APPENDIX D

DEMOGRAPHIC ANALYSIS MEMO

DATE: OCTOBER 2020

ECONorthwest
ECONOMICS • FINANCE • PLANNING

DATE: October 2020
TO: PCC Facilities Vision Plan Project Team
FROM: ECONorthwest
SUBJECT: Preliminary demographic and enrollment analysis for PCC Facilities Vision Plan

Background and purpose

Portland Community College (PCC) is in the development planning phase of its college-wide Facilities Plan. A key part of determining future demand for PCC educational and training services is understanding demographic characteristics and trends in the district encompassing the college's campuses and centers. The intention of this memorandum is to provide a baseline understanding of the demographic trends that underlie the demand for PCC programs and services. This memorandum provides:

- A summary of preliminary demographic analysis of the population that lives in the PCC district
- Information about employment by industry in the district and projections for high-demand occupations
- High-level enrollment and completion trends for PCC

The memorandum concludes with a description of the subsequent project task that is focused on assessing demand for PCC programs and services through the creation and analysis of enrollment projections using publicly available sources and additional data from PCC. Options for the task include extensions of the enrollment analysis by pathway and program and/or geography and extensions of the occupational analyses (e.g., a pipeline analysis). Input from PCC project staff will help us allocate project resources across these options to best align with project priorities.

High-level takeaways from this phase of analysis

- **The population of the PCC district is diversifying and growing.** The share of the PCC district's population that is Black, Indigenous, or of color (BIPOC) has increased by 5 percentage points over the last decade to 29 percent. Hispanic and Asian populations have the largest projected growth rates between now and 2060.
- **Analyses of high-demand occupations can help inform PCC program and facilities planning.** Information about occupations that the Oregon Employment Department projects to be in high demand or to have many openings can be useful to PCC in planning its programming and facilities. Analyzing high-demand occupations can help PCC target its training and educational programs to help prepare the Oregon workforce to meet occupational demand.
- **PCC enrollment is diversifying and declining from levels seen during the Great Recession; degree and certificate completion counts are holding steady.** Full-time

equivalent (FTE) enrollment has fallen from a high of over 24,000 in 2012 to nearly 18,000 in 2019. However, the number of completions has held steady at around 5,000 annually since 2013. In addition, enrollment has been diversifying. The shares of fall enrollees who are Hispanic or multiracial have grown disproportionately over the last decade (from 8.5 to 12.5 percent for Hispanic enrollees and from 2.7 to 7.2 percent for multiracial enrollees).

- **The pandemic will likely have long-lasting effects.** The pandemic has fundamentally altered the postsecondary educational system and the economy and will have long-lasting effects, which are likely to result in an increased reliance on technology by employers and in the delivery of education, increased importance of options for retraining incumbent workers and workers displaced by the pandemic and future shocks to the economy, and a continued shift toward enrollment of older, less-traditional demographics.

The sections of this memorandum are organized as follows:

- The Portland Community College district
- Recent demographic trends in the PCC district
- Employment trends
- Enrollment and completion trends
- COVID-19
- Enrollment task options

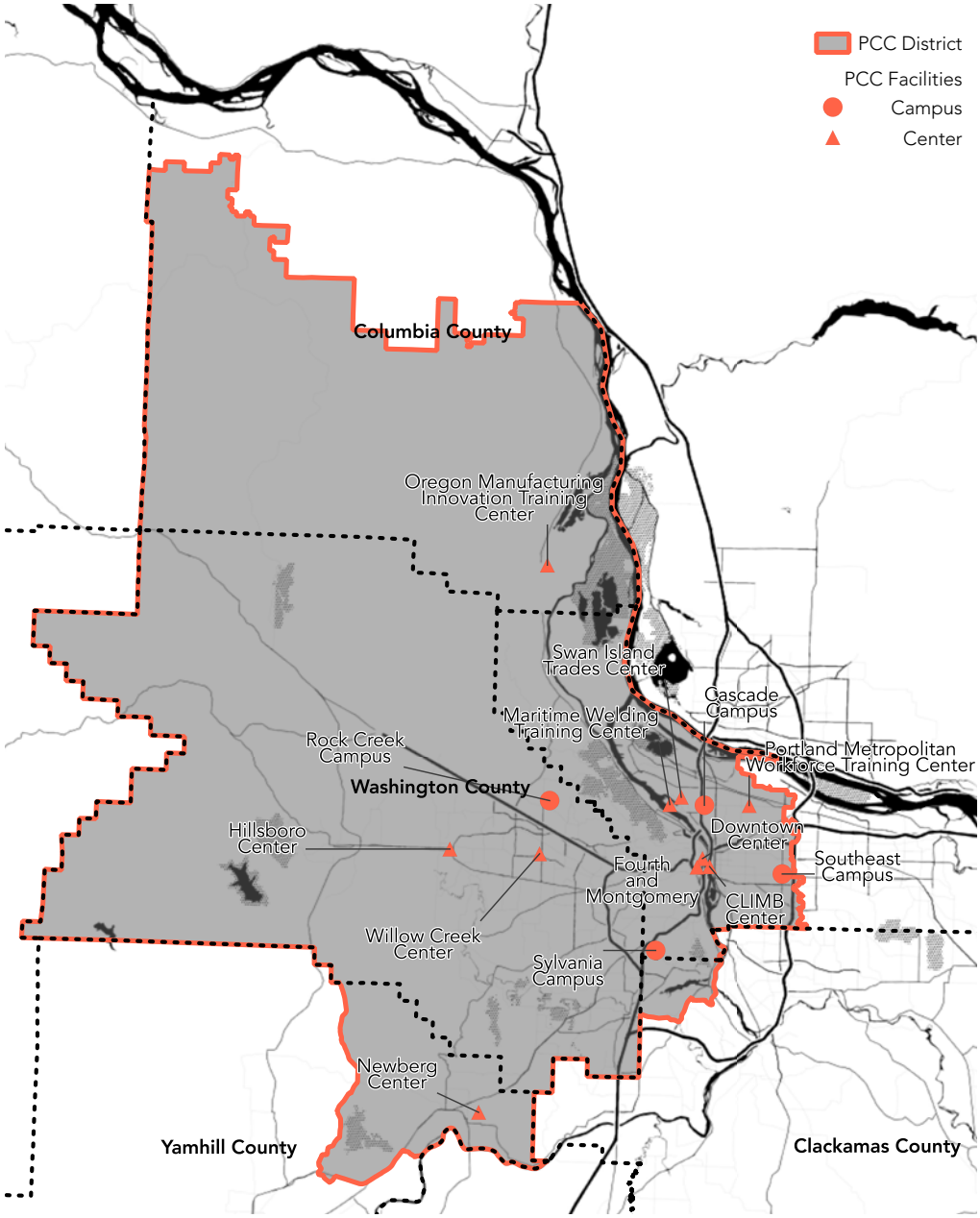
The Portland Community College district

Portland Community College is the largest postsecondary institution in Oregon and has a taxing district that encompasses substantial portions of five counties: Multnomah, Clackamas, Columbia, Washington, and Yamhill counties. Students do not have to live in the district to enroll, however. ECONorthwest received the "PCC Board Zones after 2011 redistricting" map to use as reference for understanding the district. To create a base map for the demographic analysis in this memorandum we contacted each county assessor department to acquire files defining the taxing district that supports PCC.[1]

Exhibit 1 shows the geographic area included in the PCC district boundaries as well as the college's four campuses and ten centers.

[1] We decided not to pursue Yamhill County assessor's data at this time because a data usage fee was required and a relatively small portion of Yamhill County falls within the district.

Exhibit 1. Portland Community College district



Data source: Columbia, Clackamas, Multnomah, Washington, and Yamhill county assessors; 2010 Census tracts

ECONorthwest identified census tracts across the five counties that together approximate the PCC district boundary. We manually selected census tracts that were the closest fit to the Yamhill County portion of the district in the reference map. We considered tracts that partially intersect the district boundary to determine if the population of a given tract is skewed spatially inside or outside of the district. Based on this method, we removed one tract in Columbia County from the analysis set because its largest population center—the city of Clatskanie—is outside of the PCC district. The resulting set of tracts formed the geographic basis for the analysis described in the following section.

Because students do not have to live in the taxing district to enroll at PCC, some share of students and potential students are not directly represented in the analysis in the following section. However, the described trends will likely hold true for the region and students that PCC serves.

Recent demographic trends in the PCC district

The data in this section come primarily from the US Census Bureau's American Community Survey and Metro's population projections for the Portland-Vancouver-Hillsboro metropolitan statistical area (MSA).

- **The American Community Survey (ACS)** is the most comprehensive publicly available data source for demographic information in the US and is administered to about three million households on a rolling basis each year. The data are released annually as one-year and five-year estimates on a wide range of demographic, socioeconomic, and household characteristics.

  In this memorandum, we use ACS five-year estimates, which are pooled samples across five-year ranges.[2] For example, the 2014-2018 ACS includes households that were surveyed in each year from 2014 to 2018. The larger sample size for the five-year estimates enables us to look at smaller geographic areas with more confidence that the data are an accurate representation of the population. However, five-year estimates have the disadvantage of being an average across five years, meaning they are not representative of a single year in the sample range, but rather, an average of all five years within the sample range. For brevity, we will at times refer to ACS five-year data by its reference year (i.e., 2018 for 2014-2018 five-year data) but note that five-year data is not representative of solely the reference year.
- **Metro Population Projections** are generally released about every five years and are long-range population projections by race/ethnicity, gender, and age. Metro releases its projections for the Portland-Vancouver-Hillsboro MSA and Multnomah, Washington, and Clackamas counties. At this time, Metro's population projections are the only available population projection for the Portland area[3] and are the only population projection by race/ethnicity produced in the state. This memorandum uses Metro's 2016 projections (the most recent available) for 2010 through 2060.

[2] Note that the US Census Bureau recommends that five-year ACS estimates with overlapping collection periods not be compared. For example, the 2012-2016 five-year ACS should not be compared to the 2014-2018 five-year ACS. This is to prevent comparing averages that incorporate the same sampled households. Due to data limitations, we include 2005-2009, 2009-2013, and 2014-2018 five-year ACS estimates in our analyses. This results in an overlap between the 2005-2009 and 2009-2013 five-year ACS estimates. However, given that the overlap is small, it is less of a concern.
[3] The Metro Research Center produces population forecasts for areas within the Metro UGB. The Portland State University Population Research Center produces projections for all areas outside the Metro UGB.

Population, anticipated growth, and age

While not all PCC enrollees live within the district, understanding the population and demographic characteristics of the district population can inform the college's enrollment expectations and help the college understand potential community needs.

Exhibit 2 shows the population of the district over the last decade, during which the population grew by 13.2 percent from just over 1 million people to over 1.2 million. In an average year, the population of the PCC district grew by 1.4 percent.

Exhibit 2. Population and population growth, PCC district, over time

2009	2013	2018	%Change 2009 to 2018	AAGR 2009 to 2018
1,074,465	1,131,211	1,216,831	13.2%	1.4%

Data source: American Community Survey, 5-year estimates, 2005-2009, 2009-2013, and 2014-2018

The majority of the population in the PCC district is concentrated in and around Portland. Exhibit 3 displays the population density per square mile in the district by census tract. Within and around the city of Portland the population density in the PCC district is at its highest (often greater than 10,000 people per square mile). The majority of PCC's campuses and centers are also located in these population centers. The district's population density is much lower in the northern and western portions of the district, often below 1,000 people per square mile.

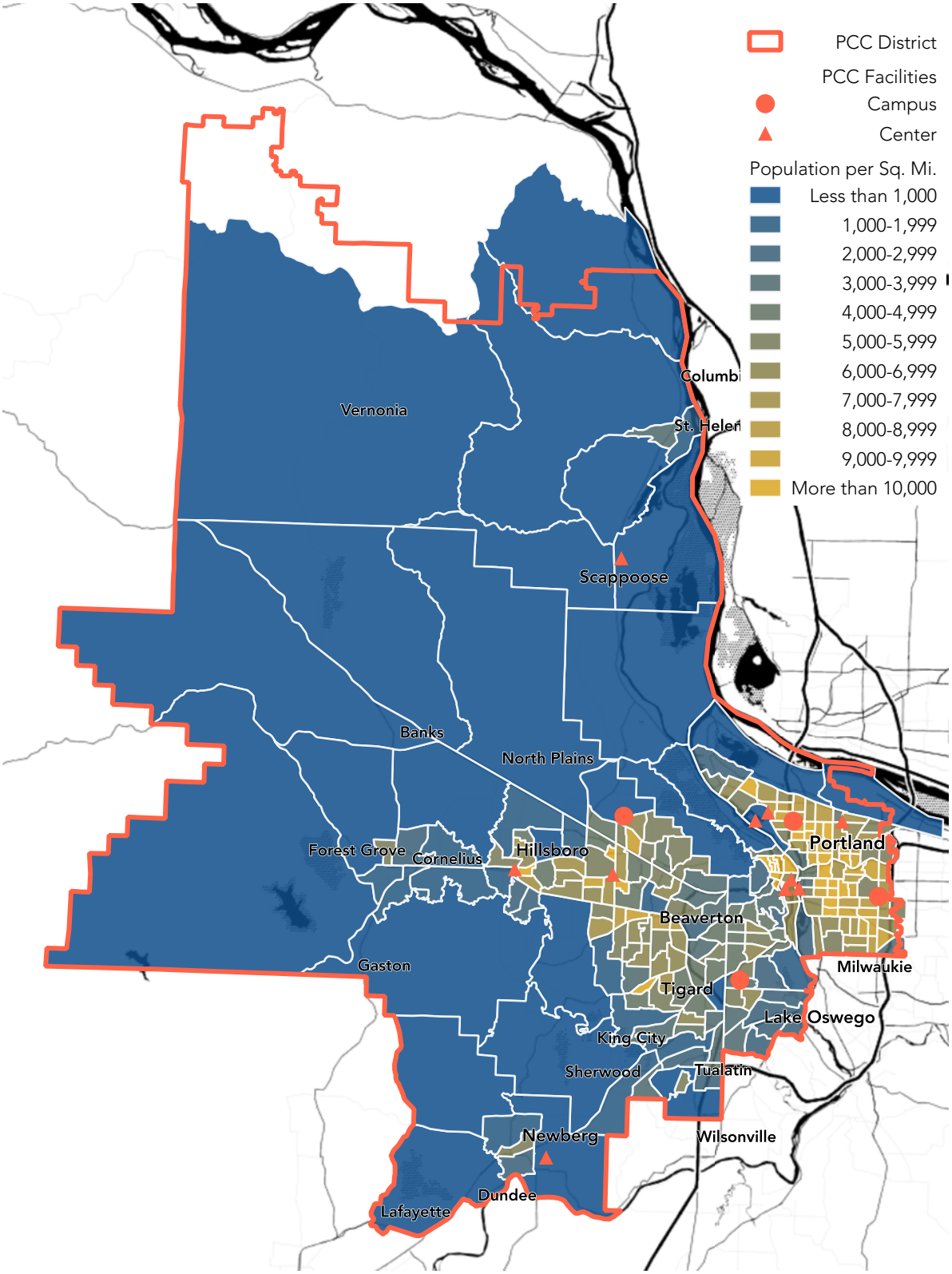
The PCC district population has grown steadily over the past decade. According to Metro's regional population projection, continued steady, if slower, growth is expected between now and 2060 (see Exhibit 4).

Metro's latest population projection (2016) for the Portland-Vancouver-Hillsboro MSA anticipates that the metro area's population will grow to over 3.5 million by 2060, an average annual growth rate (AAGR) of about 1 percent. The population of the PCC district is about half that of the metro area but will likely grow at a similar rate. In its projections, Metro predicts a slight slowdown in population growth for the region due in part to declining birth rates and declining rates of immigration into the United States.[4]

In addition to slowing population growth, the population in the PCC district is also aging, a trend expected to continue both nationally and regionally. Exhibit 5 shows the population breakdown in the district by age group. Those aged between 25 and 49 have consistently accounted for about 40 percent of the population in the district. However, the share of the population over the age of 50 has increased by 28 percent over the last decade, pushing up the median age in the district from 36.5 to 38.9.

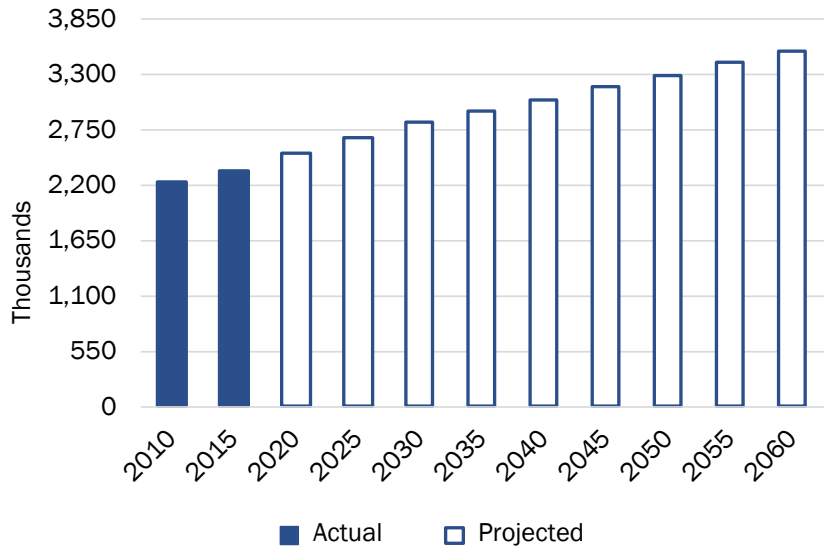
[4] Metro. "Frequently asked questions: 2060 population forecast." July 2016.

Exhibit 3. Total population per square mile, Portland Community College district



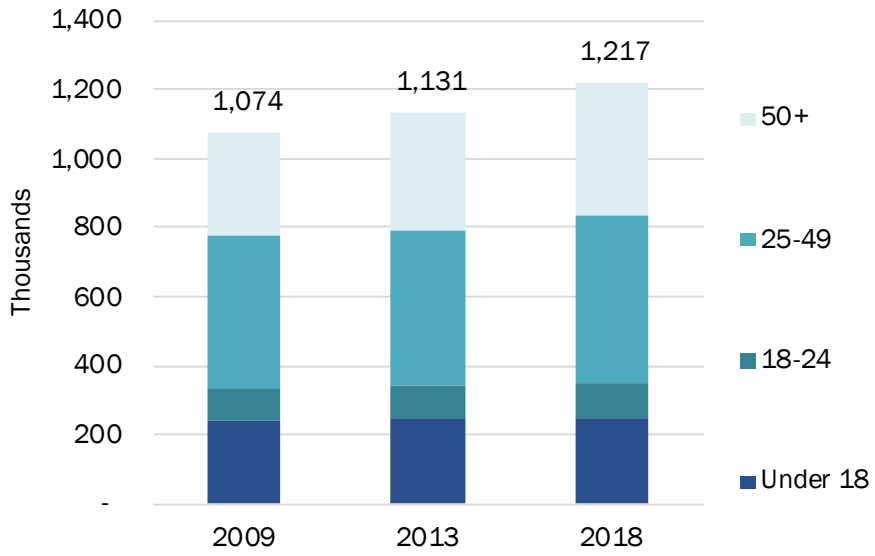
Data source: 2018 American Community Survey, 5-year estimates

Exhibit 4. Population forecast, Portland-Vancouver-Hillsboro MSA, 2010-2060



Data source: Metro Research Center 2016 projections

Exhibit 5. Population by age, PCC district, over time

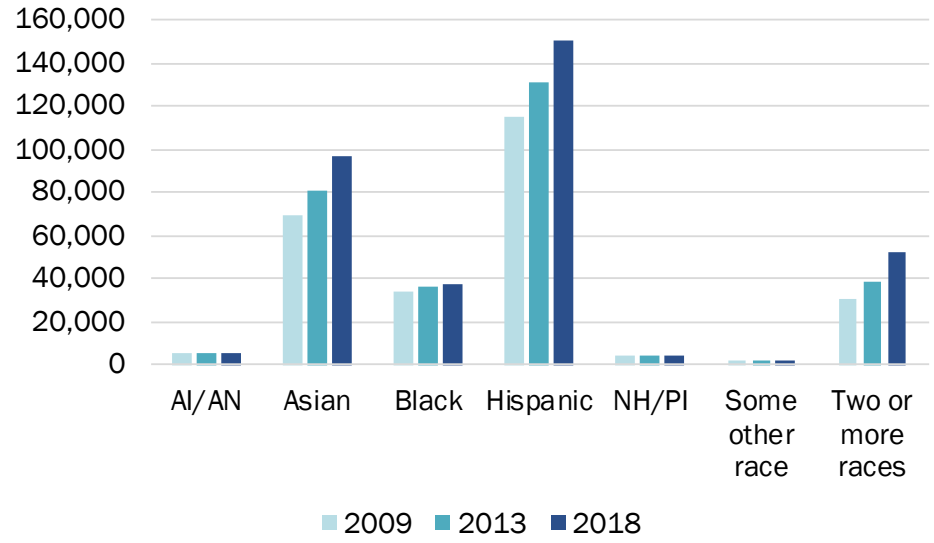


Data source: American Community Survey 5-year estimates, 2005-2009, 2009-2013, and 2014-2018

Race and ethnicity

The PCC district's population has steadily become more diverse. Over the last decade, the share of district residents identifying as American Indian or Alaska Native (AI/AN), Asian, Black or African American, Hispanic or Latino (of any race),[5] Native Hawaiian or Other Pacific Islander (NH/PI), some other race, or multiracial increased from 24 percent to 29 percent. Exhibit 6 shows the BIPOC population breakdown in the district by race/ethnicity. The PCC district has seen the most growth in its Asian, Hispanic, and multiracial populations, which grew by 40 percent, 30 percent, and 69 percent over the last decade, respectively.

Exhibit 6. Counts of BIPOC residents by race/ethnicity, PCC district, over time



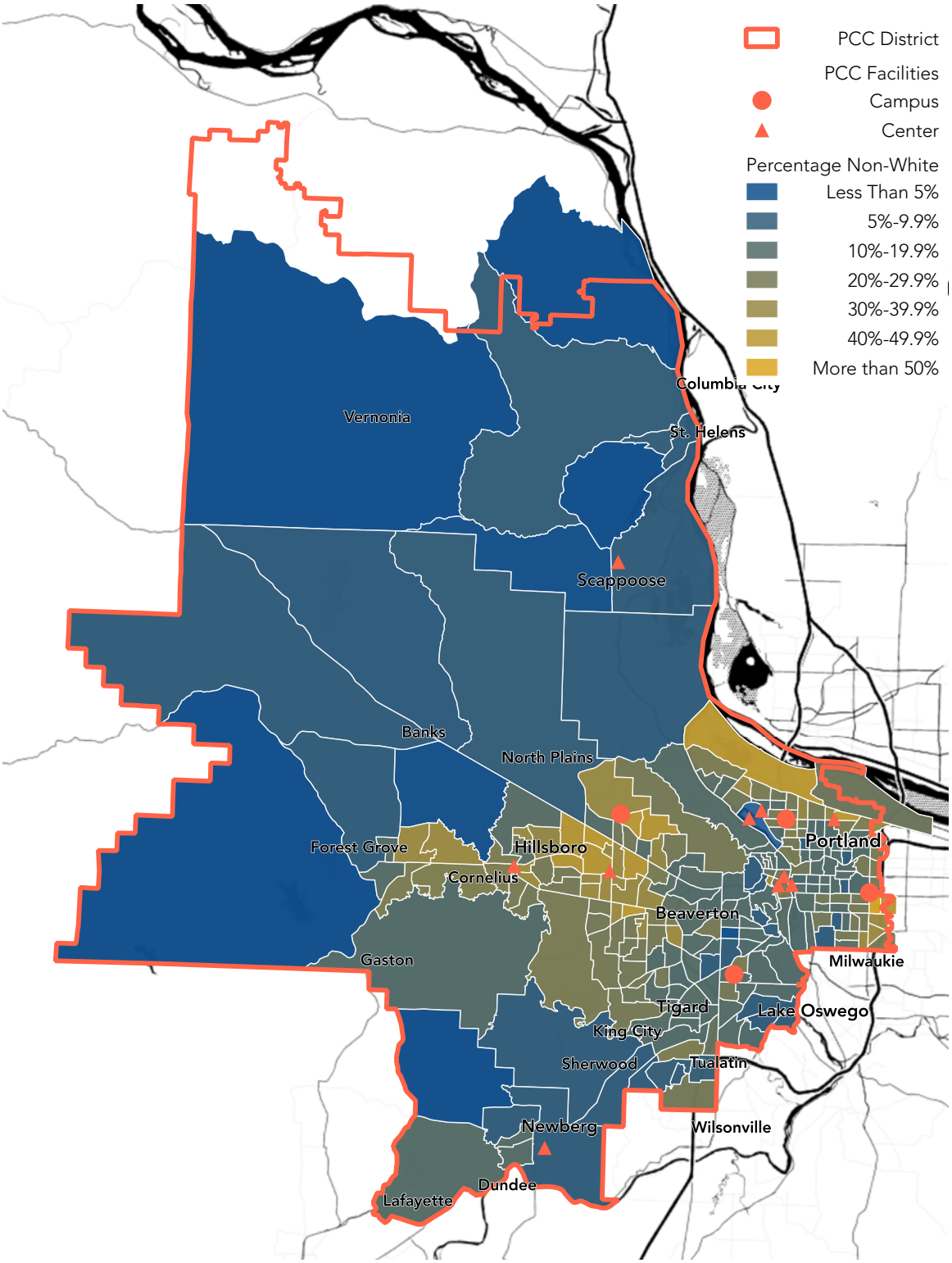
Data source: American Community Survey 5-year estimates, 2005-2009, 2009-2013, and 2014-2018

Exhibit 7 displays the BIPOC share of the population in each census tract in the PCC district. The census tracts with the highest BIPOC shares are concentrated within the city of Portland and in and around Beaverton and Hillsboro.

Mapping the tract-level shares by age group, as in Exhibit 8, suggests the likely recent and future growth in BIPOC populations. The percentage of the population that identifies as American Indian or Alaska Native, Asian, Black or African American, Hispanic or Latino, Pacific Islander, some other race, or multiracial is far higher for the population 17 years of age and younger than it is for older populations.

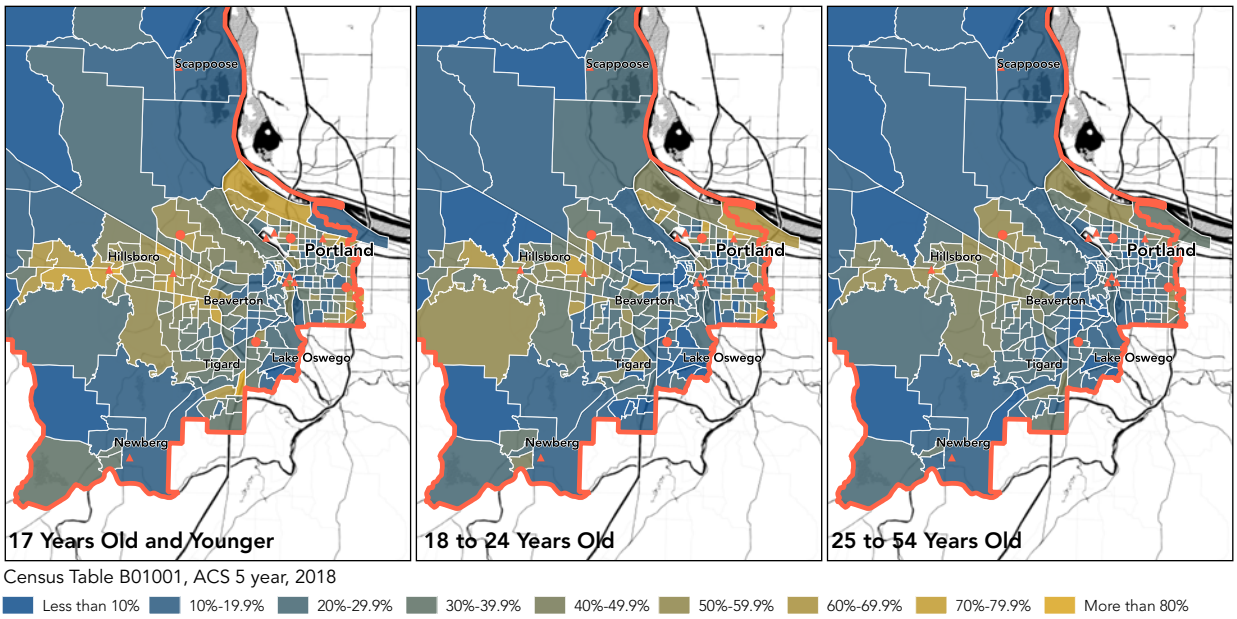
[5] Throughout this memorandum, "Hispanic" refers to individuals indicating they are of Hispanic, Latino, or Spanish origin, of any race. Race categories refer to individuals who are not Hispanic. For more information on the US Census Bureau's approach to race and ethnicity, see https://www.census.gov/topics/population/race/about.html

Exhibit 7. Share of PCC district population, by tract, that is American Indian or Alaska Native, Asian, Black or African American, Hispanic or Latino, Native Hawaiian or Other Pacific Islander, some other race, or multiracial



Data source: American Community Survey 5-year estimates, 2014-2018

Exhibit 8. Share of PCC district population, by tract and age, that is American Indian or Alaska Native, Asian, Black or African American, Hispanic or Latino, Native Hawaiian or Other Pacific Islander, some other race, or multiracial



Data source: American Community Survey 5-year estimates, 2014-2018

BIPOC populations are expected to continue growing in total and as a share of the population through 2060. Returning to the population projections of the Portland MSA, Metro projects considerable growth in the American Indian or Alaska Native, Asian, Black, Hispanic or Latino, and Hawaiian or Pacific Islander populations. In 2010, 22 percent of the Portland metro area's population was part of these populations. This share is expected to increase to 43 percent by 2060 (see Exhibit 9), equating to an AAGR of 2.2 percent between 2015 and 2060, compared to 0.9 percent for the population overall. By 2070, Metro predicts that the White population will no longer be the majority in the metro area.[6]

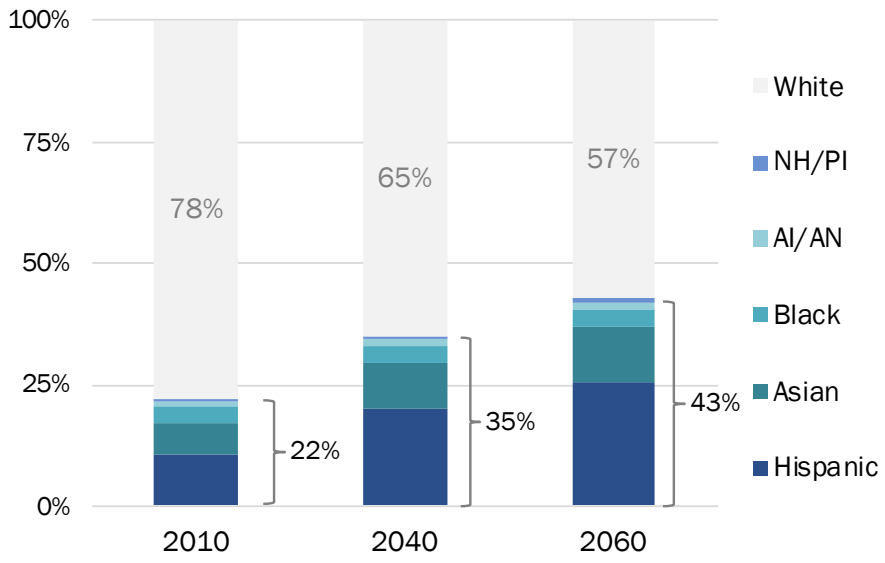
According to Metro's projections, the Hispanic population will grow from 11 percent to 26 percent of the total population between 2010 and 2060. While other populations (Pacific Islander, American Indian or Alaska Native, and Black) will also grow (faster than the population of the Portland metro area overall), those populations' shares of the total are expected to remain relatively constant.

Exhibit 9 shows the projected percent change in the population by race and ethnicity from 2015 to 2060. The largest percent increases are expected to be in the Hispanic and Asian populations. American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, and Black

[6] Metro. "Frequently asked questions: 2060 population forecast." July 2016. The population forecast for the MSA is disaggregated by six race and Hispanic origin groups: (1) non-Hispanic White, (2) non-Hispanic Black, (3) non-Hispanic American Indian or Alaska Native (AIAN), (4) non-Hispanic Asian, (5) non-Hispanic Hawaiian or Pacific Islander, and (6) Hispanic / Latino. Individuals of a different race or two or more races are proportionally re-assigned to one of the six groups using more-detailed race data. For the purposes of the forecast, Hispanic or Latino individuals are only counted once in the Hispanic category and not in one of the other race categories.

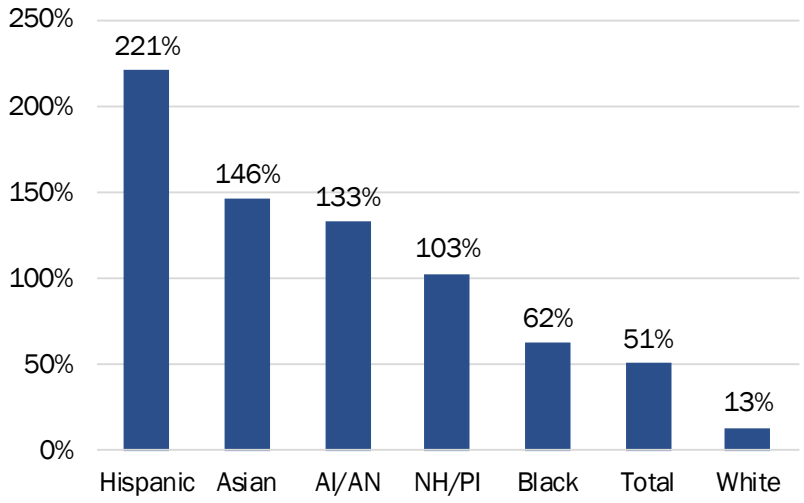
populations are also expected to experience considerable growth. The White population is expected to grow at the slowest rate of these populations over this time period.

Exhibit 9. Change in population by race/ethnicity as a share of total, Portland-Vancouver-Hillsboro MSA, 2010, 2040, 2060



Data source: Metro Research Center 2016 projections

Exhibit 10. Percent change in population, by race/ethnicity, Portland-Vancouver-Hillsboro MSA, 2015 to 2060

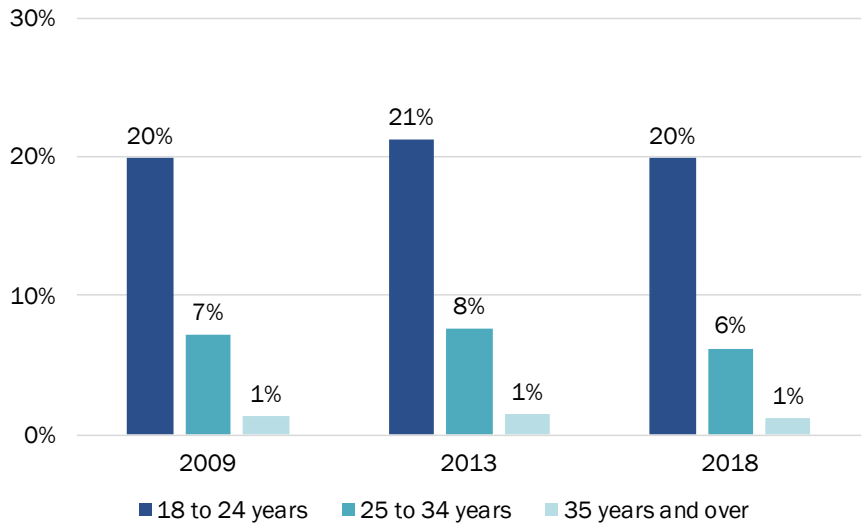


Data source: Metro Research Center 2016 projections

Educational attainment

The share of residents of the PCC district enrolled in public college or graduate school has been stable over the past decade (see Exhibit 11). Unsurprisingly, the share of the population enrolled decreases for older age cohorts. In the PCC district, 20 percent of 18 to 24-year-old residents were enrolled in public college or graduate school versus 6 percent of residents aged 25 to 34, and 1 percent of residents over the age of 35.

Exhibit 11. Share enrolled in public college or graduate school, PCC district, by age group, over time

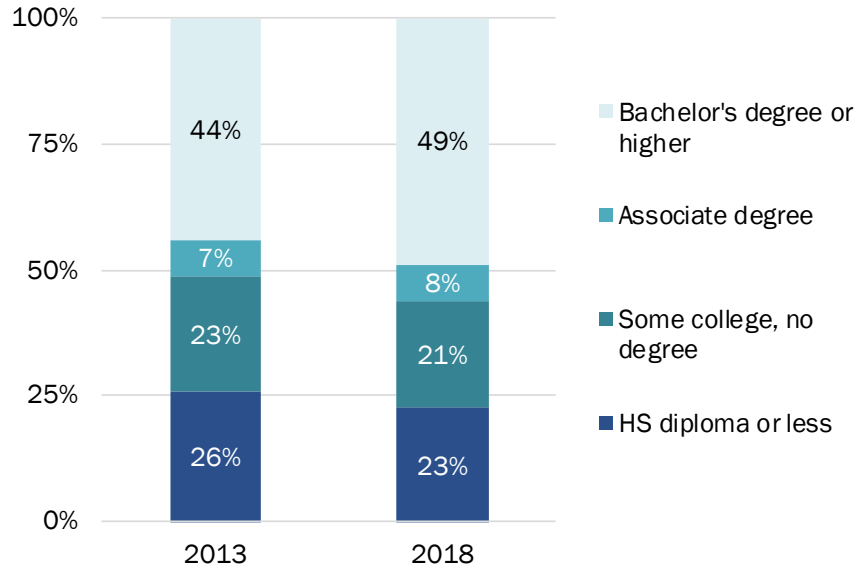


Data source: American Community Survey 5-year estimates, 2005-2009, 2009-2013, and 2014-2018

Educational attainment is higher in the PCC district than it is in the state as a whole. Nearly half (49 percent) of adults 25 and older have a bachelor's degree or higher, compared to 33 percent in the state overall.[7] Exhibit 12 shows the PCC district population by highest educational attainment level and compares two different time periods. The share of residents in the PCC district with a bachelor's degree or higher increased over these years from 44 to 49 percent, while the share of residents with a high school diploma or less as their highest educational attainment declined from 26 percent to 23 percent.

[7] American Community Survey 5-year estimates, 2014-2018

Exhibit 12. Highest educational attainment level, PCC district, population 25 years and older



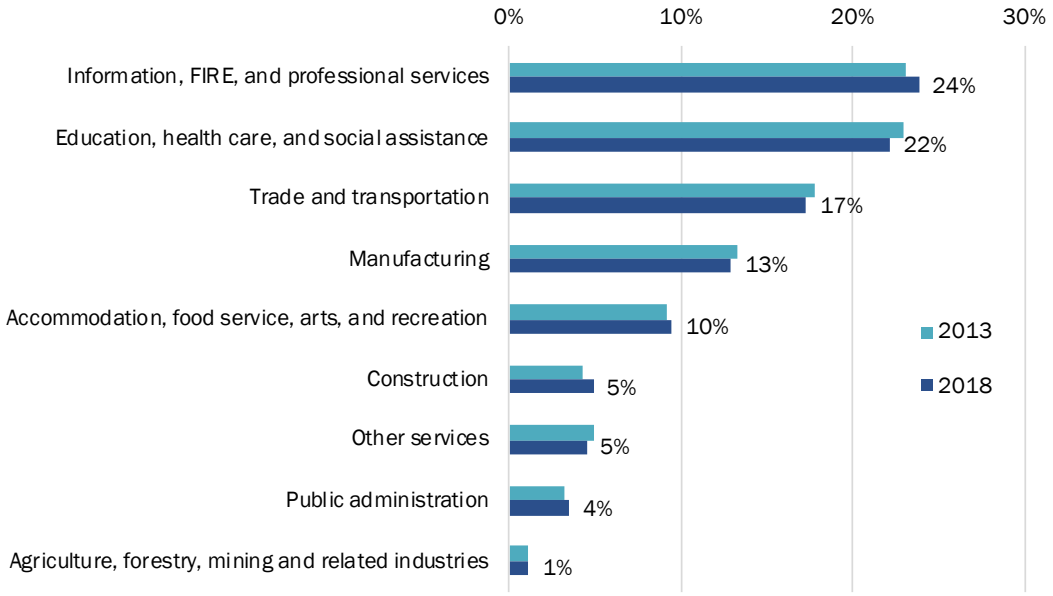
Data source: American Community Survey 5-year estimates, 2009-2013, and 2014-2018

Employment trends

This section provides a high-level summary of employment trends in the PCC district. The data used for the analysis were the most recent available as of the time of writing. The COVID-19 pandemic has fundamentally reshaped the employment landscape and is not captured in the data presented in this section. See the COVID-19 section near the end of this memorandum for a forward-looking discussion of the pandemic's effects on employment and postsecondary education.

Exhibit 13 shows the employment breakdown by industry for residents of the PCC district. Nearly half of employed residents of the PCC district were employed in information, FIRE (finance, insurance, and real estate), and professional services; or education, healthcare, and social assistance. The employment composition in the PCC district has changed little over the last several years.

Exhibit 13. Industry employment, PCC district, over time



Data source: American Community Survey 5-year estimates, 2009-2013, and 2014-2018

Exhibit 14 presents the top ten occupations for each award level—postsecondary training (non-degree), associate degree, and bachelor's degree—that are anticipated to be in high demand and have the most projected annual openings from 2019-2029 in the Portland Tri-County area. In addition to employment levels, projected growth, and salaries, the table provides a preliminary categorizing of these occupations into PCC's new academic pathways framework.[8] Business, STEM, and healthcare are the pathways that appear most frequently in the list, with business occupations making up most of the list of occupations that typically require a bachelor's degree.

In the Tri-County area, truck drivers are expected to be the occupation requiring postsecondary training (no degree) that has the most openings between 2019-2029 (1,655/year). For occupations typically requiring an associate degree, non-special education preschool teachers are expected to have the most openings (472/year). For occupations typically requiring a bachelor's degree or above, general and operations managers are projected to have the most openings in the Tri-County area (1,949/year).

Most of the occupations that are expected to have a relatively large number of openings between 2019-2029 are in PCC's business, healthcare, or STEM academic pathways and most of the highest paying occupations would typically require a bachelor's degree.

[8] The six academic pathways are arts/humanities, healthcare, business, construction/manufacturing, STEM, and public service/social service.

Exhibit 14. High-demand occupations with the most projected annual openings, by typical education level, Portland Tri-County area

Occupation	2019 Employment	2019-2029 Emp. Growth	2020 Median Annual Salary	Projected Annual Openings	Academic Pathway (preliminary assignment)
Postsecondary training (non-degree)					
Truck Drivers, Heavy and Tractor-Trailer	12,308	13.3%	$ 51,069	1,655	Other
Bookkeeping, Accounting, and Auditing Clerks	11,898	0.6%	$ 46,230	1,399	Business
Medical Assistants	6,077	28.2%	$ 43,323	935	Healthcare
Nursing Assistants	6,493	12.4%	$ 36,697	854	Healthcare
Real Estate Sales Agents	6,844	8.3%	$ 39,015	734	Business
Computer User Support Specialists	5,165	18.9%	$ 56,815	561	STEM
Computer Occupations, All Other	4,472	18.5%	$ 86,013	438	STEM
Automotive Service Technicians and Mechanics	3,880	2.7%	$ 45,511	394	STEM
Massage Therapists	2,412	26.1%	$ 63,298	381	Other
Manicurists and Pedicurists	2,187	17.3%	--	309	Other
Associate degree					
Preschool Teachers, Except Special Education	3,705	18.0%	$ 33,398	472	Public service / social service
Graphic Designers	3,122	15.7%	$ 59,709	385	Arts / humanities
Paralegals and Legal Assistants	2,761	10.5%	$ 61,909	337	Other
Construction Managers	3,618	13.0%	$ 105,030	324	Construction / manufacturing
Electrical and Electronics Engineering Technicians	2,964	5.8%	$ 64,696	314	STEM
Dental Hygienists	1,909	15.8%	$ 93,500	168	Healthcare
Biological Technicians	1,055	9.5%	$ 43,165	126	STEM
Engineering Technicians, Except Drafters, All Other	989	12.3%	$ 58,211	114	STEM
Life, Physical, and Social Science Technicians, All Other	725	11.2%	$ 55,904	99	STEM
Veterinary Technologists and Technicians	848	23.1%	$ 38,994	96	Other
Bachelor's degree or above					
General and Operations Managers	18,242	13.9%	$ 99,673	1,949	Business
Registered Nurses	22,637	12.8%	$ 99,208	1,576	Healthcare
Software Developers, Applications	12,545	33.0%	$ 109,258	1,443	STEM
Business Operations Specialists, All Other	10,901	13.5%	$ 74,118	1,264	Business
Education, Training, and Library Workers, All Other	9,595	3.6%	$ 34,776	943	Public service / social service
Accountants and Auditors	7,898	13.0%	$ 71,753	887	Business
Market Research Analysts and Marketing Specialists	5,801	30.2%	$ 71,845	857	Business
Managers, All Other	7,888	14.2%	$ 100,648	752	Business
Management Analysts	5,266	19.6%	$ 90,640	648	Business
Financial Managers	5,037	23.0%	$122,253	549	Business

Data source: State of Oregon Employment Department, Career Explorer, 2020. Notes: Wages shown for some occupations are for closely related occupations in cases where wage data for the specific occupation are not available. OED defines high demand as "Occupations having more than the median number of total (growth plus replacement) openings for statewide or a particular region."

Enrollment and completion trends at PCC and elsewhere

This section describes enrollment and completion trends at PCC and two-year public institutions in Oregon and the United States.

Postsecondary statistics are reported through a variety of data sources and with varying methodologies. This memorandum relies primarily on data from the Integrated Postsecondary Education Data System (IPEDS), which is maintained by the U.S. Department of Education's National Center for Education Statistics (NCES). IPEDS data are widely used, publicly available, and consistent across the nation.

PCC and the State of Oregon's Higher Education Coordinating Commission (HECC) also provide data and statistics on enrollment and completion. Due to definitional differences and differences in reporting, these data sources often do not align, even for the same statistic. For example, IPEDS and HECC use different definitions of full-time equivalent (FTE) enrollment.[9]

Enrollment in general can be measured in a number of ways, including the following:

- *FTE enrollment*: the number of full-time equivalent students over an academic year
- *Fall enrollment*: the number of students who enroll in a traditional institution in its fall term, sometimes referred to as a "snapshot" count

Each method is useful for different purposes; we reference each in the following section.

Enrollment

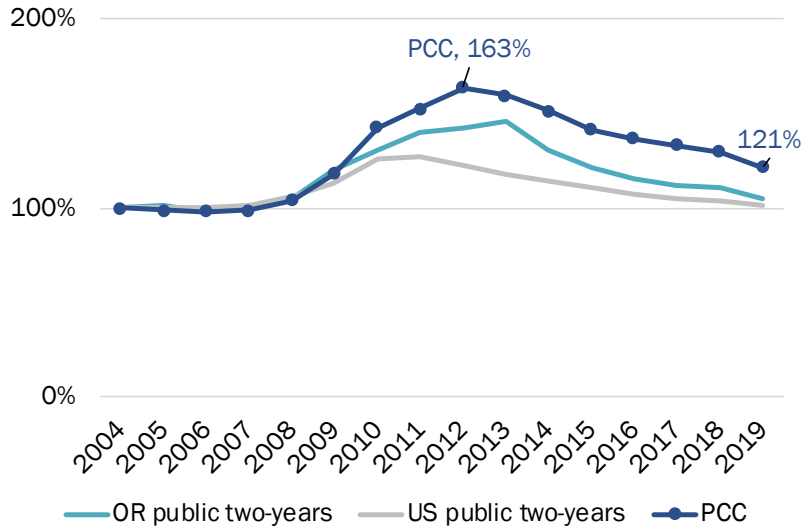
The National Center for Education Statistics published projections of postsecondary enrollment through 2028 in Spring 2020.[10] Total fall enrollment in public two-year institutions was projected to increase by about 3.5 percent from 2017 to 2028, from 5.7 million to 5.9 million enrollees. Public institutions overall were projected to have a smaller relative increase in total fall enrollment over the same time period, about 2.8 percent. The COVID-19 pandemic and coincident recession will affect enrollment over at least the next few years; a section later in this memorandum provides discussion about the pandemic and potential short-term effects on enrollment.

Exhibit 15 shows FTE enrollment for PCC as well as public two-year institutions in Oregon and in the US, indexed to 2004.[11] Since 2010, growth in FTE enrollment at PCC has outpaced the state and the nation. PCC experienced the highest growth in its FTE enrollment in 2012, when

[9] See IPEDS EFIA 2018 data dictionary and the Oregon Higher Education Coordinating Commission "FTE Guidelines for Oregon Community Colleges," 2019.
[10] US Department of Education National Center for Educational Statistics. (May 2020). "Projections of Education Statistics to 2028." Tables 13 and 14.
[11] Throughout this section, PCC is included in the broader categories of OR and US two-year institutions.

enrollment was 163 percent of 2004 levels. In 2019, FTE enrollment was 121 percent of 2004 levels.

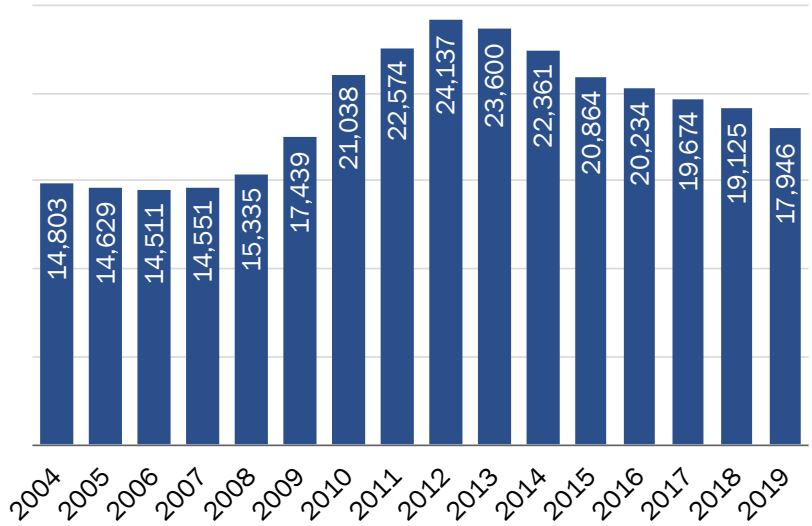
Exhibit 15. Public two-year FTE enrollment indexed to 2004, PCC, Oregon, and US, 2004-2019



Data source: Integrated Postsecondary Education Data System (IPEDS)

Exhibit 16 displays FTE enrollment at PCC from 2004 to 2019. At the beginning of the Great Recession, enrollment at PCC rose rapidly, reaching a peak of more than 24,000 FTE enrollees in 2012. Since that point, FTE enrollment has fallen and leveled off, but remains at higher levels than it was prior to the Recession.

Exhibit 16. PCC FTE enrollment, 2004-2019



Data source: Integrated Postsecondary Education Data System (IPEDS)

Trends in fall enrollment present a more detailed picture of the demographic composition of PCC enrollees than do FTE enrollment data. Exhibit 17 shows counts of PCC fall-enrollees by race/ethnicity from 2009 to 2018. After White enrollees, Asian and Hispanic enrollees and

enrollees with unknown race or ethnicity make up the largest fraction of PCC's fall enrollment between 2009 and 2018.

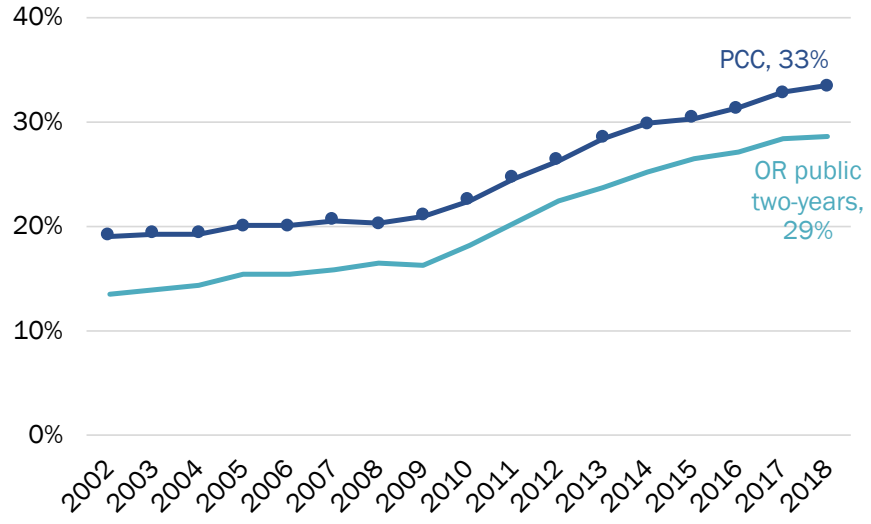
Exhibit 17. PCC fall enrollment by race/ethnicity, 2009 to 2018[12]

Year	AI/AN	Asian	Black	Hispanic	Pac. Isl.	White	Two or more	Other / Unknown	Total
2009	393	2,191	1,530	2,098	42	18,442	97	5,368	30,161
2010	421	2,131	1,692	2,351	104	20,067	507	4,740	32,013
2011	411	2,165	1,934	2,952	153	21,586	935	4,496	34,632
2012	403	2,105	1,904	3,135	160	20,934	1,194	3,932	33,767
2013	344	2,081	1,795	3,351	168	19,998	1,486	3,188	32,411
2014	318	2,125	1,775	3,181	178	18,720	1,655	2,977	30,929
2015	264	2,074	1,453	3,099	173	17,159	1,747	3,034	29,003
2016	220	2,116	1,327	3,305	191	16,513	1,785	3,037	28,494
2017	231	2,156	1,291	3,417	188	15,931	1,925	2,866	28,005
2018	220	2,051	1,273	3,378	180	15,281	1,957	2,706	27,046

Data source: Integrated Postsecondary Education Data System (IPEDS). Note: Other/Unknown comprises nonresident aliens and students whose race and ethnicity are unknown.

The share of enrollees who are American Indian or Alaska Native, Asian, Black or African American, Hispanic or Latino, Native Hawaiian or Other Pacific Islander, or multiracial has been steadily increasing since around 2009. PCC had a higher share of BIPOC enrollees than did Oregon public two-year institutions as a whole, as shown in Exhibit 18. Between 2009 and 2018, the share of BIPOC enrollees rose from 18 percent to 33 percent.

Exhibit 18. Share of fall enrollees that are American Indian or Alaska Native, Asian, Black, Hispanic or Latino, Native Hawaiian or Other Pacific Islander, or multiracial, 2002 to 2018



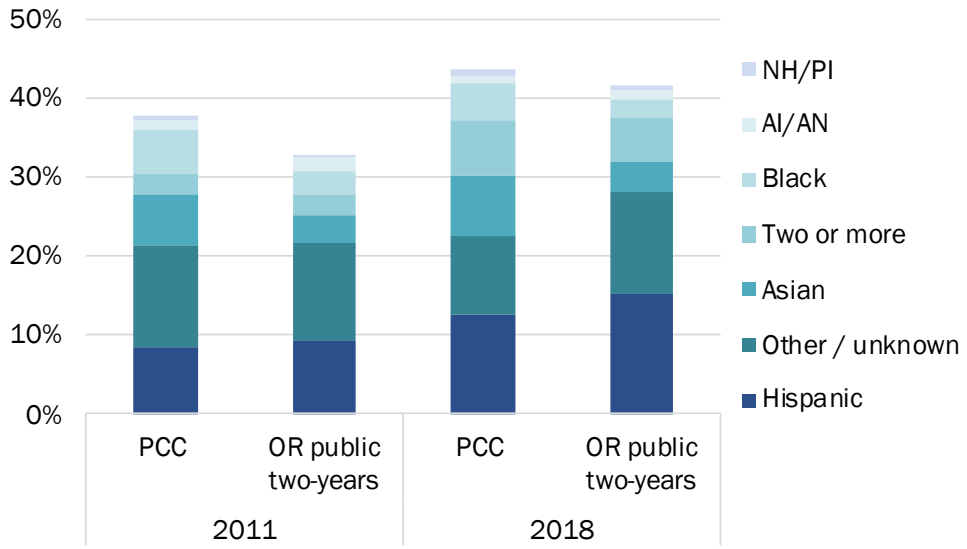
Data source: Integrated Postsecondary Education Data System (IPEDS)

[12] Prior to 2009, IPEDS tracked race and ethnicity differently and did not provide counts for Pacific Islander enrollees nor enrollees of two or more races. For this reason, we only include race/ethnicity data going back to 2009.

Exhibit 19 compares PCC's fall enrollment by race and ethnicity with Oregon's public two-year institutions in 2011 and 2018. Over this period, White fall enrollees (not shown) decreased as a share of all fall enrollees for both PCC and Oregon public two-year institutions. The share of Hispanic and multiracial enrollees grew the most between 2011 and 2018. In 2011, Hispanic fall enrollees accounted for 8.5 percent of PCC fall enrollees; in 2018, Hispanic fall enrollees accounted for 12.5 percent of the total. Similarly, multiracial enrollees accounted for 2.7 percent of fall enrollees in 2011 and 7.2 percent in 2018.

Compared to Oregon's public two-year institutions as a whole, PCC had a more diverse group of fall enrollees in 2011 and 2018. However, the composition of PCC's enrollees differs slightly from that of enrollees at all Oregon public two-year institutions: PCC has a higher share of Asian enrollees and Black enrollees. In 2018, 8 percent of PCC fall enrollees were Asian compared to 4 percent at Oregon public two-year institutions overall and 5 percent of PCC fall enrollees were Black compared to 3 percent at Oregon public two-year institutions overall.

Exhibit 19. Enrollment by race/ethnicity (excluding White enrollees), PCC and Oregon, fall enrollment, 2011 and 2018



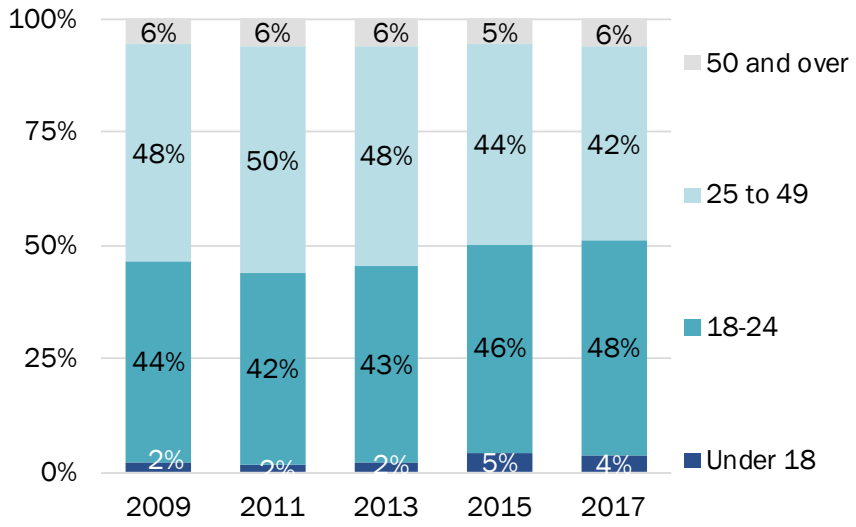
Data source: Integrated Postsecondary Education Data System (IPEDS)

As shown in Exhibit 20, in 2017, almost half of PCC fall enrollees fell into the traditional 18-24 age range for college students. Over 40 percent of fall enrollees were between the ages of 25 to 49 and 10 percent were over the age of 50 or under the age of 18.

Exhibit 21 and Exhibit 22 show part-time fall enrollment as a share of total fall enrollment at PCC, by age and by race/ethnicity. Overall, part-time enrollment at PCC has trended downward, falling from 68 percent in 2003 to 59 percent in 2017. The measure varies considerably by age group, with 18 to 24-year-olds less likely to enroll part-time than 25 to 49-year-olds. The share of older fall enrollees enrolled part-time fell during the years of the Great Recession, a time when older unemployed or underemployed workers were more likely to return to school to acquire additional skills.

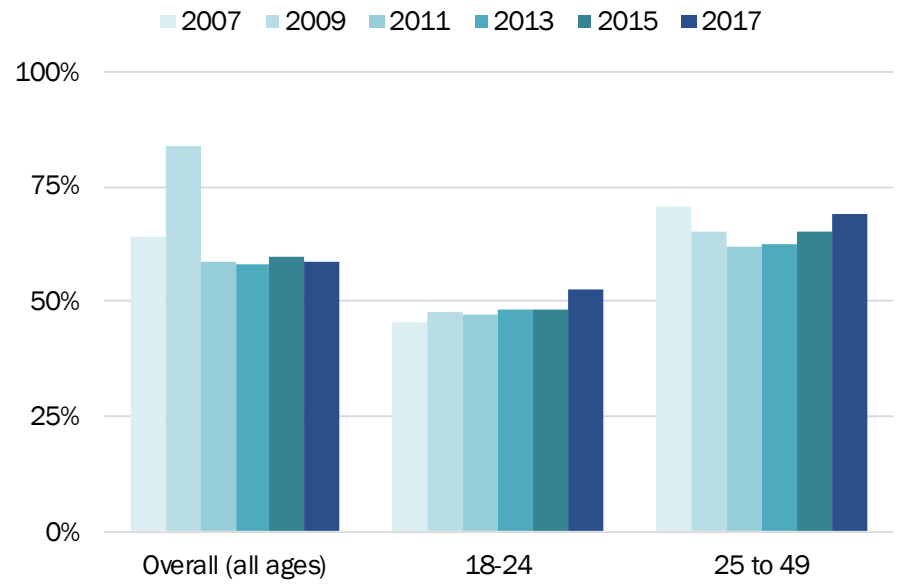
As illustrated in Exhibit 22, part-time enrollment does not vary dramatically by race/ethnicity, with the exception that fall enrollees whose race and ethnicity are not identified enroll part-time at far lower rates than other enrollees. More-complete data on race and ethnicity would be needed to understand more about this group of students.

Exhibit 20. PCC fall enrollment by age, 2009 to 2017[13]



Data source: Integrated Postsecondary Education Data System (IPEDS)

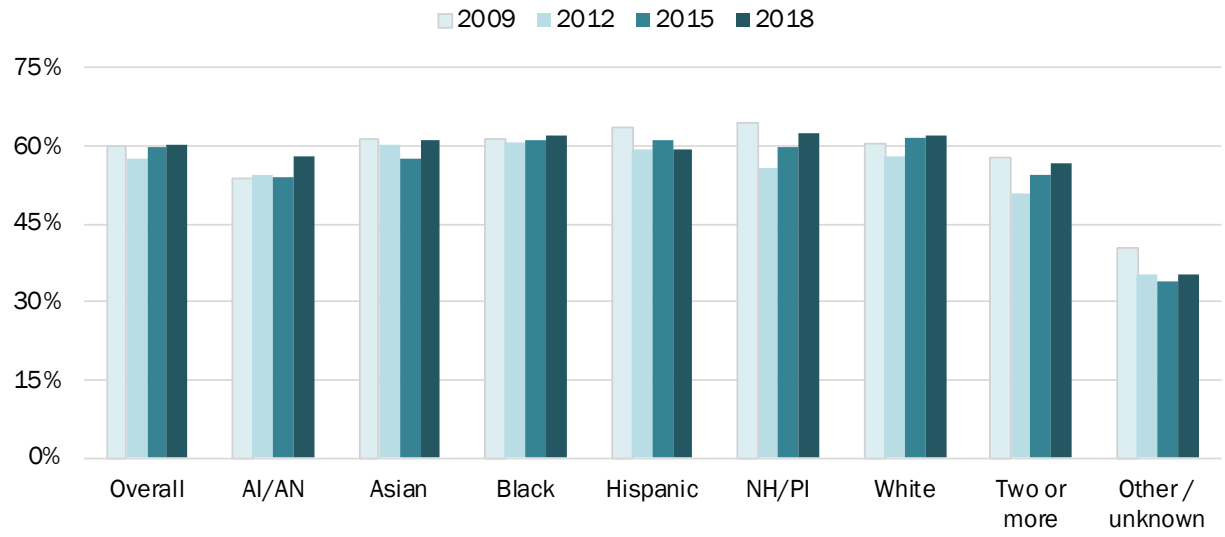
Exhibit 21. Share of PCC students enrolled part time, by age (fall enrollment)



Data source: Integrated Postsecondary Education Data System (IPEDS)

[13] Statistics for enrollment by age are reported for odd years only because submission of enrollment data by age to IPEDS is mandatory in odd-numbered years and optional in even-numbered years. PCC did not submit data to IPEDS for all even years.

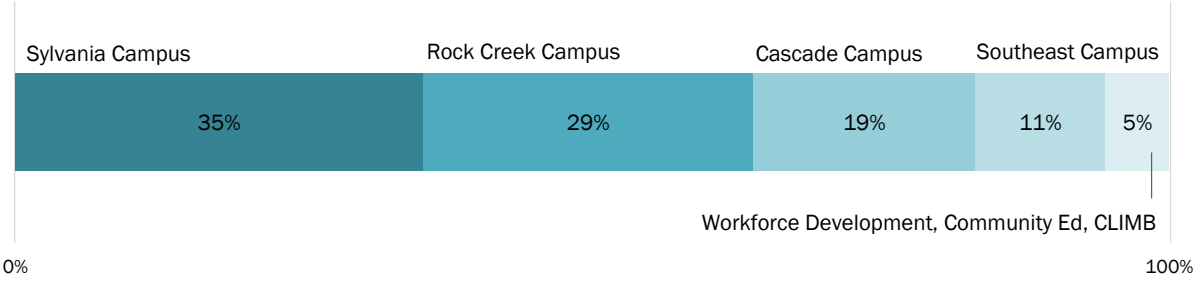
Exhibit 22. Share of PCC students enrolled part time, by race/ethnicity, over time (fall enrollment)



Data source: Integrated Postsecondary Education Data System (IPEDS)

PCC students enroll at four different campuses (see Exhibit 23). In Fall 2018, the Sylvania campus enrolled just over one third of the college's students and Rock Creek enrolled 29 percent. Cascade and Southeast campuses are smaller, hosting 19 and 11 percent of students, respectively, in Fall 2018. The remaining enrollees are workforce development, community education, and CLIMB (Continuing Learning for Individuals, Management & Business) students.

Exhibit 23. PCC enrollment by campus, Fall 2018 FTE

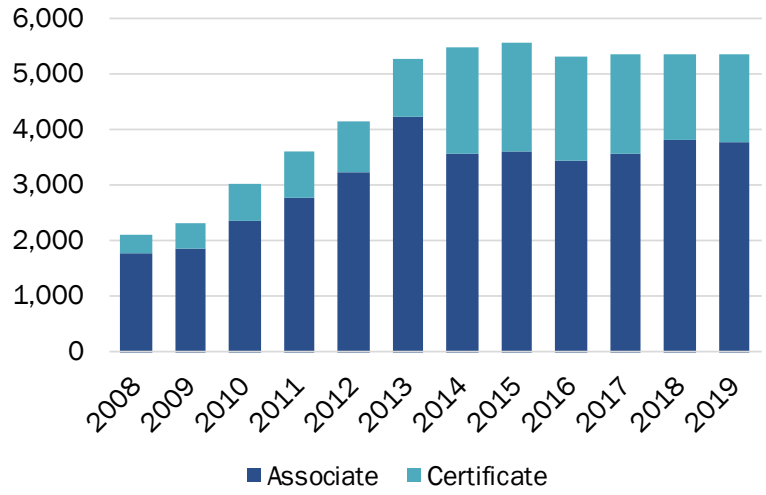


Data source: PCC Office of Institutional Effectiveness, Fall 2018, End of Week 2 by Organization Code

Completions

Exhibit 24 shows associate degree and certificate completions at PCC from 2008 to 2019. The number of completions at PCC rose dramatically between 2008 and 2013 from just over 2,000 completions to more than 5,000. Certificate completions as a share of the total also increased during this time, jumping from 20 percent in 2013 to 35 percent in 2014. Since then, certificates have accounted for between 30 and 35 percent of all PCC completions.

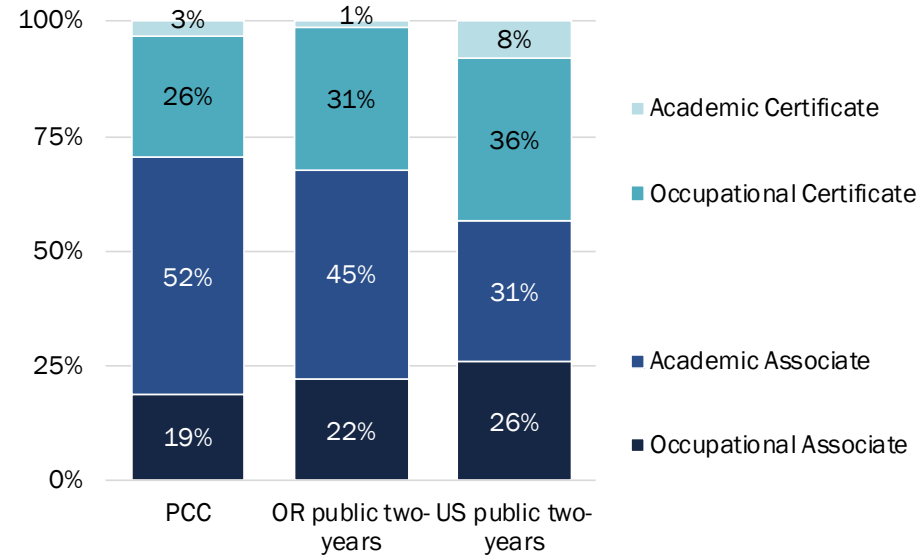
Exhibit 24. PCC completions, by award level, 2008 to 2019



Data source: Integrated Postsecondary Education Data System (IPEDS)

Exhibit 25 displays the distribution of 2019 completions across award level and program type for PCC, for all Oregon public two-year institutions, and for US public two-year institutions.[14] The distribution of PCC completions is similar to that for all Oregon public two-year institutions. Compared to US public two-year institutions as a whole, PCC and Oregon public two-year institutions had higher shares of completions that were associate degrees (71 and 67 percent for PCC and Oregon institutions versus 57 percent for US institutions).

Exhibit 25. Occupational and academic completions, by award level, PCC, Oregon, US, 2019

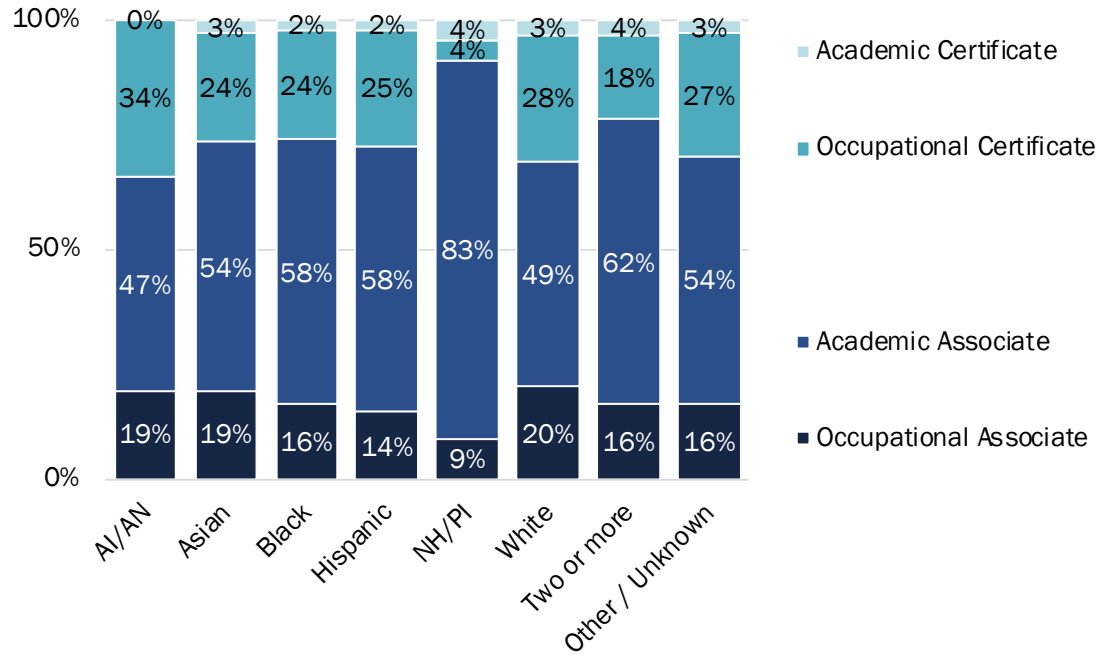


Data source: Integrated Postsecondary Education Data System (IPEDS)

[14] We used classification of instructional program (CIP) codes to classify a completion as occupational or academic using the NCES definition of occupational and academic CIP codes. Retrieved from: https://nces.ed.gov/surveys/ctes/tables/postsec_tax.asp

The completion distributions for PCC's race/ethnicity groups look largely similar to the distribution for the whole population (see Exhibit 26). Across all reported races and ethnicities, the majority of completions were associate degrees and about half or more were academic associate degrees. Native Hawaiian or Other Pacific Islander completers stand out, with 83 percent completing an academic associate degree, but the group is small (23 completers in 2019).

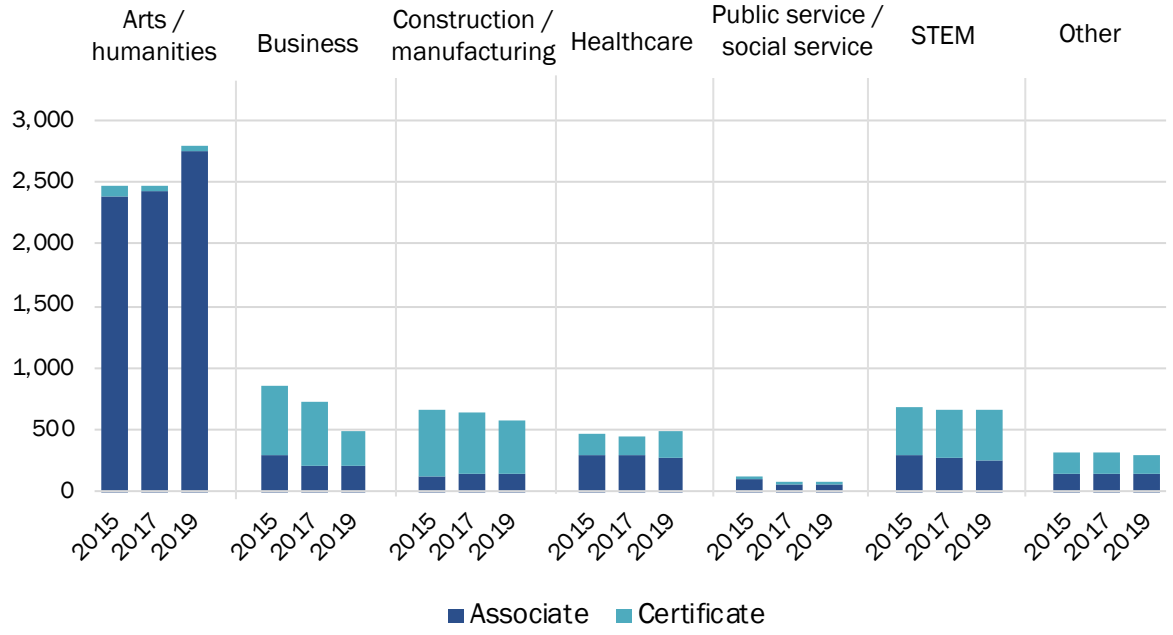
Exhibit 26. PCC occupational and academic completions, by race/ethnicity and award level, 2019



Data source: Integrated Postsecondary Education Data System (IPEDS)

Exhibit 27 presents a preliminary categorization of PCC completions by PCC academic pathway and shows what portion of completions are associate degrees versus certificates. Completions in arts/humanities are by far the most common type of completion, accounting for about half of all PCC completions in 2019. Nearly all completions in arts/humanities are associate degrees. Certificates are more common in other PCC pathways and account for the majority of completions in construction/manufacturing and business.

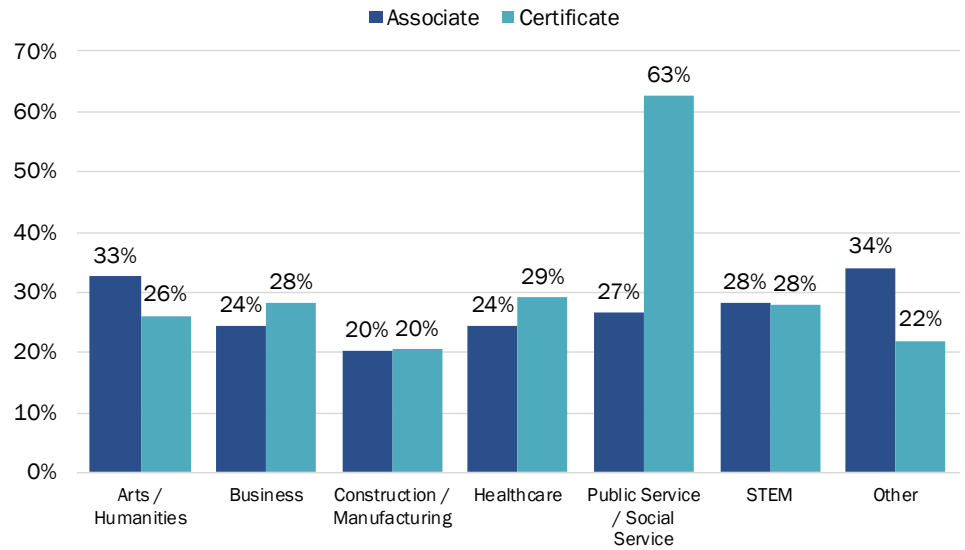
Exhibit 27. PCC completions by PCC pathway and award level, 2015 to 2019



Data source: Integrated Postsecondary Education Data System (IPEDS) and NCES Classification of Instructional Program (CIP) codes

Exhibit 28 shows the preliminary categorization of completions by PCC pathway for BIPOC completers. Certificate completions in the public service / social service pathway had the highest share of completers in these populations, at 63 percent, although the total number of certificates in this category is small (16 certificates).

Exhibit 28. Share of 2019 completions awarded to students in the following groups, by PCC pathway: American Indian or Alaska Native, Asian, Black, Hispanic or Latino, Native Hawaiian or Other Pacific Islander, or multiracial



Data source: Integrated Postsecondary Education Data System (IPEDS) and NCES Classification of Instructional Program (CIP) codes.

COVID-19

The COVID-19 pandemic and coincident recession have dramatically changed daily life for individuals and the operations of institutions around the world. During the Spring of 2020, most postsecondary institutions transitioned quickly from in-person to virtual learning. Those that remained open or have since reopened have faced increased costs to implement extensive safety protocols to limit COVID-19 spread among students on campus and, in many cases, to increase capacity and quality of their virtual learning platforms. These increased costs come in the context of potentially severe cuts in public funding and a steep acceleration in the enrollment decline seen over the last several years. Fall 2020 enrollment at PCC was 18.4 percent below that of Fall 2019;[15] the National Student Clearinghouse reports that undergraduate enrollment is down 4 percent nationwide and 9 percent among public two-year institutions.[16]

In this environment, forecasts of economic activity and human behavior (e.g., intrastate, interstate, and international migration; enrollment) come with an additional level of uncertainty. Over the next several years, the extent to which activities return to pre-pandemic "normal" depends critically on the timing and distribution of a vaccine, as well as on state and federal fiscal policy to mitigate against the worst economic effects of the virus. At the same time, it is increasingly clear that the pandemic has accelerated preexisting education and labor market trends. We anticipate much of the resultant change will persist, with important consequences for higher education. These trends include the following:

- Increased reliance on technology by employers and in the delivery of education
- Increased importance of options for retraining incumbent workers and workers displaced by the pandemic and future shocks to the economy
- Continued shift toward enrollment of older, less-traditional demographics

Although difficult to quantify precisely, we will consider these and related trends as we complete the enrollment forecast and enrollment demand study.

Enrollment task options

The analysis presented above provides a high-level overview of the major demographic and economic trends evident in the available historical data as well as trends anticipated over the coming decades. We will consider these and other trends as we complete the enrollment study described for Task 2.6. Doing so will, however, require additional data and additional analysis. In this final section we describe a range of potential analyses and the additional data, if any, needed to complete each analysis.

[15] Fall 2020 FTE compared to Fall 2019 FTE, see https://www.pcc.edu/institutional-effectiveness/enrollment/term/fall-2020/end-of-week-2-by-organization-code/

[16] September 2020 compared to September 2019, see https://nscresearchcenter.org/stay-informed/ (accessed October 22, 2020); NSC data for Oregon are incomplete and not reported by NSC.

Depending on the details, a deep and comprehensive analysis in any of the categories listed below could require all of the resources available for this work, including the potential budget available for the contingent task. We believe that a portfolio approach, with the depth of analysis for each component tailored to the interests and needs of PCC and determined by the available budget, will prove most useful. Feedback on these options from the PCC team will guide our analyses so as to maximize the value of our findings to PCC.

Basic enrollment modeling and employment analysis

Completing Task 2.6 requires a student enrollment projection that, at a minimum, provides a prediction for total FTE enrollment at PCC by race and ethnicity for selected years through 2050. We will also produce a more detailed analysis of future occupational demand that highlights the potential role of PCC programs in developing the local labor force and in preparing PCC students for careers in and beyond the Portland region. We can complete these analytic tasks using available data.

Below we describe possible extensions to the enrollment modeling and employment analysis. Feedback and input from PCC project staff on these options will help us allocate project resources across these options to best align with PCC priorities. This allocation will not necessarily include each option described below.

Enrollment modeling options

We could enhance and extend the enrollment projections work in the following ways:

Pathway and program

- Publicly available data about credential completion by major would allow us to estimate current and future enrollment by program by race and ethnicity to enhance our overall projection, providing PCC with information about likely need for capacity by pathway and selected programs within each pathway. These predictions require certain assumptions about program availability (e.g., if not taken into account, the fact that PCC doesn't plan to offer a specific program in the future despite preexisting trends suggesting increasing demand for that program would undermine the usefulness of the forecast). We will collaborate with PCC staff to develop these assumptions.
- Student-level course enrollment data would add significant value to pathway- and program-specific predictions. These data provide more-accurate enrollment information overall and by student demographics than do the publicly available completion data. We are currently working with the Office of Institutional Effectiveness to understand the data limitations and process and feasibility of obtaining data for this more detailed analysis.

Geography

At present we have minimal data about PCC student enrollment and sub-regional geography. Additional aggregate data by campus would allow us to allocate the top-level enrollment projection across PCC locations, consistent with capacity assumptions developed in conjunction

with PCC. Student-level data would considerably expand the options for characterizing enrollment by campus and/or by location of student residence:

- Geospatial analysis of enrollment by location of student residence would allow us to quantify the proximity of current students to existing facilities and facilities under construction, the demographics of enrollees relative to the demographics of their neighborhood, and other factors that address equitable access to PCC programs.
- Linking program of enrollment to location of residence would provide information useful for siting decisions about programs PCC intends to offer at only a subset of its campuses. It could also inform the alternative land use study in Task 2.9.

We are exploring options for obtaining these data from the Office of Institutional Effectiveness.

Employment analysis options

We could enhance and extend the employment analysis in the following ways:

- A pipeline analysis based in part on enrollment (requiring additional data from PCC) and/or completion (based on publicly available data) by program would identify current and anticipated need for workers with specific credentials, and highlight gaps between the employer demand and the supply, or flow of trained/credentialed individuals from PCC. This analysis could be extended beyond the local level to characterize the potential role of PCC programming in filling regional and state workforce "talent" pipelines.
- Geospatial analysis of employment by industry would provide PCC with information about concentrations of employment in selected industries by location of employment. This analysis, based on Longitudinal Employer-Household Dynamics (LEHD) data published by the United States Census Bureau, could support site selection for relevant programs. Confidential data from OED could further refine this analysis (we would need to discuss feasibility with OED).
- A similar analysis by location of employee residence, based on publicly available data, would provide similar value, allowing PCC to consider siting programs relative to where workers currently live, which could be particularly useful for programs that target skill improvement for incumbent workers.