturing Technology	34	
Digital Media	135			Natural Resources	55	
Health Sciences	118			Transportation Technology	35	
Multimedia/Theatre Arts	95			MLC	25	25%
				Business Management	25	
				District Totals	6125	53%

However, while many more students are taking CTE, most are not taking very much. In 2018-19, only 20 percent of all students participating in CTE had taken more than two credits, and when Benson is excluded, the percentage was only 16 percent.

Regarding the demographics of participation in CTE relative to the demographics of the district, 63 percent of students participating in CTE in 2018-19 were male, compared with 52 percent of overall high school enrollment. This pattern of relatively higher representation of males was present at all high schools, save Grant (56 percent), Lincoln (53 percent), and Madison (53 Percent). Males tended to be much higher percentages of enrollment in such program areas as construction, computer science, engineering, manufacturing, and transportation technology. Females enrolled in much higher percentages in health occupations and education. Interestingly, Benson generally achieved better gender balance in construction (30 percent female), computer engineering (40 percent female), construction technology (30 percent female), electrical technology (38 percent female), and manufacturing technology (37 percent female), while comparable percentages for similar programs in the comprehensive high schools were often 20 percent or less (and as low as 12 percent in an engineering program at one of the schools).

With respect to race/ethnicity, in the aggregate, participation in CTE programs mirrored very closely the demographic distribution of enrollment in the district as a whole, with only Asian students being slightly underrepresented in CTE (7 percent versus 9 percent in the district overall). Although there is variability among schools (See Table A3 in Appendix), African American and Latinx students were often underrepresented in engineering and computer science, as were English learners and special education students. There were, however, exceptions at some schools.¹¹

While CTE offerings and participation have grown dramatically over the past seven years, CTE functions primarily as separate clusters of course offerings with little or no connection to core academics. This provides a compelling growth opportunity to align academic curriculum with related CTE courses and to advance curriculum integration, team teaching, collaborative project-based learning, and performance assessment. Work-based learning opportunities are growing but are not yet sufficient to serve all students. To that end, career learning systems have been developed, frameworks designed and a range of options are being established. The district has also built an online tool, Partner Connect, that facilitates employer and school engagement in work-based learning and tracks student and partner demographic participation data.

Lastly, there are concerns about disparities in the quality, breadth, and depth of CTE offerings across high schools. The district has begun to implement the state's CTE quality rubric and filled a new staff position to specifically assess quality and engage in continuous improvement.¹²

An opportunity for interdisciplinary staff collaboration is the ninth grade-level student success teams (SSTs). In 2018-19, Portland Public Schools implemented SSTs through the High School Success Fund (Measure 98). Measure 98 provides state funding for school districts to strengthen systemic supports for students in three areas: dropout prevention, college and career readiness, and career and technical education. SSTs are a nationally recognized strategy for improving graduation and college readiness. There is more than a decade of research focused on ninth-grade transitions in Chicago Public Schools with school-based teams of interdisciplinary staff who engage in regularly scheduled meetings where they analyze ninth-grade data; develop, monitor, and adjust interventions for students, and discuss and implement instructional strategies that promote student success.

¹¹ There is considerable variation across schools in the concentration of students with respect to race/ethnicity and special needs. In schools with relatively small concentrations, the numbers are small, and therefore, calculating percentage distributions can be affected by small "cell sizes."

¹² From March 2019 to June 2019, we conducted a "listening tour"—during which we received input from hundreds of individuals representing teachers, administrators, board members, parents, employers, and other community stakeholders. Several people expressed concerns about inequities across schools and sometimes within schools as well.

In Portland Public Schools, SSTs included language arts, math, science and/or social studies teachers; school counselors; and/or special education case managers, who directly taught or supported a specific group of 80-110 students. In its first year of implementation, SSTs met regularly to adopt norms and protocols, developed relationships with students, and had time to collaborate with one another during embedded release time and strong school administrator support. During the upcoming school year, SSTs will focus on instruction, curriculum, culturally responsive teaching, assessments, grading practices and more. The intentional focus on these areas is an opportunity to leverage the SST work at the ninth-grade level and to build upon it as students transition to the tenth grade and beyond.

Additionally, all ninth-grade students currently enroll in a semester or year-long course that includes college and career exploration, leadership development, academic success skills and/or life skills. Both the SST and the ninth grade student success course are two programs that are already in place. It would be advantageous to further develop these programs by integrating CTE teachers and curriculum into SSTs and to continue to have the ninth grade success course informed by both CTE and other school staff.

In summary, there is a strong foundation of CTE on which to build a much stronger high school experience for Portland's young people: one offering coherent, engaging, and challenging multiple pathways to college and career, while also more actively engaging employers and better aligning with K-8 and postsecondary. Among the systems current assets are:

- A diverse menu of career clusters throughout the district
- A dedicated cadre of about 100 CTE teachers, many with dual academic credentials and eager to engage in more integrated cross-disciplinary instruction
- Growing experience with project-based learning and authentic problem solving, particularly in the sciences
- Well-equipped classrooms, including a growing number of maker spaces
- College and career centers in every comprehensive high school
- Ninth grade college and career exploration courses
- Partner Connect, a new online platform connecting parents, alumni, and industry professionals with K-12 educators
- A major capital campaign to rebuild and remodel aging schools

We turn now to fashioning a plan that builds on this foundation.

FIRST PRINCIPLES GUIDING MASTER PLAN DESIGN

As we begin to construct an overarching framework for a system of college and career pathways and some of the key design and implementation issues that need to be addressed, it is useful to adopt some guiding principles that should direct our work, whatever its final form. These we believe to be essential:

- Realize the vision of the Graduate Portrait: The Portland community has worked hard to clarify and define what it believes to be a whole and complete education and in what it desires as essential traits in its graduates. This plan must help articulate how we will achieve that vision.
- Lead with equity: An effective Master Plan must serve all students, especially those furthest from opportunity, and deliver not just on the aspiration but on the realization of success for all. The plan must seek to break the cycle of "zero/sum" and become "win/win" for all concerned. Implementation must pay close attention to addressing the needs of English learners and special education.

- Put students at the center: The master plan must seek to create an educational experience that engages students in rich dialogue, complex problem solving, and creative application of knowledge and skills to real-world situations, in partnership with teachers, employers, and other caring adults.
- Align with the High School 4-Year Strategic Plan and STEAM Framework: The master plan must support the three goals of the High School Plan—1) accelerate achievement for historically underserved students, 2) prepare all students for postsecondary success, and 3) improve school climate to reduce chronic absenteeism. It should also support and build upon that instructional changes underway in the sciences.
- Prepare all students for both college and career, not just one or the other: The master plan must be designed to ensure that all students achieve the knowledge and skills needed to pursue any and all postsecondary options, while also developing the knowledge and skills to participate effectively in the work world while pursuing postsecondary education and transitioning to a longer-term career path. Not all students can or will want to pursue four-year college and university, but all must be able to effectively engage in some form of postsecondary and advanced training essential to thriving in the world of today and tomorrow.
- Engage a diverse range of community stakeholders in teaching our children: Unquestionably, the primary responsibility for teaching and learning will remain with our dedicated professional teachers; however, employers, postsecondary institutions, community-based organizations, and others have critical roles to play in taking learning outside the walls of the traditional classroom and using our city to help make learning real, experiential, and aligned with the challenges and opportunities of our times.
- Leverage our existing foundation of career and technical education: During the past seven years, we have made considerable progress in creating CTE programs and course offerings throughout the city's high schools; the plan should, to the maximum extent feasible, build on these courses, create greater coherence and integration with core academics, continuously improve quality, and where there are gaps, develop cutting-edge new pathways that capitalize on the assets of the larger Portland community.

DESIGNING HIGH-QUALITY COLLEGE AND CAREER PATHWAYS: WHAT RESEARCH TELLS US

“Pathway” means many different things to many different people. For some, it is simply a cluster or sequence of related CTE courses, which, if delivered with quality and completed by students, increases the likelihood that students will gain a level of industry-related knowledge and skills that gives them a leg up in the workforce. This is certainly a worthwhile outcome, and many are content to stop there.

There is considerable research on whether, and if so how, participation in CTE, especially in a focused cluster or sequence of two or three courses, produces positive impacts on a range of student outcomes. Perhaps one of the best summaries of what is known about the effectiveness of CTE is that from the most recent National Assessment of Career and Technical Education (NACTE), conducted by the U.S. Department of Education in 2014. Some of the key findings cited by the report include:

- *Evidence on the relationship between CTE concentration and high school graduation is inconclusive. Students’ tendency to take CTE courses during the final two years of high school limits the influence of occupational CTE coursework on dropping out because a high percentage of students who drop out do so before their final two years (Bozick and Dalton 2013; Hampden-Thompson, Warkentien, and Daniel 2009).*
- *The NACTE-commissioned studies, which used quasi-experimental methods to control for student background, found that CTE course-taking had little or no relationship with academic achievement in high school. Differences in achievement between CTE concentrators and non-concentrators were almost entirely explained by differences in student characteristics.*

- *High school graduates who were CTE concentrators were less likely to attend or complete postsecondary education than were non-concentrators, but studies that controlled for student background found mixed results for college-going and degree attainment.*
- *CTE concentrators were much less likely than non-concentrators to score at or above the proficient level on NAEP mathematics and science assessments, but this may reflect differences in course-taking patterns and prior achievement.*
- *Among high school graduates who did not enroll in postsecondary education, studies have found mixed results on employment and earnings outcomes for CTE concentrators. Some studies suggest that there may be higher returns for some CTE fields (e.g., construction and architecture) and programs (e.g., career academies).*

Some more recent research adds important additional insights:

- *The benefits of CTE education stem mainly from in-depth study of a specific area consistent with the recent trend toward “pathways of study” within CTE; CTE participation, primarily in technical fields, is associated with higher wages, with the increase driven entirely by upper-level coursework, defined as courses within a sequence beyond the introductory class, in more technical fields. Each additional year of upper-level vocational coursework is associated with a nearly 2 percent wage increase.¹³*
- *The U.S. Department of Education recently reported that concentrated CTE participation, especially by students taking two or more credits with the same career cluster, was positively correlated with future employment and earnings. The report further noted that while 77 percent of all high school students take at least one CTE class while in high school, only 37 percent focus their participation in a single career cluster.¹⁴*
- *Among younger people, employment rates are higher among those participating in CTE. However, this pattern reverses by age 50. These patterns are most pronounced in countries that have highly developed work-based education systems such as Germany, Denmark and Switzerland.¹⁵*

In short, research that meets high standards of quasi-experimental or experimental methodology concludes that participation in career and technical education, at best, produces modest positive impacts on important student outcomes like achievement, high school completion, postsecondary transition, and earnings. Where positive impacts are found, they are almost always associated with focused concentration (three or more credits) in a CTE program of study, especially in more technical fields. This research suggests that participating in more traditional forms of CTE, especially if both focused and concentrated, does produce some benefits. However, it falls far short of delivering on the kinds of student achievement needed for lasting success in further education, career, and life.

To that end, a small but growing body of research supports pursuing a much more comprehensive strategy, one that very intentionally connects CTE to core academics and offers students a broader, more coherent high school experience. The “gold standard” for this research is an experimental evaluation of “career academies,” conducted by MDRC in the 1990s. Among the study’s most notable findings was that males in career academies earned as much as 17 percent more than peers in traditional high school programs, during each of the eight years following high school. The study concluded that three critical features of career academies contributed to their impact: 1) small learning communities with support for academic and career-related course combinations, 2) career-themed curricula, and 3) career awareness and partnerships with employers providing work-based learning opportunities for students.

¹³ Young, J.W., Cline, F. et al. High Schools That Work: Program Description, Literature Review, and Research. Research Report ETS RR-11-33, Educational Testing Service, August 2011.

¹⁴ U.S. Department of Education (September 2019). Bridging the Skills Gap: Career and Technical Education in High School. Washington, D.C. September 2019. <https://www2.ed.gov/datastory/cte/index.html#data-story-title>

¹⁵ Hanushek et al. “General Education, Vocational Education, and Labor-Market Outcomes over the Life-Cycle.” *Journal of Human Resources*. 52(1): 49-88, 2017.

For more than a decade, this MDRC study remained the only rigorous evaluation of career academies or other approaches to designing and delivering comprehensive, integrated programs for college and career pathways. Then, beginning in 2009 and continuing for seven years, SRI International undertook a quasi-experimental longitudinal evaluation of the California Linked Learning District Initiative, a multi-year demonstration effort in nine large, high-need districts to design and implement district-wide systems of comprehensive “Linked Learning” college and career pathways.

That evaluation showed that students in high-quality college and career pathways were better prepared to succeed in college, career, and life compared to peers in traditional high school programs. Specifically, compared with their peers, students in high-quality pathways earned more credits in high school; reported greater confidence in their life and career skills; and said they experienced more rigorous, integrated, and relevant instruction. They were less likely to drop out and were more likely to graduate on time. Furthermore, students who had low achievement scores in earlier grades made significantly better academic progress when they participated in pathways in high school. Lastly, the four-year college going rate for African Americans in these pathways was twelve percentage points higher than peers not participating in pathways.¹⁶

And most recently, a randomized control experimental study of regional vocational technical high schools (RVTS) in Massachusetts—full-time technical schools delivering high quality CTE aligned with core academics and alternating a week of classroom instruction with a week of work-based learning—found dramatic increases in high school graduation rates (as much as 32 percentage points for economically disadvantaged students). However, like most other studies, this one found no impact (positive or negative) on standardized achievement test scores in mathematics and English language arts.

The lack of measurable impact on academic achievement, in either “stand-alone” approaches to CTE or more comprehensive strategies for integration is troubling, though in many respects not surprising. Unfortunately, in most instances, there were few if any changes in core academic instruction, or in CTE curriculum and, consequently, little reason to expect better academic achievement. Adopting a more comprehensive approach to delivering integrated academics and CTE, while more likely to produce better results on some measures than maintaining traditional, separate CTE programs, is not likely to produce better academic gains, or even impact the more broadly defined qualities of the Graduate Portrait, unless there is also concentrated attention on improving learning and teaching in both CTE and core academic offerings. In short, designing a more comprehensive “college and career” pathway system entails much more than simply better aligning CTE courses with related academic courses. Rather, when done well, it changes the kind of learning and teaching that students experience in both core academics and CTE.

Based on what research can tell us, we believe that the direction for our Portland community is clear. We cannot be satisfied with making marginal improvements in CTE alone, detached from other major changes needed in the way we prepare our students for further education, career, and life. We need a new approach, grounded in what research is telling us, but also attuned to our Portland context, our aspirations for our young people as expressed by the Graduate Portrait, and the need for all of us to come together to ensure that Portland’s high school graduates are prepared for lasting success in the world they will inhabit. We turn, therefore, to posing a framework that could enable us to fashion a new approach.

¹⁶ Warner, M., Caspary, K., Arshan, N., Stites, R., Padilla, C., Patel, D., McCracken, M., Harless, E., Park, C., Fahimuddin, L., & Adelman, N. (2016). Taking stock of the California Linked Learning District Initiative. Seventh-year evaluation report. Menlo Park, CA: SRI International.

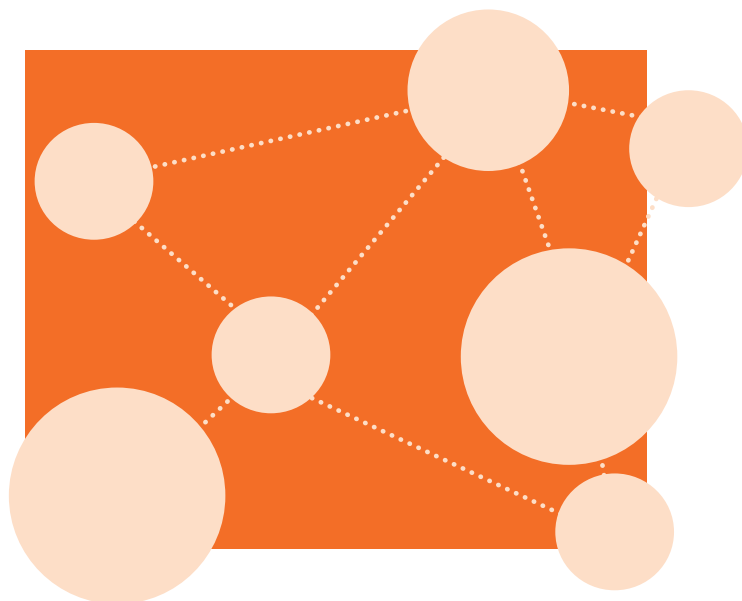
A FRAMEWORK FOR DESIGNING A COMPREHENSIVE, HIGH-QUALITY SYSTEM OF COLLEGE AND CAREER PATHWAYS

What might an approach that makes CTE an integral part of students' larger high school experience look like? In an engineering pathway, for example, students could not only learn trigonometry and calculus but also how they are applied in designing seismically sound buildings and bridges. The math they learn in core academic courses could be simultaneously reinforced in related CTE courses in principles of engineering or a twelfth grade capstone. Under the guidance of a professional engineer, they might make a model of a bridge to evaluate the tensile strength of different materials, and write up their results and analysis. Additionally, they could intern in an architectural or engineering firm interacting with working adults around real problems. They also could be counseled on engineering-related postsecondary majors, as well as on how they could use the more general knowledge and skills mastered in the pathway to pursue other postsecondary and career choices.

Of course, not all students are interested in engineering, so providing a menu of diverse pathway options is critical. Ideally, students can choose not only among a menu of different industry "themes" that spark their curiosity but also different emphases on major "career interest" areas such as investigation, social helping professions, artistic expression, and entrepreneurship.¹⁷ They should also be given the opportunity to better understand their postsecondary and career options, as well as the kinds of work-based learning opportunities that are available to them. Figure 4 provides an example of a comprehensive program of study, with related opportunities in the health professions.

While this example is drawn from a small, theme-based high school where the entire school and its curriculum and instruction are organized around the health professions theme, it could just as easily represent a program of study for a health professions pathway within a larger comprehensive high school offering multiple pathway options. Here are some of the key features to note. First, many though not all of the core academic courses explicitly call out the health theme. Over many years, this school has

worked hard to build the capacity of academic teachers to emphasize applications in the health professions without "watering down" demanding core academic content or lessening attention to state and local curriculum standards.¹⁸ Second, there is full sequence of CTE courses spanning grades nine through twelve, and all students are expected to take a CTE course each year; courses in eleventh and twelfth grade include earning specific industry certifications. Third, while this school operates on a six-period day, which limits students' course-taking options, the program of study nevertheless provides options for enrolling in dual credit or Advanced Placement.¹⁹



¹⁷ See Six Main Career Interest Areas, <https://collegecareerlife.net/interest-areas-choose-a-career/>

¹⁸ All of the core academic courses at this school meet the standards established by the University of California and the California State University for student's being eligible for admission.

¹⁹ Schools that operate on a seven- or eight-period day or a "block" schedule are able to offer students a much richer set of course taking options; schedule is an important consideration in pathway design and implementation.

Fourth, the program of study provides a rich continuum of work-based learning experiences, aligned with the health theme and the curriculum in each grade. Fifth, the program of study identifies and recognizes the wide range of employers, postsecondary partners, and other community stakeholders required to expand students' opportunities beyond the walls of the traditional classroom. Lastly, in a field where "doctor" or "nurse" define most students' (and adults') perceptions of possible career opportunities, the program of study broadens understanding of potential career possibilities.

Figure 4 is meant to be illustrative, not definitive, of what a comprehensive approach to college and career pathway design can look like, and there are certainly many ways high schools in Portland could modify, improve upon, and adapt the approach to best suit their particular context. Perhaps most importantly, this will take time. Health Professions High School took many years to get to this level of focus, clarity, and stakeholder engagement, and the school would be the first to acknowledge that they still have much work to do.

FIGURE 4: SAMPLE PATHWAY PROGRAM OF STUDY

CAREERS IN HEALTH		Arthur A. Benjamin Health Professions High School				BEFORE/AFTER SCHOOL OPPORTUNITIES	RELATED OCCUPATIONS
SUBJECT	HIGH SCHOOL COURSES – *UC a-g Approved Courses				0 Period and 7th Period Options		
	9th	10th	11th	12th			
English	Medical English 9	Medical English 10	Medical English 11	Medical English 12	College Course Opportunities	Nurse Doctor Radiologist Veterinarian Respiratory Therapist Dietician EMT Cardiologist Pediatrician CNA Physical Therapist Allied Health (all) Health Care Law Public Health Policy Hospital Administration Many more!	
Math	Integrated Math I	Integrated Math II	Integrated Math III	Pre-Calculus/ Senior Level Math	College Course Opportunities		
Science		Medical Biology	Medical Chemistry	Physics	Anatomy Physiology Bio 100 / Medical Terminology AH110 (Sac City College)		
History/ Social Science	Freshman Foundations (college credit course)	World History	Medical US History	Economics/ US Government	College Course Opportunities		
Foreign Language, Art and PE	PE and Drama	Spanish I or Native Speakers	Spanish II or Native Speakers	Medical Spanish and PE	College Course Opportunities		
Medical Science	Medical Science 9	Medical Science 10	Medical Science 11 CPR Certification First Responder PMED105	Medical Science 12 including Mental Health First Aid Certification	PMED 108 EMR Certification		
Work Based Learning Opportunities	Suturing Lab Hospital Visits Integrated Units Community Service	Summer Scrubs Saturday Academy Guest Speakers Job Shadowing Integrated Units Community Service	Summer Scrubs Saturday Academy Guest Speakers Internships Integrated Units CPR Certification Community Service	Summer Scrubs Saturday Academy Guest Speakers Internships Senior Project Community Service	After School Academy Tutoring and Clubs Small School Sports League and West Campus Sports Teams		

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For more information on SCUSD's Linked Learning Pathways, visit www.scusd.edu/linkedlearning

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Sacramento Valley Psychological Association
Health Workforce Initiative
Sierra College Nursing Program
FACES Sacramento

College and Career Academy Support Network (CCASN)
Cal-Health Occupations Students of America (HOSA)
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Division of Behavior Health and Division of Public Health
BloodSource
Office of Statewide Health Planning & Development (OSHPD)
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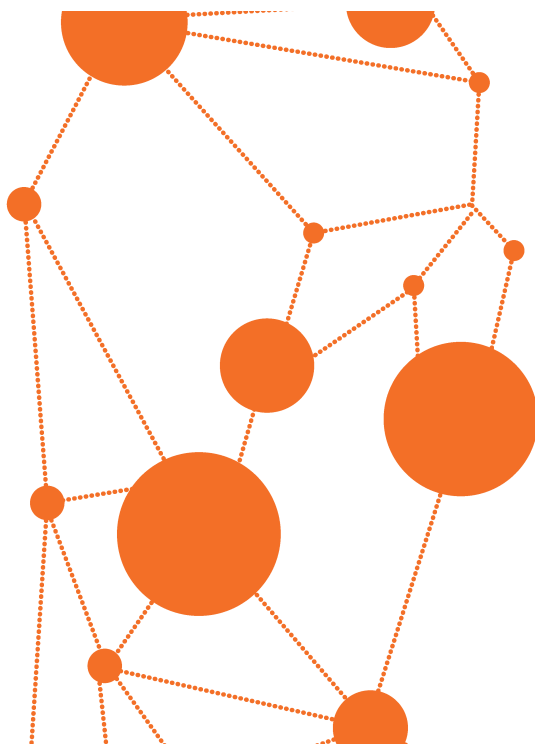
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It is important to emphasize that the purpose of a pathway theme (e.g., engineering, health, law and justice, digital media arts, STEAM, etc.) is to provide focus and coherence to students' high school experience, helping them to "make meaning" and engage in deeper learning within a broad foundation of academic and technical offerings. This thematic focus is not intended to force, or even encourage, students to "choose a career" or prepare for a specific occupation. In fact, many students in any particular college and career pathway pursue a postsecondary major or a career focus that is not directly related to their high school pathway theme.²⁰ However, the thematic focus helps mastery of a demanding academic and technical foundation that, rather than narrowing options, actually expands opportunities after high school.

This kind of approach—one that offers students a focused, comprehensive program of integrated academic and CTE courses supported by rich work-based learning and strong personalized student supports—responds to student interests, and helps students answer the question, "Why do I need to learn this?" It helps both academic and CTE educators offer better answers by creating real-world learning experiences that interest, challenge, and inspire students, so they can better understand the connections between the classroom and the world of work. When this happens, research shows that students are more likely to deeply engage in their learning, and more likely to transform a passion into a profession.

The SRI evaluation of Linked Learning in California, cited earlier, was very clear that quality matters. The improved outcomes they observed were only for students who participated in college and career pathways consisting of four core components and also externally validated to have attained a high standard with respect to seven essential elements of pathway quality.²¹ The four core components are:



1. **College preparatory core academics** (math, science, English, social studies, world language, and the arts), emphasizing real-world application, project-based learning, and performance assessment and aligned with
2. **A cluster or sequence of four or more challenging CTE courses** embracing industry standards in the sector that is the theme of the pathway, and wherever possible, offering related industry certifications; all aligned with
3. **A continuum of work-based learning experiences**, beginning with career awareness, mentoring, or job shadowing in grade nine and evolving into internships and/or school-based enterprise by grade twelve; all undergirded with
4. **Personalized student supports** including college and career counseling, accelerated instruction in mathematics and English language arts, attention to social-emotional learning, and strong supports for English learners and students in special education.

²⁰ Warner, M., Caspary, K., Arshan, N., Stites, R., Padilla, C., Patel, D., McCracken, M., Harless, E., Park, C., Fahimuddin, L., & Adelman, N. (2016). Taking stock of the California Linked Learning District Initiative. Seventh-year evaluation report. Menlo Park, CA: SRI International.

²¹ To deliver menus of high quality pathways across multiple high schools, the nine districts that were part of the California Linked Learning Initiative all engaged deeply in learning how to use design thinking, a five-stage solution-based process that includes 1) empathize, 2) define the problem, 3) ideate, 4) prototype, and 5) test.

Table 1 lists the seven essential elements that teams of trained external evaluators assessed and validated using a common assessment rubric.²²

TABLE 1
SEVEN ESSENTIAL ELEMENTS OF HIGH-QUALITY COLLEGE AND CAREER PATHWAYS

1. **Student Outcomes-driven Practice:** The progress of every student is the driving focus for each pathway's community of practice. Data on student and pathway performance is used regularly to ensure the pathway is preparing all students for college and career.
2. **Culture of High Expectations, Equity, and Inclusion:** Pathways establish a culture of high expectations for all students, maintain non-discriminatory and inclusive policies, practices, and instruction and are equitably accessible to any interested student.
3. **Industry-themed Program of Study:** An industry-themed pathway program brings coherence to the four core components of Linked Learning. The pathway is designed to ensure all students are offered the opportunity to earn postsecondary credit, and are prepared for success in the full range of postsecondary options, including a four-year college.
4. **Inquiry and Project-based Learning and Teaching:** Pathway students engage in inquiry and project-based learning that is relevant, rigorous, outcome-focused, and collaborative in nature. Every student's progress towards mastery of college- and career-ready learning outcomes is monitored and supported.
5. **Work-based Learning:** Every student participates in a personalized and coordinated continuum of work-based learning experiences designed to help them master and demonstrate academic and professional skills needed to be prepared for college and careers.
6. **Personalized Student Support:** Pathway staff, in consultation with families and service providers, identify and address the academic, personal, and social-emotional needs of all students so that they make progress toward achieving personalized college and career goals and pathway student learning outcomes.
7. **Distributed Leadership and Engaged Partners:** Pathway staff, school site and district leaders, and industry and community partners share responsibility for the pathway's effectiveness and successful student outcomes. These stakeholders are representative of the community and assure that conditions are in place to establish and sustain pathway quality.

In summary, research indicates that CTE will have the greatest impact when it is combined with core academics in comprehensive programs of study supported by a continuum of related work-based learning experiences and offering students a range of personalized supports including college and career counseling and close attention to students' social emotional needs. Additionally, research indicates that significant impact can only be attained when pathways achieve a sufficient level of quality with respect to essential elements of pathway design and implementation. How then, can Portland Public Schools move from current state, where a strong foundation of CTE operates mostly as a separate program, to one in which CTE joins with core academics to offer students a menu of college and career pathways that engage and inspire young people, better align and integrate curriculum, emphasize experiential learning and performance tasks, and better ensure that students graduate from Portland's high schools meeting the expectations of the community's Graduate Portrait and ready for ongoing success in postsecondary education and career? We turn now to that question.

²² Linked Learning Essential Elements of Pathway Quality. Essential Elements of Pathway Quality Rubric. ConnectED: The National Center for College and Career. May be viewed or downloaded at: <https://connectednational.org/learn/key-resources/pathway/>

TOWARD A SYSTEM OF COLLEGE AND CAREER PATHWAYS: HOW WILL PORTLAND GET THERE?

Historically, pathways have been part of the education landscape for some time and taken many forms—e.g., career academies, industry-themed small learning communities, theme-based high schools, theme-based magnet schools, etc. However, more often than not, these opportunities have existed in spite of the system rather than because of it and seldom have been accessible to all students. They have been products of a few innovative teachers or a visionary principal, and too often when these founders disappear, their innovations do as well. To avoid slipping into a fragmented, programmatic approach to pathways, it is critical that Portland take a district-wide, systemic approach to pathway design and development.

A “district-wide system” does not mean that every school in the district must offer pathways or that all students within a school must participate in pathways. Nor does it mean that pathways displace other instructional options (e.g., International Baccalaureate).²³ Rather it means that the district has constructed a robust pathway system that gives any student the option of enrolling in high quality pathways, choosing among at least three or four different pathway themes, and ideally more. It means that the pathway system is serving the vast majority of high school students so that the district can effectively leverage district and community resources. Unless the district commits to engaging a critical mass of students, teachers, and schools in the pathway system, there will be little impetus to shift policies, structures, and cultures in ways that ensure that pathways will be adequately supported and sustained. Ultimately, a well-designed system of college and career pathways not only improves high schools and student outcomes; it also strengthens the larger community.

There is no single right way to do this, and Portland has many options. To help our community begin to analyze some of these options, as well as generate new ones, we begin by illustrating and evaluating a series of three distinct but related possibilities.

OPTION 1: IMPROVED AND EXPANDED CAREER PATHWAYS

One choice open to Portland Public Schools is staying with the current system of career pathways, focusing on increasing the number of CTE courses offered within existing pathways, expanding the number of pathways students participating in the district’s high schools, and systematically raising the quality of pathway offerings through continuous emphasis on improved curriculum, effective instruction, and updated equipment and facilities. This option should also include building out a district-wide work-based learning system, engaging more employers in offering a wider range of experiences to greater numbers of young people participating in CTE. It should also concentrate on improving and expanding career counseling. Lastly, it should strengthen ties to postsecondary, better aligning CTE program offerings in secondary with those in postsecondary and using dual enrollment offerings to deliver advanced CTE courses in eleventh and twelfth grade.

This option continues to expand and strengthen the CTE career programs that have been developing over the past seven years throughout the district’s high schools. With more attention to work-based learning and career counseling, it improves two of the other four elements that are critical for a more comprehensive college and career pathway system. Also, it continues the important work of better aligning secondary and postsecondary systems in the Portland region.

These are all positive changes. However, this option leaves CTE largely separated from the rest of students’ high school experience. It does not offer a framework for 1) aligning CTE with academic

²³ Interestingly, the International Baccalaureate Career Programme (IB CP) closely mirrors the college and career framework recommended here and could be considered a part of the menu of college and career pathway options rather than a separate or competing offering. It should also be stressed that pathways are compatible with Advanced Placement courses, either as an integral part of a pathway (e.g., AP Physics and Engineering) or as electives that students choose outside of their pathway program of study.

curriculum, 2) introducing more CTE-related application and experiential learning into academic classes, 3) teaming CTE and academic teachers in multi-disciplinary project-based learning, or 4) making performance tasks and performance assessment a more routine part of students' entire high school curriculum. Consequently, it is not likely to have a significant impact, especially for students furthest from opportunity, on indicators of student engagement, deeper learning, on-time grade-to-grade transition, high school completion, and postsecondary access, persistence, and attainment. The only way to realize major gains on these measures is to move toward more comprehensive college and career pathways.

OPTION 2: COLLEGE AND CAREER PATHWAYS

Option 2 expands Option 1 and offers Portland two strategies to move toward a system of college and career pathways. Both strategies advanced below assume that the actions taken in Option 1—increasing the number and quality of CTE courses, building a more robust work-based learning system, developing stronger personalized student supports, and improving secondary/postsecondary alignment through dual enrollment and other joint actions—would be part of either strategy. The two strategies have much in common but differ in important ways, as outlined below.

Strategy 1:

Offer the same menu of four college and career pathways at each of the four comprehensive high schools with a different menu of pathways offered at Benson.

Portland has a long and strong commitment to neighborhood schools, which many stakeholders told us must be preserved by any approach to CTE master planning. We also heard from many stakeholders that this commitment to neighborhood schools demands an equally strong commitment to equity, assurances that all students will have access to a high-quality education no matter what school they attend, as well as ongoing processes to assess quality and make any necessary corrections.²⁴ Some stakeholders went as far as to suggest that one way the district might best deliver on these assurances is to require each of the comprehensive high schools to offer the same high quality experience at each school. For purposes of the master plan, this requirement would mean designing and implementing the same menu of pathways at each school.

An important constraint affecting the number

of college and career pathways that could be offered at each school using this strategy is pathway and school size.²⁵ Pathway enrollment of more than 200 (preferably 300) is essential to creating common planning time for academic and CTE teachers to align curriculum and plan multi-disciplinary projects and performance assessments. This also enables pathway students to participate in some academic classes as “cohorts,” for example taking their English or science class together. Cohorting is also critical for supporting academic teachers’ focus on more real-world application within their discipline, as well as for maximizing the impact of multidisciplinary projects.

Consequently, given the size of Portland’s high schools, ranging from about 1,000 to 2,000 students, a strategy seeking to offer the same pathways at every high school (except Benson) would be limited to four pathways. For example, each school could offer students four college and career pathways in the following industry sectors: computer science/information technology, engineering and design, health professions and health science, and visual and applied arts.

²⁴ Some stakeholders also said that the best way to ensure both equity and opportunity for students to enroll in pathways best suited to their interests would be to open enrollment districtwide, allowing students to apply for admission to any high school in the district. As pathways are implemented over the next four to five years, an explicit open enrollment policy is something the district could consider. In the meantime, it is worth noting that the district already has a formal policy allowing families to petition the district for attendance at a school other than the one in their neighborhood, with requests granted based on space available.

²⁵ School size affects the number of pathways that can be offered at a particular school under any option, including one limited to just career pathways. Assuming a full-time CTE teacher teaches five sections, with an average class size of twenty-five, the minimum pathway size is 125. If a CTE teacher is dual certified in an academic discipline, this minimum could be reduced to 75, which is the least enrollment required to offer a cluster or sequence of at least three courses in the pathway.

Excluding Jefferson Middle College, each of the other comprehensive high schools has existing CTE courses that could form the foundation of a computer science/information technology pathway. This is also consistent with the district’s recent focus on “computer science for all.” Four high schools could build an engineering and design pathway around existing CTE programs, and three (as well as Jefferson) have the CTE courses around which to build a health professions and health science pathway. All also have a set of courses that could form the basis of a visual and applied arts pathway.

While this option appears to satisfy the objective of ensuring that all students in the district have access to the same high-quality pathway opportunities, it would require considerable development of additional CTE courses for one or more pathways at each of the four schools. Additionally, it would fail to capitalize on the substantial investment the district has already made in building CTE facilities and staffing at the comprehensive high schools. Lastly, it does not adequately reflect the diversity of

the Portland regional economy, ignoring some important sectors (e.g., business and finance, hospitality and tourism, education, energy, law and public service, etc.). Consequently, it would not fully engage employers, which may diminish widespread employer support and constrain offering students pathway-aligned work-based learning opportunities.

Therefore, a better equity strategy is one that uses pathway quality standards and pathway quality assessment to ensure the same high levels of quality across pathways, regardless of theme, rather than seeking to achieve equity by offering the same pathways everywhere. After all, even with a same pathway strategy, there must be processes to evaluate quality and equity across the four pathway offerings within each school, as well as across schools.

Strategy 2:
Offer different menus of at least three college and career pathways, as well as smaller CTE programs, at each of the comprehensive high schools, along with a menu of college and career pathways at Benson.

FIGURE 5: POSSIBLE SYSTEM OF COLLEGE AND CAREER PATHWAYS

PORTLAND SYSTEM OF COLLEGE AND CAREER PATHWAYS



This strategy builds menus of college and career pathways at each of the high schools using the foundation of CTE courses already existing at each high school. The number of pathways can vary, depending on school size and student interest. The crucial design consideration is creating pathways that enroll at least 200 students each, and preferably more. Achieving this objective requires, in most cases, combining at least two existing CTE programs in ways that are thematically coherent. Figure 5 illustrates how this might be accomplished.

This potential pathway system addresses several important design considerations. First, it maximizes the current distribution of CTE programs within Portland's high schools without requiring any relocation of existing programs or staff. Therefore, it makes full use of the investment to date in facilities, equipment, and staffing, as well as the familiarity of students and parents with the offerings at each school.²⁶

Second, it combines existing programs at each high school into broader pathway themes that in most cases enroll at least 200 students, grades nine to twelve. This enables integrating CTE with core academics as described in strategy one.

To illustrate how aggregating current CTE programs into larger and more comprehensive pathways enrolling sufficient numbers of students to permit more pathway dedicated teacher assignment, common planning time, and cohorting, consider a possible strategy for Madison High School. There, the existing computer science program (presently enrolling 97 students) could be combined with the engineering program (presently enrolling 125 students) to create an engineering and computer science pathway with a total enrollment of 222 students.²⁷ Similarly, the design and applied arts program (134 students) could be combined with digital arts (213 students) to create a visual and applied arts pathway enrolling 349 students. The current health services program (213 students) could be left as is or broadened to be a biomedicine and health sciences pathway, which might attract students from among the 43 percent of students at Madison who currently do not participate in CTE at all. Sustainable agriculture (67 students), is not yet large enough to realize the benefits of a larger pathway. It could continue to operate just as it does now, while seeking to expand the pathway's enrollment by recruiting more students from among those who do not now participate in CTE at Madison.

That leaves the education preparation program (21 students), a new CTE program of study. It could continue to operate as it does now, and, as enrollment increases, function as a viable stand-alone program.

The combination of programs at Madison to create larger pathways is only meant to be illustrative. If we as a community decide to pursue a strategy like this in order to make CTE a more integral part of students' larger school experience, decisions about how best to do that should depend on recommendations of staff, students, and parents at each school. The overall objective is to create coherently themed pathways that are large enough to support the integration of CTE with academics.²⁸

²⁶ It is worth noting that there is a kind of hybrid strategy, one that would ensure that at least two pathways (for example, computer science/information technology and visual and applied arts) existed at every comprehensive high school, with additional pathway themes based on the different CTE programs offered at each school.

²⁷ The objective is to combine CTE programs in ways that are thematically coherent to not only provide a focused experience for students but also to make it easier for academic teachers to introduce more pathway application, curriculum alignment, and project-based learning into their instruction. Most academic teachers have not been trained how to do this. Learning to do so is challenging enough when asked to concentrate on one pathway theme and quickly becomes overwhelming if academic teachers are asked to do this for two or more themes. In this particular example, engineering and computer science are closely related, and it is easy to imagine applications in academic courses that would span both domains. In contrast, trying to combine, say health professions with advanced manufacturing would confuse both students and teachers.

²⁸ However schools decide to merge programs into broader pathways, they should avoid the temptation to "shoehorn" an existing program into a pathway simply to preserve it. At Madison, for example, Education Preparation is not related to any of the other program or pathway themes, and arbitrarily making it so will do more harm than simply letting it continue to operate as it presently does.

A third design consideration is the role of Benson relative to the other high schools. Benson is one of two of the district's high schools of choice (the other is Jefferson), open to students throughout the district, with enrollment by lottery. In thinking about what sorts of pathways should be offered at Benson²⁹ versus the other schools, one potentially important guideline is to concentrate on pathways that require a very high capital investment and/or more specialized faculty that are not easy to duplicate at other high schools. For example, a comprehensive, state-of-the-art transportation technology pathway—with sub-specialties in transportation engineering, operations, and systems diagnostics, service, and repair—requires facilities, equipment, and specialized faculty that cannot be duplicated throughout Portland's high schools. Similarly, a biomedicine and health pathway—focused on biotechnology, patient care, and administrative and operational services—would be difficult to duplicate at other high schools with the same level of quality with which it could be offered at Benson. The same is true of a pathway focused on advanced manufacturing and product development, offering students opportunities to pursue interests in product innovation and design, graphic production technologies, machining and forming technologies, welding and materials joining. Again, we offer these as examples illustrating ways to distinguish offerings at Benson from those at comprehensive high schools. The form that they might actually take will require substantial input from Benson faculty and administrators, students, parents, industry, and other stakeholders.

A fourth design consideration is how best to maximize the quality and effectiveness of offerings at the alternative schools administered by the district (Alliance High School and Metropolitan Learning Center) and its community-based organization partners. These Multiple Pathways to Graduation (MPG) schools are smaller, by design, than their comprehensive counterparts. As such, the pathways model described in this plan may need to be adapted to fit the context of these smaller alternative schools. Additionally, Multiple Pathways to Graduation received a federal Education, Innovation, and Research (EIR) grant to support the integration of many of the elements discussed in this plan in several of its schools, including CTE, social-emotional support, and project-based learning. With that in mind, any discussion of how to install pathways in Portland's alternative education system should consider:

1. The unique nature and design of individual schools and programs,
2. The goals and deliverables of the federally funded initiative,
3. Lessons learned from MPG's efforts to integrate CTE and core.

Additionally, we believe that designing better quality experiences for students at these schools requires more intensive investigation and co-development with students, parents, teachers, and site leaders at these schools. Among some of the strategies to consider are:

1. Focusing on highly individualized pathways similar to the approach taken by the Big Picture Learning, which relies heavily on personalized student advisory, intensive internships (often two days a week), and dual credit opportunities with nearby postsecondary institutions, and
2. To the extent feasible, staffing these schools with teachers having dual CTE and academic certifications to maximize alignment and integration of CTE and core academics.

Critical to the success of these strategies is creating rich, challenging work-based learning opportunities that engage students in authentic, complex problems requiring them to engage with working professionals collaborating with the students' classroom teachers.

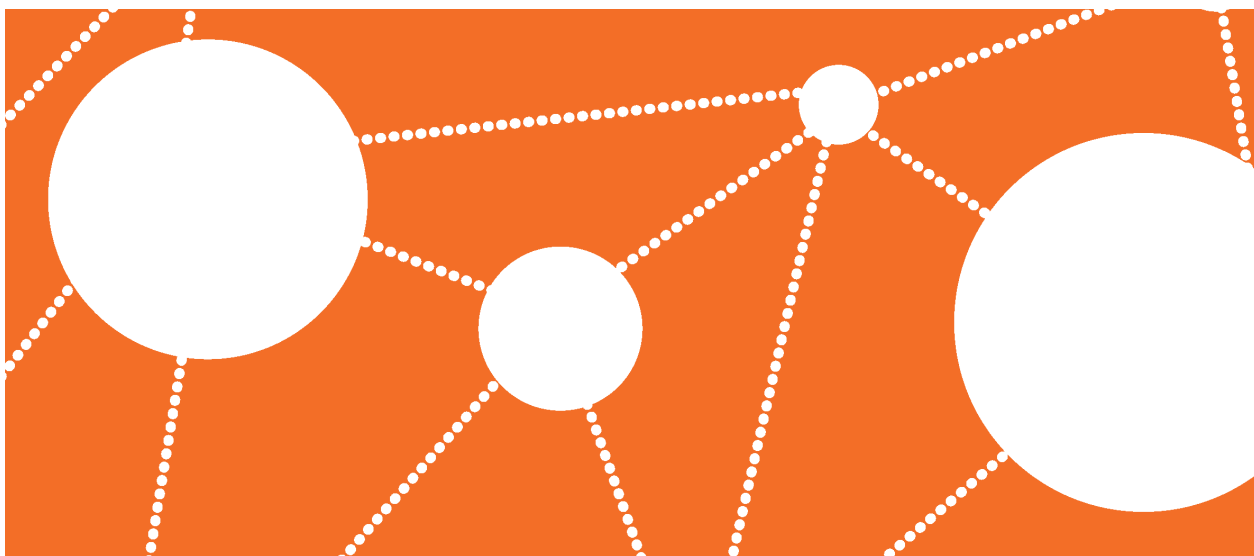
²⁹This does not mean that one or more of the comprehensive high schools should not offer a biotechnology or health sciences pathway, as long as the school considers how it will design and implement the pathway so that it offers students a comparably rich, rigorous, and up-to-date experience. Partnering with a community college to provide students dual credit opportunities in technology-intensive courses might be one strategy for accomplishing this.

A fifth design consideration is implications for grades K-8. As with alternative schools, we believe this also requires more investigation, especially as the district undertakes its middle school redesign initiative. Among some of the strategies to consider, for K-5 as well as 6-8, are:

1. Designing and implementing universal, grade appropriate career awareness at all schools;
2. Introducing grade-appropriate project-based learning at all schools, not only to accelerate learning in K-8 but also to better prepare students for the challenging project-based learning that should become a much more prominent feature of learning and teaching in grades 9-12;
3. Designing and implementing STEAM labs at all elementary and middle schools; and
4. Providing high school orientations that develop middle schoolers' understanding of the pathway options that await them in high school.

A final design consideration implicit in this approach is the importance of a credible, ongoing process for 1) assessing pathway quality within and across schools, 2) evaluating whether pathway access and participation are equitable with respect to key demographic variables, and 3) addressing situations where certain pathways are oversubscribed and students' first choice of pathway, either within their home school or at Benson, cannot be honored. A transparent process of clearly defined pathway quality standards, credible rubrics, and annual or semi-annual data analysis and reporting will not only ensure ongoing attention to equity, but also support a process of continuous school improvement.

In summary, these choices need not be viewed as mutually exclusive. If the longer-term goal is making CTE an integral part of a district-wide system of college and career pathways, then the options outlined here could be viewed as developmental. This might mean, for example, focusing first on defining more clearly what are the CTE clusters/sequences that should be fully developed at each school, second piloting two college and career pathways that would be offered at every school, and third, piloting a more complete menu of pathways at a subset of "willing" schools with groups of "willing" teachers. For any of the options outlined above, but especially for a more ambitious college and career pathway strategy, implementation will take time, probably five years or more. It will be critical to design a developmental strategy that, based on a long-term vision and holistic plan, recognizes that implementation must proceed incrementally, with many opportunities for reflection, reassessment, and modified re-design.



RECOMMENDATION

This work began in response to the Portland School Board’s request for a master plan for career and technical education. However, for all of the reasons discussed in this plan, we quickly recognized that achieving the aspirations of Portland’s recently adopted Graduate Portrait would depend on making CTE an integral part of students’ larger educational experience. Moreover, it became increasingly apparent that realizing the goals of the Graduate Portrait will require major improvements in teaching and learning, not just in CTE, but in core academics as well. In short, we needed an approach to comprehensive school improvement, one that promised to better unite academic and CTE teachers, schools and employers, and K-12 and postsecondary institutions around a strong commitment to college and career readiness for all of Portland’s young people. We believe that Option 2, Strategy 2—which would create menus of at least three college and career pathways, as well as smaller CTE programs, at each of the comprehensive high schools, along with a menu of college and career pathways at Benson—can accomplish that aim. We strongly recommend it.

However, as we said in the introduction to this document, developing a master plan for CTE is an opportunity to think even more expansively about what school should be—the full range of experiences available to students, and not just those delivered through a menu of college and career pathways. As we have pursued the development of this plan—observing CTE in many of the district’s high schools and listening to hundreds of stakeholders including board members, parents, district leaders, school site leaders, teachers, students, employers, postsecondary representatives, and leaders from community-based organizations—we believe more strongly than ever that this master plan should be, first and foremost, a plan for reimagining high school along with more systematically considering the implications for grades K-8.

Every student should have the opportunity to pursue vertically aligned, theme-focused pathways that engage students and teachers in interdisciplinary, collaborative work tightly integrated with the challenges of the world outside the classroom. College and career pathways are one powerful way to do this, but they are not the only way. Even if they become the preferred choice for a majority of students, high schools can and should provide other

kinds of thematic, focused options. These could include arts and social justice, engineering and sustainability, or public service and government, to name just a few possibilities.

As the district moves forward with building a system of college and career pathways throughout Portland’s high schools, and we strongly recommend it do so, it will be essential for each high school to consider how best to align those pathways with a limited number of additional pathway options equally well designed to prepare any student for more lasting success in postsecondary education, career, and civic life. For a school of, say, 1800 students (fictional Portland High), the options could look something like this:

Example school:
PORTLAND HIGH

ALL 9TH GRADE STUDENTS:
9th Grade Communities

ALL 10-12TH GRADE STUDENTS:
College & Career Pathways/Themes
Arts & Social Justice
Global Health & Innovation
Engineering, Innovation, & Sustainability
Business & Social Enterprise
Art, Design & Communications
Public Service & Government

At Portland High, every student would be expected to choose from one of these six pathways. Each pathway would have a cadre of academic and pathway teachers dedicated to it, and each pathway would be closely aligned with related postsecondary majors and provide students opportunities to earn dual credit. Every pathway would offer students rigorous and relevant college-preparatory core academic courses, with as many courses as possible emphasizing application and multidisciplinary project-based learning related to the pathway theme. Every pathway would provide students with a small learning community in which every student was known, recognized, and supported by caring adults. Every student would have opportunities to engage with working adults in experiential learning opportunities outside the classroom, and at every high school, support services would attend to the social and emotional needs of students, integrated college and career counseling, and accelerated instruction for students entering high school performing below grade level.

With such a framework for reimagining high school, it becomes possible to begin concentrating on implications for grades K-8, re-examining what “career awareness” should mean for students whose entry into the work world is 10 to 16 years away, when jobs and careers will surely look much different from what exists today. In these earlier grades, it is certainly valuable to broaden students’ awareness of the richness and complexity of the work world, and especially expanding their understanding of what is possible. It is equally important to begin building their understanding of how to apply knowledge and skill to contemporary problem solving, the importance of both collaboration and independent thinking, multiple modes of communication, and thinking creatively. Earlier and more consistent opportunities to engage in project-based learning and performance tasks will better prepare them for the expectations of high school pathways when they make that transition.

Between 2000-2009 three Portland Public Schools undertook a small learning community initiative. The endeavor met with mixed results. Although the smaller groupings of students did allow for more relationship building, several unexpected outcomes came about such as students’ self-segregating by racial group, school stigmatization, and limited academic growth. If the current movement toward introducing pathways in high schools is to be successful, it will have to learn from and purposefully work to avoid the mistakes of the small learning community reform.

The prior reform focused on structural and school design change and stopped short of addressing the shifts in lesson planning and instruction needed. The small learning community work missed the opportunity to develop a robust student culture that could transform both the classroom learning and school engagement experience of students. Going forward, pathways will need to make sure that students are truly known by identifying their strengths and assets and then using those attributes to help increase student motivation to remain in school and excel. The small learning community reform process focused on internal changes at the school level and neglected to address the policy and practice shifts at the district level needed to support true site-based change. This internal focus also shut off any opportunity for better alignment with the external community through college and industry partnerships. These partnerships, made more manageable with smaller communities, could have quickly allowed students to see not only the applicability and relevance of their learning but a clear path forward to a future of their choice.

The proposed pathway work should decrease the need for students to group together for an increased sense of safety, acceptance and belonging by supporting the development of school cultures that celebrate diversity and teach the value of collaboration and community. The small learning community initiative work assumed that the reconfiguration of students and faculty would result in greater learning without any additional effort. Pathway introduction should

be accompanied by educator-supported professional development, the opportunity to see new practices in similar schools and committed time for adults to engage in professional collaboration and community cultivation of their own.

Finally, the small learning community initiative lost favor and support because it was seen as a reform for low-achieving students that was not offered in all schools or held to rigorous implementation or achievement standards. Learning from this, all schools should participate, and at every school, each pathway must be held and supported to meet high standards with respect to equity, curriculum and instruction, conducive school culture, social-emotional supports, and partnerships with employers and postsecondary institutions. This work is essential to delivering the educational experiences that all young people need to be educated, well-connected, and positioned for success in Portland.

As we look to implement this master plan, it is imperative that the goals of the High School Strategic Plan, created in 2017, be seamlessly integrated and aligned. The High School Strategic Plan has three focus areas that are infused into this master plan to support student success:

- Preparing students for postsecondary options and careers,
- Accelerating academic and personal growth through culturally relevant pedagogy and curriculum for our historically underserved students, and
- Implementing a multi-tiered system of supports to prevent dropouts and prepare students for postsecondary success

ENGAGING THE PORTLAND COMMUNITY: THE ROLE OF THE ADVISORY COUNCIL AND COMMUNITY STAKEHOLDERS

The primary responsibility for educating Portland's young people will continue to rest with Portland Public Schools' professional educators. However, we all share responsibility for ensuring that our youth are well prepared for lasting success in college, career, and civic life. The strategy recommended here opens the way for employers to become more engaged in helping to build students' understanding of the changing world of work. More specifically, in addition to the roles employers have traditionally played in advisory councils with respect to promoting teaching and curriculum aligned to current industry standards and needs, a robust district-wide system of pathways creates opportunities to engage employers in helping students and teachers design authentic, challenging projects and in assessing student work. The system's greater emphasis on delivering a continuum of work-based learning experiences for students creates an opportunity for employers to engage with the district as to how such a system could be more mutually beneficial. What if we envision a larger and more effective internship system in Portland? For example, at the Missouri Innovation Campus on the outskirts of Kansas City, the Lee's Summit School District in collaboration with 55 Kansas City area business partners, has taken a radically different approach to internships. They provide an intensive, three-year, year-round paid internship program that not only reduces student debt during their college years but also increases the likelihood that the interns will stay with their sponsoring companies upon completing their postsecondary education.

Similarly, this plan invites postsecondary stakeholders to partner more closely with Portland Public Schools to better align pathways across grades 9-16 and to help high school students learn earlier on the expectations of postsecondary education and the opportunities that await them when they leave high school prepared to do postsecondary coursework. It could support new forms of secondary/postsecondary collaboration that, in combination with the kind of employer engagement outlined above, leads to accelerated attainment of not only associate degrees, but also bachelor degrees (perhaps earned in two to three years instead of four), industry certifications, and stackable credentials. For example, pathway students during senior year might take all college classes three days a week,

engage in a yearlong internship two days a week during the school year and full-time in the summer, and graduate from high school with enough credits (and substantial saved earnings) to earn a Bachelor Degree as early as two years after high school.

This plan invites other community-based organizations, parents, and students to actively engage in crafting a systemic, community-wide approach to improving Portland’s schools and holding all of us accountable ensuring that every student leaves Portland Public Schools as an “optimistic future-oriented graduate,” prepared for lasting success in further education, career, and life.

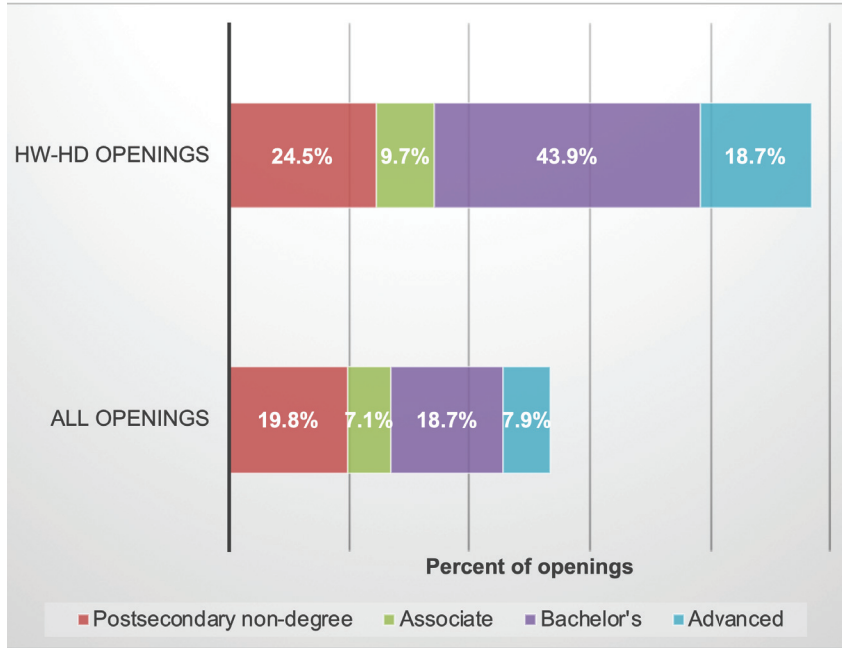
This master plan continually challenges our community to ask, what should school be? We believe this is the best strategy for ensuring that we realize the aspirations of Portland’s Graduate Portrait, that our educators embody the educator essentials, and that we commit to making the system shifts needed to transform our schools to produce graduates who can understand, engage in, and lead the change on which the survival of our world depends. It is, therefore, a living plan. One to which we must constantly return, evaluate, and revise as we take on the very challenging business of transforming our schools and ensuring that every student succeeds.



¹ A “pathway” teacher would not necessarily be a CTE teacher but would teach a cluster of sequence of pathway specific courses (e.g., journalism).

APPENDIX A

FIGURE A1: TRI-COUNTY JOB OPENINGS BY EXPECTED EDUCATION ATTAINMENT



- “High-wage” jobs typically pay wages above the median wage for the region
- “High-demand” jobs are expected to grow faster than the median growth across all occupations in the region
- 46,500 of the expected 131,000 annual openings are in high-wage/high-demand occupations
- On average, these openings will require much more education than will other positions

Source: Oregon Employment Department Data provided by Andrew Dyke, EcoNorthwest

TABLE A1: TRI-COUNTY HIGH WAGE/HIGH-DEMAND JOBS REQUIRING ASSOCIATE DEGREE OR HIGHER

Standard Occupational Classification Title	Annual openings through 2027	2018 Median Hourly Wage (or salary)	Competitive Education
General and Operations Managers	1,860	\$46.05	Bachelor's degree
Registered Nurses	1,530	\$45.18	Bachelor's degree
Wholesale and Manufacturing Sales Representatives, Except Technical and Scientific Products	1,229	\$29.39	Associate's degree
Software Developers, Applications	1,113	\$51.89	Bachelor's degree
Business Operations Specialists, All Other	1,072	\$33.51	Bachelor's degree
Managers, All Other	1,054	\$45.85	Bachelor's degree
Accountants and Auditors	967	\$31.60	Bachelor's degree
Supervisors and Managers of Office and Administrative Support Workers	812	\$29.12	Associate's degree
Substitute Teachers	719	\$22.21	Master's degree
Market Research Analysts and Marketing Specialists	604	\$34.54	Master's degree
Financial Managers	505	\$57.03	Bachelor's degree
Computer User Support Specialists	465	\$24.87	Bachelor's degree
Management Analysts	462	\$40.71	Master's degree
Sales Managers	454	\$55.39	Bachelor's degree
Human Resources Specialists	451	\$29.35	Bachelor's degree
Marketing Managers	426	\$57.92	Bachelor's degree
Elementary School Teachers, Except Special Education	388	\$71,432	Master's degree
Graphic Designers	371	\$27.64	Bachelor's degree
Automotive Service Technicians and Mechanics	360	\$24.56	Associate's degree
Supervisors and Managers of Production and Operating Workers	355	\$28.20	Bachelor's degree
Computer and Information Systems Managers	351	\$35.25	Bachelor's degree
Computer Occupations, All Other	351	\$40.94	Bachelor's degree
Health Specialties Teachers, Postsecondary	343	\$130,389	Doctoral or professional degree
Executive Secretaries and Executive Administrative Assistants	332	\$28.18	Associate's degree
Computer Systems Analysts	318	\$45.53	Bachelor's degree
Secondary School Teachers, Except Special and Career/Technical Education	313	\$78,500	Master's degree

Source: Oregon Employment Department Data provided by Andrew

**TABLE A2: TRI-COUNTY HIGH WAGE/HIGH-DEMAND JOBS
REQUIRING POSTSECONDARY NON-DEGREE**

Standard Occupational Classification Title	Annual openings through 2027	2018 Median Hourly Wage	Competitive Education
Truck Drivers, Heavy and Tractor-Trailer	1,363	\$22.94	Postsecondary training (non-degree)
Carpenters	1,324	\$24.73	Postsecondary training (non-degree)
Sales Representatives, Services, All Other	857	\$25.13	Postsecondary training (non-degree)
Real Estate Sales Agents	629	\$26.41	Postsecondary training (non-degree)
Electricians	559	\$37.86	Postsecondary training (non-degree)
Plumbers, Pipefitters, and Steamfitters	523	\$39.09	Postsecondary training (non-degree)
Supervisors and Managers of Construction Trades and Extraction Workers	445	\$36.67	Postsecondary training (non-degree)
Self-Enrichment Education Teachers	350	\$24.11	Postsecondary training (non-degree)
Dental Assistants	346	\$22.53	Postsecondary training (non-degree)
Massage Therapists	343	\$29.19	Postsecondary training (non-degree)
Inspectors, Testers, Sorters, Samplers, and Weighers	328	\$21.83	Postsecondary training (non-degree)
Real Estate Brokers	288	\$32.96	Postsecondary training (non-degree)
Welders, Cutters, Solderers, and Brazers	255	\$22.59	Postsecondary training (non-degree)
Property, Real Estate, and Community Association Managers	229	\$36.57	Postsecondary training (non-degree)
Machinists	219	\$23.84	Postsecondary training (non-degree)
Industrial Machinery Mechanics	207	\$28.21	Postsecondary training (non-degree)
Sheet Metal Workers	206	\$22.45	Postsecondary training (non-degree)
Supervisors and Managers of Mechanics, Installers, and Repairers	193	\$31.33	Postsecondary training (non-degree)
Bus and Truck Mechanics and Diesel Engine Specialists	190	\$25.77	Postsecondary training (non-degree)
Installation, Maintenance, and Repair Workers, All Other	184	\$22.02	High school diploma or equivalent
Operating Engineers and Other Construction Equipment Operators	178	\$29.15	Postsecondary training (non-degree)
Supervisors and Managers of Housekeeping and Janitorial Workers	168	\$27.43	Postsecondary training (non-degree)
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	165	\$21.97	Postsecondary training (non-degree)
Tax Preparers	153	\$32.01	Postsecondary training (non-degree)

Source: Oregon Employment Department Data provided by Andrew Dyke, EcoNorthwest

**TABLE A3: NATIONAL LABOR MARKET PROJECTIONS
BY INDUSTRY: 2018-2028**

Chart 5. Percent change and numeric growth by industry sector, projected 2018-28

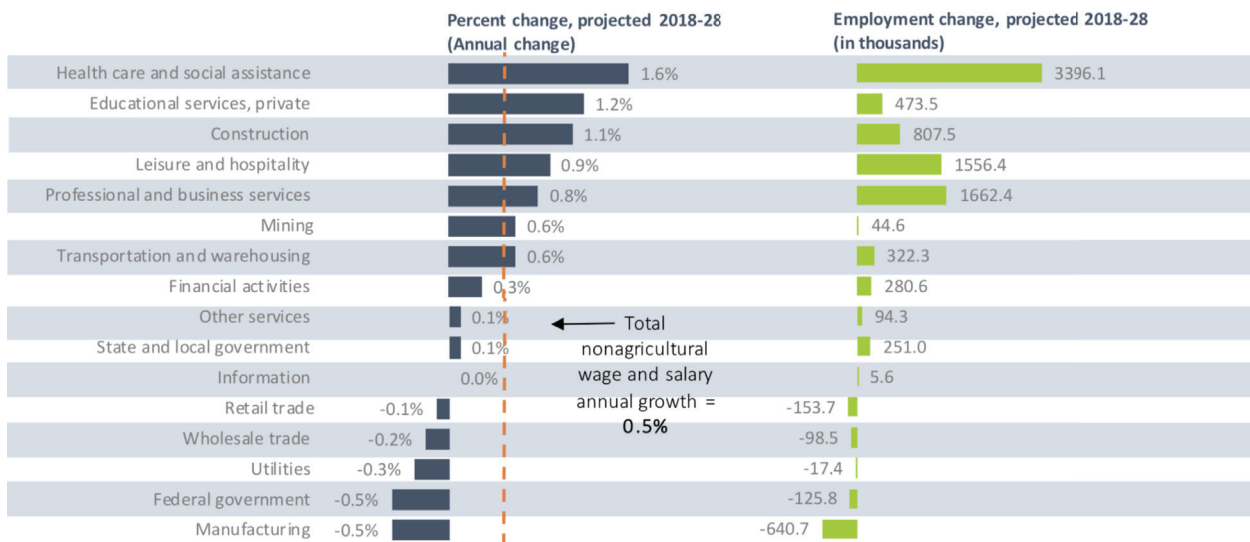


TABLE A4: FASTEST GROWING OCCUPATIONS IN THE UNITED STATES: 2018-2018

Chart 1. Ten fastest growing occupations, projected 2018-28

	Percent change, projected 2018-28	Employment change, projected 2018-28 (in thousands)	Median annual wages, May 2018
Solar photovoltaic installers	63.3%	6.1	\$42,680
Wind turbine service technicians	56.9%	3.8	\$54,370
Home health aides	36.6%	304.8	\$24,200
Personal care aides	36.4%	881.0	\$24,020
Occupational therapy assistants	33.1%	14.5	\$60,220
Information security analysts	31.6%	35.5	\$98,350
Physician assistants	31.1%	37.0	\$108,610
Statisticians	30.7%	13.6	\$87,780
Nurse practitioners	28.2%	53.3	\$107,030
Speech-language pathologists	27.3%	41.9	\$77,510

TABLE A5: PARTICIPATION IN CTE PROGRAMS BY SCHOOL

	EL	SPED	Asian	African Amer	Latinx	Multiple	Native Amer	Pac. Isl.	White	
Benson	1024	5%	17%	10%	13%	25%	9%	0%	1%	42%
Architectural Drafting & Design	104	3%	13%	11%	7%	20%	1%	0%	1%	53%
Computer Engineering	106	4%	11%	9%	9%	19%	7%	0%	1%	54%
Construction Technology	43	1%	21%	8%	6%	19%	4%	0%	1%	62%
Design and Applied Arts	25	4%	15%	3%	10%	35%	14%	0%	3%	36%
Digital Media	136	5%	16%	10%	11%	22%	8%	0%	0%	48%
Electrical Technology	141	5%	17%	9%	9%	23%	7%	0%	0%	51%
Engineering	16	2%	6%	2%	4%	14%	10%	0%	0%	71%
Health Sciences	153	5%	10%	14%	14%	26%	10%	0%	1%	35%
Manufacturing Technology	125	6%	18%	9%	10%	23%	8%	0%	1%	51%
Radio Broadcasting	36	2%	21%	6%	20%	22%	10%	1%	1%	41%
Transportation Technology	139	5%	17%	8%	11%	26%	7%	0%	0%	48%
Cleveland	638	1%	13%	9%	3%	9%	8%	0%	0%	71%
Computer Science	98	0%	7%	10%	3%	6%	10%	0%	0%	71%
Construction Technology	163	1%	18%	7%	4%	10%	4%	0%	2%	74%
Hospitality/Culinary Arts	155	2%	21%	10%	5%	13%	9%	1%	1%	62%
Digital Media	222	0%	6%	8%	2%	6%	10%	0%	0%	74%
Franklin	945	3%	11%	15%	4%	18%	8%	0%	1%	53%
Business Management	170	2%	8%	22%	4%	20%	5%	0%	1%	48%
Computer Science	108	5%	12%	20%	3%	18%	12%	0%	1%	46%
Construction Technology	157	5%	8%	14%	3%	14%	10%	0%	1%	58%
Education Preparation	48	4%	16%	18%	4%	29%	3%	0%	3%	43%
Hospitality/Culinary Arts	157	2%	10%	14%	6%	18%	9%	0%	0%	53%
Manufacturing Technology	143	4%	9%	10%	1%	12%	10%	0%	1%	65%
Video Production	162	1%	13%	9%	6%	19%	10%	0%	0%	56%
Grant	828	0%	7%	3%	6%	7%	11%	1%	0%	72%
Audio Engineering	102	0%	10%	3%	4%	4%	9%	0%	0%	80%
Computer Science	122	0%	5%	1%	1%	8%	14%	1%	0%	75%
Construction Technology	119	0%	7%	2%	3%	6%	14%	1%	0%	74%
Design & Applied Arts	137	0%	8%	4%	5%	9%	13%	1%	0%	68%
Digital Media	135	1%	7%	2%	8%	12%	8%	1%	0%	68%
Health Science	118	0%	4%	7%	10%	6%	14%	1%	0%	62%
Multimedia/Theatre Production	95	0%	11%	1%	3%	3%	9%	1%	1%	82%

TABLE A5: PARTICIPATION IN CTE PROGRAMS BY SCHOOL (CONT)

		EL	SPED	Asian	African Amer	Latinx	Multiple	Native Amer	Pac. Isl.	White	
Lincoln		618	2%	4%	11%	1%	8%	7%	0%	0%	72%
Business Management		197	1%	1%	11%	0%	5%	5%	1%	0%	76%
Computer Science		94	3%	8%	13%	1%	14%	2%	1%	1%	68%
Design & Applied Arts		118	0%	2%	8%	1%	9%	6%	1%	0%	75%
Hospitality/Culinary Arts		150	4%	4%	12%	2%	8%	13%	0%	0%	66%
Media Studies/Mass Commun		59	2%	5%	11%	0%	8%	5%	2%	0%	76%
Madison		663	9%	10%	18%	11%	22%	8%	1%	1%	38%
Computer Science		74	7%	5%	19%	6%	13%	6%	1%	1%	54%
Design & Applied Arts		102	15%	16%	13%	16%	27%	9%	2%	0%	32%
Digital Media		162	7%	12%	15%	12%	24%	10%	1%	1%	37%
Education Preparation		16	0%	0%	10%	5%	24%	5%	0%	5%	52%
Engineering		95	7%	7%	13%	10%	19%	7%	2%	0%	49%
Health Sciences		167	7%	7%	24%	12%	23%	7%	1%	1%	32%
Sustainable Agriculture		47	10%	16%	20%	3%	10%	8%	0%	2%	57%
Roosevelt		510	10%	17%	4%	19%	29%	7%	2%	3%	37%
Computer Science		85	10%	16%	8%	15%	27%	6%	1%	1%	42%
Construction Technology		120	10%	19%	2%	20%	29%	6%	2%	6%	35%
Engineering		124	11%	9%	5%	21%	32%	5%	2%	3%	33%
Media Studies/Mass Commun		60	1%	9%	0%	29%	24%	8%	2%	1%	37%
Multi Media/Theatre Productio		121	7%	16%	4%	16%	25%	9%	1%	2%	43%
Wilson		707	2%	6%	3%	5%	9%	9%	1%	0%	74%
Computer Science		86	2%	4%	6%	3%	4%	14%	0%	1%	73%
Construction Technology		116	2%	11%	0%	4%	7%	9%	1%	0%	78%
Education Preparation		64	1%	4%	1%	8%	17%	12%	0%	0%	63%
Health Sciences		216	3%	5%	3%	7%	9%	6%	0%	0%	75%
Marketing		178	2%	5%	4%	6%	8%	7%	0%	0%	74%
Alliance											
Digital Media											
Manufacturing											
Natural Resources											
Transportation/Auto											
Metropolitan Learning Center											
Business Management											

APPENDIX B

PORTLAND PUBLIC SCHOOLS NEEDS AND CAPACITY ASSESSMENT

BACKGROUND/CONTEXT

For more than a decade, career and technical education (CTE) programs in Portland Public Schools had eroded due to reductions in district funding. In 2012, the district began efforts to develop a system and strategy for CTE and career learning. The goal was to help students connect their classroom learning with real-world applications, expose them to a variety of career options, and prepare them with 21st Century skills.

To accomplish these goals, the district established infrastructure and invested general fund and grant dollars to:

- Assess the current state of CTE programming
- Map alignment of programs to national career clusters
- Research labor market trends
- Cultivate strong partnerships with industry/community, and postsecondary partners
- Expand career learning activities for students
- Provide professional development for teachers
- Enhance existing CTE programs
- Expand programming to ensure CTE offerings at all high schools

2012	2019	2012	2019	2012	2019
Number of CTE programs on 6 high school campuses	Number of CTE programs on 10 high school campuses	Number of high school CTE teachers	Number of high school CTE teachers	Graduation rates for students completing 1 CTE credit	Graduation rates for students completing 1 CTE credit
19	64	26	96	84%	>95%

As we wind down the 2019-20 school year, most goals of the 2012-2019 five-year CTE plan have been met. Yet there is still much work to do. Focus now turns to ensuring CTE programs are high-quality, aligned to industry standards, and establishing intentional alignment with core academic programs. This needs and capacity assessment rating was completed by ConnectED, the National Center for College and Career Readiness, with information gathered in the spring of 2019 by interviews, focus groups, site visits, and data analysis.

DESCRIPTION OF NATIONAL STANDARDS

MDRC produced a groundbreaking study in 2008, “Career Academies: Long-term Impacts on Labor Market Outcomes, Educational Attainment and Transitions to Adulthood,” outlining the positive impacts of academies on student achievement across the country. The MDRC study lists three major components of academies that were present in all places where positive findings occurred. These three components, listed below, are embedded in all of the national standards used to review the work in Portland.

Core Components of the Academy Model (MDRC Study):

1. Small Learning Communities with support for academic and career-related course combinations
2. Career-themed curricula
3. Partnerships with employers for work-based learning and other career awareness and development opportunities

STANDARD RATINGS

The following ratings were determined based on school site visits and observations, review of academy data, listening campaign feedback from various stakeholders, and focus group interviews.

National Career Academy Coalition (NCAC) Standards (drafted collectively and endorsed by LLA, CCASN, NAF, ConnectEd)

National Standards of Practice for Career Academies	Related Portland Strengths	Related Portland Challenges	Recommendations
I. Defined Mission and Goals:			
<ul style="list-style-type: none"> • College and care connections • Student aspirations • Student achievement • Commitment to equity • Stakeholder involvement 	<ul style="list-style-type: none"> • All high school students have access to a college and career coordinator. Career coordinators are convened by the district to share best practices and engage in professional development. • Many programs of study allow students to use “free periods” to access tutoring and additional support. • A review of the student enrollment data per pathway did not show any patterns of exclusion or siloing by race, gender, or economic status. Student enrollment in pathways closely aligned with student populations in the school overall with some minor exceptions. 	<ul style="list-style-type: none"> • Programs of study do not appear to universally expose students to a vertical segment of occupations within a career-field. • The career and college coordinators in the district use two different online platforms (CIS & Naviance) to support their work • Programs of study do not regularly support student reflection on their individual strengths and interests in order to increase their motivation and aspiration. • It was unclear if students had access to standardized rubrics, which would allow them to self-assess or provide peer-to-peer feedback. • The district tracks achievement data overall. Programs of Study or review their student achievement data. • It was unclear if every program of study had a mission or vision that was collaboratively developed with stakeholders and if there were clear benchmarks for assessing progress towards meeting the mission/vision goals. 	<ul style="list-style-type: none"> • Establish pathway mission and goals and engage in an annual review of achievement data and progress toward them. • Support pathway leads ability to work with coordinators to create a college and career aspirations plan that is aligned with and advanced by the curriculum in the classroom. • Provide pathway students with common rubrics so that they can self-assess and support each other to achieve transparent standards.

National Standards of Practice for Career Academies	Related Portland Strengths	Related Portland Challenges	Recommendations
II. Academy Design			
<ul style="list-style-type: none"> • Cross-grade (vertical) articulation • Student selection • Cohort scheduling • Physical space • Small size, supportive atmosphere • Academy planning 	<ul style="list-style-type: none"> • A large percentage of students in the district from varying backgrounds and achievement levels participate in pathways. • Entry into the programs of study at each high school is voluntary and accessible by all students in the corresponding neighborhood. • The selection process for the focus option school is written and widely available • Programs of study enrollment reflected the general population of each high school in terms of race, gender, and socio-economic status. • Physical space that places academic and CTE teachers in close proximity is being built into the design of the focus option school. • Programs of study appear to have supportive atmospheres that provide dedicated staff. • Programs of study have definitive career technical course sequences with alignment to community college CTE programs 	<ul style="list-style-type: none"> • Students were not expected to complete all of the courses in a Program of study across the four years of school. • Schools do not necessarily promote program completion. • Students are confined to either the programs of study at their neighborhood high school or the programs of study at the focus option school, which has a lottery enrollment process. This may limit the industry themes they have access to across the district. • Parents or guardians do not appear to have a regular and known process for participating in Programs of study selection or approving the choices made by their student(s). • Students do not appear to regularly receive an orientation to CTE course options that allows them to take into consideration their personal strengths and interests when selecting the best option for them. • Programs of study do not have defined physical space that places academic and CTE courses near each other to allow for the flexible configurations required by integrated project- based learning. • Programs of study teams do not have dedicated time to plan the pathway design or draft lesson plans together. 	<ul style="list-style-type: none"> • Each pathway should articulate a clear process that allows students, parents, and guardians to thoughtfully select the right pathway for them based on their strengths and interests. • Provide physical space, cohort scheduling, and dedicated planning and review time to allow teachers, pathway staff, and advisors to utilize collaborative practices, create shared understanding, and engage in productive team development. Many educators noted in the listening campaign feedback the need for support to do these things • Pathways should encourage students to complete the articulated four-year program of study.

National Standards of Practice for Career Academies	Related Portland Strengths	Related Portland Challenges	Recommendations
III. Host Community and High School			
<ul style="list-style-type: none"> • Support from the board of education and superintendent • Support from the principal and high school administration • Adequate funding, facilities, equipment, and materials 	<ul style="list-style-type: none"> • Programs of Study are listed as an important part of the high school improvement strategy for the district. • The district board of education and superintendent are aware of CTE Programs of Study and their overall mission and goals, and are on public record in support. • Participating principals are eager to learn more about pathways and have expressed a desire to be involved. 	<ul style="list-style-type: none"> • The school board and superintendent do not yet serve as Programs of Study liaisons to the broader community. • Programs of study are not yet named as an integral part of every high school's improvement strategy. • Beyond CTE funds (Perkins, Pathways, M98), every high school program does not have equitable access to funding for facilities, equipment, materials, staff and support that advances internships, early college and career, and modern industry themed technical training. 	<ul style="list-style-type: none"> • Clarify the district administration and board-level work needed to support and advance college and career pathways. Build out regular and consistent ways for the work to be taken up. Identify key district administrator level personnel that should be involved. • Help every school understand how including college and career pathway development in its improvement plan will align its efforts with district initiatives and resources as well as increase student achievement. • Draft written processes and policies to show every high school how it can implement pathways and access support and funding. Track and celebrate the college and career readiness efforts at every school. This is very important for those high schools who expressed that they felt purposefully ostracized, denied access to resources, and held to a different set of rules and regulations than other schools. This level of real or perceived systemic oppression is particularly troubling when those high schools serve largely African American, Native American, or special education populations.

National Standards of Practice for Career Academies	Related Portland Strengths	Related Portland Challenges	Recommendations
IV. Faculty and Staff			
<ul style="list-style-type: none"> • Teacher Leader(s)/ coordinator(s) • Academy staff • Support from the counselors, non-academy teachers, and classified staff 	<ul style="list-style-type: none"> • The district has a large number of teachers with dual credentials qualifying them to teach both academic and career technical courses. • There is a very experienced and dedicated district college and career readiness team that received multiple accolades in the listening campaign feedback. The team has roles that support industry partnership development, data analysis, dual and concurrent college enrollment, college readiness planning, funding allocation, equipment purchasing, and teacher training. 	<ul style="list-style-type: none"> • Concerns were shared that not all of the career technical teachers received adequate professional development or coaching that would enable them to draft strong lesson plans and collaborate with academic instructors. • Concerns were also shared that not every program of study had an industry-certified teacher and that some pathways were developed around the existing credentials of the staff as opposed to industry need, student interest, or an overall district design plan. This perception doesn't reflect state requirements that every CTE teacher in a POS must have industry experience in order to be licensed. • Every program of study did not appear to have dedicated site staff, clarity about role expectations, or knowledge about who to go to for what types of support on campus. 	<ul style="list-style-type: none"> • Engage in regular performance reviews with career technical teachers and align the reviews with individual professional development plans to track the support given and the progress made by teacher(s). • Specify the expectations of college and career pathways and help clarify the work and roles/staff needed to meet expectations. • Develop a district master plan designed for pathway development and growth. The plan should also share the values, beliefs, mission/ vision, and goals driving the design and how they align with the overall district strategy, funding sources, and initiatives as well as local context.
V. Professional Development and Continuous Learning			
<ul style="list-style-type: none"> • Common planning time • Professional development • Volunteer and parent orientation 	<ul style="list-style-type: none"> • The district regularly holds quarterly cross-district professional development opportunities for career technical education teachers and career coordinators. These meetings allow educators to network, get district level updates and share best practices. The meetings are widely attended and highly valued. 	<ul style="list-style-type: none"> • Programs of Study do not currently have common planning time, designated professional development, or an orientation process for bringing volunteers, parents, and community members on board. 	<ul style="list-style-type: none"> • Clarify the roles, responsibilities, expectations, and skill sets needed at the pathway level. Encourage pathways to outline a support plan for engaging team in continuous learning in these areas. • Help each pathway identify a designated time of year and process for providing parents, community members, and industry partners with an orientation specifying how they can get involved with the pathway.

National Standards of Practice for Career Academies	Related Portland Strengths	Related Portland Challenges	Recommendations
VI. Governance and Leadership			
<ul style="list-style-type: none"> • Network of support • Regular meetings • A healthy partnership • Student Voice 	<ul style="list-style-type: none"> • The district has an active student council and a student member of the school board. 	<ul style="list-style-type: none"> • Every program of study was not connected to an advisory board at either the pathway or district level. • Programs of Study do not have memorandums of understanding or bylaws to define all roles. • There were no clear venues for students to provide input on Programs of Study policies and practices and further develop student leadership in each pathway. 	<ul style="list-style-type: none"> • Develop an ongoing district level advisory board with regular meetings, clear expectations, and a process by which to self- assess and refine. • Support pathway to develop healthy partnerships with clear areas of work and benchmarks of progress. • Encourage pathways to articulate the various ways students can share their voice and the various ways the pathway can foster diverse student representation, engagement, and leadership.

National Standards of Practice for Career Academies	Related Portland Strengths	Related Portland Challenges	Recommendations
VII. Teaching and Learning			
<ul style="list-style-type: none"> External standards Rigorous learning Sequenced, integrated, and relevant curriculum Post-secondary planning Dual credit options Development of a portfolio and participation in a capstone project 	<ul style="list-style-type: none"> The college and career readiness team annually assesses pathways against the state department standards and provides written feedback. In many CTE courses across the district, classroom observations illustrated applications of academic subjects outside the classroom, incorporated current technology, and included authentic project-based learning. However, this was not consistent across the district. Many pathways utilized older technology that would not render students able to ascertain even entry-level jobs. 	<ul style="list-style-type: none"> It was not consistently apparent that career technical courses were framed around career readiness or industry standards. This perception by staff and community does not reflect the Oregon law that requires all programs of study to align to industry standards (Oregon Skill Sets). Although the district goal is for all students to graduate qualified to attend colleges, not every student left with a completed college readiness plan. Although many of the courses were sequenced in the Programs of Study, students did not regularly complete the sequence. Academic and career technical curriculum was very rarely integrated. Post-secondary planning, dual credit options and a portfolio or capstone project were not an expected part of every Programs of Study student's learning experience. In two separate student focus group interviews, the students shared very similar stories about young people walking in and out of class at-will and even "visiting" classes they didn't belong in. Students shared stories of being afraid to go to filthy bathroom where bad kids hung out, of teachers being disrespected, and choosing to huddle all of the students "willing to learn" in groups and ignoring the other students who were disruptive and of teachers who "didn't listen to them." At a school site visit, a principal cut the meeting short to address a racially charged incident that happened on campus and was continuing to build via social media amongst the students and needed to be addressed. At sites where students weren't disruptive, we were often struck by how many times we could not find an instructor in a classroom or we saw students moving freely around campuses. 	<ul style="list-style-type: none"> Clarify the learning experiences every pathway student should have access to across the district. Provide professional development to help teachers design integrated projects, student portfolios, and/or capstone projects. Make completion of the college readiness plan a graduation requirement and part of the senior defense or portfolio. Shift district expectations from a focus on breadth to a focus on depth and the completion of a sequenced program of study.

National Standards of Practice for Career Academies	Related Portland Strengths	Related Portland Challenges	Recommendations
VIII. Employer, Higher Education, and Community Involvement			
<ul style="list-style-type: none"> Local industry/economic needs Community involvement Citizenship culture development Work-based learning 	<ul style="list-style-type: none"> The district has a large and robust list of industry, community, and secondary-education partners that are eager to participate. Some programs of study had long histories of community partnerships in place and could speak to regular activities they engaged in with partners such as the hosting of art exhibits, guest speaking, feedback on student assignments. The district is able to track work-based learning experiences offered by each CTE course and student participation in the experiences by demographics 	<ul style="list-style-type: none"> The programs of study don't entirely align with the community's industry and employer base. All programs of study do not have regular and consistent involvement with local industry employees. Community partnerships did not consistently support a continuum of experiences across the program of study or advanced student work towards achievement of industry standards. Community or industry representatives do not consistently and predictably help guide the development of CTE curriculum or provide experiential program components such as speakers, field experience sites, shadowing opportunities, mentoring, student externships, community service opportunities, college tours, and teacher externships. There was not a consistent and predictable pattern of programs of study across the district purposefully fostering a culture of respect for others regardless of background. 	<ul style="list-style-type: none"> Allow those programs of study with robust industry or postsecondary partnerships to sit on panels or lead professional development workshops where they can share their best practices in these areas. Clarify expectations around the level of engagement with industry and postsecondary partners each pathway should strive for and provide support and guidance to help them achieve the standard. Regularly track and review the quality, expanse, and outcomes of the community involvement. Help teachers develop or have access to curriculum that promotes citizenship, work-place readiness, social and emotional development, and student reflection. Help pathways articulate what their work-based learning continuum includes and how it is embedded in the four-year program of study.

National Standards of Practice for Career Academies	Related Portland Strengths	Related Portland Challenges	Recommendations
IX. Student Assessment			
<ul style="list-style-type: none"> • Student data • Multiple academic measures • Technical learning • Accurate reporting • Evidence of impact 	<ul style="list-style-type: none"> • The district college and career readiness team developed an online platform and hired a team to assess student grade level, gender, race/ethnicity, and performance data by programs of study and in relationship to the high school population in general. • There was a consistent set of accepted indicators of performance adopted by the college and career readiness team for the programs of study that includes attendance, retention, credits, grade point averages, graduation rates, college acceptance rates, and state test scores. All CTE students regularly take an annual technical skills assessment test aligned with their industry theme. • There was evidence of high-quality student • developed artifacts across the district, but it was inconsistent. 	<ul style="list-style-type: none"> • It was not clear how often Programs of Study review their student data and make practice adjustments in accordance with their findings. Programs of study did not have regular processes and practices for this work. • Programs of study did not reference a set of identified assessments or benchmarks when referring to the strength of their programs. Those pathways that did reference indicators usually spoke to increased graduation, attendance, and retention. These perceptions of lack of assessment does not reflect the district requirement that every course offer a technical skills assessment (TSA) at the end of each year. • The attainment of industry certification was not widespread across the district or a consistent CTE goal. • Programs of Study did not have access to longitudinal data to show evidence of their impact on student achievement over time. 	<ul style="list-style-type: none"> • Encourage students to select one pathway to participate in throughout their high school career. This will increase accurate reporting by reducing redundancy in the enrollment count and help highlight the impact each pathway makes on its students. • Help pathway teams engage in regular data review processes and provide professional development to help teachers connect outcomes with practice and make appropriate adjustments. • Help pathways articulate vertical outcomes and graduate profile benchmarks to assess the strength of their programs of study. • Help pathways develop processes to track long-term data

National Standards of Practice for Career Academies	Related Portland Strengths	Related Portland Challenges	Recommendations
X. Sustainability			
<ul style="list-style-type: none"> Academy implementation Academy refinement Reflection on the academy's mission and goals 	<ul style="list-style-type: none"> The district college and career readiness team regularly assessed pathway adherence to guidelines, and state compliance. 	<ul style="list-style-type: none"> Programs of study did not appear to have a regular and consistent practice of gathering feedback from stakeholders, including students, or using the feedback to assess functioning or the refinement of practice. Programs of study were not in the habit of regularly drafting improvement plans that referred back to their underlying mission and goals. 	<ul style="list-style-type: none"> Broaden the annual evaluation of pathways to include the achievement of the pathway' mission and goals. Provide pathways with professional development and process resources to help them annually self- assess and draft improvement action plans.

APPENDIX C

OREGON DEPARTMENT OF EDUCATION (ODE) CAREER TECHNICAL EDUCATION PROGRAM QUALITY STANDARDS

Rubric Scale:

- Level 1- Planning (classes)
- Level 2- Emerging (startup)
- Level 3- Implementing (approved program of study)
- Level 4- Quality Program

Element	Portland Public Schools Ranking on Rubric	Recommendations
Partnerships	<p>Level 2- Emerging:</p> <ul style="list-style-type: none"> • Partnerships are informal with partners involved in program design and development. • Program supports partners by helping students become aware of career pathways associated with the partners. 	<p>Shift work to Level 3- Implementing:</p> <ul style="list-style-type: none"> • Formalize partnerships with key stakeholders • Involve partners in program design, development, and implementation. • Partners provide career-related learning experiences such as job shadows, mentorships, etc.
Engaged Learning	<p>Level 2- Emerging:</p> <ul style="list-style-type: none"> • Instruction uses a project-based approach with projects designed by teachers. • Student learning is occasionally connected to aspects of school and community resources. • Assessments address important industry-based standards. 	<p>Shift work to Level 3- Implementing:</p> <ul style="list-style-type: none"> • Use project-based instruction with projects designed by teachers using input from students. • Ensure that student learning is frequently connected to aspects of school and community resources. • Provide assessments that address important industry-based standards and feedback to students and teachers that results in improved practice.
Coherent Curriculum	<p>Level 3- Implementing <i>(The rating here is really 2.5 since although all programs of study offer at least 2 credits, it's unclear how many have aligned postsecondary opportunities or align their classes with industry recognized standards.)</i></p> <ul style="list-style-type: none"> • Full implementation of curriculum aligned to industry-recognized standards and taught in sequenced courses to prepare students for a postsecondary credential and career. • A minimum of 2 high school credits are offered in an approved CTE program of study. • Program is aligned to postsecondary opportunities through collaboration. 	<p>Shift work to Level 4- Quality Program:</p> <ul style="list-style-type: none"> • Align curriculum to industry-recognized standards taught in sequenced courses to prepare students for a postsecondary credential and career • Ensure that curriculum is a fully institutionalized, integral part of the school's CTE offerings. • Ensure a minimum of 3 high school credits are offered in an approved CTE program of study. • Provide postsecondary articulation and aligned postsecondary opportunities at every academy. • Align career and technical course outcomes with industry recognized standards

Element	Portland Public Schools Ranking on Rubric	Recommendations
CTE Specific Professional Development	<p>Level 2- Emerging:</p> <ul style="list-style-type: none"> Limited evidence that professional development is linked to teaching practices in CTE courses. CTE professional development is evident but may not be linked to a formal plan. Professional development goals, plans, and participation are loosely tied to documented CTE program goals. 	<p>Shift work to Level 3- Implementing:</p> <ul style="list-style-type: none"> Link professional development to improvement of teaching practices in the CTE program. Clearly document a CTE professional development plan. Ensure that professional development goals, plans, and participation are somewhat aligned to documented CTE program goals.
Career Development	<p>Level 3- Implementing:</p> <ul style="list-style-type: none"> Career development activities are coordinated to support students in exploring career options and opportunities. Most CTE students have a personalized education and career plan; career development tools are used regularly. Most CTE students are provided information on CTE programs and activities, post-high school application procedures, and related career opportunities. Most CTE teachers and guidance counseling and advisement professionals collaborate to provide information to students about CTE programming. 	<p>Shift Work to Level 4- Quality Program:</p> <ul style="list-style-type: none"> Coordinate a system of comprehensive career development sequenced to promote and support the career decision making and planning of all students both prior to entering and during the program of study. Ensure that each CTE student in the program of study has a personalized, multi-year education and career plan, utilizes career development tools and activities that reflect student interests, preferences and abilities, and informs course selection and planning for further education and careers. Provide students in the program of study and their parents/guardians accurate and timely information on: CTE programs and activities, postsecondary options and post-high school application procedures, and related career opportunities. Ensure access to current CTE program information and training, regional occupation trends, and current career information resources through the collaboration of CTE teachers with guidance counseling and advisement professionals.
Education for Employability	<p>Level 1- Planning</p> <ul style="list-style-type: none"> Students learn basic information and academic content. No student organizations are active within content area. Limited leadership opportunities. Limited inclusion of employability skills. Students learn about workplace as part of classroom instruction (speakers, videos, field trips). 	<p>Shift work to Level 2- Emerging:</p> <ul style="list-style-type: none"> Have teachers identify and create curriculum that helps students develop employability skills. Identify student leadership organizations and have instructor/advisor work towards establishing local chapter(s). Inform instructor(s) about CTSO leadership opportunities. Discuss of employability skills and short-term work-based learning opportunities (job shadows, career fairs)

Element	Portland Public Schools Ranking on Rubric	Recommendations
Rigorous Integrated Curriculum	<p>Level 2- Emerging:</p> <ul style="list-style-type: none"> • Students in CTE classes have limited opportunities to complete rigorous core academic course work that is applicable to career interests. • CTE teacher occasionally integrates core academic content into CTE courses as a natural part of the curriculum. 	<p>Shift work to Level 3- Implementing:</p> <ul style="list-style-type: none"> • Ensure that students in CTE classes have numerous opportunities to complete rigorous core academic course work that is applicable to career interests. • Support CTE teachers to integrate core academic content into CTE courses as a natural part of the curriculum.
Credentials	<p>Level 1- Planning:</p> <ul style="list-style-type: none"> • Program is in the process of researching appropriate and available certifications. 	<p>Shift work to Level 2- Emerging:</p> <ul style="list-style-type: none"> • An appropriate industry credential is identified and available to program completers.
Continuous Improvement	<p>Level 2- Emerging:</p> <ul style="list-style-type: none"> • CTE-specific data are collected and submitted. • Instruction and program decisions are made regardless of program data. 	<p>Shift work to Level 3- Implementing:</p> <ul style="list-style-type: none"> • CTE-specific data are collected and submitted. Data are frequently used to inform instructional decisions.
Access and Equity	<p>Level 2- Emerging <i>(This score could be a 2.5 because we had insufficient data. Although pathway enrollment is largely representative of the school it is not always representative of the district and we were not able to review grade point averages or test scores to identify if there were any opportunity gaps.)</i></p> <ul style="list-style-type: none"> • Program of study is available to all students. • Students in program of study are somewhat representative of students in the school or district. • Some CTE student outcomes are equitable; some opportunity gaps are reflected among CTE students. 	<p>Shift work to Level 2- Emerging:</p> <ul style="list-style-type: none"> • Identify potential barriers to program of study and design for all students to succeed. • Ensure that students in program of study are representative of students in the school or district. • CTE student outcomes are equitable; there are no opportunity gaps reflected among CTE students. In addition: • Track data for students in all subgroups including special education and English Language Learners. • Review academy subgroup grade point average and test score data against high school subgroup data to surface opportunity gap patterns.
Facilities and Equipment	<p>Level 2- Emerging:</p> <ul style="list-style-type: none"> • Provides basic facilities and equipment needs while planning to upgrade to industry standard that are appropriate for workforce needs. • Facilities, equipment, and environment reflect needs of students that are traditional participants in the program. • Basic safety and cleanliness standards that are appropriate for a classroom while learning and implementing industry guidelines. 	<p>Shift work to Level 3- Implementing:</p> <ul style="list-style-type: none"> • Provide industry standard facilities and equipment that are appropriate for workforce needs and reflect the needs of ALL students • Teach and adhere to safety and cleanliness standards that are aligned to industry guidelines.

APPENDIX D

LINKED LEARNING: PATHWAY ESSENTIAL ELEMENTS

Standard	Related Portland Strengths	Related Portland Challenges	Recommendations
Student Outcomes- driven Practice			
<ul style="list-style-type: none"> • Pathway Community of Practice • Pathway Specific Outcomes • Data-driven Practices • Pathway Improvement Plan 	<ul style="list-style-type: none"> • The college and career readiness team provides district wide community of practice meetings, which allow all career-technical teachers to convene quarterly and meet in cross-district industry theme and site-level CTE groupings. 	<ul style="list-style-type: none"> • Programs of study did not have established communities of practice for their committed staff. • Programs of study did not have specific articulated outcomes. • Programs of study do not regularly review practice and create improvement action plans. 	<ul style="list-style-type: none"> • Support pathway development of articulated outcomes aligned with the district and pathway graduate portrait • Convey expectations that all pathways should engage in regular reviews and self- assessments. Provide professional development and infrastructure to support this work.
Equity, Access and Achievement			
<ul style="list-style-type: none"> • Open Access and Equitable Opportunities • Diverse Student Representation • Promoting Equitable Achievement 	<ul style="list-style-type: none"> • CTE course enrollment by demographics is closely aligned with overall high school enrollment. 	<ul style="list-style-type: none"> • Because the data isn't longitudinal and may represent duplicate enrollment, it is hard to identify with certainty what the persistence rates are in the pathways for all groups. • It is unclear which students in each pathway participated in the dual enrollment opportunities 	<ul style="list-style-type: none"> • Create data-tracking processes that allow pathways to monitor the engagement of all sub-groups in all aspects of the pathway program.
Programs of Study			
<ul style="list-style-type: none"> • Industry-based Pathway Themes • Integrated Core • Post-secondary Articulation • Cohort Scheduling 	<ul style="list-style-type: none"> • All of the CTE Programs of Study have an industry-based theme. 	<ul style="list-style-type: none"> • Programs of study do not have a regularly integrated career and academic core curriculum. • Not all programs of study have postsecondary articulation. • All programs of study are aligned to postsecondary programs. • Programs of study do not have cohort scheduling. 	<ul style="list-style-type: none"> • Identify 2-4 year college pathways that have aligned industry themes, certifications, or degrees with Portland pathways and broker working partnerships with them that will result in vertical articulation, increased PPS student enrollment in postsecondary institutions, and increased college success rates. • Provide teachers with professional development on integrated project-based learning along with planning time built into their regular schedule.

Standard	Related Portland Strengths	Related Portland Challenges	Recommendations
<i>Learning and Teaching</i>			
<ul style="list-style-type: none"> • Rigorous, Relevant and Integrated Learning • Collaborative Learning • Outcome-focused and Student-directed Learning • Reflective Practice and Professional Learning • Authentic Assessment 	<ul style="list-style-type: none"> • There were multiple examples of authentic student assessment and artifact development across the district. • There were multiple examples of collaborative student engagement and learning. • The district is able to provide professional development for career technical teachers based on individual need. 	<ul style="list-style-type: none"> • The standards that students were held to in career technical courses weren't always clear. • There did not appear to be a regular and district wide practice to support teacher reflection on their instruction and identification of their professional development needs. 	<ul style="list-style-type: none"> • Help pathways to identify through the program of study which standards will be met at which grade level and which courses will adopt them. Help teachers identify the benchmarks, artifacts and lesson plans that will help showcase achievement of the standards at every grade level. • Help teachers adopt common rubrics and/or industry certifications to make the quality standards transparent. • Support teachers to adopt a regular reflection practice that leads to refinement of both individual pedagogy and the pathway program of study.
<i>Work-based Learning</i>			
<ul style="list-style-type: none"> • Continuum • Outcomes • Evaluation 	<ul style="list-style-type: none"> • All Programs of study are engaged in some form of industry relevant work-based learning. 	<ul style="list-style-type: none"> • A continuum of work-based learning offerings that spanned all four years of the program of study was not evident in all programs of study. • It was unclear if work-based learning in all programs of study went through an internal and external evaluation. 	<ul style="list-style-type: none"> • Create data-tracking processes that allow pathways to monitor the engagement of all sub-groups in all aspects of the pathway program.

Standard	Related Portland Strengths	Related Portland Challenges	Recommendations
Personalized Student Support			
<ul style="list-style-type: none"> Support for Student Needs College and Career Plan 	<ul style="list-style-type: none"> Every student in the high schools/programs of study has access to a college and a career coordinator. There is a district-wide expectation that each student will develop a college and career readiness plan. 	<ul style="list-style-type: none"> It was unclear what additional supports and resources were available to students who were struggling or had identified targeted language or special education needs. More than one college coordinator expressed frustration around having limited access to all students and the challenge of navigating multiple online platforms to support their work. 	<ul style="list-style-type: none"> Work with the college coordinators to gain clarity around their roles, responsibilities, annual goals, and the processes and tools they have available to them. Surface career coordinator and college coordinator work challenges and engage in collaborative problem solving. Identify and share any best practices. Support collaboration between coordinators and pathway directors. Collaborate with pathways to identify or develop student support services and practices.
Pathway Leadership and Partnership			
<ul style="list-style-type: none"> Distributed Leadership Advisory Board Partner Support for Learning 	<ul style="list-style-type: none"> Many programs of study referenced long-term industry partners who supported their program and students. 	<ul style="list-style-type: none"> It was unclear how many programs of study had advisory boards in place and what their level of engagement was with them. 	<ul style="list-style-type: none"> Provide professional development on advisory board purpose, meeting facilitation and advisory engagement.

LINKED LEARNING: DISTRICT CRITICAL CONDITIONS CRITERIA

Standard	Related Portland Strengths	Related Portland Challenges	Recommendations
Leadership Commitment and Accountability			
<ul style="list-style-type: none"> • Shared Vision and Commitment • Communication and Messaging • Distributed Leadership • Board Support and Strategic Alignment • Pathway Expansion • Pathway Quality and Continuous Improvement • District Success Indicators • Student-level Data • Evaluation and Accountability 	<ul style="list-style-type: none"> • The district and school board are engaged in a very thoughtful and multi-pronged review of programs and development of supports. They are crafting a shared vision and commitment. They are publishing and disseminating their findings and goals. • The administration is moving in-step with the school board, expressed community aspirations, and quality standards to strategically align resources and initiatives in service of increased achievement. • The college and career readiness team is collaborating with practitioners to review programs of study offerings and thoughtfully develop a pathway expansion plan that supports continuous improvement. • The college and career readiness team is in the process of developing a comprehensive data review system to help monitor and evaluate program quality and impact. 	<ul style="list-style-type: none"> • It is unclear how the work will be taken up across the district once it is time to implement recommendations and make systemic changes. 	<ul style="list-style-type: none"> • Identify a college and career readiness leadership team that includes members of district level teams other than those already in the college and career readiness department. • Draft an implementation plan that includes benchmarks and an end-of-year review.
Support High-quality Teaching and Learning			
<ul style="list-style-type: none"> • Support to Improve Instruction • Systems of Intervention and Acceleration • Infrastructure to Support Quality Work-based Learning • Balanced Assessment and Accountability • Schedule to Support Pathway Quality 	<ul style="list-style-type: none"> • The district is implementing GVC to support the improvement of instruction and lesson planning. • Programs of study across the district utilize balanced assessment, which is embraced by the district. • The district is working with ABL to implement master scheduling practices that can support pathway quality and CTE cohorts. 	<ul style="list-style-type: none"> • The team implementing GVC is not working closely with the teams supporting the implementation of the graduate portrait or high-quality programs of study. • Clear supports and processes for students needing intervention or acceleration are not articulated. • It isn't clear how the district monitors or tracks student evaluations in order to hold programs of study and schools accountable for impact. 	<ul style="list-style-type: none"> • Articulate non-negotiables and resources that will help every pathway provide a rigorous and high-quality program of study designed to support both advanced placement students and academically at-risk youth. • Find ways to allow cross-team collaboration around projects at the district level. • Specify how the district data dashboard will monitor impact across programs.

Standard	Related Portland Strengths	Related Portland Challenges	Recommendations
Student Equity, Access, and Choice			
<ul style="list-style-type: none"> • Practices That Promote Equity and Rigor • Policies That Ensure Access and Choice • Student Recruitment and Pathway Selection • K-8 Exploration • Academic Preparation in Middle School 	<ul style="list-style-type: none"> • The district has a stated equity mandate and a commitment to support all students. • All students across the district have access to the career technical magnet school via a lottery process. 	<ul style="list-style-type: none"> • There isn't a uniform and centralized process for student recruitment and pathway selection at each high school that allows for student and parent/guardian engagement or student placement based on student strengths, interests, and aspirations. • The district has not yet developed a K-8 college and career readiness exploration component or an extensive middle school preparation plan. 	<ul style="list-style-type: none"> • Develop a master plan that provides students at each of the high schools with access to a college and career pathway that addresses the same areas of interest and skill development across the district. Although the industry themes and employer partnerships may vary at each high school, the learning and program quality will remain consistent with an interest-based aligning mechanism. • Hold all high schools accountable for implementing a comprehensive pathway recruitment, selection and orientation process that helps families make the best selection possible and makes the final placement process transparent. • Draft a plan for extending college and career readiness to the elementary school level with a special emphasis on surfacing what students will need to do in middle school in order to successfully engage in pathways in high school.

Standard	Related Portland Strengths	Related Portland Challenges	Recommendations
<i>Sustained Partnerships</i>			
<ul style="list-style-type: none"> • Postsecondary Partnerships • Student Support Services • Concurrent Enrollment Options • Master Plan for Sustainable Workforce Competitiveness • Community Engagement 	<ul style="list-style-type: none"> • The college and career readiness team has developed a large list of industry, community, and postsecondary partners. 	<ul style="list-style-type: none"> • There appears to be low enrollment in the dual enrollment/concurrent enrollment offerings. It's also unclear if all programs of study have access to the existing partners or have identified aligned college programs. • The district does not have an articulated plan for how it can work with local industry to ensure sustainable workforce competitiveness. 	<ul style="list-style-type: none"> • Work to identify a college partner or aligned postsecondary pathway for every pathway in the district. • Provide professional development or facilitation that will support the achievement of vertical alignment and increased college-going and college-success rates. • Work to identify priority local employers and support the development of partnerships with aligned pathways that result in the collaborative implementation of a work-based learning continuum, increased understanding of the pipeline of careers and education requirements in the industry and achievement of industry certifications. • Identify intentional dual credit course opportunities.
<i>Operational Alignment</i>			
<ul style="list-style-type: none"> • Recruitment and Hiring Practices • Evaluating Teachers and Administrators • Retaining Qualified Pathway Teachers • Facilities and Equipment • Leveraging Existing and Developing New Resources • Sustained Fiscal Stability 	<ul style="list-style-type: none"> • The district is in the process of rebuilding multiple high schools and updating facilities and equipment to better meet current needs. • The district has access to a multi-year fund through Measure 98 to support the work of college and career readiness. • The district has a dedicated fundraising team actively engaged in finding additional resources. 	<ul style="list-style-type: none"> • The district team that hires teachers, the district teams that evaluate and manage teachers and principals, and the district team that maintains facilities do not have a formal way in which to collaborate and align services. 	<ul style="list-style-type: none"> • Develop a place, time, and process for bringing together district administrative level teams that will be impacted by this work. Clarify expectations around their collaboration and shared goals. • Develop communication and practice review processes that keep district-level staff informed of practitioner experience and initiative impact on student achievement so they can shift or refine services as needed.

Moving forward, one overall recommendation would be to use a structured process to help pathways and the district address the multiple recommendations offered in conjunction with the ratings. There are several structured support services available that routinize and reflective change management.